

studies

**Report of the study group
on the role of public finance
in European integration**

***Volume II : Individual contributions
and working papers***

This report examines a main – but until now largely neglected – aspect of economic integration, namely the role of public finance. In so doing, it goes beyond the more familiar terrain of free trade and monetary integration.

A major part of the work of the Study Group has been a thorough study of public finance in various federations and unitary states. Financial relationships between levels of government and the economic effects of public finance on regions within countries merited special attention.

Based on this analysis, the theoretical literature on “fiscal federalism” and given the political will for further economic integration (falling short, however, of monetary union), certain changes in Community expenditures and revenues during the “pre-federal integration” phase are suggested, particularly extension of expenditures on structural, cyclical, employment and regional policies through more participation in regional policy aid, and in labour market policies, a Community unemployment fund, a limited budget equalisation scheme, cyclical grants to local or regional governments and a conjunctural convergence facility. The net cost of these suggestions would lead to a rise in the Community budget from its present 0.7 % to around 2 – 2½ % of Community GDP.

For more ambitious plans the Community budget would have to be extended by far more to provide sufficient geographical equalisation of productivity and living standards together with cushioning of temporary fluctuations, in the absence of which, monetary union in particular would be unattainable.

COMMISSION OF THE EUROPEAN COMMUNITIES

**Report of the study group
on the role of public finance
in European integration**

*Volume II : Individual contributions
and working papers*

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This report has been prepared by a group of independent experts set up by the Commission. The opinions expressed in this report remain the sole responsibility of the group and not that of the Commission and its services.

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PREFACE

At the end of 1974 the Commission asked a group of independent economists (Professors Biehl, Brown, Forte, Fréville, O'Donoghue and Peeters, and Sir Donald MacDougall as Chairman) to examine the future role of public finance at the Community level in the general context of European economic integration.

The Study Group held fourteen meetings from April 1975 to March 1977. Officials of several Directorates-General of the Commission also took part in these meetings (Economic and Financial Affairs, Regional Policy, Budget, Financial Institutions and Taxation). The Group also had the benefit of discussions with two expert consultants from the United States (Professor Oates) and Australia (Professor Mathews).

The results of the work are presented in two volumes. The first volume contains the General Report, including an Introduction and Summary, all of which have been unanimously agreed by the members of the Study Group.

The General Report draws heavily on the much larger body of evidence and analysis contained in this second volume. It consists of individual contributions by the members of the Study Group, and the two expert consultants from the United States and Australia. It also contains working papers contributed at the request of the Group by its secretariat of officials from the Directorate-General for Economic and Financial Affairs of the Commission. While the authors of the individual chapters in the second volume take final responsibility for them, they have all benefitted from detailed discussion by the Group as a whole.

COMPOSITION OF THE GROUP

Members :

Sir Donald MacDougall	Chief Economic Adviser of the Confederation of British Industry, London (Chairman)
Dieter Biehl	Professor at the Technische Universität, Berlin
Arthur Brown	Professor at the University of Leeds, Leeds
Francesco Forte	Professor at the University of Turin, Turin
Yves Fréville	Professor at the University of Rennes, Rennes
Martin O'Donoghue	Professor at Trinity College, Dublin
Theo Peeters	Professor at the University of Louvain

The following also participated :

Russell Mathews	Professor at the Australian National University, Canberra
Wallace Oates	Professor at Princeton University, Princeton

Secretariat from the Directorate-General for Economic and Financial Affairs :

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(2) Original language French (other chapters were drafted originally in English).

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A. STUDIES ON THE INTER-REGIONAL ASPECTS OF

PUBLIC FINANCE

IN EXISTING FEDERAL AND UNITARY STATES

Chapter 1

UNITED KINGDOM

by

A.J. Brown

THE INTERREGIONAL ROLE OF PUBLIC FINANCE IN THE UNITED KINGDOM

Interregional movements of public funds may be regarded as being important for two reasons. First, the ways in which they are related to changes in income and expenditure of the regions give them a part in stabilising or destabilising relative changes in regional levels of economic activity. Second, the average rates of flow over periods of time affect the relative levels of living in the various regions. These two aspects may be examined in turn.

1. The Stabilising function of Public Finance

This has to be seen in the light of the fact that the economies of the United Kingdom regions are very "open" - the ratio of their external to their internal transactions is very high. This works in two directions. On the one hand it means that the regions are liable to encounter large disturbances from outside ; on the other it means that any change in flows of funds within a region is likely to be dissipated through the other regions of the country, and abroad ; in other words the multipliers are likely to be small.

So far as the 'openness' of regional economies is concerned, precise information is lacking in most cases. Only for Northern Ireland are there records of imports and exports of merchandise on a basis similar to that of international trade statistics. But for other regions some very rough indications of orders of magnitude can be derived from surveys of movements of goods by road and rail and such data as there are about coastwise shipping. The results can be expressed as the ratio of the average of a region's imports and exports of merchandise to its gross domestic product. For Northern Ireland and Scotland this ratio is about 0.8, for the South-East (with a GDP some three times as big as that for the 'average' region) perhaps slightly smaller, for the other English regions and for Wales decidedly larger, rising to 1.5 or more for those which are most centrally located. This means that the least open United Kingdom regions are comparable in this respect with Luxembourg, (which is smaller in both area and GDP) while the rest are up to twice as open, and are thus from three to five times as open as such countries (broadly comparable with them in size of GDP) as Norway, Denmark, or the Republic of Ireland.

Payments to and from the central government are a further source of 'openness' in regional economies additional to those which operate in independent countries. In the U.K., payments to, and disbursements by the central government are each some 35 per cent of GDP in the country as a whole, and something like this must be true of individual regions - the extent to which regions pay, or receive, more or less than the share corresponding to their population or GDP obviously affects their level of disposable income, while the sensitiveness of these payments to changes in their GDP can have a powerful feedback effect on those changes, to which we shall have to return.

Factor movements between regions are also freer, in general, than those between separate countries. From the U.K. as a whole, one resident in about 170 may be expected to emigrate overseas each year, and the same is true, by definition of a 'representative' region, though the propensity to emigrate overseas is in fact much greater from some regions than from others. But, in addition, one resident in about 130 may be expected to emigrate from the 'representative' region to other U.K. regions. The total propensity to leave a region is thus some 2 - 2 1/4 times as great as that to emigrate from the country as a whole. On interregional movements of capital there are no comprehensive data. It is, however, possible to compare the interregional 'moves' of manufacturing industry with those moves that originate from parent organisations outside the U.K. (a 'move' being either a simple geographical transfer of an establishment or, more commonly, the setting-up of a branch establishment distant from a 'parent' establishment which continues in being). In the period 1945-65, of the 'moves' to destinations in the United Kingdom which survived to the end of that period, about six times as many came from other regions in the U.K. as came from abroad. If one looks, not at the number of moves, but at the total employment they provided, the interregional group emerges as about four times as important as the international.

To see how the greater openness of the regional economy, as opposed to the national, affects its vulnerability to changes in external demand for its products, it is perhaps best to consider an example which, while hypothetical, is constructed as far as possible from empirical U.K. data. Suppose that a United Kingdom region loses £10 million of orders for finished motor vehicles. The loss of value added in the motor industry in the region will be about £ 2.7 million. The loss of value added in other industries in the region which supply inputs directly or indirectly for its vehicle industry may well, in a typical region other than those in which the component industries are most concentrated, be something like £ 1.3 million, giving a loss of value added attributable directly to the reduced vehicle output of some £ 4 million.

For the country as a whole, the loss of value added in the vehicle industry itself will still, of course, be £ 2.7 million, but the loss in other industries supplying inputs to it directly or indirectly will (according to the 1963 Input Output Tables) be about £5.8 million, making a loss of £ 8.5 million in all. (The differences between this and the £10 million fall in orders is accounted for by imported inputs and, to a small extent, by indirect taxation)

These falls in value added will generate falls in that of other industries through the Keynesian multiplier mechanism. To assess the size of the relevant multipliers, one has, in the case of the country as a whole, to take into account the 'leakages' of purchasing-power into taxation, profits paid abroad, imports, and savings ; also the offsetting effect of additional payments on account of unemployment

benefit and supplementary benefit brought into existence by the fall in demand for labour and the increase of poverty. On the available information about these leakages and offsets, it seems that the appropriate short-term multiplier for the country as a whole is about 1.4 ; that is to say the primary fall of £8.5 million in national value added generates a secondary fall of about £3.4 million, making £11.9 million in all.

The corresponding Keynesian multiplier for the region is smaller, because, in addition to the leakages into taxation, savings, profits paid abroad, and overseas imports, and the offsets from unemployment benefit etc., which can be taken as being the same (in relation to the primary fall in income) as for the country as a whole, there is a leakage of profits into other regions, and a further leakage into imports purchased from them. The best estimate the writer has been able to make is that, typically, this reduces the appropriate multiplier to about 1.2. The primary income-fall of £4 million is therefore supplemented only by a secondary fall of £0.8 million, making £4.8 million in all. The national fall in value added is therefore about 2 1/2 times the regional one ; the ratio of the corresponding reductions in employment may well be similar. Or, to put the same thing in another way, although we have supposed the reduction in orders for motor vehicles to fall entirely upon establishments situated in one region in the first instance, the resulting fall in value added and probably in employment occurs as to only 40 per cent in that region and as to 60 per cent in the rest of the country (ignoring the further fall which takes place abroad on account of the reduction of United Kingdom imports).

To counterbalance the greater extent to which a region is padded against the impact of falling external sales, however, there is the greater extent to which, by virtue of its openness, it is at the mercy of external demand. The British regions are probably from four to eight times as open in this respect as the national economy is. They achieve this very great degree of openness, with exports greater in value than their total domestic products, by specialising on export goods with a very high import content ; their contribution of value added is small in relation to the gross selling value of their exports. Precise data are lacking, but a better idea of the greatest extent to which a region can be at risk may be obtained by considering, not the gross value of its exports, but its value added. Perhaps as much as half of this might, in an extreme case be embodied in goods and services exported from the region ; the rest is almost certain to be put into goods and services for the local market, which either in principle cannot be, or in practice are not, seriously in competition with external goods and services. In the U.K., the proportion of national value added that in fact goes into exports of goods and services is about one sixth. A region might, therefore, be three times as liable to primary reductions in its income and employment, in proportion to its size, as the United Kingdom is. Even allowing for the smaller secondary

change of income, in relation to the primary change, and for the fact that a much larger share of the change in profits generated in the region is likely to be remitted elsewhere, it seems that regional income is likely to be considerably more liable to externally initiated short-term fluctuations than is national income.

The basis of this argument, relating to the short run, has, however, been the treatment of changes in the public sector's account in exactly the same way as changes in the external account. Primary changes in a region's income are cushioned (apart from the effects of changes in its internal savings) by improvements in its balance of payments both with the national government and with the rest of the outside world - falling taxes and imports, rising receipts of welfare payments. An economy without a public sector adjusts to a fall in external demand for its products by reducing its income to such an extent as to bring its imports down into line with its exports. The necessary fall in income is reduced in so far as the economy's products can be substituted for those in the outside world, - a process which requires either flexible prices (including factor prices), flexible exchange rates, or an ability to erect trade barriers. If the economy has a public sector which cushions the fall in income through reduced taxation and maintained or increased expenditure, thus keeping demand for imports higher than it would otherwise be, then either there must be borrowing from outside, or the need arises for some means of substituting the economy's products for those of other economies.

The regions of the United Kingdom have, of course, no means of adjusting their exchange-rates or erecting trade-barriers in case of depression ; nor do their relative levels of wages (and presumably costs) appear to have any considerable short-term flexibility - over the decade and a half for which they are available, indices of hourly earnings run nearly parallel to each other in the various regions. To the extent that central government maintains a region's effective demand, it does so by transfers to it, financed (if its total budget is in balance) by the surplus of tax payments over central expenditure in those other regions which are relatively prosperous.

The country as a whole, on the other hand, has means, at least in principle of diverting demand by manipulating its exchange-rate, or letting it respond to market forces, and of adjusting trade barriers, but these are instruments which would lose in an economic and monetary union. In those circumstances, and in the absence of any substantial built-in stabiliser operating through Community revenue and expenditure, the U.K. could itself maintain its internal demand in the face of a fall in demand for its exports only by borrowing from outside. If such borrowing was not possible, there could be no cushioning of the full effects of the fall.

To suppose that, within an economic and monetary union, a country could not borrow externally at all when its economy was relatively depressed (presumably repaying when it was relatively prosperous) is certainly extreme. It is worth noting, however, that in this admittedly extreme case, the United Kingdom would presumably have to reduce its GDP by about four times the amount of any fall in its export earnings (or say, five times the associated primary fall in value added) in order to bring its imports down correspondingly.

We can therefore make the following comparison :

On the assumption that interregional trade is subject to much the same percentage variations as international trade, a typical U.K. region is perhaps as likely to suffer a 3 per cent primary fall in demand for its factors through external competition as the country as a whole is to suffer a similar fall of 1 per cent. The multiplier, however, is likely to increase this only to, perhaps, 3.6 per cent. Reduction in the amount of profit paid outside the region, and in taxation, together with increased welfare receipts from the central government may well bring its loss of disposable personal income down to about 1 per cent of GDP.

A country the size of the U.K, suffering a 1 per cent fall of demand for its factors of production through competition or depression in its export markets, might, with its existing system of taxation and benefits in operation, find its factor incomes reduced by about 1.4 per cent and personal disposable incomes by perhaps as little as 0.5 per cent. This, however, would be at the expense of a deterioration in its balance of payments amounting to something between 0.5 and 1 per cent of GDP. If, to take the most extreme case, it were unable to finance any of this by borrowing, and could not use the price mechanism or trade barriers to promote substitution of its goods and services for external ones, then it could bring its imports down to match its exports only by a fall in GDP of perhaps 5 per cent, with a similar fall in personal disposable income.

It seems then that a typical region of the United Kingdom is subject, by virtue of the great openness of its economy, to probably more instability of employment and disposable income than the country as a whole, provided that the latter is able to ignore fluctuations in its balance of payments, meeting them by borrowing and repayment. But in a situation in which variations in total demand had to be used to adjust imports to fluctuations in exports to any large extent, the U.K. would, despite its smaller degree of openness, suffer greater (possibly very much greater) instability of employment and disposable income than its regions do now.

The low value of the multipliers is very largely due to taxation and poverty-related benefits. In the case of a typical region, the multiplier without these influences might be perhaps 1.6 ; with them it is about 1.2. For the U.K. as a whole the multiplier without any public sector might be about 2.6 ; in fact it is about 1.4.

It should perhaps be emphasised that what has been under discussion so far is short-term stability, the short term for this purpose being perhaps best defined as that in which the populations and fixed capital equipments of the areas under consideration can be taken as given. In the longer run (from decade to decade rather than year to year) substantial movements of both people and jobs can take place. Mobility of population between regions has the effect of making multipliers larger than in the short term. Where the working population of a region is increased, rather than more of the existing population being employed, or those in work doing more overtime, average rather than marginal rates of tax become relevant to the increase in income, and there is less offset (possibly a negative offset) from welfare payments made into the region by the central government. Changes in expenditure on social capital are also induced by population-changes ; while one might expect these to be related to the rate of change rather than the level of population (a capital stock adjustment effect), in practice, in the U.K., what happens is not easily distinguishable from a lagged response directly to numbers. The effect of these differences is to raise the Keynesian multiplier for a region from its short-term value of about 1.2 to something more like 1.8 or 1.9.

Permanent loss of part of a region's 'export' markets, therefore, produces a loss of both employment and disposable income which builds up over a number of years to levels considerably higher than have been suggested above as the immediate results of a sudden loss of markets. One might suppose that movement of jobs, in search of plentiful supplies of labour, would provide an additional moderating influence in the slightly longer run, but analysis of such movements in the U.K. in a period when regional policy was not very active suggests very little, if any, systematic tendency of this kind. Certainly the movement of jobs in response to interregional differences in labour-market conditions is, in the absence of fairly vigorous government policy to promote it, very much less than the systematic movement of labour. Moreover, where differences in regional prosperity are very persistent, some de-stabilising factors come into operation. Regions of slow growth show a higher average age of social capital and a greater incidence of derelict industrial plant and mining sites than do regions of rapid growth, and, in so far as it is the young and enterprising members of the population who are most mobile, slowly-growing regions are likely also to have older and less adaptable workforces. These characteristics make them less attractive for mobile industrial or commercial enterprise. It is considerations such as these, rather than any lack of stability of regional incomes in the face of short-run fluctuations in demand, that creates a need for regional policy.

2. The Equalising function of Public Finance

The regions of the United Kingdom do not, in comparison with those of most other countries, show very wide differences in the real product per head, those in average level of living are still smaller. The differences that have been most important in their effect on public opinion are probably those in unemployment (or, more generally in employment opportunities), followed in order of significance by differences in rate of growth of employment and in the incidence of outward migration.

In real product per head of the total population, Northern Ireland is in a class of its own with a level some 36 per cent below the national average, but all the British regions lie within a range of between 8 - 11 per cent above that average (The West Midlands and the South-East respectively) and 10 - 14 per cent below (the North, Wales, the South-West, Scotland) with the East Midlands, Yorkshire and Humberside and the North-West near to the average. (see Table 1).

These differences owe something to age-structure ; Northern Ireland, in particular, has a lower proportion of its population in the active age-groups than the country as a whole. A larger amount of the difference is attributable to differences in labour-force participation rates, almost entirely of women. These are highest in the most prosperous regions (the South-East and West Midlands) and lowest in some of the poorest (Northern Ireland, Wales, the North), though they are also high in the North West, which is less prosperous. Unemployment is also broadly associated with low income per head across regions. The regional averages of output per head of the labour force in work are therefore confined to a narrower range than those of output per head of total regional population. Northern Ireland falls only some 23 per cent below the national average, Scotland less than 10 per cent below, and the South-East only 5 or 6 per cent above. These productivity differences, in turn, owe something directly to differences of industrial composition (i.e. to heavy concentration on industries of generally high or low net output per head), but not very much. The influence of industrial structure is probably exercised to a considerable extent indirectly, concentration on an unprosperous industry, for instance, tending to depress productivity in other industries in the region below its level elsewhere.

The last three paragraphs relate to income produced in the different regions in the strict sense that it is produced in workplaces located in them. The interregional distribution of income according to its ownership is different, not so much because of interregional commuting (negligible factor), but much more through interregional transfers of rent, dividends, interest, and occupational pensions. How much of each of these kinds of income is received in each region is, broadly, known, but the sources are not. It has to be assumed that, for instance, dividends and interest paid by industry and commerce originate in the various regions in proportion to the gross surpluses

that are generated in them.

On this assumption (and using 1961 data) it has been estimated that the gross domestic products of South-East England and the South-West were both supplemented by net inward transfers of property income and occupational pensions from the rest of the country and the outside world to the extent of 4 or 6 per cent ; Scotland and Northern Ireland virtually broke even ; the remaining regions - the two midland regions, the North, the North-West, Yorkshire and Humberside, and Wales - provided net outward transfers, ranging from about 3 to 5 per cent of their gross domestic products. The total net transfer into the two southern regions from the rest of the country probably amounts to about 2 per cent of the national gross domestic product.

The per capita incomes from work and property received by residents in the various regions (approximately, their per capita gross regional products) therefore differ somewhat from their per capita gross domestic products. There is a greater degree of interregional inequality in as much as the regions of lowest GDP receive little net property income, or, in the case of Wales and the North, make net outward payments, while South-East England, with the highest GDP, received a considerable amount, and so has a GRP approximately 75 per cent higher than that of Northern Ireland, and some 35 per cent above those of Scotland, Wales, or the North. These are the basic differences upon which transfers through the channels of public finance operate.

Part of the redistribution of income through these channels arises from differences in the incidence of taxation. In 1964, total public sector receipts per head of the population in South-East England were some 85 per cent higher than in Northern Ireland and about 45 per cent higher than in Wales or the North. Taxation (or rather, total public sector revenue) is mildly progressive as between regions ; a rise of 10 per cent in per capita GRP is associated with a rise of perhaps 11 per cent in per capita public revenue. There are considerable irregularities clouding this relation, since different regions have different income distributions (some, for instance, have more very wealthy residents than others in relation to their average income), and they have different consumption habits - some drink more spirits than others. Scotland seems to pay rather heavy taxes in relation to its average income, the East Midlands rather little ; but taxation does slightly reduce the coefficient of variation of mean regional incomes.

When one comes to the return flow of public expenditure to the regions, there are three concepts to distinguish. The first is the simple one of cash transfer payments to residents in the regions , in the form of welfare payments, state pensions, debt interest and subsidies and grants to industrial establishments (with a rough adjustment for Regional Employment Premium and other regional grants and subsidies introduced since the study on which this note is mainly based).

The effect of these is quite powerful in the direction of equalisation. Scotland and Northern Ireland receive, in round figures, about a third as much again per head as South-East England, and half as much again as the West Midlands : Wales, the North, and the South-West also get substantially more than average. An element in the total which exerts a regressive effect is interest on the public debt, paid to persons ; South-East England apparently possessing a high concentration of recipients. This, together with agricultural subsidies, is the main reason why the South-West also does well ; but agricultural subsidies exert by far their largest proportionate effect in Northern Ireland.

The second concept of the return flow to regions includes public expenditure on goods and services which has an effect on regional rather than the general national welfare. This expenditure may be taken as including all that on the social services and on the formation of social capital ; but not where the services of the latter are sold at an economic price, apart from subsidies which are counted elsewhere. Expenditure on building hospitals and schools, for instance, is to be included but not that on publicly-owned dwellings. Expenditure on central administration and defence is included at a notional rate equal to the average per capita cost for the whole country, on the ground that the per capita benefits of these expenditures are the same in all regions, though the expenditures themselves are not. Current per capita expenditure of the kinds included does not seem to vary much from one region to another. The variations appear to be somewhat greater with capital expenditure, and to favour the less affluent regions, but with considerable year to year variation in their distribution.

Putting together the cash transfers and the 'regionally beneficial' expenditure on goods and services, so as to get a total of 'regionally beneficial' expenditure, one finds a very substantial total redistributive effect. Wales, Northern Ireland and Scotland receive at least 15 per cent more per head, absolutely than South-East England and the West Midlands.

The total redistributive effect is, of course, due to the effects of taxation and regionally beneficial expenditure together, still taking the benefits of expenditure on central government administration and defence as being evenly spread over the whole population. It seems on this basis of reckoning that only two regions - the West Midlands and South-East England - make a net positive contribution ; the others are net recipients. Each of the two contributes a net sum equal to 7 - 8 per cent of its gross regional product ; their total contribution amounts to some 3 - 3 1/2 per cent of the gross national product. The extent to which this supplements the gross regional product of the receiving regions varies widely. Yorkshire and Humberside, the West Midlands and the North-West receive small contributions, varying up to 2 per cent of their GRP. The South-West receives a supplement of some 6 per cent, the North and Scotland

7 - 10 per cent, Wales perhaps a little more, and Northern Ireland a net contribution approaching 30 per cent. The extent of redistribution to a region through taxation and regionally beneficial expenditure together is highly correlated, negatively, with per capita gross regional product. South-East England's per capita average disposable income plus public benefits is probably less than 40 per cent above that of Northern Ireland, and less than 20 per cent above those of Scotland, Wales or the North.

There is incidentally, a further factor which narrows the gap between the per capita real incomes available for consumption and capital formation in the regions - namely, the rather higher level of consumers' prices in the South-East in comparison with the rest of the country. Firm regional data of prices of comparable goods and services are available only for food, fuel and power, and (subject to wider margins of error) for housing which is far the biggest source of difference. It may be proper to supplement these by adding an allowance for the greater cost (including cost in time) of travel to work in some regions, more especially the South-East. If this is done, assuming that the prices of all other goods and services are uniform across regions, it seems that the relevant income-deflator for South-East England (U.K. = 100) may be 105 or 106, those for the poorest British regions a little under 100, so that the real interregional range of disposable income plus public benefits within Great Britain is probably less than 15 per cent, from the least to the most prosperous. Northern Ireland, of course, remains well outside this range.

The third concept of the return flow from the public sector, referred to above, is more elusive in practice. It concerns the distribution of effective demand for factors of production. The difficulty about it is that, while the extent to which effective demand is abstracted from regions by taxation is reasonably clear, as is the interregional distribution of public authorities' direct demand for services, demands for goods are not so easily related to ultimate demands for factor-inputs. Capital formation by public authorities in a particular region, for instance, may involve importing goods into that region far more than it involves employment of the region's own factors. To solve the implied problem one would require interregional input-output data which are not available.

Making, however, the (clearly inaccurate) assumption that expenditure on goods in, or for use in, a region is expenditure on inputs from that region - a procedure likely to exaggerate the interregional differences in pressure of demand arising from a given inequality in regional per capita distribution of public spending - one receives the impression that, again, the public sector makes a net withdrawal of purchasing power from South-East England, the West Midlands, and in this case also the North-West in favour of, particularly, the South-West, Northern Ireland, Wales and Scotland.

TABLE 1
Interregional Transfers

Region	G.D.P. per head U.K.=100	Net Factor Income Transfer % of G.D.P.	G.R.P. per head U.K.=100	As % of Gross Regional Product			Net Transfer	Disposable Regional Product + Transfers & Beneficial expenditure U.K.=100
				Public Sector Receipts	Public Transfers & 'beneficial' expenditure	Public Sector Receipts + 'beneficial' expenditure		
North	90	- 5	86	39	46	+ 7	93	
Yorks & Humber	100	- 4	96	38	40	+ 2	97	
North-West	99	- 5	94	40	41	+ 1	94	
East Mid.	102	- 4	98	37	38	+ 1	100	
West Mid.	103	- 5	103	42	35	- 7	97	
S.E. England	111	+ 4	115	42	34	- 8	103	
South-West	88	+ 6	94	38	44	+ 6	99	
Wales	88	- 3	85	39	50	+ 11	94	
Scotland	86	- 1	87	42	52	+ 10	94	
N. Ireland	64	+ 1	65	40	68	+ 28	93	
U.K.	100		100				100	

The total transfer from the net providers would appear to be some 2 per cent of gross national product (say 3 1/2 per cent of the combined GRP of the net providing regions), but this, as already suggested, is likely to be an overestimate. At all events, it is clear that the public sector plays an important part in financing regional current account balances, notably those of the peripheral regions.

3. Regional External Balances and their Financing

Such direct data as exist on the flows of goods and services into and out of the United Kingdom regions are quite inadequate to provide any basis for estimates of the net balances of interregional trade or payments. The best that can be done is to start from the identity between the current external balance of each region and the excess of its domestic product over its total expenditure on (or absorption of) goods and services.

The difference between GDP and expenditure, however, obviously depends on the conventions adopted in measuring the latter. The chief source of ambiguity about regional expenditure arises from the localisation in particular regions of central government administration, military establishments, and the production of military equipment, which are best thought of as providing services, not for the region in question, but for the whole country. It seems best to regard the products of these establishments as being 'absorbed' in all regions in proportion to their populations. Regions where there are heavy concentrations of them can thus be regarded as net exporters of such services to the rest of the country; other regions as net importers. The net export of services under this head from South-East England is probably about 3 per cent of its GDP, and the corresponding figure for the South-West Region may be as high as 8 per cent. All the other regions (except Northern Ireland) are net importers, mostly to the extent of 2 - 3 1/2 per cent of their GDP.

If regional expenditure is defined in this way, as including only the regional population's pro rata share of the national output of central government administration and defence services, regional per capita imports of all goods and services may be estimated to be roughly as in the first column of Table 2. The figures are from GDP and expenditure estimates averaged for the two years 1961 and 1964 but at the prices of the latter year. They have, of course, a low degree of reliability, since they combine the errors and omissions of both the GDP and the expenditure estimates. It is, however, fairly clear that there were, in the early 'sixties, net imports into the South-West, Scotland, Wales and Northern Ireland, probably ranging from somewhat under 10 per cent of GDP in the first of these regions to as much as 25 per cent in Northern Ireland. Except, perhaps, for the North, the other regions showed net exports probably ranging between 2 and 5 per cent of their respective GDP's.

The most easily estimated sources of finance for these net transfers are first, public transfers (transfer payments proper and 'beneficial' current and capital expenditure in the region, minus revenue raised from it) and, second, net receipts of property income and occupational pensions. These are shown for the period in question in the second and third columns of Table 2, the sum of them in Column 4, and the residual part of net imports, not offset by this sum, in Column 5.

This last column must consist largely of errors and omissions. To the extent that it does not, however, it should reflect net movements of private capital, together with private remittances - the latter probably finance considerable flows of imports into Northern Ireland and Scotland. All that can usefully be said from inspection of these residual figures is that their algebraic signs are consistent with the evidence from industrial 'moves' (partly migration of industrial establishments, but mostly formation or extension of branches in regions different from those of the 'parent' establishments), that manufacturing industry was flowing from the South-East, and also from abroad, into Wales, Scotland, Northern Ireland, the North-West, and the North. The industrial and commercial growth within the West Midlands may well have been financed by net inflows of capital from other regions (mainly the South-East), though there is known to have been a net outflow of manufacturing 'moves' from the West Midlands. The residual figures show only a small positive correlation with the ratio of private capital formation to gross regional product, which one might expect to be associated with reliance upon net private capital imports. The general conclusion must be that only the very broad outlines of the pattern of regional balances and their financing can be ascertained from the data at present available, but the general nature of the pattern - the substantial net imports of the more peripheral regions, financed largely by transfers through the channels of public finance - emerges clearly enough.

TABLE 2

Regional Balances and their Financing (£ per capita ; 1964 prices)

<u>Region</u>	1. Net imports (goods & Services)	2. Net Public Sector Expend- ure	3. Net property inc. & occup. pensions	4. Sum of 2 & 3	5. Residue (1 - 4)
North	+ 10	+ 23	- 23	0	+ 10
Yorks & Humber	- 26	+ 10	- 20	- 10	- 16
North- West	- 10	+ 2	- 24	- 22	+ 12
East Mid.	- 19	+ 16	- 20	- 4	- 15
West Mid.	- 21	- 19	- 23	- 42	+ 21
S.E. England	- 16	- 32	+ 23	- 9	- 7
South- West	+ 41	+ 20	+ 29	+ 49	- 8
Wales	+ 65	+ 42	- 19	+ 23	+ 42
Scotland	+ 41	+ 32	+ 1	+ 33	+ 8
N. Ire- land	+ 85	+ 63	+ 7	+ 70	+ 15

Note on Sources of Tables 1 and 2

The estimates of GDP per head on which Table 1 is based relate to the years 1961 and 1964 (see V.H. Woodward, Regional Social Accounts in National Institute of Economic and Social Research, Regional Papers No. 1 ; Cambridge 1970). The estimates of public sector receipts and expenditure derive from the same source, but have been adjusted roughly to take account of the higher level of taxation in 1968 in comparison with earlier years, and also the higher payments to Development Areas through investment grants (from 1966) and Regional Employment Premium (since 1967). The figures given, therefore, are intended to relate to the later 1960's.

The data on net export balances and their financing in Table 2 are adapted from A.J. Brown, The Framework of Regional Economics in the United Kingdom (Cambridge, 1972), Table 3.11 and from Woodward op. cit. and are intended to relate to the early 1960's. They differ from the figures in the sources quoted in that the latter adopted a definition of regional expenditure treating the services of central government administration, military establishments, and producers of military equipment as being 'absorbed' in the regions where they are located ; and, correspondingly, calculated public expenditure in each region as including not only those items 'beneficial' to the population of the region, but also payments to central administrators, members of the forces, and producers of military material located there.

Chapter 2

FRANCE

by

Yves Fréville

REGIONAL REDISTRIBUTION OF PUBLIC FUNDS IN FRANCE

(The case of Brittany)

In France, total tax receipts and social welfare contributions account for 38.4 % of gross domestic product. The central authorities (central government + social security funds) have direct control over the use of nine tenths of these receipts and contributions, while the local authorities control only one-tenth. The central government has thus a substantial influence on the regional distribution of income in France.

The main feature of this distribution is the dichotomy between the Paris region and the rest of France. If average per capita income is assigned an index of 100 , all the regions other than the Paris region fall within a 15-point range (85-100), while the Paris region has an index of 140. The statistics on gross domestic product per capita give a more detailed picture of the situation in the regions other than the Paris region and bring out more clearly the difference between the regions in the West and South-West, which have little industry, and the regions in North-East France and along the Rhône. Of the latter, the regions of Nord and Lorraine which are mining areas are experiencing the traditional problems of industrial reconversion. For a century, out-migration from the West and the South-West of France has led to the growth of the Paris region, while the relative strength of the North-East and South-East of France has remained stationary.

These few observations make it reasonable to ask whether the growth of the Paris region, which has undoubtedly acted as a magnet for the rest of the French economy, was not made possible in part by a regional redistribution of public funds in its favour (in particular, to offset the high congestion costs facing the region) or whether, on the contrary, the other regions, particularly the most depressed regions in the West of France, do not receive offsetting transfers from the Paris region.

In large measure, interregional redistribution through the flow of public funds is not deliberate and takes place through the tax system and through current expenditure, with little or nothing known about the relevant mechanisms. It is useful to compare it with the impact of a transfer policy for which the formulation of objectives inevitably has regional implications, i.e. with policy on central government grants to the local authorities. Finally, we propose to show, with the help of an example, how the flow of public funds affects the conditions of equilibrium for a regional balance of payments.

I. REGIONAL REDISTRIBUTION OF PUBLIC FUNDS

We will attempt first to measure the overall regional impact of public spending and revenue from taxes and social welfare contributions and will then examine the policy on grants to local authorities.

1.1. Regionalization of central government and social security budgets

While better information is now becoming available on the income

redistribution between individuals achieved through central government or social security spending virtually nothing is known about the regional redistribution of public funds : generally speaking, there is no way of knowing whether a given region comes out better or worse off in the redistribution process. What is more, the only estimate available, published by INSEE for 1962 (1), has the major drawback of recording tax receipts and social welfare contributions at their place of collection in the case of taxes paid by enterprises, the registered office ; this does not make much sense economically given the concentration of registered offices in Paris.

- 1.1.1. There is no doubt that this lack of information owes something to the way in which Treasury accounts are kept and to the centralized structure of France, but it is also attributable to the difficulty of defining correctly the concepts of "regionalized" revenue and expenditure.

The concept of "regionalized expenditure", i.e. the allocation to a given region of an item of central government expenditure may be defined in several ways.

The concept of "regionalized expenditure", i.e. the allocation to a given region of central government may be defined in several ways.

- From a balance of payments angle, regionalized expenditure comprises the expenditure actually effected by the central government in a region : salaries paid to civil servants working in the region, transfers to residents of the region, purchases of goods and services from firms located in the region. The advantage of adopting this strictly financial viewpoint is that it shows central government demand for regional goods and services as a component of the region's aggregate demand.

Part of the expenditure effected in the region may, of course, leave the region in the form of purchases made elsewhere. The concept of "regionalized expenditure" could, therefore, cover expenditure directly or indirectly effected through the region's budget, account being taken of the secondary effects of apparent expenditure, so that it corresponds to central government demand for factors of production in the region. However, a table describing inter-industrial trade between regions would have to be drawn up to determine this demand.

- In contrast, from what may be termed the "benefit" angle, central government expenditure may be broken down by region in proportion to the advantages which are supposed to accrue to the region's residents (firms and households). In the case of indivisible public goods available to the nation as a whole (such as defence), expenditure will be broken down by region in proportion to the number enjoying protection, although apparent defence expenditure may well be very unevenly spread over the national territory. Clearly, if the advantages accruing to the population of each region from a given item of central government expenditure are to be

(1) INSEE and Direction du Plan "Essai de régionalisation des Comptes de la Nation 1962". Etudes de Comptabilité Nationale No 9. Paris. Imprimerie Nationale 1966.

estimated, the expenditure in question will, in practice, have to be broken down by region with the help of broadly arbitrary "apportionment formulae" (for example, in proportion to total population, the size of the labour force, or the number of civil servants working in the region ...).

In the case of France, the choice between these various approaches is somewhat hypothetical in that accounts only rarely give a breakdown of direct expenditure in a given region. For almost all budget items, with the exception of certain transfers and capital expenditure, it is, therefore, necessary to use apportionment formulae (e.g. expenditure by the Ministry of Education can be broken down according to the school population or the number of teachers).

Similar difficulties arise with regard to the regionalization of central government revenue from taxes and social welfare contributions, despite the fact that the yield of the different taxes is known in the departments at their place of collection.

An initial difficulty stems from the existence of taxpayers operating in more than one region : a very large number of firms possess establishments in several regions but pay corporation tax in Paris, where their registered offices are located. Even using the concept of formal incidence, regionalization of the tax paid by a firm requires profits to be first broken down between its various establishments. Now, there is no general method for doing this and hence the revenue accruing from the tax has to be allocated with the help of approximate apportionment formulae (regional breakdown of the work force of firms operating in several regions).

A second difficulty stems from the fact that account must be taken of the economic incidence - and not the formal incidence - of the various taxes. As an initial approximation, it may be assumed that personal income tax (IRPP) is not shifted to other taxpayers by those legally liable. This simplification cannot, however, be applied to corporation tax, which is by no means borne entirely by the owners of the capital but is passed on in part to consumers and employees. Similar difficulties arise with the payroll tax.

- 1.1.2. These few remarks will have illustrated the degree of arbitrariness involved in any attempt to regionalize central government expenditure since, most of the time, approximations have to be applied. In order to reduce the resulting risks of error, PRUD'HOMME and ROCHEFORT (1) devised a novel method. It involved

(1) PRUD'HOMME, ROCHEFORT and NICOL : "La répartition spatiale des fonds budgétaires". Trappes BETURE December 1973.

first breaking down the French 1970 budget into relatively homogeneous categories of revenue (24) and expenditure (85), and then breaking down each of these categories between the regions in various ways, with the help of numerous apportionment formulae (in all, 81 formulae were used, such as population, consumption by households school population). An apportionment formula can be dispensed with only if the item of expenditure or revenue in question can be regionalized in a straightforward manner (grants to the local authorities ...) In theory, a very large number of separate breakdowns can be obtained if several apportionment formulae are applied to one and the same category of revenue or expenditure. In practice, 15 types of breakdown, known as "options" were devised. The results obtained do, of course, vary from one option to another but, since they paint roughly the same picture, some provisional conclusions can be drawn.

Below, we have selected two of the proposed options : the first corresponds, if anything, to the balance of payments viewpoint (breakdown of non-regionalized current operational expenditure in proportion to the number of civil servants and military personnel), while the second reflects the benefit viewpoint (breakdown in proportion to population). The last column gives the average for 15 options.

TABLE I

REGIONAL PATTERN OF THE BUDGET IN FRANCE (1970)

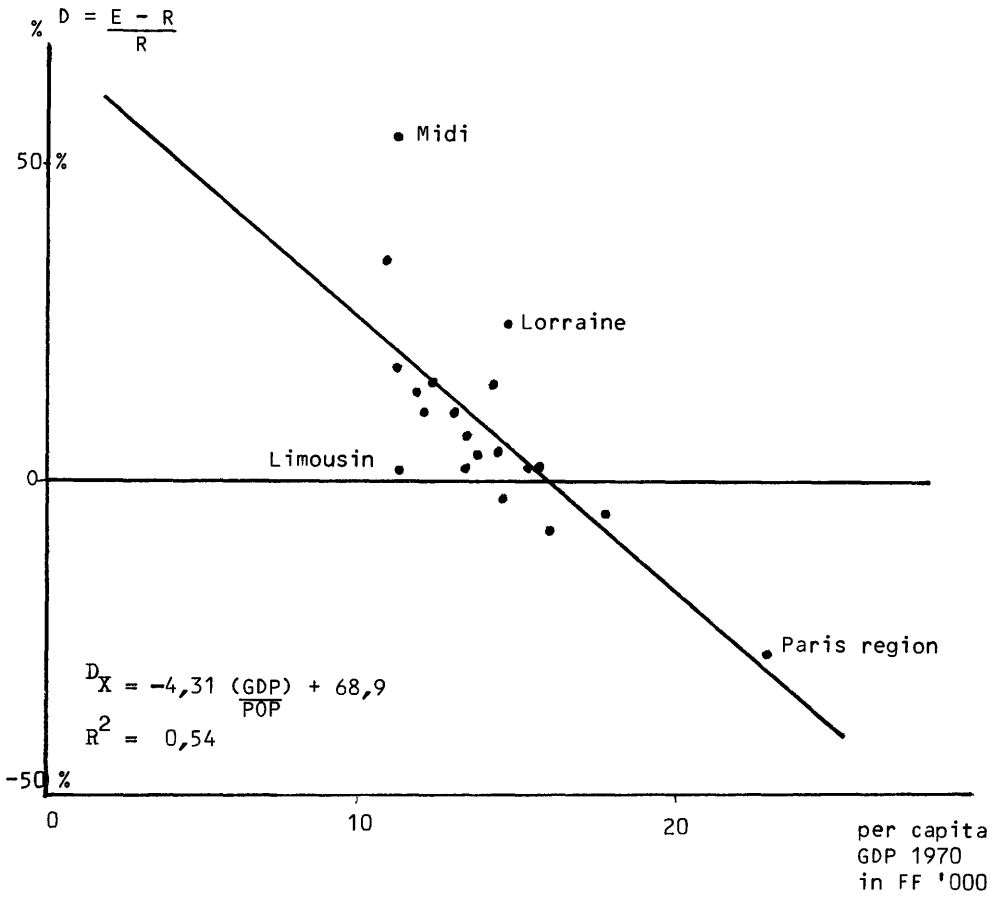
Relative discrepancy (expenditure - revenue from taxes and social welfare contributions) as % of revenue from taxes and social welfare contributions

	Option I	Option IV	Average for the 15 options
Paris region	-20 %	- 26 %	- 27 %
Champagne	- 5	4	2
Picardy	-15	5	- 3
Haute-Normandie	-11	0	- 5
Centre	10	- 1	9
Basse-Normandie	9	3	16
Burgundy	4	7	2
Nord	- 5	14	5
Lorraine	22	34	25
Alsace	- 3	1	2
Franche-Comté	- 9	1	4
Pays de Loire	0	15	11
Brittany	42	22	35
Poitou	17	10	14
Aquitaine	9	3	7
Midi-Pyrénées	46	58	55
Limousin	- 5	- 9	2
Rhône-Alpes	- 6	- 2	- 8
Auvergne	16	17	11
Languedoc	6	16	18
Provence	20	0	15
Corse	20	19	32

The above table reveals a number of similarities :

- the Paris region is extremely privileged in all cases
- four regions are much worse off than the others : Lorraine, Brittany, Midi and Corsica.

GRAPH N° 1



- The division between privileged and underprivileged regions is not a matter of chance : Graph No 1 above shows that the average relative discrepancy (1) is inversely proportional to the regional domestic product per capita. There would appear, therefore, to be a mechanism ensuring redistribution of financial flows away from privileged regions to the poorer regions

1.1.3. - A more detailed statistical analysis of the redistributive power of public finance can be attempted using the methodological framework put forward in Chapter 5 . A system of taxation (or of expenditure) is neutral, that is to say has zero redistributive power, if revenue from taxes and social welfare contributions (or expenditure) is proportional to regional incomes ; it has a redistributive power of 100 % if the income differentials, after transfers, are entirely eliminated. The redistributive power of a tax (or of an item of expenditure) can be measured on the basis of the difference between its elasticity with respect to regional income and unity (corresponding to a neutral transfer), this difference being weighted by the relative share of the tax in question in national income, after transfers.

- (a) The French tax system taken as a whole would seem to be slightly progressive, when compared with the regional distribution of income. Relating the per capita tax index (base = 100 for France as a whole) to the per capita regional income index yields an elasticity of 1.258, slightly higher than the neutral elasticity of 1 ; the redistributive power of taxes would then be of the order of 6 %

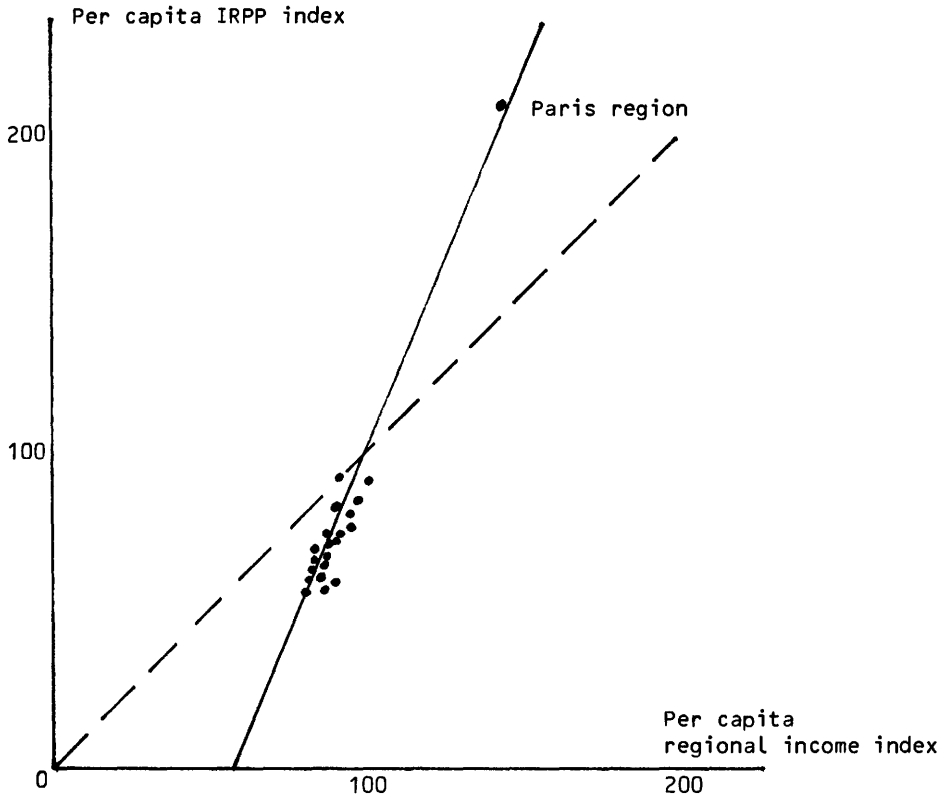
$$\text{INDEX (TAXES PER CAPITA)} = 1.258 \text{ INDEX (INCOME PER CAPITA)} - 25.2 \quad R^2 = 0.769.$$

Moreover, the progressiveness of the French tax system is mainly due to the IRPP (personal income tax), which has a very high income elasticity (2.653) and a large redistributive impact (8.6 %).

$$\text{INDEX (IRPP PER CAPITA)} = 2.653 \text{ INDEX (INCOME PER CAPITA)} - 166.3 \quad R^2 = 0.96. \quad (2)$$

-
- (1) Relative discrepancy =
$$\frac{\text{Expenditure} - \text{revenue from taxes and social welfare contributions}}{\text{revenue from taxes and social welfare contributions}}$$
- (2) The regional income applied in this equation is the gross total income less social welfare benefits and social assistance expenditure, plus pensions. Source : V. BRIQUEL and M. VAILLARD : "Les comptes régionaux des ménages". Les collections de l'INSEE No R, 18 October 1975, p. 59

GRAPH N° 2



The progressiveness of personal income tax at regional level is rather unexpected since progressiveness with respect to individual incomes is generally considered to be low. It is due primarily (cf. Graph No 2) to the huge disparity in per capita income between Paris and the provinces. Moreover, the progressiveness of the tax is much greater than suggested by the tax scale since the incomes of small sole proprietorships subject to the flat-rate scheme (small traders and, above all, farmers are not taxed or taxed at low rates). The poorest regions (Ouest and Sud-Ouest) are also those where the incomes of sole proprietorships account for the highest proportion of regional income (36.6 % in Brittany compared with 12.1 % in the Paris region).

- (b) The data concerning the regional distribution of expenditure are even less reliable than those concerning revenue. They suggest that the redistributive power of expenditure is large (about 15 %) since there is only a very weak correlation between the gross domestic products of the regions and expenditure, the distribution of which is roughly proportional to population.

$$\text{INDEX (EXPENDITURE PER CAPITA)} = 0.182 \text{ INDEX (GDP PER CAPITA)} + 71.9$$
$$R^2 = 0.025.$$

The most privileged regions are the Paris region and the regions in the South of France (Midi-Pyrénées, Languedoc, Provence).

1.1.4.- The redistributive power of the French social security system

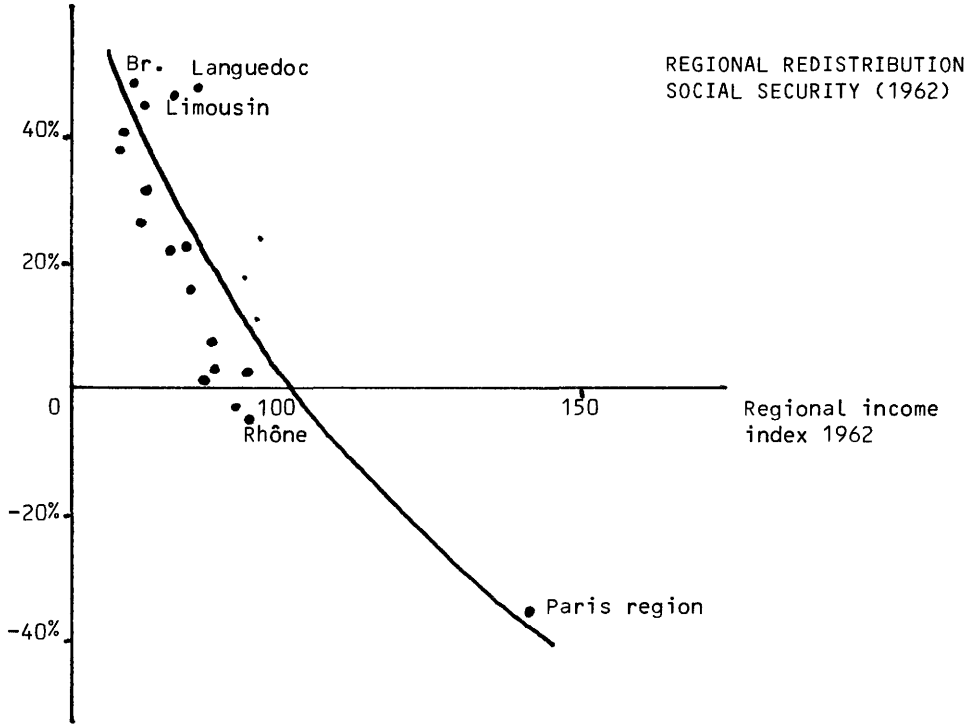
The social security system also operates in a way which promotes further this financial equalization between the rich and the poor regions, if, that is, reference is made solely to the data published by INSEE concerning both social welfare contributions and benefits in 1962. Whereas, at national level, contributions match benefits, the relative discrepancy between benefits and contributions narrows as regional per capita income increases (Graph No 3). Only in the Paris region and the region of Rhône-Alpes do contributions exceed benefits. This is all the more interesting since social welfare benefits are higher in the rich regions than in the poor (a maximum index of 1.18 in Paris and a minimum index of 0.78 in Brittany and Basse Normandie).

In any case, comparison of the respective redistributive power of contributions and benefits in 1962 shows that the former is greater than the latter. The linear regressions of per capita contributions and benefits with respect to regional per capita income (before social transfers) are as follows : (the data being expressed as indices : base for France)

GRAPH N° 3

RELATIVE DISCREPANCY

$\frac{(\text{Benefits} - \text{contributions})}{\text{Contributions}}$



$$\begin{aligned} \text{CONTRIBUTIONS} &= 1.672 (\text{INCOME})^{(1)} - 67.5 & R^2 &= 0.887 \\ \text{BENEFITS} &= 0.548 (\text{INCOME})^{(1)} + 45.5 & R^2 &= 0.525 \\ \text{NET BALANCE} &= 1.122 (\text{INCOME})^{(1)} + 112.7 & R^2 &= 0.872 \end{aligned}$$

Given that social welfare benefits accounted for 13.5 % of households' gross total income (2) in 1962, we obtain the following figures :

	Deviation of income elasticity from UNITY	Redistributive power
Contributions	+ 0.672	9.12 %
Benefits	- 0.452	6.12 %

The redistributive power of social welfare contributions is larger because of the structural deficit in the social security scheme for agriculture which results in an automatic transfer away from regions where wage and salary earners form a high proportion of the labour force to the farming regions in the West and South-West of France. This flow merely serves to offset at regional level the repercussions of the flight from the land on the age structure and on the size of the labour force in the farming regions in the West and South-West of France.

The figures available for 1970 enable these results to be updated only for social welfare benefits ; their redistributive power has been calculated disregarding pensions (Graph No 4).

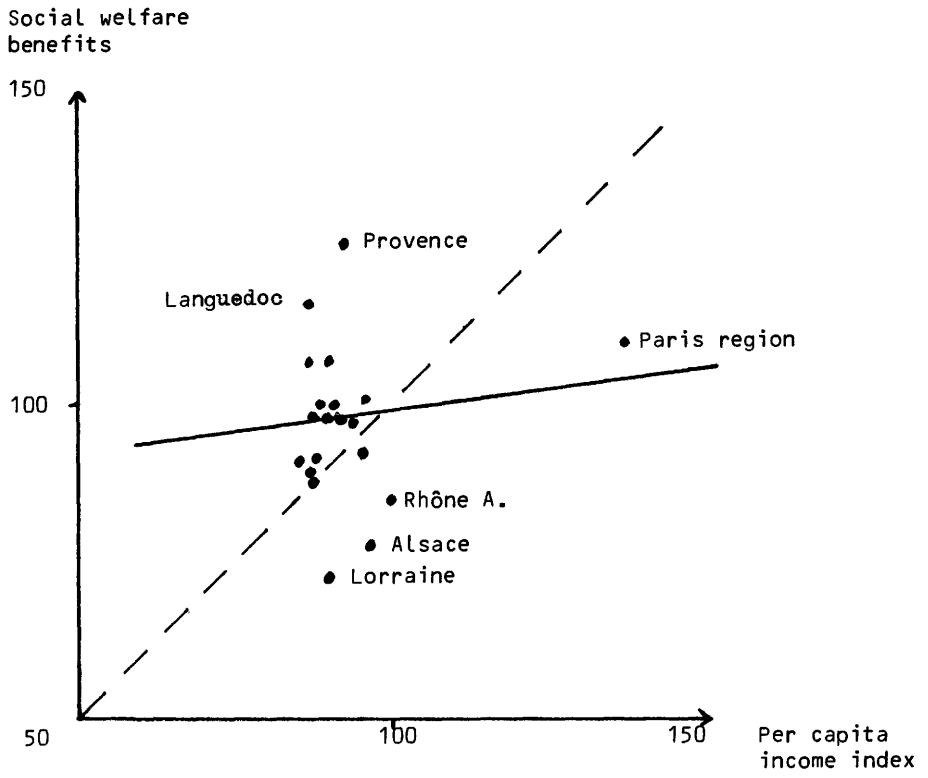
$$(\text{BENEFITS} - \text{PENSIONS}) = 0.621 (\text{INCOME})^{(3)} + 36.9 \quad R^2 = 0.406 \quad (3)$$

Redistributive impact : 4.4 %

The redistributive power of social welfare benefits does not appear very significant at regional level since there is a positive correlation between sickness benefits and industrial injury benefits, on the one hand, and regional income on the other.

-
- (1) Regional income is taken to be equal to total gross income adjusted for social transfers :
Total gross income - social welfare benefits + social welfare contributions
 - (2) Total gross income is the sum of the resources appearing in the "appropriation account" of households in the French national accounts.
 - (3) The income taken into account is total gross income less social welfare benefits and assistance expenditure. It has not been possible to adjust this figure for contributions.

GRAPH N° 4



1.2. The redistributive power of central government grants to the local authorities

The system of central government grants to the local authorities is relatively extensive since it accounts for almost 11 % of central government expenditure (1) and for 45 % for the local authorities' actual revenue (excluding borrowing). It is, however, extremely heterogeneous since it comprises around 200 types of grant and affects almost 50 000 local authorities and local authority associations. As a result, the aggregated regional statistics mask the very uneven impact of the system at the level of the "communes" and "départements", which are the direct beneficiaries of central government grants.

Three types of grant, each managed in an entirely independent manner and along different lines, will be analysed :

- The VRTS (sum representing the local portion of the payroll tax (2)) is an unconditional grant automatically redistributing to the local authorities a proportion of central government revenue (redistributive tax-sharing).

- Infrastructure grants are specific grants allocated to individual projects. They enable the central government to control local authority investment in line with short-term economic or planning requirements.

- Central government participation in social assistance expenditure constitutes the main operating grant. It is a conditional and open-ended grant by means of which the central government automatically finances a given percentage of the social assistance expenditure incurred by the départements (matching grants).

(1) Unlike the way it is treated in the national accounts and budget in France, we regard the VRTS as a grant financed out of central government revenue and redistributed to the local authorities.

(2) A specifically local payroll tax was levied for a brief period in 1968.

Table II

CENTRAL GOVERNMENT GRANTS TO THE LOCAL AUTHORITIES

	1969	1970	1971	1972	1973	1974
Total grants (as % of central government expenditure)	15 072 (9,68)	17 030 (9,92)	18 912 (10,07)	21 412 (10,29)	24 380 (10,30)	29 566 (10,77)
Operating grants (1)	4 664	5 187	5 660	6 191	7 106	8 413
Infrastructure grants	2 558	2 433	2 437	2 756	2 971	3 702
VRTS	7 850	9 410	10 915	12 465	14 303	17 450
OPERATING TOTAL	30,9 %	30,4 %	29,3 %	28,9 %	29,1 %	28,5 %
INFRASTRUCTURE/TOTAL	17,0 %	14,3 %	12,9 %	12,9 %	12,1 %	12,5 %
VRTS/TOTAL	52,1 %	55,3 %	57,7 %	58,2 %	58,7 %	59,2 %

(1) Including contribution to social assistance expenditure incurred by the "départements".

The basic feature of all these grants is that they have a small redistributive impact and ease the burden of congestion costs generated by urban growth on the local authorities in the most urbanized areas.

1.2.1 - VRTS

The VRTS is an annual global grant, indexed to increases in the wage and salary bill. Being indexed, the VRTS rises more rapidly than the other items of central government expenditure (5 % in 1969 ; 6.7 % in 1976) and the GNP (1.08 % of the latter in 1969 ; 1.32 % in 1974).

Allocation of the VRTS

The grant is allocated among the local authorities "départements" and "communes") according to two distribution formulae.

The first is the product, collected by each authority in 1976 of a localised tax : local turnover tax (imposed on retail sales and the extension of VAT to the retail field).

The second is a broad indicator of local tax burden borne by households : (the product of "local taxes paid by households"), and owners and occupiers of residential property (indicator based on the rental value of the property).

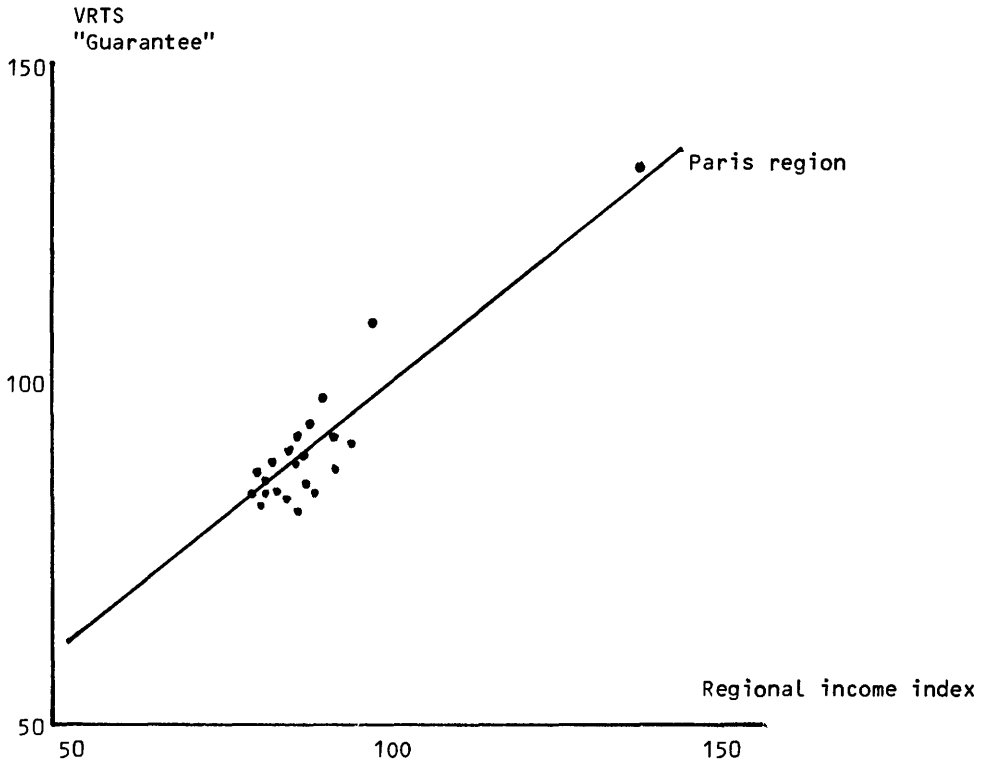
The relative weights of these two apportionment formulae (1) change each year over a twenty-year period. The "guarantee" grants, which are indexed to the yield of the local tax in 1967 and which accounted for 100 % of the total funds available for a allocation in 1968, decrease by 5 % each year while the distribution grants, allocated in proportion to the yield of "household taxes", rise by 5 % each year. (Thus, the guarantee grant made up 70 % of the VRTS (1) in 1974 and 65 % in 1975, and will have been entirely phased out by 1988).

For instance, a "commune" to which T francs accrued from the local tax in 1967 and which collected M francs from household taxes in 1974 received a grant of G in 1975 :

$$G = 1.674 T + 0.553 M \quad (2)$$

-
- (1) We have left out of this simplified account a third component for allocation : the local action fund, accounting for less than 5 % of the total amount of the VRTS.
- (2) The guarantee grants in 1975 were equal to 167.4 % of the revenue which accrued to the "communes" from the local tax in 1967 and 55.3 % of the revenue which accrued to them from household taxes the previous year.

GRAPH N° 5



The impact of the VRTS on regional income disparities

The allocation system adopted is bound to result in a very slight narrowing of regional income disparities.

- This is obvious in the case of the first apportionment formula (local tax in 1967) : changes in the tax were roughly proportional to regional consumption (including consumption by tourists) and slightly less than proportional to disposable regional income. Moreover, this system favours the major urban areas and in particular Paris because of the commercial attraction they hold for the areas they dominate. The regression equation relating the guarantee grants from the VRTS in 1975 to households' total gross income (expressed as per capita index with a base of 100 for France as a whole) gives an income elasticity for these grants that is very close to unity :

$$(\text{GUARANTEED VRTS } 75) = 0.94 \text{ INCOME} + 5.75 \quad R^2 = 0.85 \text{ (cf Graph No 5)}$$

- The second apportionment formula (which assumes increasing importance) has a less significant impact. Around one-half of local taxation in France is accounted for by a tax levied on the productive capacity of firms, the new-style business tax (1) ("taxe professionnelle"), assessed on the wage and salary bill and the value of the capital equipment of each undertaking, while the other half is accounted for by taxes assessed on the rental value of residential buildings, which, as a general rule, are payable by households. The way the local tax burden is split between these two taxes varies greatly from one "comune" to another, with those located in industrial areas and enjoying substantial revenue from the business tax levying relatively modest taxes on households, and vice-versa. The VRTS grants indexed to household taxes thus have an intercommunal equalization function that works to the benefit of non-industrial

(1) This replaced the old business tax ("contribution des patentes") in 1976.

"communes" ; however, this equalization effect is virtually nullified at regional level. Firstly, no account is taken of the tax ratio in the apportionment formula ; the yield of household taxes is the only factor considered, with the result that, given identical tax ratios, a rich "commune" - which has a large tax basis - will receive a higher VRTS grant than a poor "commune". Secondly, the least industrialized regions - where a higher proportion of the tax burden is borne by households - are also the least urbanized, and this reduces the weight of expenditure and local taxes and, consequently, leads to lower VRTS grants.

Local taxes on households and hence the VRTS grants proportional to these taxes have been found to increase at about the same rate as total gross regional income :

$$(\text{VRTS HOUSEHOLDS } 75) = 0.96 (\text{INCOME}) + 3.00 \quad R^2 = 0.43$$

The correlation between these two variables (expressed as a per capita index, with a base of 100 for France as a whole) is weakened by the existence of regional taxation patterns (heavy tax burden in Languedoc and Provence, light tax burden in the North-East of France).

In all, the redistributive impact of the VRTS in 1970 was practically zero :

$$(\text{VRTS } 70) = 0.93 (\text{INCOME}) + 6.04 \quad R^2 = 0.82$$

Redistributive impact : 0.1 %.

1.2.2. Specific infrastructure grants of the local authorities

The system of infrastructure grants has three main features.

- It is a system of specific grants which are made to help finance given infrastructure projects and are negotiated one by one. The average rate of the grant varies according to the type of infrastructure project involved and, with the exception of school infrastructure, which is eligible for grants of between 40 % and 50 % on average, is small (10-20 %). The rates are fixed by reference either to a specific scale (primary and secondary education) or to rate brackets determined at national level. Finally, since these grants are "closed-end" grants and since grant applications exceed available finance, projects are selected for grant allocation on the basis of waiting lists (as part of the planning process).

- This system enables the central government to control local authority investment in line with short-term economic and planning requirements through the link between grants and borrowing as a "commune" may only receive a low interest loan from a public body managing savings bank funds if it has obtained a grant before-hand. In this way, the infrastructure grant has a multiplier effect on the level of local authority spending (an increase of 20 in the volume of grants can

generate an increase of 100 in local public investment, the difference being met by a change in "communal" indebtedness).

- Lastly, all grant finance - like, direct central government investment - is "regionalized", that is to say allocated between the regions in the light of the central government's regional policy objectives before being subdivided between the local authorities by the central government's regional representatives (the "préfets") and, in the case of certain infrastructure projects, by the regional political authorities responsible for selecting projects from the waiting lists.

The implicit objectives of the regional allocation of central government infrastructure finance were analysed by R. PRUD'HOMME for the period 1966-70. He showed that regionalized infrastructure expenditure was determined mainly by the size of a region's population and, as a secondary consideration, by the population's rate of growth. More explicit allocation criteria (which were not, however, always observed) were drawn up during preparation of the Sixth Plan : 80 % of the finance available was to be allocated between the regions in an "egalitarian" manner in the light of their public infrastructure requirements, which were determined on the basis of the population in each region, its rate of growth and its rate of urbanization. The remaining funds, i.e. 20 %, were to be allocated according to policy goals and on the basis of the following criteria : existence of a "métropole" (corresponding to a very large town), the fact of being one of the least developed regions in the West of France, number of workers for redeployment and number of new jobs planned.

If the infrastructure grants were actually allocated in proportion to population, their income elasticity would have to be zero.

The fact that the equation :

$$\text{INDEX (INFRASTRUCTURE GRANT PER CAPITA)} = 0.68 \text{ INDEX (INCOME PER CAPITA)} + 31.7 \quad R^2 = 0.06$$

yields no significant value does not invalidate this hypothesis. Nonetheless, analysis of the regionalized infrastructure budgets for both infrastructure grants and direct central government capital expenditure gives an income elasticity well above zero :

$$\text{INDEX (INVESTMENT PER CAPITA)} = 0.492 \text{ INDEX (PRODUCT PER CAPITA)} + 47.5 \quad R^2 = 0.307 \text{ (year 1973)}$$

In addition, regionalization of the capital expenditure budget does not take into account "major projects" (1) which, in many cases, are carried out in the Paris region. It is, therefore, highly likely that the concentration of investment in the Paris region (in particular

(1) Cf. the data given in the Annex.

in the field of road construction and public transport) results in a regional allocation of central government infrastructure expenditure and grants that has zero redistributive impact.

1.2.3. Central government contribution to social assistance expenditure

The social security system is supplemented by a social assistance system partly financed by the local authorities (child welfare, welfare services for the aged ; medical assistance ; assistance for the blind and the disabled). The central government makes an automatic contribution to this expenditure in the form of an open-ended grant that is proportional to the volume of expenditure. The rate of the grant is determined by a scale which varies according to the type of expenditure (on average, 81 % for child welfare expenditure, 69 % for assistance given to the mentally handicapped, and 43 % for expenditure on medical assistance and welfare services for the aged and the disabled). The rate is also differentiated according to the region, ranging between two very wide extremes (26 % for Paris, 89 % for Corsica) according to a formula drawn up in 1955 and not updated since. This formula took account mainly of the taxable capacity of each "département" and, as a secondary factor, its population structure (percentage of old people, of young people), but, not having been revised, it has become unfair and out-dated.

This grant is, nevertheless, the only one to have a fairly appreciable redistributive power since there is a negative correlation between it and regional income (before social transfers) :

$$\text{INDEX (SOCIAL ASSISTANCE PER CAPITA)} = -0.45 \text{ INDEX (INCOME PER CAPITA)} + 142.8 \quad R^2 = 0.09$$

1.2.4. The overall redistributive power of grants to the local authorities

The redistributive power of these grants is necessarily small since they make up only 2.7 % of household income (after transfers). In addition, their regional income elasticity is high since the VRTS accounts for a fairly large proportion of the total volume of grants:

$$\text{INDEX (GRANTS PER CAPITA)} = 0.66 \text{ INDEX (INCOME PER CAPITA)} + 33.7 \\ R^2 = 0.39$$

Income elasticity : 0.66

Redistributive power : 0.9 %

This figure is proof that, although the financial system in France is on the whole progressive in a regional context, this can in no way be traced to a policy of deliberate transfers to the most depressed regions. But at any rate the surplus of expenditure over revenue from taxes and social welfare contributions payable in these regions automatically restores their trade balances to equilibrium.

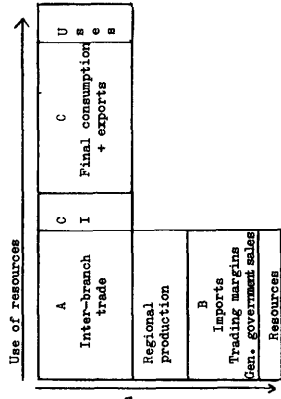
COMPREHENSIVE TABLE OF RESOURCES AND USES - BRITANNY 1972

Fr. million

Branches	AGR 01	FFFI 02	ENE 03	IND 04	BFW 05	TSP 06	HOU 07	SER 08	DISTR. TR. 09	TOTAL inter- mediate consump- tion	Consumption			Investment			Exports		Total uses	
											House- holds	General govt.	Fin. med.	Non-fi- nancial instit.	House- holds	General govt.	Fin. med.	Other regions		Abroad
01 - Agriculture	800	5 100	0	150	0	0	0	260	0	6 310	8 272	139	0	0	0	0	3 550	1 262	22 872	
02 - Farm processing and food industries	1 400	1 217	0	70	0	0	0	652	0	3 339	1 586	150	14	0	0	0	0	0	5 256	
03 - Energy	212	81	2 088	292	174	263	0	170	226	3 506	8 190	42	2 113	0	81	18	6 084	1 359	25 820	
04 - Industry	498	246	50	2 462	2 535	130	0	958	179	7 058	487	252	9 2 153	2 902	1 311	53	0	0	7 989	
05 - Building, public works	167	42	40	160	0	260	0	72	81	822	700	200	51	0	0	0	0	0	3 091	
06 - Transport	64	288	48	406	463	28	0	187	656	2 140	2 126	0	0	0	0	0	0	0	2 126	
07 - Housing	0	0	0	0	0	0	0	0	0	0	4 896	180	157	0	0	0	0	0	8 409	
08 - Services	863	300	42	560	630	186	128	0	467	3 176	26 257	1 796	273	4 266	2 902	1 392	71	9 634	2 621	75 563
Total intermediate consumption	4 004	7 274	2 268	4 100	3 802	867	128	2 299	1 609	26 351	(*)									
Value added	4 601	2 876	800	4 185	4 187	2 224	1 998	5 217	4 771	30 859										
Turnover	8 605	10 150	3 068	8 285	7 989	3 091	2 126	7 516	6 380	57 210										
Inter-regional imports	2 065	0	2 057	10 595	0	0	0	200	0	14 917										
Imports from abroad	727	0	31	935	0	0	0	0	0	1 693										
Total imports	2 792	0	2 088	11 530	0	0	0	200	0	16 610										
Sales by general government	0	0	50	300	0	0	0	693	0	1 043										
Price adjustments	-1 000	0	0	+1 700	0	0	0	0	0	+ 700										
Trading	2 325	0	50	4 005	0	0	0	0	-6 380	0										
TOTAL RESOURCES	22 872	0	5 256	25 820	7 989	3 091	2 126	8 409	0	75 563										

(*) Including consumption by tourists

(**) Including consumption by naval dockyards



II. FLOW OF PUBLIC FUNDS AND REGIONAL BALANCE OF PAYMENTS EQUILIBRIUM

It is impossible to evaluate directly the role of public finance in achieving equilibrium in the regional balances of payments, since there are not even rough statistical data on the movements of goods and the financial flows between French regions.

In the circumstances, only a case study for Brittany, can be referred to.

This region accounts for nearly 5 % of the population of France and has :

- (i) the lowest regional per capita disposable income (17 % below the national average)
- (ii) the lowest per capita gross domestic product (GDP) (30 % below the national average)
- (iii) the lowest GDP per job (30.5 % below average). The proportion of Brittany's GDP produced by the agricultural sector is the highest in France (16.3 % as against an average of 6.3 %) ; that produced by the industrial sector (excluding building and construction) is the lowest (20.6 % as against 36 %).

Regional economic accounts for 1972 have been drawn up for Brittany⁽¹⁾ consisting of a table of transactions in goods and services (accompanied by a simplified input-output table for nine sectors) on which the balance of payments hinges. These data make it possible not only to measure the degree of economic integration of the region but also to define the ways in which the deficit on its balance of goods and services is covered.

2.1. Degree of economic integration of Brittany

The region is relatively dependent on the outside world since imports represent 54 % of regional GDP (calculated as regional value added) and its exports only 39 %. Brittany as a region is therefore three times more open to the outside world than France as a whole ; but its rate of economic integration (exports + imports as a percentage of GDP) (93 %) - comparable to Belgium's rate (92%) or that of the Netherlands (105 %) - seems fairly low at regional level.

Brittany's economy is vulnerable to a reduction in exports both because of the direct and indirect effects of changes in final demand and because of the effects induced by such changes.

(1) "Le tableau économique de la Bretagne". Bulletin de Conjoncture Régionale. CREFE Rennes Nos 1 and 2 - 1976.

(a) The direct and indirect effects of changes in final demand

We have classified imports into two categories, depending on whether they are used directly to meet final demand or whether they are intermediate products used as inputs in regional production. This throws light on the sensitivity of regional domestic production to changes in external demand (exports, public infrastructure expenditure etc.).

More than half of imports (52 %) are directly induced by changes in final demand: of an increase of 100 in internal final demand for industrial products (excluding trading margins), 78 % is met from an increase in imports and 22 % from a change in regional production. The relevant figure is lower for the other sectors : 24 % only of food and agricultural products consumed by households is directly imported.

The rest of imports (48 %) are intermediate goods used as inputs in regional production. By inverting the matrix of technical coefficients deduced from the regional input-output table (1), we have been able to calculate the following results (which should be interpreted with caution, since the breakdown into sectors is not very fine).

(1) The following model was used :

Let X be the 9-component vector of regional production

Z	"	"	"	"	of regional intermediate consumption
E	"	"	"	"	of exports
M ₁	"	"	"	"	of imports for intermediate consumption
M ₂	"	"	"	"	of imports meeting final demand
D	"	"	"	"	of final demand (excluding exports)

Assume $Z = AX$, where A is the matrix of intermediate consumption coefficients

$M_1 = HX$, where H is the matrix of the coefficients of "intermediate" imports

$M_2 = JD$, where J is the diagonal matrix of the coefficients of "direct" imports

Since $X + M_1 + M_2 = Z + E + D$

$$X = (I - A + H)^{-1} (I - J) D + (I - A + H)^{-1} E$$

$$M_1 = H (I - A + H)^{-1} (I - J) D + (I - A + H)^{-1} E$$

$$M_2 = JD$$

In practice the model is more complicated since commercial services are not counted as a product in French input-output tables, even though there exists a sector "distributive trades" which consumes inputs. The input-output table is therefore not a square matrix.

Change in final demand	Final demand	Gross production	Value added : productive branches and distributive trades	Imports		Total imports
				Direct	Inter-mediate	
Consumption of households (1)	100	91	62	26	12	38
Infrastructure investment-general government (2)	100	126	64	0	36	36
Exports: industrial products	100	133	60	0	40	40
Exports: processed agricultural products	100	202	78	0	23	22

The leakage due to imports is much lower than the one which has been estimated for British regions ; this is partly explained by the importance of agriculture and of the food industry in Brittany's economy. Both sectors have a low propensity to import intermediate goods (5 % of gross production) while 76 % of the food products bought by households in Brittany are produced in the region.

(b) The induced effects of a change in final demand

The effect induced by the operation of the classical Keynesian multiplier depends mainly on the size of the leakages due largely to tax payments and social welfare contributions. No precise assessment of these leakages has yet been made for the various sectors.

- (1) Assuming stable consumption structure
(2) Building and public works

The final column shows the imports contained in 100 units of final demand.

In the non-agricultural sectors, the order of magnitude of the leakages is, on average, as follows at the margin :

VAT	15 % of value added
Corporation tax plus personal income tax (IRPP)	8 % of value added
Social welfare contributions (37 % of wages)	14 % of value added
<hr/>	
A - Total leakage through public sector	37 %
B - Exported income from property (interest)	15 %
Depreciation	—
<hr/>	
Total leakages A + B	52 %

Thus, a reduction of 100 in regional value added (excluding agriculture) would lead to a reduction of 48 in regional disposable income and of 43.5 in regional consumption, for a marginal propensity to consume of 0.905.

(c) Combined effects

Let us take as an example a reduction of public investments by the central government in the region, which would mainly affect the building and public works industry. The combination of direct and indirect effects would lead to the following sequence :

Initial change in investment	- 100
Reduction in direct and indirect imports of the public works branch	+ 36
Change in regional value added	- 64
Reduction in leakages due to taxes and social welfare contributions and to exported income	+ 33.3
Change in disposable income	- 30.7
Change in consumption	- 27.8
Induced change in regional value added	- 17.2

The Keynesian multiplier applicable to the "disposable income" variable is about 1.37 given a marginal propensity to import goods consumed by households of 0.38 and a marginal propensity to save disposable income of 0.095.

All in all, a reduction in public investment of 100 would reduce regional disposable income by 42 and regional value added by 87. These figures show how sensitive Brittany's economy is to fluctuations in external demand—much more sensitive than Professor Brown suggested in Chapter 1. Brittany's high degree of specialization in agricultural production, and the relative weakness of its propensity to import food products, go a long way to explain this conclusion.

Moreover, the leakages are smaller in the agricultural sector than in the other sectors because tax payments and social welfare contributions are lower. A rise in Community intervention prices, which in the short-term is equivalent, for a given level of production, to an increase in regional exports, is likely to generate a sharper increase in Brittany's income, than any other public intervention. However, since Brittany's agriculture specializes mainly in livestock products, the region is obliged to import large quantities of grain to supply its feedingstuffs industry.

Output of final products by Brittany's agriculture in 1972

	Value in FF million (excluding VAT)	As a % of total	Brittany's agricultural output as a % of French agricultural output
1. <u>Crop products</u>	<u>963.9</u>	<u>11.9 %</u>	<u>2.4 %</u>
of which Cereals	171.9	2.1	1.2
Potatoes	230.2	2.9	16.5
other vegetables	395.0	4.8	6.8
2. <u>Livestock products</u>	<u>7 110.2</u>	<u>88.1 %</u>	<u>15.5 %</u>
of which Beef	972.4	12	9.4
Veal	568.2	7	12.4
Pigs	1 961.3	24.3	30.1
Milk	2 317.8	28.7	15.4
Poultry	674.1	8.4	20.1
Eggs	458.0	5.7	19.5
TOTAL	8 074.1	100 %	9.6 %

The region's cereal deficit for feedingstuffs, on the other hand, was about FF 570 million (1). Any change in relative European prices (for example, a rise in the price of cereals in relation to the price of milk) may, because of the lower level of leakages from the agricultural sector, result in large fluctuations in regional income.

(1) 40 000 tonnes of wheat, 60 000 tonnes of maize and 15 000 tonnes of various other cereals.

2.2. Regional balance of payments equilibrium

2.2.1- The problems involved in achieving regional balance of payments equilibrium differ in two main respects from those arising at national level. First, the overall position is automatically balanced owing to the existence of a single national currency and of a unified banking network over the whole national territory. Secondly, public sector transfers between regions may considerably modify the conditions for achieving external equilibrium of a regional economy, since they are much greater, in relative terms, than transfers at European or international level.

The mechanisms of capital movements between regions ensure that each region automatically has the necessary resources to balance its accounts.

A region with a transitory deficit on its balance of goods and services has no need to concern itself directly with the level of its reserves of external means of payment, since all payments are made in the national currency. Moreover, the existence of a unified banking network means that the regional banks are simply branches of national banks ; liquidity requirements in a region with a deficit are therefore necessarily matched by surplus liquidity in the other regions. No visible monetary phenomena, therefore, accompany disequilibrium of the regional balance of payments. Exchange rate fluctuations and/or variations in currency reserves can provide useful "warning signals" for nations, but regions have no such indicators ; the risk of suffering, a cumulative process of disequilibrium is therefore much greater for regions with a balance of payment deficit than for nations.

A persistent trade deficit which is not balanced by a corresponding public transfer surplus cannot be covered indefinitely by increasing regional debts towards the rest of the nation. For example, when the deficit is due to a wage level which is too high in relation to the regional productivity of labour, there is no exchange mechanism to help reduce the region's real wages in relation to those of the rest of the country, restoring the competitiveness of the regional economy. The low level of regional activity will thus be an obstacle to the emigration of local labour.

This development may be curbed by compensatory capital movements, if they represent investments apt to increase regional productivity ; however, experience in Brittany shows that they may also lead to part of the real property of the region's inhabitants being put to other use than that intended. (1)

(1) Many coastal farmers continue in business only by selling some of their land for the construction of holiday villas.

BRITTANY'S BALANCE OF PAYMENTS (1972)

<u>I. GOODS AND SERVICES</u>	Credit (+)	Debit (-)	Balance
1 - 1 <u>Goods</u> : exports and imports (1)	12.25	16.4	- 4.15
1 - 2 <u>Services</u> :			
insurance and sundry items	0.65	1.75	- 1.1
tourism	2.1	0.3	+ 1.8
interest and dividends net	0.4		+ 0.4
public services (postal service, broadcasting, railways)	0.6	1.0	- 0.4
Operating surplus of inter- regional firms		0.5	- 0.5
TOTAL GOODS AND SERVICES			- 3.95
<u>II. PUBLIC SECTOR</u>			
2 - 1 <u>Central government</u> :			
taxes		4.76	- 4.76
(of which personal income tax)		(0.98)	
(of which VAT)		(1.95)	
current operational expenditure	5.7		+ 5.7
<u>capital expenditure</u>	0.4		+ 0.4
balance - central government			+ 1.34
2 - 2 <u>Social Security</u>			
General scheme	2.56	2.77	+ 0.21
Agricultural scheme	1.43	0.33	+ 1.10
Other schemes	1.66	1.55	+ 0.11
Balance - Social Security			+ 1.42
TOTAL PUBLIC SECTOR			+ 2.76
<u>III. CAPITAL MOVEMENTS (net)</u>			
3 - 1 <u>Long term capital</u> :			
Direct investments	0.2		+ 0.2
Net long-term loans	1.9		+ 1.9
Other net loans			
(specialized intermediaries)	0.44		+ 0.44
Net loans (public financial intermediaries)	0.89		+ 0.89
Long-term investments	0.1	0.2	- 0.1
Sale of land and buildings to non residents	0.5		+ 0.5
Total : long-term capital			+ 3.83
3 - 2 <u>Short and medium term capital</u>			
Net medium term loans	0.7		+ 0.7
Net short-term loans	0.74		+ 0.74
<u>Liquid and short-term deposits</u>		2.77	- 2.77
Total short-and medium-term capital			- 1.33
3 - 3 <u>Money supply</u> :			
Notes	0.3		+ 0.3
<u>Current accounts</u>		1.33	- 1.33
Total money supply			- 1.06
TOTAL CAPITAL MOVEMENTS			+ 1.44
ADJUSTMENT	0.25		

(1) Including French naval dockyards : exports (1.0)

2.2.2 - Brittany's balance of payments in 1972

(a) It is not easy to draw up the balance of payments for a region ; the difficulties are both statistical and theoretical. In most cases, we have solved the statistical difficulties by using approximate estimates (based, for example, on road and rail transport statistics, or banks' over-the-counter business), except for public sector transactions, where the information is fairly precise, although difficult to obtain. The theoretical difficulties mainly lie in defining the regional economic units, since there are supra-regional units which operate over the entire national territory. These are mainly :

- national enterprises (Electricité de France, Gaz de France, Société Nationale des Chemins de Fer);
- multi-regional enterprises with establishments in several regions ;
- central government and Social Security institutions ;
- banks and financial intermediaries (as a whole)

Since products and monetary flows move freely over the whole of the national territory, the region is more or less meaningless as a frame of reference to describe the transactions of supra-regional units. The device of allocating between the various regions the profits and bank loans received or the taxes paid by a multi regional enterprise is of little use for the analysis of behaviour. While supra-territorial enterprises are still relatively rare at the international level, they are becoming more and more common at regional level : in 1970, private multi-regional enterprises accounted for 39 % of wage payments, 47 % of turnover and 61 % of investment in Brittany's industry.

To take account of the centralizing mechanisms resulting from the existence of multi-regional units it has been decided to attribute only those transactions directly connected with production to the regional establishments of multi-regional firms. Other transactions (including financial transactions) are attributed to a "fictitious region" which comprises all the multi-regional units. In accounting terms, the gross operating surplus, minus wages and social charges, is entered as a debit in the regional balance of payments and transferred to the fictitious region. Thus financial transactions and distribution of income by multi-regional firms (1) are not broken down by regions. Fixed investment by these firms in Brittany is offset only by a compensatory flow (direct investment).

(1) Including corporation tax

- (b) The deficit on the balance of goods is large, since it represents 15 % of the regions gross domestic product and corresponds to an export cover of imports of 75 %. If the balance on invisibles is included, particularly tourism and the operating surplus of multi-regional enterprises (before payment of corporation tax) the deficit falls to FF 3 950 million. Brittany's deficit is therefore heavy mainly because of imports of energy, and in spite of the large surplus on agricultural products and food (export cover of imports : 170 %).
- (c) Public sector transfers alone apparently cover 70 % of the deficit. (The algebraic sign of this transfer is consistent with R. Prud'homme's research results, analysed above). However, the importance of public finance as a balancing factor is attenuated by the reduction in taxes paid (since corporation tax paid by multi-regional enterprises is not taken into account) and by inclusion in the general government sector of the French naval dockyards (which increases central government expenditure and reduces the region's exports).

With these reservations, it would seem that the role of public funds in restoring equilibrium to the balance of payments is linked to the region's agricultural specialisation. On the one hand, the surplus on central government transactions is due less to the level of expenditure (in spite of military expenditure) than to the low yield of taxation (low effective tax on agricultural incomes, and reduced rate of VAT on products of agricultural origin).

On the other, the excess of social welfare benefits over contributions (financed by equalization at national level, and, for the agricultural scheme, partially financed from taxation) is mainly due to the deficit of the agricultural scheme. For that matter this transfer should be seen as the reflection of a mechanism for equalizing receipts between generations, compensating for the effects of emigration by many farmers' sons, rather than the result of a deliberate policy of assistance to underprivileged regions (for example, social welfare benefits per head of population in Brittany are 21 % lower than the national average, while in the Paris region they are 17 % higher).

- (d) The surplus on capital account adds to the correcting effect of the flow of public funds. It has not been calculated as a residual, but directly on the basis of regionalized Banque de France statistics (1) adjusted in a number of ways. These statistics have the major disadvantage that they do not classify loans by type of borrower (households, enterprises, etc.) It would seem that a large proportion of long-term loans injected into Brittany's economy in 1972 were building loans. (From this point of view, 1972 is not a very good reference year, because of the building boom encouraged

(1) The Banque de France publishes each year a double regionalized study on banks' over-the-counter business' and on residents' transactions.

both by the banks' credit policy and by various tax measures). Over a three year period, it seems that capital was being redistributed (1) from the Southern regions (Languedoc, Provence) and Aquitaine towards some industrial regions in the East (Lorraine, Champagne), in the Haute-Normandie and in the North, while capital transactions were in equilibrium along a band stretching obliquely from Brittany to the Alps. This description should be treated with caution, since the Banque de France statistics do not permit correct treatment of the Paris region. The Paris region is far and away the biggest capital exporting region, but this conclusion is meaningless, since lending is concentrated there (46.5 % of the national total of 1972) as is the collection of deposits (40 % of the total).

It would seem that income from property, on which there is relatively little statistical material, does not significantly modify Brittany's balance of payments. No doubt there is a net, though small, inflow of interest and dividends into Brittany because of the region's long-term investments. But the transfer of the operating surplus of multi-regional enterprises does not necessarily offset this inflow since it must be adjusted for the amount of corporation tax.

The relative importance of the item "sale of land and buildings to non-residents" should be noted : more than a third of capital movements result from the sale of coastal land to summer residents, and also from building investment in rapidly growing towns.

* * *

Do capital movements and the redistribution of public funds make a long-term contribution to equilibrium ? The answer would be yes only if capital flows were likely to improve the competitive position of Brittany's economy and to increase its productivity. Although some public expenditure helps attain this objective (roads, telephone networks), it would seem that a large part of private debt reflects the expansion of building, and that the surplus in the balance of public flows is due to a policy of supporting the agricultural sector rather than to a policy of improving the region's productive capacity. Channelling public aid into the deficit regions is, in the final analysis, more important than its actual amount.

(1) Comparative analysis of changes in assets and changes in liabilities resulting from residents' transactions.

TABLE I
CENTRAL GOVERNMENT GRANTS AND PAYMENTS TO LOCAL GOVERNMENT (1970)

	Millions of 1970 FF			Pattern of grants		
	(1) Total	(2) Vrts	(3) Grants	(4) Social assistance grants	(5) Current operational and other	(6) Infrastructure grants
Paris region	4132	2310	1822	538	665	619
Champagne	401	218	183	77	49	57
Picardy	452	236	216	114	53	50
Haute-Normandie	497	261	236	96	64	76
Centre	645	342	303	132	86	85
Basse Normandie	387	211	176	86	46	44
Burgundy	482	261	221	93	64	64
Nord	1126	620	506	276	107	123
Lorraine	634	340	294	101	100	92
Alsace	402	235	167	65	58	44
Franche-Comté	288	150	138	55	36	47
Pays de Loire	754	405	349	161	86	103
Brittany	795	391	404	167	111	125
Poitou	452	241	211	96	65	50
Aquitaine	761	412	349	191	89	69
Midi-Pyrénées	675	344	331	154	87	90
Limousin	274	114	160	58	43	58
Rhône-Alpes	1423	781	642	227	165	250
Auvergne	393	213	180	80	46	54
Languedoc	643	283	360	135	92	134
Provence-Corsica	1301	683	618	296	119	204
Total FRANCE	16917	9051	7866	3199	2230	2437

TABLE II
CENTRAL GOVERNMENT GRANTS AND PAYMENTS TO LOCAL GOVERNMENT (1970)

	FF per head of population										Index numbers, France = 100		
	(1) Total	(2) Vrts	(3) Grants	(4) Current grants		(5) Operat. Others	(6) Infrastr. grants	(1) Total	(2) Vrts	(3) Grants	(4) Soc. assist. grants	(5) Infra str. grants	
				Soc. Assist.	Others								
Paris region	432	242	190	56	69	65	130	136	122	89	135		
Champagne	307	167	140	59	37	44	92	94	90	94	92		
Picardy	280	146	134	70	33	31	84	82	87	111	64		
Haute Normandie	323	170	153	63	42	49	97	95	99	100	102		
Centre	315	167	148	64	42	41	94	94	95	101	35		
Basse-Normandie	302	165	137	67	36	34	91	92	88	106	71		
Burgundy	310	171	145	61	42	42	93	96	94	97	87		
Nord	292	161	131	71	32	32	88	90	84	113	67		
Lorraine	274	167	127	44	43	40	82	82	82	70	83		
Alsace	278	162	115	45	40	31	83	91	74	71	64		
Franche-Comté	283	146	136	54	37	46	85	82	88	86	96		
Pays de Loire	287	154	133	61	32	39	86	86	86	97	81		
Brittany	318	156	162	67	45	50	95	87	104	106	104		
Poitou	302	161	141	64	40	33	91	90	91	101	69		
Aquitaine	306	166	140	77	36	28	92	93	90	122	58		
Midi-Pyrénées	307	156	150	70	39	41	92	87	97	111	85		
Limousin	370	153	216	79	59	79	111	86	139	125	164		
Rhône-Alpes	312	171	141	50	36	55	94	96	92	79	114		
Auvergne	296	161	136	61	34	40	89	90	88	97	83		
Languedoc	370	162	207	77	53	77	111	91	134	122	160		
Provence - Corsica	362	190	172	82	33	57	109	106	111	130	119		
Total FRANCE	333	178	155	63	44	48	100	100	100	100	100		

TABLE III
REGIONALIZED INFRASTRUCTURE BUDGET

	Overall total			Total grants			Total grants to local Gov.		
	Total FF million	FF/head of pop.	Index Nos. France = 100	Total FF million	FF/head of pop	Index Nos. France = 100	Total	FF/head of pop	Index Nos.
Paris region	5417	544	131	1904	191	116	1112	112	118
Champagne	583	432	104	205	152	92	113	84	88
Picardy	512	309	75	219	132	80	134	81	85
Haute-Normandie	631	397	96	201	127	77	133	84	88
Centre	695	329	79	312	148	90	177	84	88
Basse-Normandie	571	438	106	253	194	117	123	94	99
Burgundy	555	357	86	222	143	87	148	95	100
Nord	1196	304	73	485	123	74	347	88	93
Lorraine	882	373	90	301	127	77	226	96	101
Alsace	557	374	90	278	187	113	145	97	102
Franche-Comté	332	316	76	147	140	85	92	87	92
Pays de Loire	1029	383	92	345	203	123	223	83	87
Brittany	868	343	83	388	153	93	184	73	76
Poitou	452	300	72	224	149	90	132	88	92
Aquitaine	1012	401	97	452	179	108	220	87	92
Midi-Pyrénées	767	345	83	336	151	91	181	81	85
Limousin	377	509	123	206	278	168	75	101	106
Rhône-Alpes	2009	424	102	638	135	82	485	102	107
Auvergne	478	355	86	229	170	103	109	81	85
Languedoc	722	412	99	317	181	110	168	96	101
Provence-Corsica	1946	522	126	748	201	122	425	114	120
Total classified	21591	414	100	8609	165.1	100	4953	95	100
Non-classifiable	1471			433			219		
TOTAL	23062			9042			5172		

Chapter 3

GERMANY

by

Dieter Biehl

DETERMINANTS OF REGIONAL PRODUCT AND REGIONAL INCOME IN GERMANY

1. Determinants of Interregional Productivity Differences

1.1. Interregional income differentials can be analysed from two points of view :

- From a supply oriented productivity or performance point of view. The question to be answered is : What are the determinants of interregional - actual or potential - productivity or output differentials ?
- From a demand oriented welfare point of view : What factors determine the disposable income of the resident regional population ?

In both cases, the question involved is the role played by public finance in determining output or disposable income.

The first part of this paper presents a brief summary of the newly developed "bottle-neck" factor approach which can serve as a starting point for the explanation of interregional productivity income (regional product) differentials. The second part deals with the disposable income aspect. In both cases, data from German regions or the German Länder form the basis for the empirical analysis.

1.2. In principle, the resource endowment of a country or a region can be considered as determining its production possibilities or potential output. But it is not so much the total resource endowment, but rather a set of "bottle-neck" factors which determines the productive capacity and limits the development or income potential.⁽¹⁾ Whereas natural resources in the broadest sense, ranging from topography and climate to geographical location, can be considered as being very long term, if not secular, determinants of development potential, it can be argued that the endowment with fixed social capital ("infrastructure" equipment), agglomeration and the given sectoral structure of a region represent such bottle-neck factors in the medium run.

The economic potential of these bottle-neck factors is higher, the higher their degree of immobility, of indivisibility, of polyvalence and of non-substitutability.

The reason is, in general, the expense - in terms of resource costs - to compensate a region for the non-existence of these bottle-neck factors, or to replace already fully utilised bottle-neck factors, and furthermore the possibilities for substitution become more limited as their location is more fixed, as their productive capacity is higher and as they are in more specialised industries. It is for

(1) Cf. For this proposition D. Biehl et al. , Bestimmungsgründe des regionalen Entwicklungspotentials, Infrastruktur, Agglomeration und Wirtschaftsstruktur (Determinants of the Regional Development Potential, Infrastructure, Agglomeration and Economic Structure), Kieler Studien 133, Tübingen 1975.

example very expensive to compensate a region for its peripheral location and its bad topography with the aid of transportation infrastructure (roads, railways, airports, waterways). Compared with a better located and topographically not disadvantaged area, a larger share of regional resources has to be used in order to decrease communication (including transportation) costs. These bottle-neck factors can be considered as 'public' factors of production compared to the "private" factors like mobile labour and private saving.

Whereas transportation infrastructure determines interregional communication cost, agglomeration is the most important determinant of intraregional communication costs. Sectoral structure, finally, is a **bottle-neck factor in so far as e.g. an agricultural region** will have to use more resources to adapt its resources to industrial production compared with an already industrially developed region. Or to use a more general formulation : The costs of changing the sectoral production structure, which means transition from agriculture to industry and from industry to the service sector, are higher than changing only the product structure or the enterprise structure within a given production pattern - larger (qualitative) changes are more expensive than smaller (quantitative) ones.

- 1.3. As far as the overall structure of production is concerned, it is possible to imagine a world scale of all industries or all produceable goods and services, ranked according to their relative resource requirements. From a simplifying point of view, this scale starts with the relatively least capital intensive products (and at the same time more labour intensive ones) at the bottom and ends with the most capital intensive (least labour intensive ones) at the top, if "capital" is defined as comprising at the same time material private capital (buildings, machinery, etc.), material public capital (infrastructure) and private human capital. Each country or region can be attributed its individual place or rank on that world scale, depending on its relative resource endowment and the number of different industries or goods and services they are producing.
- 1.4. This is a static picture of the international and interregional division of labour, as it presents itself at a given point of time. The dynamics of economic development enter the scenario if one takes account of the fact that savings and investments increase productive capacity and make capital cheaper compared with labour. As a consequence, entrepreneurs in all those countries or regions where capital has become relatively cheaper and labour relatively more expensive, will find it profitable to engage themselves in more capital intensive lines of production. But since relatively capital intensive lines of production in countries on the lower part of the world scale are at the same time frequently relatively labour intensive in countries on the upper part, competition "from below" force the capital richer countries to give up those productions and to provide additional incentives for expanding their relatively more capital intensive activities. During that process of continuously changing division of labour and continuously changing production structures in all countries and regions participating in international

trade, the world scale of produceable goods and services is extended, too : Because for the countries at the top of the world scale, there exist no production lines which they can take over from a country still ahead of them, they have to put relatively more resources into the production of new knowledge, i.e. in research and development.(1)

- 1.5. The resource endowment approach can be summarized in the proposition that the relative resource equipment per member of the labour force, per job or even per capita of resident population, determines the potential output and, if the existing productive capacity is fully used, also the actual output.

(1) This simplified picture of economic development can admittedly not claim to explain all aspects of international division of labour and of structural change. It relies heavily on the classical ideas of comparative advantage and of the propositions of Heckscher and Ohlin. As e.g. Lary (cf. Hal B. Lary, Imports of Manufactures from Less Developed Countries, New York and London 1968) and Fels (cf. G. Fels, "The Choice of Industry Mix in the Division of Labour Between Developed and Developing Countries", Weltwirtschaftliches Archiv, 108 (1972), pp. 71 ff.) have shown, it is possible to explain the division of labour between developing and developed countries along the Heckscher-Ohlin lines fairly well, if one extends the notion of "capital" in order to comprise not only private material capital stock, but also human capital. But even if one differentiates the approach further and if one follows e.g. Sev Hirsch in his classification of "Ricardo-goods" (as synonym for natural resource based goods) and of "product cycle goods", (cf. S.Hirsch, "Hypotheses Regarding Trade Between Developing and Industrial Countries", in : H. Giersch (Ed.), The International Division of Labour, Problems and Perspectives, Kiel 1974, pp. 66 ff.) the core of the argument remains still valid, if it is based on a proper definition of capital. The new element introduced through the product cycle hypothesis is the assumption that a product in its first phase of life may be a relatively capital intensive one (high content of human capital for research and development), but may become later on a relatively labour intensive one, after the production technique has been standardized and is internationally freely available. This explains why developing countries are successful even with products which have relatively high material capital requirements, but low requirements as to human capital including skills.

An existing resource capacity can be said to be fully - or optimally - used if it is combined with that quantity and quality of mobile, **divisible**, specialized and substitutable private factors of production (like private capital and labour) which makes actual equal to potential product or income. Whether this is the case depends on a special benefit-cost-ratio, namely the relation between productivity and the real wage rate or the "efficiency wage"-rate.(1), (2) The higher the

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- (1) The real wage rate can be used as cost indicator, because wages due to trade union and employer arrangements are normally inflexible downwards, so that they have a statutory character whereas other cost components are of a residual nature or at least open to negotiation in both directions. In addition, labour in the long run will always become more expensive since it represents a combination of "natural" labour with (increasing) human capital. Even if the rate of return to human capital remains constant or decreases slightly, wage rates per hour or per employee will, therefore, increase in time. In the international case, the real wage rate has to be adjusted for changes in the real exchange rate.
- (2) See e.g. H. Giersch, "Beschäftigungspolitik ohne Geldillusion" (Employment Policy Without Money Illusion), Die Weltwirtschaft, 2/1972, pp. 127 ff. According to Kaldor, Keynes coined the phrase of "efficiency wages" for the inverse relationship (wages through productivity) and used this relationship already to explain employment effects (cf. N. Kaldor, "The Case for Regional Policies", Scottish Journal of Political Economy (1970), p. 342).

Productivity per person, the higher is the international and interregional competitiveness of a given production line or of a regional or national production pattern.

A given resource endowment, therefore, limits the income per capita which can be produced by a region. Since the private factors of production are especially mobile and divisible, they can be attracted to a region where an unused public resource capacity exists by paying them an adequate remuneration (interest payments and wages).

A centrally located and optimally agglomerated region for this reason has a better resource endowment, all jobs in such a region to the extent that they make use of these resources, are more productive compared with a peripheral and thinly populated area. If wage rates are equal for those regions, the productivity-wage relationship is higher in the former than in the latter. As a consequence, profits are higher in the former and lower in the latter, which in turn attracts private capital into the better endowed region and pushes capital out of the less well equipped one. The first region is then also capable of attracting additional labour through commuting and immigration, whereas the less endowed will suffer from outcommuting and outmigration. If mobility of labour is low, this will cause overemployment in the first and underemployment in the second type of region. That means to put it simply, that under conditions of different productivity wage relations, but equal wage rates, capital does not move towards labour, but labour is forced to move towards capital.

All these effects taken together will set a brake to the "spread effect" of labour-intensive industries in a national or international setting : The extent and the speed of displacement with which these industries shift their location from the center to the periphery is reduced and, at the same time, incentives for the central regions to invest in more capital-intensive lines, especially in tertiary activities, are reduced too. The net effect is a considerable reduction in the chances for economic development in the less well endowed regions under equal wage rates.

1.6. The above-mentioned negative effects are caused by the fact that wage rates are not in line with productivity in the two types of regions. These considerations lead to what I think to be the hard core of the regional problem : The distortive effects of the dual monopoly of Trade Unions and Entrepreneur's Associations on the labour markets on one hand, and of the regional mal-distribution of public investment on the other hand. This has two implications :

- First, if Trade Unions base their wage bargaining strategies on the goal of equal pay for equal qualification, and if this strategy is successful nationwide, the resulting wage structure and wage levels will be more or less equal over all regions. But since productivity differs between regions because of different resource

endowments, this will create the already mentioned tendencies towards overemployment in high productivity regions and underemployment in low productivity regions. The outcome will be worse, the more Trade Unions claim, and Entrepreneurs accept, that wage increases for low skill people are higher relative to high skill ones. This creates the well-known "minimum wage unemployment" and is especially detrimental to labour-intensive low skill industries in the peripheral regions. To the extent that there exists a "machinery embodied" technical know-how for these labour-intensive products which can be transferred easily to developing countries, lower real wage rates, adjusted for possible higher communication costs, will enable developing countries to efficiently compete with these labour-intensive industries in the low productivity regions in developed countries.

- Second, if governments continue to distribute infrastructure equipment according to needs (that means e.g. according to density of population, in-migration and/or voter-potential), they will favour the already high income regions and disadvantage the others thus aggravating the already existing differences in productivity. The fact that private capital also prefers investment in these high productivity regions is, therefore, not what it is commonly thought to be - namely a market failure - but rather a failure of the political decision making process.

- 1.7. The main difference between the national and the regional case is conditioned by the fact that international competitiveness does not depend on the absolute difference in productivity and consequently on the absolute amount of resources per capita in relation to the wage rate, but on the comparative resource endowment. The reason for this is that the exchange rate system which relates national prices, output and capital transactions on the world markets will normally, if it is flexible enough, tend to create equilibrium in the balance of payments, which means that the absolute advantage of better equipped countries and regions is reduced via revaluation to the extent that some of their products are no longer internationally competitive. Since this revaluation for the richer country is a devaluation for the poorer ones, the latter will gain in competitiveness if it accepts the implied lowering of its real wage rate compared with the rest of the world(1). Furthermore, a national

(1) Exchange rate changes, therefore, can do the same trick for open economies as e.g. Keynesian deficit spending does for closed economies : Both reduce the real wage rate compared with what it would have been otherwise. They also fail under the same conditions - if a country is not ready to suffer a decrease in real income and if Trade Unions fully anticipate the change of the exchange rate or the change in the price level, in short : if there is not enough money illusion (cf. H. Giersch "Some Neglected Aspects of Inflation in the World Economy", Public Finance/ Finances Publiques, Vol. XXVIII (1973), p. 108)

economy can use certain policies (e.g. monetary, fiscal, tariff and non tariff barrier policies) in order to influence either the exchange rate or to favour or disfavour specific goods or services, kinds of income, and types of capital transaction.

In contrast to this, a single region inside a national economy cannot make use of these instruments in order to compensate for a bad resource endowment ; its real efficiency wage is determined by the income potential of its resources. Since neither changes in the (regional) exchange rate nor changes in the (regional) price level are possible which can dissimulate the consequences of interregional differences in resource endowments, the problems are not hidden behind a curtain of money illusion : The question is one of to be or not to be, i.e. , if and to what extent a region is ready to have lower wages than other better equipped regions in order to remain competitive in terms of its productivity-wage relationship, and/or if and to what extent the richer regions are ready to redistribute income to the poorer ones, thereby subsidising a higher real wage rate in the recipient regions. Consequently if Trade Unions and employers fix uniform national wages for each category of labour, they force people either to leave regions with poor resource endowments or to stay and become unemployed, unless the public sector redistributes income between well and badly endowed regions.(1)

- 1.8. Statistical evidence for the proposition that structural change is a corollary of economic development can be found when the relative shares of agriculture, industry and services for countries or regions with different development levels measured in per capita terms are analysed. International and interregional cross section studies show that there exists a typical pattern of structural change as far as these three large sectors are concerned (see Chart 1 and 2)
- The share of agriculture is falling, although with decreasing rates ;
 - industrial activities first, i.e. at a low per capita income, increase, then reach a maximum and later on decrease ;
 - service activities (in the largest sense including governments) present an inverse picture, they decrease first, reach a minimum and then increase again (2).

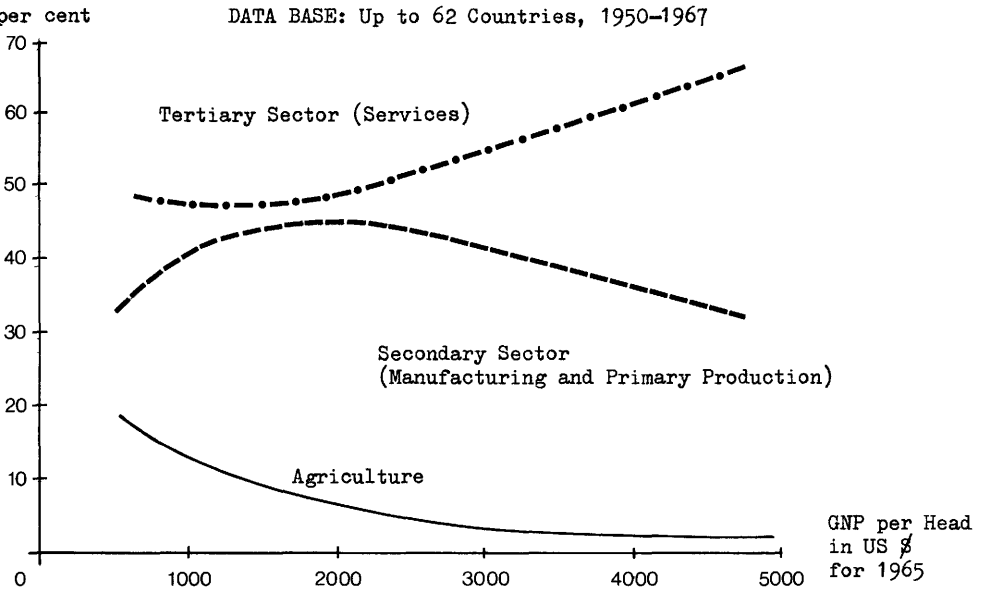
This shows that structural change is not symmetrical ; it changes its character in the development process : If a country or a region in the course of its development moves through the mentioned world scale of branches of products from the bottom to the top, it

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- (1) The redistributive role of the public sector will be dealt with in part 2.
- (2) The proposition as such has already been developed e.g. by Fourastié, and others. For conclusive statistical evidence see the sources cited below Chart 1 and Chart 2.

DIRECTIONS OF SECTORAL CHANGE

Sector
Contribution
to GNP
in per cent

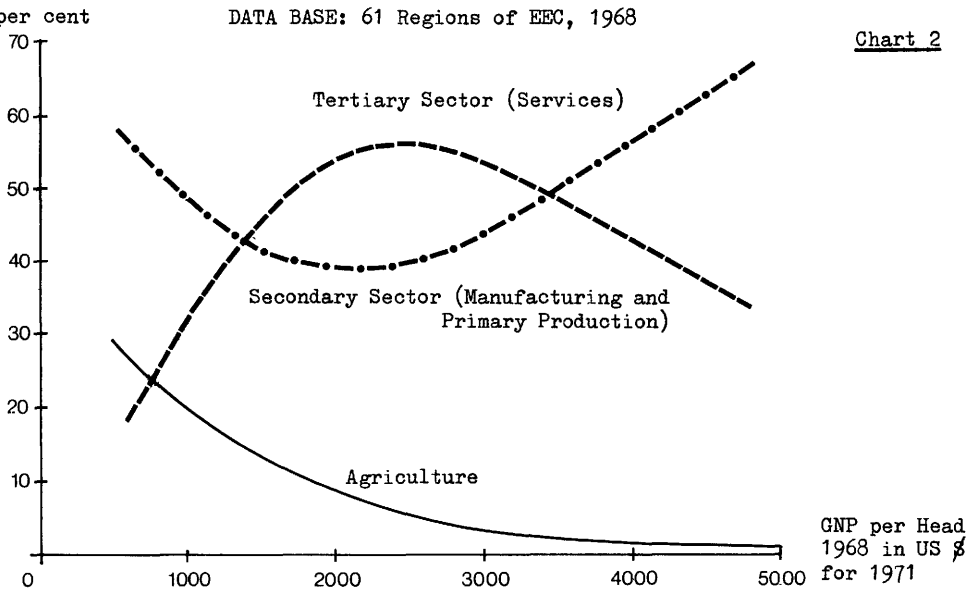
Chart 1



Source: G. Fels, K.-W. Schatz und F. Wolter, Der Zusammenhang zwischen Produktionsstruktur und Entwicklungsniveau, Weltwirtschaftliches Archiv, Bd. 106 (1971), Heft 2, S. 240 - 278.

Sector
Contribution
to GNP
in per cent

Chart 2



Source: D. Biehl, E. Hussmann, S. Schnyder, Zur regionalen Einkommensverteilung in der Europäischen Wirtschaftsgemeinschaft, Die Weltwirtschaft, Heft 1/1971, S. 64 - 78.

substitutes products which formerly had been in the agricultural or in the service sector through industrial ones during the first phases of development, whereas an inverse substitution process between industrial products and services takes place in the later stages. The relative decrease of industrial activities and increase in tertiary activities in highly developed countries and regions can also be taken as some evidence for the so-called Wagner's law of expanding state activities, because the public sector seems to increase in those countries relatively fast (1).

1.9. Empirical evidence can also be presented for the proposition that the relative resource endowment determines the per capita income potential and largely also the actual income per capita. An analysis of the infrastructure equipment and of the "settlement structure"(2) of German labour market regions revealed that there exist large interregional differences. If one compares for example the index figures for physical infrastructure (e.g. road-kilometers, railway-kilometers, high tension electrical supply networks, gas supply, dwelling infrastructure, school places, hospital beds, per head or per square kilometer)(3) for these regions, the following relative disparities show up :

- For the group of the seven infrastructure categories analysed taken together, the index for the best equipped region in the Ruhr area is 7.5 times the index of the worst equipped region ;
- road supply is the single category with the lowest maximum-minimum ratio with 3.3 : 1 ;
- hospital beds have the largest mini-max-ratio of 320.6 : 1 (4)

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- (1) See for this aspect of development e.g. the papers and the discussion published in Public Finance/Finances Publiques, especially Vol. 26 (1971), no. 1 and subsequent issues. An interesting interpretation of this phenomenon has been presented by A.T. Peacock and J. Wiseman with their "displacement hypothesis" : They assume a sort of "ratchet effect" in arguing that it is especially when periods of wars and social crises are finished that governments can expand other civil activities.
- (2) See to I.IQ, footnote
- (3) In the regressions the variables used have been defined either in per capita terms or in per square kilometer terms, depending on whether the specific variable has a higher correlation with population or with land. They can therefore be categorised as either "population serving" or "space serving".
- (4) This extremely high last relationship points also to the fact that labour market regions which are delimited according to commuter flows, are not necessarily at the same time the "optimal" service areas for the health system.

If the indicators for the physical infrastructure equipments are used in order to estimate a quasi-production function, where infrastructure equipment "explains" regional income per capita, the maximum-relationship become smaller. For e.g. the seven categories taken together, the ratio becomes now 2.2 : 1. The agglomeration potential calculated with the aid of a settlement-structure coefficient, reaches a relation of 2.0 : 1. These figures show that the marginal "productivity" of an increased infrastructure equipment or an increased population density is decreasing.

From this it follows that an equal increase in per capita income requires higher public investments in already well equipped regions compared with less equipped ones.

- 1.10. Agglomerated centers and regions have not only positive externalities in form of lower communication cost, but also negative externalities - environmental damage, air and water pollution, noise, and time consuming private and public transportation. The existence of - positive or negative - external effects means that private and social costs and benefits diverge. A reasonable assumption is that this divergence is higher the higher the degree of agglomeration because increasing agglomeration produces increasing - sometimes progressively increasing - social costs. The existing positive effects of agglomeration on the other hand - e.g. lower communication costs through larger and more transparent goods-, labour- and capital-markets - are to a large extent already reflected in higher private profits and in the greater attraction especially large urban centres have for new private investments.

Even if there do exist positive externalities which are not reflected in lower private costs, one can safely assume that the negative externalities in highly agglomerated industrial centers or regions already outweigh the positive externalities, so that the overall net effect is an increase in social costs which are not reflected in higher private costs. The result is that our existing system of national and regional accounts, which reflects mostly private costs and benefits, overestimates the real increase in social welfare in highly agglomerated regions. Real growth in these regions is therefore lower.(1) Whereas national account figures overestimate the

(1) American economists estimate that the real increase of welfare, according to a new "measure of economic welfare" - concept (MEW), is only about 2/3 of the increase in real GNP as calculated on the basis of national accounting systems for the U.S. Since this is already the outcome of a national averaging of regional figures in a highly developed country, the deviations from this average in the most agglomerated U.S. - regions may be such that some of these regions may already experience negative real growth measured in terms of social benefits and costs despite positive national account figures.

real output effects of a given resource combination for agglomerated regions, the same production function relationship can nevertheless be used in order to estimate the real income effects of these resource combinations in less developed and less agglomerated regions, because their agglomeration costs are lower.

- 1.11. The resource endowment approach is not exhausted with the analysis of sectoral structure, infrastructure equipment and agglomeration. A possible approach to evaluate the importance of other resources consists in determining the influence of the peripheral or central location of a region on its development potential. The hypothesis to be tested is that the potential product of a region depends also on its proximity to areas of high level economic activity. The idea behind this proposition is a combination of the already explained relative competitiveness approach and of the export-led growth approach : The less under given real wage differences the communication cost a peripheral region incurs in participating in interregional trade with the central high income regions, the more competitive will this region be with its products in the markets of the central regions. A well specified test would have to take into account all categories of communication cost, starting from information cost up to transportation cost in the narrow sense of the term. A simple proxy of this set of variables may be geographical distance measured in kilometers.

A test of this variable for the 61 regions of the six old member countries of the European Communities (Belgium, France, Germany, Italy, Luxemburg, Netherlands) shows that this hypothesis is relevant (see Chart 3) : Income per head is lower, the more distant a region is from the high income center of the Cologne/Düsseldorf area in Germany. The coefficient of determination can be improved, if density of population is added as a second explanatory variable. The latter variable has the expected positive sign which means that whereas income decreases with increasing distance, agglomeration acts as a countervailing power.

- 1.12. Density of population is a proxy for agglomeration, and agglomeration means, in addition to concentration of population, concentration of public infrastructure equipment and a well structured network of central places and markets (1) or settlement structure. The results

(1) See for the theory of central places W. Christaller, Die zentralen Orte in Süddeutschland, eine ökonomisch-geographische Untersuchung über die Gesetzmässigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen (The central places in Southern Germany, an investigation into the laws of distribution and development of settlements with urban functions), Jena 1933, and for a generalised regional location theory A. Lösch, Die räumliche Ordnung der Wirtschaft, Eine Untersuchung über Standort, Wirtschaftsgebiete und internationalen Handel (The spatial order of the economy, a study of location, economic space and international trade), Jena 1940. The latter book has also been translated into English and published under the title : The Economics of Location, New Haven and London 1954.

obtained for the 61 european regions therefore suggest that poor regions in as far as they are either peripheral ones or unsufficiently agglomerated ones can substitute public investment for their low locational potential.

An indirect test of this hypothesis has been made for German regions by separating those regions which after the second world war received regional aid from the Federal Government and other regions, and by using data from only the non-subsidised regions in order to estimate quasi-production functions for infrastructure and settlement structure (1).

This exercise revealed that the coefficient of determination increased considerably, if only data from the unaided regions are used, which means that the subsidised regions had a more distorted and less economically determined infrastructure and settlement structure or in other words that their rates of resource utilisation differ more. In addition, if the income potential of the aided regions is calculated using the quasi-production functions of the unaided regions, the result is a relative over-capacity of infrastructure and settlement structure of about 19 per cent in the aided regions. This can be interpreted as meaning that the aided regions as a group need relatively more infrastructure and a better settlement structure in order to compensate for lacking other natural resources, especially for a worse location compared with more prosperous regions.

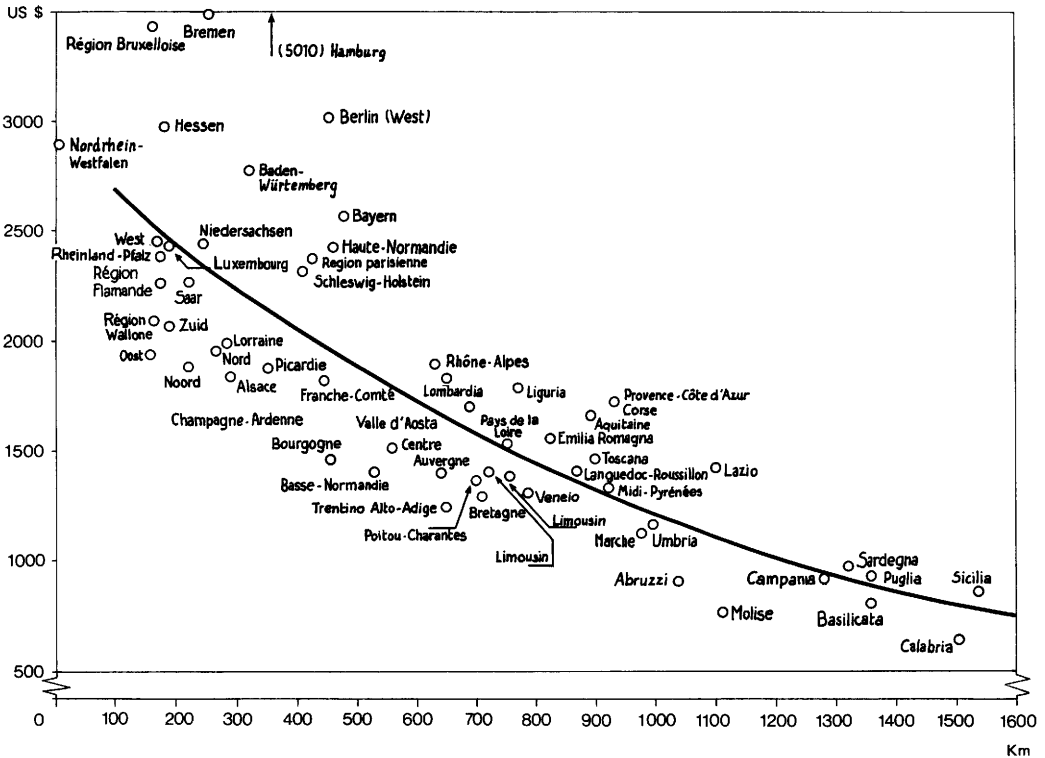
- 1.13. These results can also be interpreted to the effect that the 19 % deviation from the "normal" output represents an indicator for the required devaluation of the regional exchange rate, if such a thing existed. But since it is not possible to have different regional exchange rates inside a national currency area, forces which would otherwise create balance of payments deficits under this restriction show up as the most important regional problem : unemployment, commuting and emigration.

It has to be noted in this context that until 1970/71 the Deutsche Mark can be considered as having been undervalued, which implies an export subsidy and an import tax. If under these very favourable conditions for national growth (which, among other things, explains the high and until 1970 still increasing share of industry in Germany despite the above mentioned structural relationships), there existed nevertheless regions with significantly lower performance as described

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- (1) The regions used for these calculations are larger ones compared with the already mentioned labour market regions ; the Federal Republic is divided into only 61 functional entities units, the so-called "Raumordnungsregionen" (cf. D. Biehl et al., "Determinants of Regional Development Potential, Infrastructure, Economic Structure and Agglomeration", The German Economic Review, Vol. 13 (1975), no. 2, pp. 117-134.

Chart 3

Relation between Product GNP per Head and Distance of the Regions from the High-Income Center of the EEC (Cologne/Düsseldorf Area) in 1968.



Source: Dieter Biehl, Eibe Hussmann, Sebastian Schnyder, "Zur regionalen Einkommensverteilung in der Europäischen Wirtschaftsgemeinschaft" (On Regional Income Distribution in the European Economic Community), Die Weltwirtschaft, 1972/1, pp. 64 - 78.

above, the conclusion must be that these regions would have done still worse if the exchange rate had been at its equilibrium value. And : since exchange rate conditions have changed drastically in in the meantime with the effect that many people believed that the existing floating rates are at least temporarily too high, making the DM an overvalued currency, the conclusion is that the actual recession in Germany with an unprecedented overall unemployment figure of almost 6 % during the last year 1974/75 is not so much a cyclical phenomenon, but an indicator of the strength of the adjustment process caused by the change from the DM being an undervalued currency and by the structural factors explained above.

2. Determinants of Interregional Disposable Income Differences and Regional Balances of Payment

- 2.1. As already mentioned (cf. para 1.7.), whereas international competitiveness depends on comparative resource endowment, interregional competitiveness is determined by differences in absolute amounts and qualities of available resources, because there is a fixed exchange rate between regions belonging to the same national economy. This implies that regions ought to suffer even more from balance of payments problems compared with nations. The question is therefore why these regional balance of payment problems do not seem to be observable.

The first answer naturally is that because there are no distinct regional currencies, it is simply not possible to calculate such a regional balance of payments. But the effects that an adverse balance of payments normally has on national economies can also be observed in the regional case e.g. emigration and unemployment. Since it is not possible to deal with regional balance of payments problems through devaluing or revaluing the (not existing) regional currencies, these adverse effects must show up **even stronger unless there are compensating mechanisms.**

The regional trade balance can be expected to show an increasing deficit (net imports), if the relative prices for tradeables increase because of a deterioration in the productivity-wage relationship (PWR). This implies that the weighted average real wage rate has to be lower, the lower the regional resource endowment per job. But because Trade Unions claiming and entrepreneurs granting equal pay for equal work, relative interregional wage differentials in a country are normally smaller than differences in relative resource endowments and, consequently productivity. As the cited example for Germany show, there exist relatively large differences especially in public infrastructure equipment. This seems to be true also for other countries, especially as far as infrastructure density in space, agglomeration and location (site) of regions are concerned.

If wage rates were completely equalized throughout a country, if relative resource endowments differ, and if there is only one

strongly agglomerated region in a national economy, one would accordingly expect that the rate of unemployment would be increasing with increasing distance from the central agglomerated region. Increasing unemployment with increasing distance from the center is one effect of an unfavourable regional balance of payments. In the less well endowed regions, regional exports are lower than regional imports because the PWR is distorted compared with the one compatible with full employment. But increasing unemployment induces increasing transfers out of the national unemployment insurance system ; as a result, consumption in those regions can remain higher compared with the case were private disposable income is exclusively earned in production. The public transfers, therefore, subsidize private consumption in that region and these subsidies compensate for a part of the regional balance of payments deficit.

- 2.2. A second type of adjustment to an unfavourable balance of payments consists in increased out-commuting and out-migration. The reason is the same as in the unemployment case : If regional exports are not competitive enough, it depends on the relative mobility of labour compared with the degree of downward inflexibility of wages, whether an adverse balance of payment causes more out-commuting and out-migration or more open unemployment. The lower the mobility with given inflexible wages, the higher will be the rate of unemployment and the lower the activity rates of the population. On the other hand, if wages are more flexible downwards, real wages may be reduced to such an extent that both unemployment and out-commuting or out-migration are reduced. In the out-commuting/out-migration case, there also exists an income flow back to the factor exporting region which increases regional disposable income relative to domestic income.
- 2.3. A possible third type of adjustment consists in capital flows out of the region with a low PWR and a corresponding "import" in capital returns. This presupposes like in the out-commuting/-migration case that the capital owners retain their residence in the region and only invest abroad (1). But this type of adjustment is not necessarily linked with the deterioration of the PWR; capital is more often exported from well endowed regions.

(1) It is easy to construct a taxonomic matrix e.g. under the general assumption that factor owners can decide a) where to 'reside' formally (for purposes of income taxation), b) where to 'invest' their factor services, and c) where to 'consume' the proceeds of that investment. Cf. for such an approach in the context of a tax harmonization framework Dieter Biehl, Ausfuhrland-Prinzip, Einfuhrland Prinzip und Gemeinsamer -Markt-Prinzip ; Ein Beitrag zur Theorie der Steuerharmonisierung (Export Country Principle, Import Country Principle, and Common Market Principle ; A Contribution to the Theory of Tax Harmonization), Köln 1969, pp. 349 ff.

- 2.4. In an international framework, those adjustments to an adverse balance of payments are supplemented by the possibility of changing the exchange rate in order to restore equilibrium in the balance of payment. In an interregional framework (all regions belonging to the same national economy), exchange rate adjustments are excluded, but another type of adjustment transaction exists : net transfer (i.e. expenditures minus taxes) from the central government or horizontal tax/expenditure equalisation schemes. The payments to and from the national unemployment insurance system have also to be considered as a part of that public sector adjustment mechanism. (1)

These public transfers, too, make regional disposable income to be relatively higher than regional output and domestic income earned in production. The public sector can therefore perform the function of a potent " equalizer " of disposable income per capita and compensate via transfers otherwise existing regional balance of payment deficits.

The extent to which the budgets of the different levels of government and of the social security system in Germany really operates in this way, will be analysed in the next part of this paper.

3. The Equalizing Effects of the Public Sector in Germany 1960 - 1970 (2)

- 3.1. In 1974, the Statistical Office of the German Länder for the first time published figures according to the usual national accounting definitions for the ten Länder and West-Berlin from 1960 - 1970 (3)

Whereas the figures on earned income take account of the export and import between each individual Land and the rest of the world (including the other Länder), the figures for entrepreneurial income from wealth represent only the difference between income arising in a Land and the imported income, i.e. the exported income is not subtracted. (4)

It is now possible to differentiate between a number of different income definitions (see below). In addition, information is available for current revenue and expenditure of all levels of government and on public investment expenditure. On the basis of the figures for the regional distribution of existing infrastructure equipment, it can

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- (1) International aid payments e.g. to developing countries are similar to public transfers in the interregional case.
- (2) For this part of the paper I am indebted to Mr Reichenbach of the staff of the Directorate General for Economic and Financial Affairs of the Commission, for his detailed comments. I have also used the results of Mr Reichenbach's analysis given to the Study Group on the effects of Public Finance flows (see para. 3.8. below)
- (3) Cf. Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern, Standardtabellen 1960 - 1970, Stuttgart 1974 (referred to in what follows as "Länder Accounts 1974").
- (4) Ländertabellen 1974, S. XIII

be assumed that there may be significant differences in this respect. It has indeed required much effort on behalf of the Statistical Länder Offices to present figures for these categories as well. But in order to find a Länder breakdown of the expenditures especially of the budget of the Federal Government and its affiliated budgets it has not been possible to always rely on original data. To a large extent, keys have been selected in order to distribute some large expenditure categories.(1)

3.2. So as to be able to present some detailed information especially on the effects of the German public finance system a number of endogeneous variables have been defined.

- Total public expenditure minus total receipts of all levels of government, including the social security system, per inhabitant ($TEI - TRI$), and as a percentage of total expenditure ($(TE-TR)/TE$),
- expenditure of the social security system minus social security contributions, per inhabitant ($SEI-SCI$) and as a percentage of expenditures ($(SE-SC)/SE$),
- received current transfers per inhabitant (RTI),
- paid current transfers per inhabitant (PTI),
- received minus paid current transfers per inhabitant ($RTI-PTI$),
- amount of federal funds paid to Länder governments for joint tasks ("Gemeinschaftsaufgaben" and similar purposes), mostly organised as matching grants in absolute (FF) and per inhabitant terms (FFI).

Furthermore, the following indicators for special types of income or parts of it were constructed.

- Deficit or surplus of business and wealth income per inhabitant (BWI),
- difference between net domestic product at factor cost and disposable income of private households ($NDPI-PDYI$),
- deficit or surplus of business and wealth income per inhabitant plus received minus paid current transfers per inhabitant ($BWI + RTI-PTI$).

(1) This naturally distorts the interpretation of these figures, especially the results of regression analyses, because one may simply "re-detect" the keys used in distributing federal funds to the Länder. But since the expenditures of each Land and of its local governments can be attributed directly to the Land in question, the errors may not be so great as to make such calculations meaningless.

Since public funds are often found to be distributed according to variables like population, space and/or density of population (the latter is at the same time a proxy for the above mentioned agglomeration variable), all three (I, S, I/S) have been used as exogeneous variables. In addition which of the possible different income definitions proves to be the best explanatory factor for the different endogeneous variables has been investigated :

- Gross Domestic Product per Inhabitant (GDPI)
- Gross National (Regional) Product per Inhabitant (GNPI)
- Wage and Salary Income per Inhabitant (WI)
- Net Domestic Product per Inhabitant (NDPI)
- Net National (Regional) Income per Inhabitant (NNYI)
- Gross Domestic Product per Person in the Labour Force (GDPLF)
- Wage and Salary Income per Person in the Labour Force (WLF)
- Private Disposable Income per Inhabitant (PDYI)
- Net Domestic Product per Person in the Labour Force (NDPLF)
- Wage and Salary Income per Dependently Employed (WDE)

Some of these income variables have also been used on a per square kilometer basis ("income density"), namely (GDPS), (GNPS), (PDYS) and (WS).

In order to test the infrastructure equipment approach on the Länder level as well, a special infrastructure index has been constructed on the basis of the available data mentioned above for the labour market regions (INF). Due to data constraints, this variable is at present only available for 1966.

Table 1

Different Income per Capita Definitions for the German Länder 1960 and 1970 - in DM; current prices

Income Definition	Year	SE	HE	N	HB	NRW	H	RP	BM	EY	SL
GDP _{LF}	1960	10 903	16 437	10 690	14 094	13 004	11 315	10 298	10 809	9 976	11 996
	1970	24 895	34 807	22 745	28 350	28 413	26 130	25 665	24 330	23 409	24 127
NDP _{LF}	1960	8 351	11 173	8 422	10 654	10 101	9 127	8 077	8 606	7 929	9 779
	1970	19 181	23 320	17 936	19 286	21 917	21 211	19 993	18 945	18 305	19 188
WDE	1960	6 531	7 275	6 421	7 965	7 519	7 033	6 556	6 865	6 520	7 544
	1970	14 627	18 393	15 234	16 584	17 364	15 799	15 584	15 554	14 819	15 754
WLF	1960	5 115	6 374	4 797	7 017	6 301	5 323	4 486	5 162	4 518	6 419
	1970	12 081	16 233	11 941	15 377	15 159	13 348	11 864	12 802	11 262	14 075
GDFI	1960	4 763	8 594	4 829	6 652	5 848	5 424	4 603	5 709	4 874	4 667
	1970	9 915	18 005	9 848	14 223	11 639	11 461	10 155	12 084	10 461	8 864
GDPI	1960	4 254	8 881	4 774	7 321	5 925	5 432	4 545	5 626	4 843	5 205
	1970	9 173	18 664	9 465	14 548	11 760	11 861	10 266	11 657	10 777	9 500
NDYI	1960	3 767	5 750	3 816	4 866	4 526	4 374	3 636	4 563	3 880	3 705
	1970	7 810	11 845	7 847	9 653	8 951	9 228	7 887	9 504	8 111	6 919
FDYI	1960	3 488	4 564	3 380	4 094	3 841	3 626	3 230	3 752	3 446	3 389
	1970	6 998	9 280	6 853	7 904	7 419	7 403	6 700	7 575	6 865	6 447
NDFI	1960	3 258	6 037	3 761	5 534	4 602	4 381	3 579	4 480	3 849	4 243
	1970	7 068	12 505	7 464	9 896	9 072	9 628	7 997	9 077	8 427	7 555
MI	1960	1 996	3 444	2 142	3 645	2 871	2 555	1 988	2 687	2 194	2 785
	1970	4 452	8 705	4 969	7 891	6 275	6 059	4 746	6 134	5 185	5 542

Table 2 : Mini-Max-Ratios 1960 and 1970 for Different per Capita Income Definitions

	1960		1970	
	GDPI	1 : 2,09	SH:HH	1 : 2,03	SH:HH
GNPI	1 : 1,87	RP:HH	1 : 2,03	SL:HH
WI	1 : 1,73	RP:HH	1 : 1,96	SH:HH
NDPI	1 : 1,85	SH:HH	1 : 1,77	SH:HH
NNYI	1 : 1,58	RP:HH	1 : 1,71	SL:HH
GDPLF	1 : 1,65	BY:HH	1 : 1,53	N:HH
WLF	1 : 1,56	RP:HB	1 : 1,44	BY:HH
PDYI	1 : 1,41	RP:HH	1 : 1,44	SL:HH
NDPLF	1 : 1,41	BY:HH	1 : 1,30	N:HH
WDE	1 : 1,24	N:HB	1 : 1,26	SH:HH

Abbreviations :

- GDPI = Gross Domestic Product per Inhabitant
- GNPI = Gross National (Regional) Product per Inhabitant
- WI = Wage and Salary Income per Inhabitant
- NDPI = Net Domestic Product per Inhabitant
- NNYI = Net National (Regional) Income per Inhabitant
- GDPLF = Gross Domestic Product per Person in the Labour Force
- WLF = Wage and Salary Income per Person in the Labour Force
- PDYI = Private Disposable Income per Inhabitant
- NDPLF = Net Domestic Product per Person in the Labour Force
- WDE = Wage and Salary Income per Dependently Employed

- SH = Schleswig-Holstein
- HH = Hansestadt Hamburg
- RP = Rheinland-Pfalz
- HB = Hansestadt Bremen
- BY = Bayern
- N = Niedersachsen
- SL = Saarland

3.3. The figures for the ten Länder (1) for the years 1960 and 1970 are presented in Table 1 ; Table 2 contains figures showing the relation between the lowest and the highest income per capita as "Mini-Max"-ratios (MMR).

The general picture these figures show can be summarized as follows :

- (a) For 1960 with the exception of two income definitions, WLF and WDE, Hamburg is the region with the highest per capita income.(2)
The region with the lowest per capita income differs more according to the income definition used. Whereas, in 1960 Rheinland-Pfalz has the lowest income figures in 5 cases, Schleswig-Holstein in 2 cases, Bayern in 2 cases and Niedersachsen in 1 of the 10 cases, it is Schleswig-Holstein and the Saarland which in 1970 are on the end of the scale in 4 and 3 cases respectively, followed by Niedersachsen (2) and Bayern (1). In 1970, the Saarland and Schleswig-Holstein are the regions with the lowest income per inhabitant figures, while at the same time their MMR's are considerably higher for these definitions compared with those definitions based on the variables per member of the labour force which implies that they have low participation rates and/or that a part of the labour force of these countries is commuting to other regions. This is especially relevant in the case of Schleswig-Holstein, where large numbers of people are living in Schleswig-Holstein, but are working in Hamburg. This, on the other hand, increases the figures for Hamburg on a per inhabitant basis, since now value added produced by these commuters is credited to the resident population or resident labour force in Hamburg when these definitions are used.
- (b) As Table 2 shows, the MMR are largest for GDPI and GNPI figures (1 : 2.09 and 1 : 1.87 for 1960 ; and 1 : 2.03 in both cases for 1970). This seems to indicate, especially for 1970 where both MMRs are equal, that the market determined adjustment processes

(1) West-Berlin has been excluded because of the special economic situation of that town. Isolated from normal economic circuits of the West German Economy, it is heavily subsidized from Federal Government funds. The normal market relationships presumably are therefore distorted and would have affected the regression results.

(2) This is important in so far as it is frequently argued that the top position of Hamburg is mainly due to the high indirect taxes collected there. It is nevertheless true that indirect taxes minus subsidies account for about 40 % of the GDPI-figures in Hamburg compared with about 10 % for the land with the lowest figure (Saarland). But even if another productivity indicator like NDPI is used, the overall result is not significantly changed (cf. Table 1).

have not been working. But if one takes into account that the gross and market price based income concepts may be distorted as already explained, and if one therefore compares the net concepts at factor costs per inhabitant, NDPI and NNYI, the productivity related first indicator has a higher MMR as expected. Also differences are clearly smaller on the net and factor cost base than on the gross and market base.

- (c) A comparison of the income definitions related to a per capita base with those related to a per person of the labour force base reflects that there are relatively large differences as to activity rates and the degree of commuting between regions. The largest difference shows up in the WI and WDE ratios. In this case, in addition also differences in the relationship between dependently employed and selfemployed persons in a region affect the result.
 - (d) The fact that the WDE indicator is the absolutely lowest in both years shows that interregional wage differentials are relatively small and that they are, as expected from the resource endowment approach, especially lower than all other MMRs based on productivity indicators.
- 3.4. As already mentioned, public sector financial flows also influence the interregional per capita differences : If regions (Länder) with high per capita incomes are net taxpayers (net transfer payers) and regions with low per capita incomes net expenditure receivers (net transfer receivers), the public finance system can be said to contribute to interregional income equalisation. Since net payments reduce and net expenditure increase the possibility that a region pays higher wages and other factor remunerations, the equalising power of a given public finance system can be judged with the aid of regression analysis, in which public sector variables like (TEI-TRI) are used as explanatory and the different income definitions as endogeneous variables.

Total expenditure minus total receipts, (1) both per capita and as a percentage of total expenditure ((TEI-TRI and (TE-TR)/TE)) show a strong correlation with the agglomeration variable and almost all per space income variables : The difference between TE and TR is greater, the higher population and income density. Hamburg, the Land with the highest income figures, has a negative balance (a deficit) which means that it "exports" more taxes and social contributions than it "imports" in the form of overall public expenditures. On the other hand, the "poorer" Länder like

(1) It would have been preferable to have used expenditure minus receipts for the central (federal) governments alone but this is not possible because overall investment (capital) expenditure is not separated by government level in the Länder Accounts. On the other hand a higher debt financed deficit in poorer countries which is reflected in the variable used above also reflects equalisation.

Schleswig-Holstein and Saarland have positive balances (a surplus) because expenditures here are higher than taxes. What is more, these results show up in the cross section analysis as well, where the ten Länder are compared with each other for selected single years between 1960 and 1970, and in the pooled cross section/time series analysis for all Länder and the ten years together. The negative signs for the I/S variable show (1) that net expenditure is higher the lower the population density, i.e. the more agglomerated regions pay more and the less agglomerated ones receive more.

Results for the agglomeration variable :

(TEI-TRI) 1960	= 127.216 - 0.656 (I/S)	$\bar{R}^2 = .636$
(TEI-TRI) 1970	= 584.449 - 1.542 (I/S)	$\bar{R}^2 = .827$
(TEI-TRI) 1960/70	= 362.485 - 0.957 (I/S)	$\bar{R}^2 = .721$
((TE-TR)/TE) 1960	= 5.014 - 0.0315 (I/S)	$\bar{R}^2 = .693$
((TE-TR)/TE) 1970	= 12.530 - 0.0325 (I/S)	$\bar{R}^2 = .778$
((TE-TR)/TE) 1960/70	= 10.899 - 0.0294 (I/S)	$\bar{R}^2 = .708$

The results for the best income density variable are similar in that they clearly show that as income density becomes higher net expenditure, either per capita or as a percentage of total expenditure, decreases.

(TEI-TRI) 1960	= 74.736 - 81.684 (GNP/S)	$\bar{R}^2 = .817$
(TEI-TRI) 1970	= 497.067 - 171.341 (PDY/S)	$\bar{R}^2 = .849$
(TEI-TRI) 1960/70	= 273.444 - 81.645 (GNP/S)	$\bar{R}^2 = .818$
((TE-TR)/TE) 1960	= 2.458 - 8.283 (GNP/S)	$\bar{R}^2 = .759$
((TE-TR)/TE) 1970	= 9.072 - 1.854 (GNP/S)	$\bar{R}^2 = .794$
((TE-TR)/TE) 1960/70	= 7.050 - 2.331 (GNP/S)	$\bar{R}^2 = .692$

All other income density variables also perform well, the lowest coefficient of determination being 0.656 (2).

Income per capita figures used as explanatory variables perform even better as the income per space variables. This shows that public sector redistribution did not only work between

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- (1) The coefficients are all significantly different from zero at the 5% level.
 - (2) Note that all coefficients of determination (\bar{R}^2) are corrected for numbers of freedom in order to compensate to some extent for the low number of observations (n=10) in the cross-section regressions.

agglomerated and not agglomerated regions, but in addition even stronger, between regional populations with higher and lower incomes per capita.

$$(TEI-TRI) 1960 = 2366.141 - 0.471 (GNPI) \bar{R}^2 = .939$$

$$(TEI-TRI) 1970 = 5305.830 - 0.487 (GNPI) \bar{R}^2 = .969$$

$$(TEI-TRI) 1960/1970 = 1750.734 - 0.246 (GNPI) \bar{R}^2 = .563$$

The time series values are significantly lower than the cross section ones. If $((TE-TR)/TE)$ is used, the coefficient of determination falls as far as 0.424. This seems to indicate that although a single Land did not change its relative position from one year to the next, the cross section functions for each year do not change steadily, so that the time series trend is not so stable. But it may also be that the time series trend is not a linear one so that the linear function approach used is not able to describe that trend adequately.

- 3.5. Compared with these results, the outcome of the social security expenditure/contribution analysis is inconclusive, the coefficients of determination being not significantly different from zero. An inspection of the figures shows up large variations from year to year which seem to reflect cyclical fluctuations to a certain extent.
- 3.6. Received and paid current transfers of private households which include the social security transfers, but cover also other categories of household transfers, especially all direct taxes, seem to be a better indicator for public redistributive activities. If one considers separately transfers received and transfers paid, a similar picture arises as compared with the results for overall public expenditure and receipts : the agglomeration variable and the income density variables have the correct sign and the fit is relatively good. The coefficients of determination reach a maximum \bar{R}^2 of 0.847 for paid transfers (taxes etc.), but are lower for received transfers (highest $\bar{R}^2 = 0.509$). If both variables are taken together in the form of a net measure (RTI-PTI), the coefficients of determination decrease from 1960 to 1970 from about 0.57 to 0.35. This shows that, primarily because of the progressivity of direct taxes, transfers have a more redistributive effect on the **revenue side** and in addition it can mean that the equalising and redistributive effects of the budgetary system have developed more towards an income per capita basis and away from an income density basis.

This hypothesis receives support from an analysis with the aid of income per capita variables. The highest correlation is obtained for the net regional product per inhabitant (NNPI) as exogeneous and the paid transfer variable (taxes etc.) as endogeneous variable. Obviously this income definition describes overall "tax" base best. This is compatible with the poorer results for income density,

because most taxes paid by private households are related to personal tax bases and not to agglomeration effects. Due to this fact, the deficit/surplus variable for current transfers is also much better explained with income per capita definitions, even in the time series approach.

$$\begin{aligned}(\text{PTI}) \quad 1960/70 &= - 500.628 + 0.347 (\text{NNPI}) \quad \bar{R}^2 = .978 \\(\text{RTI-PTI}) \quad 1960/70 &= 621.335 - 0.180 (\text{NNPI}) \quad \bar{R}^2 = .794\end{aligned}$$

- 3.7. The results for the special federal funds variable (FF) and (FFI) differ from this pattern. If these matching grants really had equalising effects which they should have according to their very purpose, this variable must show a high negative correlation with income per capita figures. One would expect that poorer Länder get more federal funds for the different "Gemeinschaftsaufgaben" which have been established in order to reduce the existing differences in the level of public services and infrastructure equipment between the Länder (1).

Surprisingly enough there are only very low and mostly insignificant correlations between the FF-variable in absolute or in per capita terms as endogeneous and income per capita and per space as exogeneous variables. The highest \bar{R}^2 - value is 0.31. But the correlations are very high if space is used as an explanatory variable. This confirms the often formulated presumption that a uncoordinated system of different grant schemes between central and lower levels of government will frequently fail as far as equalising purposes are concerned. In addition, some of the German "Gemeinschaftsaufgaben" have long been criticised because of their alleged "sprinkling can effect" which meant a relatively equal distribution across space, independent from objective need criteria and contrary to the stated aim of these funds. Although, e.g. with the introduction of the "Gemeinschaftsaufgabe" improvement of regional economic structure, Länder with relatively more

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- (1) These funds include grants of the Federal Government for investment in universities (Gemeinschaftsaufgabe Hochschulbau), for the improvement of regional economic structure (Gemeinschaftsaufgabe Verbesserung der regionalen Wirtschaftsstruktur), improvement of agricultural structures and coast protection (Gemeinschaftsaufgabe Agrarstruktur und Küstenschutz), local government road investments (Förderung des kommunalen Strassenbaus), short distance public passenger traffic systems (Öffentlicher Personennahverkehr), city planning (Städtebauförderung) and hospital financing (Krankenhausfinanzierung). The data are taken from Bernd Reissert, Die finanzielle Beteiligung des Bundes an den Aufgaben der Länder und das Postulat der "Einheitlichkeit der Lebensverhältnisse im Bundesgebiet", Schriftenreihe des Vereins für Verwaltungsreform und Verwaltungsforschung e.V., Bonn 1975.

backward regions succeeded in receiving more funds than Länder with more prosperous regions, the positive equalising effect of these funds was soon compensated for : the highway program was cut, and these cuts fell more heavily on the peripheral and not densely populated regions because there the priorities for highway building were low. In addition, the funds saved in this way were used in order to pay subsidies to highly agglomerated regions in order to improve their city rail transportation systems.(1) Furthermore, other types of "Gemeinschaftsaufgabe" like university and hospital construction counteract the regional policy because the "richer" regions are able to have more of these resources and hence receive higher absolute grants, although the matching ratio of the Federal Government is generally 50 %.

From 1960 to 1970, the positive correlation of the absolute federal grants variable FF with space increased from .712 to .911. At the same time, the correlation with the size of regional population increased, too, but remained considerably lower (.088 in 1960, .645 in 1970). Finally, federal grants per inhabitant are higher, the higher the net in-migration. The small \bar{R}^2 for this relationship is the only remarkable correlation for the FFI variable.

The tendency shown by these figures is definitively contrary to the stated purpose of these grants because the situation in 1970 is now characterised by the fact that these federal payments are distributed according to space and population. Fortunately, the correlation with population density is not very high, so that a small equalising effect presumably remains between the densely populated and rich "city states" Hamburg and Bremen on the one hand and the "surface states" on the other. But since there are still relatively large income differences between them, this is only a slight modification to the overall picture.

- 3.8. As far as the overall picture is concerned, the above-mentioned results are generally in line with a study made by H. Reichenbach. His paper also found that regional differences are reduced if one compares the income indicators going from gross to net figures and from productivity related to disposable income related definitions. Ranking them according to the span between the minimum and the maximum figures, the order is as follows (cf. Table 3) (2) :

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- (1) This seems to be the most important problem in regional policy : that the positive effects of specific regional policies are diluted if not actually counteracted by the regional distribution of central government expenditure. The above example of "regressive" distribution of public infrastructure between regions clearly shows the cumulative effect of public investment expenditure over space.
- (2) $PI = GNP - Depr. - (IndT - Sub) - Prof. retained$; $DI = PI + Transf. in - Transf. out$; $PCON = DI - Sav.$

GDP	(ranging from 81 % of German average to 166 %),
GNPI	(79 - 160)
PI	(81 - 133)
DI	(89 - 128)
PCON	(92 - 126)

In these figures, too, the effects of market determined adjustment processes show up as well as effects caused through the public sector tax/expenditure mechanism. This is also true in the case of private consumption, an indicator not used in the preceding analysis because private consumption out of a lower income per capita is higher (and saving smaller) compared with higher incomes independent of whether there exists, e.g. a progressive or regressive tax system.

3.9. The following comments can be made in the light of table 3 :

- GDP and GNP differ because of wages paid to employees commuting from one region to another and of property and entrepreneurial income being paid to a region other than the one in which it originated. It is a well-known fact that many people live in Schleswig-Holstein and Niedersachsen and work and/or hold wealth in Hamburg. The other notable cases are Saar and Baden-Württemberg. In the Saar the outflow of factor income consists of about half of wages and salaries and half of property and entrepreneurial income. In Baden-Württemberg the surplus of inflowing factor income is largely due to property and entrepreneurial income.
- The difference between GNP and PI is due to three factors : depreciation, indirect taxes minus subsidies, and retained profits. Depreciation is an almost constant fraction of GDP, and thus has no explanatory power for the levelling out of regional differences in GDP. As can be seen from Table 3, indirect taxes minus subsidies is the most important determinant in equalizing per capita GDP differentials with an index span of 67 for Saar to 308 for Hamburg. Since subsidies are relatively unimportant, indirect taxes play the major role. The enormous amounts paid by Hamburg and Bremen are to a large extent due to the fact that excises are levied from enterprises, e.g. for oil (more than 40 % by Hamburg) for tobacco (about 40 % by Berlin) and for coffee (more than 40 % by Bremen). TVA payments have a bias in the same direction but are less spectacular. Since excises are federal taxes, the high GDP figures for Hamburg, Bremen and Berlin to a large extent only reflect localisation of industries and institutional tax arrangements for certain industries.
- The other factor with a lot of explanatory power is retained profits, with index figures varying between 51 for Saar and 192 for Hamburg. Since retained profits are a major stimulus, and financing source for investment, they reflect not only present economic performance but also give some indication of the futur self-induced growth possibilities of a region. On the other hand, there is probably some bias in the very high figures for Hessen and Hamburg to the

TABLE 3

INCOME AND EXPENDITURE PER CAPITA : GERMANY 1970

Per capita indices (Average = 100)

	1	2	3	4	5	6	7	8	9	10	11
	GDP	GWP	Depr	IndT - Sub	Profret	PI	Transf ⁱⁿ	Transf ^{out}	DI	Sav	POOR
Schleswig-Holstein	80.9	87.6	83.8	79.4	57.8	91.1	98.5	82.9	95.7	80.0	98.8
Niedersachsen	83.6	87.1	82.9	72.8	80.7	90.5	96.2	84.5	93.8	80.0	96.6
Nordrhein-Westfalen	103.9	103.0	105.1	103.5	98.7	102.8	105.6	108.1	101.6	103.6	101.1
Hessen	104.5	101.1	102.0	72.1	151.4	103.0	97.1	104.7	101.1	113.4	98.6
Rheinland-Pfalz	90.8	90.0	91.2	85.4	96.9	90.2	91.1	86.0	91.9	86.3	93.0
Baden-Württemberg	102.8	106.8	101.3	98.7	116.7	108.4	85.7	107.9	103.6	116.6	100.9
Bayern	94.9	92.3	94.9	87.4	80.0	93.9	89.9	91.8	93.8	91.6	94.2
Saarland	84.3	78.8	85.5	66.9	51.4	81.2	118.0	83.0	88.6	73.6	91.6
Hamburg	165.7	160.1	166.2	308.1	192.7	133.4	131.8	148.4	127.7	137.8	125.7
Bremen	129.3	128.9	132.4	226.8	123.5	112.8	116.3	120.4	110.9	118.4	109.3
Berlin	107.5	108.3	106.5	151.8	105.5	101.7	160.3	87.9	119.4	97.0	123.9
Range	81/166	79/160	83/166	67/308	51/193	81/133	86/160	83/148	89/128	74/138	92/126

Source: Unpublished paper by H. Reichenbach

extent that these two Länder have exceptional concentrations of head offices of multi-regional and multi-national enterprises.

- The difference between personal and disposable income is equal to transfers going into and out of the region. Transfers improve the situation of the poor Länder, except for Bayern where it remains nearly constant, with the greatest relative benefit going to the smallest regions, Schleswig-Holstein and Saar, whereas the relative position deteriorates in rich regions, except for Berlin which does best.
- Transfers paid out (39 % direct taxes, 50 % social security contributions, 11 % others) are roughly proportional to GDP but clearly progressive with respect to PI. Except for the case of Berlin, transfers paid out as a percentage of GDP are almost stable, varying between 20 % for Hamburg and 24 % for Baden Württemberg. The remaining small differences are not easily explainable.
- Since social security receipts represent 72 % of total transfers received, the relative number of retired people in a region and the high proportion of early retired coal miners in Saar and Nordrhein-Westfalen exert a substantial influence on the regional distribution of these transfers. Thus Berlin and Hamburg receive highest per capita transfers since their percentage of retired people (65 and older) is 23.3 % and 19.2 % with German average equal to 14.1. On the other end of the scale is Baden-Württemberg with 12.4 % of retired people. For the rest the income and age class components explain to a large extent the differences, such that e.g. Schleswig-Holstein as a poor Land with a high proportion of retired people (16 %) gets about the same per capita amount as rich Hessen with 14 % of retired people.

3.10. It is also possible to estimate to a certain extent Länder trade balances on the basis of the information provided in the 1974 Länder Accounts. They contain figures for the so-called "Restposten" (Table 6 in the Länder Accounts) which is a residual aggregate of trade balances (exports minus imports), changes in stock and "statistical differences". In an unpublished study by H. Reichenbach an attempt is made to derive from these data an estimate of the trade balances in eliminating the changes in stocks. For that purpose, the period 1960-70 has been divided into three business cycle periods 1960-63, 1964-67 and 1968-70. For each cycle the national average change in stocks has been allocated to Länder according to their shares in federal GNP, and the results deducted from the "Restposten". This then gives the estimated 'trade balance' figures shown in Table 4.

As between the three business cycle periods the pattern of estimated trade balances of the Länder showed considerable stability, with extreme values observed in the case of a 20 % of GDP surplus in Hamburg and a 14 % of GDP deficit in the Saarland. Of the four

Table 4 : Trade Balances of the German Länder, 1960-1970

	Export - Import Annual averages, Mill DM			Export - Import Annual averages, % of GDP		
	60-63	64-67	68-70	60-63	64-67	68-70
Schleswig-Holstein	- 912	-1.463	-2.008	- 7.9	- 9.3	- 9.8
Niedersachsen	-2.394	-3.940	-3.973	- 6.6	- 8.2	- 6.5
Nordrh.-Westfalen	5.836	6.851	9.216	5.6	5.0	5.2
Hessen	619	523	1.217	2.1	1.2	2.2
Rheinland-Pfalz	- 728	-1.225	- 795	- 4.2	- 4.9	- 2.4
Eaden-Württemberg	2.196	3.694	7.200	4.4	5.3	7.9
Bayern	-1.914	-1.447	- 719	- 3.6	- 2.0	- 0.7
Saarland	- 852	-1.002	-1.250	- 14.0	-13.3	-13.6
Hamburg	3.728	4.886	5.746	20.3	20.1	19.0
Bremen	286	638	1.041	5.0	8.5	11.1
Berlin	- 443	- 796	-1.150	- 3.2	- 4.4	- 4.9

Table 5 : Balance of Federal Government and Social Security
Revenues and Expenditures of the Germany Länder 1960-70

	Revenues - Expenditures Annual averages, Mill. DM			Revenues - Expenditures Annual averages, % of GDP		
	60-63	64-67	68-70	60-63	64-67	68-70
Schleswig-Holstein	- 543	- 948	-1.231	- 4.7	- 6.0	- 6.0
Niedersachsen	- 551	-1.749	-2.063	- 1.5	- 3.7	- 3.4
Nordrh.-Westfalen	6.477	6.267	7.935	6.2	4.6	4.5
Hessen	1.042	1.542	1.635	3.5	3.7	2.9
Rheinland-Pfalz	- 519	- 581	- 308	- 3.0	- 2.3	- 0.9
Baden-Württemberg	2.687	3.323	5.424	5.4	4.8	5.9
Bayern	- 40	- 93	1.206	- 0.1	- 0.1	1.2
Saarland	- 271	- 637	- 830	- 4.5	- 8.4	- 9.0
Hamburg	3.803	4.464	6.163	20.7	18.3	20.4
Bremen	408	689	1.255	7.2	9.2	13.4
Berlin	- 143	- 847	-1.633	- 1.0	- 4.7	- 7.0

most populous Länder, Niedersachsen experienced deficits of the order of 6 to 8 % of GDP, Bayern deficits of 1 to 4 % of GDP, Nordrhein-Westfalen surpluses of 5 % of GDP and Baden-Württemberg surpluses of 4 to 8 % of GDP. The main changes over time during the period are seen in the increases of the surpluses of Baden-Württemberg and Bremen, and the reduction of Bayern's deficit.

Table 5 gives data from the same source representing the net balance of flows of finance to the Länder from the federal budget and social security funds. These public finance balances in large measure offset the trade balance.

Chart 4 presents both the trade balance and federal public finance balances (on the vertical scale) together with per capita GDP by Land (on the horizontal scale). The vertical lines on the Chart indicate the extent of differences between the two figures - trade and public finance - by Land.

The Chart suggests a remarkably strong relationship between GDP per capita and the trade and public finance balances, with high GDP per capita going with trade surpluses and public finance deficits, and vice versa. The only marked deviation from the general pattern is in the case of Berlin, where the trade deficit and public finance surplus are much higher than would be predicted on the basis of its GDP per capita. However this is readily understandable in view of the special fiscal regime from which Berlin benefits, and which is more advantageous than the normal fiscal federal arrangements in Germany.

The quality of the relationships is perhaps so remarkable that one is inclined to question how far they result from parameters used in the construction of statistical estimates, as opposed to being based on 'real' data. A tentative impression is that the public finance data are partly estimated and partly 'real'. It seems that the trade balance data are, as mentioned, residual rather than directly measured or even directly estimated. In view of the interest of the data it may be worthwhile making enquiries with the statisticians responsible for the source to check the significance of the relationships implied.

4. Concluding Remarks

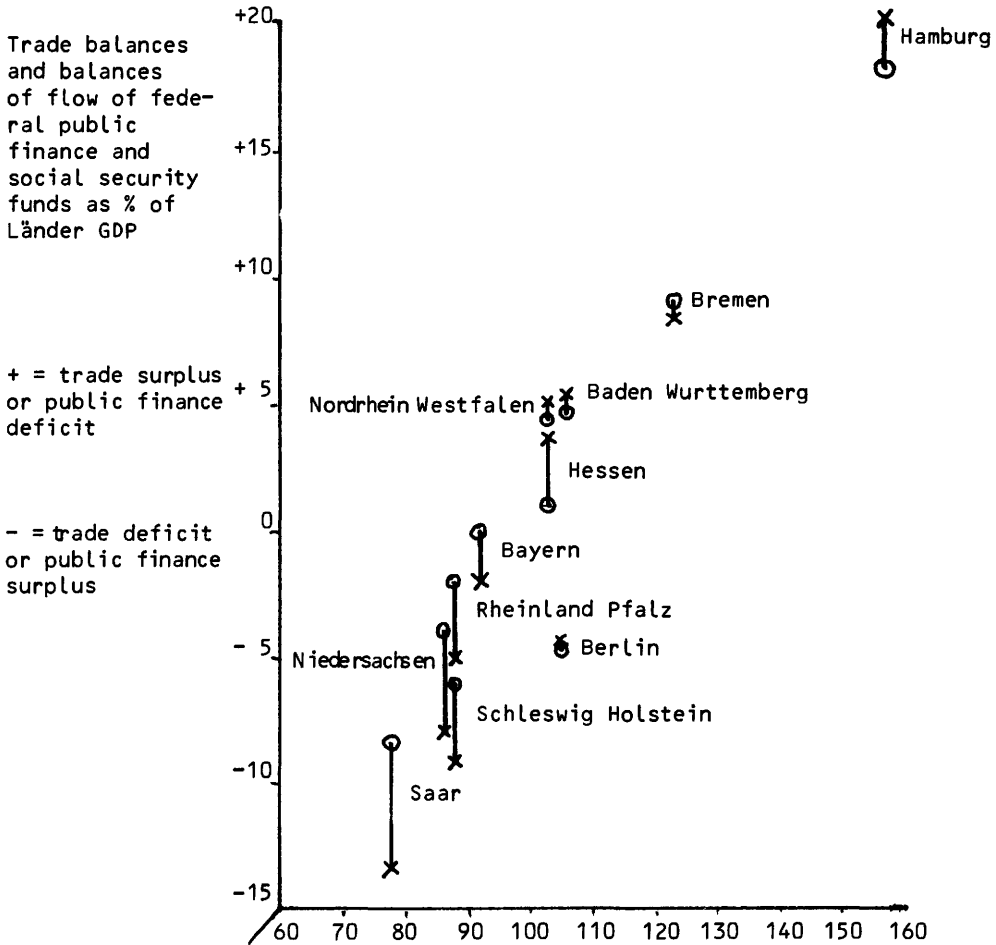
- 4.1. To summarise it can be argued that there is convincing evidence that apart from market forces which tend to compensate for deficits in the balance of trade of the German Bundesländer, public sector revenue and expenditure flows contribute considerably in equalising regional per capita income and in preventing regions becoming 'bankrupt' when their trade balance is in overall deficit. The following important points lead to this conclusion :

- Total per capita public expenditure minus revenue in the regions is significantly negatively correlated with agglomeration, income density and per capita income. "Richer" regions are therefore net payers and "poorer" regions net receivers of public funds.
- Transfers paid and received compensate to some extent for adverse regional trade balances. The offsetting effects are larger on the revenue side because of the relatively stronger progressivity of direct taxes. The expenditure side however, seems to counteract this equalisation to a certain extent, because poorer groups of inhabitants (e.g. old age pensioners and other net social security transfer receivers) are more concentrated in the "richer" regions which consequently also receive high transfer payments. This may also explain together with the almost regressive effects of social security contributions why the social security system taken as a whole does not seem to be an income equalising factor.
- Flows of public funds play a major role in explaining the reduction in regional differentials of disposable per capita income. Indirect taxes (especially excise taxes), direct taxes and social security contributions all act as "equalisers" in the same order of importance. But the importance of indirect taxes is caused by the formal incidence approach used, which means that the amount of the tax is apportioned to the collection point and not to the final bearer of the tax. Consequently Länder like Hamburg and Bremen transfer a large proportion of indirect tax revenue because they are the most important harbours through which many highly taxed commodities are imported and not so much because they are "rich". As regional per capita consumption differs much less than regional per capita product, indirect taxes would not be the most important factor in the equalisation of income if they could be apportioned according to the final destination of the taxed good.
- Both regression analysis and a more detailed inspection of the figures show that the relatively high equalising power of the public revenue system is to some extent counteracted by the less progressive regional distribution of public expenditure. This seems especially true for some Federal expenditure programs which should be orientated towards equalisation targets but which with the exception of the Gemeinschaftsaufgabe "Improvement of regional structure" are not working in that direction.

4.2. It should be noted finally that the analysis presented here did not investigate the powerful role of the German "Finanzausgleich" as a specific equalisation instrument. This has been done in an internationally comparable way for several countries in Chapters 5 and 6. The effects of the Finanzausgleich are nevertheless reflected in the results of this analysis as the overall tax revenue of each Land includes that part of its taxes received through the intergovernmental transfer system.

CHART 4

Trade and Federal Public Finance Balances and GDP per capita
in the German Länder - Average 1964-1967



Index numbers of GDP per capita (100 = Federal average)

X = trade balance

O = public finance and social security balance

Source : H. Reichenbach's study (unpublished) Chart 4

Chapter 4

ITALY

by

Francesco Forte

Interregional redistribution by the Italian state budget, social security systems and public enterprises in 1971-73

1. Introduction

This paper attempts to evaluate the interregional redistribution by the Italian state budget, social security systems and public enterprises for the years 1971-73. For this purpose revenues of the three public institutions were attributed to regions where they had their origin and expenditures to those where they had their impact (1). The distribution of revenues according to the region of origin tries to identify the region where these revenues are borne. The assumptions and data used to achieve this aim are presented in detail in the Annex. For expenditures an attempt has been made to attribute them to the region where they are spent ; as for revenues the allocation procedure is described in the Annex. The redistributive effect of revenues and expenditure is then measured by the 'redistributive power' as developed in Chapter 5.

2. Redistributive Power of Italian Public Finance

Tables 1-3 summarize the results of the redistributive effect of Italian public finance for the years 1971-73.(2)(3).

The overall redistributive effects of the two categories - revenue and expenditure - show marked differences. Although total revenues represent some 35 % of primary income, the redistributive power is at best only 2.6 % (1973) whereas expenditure, with a volume of around 45 %, gives a power of between 30 and 33 % (see Tables 1 and 2).

Since in both cases the volume is substantial, the variation in effect is due to the regional per capita distribution of the flows. For aggregate revenues it will be seen that the distribution is, in all three years, approximately proportional to per capita primary income, which implies virtual regional neutrality and minimal interregional redistribution.

Turning to aggregate expenditure, the distribution approaches an almost equal per capita basis with a resulting significant redistributive power. The elasticities of between 0.03 and 0.19 for State and - 0.17 and 0.15 for public enterprises expenditures imply a virtually uniform per capita level of provision of goods and services, while the rather less uniform

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- (1) Cp. Chapters 9 and 8 for a discussion of the concept of 'origin' for revenues and 'impact' for expenditures.
 - (2) Since 1973 several changes have taken place both on the revenue and expenditure side. In 1974 income tax changed from a schedular tax to a more progressive single tax and there is now a system of specific purpose grants to the regions.
 - (3) Differences between the results given in this chapter and those in chapters 8 and 9 are due to the use of different definitions of primary income. In this chapter net national product at market prices is used whereas chapters 8 and 9 employ net national product at factor cost.

TABLE 1 : Redistributive Power of Italian State Revenues, Social Security Contributions, and Revenues of Public Enterprises, 1971-1973

	Elasticity of revenues with respect to primary income (1)			Average tax rate (2)			Redistributive Power (3)			Statistical significance/R		
	1971	1972	1973	1971	1972	1973	1971	1972	1973	1971	1972	1973
	Aggregate central government revenues	0.96	0.91	1.00	35.73	35.15	35.24	0.2	- 0.7	- 2.6	0.988	0.907	0.982
State Revenues	0.88	0.86	1.03	19.20	18.72	17.37	- 0.0	0.5	3.4	0.971	0.981	0.973
Social Security Contributions	1.04	0.96	0.96	12.11	11.84	12.23	0.5	- 0.5	- 0.5	0.985	0.978	0.976
Revenues of Public Enterprises	0.93	0.85	0.94	4.42	4.58	4.32	- 0.3	- 0.7	- 0.3	3.964	0.848	0.919
Total Direct Taxes	1.66	1.58	1.51	5.55	5.94	5.98	3.7	3.4	3.1	0.923	0.916	0.886
Tax on movable wealth	1.74	1.66	1.58	2.95	3.00	3.09	2.2	2.0	1.4	0.914	0.915	0.883
Personal income tax	1.46	1.36	1.33	0.63	0.56	0.79	0.3	0.3	0.3	0.845	0.812	0.893
Corporate income tax	1.41	1.33	1.22	0.51	0.74	0.53	0.2	0.2	0.1	0.897	0.843	0.820
Total Indirect Taxes	0.73	0.77	1.03	13.64	12.70	11.39	- 3.7	- 2.0	0.3	0.796	0.934	0.974
Total Sales Taxes	0.82	0.82	1.32	7.08	6.57	5.37	- 1.3	- 1.2	1.7	0.958	0.961	0.963
General Sales Taxes	0.61	0.61	0.73	4.00	3.56	2.76	- 1.6	- 1.4	- 0.7	0.929	0.943	0.957
Excises	0.69	0.70	0.76	6.55	6.19	6.02	- 2.0	- 1.9	- 1.4	0.723	0.782	0.876

(1) Examples of elasticity coefficients :

2.0 per capita revenue differential twice as big as primary income differential (regionally progressive tax)

1.0 per capita revenue differential equals primary income differential (regionally neutral tax)

0.0 per capita revenue differential completely equal as between regions (regionally regressive tax)

(2) National percentage share of revenues in primary income

(3) The redistributive Power is measured by the reduction in primary income differential between regions due to revenues under the assumption of regionally neutral spreading of national revenues; it is equal to the deviation of revenues from neutrality - measured by the difference between the elasticity and one (neutral case) - multiplied by the average tax rate.

TABLE 2 - Redistributive Power of Italian State, Social Security and Public Enterprises Expenditures, 1971-73

	Elasticity of expenditures with respect to primary income (1)			Expenditure volume as percentage of primary income			Redistributive Power (2)			Statistical significance		
	1971	1972	1973	1971	1972	1973	1971	1972	1973	1971	1972	1973
	Aggregate central government expenditure	0.29	0.26	0.28	43.5	44.7	44.9	30.9	33.1	32.4	0.700	0.632	0.664
State Expenditure	0.19	0.06	0.03	26.1	25.4	29.9	21.6	24.2	29.6	0.419	0.132	0.069
Social Security Expenditure	0.45	0.46	0.47	13.6	14.4	14.8	7.5	7.8	7.9	0.734	0.747	0.757
Public Enterprises Expenditure	0.15	- 0.17	- 0.10	8.7	8.8	8.1	7.7	10.3	11.4	0.075	0.183	0.092
State Current Expenditure	0.40	0.30	0.23	20.0	20.0	21.3	12.0	14.0	16.4	0.635	0.464	0.425
Cat. II	- 0.20	- 0.23	- 0.29	6.2	6.0	6.1	7.4	7.4	7.8	0.190	0.233	0.294
Cat. III	0.59	0.46	0.54	1.1	1.2	1.2	0.5	0.7	0.6	0.443	0.350	0.374
Cat. IV	1.30	0.96	0.86	1.8	1.9	1.7	0.5	0.1	0.2	0.529	0.394	0.414
Cat. V	0.41	0.26	0.21	8.4	8.4	10.0	5.2	6.3	7.9	0.748	0.872	0.828
Cat. VI	1.84	1.40	1.37	1.2	1.4	1.5	1.0	-	- 0.6	0.954	0.949	0.933
Cat. VII	0.66	0.61	0.63	1.3	0.9	0.8	0.4	0.3	0.3	0.561	0.896	0.932
State Capital Expenditure	- 0.74	- 1.14	- 0.74	5.5	4.8	7.6	9.6	10.2	13.2	0.476	0.640	0.415
Cat. X	- 0.26	- 0.54	- 1.47	0.6	0.6	0.6	0.7	0.9	1.4	0.155	0.404	0.464
Cat. XI	1.98	1.68	2.25	0.0	0.0	0.0	0.0	0.0	0.0	0.387	0.266	0.470
Cat. XII	- 1.60	- 1.57	- 2.36	2.8	2.8	3.6	7.4	7.4	12.1	0.646	0.643	0.762
Cat. XIII	0.14	- 0.70	2.78	0.9	1.1	1.2	0.7	1.9	-	0.040	0.278	0.348
Cat. XIV	0.31	0.07	0.09	0.4	0.2	0.4	0.3	0.1	0.4	0.883	0.871	0.865
Cat. XV	0.37	- 0.17	0.17	0.0	0.0	0.2	0.1	0.1	0.1	0.670	0.138	0.182

(1) Examples of elasticity coefficients :
 2.0 - per capita expenditure twice as big as per capita primary income differentials (negative redistributive effect - regional inequalities are increased by expenditures)
 1.0 - per capita expenditures proportional to primary income per capita (no redistributive effect)
 0.0 - per capita expenditures equal in all regions (redistributive effect proportional volume of expenditure)
 -1.0 - per capita expenditures inversely proportional to personal income per capita (strong redistributive effect)

An elasticity coefficient of almost zero is statistically insignificant by the usual tests; however, for the purpose of the present analysis a distribution close to equal amounts per capita has clearly meaningful redistributive implications.

(2) The redistributive power is measured by the reduction in primary income differentials between regions due to expenditure under the assumption of regionally neutral financing of these expenditures. It is equal to the deviation from neutrality - assured by the difference between one (neutral case) and the elasticity - multiplied by the expenditure volume as percentage of primary income.

level of social security expenditure is offset by the substantial volume.

For the most part, the redistributive effect is achieved almost automatically since, with the exception of category XII, capital transfers to regional development agencies and for public infrastructure investment in poorer regions, there is no explicit redistributive intent.

A. Central Government Revenues (including Social Security Contributions and Receipts of Public Enterprises)

Direct and indirect taxes

From Table 1 it can be seen that in the period under consideration the initial slight regressivity of indirect taxes gives way to slight progressivity while in the case of direct taxes the progressivity declines somewhat. The redistributive power changes from 0 % (1971) to 3.4 % (1973) for both taxes together.

Among direct taxes there are three main components : 'tax on moveable wealth', 'personal income tax' and 'corporate income tax', of which only the tax on moveable wealth has a significant redistributive effect. The small regional progressivity of this tax would seem to be due to the fact that it is a schedular tax with different rates, covering wages, pensions, profits and interest among other things. The small redistributive impact of 'personal income tax' and corporate income tax' is due to the fact that before 1974 the bulk of tax on personal income and corporate profits was collected under the heading 'tax on moveable wealth', and they thus have a small volume.

In the field of indirect taxes, a major tax reform occurred in the case of sales taxes. In 1973 value added tax was introduced, taking over from the previous turnover and sales taxes, and the effect of this reform is clearly visible in the move from a 1972 redistributive power of - 1.2 to a positive figure of 1.7 in 1973.

This change results from the reduction in regional regressivity (increase in elasticity from 0.61 in 1971/2 to 0.73 in 1973). This is due to the fact that the previous sales tax was basically a one rate tax (4 %) whereas VAT has 5 rates, ranging from (1973) 18 % on luxury goods to a reduced rate of 1 or 3 % on some essential products (standard rate 12 %), and the consumption of the more highly taxed goods and services appears to have been relatively greater in richer regions.

Excises show a more or less constantly negative redistributive effect, reduced somewhat by their selectivity which counteracts their expected regressive nature and the size of revenue as a share of primary income (6-7 %). One item worthy of comment is the excises on tobacco, which although only about .7 % of primary income contributes some 40 % of

the negative redistribution effect due largely to its almost equal per capita incidence.

Social security contributions

The uniformly small and even negative redistributive effect of this category is due to two factors - its virtual regional neutrality (1.04 to 0.96) and the regressivity of the contribution tariff.

Public enterprise revenues

Much the same comments apply here as for social security contributions in that the elasticity shows virtual neutrality and consumption of services will have a larger share in the income of poorer regions.

B. Central Government Expenditure (including Social Security and Public Enterprises)

The most notable feature of Table 2 is the illustration it gives of the fact that expenditure of a significant amount on an equal per capita basis will achieve substantial redistributive effects. This 'central' premise is clearly supported by the figures for aggregate expenditure where the elasticity is very slightly positive and the share of primary income is around 44 %, giving a redistributive power of 30 - 33 %.

The major components by which this overall redistributive effect is achieved are social security and public enterprise expenditures and, among state expenditures, current and capital transfers (Categories V and XII) and wages and salaries. The redistributive power of these components depends on the volume of expenditures and their elasticity characteristics. Roughly equal per capita expenditures per region imply for public enterprises expenditures and wages and salaries a redistributive effect with respect to primary income differentials (approximately 10 % and 7 %) which is almost equal to the volume of expenditures in these fields. State and social security transfers have weaker redistributive characteristics (an elasticity of the order of 0.4) and have thus a redistributive power of only 6 % and 8 % although the volume, 9 % and 14 % of primary income, is substantial. The most high-powered redistributive instruments in Italian public finances are capital transfers to regional development agencies and for public infrastructural investment in the poorer regions. This is also the only instrument specifically designed for redistributive purposes ; all other instruments achieve their redistributive effect almost automatically and 'invisibly'.

The preceding remarks refer, of course, to the average redistributive effect and as such conceal several anomalies in that some regions are treated favourably and others unfavourably. In the case of rich

regions this means that the relative (1) public finance outflow is modest relative to the average ; for poor regions the relative public finance inflow is greater than for the average of poor regions.

The most striking examples of favourably treated rich regions are Valled'Aosta, Liguria, Lazio and Toscana. For Valle d'Aosta this can be explained by its unusual constitutional setting (2), its mountainous characteristics and the fact that it is thinly populated. These three factors combine to produce a lower than expected tax outflow and a relatively high rate of public expenditure.

In the case of Liguria the relatively favourable position is due to an 'overstatement' of primary income which is explicable by two main factors - tourism and revenue from oil excises (via Genova). Lazio owes its apparently preferential position to the simple fact that it contains the seat of central government (Rome) and thus benefits from high expenditure on administration.

The reasons underlying Toscana's favourable position are partly historical and partly structural. This was a region of numerous small states with a resulting large number of public employees, a state of affairs which persisted even after the unification of Italy. It has a large number of small businesses, rich farmers and a tourist industry receiving preferential tax treatment.

The reverse case, i.e. rich regions which seemingly overcontribute to the equalisation process, applies to Lombardia and Trentino. While in the case of Lombardia this would appear to be due to the concentration of heavy industry ensuring that tax payments are at an above average level, in the case of Trentino no obvious explanation suggests itself (3).

Of the poor regions which do not conform to the 'normal' pattern, Basilicata and Sardegna show a favourable position while Veneto and Campania appear to do less well.

The measure of apparent benefit or disadvantage in these cases is the relative over-or under-compensation for low primary income. Both Basilicata and Sardegna are recipients of disproportionately large shares of public expenditure relative to their population, due to their size and low population density, while their tax payments are substantially reduced by the favourable treatment accorded to the southern regions. In addition Sardegna is an autonomous unit and presumably similar tax considerations apply as for Valle d'Aosta.

-
- (1) The concept of relative outflow or inflow is appropriate because the central budget as a whole is in overall deficit.
 - (2) Implying favourable tax treatment in the case of excises.
 - (3) A possible explanation may be that taxpayers in this region are more conscious of their civic duty.

Campania and Veneto both have a high population density and thus receive proportionally smaller amounts of public expenditure per capita. Veneto has, in addition, a relatively low percentage of pensioners which reduces the benefits from social security expenditures and makes for a larger than average tax base.

3. Trade balances and public finance flows

The last stage in this analysis of the impact of public finance in the regions is to examine the effect of redistribution on regional consumption and investment expenditure and resource flows between regions.

As a first step, the aggregate central government deficit was distributed in proportion to regional product and the result of this calculation, together with other components, was used to derive the regional fiscal balance (1).

The second step was to calculate the regional trade or payments balance by adjusting GNP to exclude the current account balance of payments surplus or deficit and apply a proportional adjustment to each region's product. Regional consumption and investment expenditure was then subtracted from these adjusted regional products to give regional balance of payments.

The average of the 1971/72/73 trade and fiscal balances as percentages of primary income are given in Table 3 and these values, relative to primary per capita income, are plotted in Graph 1.

The generally observed pattern of resource transfer from rich to poor regions financed by central government is clearly shown in Table 3 with flows of public finance out of the north (offsetting their trade surpluses) and flows into the south (offsetting their trade deficits).

(1) Fiscal balance : $T - S + D$
where : T = revenue from the region
S = public expenditure in the region
D = regional share of aggregate deficit

Table 3 : Trade and fiscal balance of Italian regions,
annual average 1971-73 as percentage of primary
income

Region	Trade balance (1)	Fiscal balance (2)
Valle d'Aosta	+ 6.0	+ 2.5
Piemonte	+ 11.8	+ 8.0
Lombardia	+ 17.0	+ 12.3
Trentino Alto Adige	+ 11.7	+ 5.2
Veneto	- 1.6	+ 2.2
Friuli Ven. Giulia	+ 6.2	+ 3.0
Liguria	+ 14.1	+ 4.9
Emilia Romagna	+ 1.2	+ 3.1
Toscana	+ 4.9	- 1.8
Umbria	- 19.9	- 9.0
Marche	- 11.5	- 4.1
Lazio	+ 3.1	- 0.6
Abruzzi	- 16.3	- 16.3
Molise	- 30.2	- 26.6
Campania	- 18.0	- 11.8
Puglia	- 33.3	- 17.6
Basilicata	- 49.4	- 32.7
Calabria	- 30.3	- 27.6
Sicilia	- 28.0	- 14.8
Sardegna	- 41.6	- 24.7

(1) (+) : exports are greater than imports;
 (-) : imports are greater than exports.

(2) (+) : the region contributes more to public institutions than it receives
 (after distributing the overall deficit in proportion to primary
 income);

(-) : the region receives more than it contributes.

The most striking aspect of the balances is their high level when compared with those in other European countries. The Italian deficits (Table 3) range from 2 % in Veneto to 49 % in Basilicata (average 26 %) with five regions above 30 %, while the surpluses range from 1 % in Emilia Romagna to 17 % in Lombardia (average 8 %) with four regions above 10 %. In Germany (1968/70) and the United Kingdom (1964) the equivalent polar cases are, for deficits, the Saarland (13.6) and N. Ireland (21.7) and for surpluses, Hamburg (7.9) and West Midlands (3.2).

If one turns to the fiscal balances in Table 3, the large trade deficits in the south are matched by equally large net public finance inflows (fiscal balances), ranging from 2 % to 33 % (average 16 %). It is noteworthy that in three cases the public expenditure financing of the trade deficit is exceptionally large (fiscal balance as percentage of trade deficit), Molise (88 %), Calabria (91 %) and Abruzzi (100 %), with the average level being around 65 %. These cases are, perhaps, extreme examples of the general rule that small, poor, peripheral regions are often generously aided by central government.

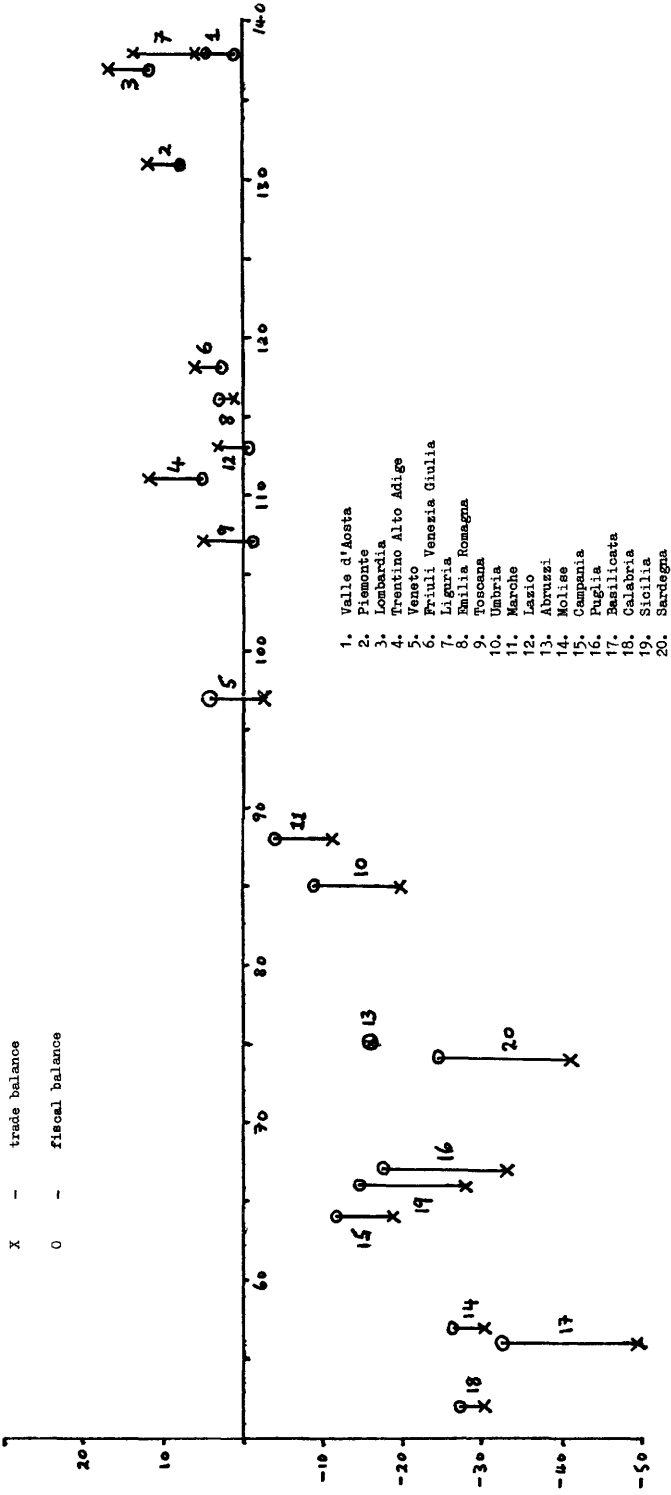
In the regions with trade surpluses the net flow to central government averages around 5 % with only two regions, Piemonte (8 %) and Lombardia (12.3), above this figure. The average of the flows as a percentage of trade surplus is about 51 % and here again only Piemonte (68 %) and Lombardia (72 %) are above this figure.

The three 'odd men out', Veneto, Toscana and Lazio, where the balances are of opposite sign, have been dealt with earlier (page 108). In the case of Veneto, the basic reason for both the trade deficit and the net public finance outflow is a high population density with low numbers of pensioners, while in Toscana and Lazio the primary reasons for the net public finance inflows are high numbers of public employees in both regions and large numbers of rich farmers in Toscana.

CHART 1

Horizontal axis - primary income per capita

Vertical axis - trade and fiscal balances



The methodology used to arrive at a regional disaggregation of the revenue and expenditure of the central budget, social security system and public enterprises

While in some cases regional data were available directly, it was in many cases necessary to employ indicators or proxies to allow distribution on a regional basis. These 'distributors' will be discussed in detail later in the note.

A further difficulty concerns the use of formal as opposed to effective incidence. In the cases of all direct taxes, social security contributions, payments to public enterprises and business taxes, such as registration tax, stamp duties and government concession tax, formal regional incidence has been used, whereas for sales tax, excises and consumption taxes, the effective incidence has been adopted. It is assumed that any local forward shifting will not substantially affect the regional distribution of those taxes where the formal regional incidence has been used.

Detailed Methodology

Direct taxes

I Tax on moveable property

This was, prior to its abolition in the recent tax reform, a schedular tax on various classes of income, which are listed below with details of the 'distributor' used :

<u>Class of income</u>	<u>Distributor</u>
Interest	Regional distribution of bank deposits
Profits (and corporation tax)	Regional industrial product less industrial labour costs
Professional income + income from own businesses	Regional tax registers
Wages and pensions	Regional tax registers

II Progressive income tax Regional tax registers

This did not become significant in terms of yield until after the tax reform of 1973.

III Succession duties Regional tax registers

The residue of direct taxes was distributed pro rata with regional income tax collections.

It is recognised that there are possible shortcomings in some of the distributors and details of why the various choices were made may be helpful.

In the case of interest it would have been preferable to use regional holdings of shares, bonds etc., but there are no regional data on the subject. While regional tax collection details are available these do not provide an accurate measure since under the withholding method the tax is levied at source.

The proxy adopted for schedular profits tax and corporation tax by taking regional industrial product avoids the problems associated with 'head office' profits which may bear tax outside the region/s where the profit arose.

The two taxes are assumed to be proportional to profits and are therefore allocated regionally on the basis of the industrial product net of industrial labour costs.

It is possible, in the case of professional etc. earnings, that part of the taxed income arose outside the region of residence, which may lead to some under assessment of revenue in certain regions with high concentration of members of the professions.

The data on profits and independent income were lagged two years to take account of the assessment delay, which does not arise in the case of wages and interest.

The problem of withholding of taxes in the cases of tax on wages and pensions was overcome by using regional tax registers which show tax due from residents including tax withheld elsewhere. This same method was used for the progressive income tax.

The regional registers were chosen as being most representative in the case of succession duties, though it is true that the property passing may not in fact be situated in the region of assessment, and indeed the heirs may live outside the region.

Indirect taxes

Prior to the reform which introduced VAT in 1973 the most important indirect tax was turnover sales tax.

The basis for the regionalisation of this tax is the regional distribution of sales of six classes of final consumption goods. To which the sales weighted rates of tax were applied and the resulting products were then multiplied by coefficients reflecting the average sales of each commodity. Investment multiplied by the normal rate of tax was added to these amounts.

In 1973 VAT was introduced and the apportionment of this among the regions was also based on the six categories of consumption goods.

Miscellaneous business taxes such as registry tax, stamp tax and tax on governmental concessions were dealt with on the basis of regional collection which, as mentioned earlier, appears to coincide fairly well with regional effective incidence.

In the case of the various excises on beverages, sugar, liquid fats, edible oils (excluding olive oil), tobacco and salt, and the consumption taxes on coffee and cocoa, the regional distribution was based on ISTAT data of regional consumption of the various commodities. For the consumption tax on bananas the only available base was regional population.

In the above cases it is clear that some regions will be under or overestimated in terms of yield due to lack of detailed data. In the case of beverages, for example, no account can be taken of regional preferences for wine as opposed to beer or, since the consumption data for coffee also cover tea, of any local preference for one over the other. In the case of tobacco a distortion may arise due to the fact that the tax often has a price elasticity greater than unity, and it is to be expected that more expensive cigarettes will be smoked in richer regions.

Customs duties and other border taxes were distributed on the same basis as sales tax, while agricultural levies were distributed on the basis of regional consumption of food.

Radio and television fees, lottery receipts, excises on gas and electricity were all distributed according to regional collection or subscription data. It was assumed, in the case of lotteries, that any inter regional sales of lottery tickets would be small. As for the gas and electricity taxes, these are paid by the consumer and are thus accurately localised.

The excise on mineral oils was initially divided, at national level, into five broad consumption categories weighted by the appropriate tax rate. These totals were then apportioned regionally according to regional consumption data supplied by the Ministry of Industry.

Social Security Contributions

The regional split is mainly based on regional income from wages. It should be noted that a distinction was drawn between the public and private sectors since regional wage data for the two are available.

Minor distortions could have arisen between regions due to the fact that :

- (a) lower rates apply in agriculture which may result in overassessment in regions with significant income from agriculture.
- (b) lower rates apply for central as opposed to local government employees though this should cause no systematic bias.

(c) reduced rates are applied in the private sector in Southern Italy and in the case of small business.

In all cases, however the problem was satisfactorily resolved: for example in the case of point (c) the central government repays to the social security institutions the receipts 'lost' through these abatements and a regional split of the refunds is available.

Receipts of State Enterprises

Enterprise

Railways

Electricity

Post Office

Distributor

Density of rail networks as a proxy for regional private expenditure on transport

Private - regional consumption data

Commercial - regional industrial product

Regional consumption data

In the case of railways the method adopted should give a reasonably accurate balance between richer and poorer regions so far as concerns revenue from transport of goods. An improved method for distributing this category by using specific regional receipts for goods transportation by rail is being developed.

For the Post Office regional data were available on parcels, letters and telegrams sent together with purchases of postal orders.

Government Expenditure

This split into fourteen categories -seven current and seven capital as follows :

Current

Constitutional bodies
(Parliament, Courts, etc.)

Personnel

Pensions to former staff

Purchases of goods & services

Transfers

Interest

Tax repayments

Capital

Public building and works

Equipment

Transfers

Purchase of shares and grants to industry

Subsidies to public enterprises (deficits)

Local authorities

Social security

Of the total under these headings some 60 % was apportioned among the regions on the basis of payments by the provincial treasuries together with a small proportion whose regional incidence is fixed by law. Payments to state enterprises and social security are available on

a regional basis and these payments were netted out when consolidating total expenditure to avoid double counting.

Some 25 % of the total was distributed using indicators.

Current

In the case of constitutional bodies, there is no problem since all this expenditure is allocated to Rome (Lazio). For wages and pensions, that part not accounted for by payments from provincial treasuries (35 % of wages and 20 % of pensions) was apportioned according to the regional distribution of state employees, which may understate the position of Lazio since the greatest proportion of top civil servants are employed there.

The same key was used for the residual of purchases of goods and services (about 40-50 %) not already regionalised. The objection here is that the expenditure on defence is given a distorted distribution but no more so than would be the case if some key based on benefits or payments to suppliers were used.

Of transfers some 60 % had to be distributed otherwise than on the basis of regional treasury payments and were dealt with either on an item by item basis or by indicators.

War pensions and damage compensation and fringe benefits to state employees, were apportioned on a straight population basis and according to state regional personnel expenditure respectively.

Interest on and repayments of public debt were distributed according to regional shares in bank deposits since the bulk of public debt is held by banks.

Tax repayments follow regional distribution of the original tax collection.

Capital

Of the expenditure on public buildings and works, some 50 % was already regionalised through treasury payments and the remainder was dealt with pro rata on the same basis. Since the data refer to provincial treasury expenditure it may be argued that the suppliers may not be resident in the region in which the work is done, but in the event the distribution arrived at does not differ substantially from that for central government public works for which data do exist. In any case this category only accounts for about 1.5 % of total government expenditure.

Equipment expenditure was allocated in proportion to government personnel expenditure.

Capital transfers, divided between those to private enterprises and those to local authorities, were apportioned according to regional industrial value added and the location of the recipient body respectively.

Share purchases and grants by public enterprises were for ENI, IRI and EFIM (about 5/6ths of the total) distributed according to the regional breakdown of their investments and for the Medio Credito Centrale according to location of recipient enterprises. Grants for public undertaking deficits were distributed according to their regional expenditures.

Capital expenditure of the Cassa del Mezzogiorno was distributed according to data provided by that body.

Current and Capital

In the case of social security, regional expenditure data were available both for transfers and goods and services offered while expenditure on personnel was distributed according to regional number of employees, a method also used for the current account expenditure of state enterprises.

The only state enterprise not thus treated was the tobacco monopoly, for which regionalised data on value of tobacco used in manufacture were available and served as a key for distributing both current and capital expenditure.

Chapter 5

THE OVERALL REDISTRIBUTIVE EFFECT OF
PUBLIC FINANCES IN SEVEN INTEGRATED ECONOMIES

(working paper)

1. Introduction

This chapter summarizes the findings of the following four chapters 6 - 9 on the redistributive effect of taxes, general purpose grants, specific purpose grants and other expenditures in four federations (1), Germany, Australia, Canada and the USA and three unitary states, France, Italy and the United Kingdom.

This summary has four parts (1) a description of interregional differences in average per capita levels of production and income ; (2) a survey of the total redistributive effect of public finances, (3) a discussion of the main instruments in the various countries bringing about the total effect and (4) the relationship between the regional balance in public finances and the trade balance.

Annexes 1 and 2 discuss the methods of measuring the redistributive effects of public finances used in the four following chapters.

2. Interregional differences in average per capita levels of production and income.

Table 1 shows the maximum interregional differences in average per capita production or income in the countries studied and degrees of interregional inequality measured by Gini-coefficients (2)

The figures shown for the poorest and richest regions give a simple but imperfect measure of the overall interregional inequality of income distribution ; they fail to take into account either the population size of the extreme cases, or the wealth or population size of intermediate regions between the extremes. The Gini-coefficient of inequality corrects for these deficiencies.

Ranked by the Gini-coefficient Australia has the most equal interregional income distribution followed successively by Germany, the United Kingdom and Switzerland. France, the United States and Canada show higher degree of inequality, while Italy has outstandingly the most unequal distribution.

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- (1) Summary data on Switzerland are included in some of the following tables ; but because of the absence of data on the social security sector (more than half of all federal expenditures) and the heavy reliance on the formal incidence approach for other federal expenditures, Switzerland is not included in Chapters 6-9. The source for the Swiss data is W. Wittmann, Bundesstaatlicher Finanzausgleich : Eine Globalbilanz. Zeitfragen der schweizerischen Wirtschaft und Politik, Nr. 101 (1971). The source for all other countries are given in Chapters 6-9
 - (2) Where available Table 1 gives data on GDP and personal income. In the assessment of the quantitative redistributive effect of public finances (as given in Table 2), personal income is used mainly for two reasons : (1) to improve the comparability of results between European and non-European countries for which only personal income data exist, and (2) personal income (excluding public transfers) appeared to be more relevant to the measurement of redistributive effects.

TABLE 1
Regional per capita product and income differences
in relation to national average

Country	Year	Income or output measure (1)	Poorest region or state	Level average = 100	Richest region or state	Level average = 100	Mini/Max ratio	Degree of inequality measured by Gini (2) coefficient
Australia	1973/74	Personal income	Tasmania	87	New South Wales	105	1.2	0.03
Canada	1973	Personal income	Newfoundland	54	Ontario	117	2.2	0.09
United States	1975	Personal income	Mississippi	60	Alaska Washington D.C. Connecticut	175 125 120	2.9 (1.4	0.09 0.06 51 states 9 regions)
Switzerland	1972	GDP	Appenzell i.R.	69	Basel Stadt	151	2.2	0.07
Switzerland	1967	Personal income	Obwalden	72	Basel Stadt	143	2.0	0.07
Germany	1974	GDP	Schleswig-Holst.	84	Hamburg Bremen Nordrhein-West.	149 118 104	1.8	0.05
Germany	1970	Personal income	Saar	81	Hamburg Bremen Baden-Württemberg	133 113 108	1.6	0.05
France	1970	GDP	Bretagne	81	Paris	139	1.7	0.09
France	1970	Personal income	Midi-Pyrénées	80	Paris	139	1.7	0.09
Italy	1973	GDP	Calabria	55	Liguria	137	2.5	0.15
Italy	1973	Personal income	Calabria	60	Liguria	134	2.2	0.14
United Kingdom	1974	GDP	N. Ireland	74	South-east	117	1.6	0.07
United Kingdom	1964	Personal income	N. Ireland	69	South-east	119	1.7	0.06

Notes

- (1) GDP at factor cost for Germany; market prices for other countries; regional GDP data do not exist for Australia, Canada and the United States.
Personal income (as defined above) for all countries except Italy and Switzerland, for which net national product at factor cost is given, since official regional personal income data do not exist.
- (2) The Gini coefficient of inequality is a weighted average of per capita income differences between regions, where relative population shares are used as weights. A value of 0.0 means exact equality; a value of 1.0 all income concentrated in one region; a value around 0.05 indicates relatively small inter-regional inequality, whereas a value of 0.15 indicates already substantial inter-regional inequality. This use of population share weights takes into account both the size of regions and also the distribution of regions falling between the richest and poorest.

Sources to Table 1

GDP : Germany : Volkswirtschaftliche Gesamtrechnung der Länder :
Entstehung, Verteilung und Verwendung des Sozialprodukts in den
Ländern. Standardtabellen 1960 bis 1970. Stuttgart 1975.

France : Régions françaises. Statistiques et indicateurs, projet
de loi de finance pour 1975. INSEE Paris.

Italy : ISTAT. Bolletino mensile di statistica No. 11, Nov. 1976.

United Kingdom : Economic trends No. 277, Nov. 1976. CSO London

Switzerland : UBS, La Suisse en chiffres 1973

Personal income : Australia - National income and expenditure. ABS

Canada - National accounts Income and expenditure
1926/7 Dominion Bureau of Statistics

United States - Survey of Current Business, August 1972
and 1976. US. Dept. of Commerce, Bureau of Economic
Analysis.

Germany : as for GDP

France : as for GDP

Italy (net national product at factor cost) : as for
GDP

United Kingdom : Own computations based on Regional
Social Accounts for the United Kingdom, V.H. Woodward,
NIESR regional papers 1, Cambridge University.

Switzerland (net national product at factor cost) :
Wittmann, op. cit.

The ratio of lowest to highest average income seems generally to indicate smaller differences between countries in interregional inequality. However, the ranking by the ratio is broadly consistent with that by the Gini-coefficient, Germany, Switzerland and the USA being the only marked exceptions for the United States and Germany this is readily explainable by in the one case Alaska and Washington D.C. with their high incomes and small propulations and in the other case the 'Stadtstaaten' Hamburg and Bremen ; for Switzerland it is likely to be due to the existence of many very small sized 'Kantons'

3. Interregional redistributive effect of public finances

The overall interregional redistributive effect of public finances is summarized in Table 2. The figures indicate for recent years the percentage extent to which public finance at the central or federal level tends to equalize average per capita income differentials between regions. The average extent of equalisation in the countries shown is about 40 %, with Australia and France clearly above this average and the United States and Germany significantly below (for Switzerland the data does not cover social security transactions and so are far from complete).

Two measures are given in Table 2 - 'unweighted' and the other 'weighted' by population. The difference between these two measures - though quantitatively unimportant for the aggregate shown in most countries - involves a significant political and economic issue. Under the 'unweighted' measure the idea is to regard all regions or states as equal units, this corresponding to the extreme confederal principle of 'one state - one vote'. The 'weighted' measure follows the model of the unitary state because it takes into account the population size of each region or state.

If the change in income differentials due to redistribution were the same for all regions, i.e. income is increased in all poor regions by a uniform percentage and decreased in all rich regions by the same percentage, relative to the average, the two measures give identical results. If the change in income differentials is different between regions, e.g. some regions are treated relatively more favourable than others, the measures give in general different results, the difference depending on whether a region is small or large and whether it is rich or poor. If a small poor region is treated favourably for instance the unweighted redistributive power measure will indicate a larger overall redistributive effect.

The overall redistributive effects observed differ as between federal and unitary states : for federal states the average is about 35 %, whereas it is about 45 % for unitary states. This difference is mainly explained by the smaller federal level as compared to central level public finances. This is apparent from comparing the following figures of total and federal or central public expenditure as shares of GDP

Table 2

The overall redistributive effect of public finances in major federations and European central states

(Percentage degree of reduction in inter-regional income differences)

	Redistributive Power Average of individual regions' reduction in per capita income differences (regions <u>unweighted</u> by popu- lation)	Change in Gini- coefficient of regio- nal income inequality due to public finances (regions <u>weighted</u> by popu- lation)
<u>Federations</u>		
Germany	29	39
Australia	53	53
Canada	32	28
USA	28	23
Switzerland (1)	(22)	(10)
Average of federations (2)	35	36
<u>Unitary states</u>		
France	54	52
Italy	47	44
United Kingdom	36	31
Average of unitary states	46	42
Average of federations and unitary states (2)	40	39

(1) Excluding social security

(2) Excluding Switzerland because of its incompleteness

in the countries concerned (where the central or federal level expenditure includes all grants to lower levels of government) :

Table 3

Public Expenditure as a Percentage Share of GDP at market prices

	<u>all levels of government</u>	<u>central or federal government</u>
Germany (1971)	41.1	24.7
France (1972)	38.3	35.4
Italy (1972)	41.1	35.7
United Kingdom (1972)	41.5	33.9
Australia (1972/3)	27.9	22.5
Canada (1971/2)	38.5	19.3
Switzerland (1973)	39.8	23.6 (9.7) ^a
United States (1971/2)	37.6	22.8

^a excluding social security

It is important to note that, although the net inter-regional transfers serve to offset so high a proportion of inter-regional differences in primary incomes (more than half of them in some cases), they are not themselves very large as proportions of GDP - only 2.5 % of it in the United States, for example, 3.7 % in the United Kingdom, and 4.2 % in Italy. (1)

4. The interregional redistributive effect of public finances by major instruments

The equalising flows of public finance just described affect the living standard of regions either directly by taxes or transfers on or to individuals, or indirectly by inter-governmental transfers, or by the direct provision of public services. For the purposes of the measurement of the interregional redistributive effect of public finances these direct and indirect influences are treated as if equivalent, i.e. a unit of account of direct transfer to individuals in a certain regions is assumed to have the same redistributive impact as a unit of account of an inter-governmental transfer, or the direct provision of public services worth one unit of account.

(1) For these three countries the net flows can be computed since complete revenue and expenditure data relating to one year are available.

For federations the effect of revenues, general and specific purpose grants and direct expenditures is treated separately in the four following chapters. Table 4 summarizes the findings. For unitary states the effect of revenues and total expenditures is dealt with in Chapters 8 and 9. Table 5 gives a summary of the results obtained. In the following the results in Table 4 and 5 will be interpreted and complemented with more detailed insight from the chapters referred to.

The redistributive power of revenues is in most countries almost 0 (varying between 2.7 % in Australia and - 1.6 % in Italy), with the United States (8 %) and especially France (20 %) as marked exceptions. The personal income tax is in most countries the predominant instrument of progressive interregional distribution, whereas general sales taxes and excises are interregionally regressive. The overall redistributive power depends on the central or federal mix of these taxes, the tariff characteristics and differences in the structural mix of incomes between regions. The importance of the mix of progressive and regressive taxes can be exemplified by comparing Germany and the United States. In the U.S.A. a high percentage of the income tax is federal and there are no federal general sales taxes. In Germany the opposite was true in the year of study 1970 : 70 % of general sales taxes and only 43 % of personal income taxes were federal. Thus, in the USA there is a tendency for the regressive taxes to be internalised at the regional (state) level, and so substantial redistribution occurs at the federal level ; in Germany it is the progressive taxes that tend to be internalised at the regional (Länder) level, and so almost no redistribution occurs at the federal level. The outstanding amount of French interregional redistributions of taxes and social security payments is due to the difference in tax regimes concerning farm and non-farm, small business and corporate income and not so much to a high tariff progressivity.

The redistributive power of expenditure is on average about 40 % for the unitary states and 30 % for the federations studied.

In unitary states the redistributive effect has three main sources :
(i) expenditures on goods and services and salaries provide roughly equal per capita benefits (which is redistributive in terms of its effects on regional income differentials) ; (ii) social security finance tends to provide support to regions with high ratios of children, women not seeking work and retired people, which are often poor regions (this is observed clearly in France and Italy) ; (iii) grants to local and regional level of governments : for the United Kingdom agricultural and rate support grants and for Italy capital transfers to regional development agencies and for public infrastructural investment have a high-powered redistributive impact.

Table 4
The interregional redistributive effect of public finances in major federations
 (Percentage degree of reduction in inter-regional income differences)

Country (3)	Revenues		expenditure						Total	
	(1)	(2)	Direct		General Purpose Grants		Specific Purpose Grants		(1)	(2)
			(1)	(2)	(1)	(2)	(1)	(2)		
Germany	0.8	-3.0	17.3	25.4	9.4	14.5	1.4	2.0	28.9	38.9
Australia	2.7	9.4	11.8	9.0	27.1	20.4	11.2	14.2	52.8	53.0
Canada	2.4	2.6	6.7	5.1	15.4	13.0	7.2	7.7	31.7	28.4
USA (average of two following versions)	8.1	6.8	13.6	12.3	0.9	0.6	5.1	3.0	27.7	22.6
USA 9 regions	7.7	6.9	15.2	14.7	0.7	0.5	3.9	2.2	27.5	24.3
48 states	8.5	6.6	12.1	9.9	1.0	0.6	6.2	3.8	27.8	20.9
Switzerland (4)	-1.2	0.7	23.2	10.3					22.0	9.6
Average of above countries (5)	3.5	4.0	12.4	13.0	13.3	12.1	6.2	6.7	35.3	35.8

Footnotes to Table 4

- (1) The redistributive power measures the average of individual regions' reduction in per capita income differences (regions unweighted by population).

Cp. Annex 1 and 2

- (2) Change in Gini-coefficient of regional income inequality (regions weighted by population)

Cp. Annex 1 and 2

- (3) Years of studies :

	Revenues	Expenditures		
		Direct	General Purpose Grants	Specific Purpose Grants
Germany	1970	1970	1973	1973
Switzerland	1967	1967		
Australia	1971/72	1973/74	1971/72	1973/74
Canada	1969	1973	1973/74	1973/74
USA	average 1969/71	average 1969/71	1972	1974

- (4) The Swiss figures are not comparable to those of other federations since (i) social security (more than half of total federal expenditures receipts and payments are excluded): (ii) Grants are not treated separately and (iii) the regionalisation of revenues and expenditures is predominantly based on the formal incidence approach. The source for the Swiss figures are Tables 3 (for revenues) and Table 6 (for expenditures) of the following study : W. Wittmann, op. cit.

- (5) Excluding Switzerland because of its incompleteness and taking the average of the two USA alternatives.

Table 5

The interregional redistributive effect of public finances in major European Central States

(Percentage degree of reduction in inter-regional income differences)

Country (3)	Revenues		Expenditures		Total	
	(1)	(2)	(1)	(2)	(1)	(2)
France 21 regions 8 regions	18.5	20.7	32.6	31.7	51.1	52.4
	22.4	18.6	34.7	33.3	57.1	51.9
France (average of 2 versions)	20.5	19.7	33.7	32.5	54.2	52.2
Italy	-1.6	-1.8	48.4	45.3	46.8	43.5
United Kingdom	0.2	-1.8	36.0	32.9	36.2	31.1
Average of above countries	6.4	5.4	39.4	36.9	45.8	42.3

(1) The redistributive power measures the average of individual regions' reduction in per capita income differences (regions unweighted by population). See Annex 1 and 2

(2) Change in Gini-coefficient of regional income inequality (regions weighted by population). See Annex 1 and 2.

(3) Years of studies :

	<u>Revenues</u>	<u>Expenditures</u>
France	1969	1970
Italy	1973	1973
United Kingdom	1964	1964

(4) Taking the average of the two French alternatives

For federations the redistributive effect of expenditures is separated into three components : direct expenditures, general purpose equalisation and specific purpose grants. Direct expenditures have an average redistributive effect of about 12 % (1), which as in the case of central states is due to national policies providing roughly equal per capita benefits and regionally redistributive social security.

The average redistributive power of general purpose equalisation is 13 %, i.e. the same order of magnitude as that of direct expenditures -but with considerable differences between the federations. In Australia and Canada there are major general purpose grant systems that tend to equalise the fiscal capacity of the states yielding a redistributive effect of about 25 % and 15 %. In Germany the fiscal capacity of poor regions is equalised to a minimum of 95 % of the national average through tax-sharing arrangements and horizontal transfers between Länder, with a more modest role for federal grants. The total redistributive power of these arrangements at about 10 % is considerably smaller than the Canadian and Australian effect mainly due to the preferential treatment of the rich Stadtstaaten Hamburg and Bremen. The USA introduced a general purpose grant (called 'revenue sharing') only in 1972. It allocates a fixed amount of money to all states with low profile fiscal capacity characteristics according to certain formulae. Accordingly the redistributive power is very small (approximately 1 %)

The redistributive power of specific purpose grants is on average 6 % and thus about half of the redistributive power of direct expenditures or general purpose equalisation ; Canada and the United States are close to this average, Australia (10 %) above and Germany (1 %) below it. Most grants are given to five program categories : health, education, welfare, transport, and regional development. The redistributive power for each of these categories depends on the program volume and the regional distribution of this volume.

Among specific purpose grants in Germany (mostly known as 'Gemeinschaftsaufgaben') only the regional development program has significantly redistributive characteristics but the program volume is too small to have a major effect.

In the other three federations health and welfare are small volume programs with redistributive characteristics, leaving the major redistributive effect in Australia to transport (5 %) and education (2 %), in Canada to regional development (3 %) and in the USA to

(1) For Canada and Australia this includes social security payments only. From the experience of other countries it is likely that other direct expenditures would also have a redistributive effect bringing Canada and Australia approximately to the orders of magnitude of the USA and Germany

'Food Stamps' and urban redevelopment programs (2.5 %).

5. Interregional balance of payments and public finance balance

The redistributive effect of public finances as observed in all federations and central states studied, has major macro-economic consequences for the regions: in richer regions there is a relative surplus of taxation over public expenditures implying a resource transfer to the central or federal budget ; conversely in the poorer regions there is a relative surplus of public expenditures over taxation implying a resource inflow from the central or federal budget (1). These resource transfers contribute to equalising regional production and expenditure per capita, thus offsetting to a considerable degree balance of payments current account surpluses (for richer regions) or deficits (for poorer regions). For a region the 'relative public finance surplus' appears to be a major safeguard preventing it from going "bankrupt" when it is suffering from a deficit in its trade balance. From the country studies in Chapter 1 to 4 it is possible for selected regions in Germany, France, Italy and the United Kingdom to give an idea of the approximate orders of magnitude that seem to be involved. The data are given in Table 6.

In the examples given balance of payments deficits for poorer regions cover the range between 7 % and 22 % of regional product (average 13 %) with two exceptional cases at 20 % (Calabria) and 42 % (Basilicata) ; balance of payments surpluses for richer regions range from 2 % to 15 % of regional product (average 8 %). To these balances of payments correspond public finance inflows into poorer region between 3 % and 16 % of regional product (average 9 %), 24 % for Calabria and 28 % for Basilicata ; and public finance flows out of richer regions between 3 % and 11 % of regional product (average 6 %). For poorer regions balance of payments current account deficits are thus matched to nearly 70 % by public finance inflows ; for richer regions the trade surpluses are matched to even more than 70 % by public finance on outflows. The variation around these average is relatively small ; Abruzzi (100 %) and Calabria (91 %) being exceptional cases (2) among poorer regions and Hessen (132 %), South East (200 %) and Liguria (35 %) among richer regions.

(1) The concept of relative surplus or deficit is appropriate because the central or federal budget as a whole could be in overall surplus or deficit.

(2) More than 20 % difference from the average.

Table 6

Public finance flows and balance of payments as percentages of regional product

	Public finance outflow (-) or inflow (+)	Balance of payments current account surplus (+) or deficit (-)	Public finance flow as percentage of balance of payments
<u>Relatively poor regions or states</u>			
<u>Germany (average 1968-70)</u>			
Niedersachsen	+ 3.4	- 6.5	52
Schleswig-Holstein	+ 6.0	- 9.8	61
Saarland	+ 9.0	- 13.6	66
<u>France (1972)</u>			
Bretagne	+ 11.0	- 15.0	73
<u>U.K. (1964)</u>			
Wales	+ 7.8	- 12.1	64
Scotland	+ 6.1	- 7.8	78
N. Ireland	+ 16.1	- 21.7	74
<u>Italy (average 1971-73)</u>			
Umbria	+ 7.8	- 17.4	45
Abruzzi	+ 14.8	- 14.8	100
Basilicata	+ 28.0	- 42.3	66
Calabria	+ 23.5	- 25.8	91
Unweighted average(excl. Basilicata + Calabria)	+ 9.1	- 13.2	69
<u>Relatively rich regions or states</u>			
<u>Germany (average 1968-70)</u>			
Baden-Württemberg	- 5.9	+ 7.9	75
Nordrhein-Westfalen	- 4.5	+ 5.2	87
Hessen	- 2.9	+ 2.2	132
<u>U.K. (1964)</u>			
South East	- 4.8	+ 2.4	200
West Midlands	- 2.9	+ 3.2	91
<u>Italy (average 1971-73)</u>			
Piemonte	- 7.4	+ 10.9	68
Lombardia	- 11.1	+ 15.3	73
Liguria	- 4.4	+ 12.6	35
Unweighted average	- 5.5	+ 7.5	73

6. Summary

The substantial interregional income differences observed in all federations and central states studied, are reduced by an average degree of 40 % by interregional flows of central or federal level public finances. For selected regions in the European countries Germany, France, Italy and the United Kingdom this flow of public finances was observed to amount to 3 % to 28 % (average 7.5 %), offsetting trade deficits in poorer regions by nearly 70 % and trade surpluses in richer regions by more than 70 %.

In the unitary states a large part of total interregional redistribution is automatically and 'invisibly' achieved by the provision of roughly equal per capita public services and the social security system. A significant but smaller amount of interregional redistribution is due to a regionally progressive tax system. In the United Kingdom and Italy agricultural and rate support grants and capital transfers to regional development agencies and for public infrastructural investment have a high-powered redistributive impact.

In the federations a considerable share of the total redistributive power is explicitly voted or negotiated on a geographic basis : the instruments in question being general and specific purpose grants. General purpose grants tend to have on average a redistributive power in the same order of magnitude as direct expenditures ; they are clearly the most high powered redistributive instrument since this result is obtained with relatively small federal expenditure amounts. The redistributive power of specific purpose grants is on average about half as large as the redistributive power of direct expenditure or general purpose grants.

In federal systems the relative mix between instruments appears to be a major variable for political choice the extreme positions are those of Germany and the United States with Australia and Canada in an intermediate situation (1). In Germany the federal level operates an almost regionally neutral tax system by giving a relatively high share of the progressive taxes to the Länder ; the specific purpose grant system is not redistributive except for a small volume regional development program ; thus inter-Länder redistribution is concentrated on explicit budget equalisation through tax-sharing arrangements, horizontal transfers between Länder and modest federal 'supplementary grants'. In the United States, on the other hand, a large share of progressive taxes are at the federal level implying a substantial amount of inter-state redistribution ; several specific purpose grants are designed explicitly to account for differences in state's fiscal capacity implying overall a modest but significant redistributive role : general purpose grant system ('revenue sharing') is a small volume and inefficient instrument for inter-state redistribution.

(1) Interestingly there has since 1970 been changes in the German and United States systems moving both 'closer to the average' : In Germany the tax reform of 1970 increased the federal share in progressive taxes and in the United States a mildly redistributive general purpose grant (the 'revenue sharing') was introduced in 1972.

Annex 1 : Methods of measuring the interregional redistributive effect of public finances.

Studies of the interregional redistributive effect of public finance differ in objective and scope from the more usual ones of the redistributive effect by income group but encounter corresponding methodological problems:

- (i) the allocation of public finances to regions and based on this allocation,
- (ii) the measurement of the average redistributive effect.

1. The allocation of public finances by region

Public finances can affect the living standard of regions either directly by taxes or transfers on or to individuals, or indirectly by intergovernmental transfers, or by the direct provision of public services. For the purposes of measuring their interregional redistributive effect the direct and indirect influences are treated equivalently, i.e. a unit of account of direct transfer to individuals in a certain region is assumed to have the same redistributive impact as a unit of account of an inter-governmental transfer, or the direct provision of public services costing one unit of account.

The regional breakdown of general purpose equalisation and specific purpose grants poses no serious methodological problems, since reliable data sources exist of regional benefits or payments under these schemes.

For revenues there is a rich literature (1) on the question of effective incidence which has been taken into account in the methods used for the regional allocation of revenues. For personal income taxes, general sales taxes and excises and import duties there is general agreement on assumptions to be made, whereas there are different approaches to the allocation of corporate income taxes and social security contributions (cp. Chapter 9). However, these differences are unlikely to introduce distortions severe enough to destroy the comparability of overall results on the redistributive effect of revenues between countries.

For large parts of public expenditure, salary and wage payments and social security and other transfers, all studies try to allocate them to the region of residence of the beneficiary by using either finance data or appropriate distribution keys. The allocation of expenditures on goods and services encounters the crucial public goods problem of 'indivisible' national benefits. The approach to this problem differs between studies (cp. Chapter 8) ; it has been tried, however, to make the redistributive power results as comparable between countries as possible.

(1) Cp. e.g. P. Mieszkowski, Tax Incidence Theory. The Effects of Taxes on the Distribution of Income. Journal of Economic Literature, Vol. 7 (1969) pp. 1103-1124.

2. Measurement of the average redistributive effect

A measure of the redistributive effect of public finances should give comparable results whether the instruments of redistribution are public revenues, direct expenditures, grants or any aggregation of these. For the definition of such a measure the regional per capita distribution of these items has to be related to an average per capita regional income. For all types of public finance and all but two countries (1) the income concept used is personal income : this is chosen as the basis of measurement mainly for two reasons :

- to improve the comparability of results between European and non European countries for which only personal income data exist ;
- because personal income appeared to be more relevant than output to the measurement of redistributive effects.

Two measures are used here for quantifying the interregional distributive effect of public finances on personal income :

- (1) the percentage change in the Gini-coefficient of concentration (also called 'weighted' measure) ;
- (2) the redistributive power (also called 'unweighted' measure).

The change in Gini-coefficient is a traditional measure used also in studies of redistributive effects by income group. It is computed in the following way. First, for personal income unmodified by redistribution (called in the following explanation primary income) the degree of regional inequality is measured by the Gini-coefficient which is a weighted average of per capita income differences, where relative population shares are used as weights. (2) (3)

Secondly, an income as modified by the interregional redistribution in question (called in the following explanation modified income) is calculated. Modified income serves the purpose of measuring the joint effect of revenues and expenditures on primary income. Thus, for a given instrument in isolation say revenues, an expenditure amount

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- (1) These countries are Italy and Switzerland for which personal income data are not available.
 - (2) For a formula see Annex 2, equation (3).
 - (3) A value of C.0 means exact equality ; a value of 1.0 all income concentrated in one region.

equal to national revenues is allocated to regions in proportion to their primary income. Consequently, modified income is equal to primary income minus revenues plus the regionally allocated expenditure. An analogous procedure is employed in the case of an expenditure instrument in isolation (1).

Finally, the Gini-coefficient of regional inequality is computed for modified income. The percentage change of this Gini-coefficient relative to that of primary income is the 'weighted' measure of the redistributive effect of revenues or expenditures. The measure for total public finances is obtained by adding the measures for the simple instruments (2).

The redistributive power is a measure developed for the purpose of this report.* It measures the average extent to which regional primary income differentials are reduced by public instruments. An income differential is defined as the difference between the per capita index number (national average = 100) and the national average, i.e. 100. A single region's reduction in its primary income differential is the percentage change of the modified income differential relative to the primary income differential.(3) The redistributive power is equal to the weighted average of regions' reductions in primary income differential where the squares of primary income differentials are used as weights.

The redistributive power can be calculated in an economically meaningful and easily interpretable way. This calculation has two stages (4).

- (1) In the case of horizontal equalisation payments, modified income is simply the sum of primary income and these (positive and negative) payments.
- (2) Because regional allocations of revenues and expenditures relate in most cases to different years it is not possible to calculate an income 'modified' by all public finance instruments and thus to compute the resulting total change in Gini-coefficient. Implicitly, it is thus assumed that the redistributive effect does not change considerably between different years.
- (3) If a rich region is at 120 % of national primary income per capita and after taxes, say, its income is 115 % of national average, this region's reduction in its primary income differential is $(20 - 15) / 20$, i.e. 25 %.
- (4) The equivalence of the above definition of the redistributive power with this method of calculation is proved in Annex 2.

* based on a concept developed by Horst Reichenbach

The first stage is to compute the elasticity of interregional per capita differentials in revenues or expenditures with respect to primary income differentials. The elasticity coefficients are obtained by regression analysis, (1) with the revenues or expenditures in the various regions as the dependent variables, and primary income as the independent variable. The elasticity is the slope of the regression line. If this slope is 1.0 the revenue or expenditure in question may be described as 'neutral' ; i.e. it varies between regions by the same percentage as primary income. A revenue source with an elasticity greater than 1.0 is 'progressive' (tends to reduce percentage income differentials) ; an expenditure source with an elasticity greater than 1.0 is 'regressive'.

Secondly, the redistributive power is calculated by weighting the deviation of the elasticity coefficient from neutrality by the percentage that the revenues or expenditures bear to primary income. Since an elasticity coefficient of 1.0 corresponds to neutrality and thus to Zero redistributive power, the deviation of the elasticity coefficient from neutrality is obtained simply by subtracting 1 from the elasticity in the case of revenues, and by subtracting the elasticity from 1 in the case of expenditures.

Numerical examples of elasticity values for hypothetical revenue and expenditure instruments, and the calculation of their redistributive power, are given in the following Tables 1 and 2.

A graphical presentation is given in Chart 1. The slopes corresponding to the elasticity coefficients of cases A, B, C and D are shown on the lefthand side. Their redistributive power is shown on the righthand side in terms of the vertical distances between the regression lines. For the revenue case A, for example, the redistributive power is the distance 'a' between the line of case A and that of the zero-redistributive power case B and the horizontal line through the origin (which would itself represent the case of 100 % redistributive power).

Difference between the 'weighted' and 'unweighted' measure

The difference between the 'weighted' and 'unweighted' measure involves a significant political and economic issue of relevance for the Community case, using the 'unweighted' measure implies that all regions are regarded as equal units, this corresponding to the extreme confederal principle of 'one state - one vote'. The 'weighted' measure takes into account the population size of each region, and is thus more meaningful in relation to a unitary state where the

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- (1) The regression Line is restricted to pass through the point (100,100), i.e. national averages, since otherwise the region's reduction in income differential implied by the regression line would vary with primary income. This restriction is more a point of formality than substance, since the unrestricted regression line will normally be very close to the point (100,100).

Table 1
Meaning of the Elasticity Coefficients

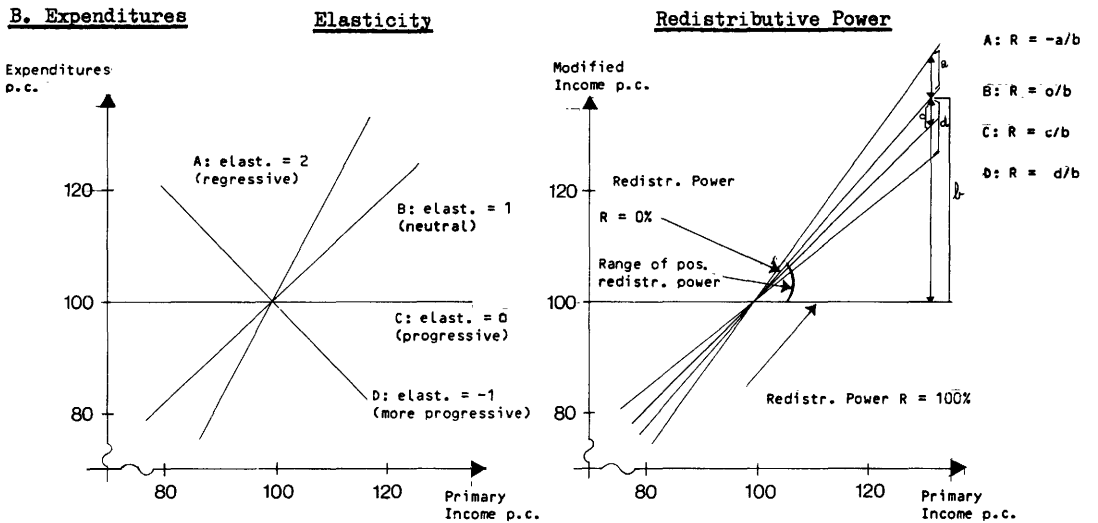
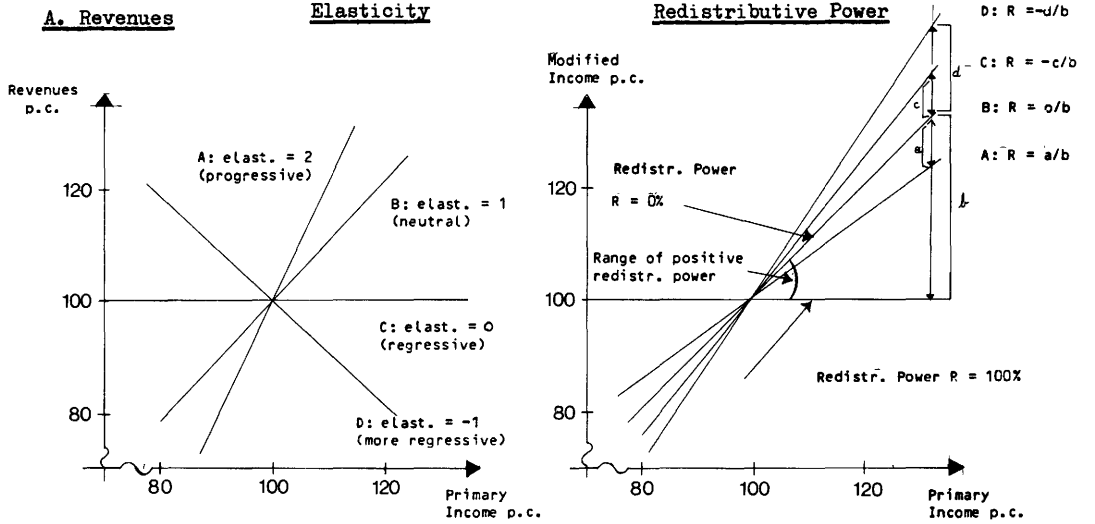
Case	Elasticity coefficient	Revenues	Expenditures
A	2.0	progressive	regressive
B	1.0	neutral (proportional)	neutral (proportional)
C	0.0	regressive (invariant)	progressive (invariant)
D	-1.0	more regressive (inversely proportional)	more progressive (inversely proportional)

Table 2
Calculation of Redistributive Power

Case	1	2	3	4	5	6	7	8
	Elasticity Coefficient (E.C)		Deviation of E.C. from neutrality		Revenues or expenditures as percentage of primary income		Budgetary Redistributive Power	
	Reve- nues	Expendi- tures	Reve- nues	Expendi- tures	Reve- nues	Expendi- tures	Reve- nues 3 x 5	Expendi- tures 4 x 6
A	2.0	2.0	1.0	-1.0	20 %	20 %	20 %	- 20 %
B	1.0	1.0	0.0	0.0	20	20	0	0
C	0.0	0.0	-1.0	1.0	20	20	-20	20
D	-1.0	-1.0	-2.0	2.0	20	20	-40	40

CHART 1

Elasticity Coefficients and Redistributive Power of Taxes and Transfers



central government is based on the principle of 'one person - one vote' (1).

If the change in income differentials due to redistribution were the same for all regions, i.e. income is increased in all poor regions, and decreased in all rich ones, by the same percentage, relative to the average, the weighted and unweighted measures give identical results (2); if these percentage changes are different between regions, the measures give in general different results. If, for instance, a small poor region is treated relatively favourably, this will tend to make the unweighted measure show a greater degree of redistribution than the weighted one.

In the Community the 'unweighted' measure would thus indicate substantial redistributive effects even if only Ireland and a small number of small, poor regions in, say, Italy and the United Kingdom were to be treated favourably by Community finances, whereas the same order of magnitude would be shown by the 'weighted' measure only if Community finances favoured a larger share of population with below average income.

Furthermore there are technical differences between the two measures:

- The method of calculating the 'unweighted' measure has the advantages of making it possible to see how different states lie in relation to the regression line defined above, i.e. it is easy to see which regions are treated favourably or unfavourably relative to the regression line.
- The 'unweighted' measure has the advantage of being strictly additive, i.e. the sum of the redistribution powers of single instruments is the same as the redistributive power of these instruments working together.

(1) This principle is reflected in the sensitivity of the measures with respect to the number of regions having equal per capita income and the spatial distribution of income within a region. Whereas the weighted measure does not change at all, if one region is separated into several with equal per capita income, it changes significantly if a region is separated into several with unequal per capita income. The reverse is true for the 'unweighted' measure, i.e. this measure is less sensitive to per capita income differences within a region but more sensitive to the number of regions with equal per capita income.

(2) This is proved in Annex 2.

Annex 2 : Algebraic representation of the 'unweighted' and 'weighted' measures of the redistributive effect of public finance and comparison between them

Algebraic representation of measures

Let n be the number of regions in a country.

For region i ($i = 1, \dots, n$) the share in national primary income is y_i , its modified income share y_i^m , and its population share p_i . The indices of regional income per capita (national average = 1.0) are y_i/p_i for primary income and y_i^m/p_i for modified income, the corresponding income differentials $d_i = y_i/p_i - 1$ and $d_i^m = y_i^m/p_i - 1$ and hence the reduction in income differential

$$(1) \quad r_i = (d_i - d_i^m)/d_i.$$

The 'unweighted' measure of the redistributive effect of a public finance instrument is the redistributive power defined as the average of the reductions in income differential in the various regions, unweighted by regional population, but weighted by the squares of the primary income differentials.

$$(2) \quad r^{un} = \left(\sum_{i=1}^n d_i^2 r_i \right) / \left(\sum_{i=1}^n d_i^2 \right).$$

As described above the 'unweighted' measure of the redistributive effect of a revenue instrument can be obtained in an economically more meaningful and interpretable way by multiplying the deviation from neutrality ($s^* - 1$) by the national average rate of revenues to primary income (\mathcal{J}) where s^* is the slope of the regression line of the regional per capita revenue indices on the regional primary income indices, restricted so as to pass through the point of national average (100 %, 100 %). s^* is thus the least square estimator of the equation

$t_i / p_i = (1 - s) + s y_i / p_i$. With the definitions $d_i^T = t_i / p_i - 1$ and $d_i = y_i / p_i - 1$ this equation reduces to $d_i^T = s d_i$ for which the least square estimator is given by the equation

$$s^* = \left(\sum_{i=1}^n d_i^T d_i \right) / \left(\sum_{i=1}^n d_i^2 \right).$$

From equations (1) and (2) it follows that:

$$r^{\text{un}} = \left(\sum_{i=1}^n d_i^2 - \sum_{i=1}^n d_i d_i^m \right) / \left(\sum_{i=1}^n d_i^2 \right)$$

$$\text{Since } d_i^m = d_i (1 + \mathcal{J}) - \mathcal{J} d_i^T (1),$$

$$\sum_{i=1}^n d_i d_i^m = \sum_{i=1}^n (d_i^2 + \mathcal{J} d_i^2 - \mathcal{J} d_i^T d_i) \text{ and hence}$$

$$r^{\text{un}} = \left(-\mathcal{J} \sum_{i=1}^n d_i^2 + \mathcal{J} \sum_{i=1}^n d_i^T d_i \right) / \left(\sum_{i=1}^n d_i^2 \right) = -\mathcal{J} + \mathcal{J} s^*, \text{ i.e.}$$

$$r^{\text{un}} = (s^* - 1) \mathcal{J}.$$

An analogous proof may be applied to expenditure instruments.

(1) This follows immediately from the equation for the modified income share $y_i^m = y_i (1 + \mathcal{J}) - t_i \mathcal{J}$.

The 'weighted' measure of the redistributive effect of a public finance instrument is the change in Gini-coefficient of modified income relative to primary income:

$$(3) \quad r^W = (g - g^m)/g, \text{ where}$$

$$(4) \quad g = \frac{1}{2} \sum_{i=1}^n \sum_{j=1}^n p_i p_j |d_i - d_j|$$

(1) is the Gini-coefficient of primary income and

$$(5) \quad g^m = \frac{1}{2} \sum_{i=1}^n \sum_{j=1}^n p_i p_j |d_i^m - d_j^m|$$

the Gini-coefficient of modified income.

Comparison between measures

The 'weighted' and 'unweighted' measures give identical results provided that the region's reductions in income differentials are all equal, i.e. $r_i = r$ for all i (2)

Proof:

From equation (1), $d_i^m = (1-r) d_i$, and thus, from equation (4) and (5)

$$g^m = (1-r) g$$

Hence from equation (3) the 'weighted' measure is obtained

$$r^W = (g^D - (1-r)g^D) / g^D = r = r^{un}.$$

(1) Cp. e.g. H. Theil, Economics and information theory. Amsterdam 1967, p. 121.

(2) Formally one has further to assume $r < 1$, i.e. primary income differentials are reduced to less than 100 %.

Chapter 6

BUDGET EQUALISATION THROUGH GENERAL
PURPOSE GRANTS IN FEDERATIONS

(working paper)

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I. Introduction

1. This paper is concerned with the instruments of explicit financial redistribution in six federal government systems - mainly the Federal Republic of Germany, Australia, Canada and the United States, and in less detail, Austria and Switzerland. Three broad categories are identified :
 - budget equalisation schemes, where automatic formulae are used to attain specified degrees of equalisation in the financial capacity of state governments.
 - tax-sharing arrangements with redistributive characteristics.

This excludes the frequent cases where tax revenues collected at the centre are handed back to the states more or less as if the revenue had been the states' own resources ; it does cover, however, cases where other, deliberately redistributive keys or formulae are used to hand back the states' share.
 - other general purpose grants. The distribution of these grants may be more arbitrary, and influenceable on a year-to-year basis by the forces of political bargaining, whereas in the other two categories political bargaining can only intervene from time to time when the formulae come up for review.
2. A simplified view of the various systems is set out in Table 1. While the categorisation is in some respects debatable (see the notes to Table 1), the broad picture is that the German, Canadian, Australian and Austrian federations all have rather powerful budget equalisation systems. In the German and Australian cases the formal equalisation systems have to be seen in combination with other related parts of the redistribution system (the sharing-out of VAT revenue in Germany and the Australian Financial Assistance Grants). Equalisation systems do not exist in the Swiss and United States federations, although some relatively small scale redistribution takes place in their revenue-sharing arrangements.
3. Parts II, III and IV of this paper cover the three categories in turn. Part V seeks to compare the relative importance and redistributive effects of the various schemes.

TABLE 1
Schematic listing of the systems of financial redistribution in six federal governments

<p><u>Budget equalisation systems</u> (automatic, open-ended formulae applying equalisation criteria)</p>	<p>German Länder-(1) <u>finanzausgleich</u></p>	<p>Australian special grants</p>	<p>Canadian equalisation grants</p>	<p>Austrian Landes-(2) <u>kopfquotenausgleich</u></p>
<p><u>redistributive tax-sharing</u> (automatic formulae, amounts limited)</p>	<p>German VAT</p>	<p>United States general revenue sharing</p>	<p>Austrian wage, wine, turnover and other taxes</p>	<p>Swiss federal direct tax</p>
<p><u>other general purpose grants</u> (no automatic formulae frequent political bargaining)</p>	<p>German <u>Ergänzungs-(3) zuweisungen</u></p>	<p>Australian financial assistance grants, and special revenue assistance</p>		

- (1) German 'state financial compensation'
- (2) Austrian 'state per capita quota compensation'
- (3) German 'supplementary grants'

Note : The above categorisation is not completely satisfactory. The German VAT redistribution has equalisation features, but it is not an open-ended formula. The U.S. general revenue sharing is not funded like the German, Austrian and Swiss tax-sharing cases from the states' share of specific taxes, but from federal income tax. However, it works on automatic formulae. There are also automatic links in the multiple systems of some countries. The German VAT redistribution influences the outcome of the Länderfinanzausgleich, while the Australian Financial Assistance Grants influence the outcome of the special Grant calculation.

II. Concepts of Budget Equalisation

Before reviewing the different schemes in detail, it may be helpful to recall the main theoretical concepts that lie at the heart of budget equalisation, and to identify in a simple way where these find their counterparts in practice in the six federations.

The following five concepts, or approaches, are taken from a paper by Musgrave (1) which is widely considered to be a classic contribution on fiscal federalism.

- 1.1. equalisation of actual tax receipts
 - 1.2. equalisation of tax capacity
 - 1.3. introduction of a tax effort factor
 - 1.4. equalisation with respect to expenditure needs
 - 1.5. 'perfect' equalisation as a function of tax capacity, tax effort and expenditure needs.
- 1.1. Equalisation of actual tax receipts. Transfers are made to equalise the actual revenue per capita available to state fiscs.

The most simple way to do this is to oblige the above average revenue states to pay transfers to the low revenue states ('horizontal' redistribution). The same result can be reached if the federal fisc taxes the wealthy states and pays these amounts as general purpose grants over to the poorer states ('vertical' redistribution).

The 'horizontal' transfer variant of this equalisation approach is basically the background of the Länderfinanzausgleich in Germany. In Austria there exists a rather pure 'vertical' form of actual per capita tax revenue equalisation (the 'Landeskopfquotenausgleich') where the Federal government pays equalisation grants to the states with below average per capita tax revenue in order to bring them up to the Federal average.

The equalisation of actual per capita tax revenue can be criticised where states have a large degree of tax autonomy because of the incentive to substitution for local tax collection effort. States

(1) Richard A. Musgrave, Approaches to a Fiscal Theory of Political Federalism, Public Finances : Needs, Sources, and Utilization, National Bureau of Economic Research, Princeton University Press 1961, and Theories of Fiscal Federalism, Public Finance, 24.1969.4.

receiving the grants or transfers may use them, rather than to attain given standards of public service, to reduce their own taxes. This weakness is not, however, applicable where tax harmonisation is virtually complete and where the states are not or only marginally able to change the rates and bases of their local taxes ; and this indeed corresponds to the German and Austrian cases.

- 1.2. Equalisation of tax capacity. To avoid inequity and undesirable substitution effects in federations with non-uniform tax bases or tax rates (as is the case for several taxes in Canada, the U.S.A., Australia or Switzerland), the standard for equalisation may be tax capacity, defined as the result of applying a standard tax rate (a federal average if these are non uniform) to the state's per capita tax base, and comparing this with the result of applying the standard rate to the national per capita tax base. Redistribution then takes place from high tax base states to low tax base states. The standardised tax bases may have to be estimated.

This approach is basically that adopted in Canada. Twenty provincial revenue sources are subject to equalisation. Any province which could not, by applying the national average 'standard' rate to its own tax base, derive the national average per capita revenue, is entitled to an equalisation grant to make up the deficiency.

- 1.3. Introduction of a tax effort factor. The move from actual tax receipts to tax capacity may eliminate the incentive to reduce the local tax effort ; however, tax capacity equalisation contains no specific incentive for a high tax effort, and it can be argued that equalisation payments should only be made in conjunction with a state tax effort incentive. The tax effort of a state may be measured as the ratio of its state tax revenue to its tax base (its actual tax base in harmonised tax systems, or its estimated tax base in others).

A tax effort factor of this kind has a prominent place in the complicated formulae used for the general revenue-sharing system of the United States. There, one of the objectives is explicitly to favour low-base, high-effort states.

- 1.4. Equalisation with respect to expenditure needs. Equalisation systems that aim at equivalence of public service standards have to take into account expenditure as well as revenue variables. For application in equalisation formulae indices of need for each state are required, these typically having to represent different numbers of school-age children in relation to the active labour force, the effect of urban density or population dispersion on road and other public service costs, etc. The indices of need can then be multiplied against the tax capacity, or other revenue indicators. Redistribution can then take place, in its extreme form, from low need-high tax revenue states to high need - low tax revenue states.

Construction of indices of need for a broad collection of public services is in practice a difficult but not unsurmountable problem. Most federations build some kind of needs factor into their redistributive systems, Canada being the notable exception in its confinement to tax capacity equalisation. Germany, Austria, Switzerland and the United States all use simplified urban density weighting factors to this end, while the calculation of the Australian special grants incorporates detailed adjustments for quantified needs for given public services.

- 1.5. 'Perfect' equalisation with respect to tax capacity, tax effort and expenditure needs. The principle of Musgrave's 'perfect' equalisation formula is that the degree of benefit obtained by low capacity-high need states is made dependent in part on their own tax effort.

The only system that in practice combines all three variables is the United States general revenue-sharing scheme, although (as is pointed out elsewhere in this paper) this cannot be regarded as an equalisation scheme proper, and its extremely complex combination of criteria results in compromise results which in part seem to contradict the purpose of some of the individual criteria.

Countries with little or no state fiscal autonomy, like Austria and Germany, clearly have no place for a tax effort variable.

Australia's special grants system combines tax capacity and needs but not tax effort.

2. Budget Equalisation in Practice

Equalisation systems 'proper' have been identified in four of the federations - Germany, Austria, Canada, and Australia. The distinguishing characteristic of 'proper' equalisation is that open-ended funding is made available to ensure that the aggregate fiscal capacity of the states is equalised (to given degrees), as opposed to arrangements where limited sums of money are redistributed - sometimes nonetheless through the use of similar criteria.

There are differing degrees of equalisation between the four cases ('some are more equal than others'). Subject to qualifications set out below in the detailed descriptions, a hierarchy of degrees of equalisation may be established in broad terms as follows :

- in Germany the Länderfinanzausgleich raises per capita fiscal receipts of the poorer states to 95 % of the federal average, although it is the VAT redistribution (see Part III) which does a larger preliminary(1) amount of redistribution ;

(1) 'Preliminary' redistribution is meant in the sense that the other grants are taken into account as state revenue in making the 'final' equalisation calculations.

- in Austria the Landeskopfquotenausgleich equalises per capita fiscal receipts of the states to 100 % of the federal average, also completing a larger preliminary (1) amount of redistribution through shared taxes ; and similarly in Canada the equalisation grants raise the fiscal capacity of the provinces to 100 % of the federal average ;
- in Australia the Special grants go even further in raising the per capita budgetary capacity of the poorest states to 100 % of the level of the two wealthiest states, this completing a very much larger preliminary (1) amount of redistribution done by the Financial Assistance Grants (see Part IV).

The equalisation systems are now described in more detail.

2.1. The German Länderfinanzausgleich ('state financial compensation')

Financial equalisation between the German Länder is designed to ensure that a below average Land always reaches 95 % of the per capita average tax receipts of all Länder, and that a Land required to make equalisation transfers does not, as a result, fall below 100 % of the average of the Länder. Not all Länder tax receipts are included, but the excluded taxes are relatively unimportant. The resultant transfers from fiscally rich to fiscally poor states are direct 'horizontal' payments which do not affect the Federal budget. The Federal Ministry of Finance does the calculations and keeps the score.

The level of the equalisation contributions (for paying Länder) and equalisation grants (for receiving Länder) is determined by the relationship between the 'tax capacity indicator' (Steuerkraftmesszahl) and the 'equalisation indicator' (Ausgleichsmesszahl).

The tax capacity indicator of a Land is the sum of the Land's tax revenue and of its communes' (Gemeinden) adjusted tax revenue. A Land's tax revenue comprises its share of joint taxes (income tax, corporation tax, VAT) and of the trade tax levy (Gewerbsteuerumlage) and its own taxes (succession duty, wealth tax, tax on motor vehicles, duty on beer and betting and gambling tax). The tax revenue of the communes are also taken into account, however, only to the extent of 50 %, and are made up of the communes' share of income tax and the tax capacity indicators for the taxes on real estate and the trade tax on profits and capital (Gewerbsteuer), less the trade tax levy (Gewerbsteuerumlage).

The equalisation indicator for a Land is the sum of the two separate indicators for the revenues of the Länder and the communes. The

- (1) 'Preliminary' redistribution is meant in the sense that the other grants are taken into account as state revenue in making the "final" equalisation calculations.

indicators are calculated from the tax revenue to be equalised, in terms of per capita average tax revenue of the Federal Republic, multiplied by the population of the Land, with the population figures weighted by specific percentages (see below).

Two kinds of adjustments are in fact made to take into account the different expenditure needs and costs of the Länder.

First, a number of Länder are allowed to make certain flat-rate deductions from their tax capacity indicator to take into account special burdens (these consist, for example, of university costs in the Saarland, and port amenity costs in Hamburg and Bremen).

Secondly, by weighting the equalisation indicators, allowances are made for the differences in the regional distribution of the population in the individual Länder ; these all go in the direction of giving financial help as a function of population density.

In establishing the equalisation indicators of the Länder, the population figures for the city-state Länder of Hamburg and Bremen are given a weighting of 135 % (compared to 100 % for the other Länder).

In establishing the equalisation indicators of the communes, the population figures of each commune are weighted as follows :

Number of inhabitants	0 to	5,000	: 100 %
per commune	:	5,001 to	20,000 : 110 %
		20,001 to	100,000 : 115 %
		100,001 to	500,000 : 120 %
		500,001 to	1,000,000 : 125 %
		1,000,001 and over	: 130 %

In addition, extra credit is given for communes with a population of over 500,000. This credit is 2 % of the population for a Land with a density of 1,500 to 2,000 inhabitants per square kilometer, 4 % for a Land with a density of 2,000 to 3,000, and 6 % for a Land with a density of over 3,000.

If, after these adjustments, a Land's tax capacity indicator is higher than its equalisation indicator it is required to make equalisation payments, and if its tax capacity indicator is lower it is entitled to receive equalisation payments.

The equalisation transfers to the receiving Länder are calculated by applying graduated percentages to the amounts by which the tax capacity indicator falls short of the equalisation indicator. These transfers are fixed at 100 % of the amount of the shortfall below 92 % of the equalisation indicator, and at 37.5 % of the amount of the shortfall in the 92 to 100 % range.

The equalisation contributions of the paying Länder are calculated by applying graduated percentages to tranches of the excess amounts giving rise to an equalisation liability. These excess amounts are arrived at as follows. Tax capacity ranging from 100 to 102 % of the equalisation indicator is left out of account ; tax capacity ranging from 102 to 110 % counts to the tune of 70 % ; and tax capacity over 110 % counts in full.

If, after such equalisation, the per capita tax revenue of a receiving Land is below 95 % of the average tax revenue of the Länder, the equalisation transfers to this Land must be increased by the shortfall and the calculation of the equalisation contributions of the paying Länder changed accordingly. However, if, after equalisation, the per capita tax revenue of a paying Land falls lower than the average tax revenue of the Länder, the shortfall must be met by the other paying Länder, in proportion to their equalisation contributions.

Table 2 shows the equalising effect of the Länderfinanzausgleich system for 1973, and notably the raising of all Länder's tax revenues to the 95 % level. The importance of the urban density weightings in the system is seen in the very high level of Hamburg's tax revenue even after equalisation, and the fact that Bremen is a recipient state in spite of its high tax revenues.

Table 2

Revenue equalisation effects of the German Länderfinanzausgleich
in 1973

<u>receiving Länder</u> <u>underlined</u>)	Per capita tax revenue(a) before equalisation, as a percentage of the Länder average	Per capita tax revenue (b) <u>after</u> equalisation as a percentage of the Länder average
Hamburg	147.9	132.4
<u>Bremen</u>	116.0	124.0
Hessen	106.6	101.2
Baden-Württemberg	105.3	100.0
Nordrhein-Westfalen	102.0	100.3
<u>Bayern</u>	95.8	97.0
<u>Rheinland-Pfalz</u>	89.5	95.0
<u>Niedersachsen</u>	88.1	95.8
<u>Schleswig-Holstein</u>	88.1	96.9
<u>Saarland</u>	88.1	101.7
Federal average	100.0	100.0

(a) Including the Länders' share of joint taxes (income tax, corporation tax, VAT), and of the trade tax levy (Gewerbsteuerumlage) and their own taxes (succession duty, wealth tax, tax on motor vehicles, duty on beer and betting and gambling tax).

(b) (a) [±] equalisation payments

Source : derived from unpublished Federal Ministry of Finance sources.

2.2. Austrian Landeskopfquotenausgleich ('state per capita quota compensation')

Payments are made to the Länder to equalise (up to 100 per cent, since 1971) their per capita revenues from their part of taxes which are shared between the federation, Länder and municipalities. These taxes account for a high proportion of the total tax revenue of the Länder ; and in a large degree this revenue is distributed between Länder on a basis of tax collections, which leaves substantial inequalities in fiscal capacity to be corrected by the Landeskopfquotenausgleich.

2.3. Canadian Equalisation

The Federal-Provincial Fiscal Arrangements Act, 1972, extended the 1967 equalisation system for the five-year period 1972-1977.

As already indicated, the 1972-1977 equalisation formula is based on twenty so-called "standard taxes", which are all provincial revenue sources. The most important are the personal and corporate income taxes, sales taxes, oil royalties and school purpose taxes.

For each of the twenty revenue sources a base is chosen to represent, as closely as possible, the actual base of that revenue source. Total revenue for all provinces from that source is then divided by the nation-wide base to arrive at a 'national average provincial revenue rate'. This rate is then applied to the base in a particular province and the resultant 'tax' is divided by provincial population to obtain the per capita yield of the 'tax' at the national average rate. The difference between this per capita yield and the national average per capita yield, multiplied by the province's population, represents the equalisation due to the province with respect to that revenue source. Total equalisation, for each province, represents the sum of the equalisation amounts, both positive and negative, calculated for each revenue source. When the equalisation total for any province is shown as a negative amount, no equalisation is payable.

Table 3 shows the equalising effect on provincial revenue. The equalisation receipts of the lowest revenue states are very substantial, adding around half as much again to their own resources. The post-equalisation results are then for many provinces quite close, the remaining differences reflecting the freedom of provinces to vary their own tax efforts. The most striking case, however, is that the Quebec which starts with the highest own revenue receipts of all provinces, then receives substantial equalisation benefits, so has an even greater lead in terms of total revenue per capita. (See, however, footnote (b) of Table 3).

Table 3

Revenue equalisation effects of the Canadian equalisation
system financial year 1973/74

§ Can.

<u>(receiving provinces underlined)</u>	Provincial(a) revenue per capita before equalisation	Equalisation grants per capita	Provincial revenue per capita <u>after</u> equalisation
<u>Quebec</u>	798.7 (b)	105.4	904.1
Alberta	781.0	-	781.0
Ontario	748.4	-	748.4
British Columbia	706.7	-	706.7
<u>Manitoba</u>	561.7	98.1	659.8
<u>Saskatchewan</u>	557.7	150.5	708.2
<u>Prince Edward Island</u>	541.3	284.4	825.7
<u>New Brunswick</u>	523.0	216.9	739.9
<u>Nova Scotia</u>	484.7	192.8	677.5
<u>Newfoundland</u>	444.7	284.0	728.7
National average	719.2		

Source : Provincial government finance, Revenue and Expenditure
(Estimates 1973)

- (a) Defined as "Gross general revenue from own sources" in Canadian fiscal statistics
- (b) Not strictly compatible since it includes a relatively higher share of income tax revenue given to Quebec as a result of having "opted out" of certain shared-cost programs ; see Chapter 7 on specific purpose grants

2.4. Australian Special (Equalisation) Grants

The Australian federal government pays Special (equalisation) Grants to certain poorer 'claimant' states on the basis of budgetary comparisons made with the two wealthiest 'standard' states. The grants are paid on the recommendation of the Grants Commission, an independent body established in 1933. (The Commission's role was extended in 1973 to recommending grants to states for local authorities.)

The situation of the six states has in recent years been as follows :

- standard states : New South Wales
 Victoria

- claimant states : Queensland
 South Australia (until 1974-75)
 Tasmania (until 1973-74)

- other states (neither Western Australia
 standard nor claimant) : Tasmania (from 1975-76)
 South Australia (from 1975-76)

The Australian Special Grant system used to differ in technical methods from the other equalisation systems, being based on calculations of differences in the current budget balances of the standard and claimant states (called the 'budget results'), adjusted for differences in revenue-raising effort and expenditure standards. Implicitly what was being measured was nevertheless each claimant state's shortfall in fiscal capacity, and since 1974 the Commission has assessed a claimant state's fiscal need directly by aggregating its assessments of need for different revenue and expenditure items.

As regards revenue-raising capacity, the Grants Commission's general approach is to take each field of state taxation (of which the most important are probate and succession duties, land taxes, stamp duties, liquor tax, gambling taxes, pay-roll tax and statutory corporation payments) and each other major source of revenue (of which the most important are land revenues and mining royalties) and estimate, as accurately as possible from the available information, the amount of revenue that each claimant state would have raised had it applied a revenue effort of standard severity. The Commission's standard is derived from the average of the revenue structures of the standard states (taking into account the revenue base and the rates). Subject to allowance for population differences, the difference between the notional standard tax revenue of the claimant state and the revenue it would have raised on average if it had had the standard states' revenue bases (and revenue efforts) is then the measure of the claimant state's need for that revenue source. The claimant state's need may be negative if it has above-standard revenue-raising capacity.

As regards expenditure needs, a large part of the states' total budget expenditure is on social services, and this is reflected in the assessment of the Grants Commission. The Commission's objective is to estimate what the expenditure in each field of social services would be in each claimant state if it operated those services at a level equal to the average of the standard states. This amount is then compared with the standard states' expenditure (adjusted for population differences) and the difference is the measure of the claimant state's need (which may be negative for a particular item). Expenditure needs arise from such factors as differences in the number of units for which services need to be provided (for example, in education as a result of demographic differences), or differences in unit costs (for example, as a result of differences in the scale of service provision or in population dispersion). Other expenditure needs may be associated with administrative services, debt charges, or state business undertakings.

A claimant state's needs may be partly met through other grants or shared taxes from the federal government (such as Financial Assistance Grants). The recommended Special Grant is therefore the difference between the assessed needs and the contribution which those other grants or revenues make towards the assessed needs.

Table 4 indicates the effect of the Special Grants on total state revenues in 1971-72. Over half of the state revenues shown are accounted for by the very large Financial Assistance Grants (see Part IV).

Table 4

Revenue equalisation effects of the Australian Special Grants 1971-72

<u>(receiving states underlined)</u>	State revenues(1) per capita <u>before</u> Special Grants \$ A	Special Grants per capita \$ A	State revenues (1) per capita <u>after</u> Special Grants \$ A
<u>Tasmania</u>	293.9	24.62	318.5
Western Australia	249.5	-	249.5
<u>South Australia</u>	222.8	10.06	232.9
New South Wales	200.3	-	200.3
<u>Queensland</u>	205.6	4.86	210.5
Victoria	197.3	-	197.3
Total	209.3		211.7

(1) Receipts from the federal government (including Financial Assistance Grants) and state taxes, excluding other non-tax revenues.

Source : Grants Commission, Fortieth Report, Canberra 1973, and Payments to or for the States and Local Government Authorities, 1974-75, Canberra 1974.

The federal government has kept in its hands (in negotiation with the state governments) the distribution of the larger part of the transfers to the states, while the Special Grants calculated by the independent Grants Commission appear to be the final and relatively small finishing touches to the equalisation process. As noted above, Financial Assistance Grants or other revenues containing an equalisation element have been taken into account by the Grants Commission in the process of calculating the amounts to be recommended as Special Grants. The Special Grants may nonetheless be considered to have a greater significance than their nominal amount, since they have determined the final degree of equalisation ; if the Financial Assistance Grants were relatively less for the claimant states, the Special Grants would be automatically greater (See again Part IV on this inter-relation).

III. Tax-Sharing Arrangements with Redistributive Characteristics

It is often the case in federations that the revenues from certain taxes are shared between the federal and state governments, or are collected by the federal authorities and handed back to the states.

In the present paper we are not concerned with cases of this sort where the states' shares of such taxes are distributed in a manner equivalent to taxes having been the own resources of the states; because no redistribution is involved.

We are concerned, however, with instances where taxes are handed back to the states in a deliberately redistributive manner. Redistribution of this kind, as described in the following examples, tend to follow from the use of population keys - sometimes weighted to reflect urban density or other 'needs' factors - or more complicated criteria having much in common with some of the equalisation formulae already described.

1. The German shared taxes

More than two-thirds of total tax revenue in Germany come from taxes which are shared between the different levels of government. Income tax and the tax on industry and trade (Gewerbesteuer, excluding payroll tax) is shared between Bund, Länder and municipalities. Corporation tax and VAT are shared between Bund and Länder.

Of these taxes only the VAT is the subject of deliberate redistribution in the sense just defined. Before describing the VAT formula, it is worth noting that the 'neutral' distribution of the other shared taxes is itself a rather complex operation. For both personal and corporate income tax, in particular, the locality of collection does not provide a satisfactory basis for distribution of the states' share. To correct the distortions inherent in the 'collection basis' (resulting, for example, from the concentration of corporate tax revenues in cities with head offices of large firms), adjustments are made to the distribution according to certain rules (Zerlegung) which seek to represent the real localisation of the tax base (see Chapter 16).

The redistribution of the VAT revenue has two stages. First, the Bund versus Länder shares can be varied, as a result of negotiations and federal legislation. The shares have evolved recently as follows :

65 : 35 in 1973, 63 : 37 in 1974, 68.25 : 31.75 in 1975 and
69 : 31 in 1976.

The second stage, the relevant one in the present context, redistributes the 35 per cent total for all the Länder (in 1973) between the Länder.

The financial Equalisation Law of 1969 specifies that 75 per cent of the Länder's share of VAT is to be allocated in proportion to the number of inhabitants of the Länder, and up to 25 per cent of the Länder's share as supplementary shares (Ergänzungsanteile). Supplementary shares are paid to those Länder whose revenue per capita, from income tax, corporation tax and the trade tax levy (Gewerbesteuerumlage), and from their own taxes (wealth tax, tax on motor vehicles, succession duty, betting and gambling tax, duty on beer) is below the average for the Länder. The qualifying Länder receive supplementary shares bringing their revenue to 92 per cent of the average for the Länder.

The distribution of the Länder's share of VAT between the individual Länder has to be seen as the first step of "fiscal equalisation", i.e. equalisation of per capita tax revenue of the Länder as described in Part II.

Table 5 shows the extent of revenue equalisation achieved by the VAT redistribution process. (The figures in the final column are identical to those in the first column of Table 2, which illustrates how the VAT redistribution is the first stage of the equalisation process completed by the Länderfinanzausgleich).

Table 5

Revenue equalisation effects of the German VAT redistribution 1973

	Per capita tax revenue ^(a) <u>before</u> redistribution of VAT, as a percentage of the Länder average	Per capita tax revenue (b) <u>after</u> redistribution of VAT as a percentage of the Länder average (c)
Hamburg	164.3	147.9
Bremen	123.0	116.0
Hessen	110.7	106.6
Baden-Württemberg	109.0	105.3
Nordrhein-Westfalen	104.7	102.0
Bayern	94.5	95.8
Rheinland-Pfalz	86.4	89.5
Schleswig-Holstein	81.0	88.1
Niedersachsen	77.3	88.1
Saarland	72.2	88.1
Total	100.0	100.0

(a) Including the Länders' share of joint taxes (income tax, corporation tax) the trade tax levy (Gewerbesteuerumlage), and their own taxes (wealth tax,) tax on motor vehicles, succession duty, the duty on beer, and betting and gambling tax).

(b) As (a) plus VAT.

Note: The 92% equalisation rule (described in the text) applies to the sum of tax revenues before VAT redistribution (as in the first column), and for this purpose uses only one-quarter of the Länders' share of VAT revenue. The remaining three-quarters of their VAT revenue is then distributed on a population key basis, subject to some further corrective refinements. The sum of this VAT revenue is included in the second column (which is why not all amounts necessarily reach 92 %)

Source : derived from unpublished Federal Ministry of Finance sources

2. Swiss shared taxes

The 25 cantons of the Confederation have a considerable degree of tax autonomy, particularly in the field of personal income tax and corporation tax. Tax sharing arrangements between the Federation and the cantons are not very important.

Some rather small parts of the revenue of an anticipatory tax (Verrechnungssteuer), stamp duties, a military service exemption duty and the profits from the alcohol monopoly and the National Bank are distributed from the Federal Government to the cantons, normally on a population basis.

Only one Federal tax, to judge by its relative revenue importance, seems really significant in the present context. This is the so-called Federal Direct Tax (FDT), the former federal defence tax (Wehrsteuer) which is a tax on corporate income and net worth, and on individual income. Although much less important than the cantonal and local income and corporation taxes, FDT revenue was around 7 per cent of total tax revenue in Switzerland in 1972.

The FDT is distributed 70 per cent to the Federal government and 30 per cent to the cantons. The distribution of the cantons' share is based on three types of keys.

- 25 per cent (of total tax revenue) based on local tax revenue, which implies no redistributive effect ;
- 1.25 per cent (of total tax revenue) based on cantonal population, which implies some redistributive effect ;
- 3.75 per cent (of total tax revenue) based on tax capacity (Wehrsteuerkraft), used in combination with a set of rules that gives a strong redistributive effect. This will be described in more detail, partly because it also serves for the distribution of other Federal-cantonal transfers, particularly specific purpose grants.

The Wehrsteuerkraft (tax capacity) of a canton is defined as per capita cantonal revenue of the FDT collected in that canton. Only cantons with a below average Wehrsteuerkraft per capita receive compensation payments (Ausgleichszahlungen) from the 3.75 per cent of total FDT revenues.

The 3.75 per cent of the FDT is then distributed to the below-average cantons in proportion to their respective Wehrsteuerkraft per capita after this key has been weighted as follows :

- for financially strong cantons by 0.5
- for financially medium cantons by 1.0
- for financially weak cantons by 1.5

The distinction between 'strong', 'medium' and 'weak' cantons is for this purpose determined by a set of indices which comprise cantonal and local tax revenue, population density and special factors like hill farming.

3. Austrian shared taxes

A large part of total taxation in Austria consists of shared taxes, shared between all three levels of government. The Federation takes the largest share, followed by the municipalities, with the states (Bundesländer) in third place. In most cases the states' share is distributed on the basis of local collections (i.e. without redistributive effect).

Some shared tax revenues of the states are, however, redistributed on a population basis, notably the wage taxes, 5/6ths of the duty on wine, VAT and the duty on beer. A particularly complicated key is applied for sharing the duty on mineral oil, the formula including population, territorial criteria, kms. of roads, and the revenue of the taxes on motor vehicles and on industry and trade (Gewerbesteuer). The equalisation process for the Länder is then completed by the Finanzausgleich mechanism already described in Part II.

4. United States Revenue Sharing

The present system of Revenue Sharing in the United States was established by the State and Local Fiscal Assistance Act of 1972, and is administered by the Federal Office of Revenue Sharing. According to the Act, approximately \$ 30.2 billion is to be returned to more than 38,000 state and local governments over a five-year period from 1972 to 1976 (1). Legislation in October 1976 extended the 1972 Act with certain amendments through 1980. The State and Local Fiscal Assistance Amendments of 1976 did not alter the distribution formulae.

(1) Divided as follows :

<u>Entitlement period</u>	<u>Dates</u>	<u>Amount</u>
Period 1	1/1/72 - 30/6/72	\$ 2,650 billion
Period 2	1/7/72 - 31/12/72	2,650
Period 3	1/1/73 - 30/6/73	2,988
Period 4	1/7/73 - 30/6/74	6,050
Period 5	1/7/74 - 30/6/75	6,200
Period 6	1/7/75 - 30/6/76	6,350
Period 7	1/7/76 - 31/12/76	3,325

In purely formal terms, the programme is financed from a Trust Fund into which funds are paid from Federal income tax collections. However, since neither the total allocation nor its distribution formulae are in any way determined by the income tax, the programme is more a general grant system than a shared tax.

The revenue allocation procedure involves four major stages :

- determining the aggregate sum going to each of the fifty-one state areas ;
- splitting each amount into shares for state and local government: one-third of the state's allocation is paid to the state government, and the remaining two-thirds are apportioned to units of local government within the state ;
- allocating the two-thirds'local share by county areas ;
- calculating each local jurisdiction's part of the total sum available for the county in which it is located.

Because of certain minimum and maximum provisions in the law, the calculations for the second, third and fourth steps must be carried out several times. The following paragraphs describe only the first step for the state area allocations.

The Revenue Sharing law reflects a compromise between two different formulae which were initially adopted by the House of Representatives and the Senate respectively, with a bias more in favour of urban areas sought by the House, as opposed to the Senate's relative inclination towards rural interests.

The Senate formula provides equal weight for three factors :

- population
- general tax effort, defined as the ratio of total state and local tax revenue to the personal income of the state's residents ;
- relative income, defined as the ratio obtained by dividing the nation-wide average of per capita income by the state's per capita income.

Under the Senate formula, each state's shared revenue is determined by multiplying the three relevant factors and dividing the result by the sum of the corresponding products for all fifty-one state areas.

Under the House formula, each state is entitled to the sum of five component amounts, each of which reflects the state's proportion of the national total of a specified factor, as follows :

- population (22 % weight)
- population times relative income, as defined for the Senate formula (22 % weight)
- urbanised population (inhabitants of urbanised areas having nucleus cities with populations of 50,000 and over) (22 % weight)
- general tax effort, as in the Senate formula (17 % weight)
- 15 per cent of revenue from state-imposed personal income taxes, but for each state not less than one per cent or more than 6 per cent of the federal personal income tax liabilities of its residents (17 % weight).

In the Senate-House compromise, it was agreed that :

- the total amount due to each state area should be calculated according to both formulae ;
- each state then should be assigned that formula amount which gave it the larger of the two sums ; and
- the resulting amount for each state then should be scaled down by whatever uniform percentage was necessary to bring the resulting total for all states within the sum appropriated for the particular entitlement period.

The 1972 allocations for 31 states were based on the Senate formula. The allocations of the other 20 states were determined by the House formula. Nearly all the states that gained from application of the Senate formula rank low in per capita income, and most of them rank low also in their extent of urbanisation. On the other hand, the states to which the House formula is more favourable generally rank high in both measures.

In the United States context, the Revenue Sharing programme appears to be a relatively small first step in general purpose redistribution by the federal and state governments. The programme has some features common to budget equalisation schemes, but is very limited in its extent compared to the 'proper' equalisation schemes described above.

The attempt to help urban areas, as reflected in the House formula, appears to have been submerged by other elements in the allocation process, notably as a result of incorporating a penalty for high fiscal capacity as indicated by high per capita income because the most highly urbanised states typically have above-average incomes (1).

(1) See the detailed evaluation by Nathan, Marvel and Calkins, in Monitoring Revenue Sharing, The Brookings Institution, 1975

The direction of its redistributive effect, however, is fairly clear, especially in favour of low fiscal capacity - high tax effort states, penalizing those with high capacity and low effort. For example, the poorest state, Mississippi, with a per capita personal income (in 1969) of 62 per cent of the federal average, received \$ 40 per capita in shared revenue in 1972, whereas Connecticut, the richest state with a per capita personal income of 125 per cent of the federal average, received \$ 22. These amounts have only a small impact, however on relative state revenues, the per capita state revenue of Mississippi improving 2 percentage points towards the federal average, Connecticut declining 1 point. (See Table 6, which relates, however, only to the one-third state government receipts, whereas the dollar amounts just quoted refer to the total state area receipts.)

TABLE 6
Effect of United States Revenue-Sharing on State Revenues, 1970-71

State	Tax revenue p.c. before revenue sharing \$ (1)	Shared revenue p.c. (2)	Tax revenue p.c. after revenue sharing \$ (3)	Index numbers			(3)-(1) + or - changes	Personal income p.c. (1969) Index
				(1)	(2)	(3)		
Alabama	208.57	8.76	217.33	81.1	100.2	81.8	+ 0.7	74
Alaska	347.62	7.30	354.92	135.2	83.5	133.5	- 1.7	119
Arizona	295.00	9.44	304.44	114.8	108.0	114.5	- 0.3	94
Arkansas	196.86	10.04	206.90	76.6	114.9	77.8	+ 1.2	69
California	292.19	9.35	301.54	113.7	107.0	113.4	- 0.3	116
Colorado	234.86	8.22	243.08	91.4	94.0	91.4	0.0	100
Connecticut	263.93	7.39	271.32	102.7	84.5	102.0	- 0.7	125
Delaware	404.14	11.72	415.86	157.2	134.1	156.4	- 0.8	105
District of Columbia (inc. with Maryland)	-	-	-	-	-	-	-	123
Florida	232.26	7.20	239.46	90.3	82.4	90.1	- 0.2	98
Georgia	215.13	7.96	223.09	83.7	91.1	83.9	+ 0.2	85
Hawaii	488.57	10.26	498.83	190.1	117.4	187.7	- 2.4	108
Idaho	261.84	9.95	271.79	101.9	113.8	102.2	+ 0.3	85
Illinois	283.45	8.22	291.67	110.3	94.0	109.7	- 0.6	112
Indiana	202.78	7.30	210.08	78.9	83.5	79.0	+ 0.1	98
Iowa	228.20	8.90	237.10	88.8	101.8	89.2	+ 0.4	92
Kansas	204.47	7.77	212.24	79.5	88.9	79.8	+ 0.3	94
Kentucky	226.38	10.64	237.02	88.1	121.7	89.2	+ 1.1	78
Louisiana	271.19	11.39	282.58	105.5	130.3	106.3	+ 0.8	75
Maine	228.30	10.73	239.03	88.8	122.8	89.9	+ 1.1	82
Maryland	293.55	9.10	302.65	114.2	104.1	113.9	- 0.3	113
Massachusetts	261.35	9.67	271.02	101.7	110.6	102.0	+ 0.3	109
Michigan	290.34	8.42	298.76	112.9	96.3	112.4	- 0.5	108
Minnesota	291.25	9.32	300.57	113.3	106.6	113.1	- 0.2	97
Mississippi	232.59	13.49	246.08	90.5	154.3	92.6	+ 2.1	62
Missouri	184.47	7.01	191.48	71.8	80.2	72.0	+ 0.2	95
Montana	196.60	9.83	206.43	76.5	112.5	77.7	+ 1.2	93
Nebraska	198.18	8.72	206.90	77.1	99.8	77.8	+ 0.7	90
Nevada	356.82	7.85	364.67	138.8	89.8	137.2	- 0.6	114
New Hampshire	159.36	7.49	166.85	62.0	85.7	62.8	+ 0.8	96
New Jersey	209.46	7.15	217.21	81.5	88.7	81.7	+ 0.2	118
New Mexico	310.83	11.19	322.02	120.9	128.0	121.1	- 0.2	78
New York	347.42	10.77	358.19	135.1	123.2	134.8	- 0.3	116
North Carolina	254.86	8.92	263.78	99.1	102.1	99.2	+ 0.1	79
North Dakota	230.00	11.96	241.96	89.5	136.8	91.0	+ 0.5	79
Ohio	167.25	6.69	173.94	65.1	76.5	65.4	+ 0.3	103
Oklahoma	213.05	7.67	220.72	82.9	87.7	83.0	+ 0.1	86
Oregon	211.25	8.45	219.70	82.2	96.7	82.7	+ 0.5	101
Pennsylvania	261.67	7.85	269.52	101.8	89.8	101.4	- 0.4	98
Rhode Island	282.67	8.48	291.15	110.0	97.0	109.5	- 0.5	100
South Carolina	232.44	9.53	241.97	90.4	109.0	91.0	+ 0.6	74
South Dakota	182.73	12.06	194.79	71.1	138.0	73.3	+ 2.2	77
Tennessee	186.44	8.39	194.83	72.5	96.0	73.3	+ 0.8	79
Texas	194.47	7.39	201.86	75.6	84.5	75.9	+ 0.3	90
Utah	253.16	9.62	262.78	98.5	110.1	98.9	+ 0.4	86
Vermont	315.14	11.03	326.17	122.6	126.2	122.7	+ 0.1	89
Virginia	224.12	7.62	231.74	87.2	87.2	87.2	0.0	96
Washington	330.87	7.61	338.48	128.7	87.1	127.3	- 1.4	108
West Virginia	240.74	13.00	253.74	93.6	148.7	95.5	+ 1.9	75
Wisconsin	324.19	10.05	334.24	126.1	115.0	125.7	- 0.4	97
Wyoming	270.00	9.99	279.99	105.0	114.3	105.3	+ 0.3	93
National average	257.06	8.74	265.8	100.0	100.0	100.0		100

Source: Different tables in Nathan et al., op. cit. and own calculations

IV. Other General Purpose Grants

Whereas the preceding sections concern systems characterized by automatic formulae or by the fixed distribution of shared taxes, the general purpose grants discussed in this section are characterized by their openness to regular political bargaining on their total amount and their distribution, and the absence of any transparent and precisely quantified economic justification.

Australia and Germany both have parts of their systems which are of this kind. Canada and the United States do not.

1. German Ergänzungszuweisungen (supplementary grants)

In addition to the Länderfinanzausgleich and VAT redistribution mechanisms already described, there exists a further category of general purpose grants paid from the Federal Government to the 'fiscally poor' Länder. The total amount of these so-called Ergänzungszuweisungen is a matter of political bargaining between the Federal and Länder governments. For the years 1974 - 76 the total amount of the grant has been fixed at an amount corresponding to 1.5 per cent of total VAT revenue. The distribution key, also fixed politically and unchanged since 1972, is shown in Table 7, together with the relative population and GDP shares of the states in question (which are shown for information: they are not determinants of the distribution key).

Table 7

Distribution and amount of German Ergänzungszuweisungen (supplementary grants) in 1973

(recipient Länder only)	Fixed distribution key of supp. grants percentages	Amounts of supp. grants in Mio DM	Population distribution percentages	GDP distribution percentages
Bayern	21.8	120.0	42.5	46.7
Niedersachsen	36.9	203.0	28.5	27.6
Rheinland-Pfalz	20.6	113.0	14.5	15.7
Saarland	5.8	32.0	4.5	4.5
Schleswig Holst.	14.9	82.0	10.1	9.5
Total	100.0	550.0	100.0	100.0

Source : Finanzbericht 1975, and Statistisches Jahrbuch 1974.

The receiving Länder are the same as the beneficiaries under the Länderfinanzausgleich mechanism, except that the city-state of Bremen is excluded.

The relative importance of the Ergänzungszuweisungen has been growing substantially, rising in amount from 8 per cent of equalisation receipts from the Länderfinanzausgleich mechanism in 1970, to 39 per cent in 1974. (These figures are not strictly comparable, since the equalisation receipts are net, whereas all states contribute to the financing of the Ergänzungszuweisungen - see part V below.)

The effect of the Ergänzungszuweisungen is to raise further the degree of fiscal equalisation in Germany from the 95 per cent minimum after the Länderfinanzausgleich to an effective 97.5 per cent minimum (see Table 8), although the latter percentage has no place in any distribution formula in the way that is true of the 95 per cent or the VAT 92 per cent.

Table 8

Equalisation effects of the German Ergänzungszuweisungen (supplementary grants) in 1973

	1.	2.	3.	4.	5.
1973	Per Capita tax revenue <u>after</u> inter-Länder equalisation	Index Länder average = 100	Per capita 'supplementary grant' for 'fiscally poor' Länder	1 + 3	Per capita tax revenue <u>after</u> inter-Länder equalization <u>and</u> suppl. grants' as a Länder average in Column 1
Nordrhein-Westfalen	DM 1,222.0	100.3	DM -	1,222.0	100.3
Bayern	1,182.1	97.0	11.1	1,193.2	97.9
Baden-Württemb.	1,218.3	100.0	-	1,218.3	100.0
Niedersachsen	1,167.2	95.8	28.1	1,195.3	98.1
Hessen	1,232.9	101.2	-	1,232.9	101.2
Rheinland-Pfalz	1,157.4	95.0	30.6	1,188.0	97.5
Schlesw.-Holst.	1,180.8	96.9	31.9	1,212.7	99.5
Saarland	1,238.7	101.7	28.7	1,267.4	104.0
Hamburg	1,613.0	132.4	-	1,613.0	132.4
Bremen	1,510.7	124.0	-	1,510.7	124.0
Total	1,218.3	100.0			100.0

Source : as for Tables 2 and 7

2. Australian Financial Assistance Grants

The origin of the Financial Assistance Grants dates back to the second world war when the federal government took over exclusive powers to impose income tax. By way of compensation, the states were paid 'tax reimbursement grants', which were initially based on the states' average income tax collections in the years 1939-40 and 1940-41.

In their origin, therefore, the grants had in principle no redistributive effect and were analogous to a system of shared income tax (as at present in Germany). The states have always retained the constitutional right to return to the field of income tax collection in competition with the federal government, although they would have forgone the Financial Assistance Grants if they had attempted to do so and politically such action was virtually impossible.

Over the years, however, the Financial Assistance Grants were transformed into a major instrument of redistribution in favour of the financially weaker states, notably in 1959 when their name was adopted. The base allowances were normally revised every five years (the last quinquennium was 1970-75), with regular annual revisions in the light of population changes, increases related to the national wage index, and a so-called betterment (or growth) factor.

As from 1976-77, Financial Assistance Grants have been replaced by an arrangement for sharing income taxes with the states (see Chapter 13).

The relative magnitude and redistributive power of the Financial Assistance Grants is illustrated in Table 9. It is evident that these grants dwarfed the Special (equalisation) Grants and the Special Revenue Assistance (see further below) in size, both as a general source of state finance and as an instrument of redistribution to the financially weaker states. The two relatively rich and populous states of New South Wales and Victoria received (in 1971-72) about \$ A. 100 per capita, with the other poorer and less populous states receiving between \$ A. 125 \$A. 178 per capita. (See also Part V on redistribution effects.)

Table 9

Australian Federal General Purpose Grants to the States in 1971-72

\$.A. per capita

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Total
Financial Assistance Grants	99.47	98.59	125.12	133.89	163.34	178.24	113.85
Special Revenue Assistance	7.71	3.85	4.65	5.01	5.75	6.41	5.73
Special (equal.) Grants	-	-	4.86	10.06	-	24.62	2.41
Total	107.18	102.44	134.63	148.96	169.09	209.27	122.00

Source : as Table 4

There was no definite, formula-based distribution key. Rather, the distribution in money terms inherited from previous years was continuously pushed and pulled through the processes of political bargaining into the distribution pattern for the succeeding years.

The inter-relation with the Special (equalisation) Grants must, however, be continuously borne in mind. First, as a concrete illustration, is the fact that over the years amounts of Special Grants were on occasion consolidated into the Financial Assistance Grants. For example, Table 9 shows Tasmania in receipt of special grants in 1971-72. Subsequently it was agreed that Tasmania would cease to be a 'claimant' state in exchange for an increase in its base Financial Assistance Grant.

Secondly, the criteria developed and calculated by the Grants Commission seem to have had an important influence in the public debate as a general standard of reference.

Thirdly, as already indicated in Part II, the calculation of the Special Grants (albeit only for the limited number of claimant states)

topped up the Financial Assistance Grants, but did so according to the Grants Commission's own criteria, which took the Financial Assistance Grants into account as receipts of the states when recommending the amounts of Special Grants. If the Financial Assistance Grants were cut, then all other things being equal, the Grants Commission would automatically recommend increased Special Grants for the "claimant" states.

Finally, in the continuing debate in Australia on how best to organize their fiscal federalism, a thesis frequently advanced was that the Special Grants and Financial Assistance Grants should be merged ; opinions naturally differ as to whether this consolidated operation should lie in the hands of the independent Grants Commission or of the Federal and State Governments.

Under the new federalism arrangements which operate from 1976-77, the states' share of income taxes is initially being distributed in accordance with the distribution of the Financial Assistance Grants in 1975 - 76, and the financially weaker states will continue to have access to the Grants Commission. Provision has also been made for a periodical review of the interstate relativities, but so far no decision has been made as to how and by whom this review will be undertaken.

3. Australian Special Revenue Assistance

Ad hoc increases in the grants for some or all states are frequently agreed by the Australian Government within the course of a year. This Special Revenue Assistance is sometimes but not invariably, built into the base for the purpose of calculating the Financial Assistance Grants in successive years.

V. Relative Importance of Equalisation Payments and Other General Purpose Grants in State Revenues, and their Redistributive Effects.

1. Relative importance in state revenues

The share in total state revenues represented by the total of the three preceding types of general purpose grants may be summarised as follows (the detailed statistics being set out in Tables 10 and A1-A3, and shown graphically in Chart 1) :

	as per cent of state tax revenues ⁽¹⁾			as per cent of total state tax and non-tax revenues ⁽²⁾		
	highest	lowest	average	highest	lowest	average
Germany	85	4	33	35.0	2	18
Australia	284	114	148	51.7	34	39
Canada	95	0	12	28.6	0	7
United States	6	2	3	2.6	0 ⁽³⁾	2

2. Redistributive Effects

This section compares the redistributive effects of the various mechanisms described above. Table 10 summarises the data that permits these comparisons to be made, giving (i) the range of index numbers for vertical federal per capita grant amounts (average = 100), (ii) the volume of equalisation payments as percentage of personal income, (iii) the elasticity of the program with respect to personal income, (iv) its statistical significance, and (v) the redistributive power and (vi) the change in Gini-coefficients due to the equalisation payments.

The overall picture is that the equalisation mechanisms of Germany, Canada and Australia achieve significant redistributive effects, ranging from 10 to 25% redistributive power with respect to regional or state personal income differentials. The United States General revenue-sharing scheme has only a very slight redistributive power - of under 1 %.

-
- (1) The denominator here excludes shared tax revenues identified as 'redistributive' in Part III, as well as the other types of general purpose grants.
 - (2) The denominator here includes all tax revenues, general purpose and specific purpose grants and other non-tax revenues.
 - (3) Negligible

The results are not strictly comparable between Germany and the other federations, since the Finanzausgleich consists of net transfers between states whereas in the three other federations gross payments are made from the federal budget to states.(1) However, the difference in redistributive power between gross and net effects of the equalisation is smaller than 2 % for Australia, 0,5 % for Canada and 0,3 % for the United States. (2) (3)

The German system of general purpose grants has a redistributive effect in the order of 10 % (4). The difference between the redistributive power and the change in Gini coefficients is mainly due to the preferential treatment given to the high income Länder Hamburg and Bremen, which is weighed more in the redistributive power measure since Hamburg and Bremen have a relatively small population. If Hamburg and Bremen were omitted from the computations the redistributive power would increase to about 18 %.

The considerable amount of redistribution is achieved with a very small volume of inter-Länder transfers. The net transfer from rich to poor Länder in VAT-sharing and Finanzausgleich is respectively about 0.2 % and 0.3 % of total German personal income. The redistributive effect of the two instruments is at 4.2 % and 4.6 % nearly equal. Supplementary grants are of minor importance.

The Australian grant system is the most powerful redistributor of the four federations studied. Its redistributive effect is in the order of 25 %, i.e, about a quarter of personal income differentials is eliminated by general purpose grants. This is possible because regional differences in personal income per capita are small in Australia - the mini-max ratio is about 1.2 as compared to about 2 in the three other federations - and the poorest states in Western Australia and Tasmania have small populations, which can be easily treated preferentially without severely burdening the big rich provinces. As in the German case this fact also explains the considerable difference between the two measures of the redistributive effect.

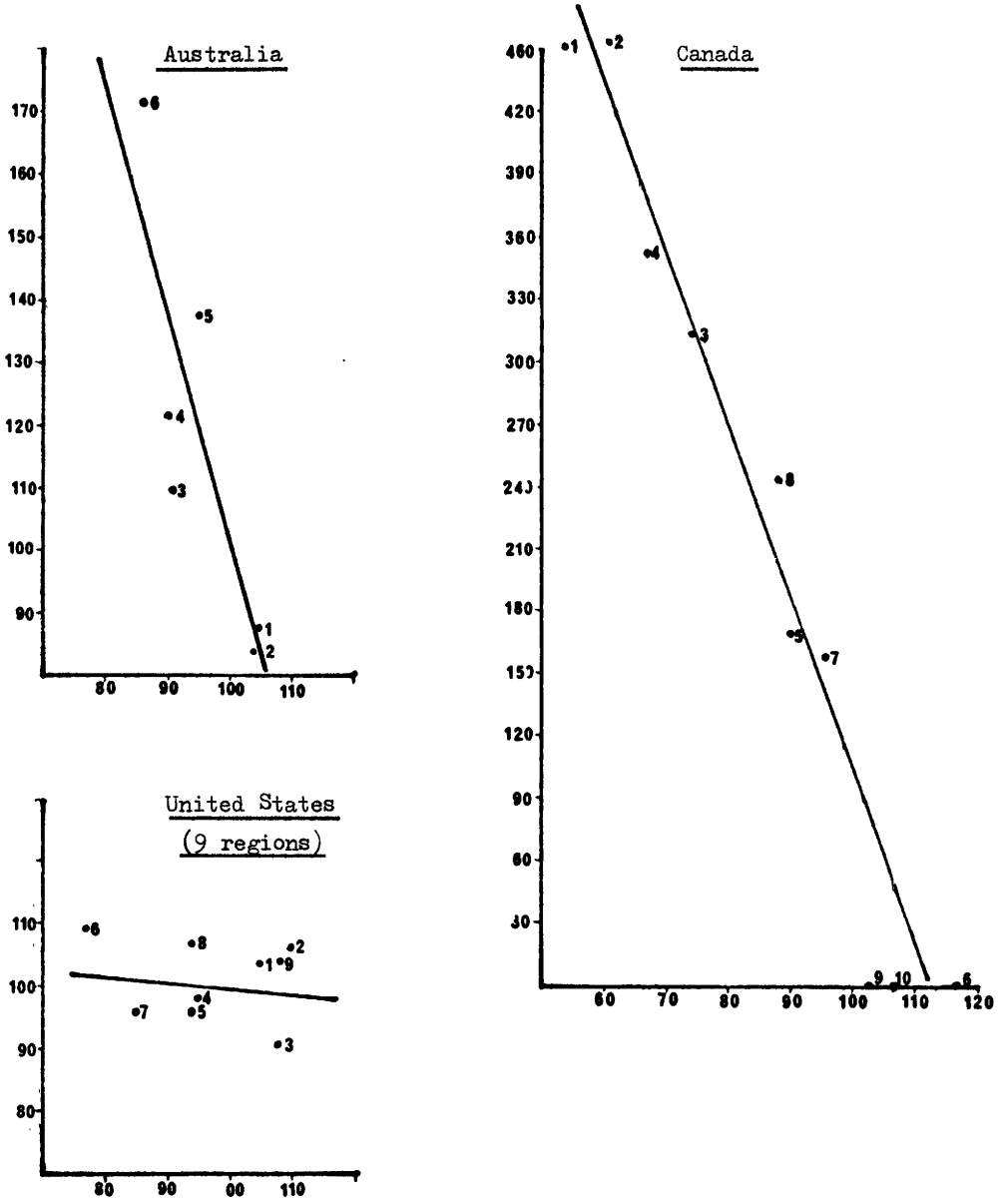
-
- (1) In the case of German VAT-sharing Finanzausgleich and Total the elasticity is not defined.
 - (2) These figures are derived from the redistributive power study of revenues in Chapter 9 by applying the elasticity results to the general purpose equalisation volume.
 - (3) The net effects are not used in order to be able later to aggregate the single results for taxes, general purpose grants, specific purpose grants and other expenditures without double counting.
 - (4) The VAT-sharing in Germany is atypical since it is not an expenditure part of the federal budget. In order to evaluate its redistributive power it was therefore necessary to assess the region of origin of shared VAT revenues. As in Chapter 9 it was assumed that VAT is borne by consumers and therefore regionally allocated in proportion to private consumption.

Most of the total redistributive effect is achieved with the financial assistance grants. Since these grants are vertically distributed to all provinces the equalisation volume (5 % of total national income) is quite substantial. Special grants have a considerable redistributive effect with the same volume as German supplementary grants. Special revenue assistance is of minor importance.

Canadian equalisation grants have a redistributive power in the order of 15 %. Though the Canadian system is vertical this degree of equalisation is achieved with an equalisation volume of only 1.4 % of national personal income. This is possible because only below average fiscal capacity provinces receive equalisation payments and populous Ontario, Alberta, and British Columbia have above average fiscal capacity.

In contrast to the Canadian system the US revenue sharing distributes a fixed amount of 0.6 % of national personal income to all states and achieves therefore only a comparably negligible redistributive power of one half to one percent.

Chart 1



Horizontal axis - personal income per capita

Vertical axis - total general purpose grants per capita

Regional Key to Charts

Germany

1. Schleswig-Holstein
2. Niedersachsen
3. Nordrhein-Westfalen
4. Hessen
5. Rheinland-Pfalz
6. Baden-Württemberg
7. Bayern
8. Saarland
9. Hamburg
10. Bremen

France

1. Région Parisienne
2. Champagne
3. Picardie
4. Haute-Normandie
5. Centre
6. Basse-Normandie
7. Bourgogne
8. Nord
9. Lorraine
10. Alsace
11. Franche-Comté
12. Loire
13. Bretagne
14. Poitou-Charentes
15. Aquitaine
16. Midi-Pyrénées
17. Limousin
18. Rhône Alpes
19. Auvergne
20. Languedoc
21. Provence-Côte d'Azur-Corse

Australia

1. New South Wales
2. Victoria
3. Queensland
4. South Australia
5. Western Australia
6. Tasmania
- 7.
- 8.
- 9.
- 10.

Canada

- Newfoundland
Prince Edward Island
Nova Scotia
New Brunswick
Quebec
Ontario
Manitoba
Saskatchewan
Alberta
British Columbia

United Kingdom

- North
Yorkshire and Humberside ,
North West
East Midlands
West Midlands
South East
South West
Wales
Scotland
N. Ireland

Italy

- Valle d'Aosta
Piemonte
Lombardia
Trentino Alto Adige
Veneto
Friuli Venezia Giulia
Liguria
Emilia Romagna
Toscana
Umbria
Marche
Lazio
Abruzzi
Molise
Campania
Puglia
Basilicata
Calabria
Sicilia
Sardegna

US 9

- New England
Middle Atlantic
East North Central
West North Central
South Atlantic
East South Central
West South Central
Mountain
Pacific

Table 10
Redistributive Power of General Purpose Grants

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
	Range of index nos of grants per capita	Equalis. volume as % of pers. income (1)	Elasticity (2)	Statistical significance of elasticity	Budgetary redistributive power (3)	Percentage change in Gini-coefficient (4)
<u>Germany</u>	-	0.2	-	-	4.2	5.8
10 Länder	-	0.3	-	-	4.6	7.4
Berlin	0/358	0.1	- 7.39	0.414	0.7	1.4
excluded	-	-	-	-	9.4	14.5
1973						
<u>Australia</u>						
6 Provinces	87/157	5.4	- 3.11	0.756	22.4	18.5
1971/72	67/135	0.3	0.35	0.019	0.2	- 0.6
Assistance	0/1022	0.1	-38.6	0.686	4.6	2.8
Special Grants	84/172	5.8	- 3.62	0.796	27.1	20.4
<u>Total</u>	0/463	1.6	- 8.39	0.965	15.4	13.0
Canada						
10 Provinces	91/109	0.6	- 0.09	0.030	0.7	0.5
1973/74	77/153	0.6	- 0.59	0.255	1.0	0.6
U.S. 9) 1972						
U.S. 48) Revenue						
Sharing						

Footnotes for Table 10

- (1) In the case of the German VAT-sharing and Finanzausgleich the amount of net transfers from rich to poor countries as percentage of personal income.
- (2) The elasticity is the slope of the regression line of the equalisation payment on personal income (see methodology developed in Chapter 5).

Examples of elasticity coefficients for vertical equalisation payments

- 1.0 - Equalisation payments proportional to personal income (no redistributive effect)
- 0.0 - Equalisation payments equal per capita (redistributive effect proportional to the equalisation volume)
- 1.0 - Equalisation payments inversely proportional to personal income (strong redistributive effect)

In the case of horizontal equalisation payments no elasticity can be calculated, since the sum of payments equals zero. The redistributive power measure is calculated directly by formula (2) in Chapter 5.

- (3) Redistributive effect measured by the reduction in personal income differentials between regions due to the equalisation payments under the assumption of regionally neutral financing of these payments. It is equal to the deviation from neutrality - measured by the difference between one (neutral case) and the elasticity - multiplied by the equalisation volume.
- (4) A modified income is calculated by adding to personal income per capita equalisation payments and subtracting (for vertical payments) amounts representing the regional breakdown of the neutrally financed national total amount of payments. The Gini-coefficient of this modified income is compared with the Gini-coefficient of personal income.

Source : Tables A1 - A3

TABLE A 1

Federal General Purpose and Equalisation Grants per Head

Germany (BRD) 1973

DM per annum

	<u>Total grants</u>	<u>VAT revenue sharing</u>	<u>Finanz-ausgleich</u>	<u>Supplementary grants</u>	<u>PI</u>	<u>POP</u>
Schleswig-Holstein	451	36	107	32	10053	2580
Niedersachsen	468	76	94	28	9951	7259
Nordrhein-Westfalen	239	23	20	0	11005	17246
Hessen	193	21	65	0	11253	5584
Rheinland-Pfalz	377	20	67	31	10183	3701
Baden-Württemberg	194	24	64	0	11750	9239
Bayern	305	17	15	11	10296	10853
Saarland	592	143	166	29	9310	1112
Hamburg	71	89	189	0	14966	1752
Bremen	357	41	97	0	12627	729
Berlin	0	0	0	0	11384	2048
BRD	279	0	0	9	10914	62101
BRD (absolute)	17326	0	0	559	677770	
Range of index numbers	25/212	-	-	0/355	85/137	
Grants as % of PI	-	0.2	0.3	0.1		
Elasticity	-	-	-	- 7.39		
Statistical significance R ²	-	-	-	0.414		
Redistributive power	9.4	4.2	4.6	0.7		
Change in Gini-coefficient	14.5	5.8	7.4	1.4		

Federal General Purpose and Equalisation Grants per Head

Australia 1971/72

Aus. \$ per annum

	<u>Total grants</u>	<u>Financial assistance grants</u>	<u>Special revenue assistance</u>	<u>Equalisation grants</u>	<u>PI</u>	<u>POP</u>
New South Wales	108	99	8	0	2196	4798
Victoria	102	99	4	0	2180	3534
Queensland	135	125	5	5	1893	1851
South Australia	149	134	5	10	1891	1274
Western Australia	169	163	6	0	1982	1047
Tasmania	209	178	6	25	1791	392
Australia	122	114	6	2	2090	12896
Australia (absolute)	1573	1470	77	26	26952	
Range of index numbers	84/172	87/157	67/135	0/1022	86/105	
Grants as % of PI	5.8	5.4	0.3	0.1		
Elasticity	- 3.62	- 3.11	0.35	- 38.6		
Statistical significance R ²	0.796	0.756	0.019	0.686		
Redistributive power	27.1	22.4	0.2	4.6		
Change in Gini-coefficient	20.4	18.5	- 0.6	2.8		

TABLE A 2

Federal General Purpose and Equalisation Grants per Head

	<u>Canada 1973/74</u>	Can. \$ per annum	
	<u>Total equalisation grants</u>	<u>PI</u>	<u>POP</u>
Newfoundland	284	2039	541
Prince Edward Island	284	2305	115
Nova Scotia	193	2775	805
New Brunswick	217	2517	652
Quebec	105	3315	6081
Ontario	0	4376	7939
Manitoba	98	3590	998
Saskatchewan	151	3312	908
Alberta	0	3868	1683
British Columbia	0	3998	2373
Canada	61	3748	22095
Canada (absolute)	1344	82812	
Range of Index Numbers	0/463	54/117	
Grants as % of PI	1.6		
Elasticity	- 8.39		
Statistical significance R ²	0.965		
Redistributive power	15.4		
Change in Gini-coefficient	13.0		

Federal General Purpose and Equalisation Grants per Head

	<u>U.S.A. (9 regions) 1972</u>	U.S.A. \$ per annum	
	<u>Revenue sharing</u>	<u>PI</u>	<u>POP</u>
New England	27	4370	12099
Middle Atlantic	28	4587	37660
East North Central	24	4440	40926
West North Central	26	3972	16624
South Atlantic	25	3899	31773
East South Central	28	3206	13102
West South Central	25	3541	19983
Mountain	28	3903	8840
Pacific	27	4484	27216
U.S.A.	26	4162	208223
U.S.A. (absolute)	5414	866624	
Range of Index numbers	91/109	85/110	
Grants as % of PI	0.6		
Elasticity	- 0.09		
Statistical significance R ²	0.030		
Redistributive power	0.7		
Change in Gini-coefficient	0.5		

TABLE A 3

Federal General Purpose and Equalisation Grants per Head

U.S.A. (51 regions) 1972

U.S. \$ per annum

	<u>Revenue sharing</u>	<u>PI</u>	<u>POP</u>
Maine	32	3224	1029
New Hampshire	22	3931	771
Vermont	33	3288	462
Massachusetts	29	4429	5787
Rhode Island	26	4076	968
Connecticut	22	5007	3082
New York	32	4799	18367
New Jersey	23	4899	7367
Pennsylvania	24	4067	11926
Ohio	20	4265	10782
Indiana	22	4121	5291
Illinois	25	4840	11251
Michigan	25	4576	9081
Wisconsin	30	3961	4520
Minnesota	28	4004	3896
Iowa	27	3999	2883
Missouri	21	3977	4753
Kansas	23	4124	2258
Nebraska	26	4082	1525
South Dakota	36	3393	679
North Dakota	36	3425	632
Delaware	29	4951	565
Maryland	27	4595	4056
Virginia	23	4035	4764
West Virginia	30	3149	1781
North Carolina	27	3606	5214
South Carolina	28	3262	2694
Georgia	24	3677	4720
Florida	22	3935	7259
District of Columbia	32	5619	748
Kentucky	27	3288	3299
Tennessee	25	3415	4031
Alabama	26	3217	3510
Mississippi	40	2838	2263
Louisiana	34	3252	3720
Arkansas	28	3005	1578
Oklahoma	23	3458	2634
Texas	22	3745	11648
Montana	30	3699	719
Idaho	30	3505	756
Wyoming	30	4081	345
Colorado	25	4305	2357
Utah	29	3500	1126
Nevada	24	4822	527
Arizona	28	3948	1945
New Mexico	32	3260	1065
California	28	4585	20451
Oregon	25	3964	2182
Washington	23	4081	3443
Alaska	22	5040	325
Hawaii	31	4781	799
United States	26	4162	208223
United States (absolute)	5414	866624	
Range of index numbers	77/153	68/121	
Grants as % of PI	0.6		
Elasticity	- 0.59		
Statistical significance R ²	0.255		
Redistributive power	1.0		
Change in Gini-coefficient	0.6		

Chapter 7

SPECIFIC PURPOSE GRANTS IN FOUR FEDERATIONS

(working paper)

1. Introduction

This paper is concerned with intergovernmental specific purpose grants in four federations : the Federal Republic of Germany, the United States, Canada and Australia.

Table 1 situates the overall magnitude of specific purpose grants as 12 to 28 per cent of federal government expenditure, from 5 to 10 per cent of total public expenditure, and from 2 to about 4 percent of GNP of the countries concerned.

Intergovernmental specific purpose grants are an extremely important part of the mechanics of federalism, as also of central-local government relations in unitary states. This importance stems from the fact that specific purpose grants are a main means whereby the responsibilities for governmental functions can be shared between levels of government, as opposed divided between governments on the basis of exclusive competence. To follow the current jargon, specific purpose grants are a means of 'cooperative federalism', as opposed to earlier conceptions of (exclusive competence) 'dual federalism'.

The interest in specific purpose grants in the Community context is the greater to the extent that the functions of the Community institutions are more likely to grow through the development of partial and cooperative responsibilities in areas of competence shared with national governments, as opposed to the transfers of exclusive competence from national governments to the Community. Sectors in which Community activity has recently been developing (aid, regional and social policies) are all instances of shared responsibilities, in which the Community has been participating with specific purpose grants together with national governments.

The economic function of specific purpose grants is usually allocative (i.e. aimed at affecting the level or precise nature of public expenditure by function), but may also be redistributive (i.e. aimed at providing a degree of fiscal equalisation as between lower levels of government).

It will be seen that the mix between these allocative and redistributive objectives depends in the four cases studied in large measure on whether the country in question has a system of budget equalisation. As has been described in Chapter 6 Germany, Australia and Canada all operate rather comprehensive budget equalisation (general purpose grant) systems, whereas the United States does not. As a result the United States' specific purpose grant system has become much more complex than in the other three cases, with many more categories of grants, and a tendency to build into many of them formulae that aim at some degree of fiscal equalisation. Thus, in the United States, as a federation without a general purpose budget equalisation system, an attempt is made to combine allocative and redistributive functions in the

TABLE 1

Relative importance of intergovernmental specific purpose grants in Germany, Australia, Canada and the United States

	Germany 1973	Australia 1973 - 74	Canada 1973-74	United States 1973 - 74
<u>Specific purpose Grants</u>				
in mill. nat. currency	15,407	1,208	4,419	36,011 ⁽¹⁾
% of federal government expenditure	12.7	27.7	22.1	12.1
% of total public expenditure	5.5	7.0	9.9	7.5
% of GNP	1.7	2.4	3.2	2.7
<u>General purpose Grants</u>	0.5 ⁽²⁾	3.1	1.0	0.4
% of GNP				
<u>Other federal public expenditure</u>	10.9	16.0	11.7	19.6
% of GNP				

(1) Corresponds to the total of 38,340 for fiscal year 1974 shown in later tables.

(2) The figures for general purpose grants for Germany only include the Ergänzungszuweisungen (supplementary grants) and Bundeshilfe (Federal aid) for Berlin, and exclude the budget equalisation function of the Länderfinanzausgleich and of VAT redistribution, since these are not federal expenditure. However, it should be borne in mind that the latter two functions account for much the larger part of the total redistributive power of German equalisation and general purpose grant functions (see Chapter 6). For this reason the importance of German general purpose grants is somewhat understated in the Table.

Source : Tables in the following country reports and in Chapter 6

specific purpose grant system; whereas in Germany, Australia and Canada, the existence of separate equalisation systems allows the specific purpose grant instruments to be directed at a simpler range of allocative functions.

There is here a further point of interest to the Community, to the extent that it may be thought relatively unlikely that the Community will move quickly into large scale redistribution through general purpose grants ; if this should be the case the Community's needs for redistribution functions would have to be met (as in the United States' case) in large measure by a mixing of the redistributive and allocative functions through programmes of specific purpose grants.

The rapid growth of specific purpose grants in the United States over the last forty years has been paralleled (or, maybe more followed) by an elaborate theory of intergovernmental grants, which in turn occupies an important place in the economic theory of federalism (1). The central feature of the theory is that government expenditure functions should optimally be assigned to a level of government whose jurisdiction corresponds to the spatial incidence of the benefits from the expenditure. Where for political or historical reasons, or because of the need to limit the number of levels of government, the benefits fall, for example, over a broader area than the jurisdiction of the government concerned, then a sub-optimal allocation of resources will occur with respect to the expenditure function in question. In this case a federal system can correct the defect through the higher level of government extending a specific purpose grant to the lower government concerned, with the grant compensating for the benefits that 'spill over' the frontier (see Chapter 10).

It is not pretended that the theory and practise of intergovernmental grants correspond in any exact way. However it will be seen below that the specific purpose grant systems of the four federations do concentrate on sectors where there is a broadly recognizable 'national interest' in a lower level of government's field of responsibility.

The content of this paper is to a large degree devoted to assessing the redistributive effects of specific purpose grants. As the preceding paragraphs have already shown, however, specific purpose grants usually have as their primary role the pursuit of allocative objectives in a multi-tier government setting.

2. Types of specific purpose grants

The distributive and allocative effects of specific purpose grants

- (1) See : Wallace E. Oates, Fiscal Federalism, Harcourt Brace Jovanovitch, 1972, and for a summary presentation, Richard and Peggy Musgrave, Public Finance in Theory and Practice, (Chapter 26,27), McGraw-Hill Kogakusha, 1973

are crucially dependent on the type of grant, notably on :

- the allocation (or allotment) criteria, as between states, which may be based on indicators of need, defined most simply by population or target population (e.g. school children, aged, etc), and/or on fiscal capacity (for example, an inverse relationship to state income per capita) ;
- the matching requirements for the state financial participation, which may be a uniform percentage, zero, or a variable percentage ;
- the open or closed-ended nature of the facility i.e. whether or not the grant programme should finance all eligible requests without limitation;
- the availability for projects, or for narrow or broadly defined programmes of spending (block grants being the name for broadly defined programmes).

The theory of intergovernmental grants has produced a rigorous systematisation of the effects of these different kinds of grants in the framework of microeconomic models for the utility maximisation of the rational government unit.(1) Considerable efforts have been made in the United States to use applied econometric analysis to test the validity of the microeconomic theory of grants ; the scope for applied research is considerable in the United States since there are relatively good public finance statistics for over 40,000 local government units. (These findings are briefly commented on below).

Before setting out the types of specific purpose grants used in the four federations, it may be useful to quote Selma Mushkin's summarisation of formula grants and their relationship to allocative and distributive objectives (2):

"Grants with allotment on the basis of program need measures, no matching. To the extent that the measures of need in terms of population are adequate, these grants can be interpreted as equalizing grants directed toward uniform program performance levels.

Grants with allotment on the basis of program need measures, uniform matching. These are not purported to be equalizing but rather are intended to provide undifferentiated support for uniform program performance levels.

(1) See Oates, Musgrave, op. cit., for summary presentations and further references and Chapter 10

(2) Selma J. Mushkin and John F. Cotton, Sharing federal funds for state and local needs, Praeger Publishers, New York - Washington - London, 1969, p.66

Grants with per capita income measures in the allotment formula, uniform matching. These grants could be interpreted as intended to be equalizing, but not properly designed to equalize effort to achieve uniform program performance levels ; or as not intended to be equalizing, but rather that the use of per capita income in the allotment is intended to serve as a program-need weighting factor.

Grants with allotment on the basis of program need, which incorporate per capita income measures in the matching provisions. These equalize effort per total dollar expended, but do not provide inducements for the states to move to uniform program performance levels as measured by per capita expenditures.

Grants containing per capita income measures both in allotment and in matching provisions. The simplest of these meet the formal criteria for grants intended to equalize effort to achieve uniform program performance levels ; the remainder are too complicated to be categorized neatly in regard to their effects on fiscal effort and program performance level."

It will be seen that whereas in the United States all combinations of these types are used, Canada, Australia and Germany use only the first and second types. Besides formula grants, other types of grant programs are project grants, shared-cost programs (Canada) and Gemeinschaftsaufgaben (common tasks, Germany).

3. Specific Purpose Grants in Four Federations

For the four federations, existing programmes of specific purpose grants have been grouped together in the following sectors : health, education, welfare, manpower, roads, housing, regional and urban policies.

In reviewing each country major differences in the organization of these public services have constantly to be borne in mind, notably the basic constitutional choices in the distribution of primary responsibility for the sectors between federal, state and local levels of government. The account that follows is deliberately rather thin on these institutional facts, since the purpose is to concentrate on the types of formulae and programs used, and their distributive implications.

3.1. United States

The United States' system of specific purpose grants is more complex than in any other federation. By the end of the 'sixties analysts had counted 495 separate federal programmes of specific purpose grants(1). The reasons for this abundance appear to be : first the inadequacy

(1) For a recent description and analysis of the United States' specific purpose grants see James A. Maxwell, Specific purpose grants in the United States : recent developments, The Australian National University, Canberra, 1975

and/or unevenness of public services provided at the state level of government, in part due to the absence of a federal system of budget equalisation, and, secondly the federal government's use of specific purpose grants as a principal means to make good these deficiencies. The process began during the depression of the 'thirties, and expanded very fast with the build-up of the welfare state (Great Society etc) during the sixties. By the early 'seventies the tide was turning against the extraordinary proliferation of grant systems, with the recourse to block grants and general revenue sharing helping simplify consolidate and decentralise federal intervention.

3.1.1. Health. Public health grants are relatively unimportant (3 per cent of the total), with about 30 programs covering, inter alia, health services planning and development, mental health research and preventive health services. ("Medicaid" is covered under public assistance below, since it is not a general health program, but aid for selected groups.)

An interesting feature, however, is the "Hill-Burton" formula, originally used for allocating funds between states for a hospital construction program, but since extended to a considerable number of other specific purpose grant programs in health and other sectors.

The original Hill-Burton formula allocates funds proportionally to population weighted by an expression that is based on the square of the inverse of state personal income per capita. (1) In some other applications the formula applies the simple inverse of personal income per capita.

The following is an example for a nation with two states, A and B, of equal population, with personal income per capita of \$ 120 for A, \$ 80 for B, and \$ 100 for the national average :

$$(1) \quad A_i = a_1 \frac{P_i (1.0 - 0.5 \frac{Y_i}{Y})^2}{\sum_j P_j (1.0 - 0.5 \frac{Y_j}{Y})^2}$$

where A_i is the allocation to the i th state, a_1 is a constant depending on the size of the appropriation, P_i is the population of the i th state, Y_i the per capita income of the i th state, and Y the per capita income of the nation.

The Hill - Burton weighting factors would then be :

	personal income per capita	weighting factor (simple)	weighting factor squared
State A	§ 120	0.4	0.31
State B	§ 80	0.6	0.69
ratio of A to B	1.5	0.66	0.44

The weighting factor is known as the 'allotment percentage'. It is evident that 'Hill-Burton', simple or squared, is in principle a rather powerful redistributive instrument. The Hill-Burton formula is in some applications used directly to allocate blocks of money to states ; in some other applications the 'allotment percentage' is used as a basis for variable matching ratios. These ratios are constrained by minimum and maximum federal participation rates (ranging usually from one third to two thirds).

3.1.2. Education. Grants for education account for about 10 per cent of all specific purpose grants, with the most important programs in (a) elementary and secondary education, (b) school assistance for areas seriously affected by federal activities (e.g. military, or government), and (c) vocational education.

As regards schooling, the primary responsibility rests with the special 'school district' level of jurisdiction. Federal aids therefore intervene only selectively, for example in favour of educationally disadvantaged children. The main grants (under the 1965 Elementary and Secondary Education Act, Title I) have gone to school districts in which more than 3 % of the school-children were living in 'poverty' (family income below § 2000). The aid is then calculated as the larger of half the state or national average educational expenditure times the numbers of children in the 'target population' ; there are no matching requirements.

The school assistance for 'federally affected' areas is basically aimed at reimbursing state governments for the educational costs of exceptional concentrations of children dependent on federal government activities. (A small but analogous example is seen in the European Schools funded from the Community budget).

Expenditure under the Vocational Education Act of 1963 is also of interest (by analogue with the European Social Fund) for its concentration of vocational training and retraining. Funds in this case are distributed by a formula based on the states' populations in three target age groups, weighted by the simple Hill-Burton 'allotment percentage'. A uniform matching ratio of 50 : 50 is applied for allocation of funds within the global allotment.

3.1.3. Public assistance (welfare). This is the most important category providing \$ 12 billion of specific purpose grants in 1974, out of the total of \$ 38 billion. Two programs in turn account for about 90 per cent of the total (a) maintenance assistance and (b) 'medicaid'.

Maintenance assistance. This group of programs started in 1935 when, under the Social Security Act, the federal government gave financial assistance to the states in providing for certain categories of the unemployable - the aged, dependent children and the blind. For the first two decades after 1935 the dominant category of public assistance was old age assistance. By 1973 the relative shares were :

	<u>in %</u>
Dependent children	65.6
Old age assistance	17.3
Disabled	16.0
Blind	0.8
Others	0.3
	<hr/>
	100.0

More recently, aid to the needy aged, the blind and the disabled has been "federalized", i.e. taken over as direct expenditure under the new Federal supplemental security income (SSI) program of 1974.

The remaining Aid to Families with Dependent Children (AFDC), where the 'federalisation' attempt did not succeed, is concentrated on poor families without male breadwinners, for whom state aids vary a lot. The open-ended federal AFDC grants are distributed to the states according to a "step-down" approach : each state receives 5/6 of the first \$ 18 of a maximum average monthly payment of \$ 32 per recipient. For the remainder \$ 14 each state receives a proportion which, like in the Hill-Burton formula, is varied inversely with average per capita state income, but not less than 50 % and not more than 65 %.

Since 1965 states have the option of using the Medicaid matching formula (see below) for determining their AFDC grants, which in effect allows most of the rich states to raise their average receipts to high levels.

Medicaid is a Federal aid to states to help finance medical services to families with dependent children receiving public assistance (AFDC), and to most aged, blind and disabled persons eligible for supplementary security income payments (SSI). The grants are open-ended, and subject to a Hill-Burton variable matching ratio

within the mini-max range of .50 to .83 'allotment percentages'.

States have a large say, however, in determining the eligibility levels and medical benefits covered under the Medicaid programme. As a result, there are variations in these programme elements among states. Although the Medicaid matching formula provides higher Federal matching to low-income states, most of the program funds go to high-income states. More affluent states have apparently proved better able and willing to expand the population and services covered (see further below on redistributive effects). There are plans for a federalisation of Medicaid in the form of a Family Health Insurance Plan.

- 3.1.4. Economic opportunity and manpower. One of the most important new federal programs in the early 1960's in relation to the "war against poverty" was the Economic Opportunity Act of 1964. Federal aid was provided "to educate and condition the poor to achieve productive lives". The numerous (mostly project) grants under this program have been drastically reduced in recent years and are now concentrated in the field of community action programs, for example experimental programs like Head Start (Kindergartens for poor children) and Job Corps (training programs for disadvantaged youth).

The grants are closed-end and are distributed to state areas according to a target population key ; 1/3 of the number of public assistance recipients, 1/3 of the number of unemployed, and 1/3 of the number of children living in poor families. There is a uniform federal matching ratio of 90 %.

The main programs in the area of manpower policy (under Titles I and II of the Comprehensive Employment and Training Act of 1973) aim at local employment schemes. This is an area in which (under Title I) earlier schemes have been merged into simpler block-grants, the funds now allocated without matching requirements, and the allotments dependent 50 % on prior years' receipts, 37.5 % on local unemployment levels, and 12.5 % on the number of low-income families. Similarly (under Title II), grants are made for transitional public employment schemes, with closed-end allotments based on local unemployment levels.

- 3.1.5. Highways. Federal grants are available for construction and maintenance of inter-state highways and the so-called AEC programme (for primary and secondary roads and urban networks). Together they comprise 12 % of total federal grants. Both categories are closed-end grants financed from an earmarked Highway Trust Fund (with revenues from excises on motor fuel, tyres, trucks, buses etc.)

TABLE 2 a
U.S. Specific Purpose Grants, 1974
 by census region

\$ '000 absolute amounts

Census region	Health	Education	Welfare	Economic Opportunity	Highways	Other	Total
New England	81356	212321	827778	229121	241696	855300	2447572
Middle Atlantic	205065	694138	3288089	689187	561252	2180772	7618503
East North Central	159504	538328	2232085	569138	719501	2030891	6249447
West North Central	101799	300703	699931	254508	431398	904356	2692695
South Atlantic	209276	704782	1366623	441805	825117	2104832	5652435
East South Central	101867	386142	636133	211247	290877	1094988	2721254
West South Central	105140	417195	1009451	295154	419894	1308967	3555801
Mountain	89216	216759	363021	200832	403743	551964	1825535
Pacific	158837	525992	2184261	587192	610171	1409047	5475500
Total	1212059	3994815	12607373	3507474	4508179	12510132	38340031

\$ per capita

Census region	Health	Education	Welfare	Economic Opportunity	Highways	Other	Total	Personal income 1974
New England	6.69	17.46	68.07	18.84	19.88	70.34	201.30	5,696
Middle Atlantic	5.502	18.62	88.22	18.49	15.06	58.51	204.40	5,951
East North Central	3.905	13.18	54.64	13.93	17.61	49.72	153.00	5,722
West North Central	6.103	18.03	41.96	15.26	25.86	54.22	161.40	5,261
South Atlantic	6.305	21.23	41.18	13.31	24.86	63.42	170.30	5,155
East South Central	7.608	28.84	47.51	15.78	21.72	81.78	203.20	4,303
West South Central	5.101	20.24	48.98	14.32	20.37	63.51	172.50	4,719
Mountain	9.501	23.08	38.66	21.39	43.00	58.78	194.40	5,075
Pacific	5.705	18.89	78.46	21.09	21.92	50.61	196.70	5,942
Total	5.82	19.20	60.58	16.85	21.66	60.13	184.24	5,448

Regions:

New England - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut

Middle Atlantic - New York, New Jersey, Pennsylvania

East North Central - Ohio, Indiana, Illinois, Michigan, Wisconsin

West North Central - Minnesota, Iowa, Missouri, N. Dakota, S. Dakota, Nebraska, Kansas

South Atlantic - Delaware, Maryland, D.C., Virginia, West Virginia, N. Carolina, S. Carolina, Georgia, Florida

East South Central - Kentucky, Tennessee, Alabama, Mississippi

West South Central - Arkansas, Louisiana, Oklahoma, Texas

Mountain - Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada

Pacific - Washington, Oregon, California, Alaska, Hawaii

Source: See Annex

TABLE 2 b
U.S. Specific Purpose Grants, 1974

by state

\$/ per capita

State	Health	Education	Welfare (public assistance)	Economic opportunity & manpower	Highways	All other	Total
District of Columbia	31.29	104.30	129.89	81.35	22.07	168.50	537.40
Connecticut	4.87	15.02	52.53	17.37	16.08	85.92	191.77
New Jersey	3.63	13.29	52.83	18.69	15.63	47.65	151.73
Alaska	17.00	145.21	46.49	57.75	248.10	176.43	690.99
New York	5.33	21.54	121.78	21.41	12.74	64.76	247.57
Delaware	8.28	18.53	39.89	15.67	37.16	58.70	178.23
Nevada	5.46	18.29	28.40	31.26	60.73	112.23	206.37
Illinois	3.20	13.98	69.19	13.95	18.48	54.71	173.51
Hawaii	11.84	43.85	63.28	18.47	52.25	79.60	269.30
California	4.66	17.31	89.47	20.71	15.93	47.06	195.17
Maryland	7.94	16.10	43.92	11.16	18.52	57.22	154.86
Michigan	4.30	13.72	67.56	16.40	19.22	48.88	169.98
Massachusetts	7.42	17.65	76.53	19.95	14.87	55.76	192.20
Washington	9.94	17.72	57.97	23.58	31.44	59.39	200.04
Kansas	5.56	21.77	36.38	14.35	24.41	42.53	145.00
Ohio	4.30	12.90	38.74	12.53	16.04	55.58	140.10
Colorado	11.00	21.03	52.70	15.26	25.45	55.81	181.24
Pennsylvania	6.75	16.85	55.75	13.30	17.78	62.14	172.57
Nebraska	5.65	19.07	41.37	13.00	26.08	42.24	147.42
Rhode Island	3.67	20.28	77.29	24.32	33.66	73.70	232.92
Minnesota	4.37	15.58	60.32	15.61	28.48	65.76	190.13
Iowa	5.03	14.95	81.01	11.74	17.14	44.70	124.56
Florida	5.54	16.77	25.90	94.82	21.86	99.54	132.81
Indiana	3.30	11.77	27.47	11.36	17.62	37.36	108.89
North Dakota	10.12	25.25	40.69	20.23	39.90	61.67	197.85
Virginia	4.47	24.92	40.62	10.73	30.64	52.55	163.92
Missouri	6.57	17.20	36.80	16.98	23.65	53.57	154.77
Oregon	7.09	15.55	47.40	24.20	27.65	60.12	182.00
Wisconsin	4.47	11.97	60.37	14.78	15.37	37.89	144.85
New Hampshire	6.52	19.58	41.73	13.09	28.14	56.08	165.13
Arizona	8.58	27.56	26.91	24.84	38.35	58.86	185.10
Wyoming	12.70	27.26	23.50	33.92	95.88	55.10	247.22
Montana	11.29	29.68	39.06	26.12	73.84	68.66	248.64
Texas	4.70	18.37	44.08	12.76	18.94	57.92	156.76
Georgia	5.62	20.48	69.94	12.84	21.06	80.16	210.06
South Dakota	17.09	31.48	43.37	21.09	57.29	96.23	266.55
Oklahoma	6.00	27.09	66.28	18.00	17.72	64.72	199.82
North Carolina	5.81	24.84	40.03	12.24	16.17	58.28	157.39
Idaho	5.02	22.72	39.20	22.52	55.18	52.80	197.45
Vermont	10.62	24.21	84.01	22.64	53.74	87.53	282.74
Utah	13.27	23.67	44.27	18.23	54.32	49.07	202.85
Tennessee	6.67	25.32	39.57	13.85	18.75	71.39	175.54
Maine	9.62	17.64	75.98	25.63	26.41	75.64	230.92
Kentucky	9.34	23.90	50.06	17.83	23.94	92.90	217.98
West Virginia	9.24	16.84	40.65	23.14	100.99	98.67	289.52
Louisiana	4.84	21.59	56.75	16.68	32.29	82.91	215.07
New Mexico	11.13	26.67	49.73	28.92	42.41	99.60	258.46
South Carolina	5.79	22.57	31.56	16.72	17.56	85.95	180.15
Alabama	7.13	26.07	50.97	14.74	26.77	77.97	203.64
Arkansas	8.30	25.91	55.46	18.61	16.33	78.17	202.78
Mississippi	8.42	50.24	58.50	19.79	18.64	100.11	255.70
United States	5.82	19.20	60.58	16.85	21.66	60.13	184.24

Source: See Annex

The inter-state highway grants are allocated to the states on the basis of the estimated cost of completing the National Inter-state System. The federal matching ratio is 90 %.

Most of the ABC programme grants are distributed according to key based on area, population and mileage of rural routes. The federal matching ratio is 70 %.

3.1.6. Other. The final category (food stamps, urban affairs etc.) is a miscellaneous but important group of programs :

	§ billion
food stamps	2.8
child nutrition	1.2
low-rent public housing	1.1
other social welfare	1.3
urban affairs	2.4
agricultural and natural resources	0.4
other miscellaneous	3.3
	<hr/>
	12.5

The most important single element is the food stamps program, which is 100 % financed by the federal government (except for half of the administrative costs borne by other levels of government). Since the benefit and eligibility standards are also federally determined, the programme is more a direct federally-delegated function than a specific purpose grant (thus resembling the German Bundesauftragsverwaltungen -see below). Low income families, defined as having to spend more than 30 % of their total income to obtain an adequate diet, are able to obtain food stamps at a concessional price compared to the value of the food which they can use then to buy.

The next most important program, urban affairs, is a new closed-end formula-based Community development block grant, replacing a variety of old specific purpose grants (including urban renewal, neighbourhood development, rehabilitation, open-space land, water and sewage facilities, model cities etc.) The beneficiaries are 500 cities and 85 urban counties. The formula apportionment is, for 80 % of the funds, based on (a) population, (b) poverty (double-weighted) and (c) the extent of overcrowding in housing. The program is being phased in over five years from 1974, with special provisions, to cushion changes in benefits compared to the earlier collection of specific purpose grants.

3.2. Canada

Canadian federal specific purpose grants take the form of a small number of shared cost programmes, with relatively simple distributional criteria and mostly arising in the areas of health,

education and welfare (1)

- 3.2.1. Health. This is the single most important block of grants, almost wholly accounted for by the following two programs.

The Hospital Insurance and Diagnostic Services program is intended to ensure that all residents have access to necessary hospital care services regardless of their ability to pay. The Federal Government makes an open-ended contribution to each province consisting of 25 % of the national average per capita cost of such services, plus 25 % of the province's average per capita cost of the services multiplied by the number of insured persons in the province.

The formula was intended to vary the per capita grants inversely with a province's per capita income, However, differences in hospital service costs and in fiscal capacity (e.g. personal income) are only crudely related, and the result is that any equalizing effects are "haphazard and anomalous".(2)

Quebec "opted out" of the program in 1965. The contributions to Quebec took instead the form of obtaining a higher share of federal income tax revenues and other financial adjustments, leaving the total amount of federal contributions to Quebec unaffected. The policy of Quebec in recent years has been not to enter in shared-cost programs in fields of exclusive provincial jurisdiction.

Medical Care is a further open-ended program with aims analogous to the hospital program. The federal contribution to each province is calculated as 50 % of the national average per capita cost of providing all medical care insured services in all provinces multiplied by the number of insured persons in the province concerned; which means that low cost provinces receive more than 50 % of their program costs and high cost provinces less.

Because almost the total population is insured for medical care (as for hospital insurance), the medical care grants are in fact distributed according to a simple population key. The Federal Government intends to establish ceilings on federal contributions for 1976-77 and subsequent years (e.g. a maximum increase of 14.5 % in 1976-77).

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- (1) G.E. Carter, Canadian Conditional Grants since World War II, Canadian Tax Foundation, 1971, and for recent developments in shared cost programs Federal-Provincial fiscal relations in Canada, An Overview, Department of Finance, Ottawa, September 1975.
- (2) Carter, op. cit, p. 48

3.2.2. Education. Since 1967 the Federal Government has been making open-ended contributions to the financing of post-secondary education. The present arrangements expire in 1977 and will be renegotiated by the Federal Government and the provinces. The total federal contribution to a province is equal to 50 % of the eligible operating costs of post-secondary educational institutions subject to the following minimum and maximum provisions :

- (a) no province receives less than \$ 15 per capita, escalated by the national rate of increase in eligible operating costs ;
and
- (b) the total federal contribution may not exceed 115 % of the preceding fiscal year.

The federal contributions are met in two ways, 'tax transfers' and 'cash transfers'. Under the former, the Federal Government transfers to each province a sum equivalent to a certain percentage point of the federal personal income tax and corporation income tax. The balance of the total federal commitment is then made up by cash adjustment payments. The 'tax transfer' arrangements were introduced to obtain the acceptance of Quebec, which, as in the case of health, prefers such a 'detour' for constitutional reasons.

3.2.3. Welfare. In 1966 various earlier specific purpose grants were replaced by the Canada Assistance Plan (CAP), which now covers virtually all federal payment to the provinces in the welfare field. Under the CAP the Federal Government gives open-ended reimbursements for 50 % of the shareable costs of financial assistance provided in the area of social assistance, child welfare, institutional care, and welfare services. Since the rates of assistance are set by the provinces, the level of federal payments depends on provincial decisions.

Quebec does not participate in the CAP. The 'opting out' arrangements are similar to those for the Hospital Insurance program. The total amount of federal contributions to Quebec is, again, unaffected by these arrangements.

3.2.4. Other. This category is dominated by (a) programs for the promotion and development of certain regions and (b) federal government's subsidies for cultural activities. The most ambitious regional development project is the fifteen-year development plan for Prince Edward Island, whose implementation began in 1969.

TABLE 3

Canadian Specific Purpose Grants, 1973-74

\$ '000 absolute amounts

Province	Health	Education	Welfare	Other	Total
Newfoundland	61,121	11,710	26,047	14,243	113,121
Prince Edward Island	10,479	2,107	5,232	14,282	32,100
Nova Scotia	78,154	35,258	28,401	12,721	154,534
New Brunswick	63,779	16,205	32,285	24,412	136,681
Quebec	626,370	330,061	320,884	142,539	1,419,854
Ontario	784,102	402,486	214,156	65,315	1,466,059
Manitoba	107,106	37,772	39,815	18,659	203,352
Saskatchewan	89,267	27,452	36,238	13,197	166,154
Alberta	175,917	96,624	55,136	14,402	342,079
British Columbia	211,138	78,012	83,957	11,972	385,079
Total	2,207,433	1,037,687	842,151	331,742	4,419,013

\$ per capita

Province	Health	Education	Welfare	Other	Total	Personal income 1973
Newfoundland	113	22	48	26	209	2,760
Prince Edward Island	91	18	45	124	279	2,922
Nova Scotia	97	44	35	16	192	3,332
New Brunswick	98	25	49	38	210	3,089
Quebec	103	54	53	23	233	3,839
Ontario	99	51	27	8	185	4,840
Manitoba	107	38	40	19	204	4,071
Saskatchewan	98	30	40	15	183	3,803
Alberta	104	57	33	9	203	4,325
British Columbia	91	34	36	5	166	4,581
Total	100	47	38	15	200	4,254

Source: see Annex

3.3. Australia

Specific purpose grants have a relatively limited role in Australian federalism, with the dominant programs in the field of tertiary education and roads.

There has been some tendency in recent years, however, to move the balance of dependence on specific versus general purpose grants in favour of the former - as some of the following examples show. (1)

The major Australian specific purpose grants tend not to be formula based, but rather dependant on negotiations between the Australian Government and state Governments, assisted by advisory bodies ("Commissions") whose function is to recommend grants for specific programs of national interest on the basis of economic criteria of need.

3.3.1. Health. Accounting for only 4 % of total specific purpose grants, health grants are principally for Community health facilities (since 1973/74) and tuberculosis hospitals.

The new grants for Community health facilities are the subject of longterm national programs, as identified by the Hospital and Health Services Commission, whose recommendations are then the basis for decisions of the Australian Government.

In the first year, 1973 - 74, the Australian Government met 100 % of the costs of all projects. Since then the Federal matching ratio became 75 % (for capital costs) and 90 % (for operating costs) for most programs, and 100 % for some.

Grants for tuberculosis hospitals are open-ended grants, with no state matching requirement required, as the states are reimbursed for all approved current and capital expenditures for these hospitals.

3.3.2. Education. Educational grants are dominated by tertiary education. Since the establishment of the Australian Universities Commissions (AUC) in 1959 an upper limit to the amount of federal government assistance for universities is fixed for each state in the light of an assessment of expenditure needs assessed by the AUC. There have been matching conditions of \$ 1.85 in state contributions for every \$ 1 of current Federal grants, and \$ 1 for \$ 1 in respect of capital grants. Broadly similar arrangements exist for advanced education and teachers colleges with some differences, however, in the matching rules.

(1) Australian specific purpose grants are described in various publications of the Centre for Research on Federal Financial Relations, Canberra, e.g. Robert Jay, The shift to specific purpose grants : From revenue sharing to cost sharing, in : Responsibility sharing in a federal system, ed. by R.L. Mathews, The Australian National University, Canberra, 1975.

As from January 1974 the Australian Government has assumed full financial responsibility for financing the universities and colleges of advanced education, alongside a reduction in (general purpose) Financial Assistance Grants (see Chapter 6). The work of the education Commissions continue and the Federal funds are still provided as specific purpose grants to the states, because the Australian Government has no constitutional power to pay funds direct to universities and colleges.

The Australian Government has recently expanded its commitments in the area of primary and secondary schools. An advisory body was created in 1973, the Interim Committee for the Australian Schools Commission (the Karmel Committee), with the task of recommending grants to states based on needs evaluation. There are no specific matching requirements. Formerly, including 1973-74, school grants have been allocated to the states based on population and number of pupils. From 1973-74 to 1974-75 school grants more than doubled.

One further Federal grants programme, although of relatively small importance, might be mentioned because of its relevance to the European Community ; the grants program for child migrant education. The purpose is to provide special instruction for migrant children, particularly to assist these children to achieve a sufficient command of the English language to join fully in normal classes. In addition to these grants, the states are reimbursed for the costs of certain adult migrant education services which they provide on behalf of the Australian Government.

3.3.3. Welfare. All significant social security benefits in Australia have been the responsibility of the Australian Government since 1946. Welfare grants are, therefore, insignificant.

3.3.4. Transport. In 1973-74 almost all transport grants went into roads. Road grants began in 1923-24, and were until recently the largest specific purpose grant category.

The year 1973-74 was covered by the Commonwealth Aid Roads Act 1969, which operated for the five year period 1969-70 to 1973-74. The grant arrangements for this period were based on a report of the Bureau of Roads, and has the task of recommending an appropriate size for the total road program, its distribution between different kinds of projects and its allocation among the states.

The actual program, adopted by the Australian Government, however, was in many respects different from the Bureau's recommendations. The total size of the grants program was much smaller, and the distribution keys have been more influenced by political considerations than the Bureau's attempt to base the allocation on economic criteria and analysis.

TABLE 4

Australian Specific Purpose Grants, 1973-74

§ '000 absolute amounts

State	Health	Education	Welfare	Transport (roads)	Other	Total
New South Wales	13,864	208,518	10,013	99,540	48,676	380,611
Victoria	10,836	187,608	5,627	66,560	36,632	307,263
Queensland	8,309	79,480	5,566	64,466	48,603	206,424
South Australia	7,233	68,505	3,290	32,334	23,464	134,826
West Australia	8,786	61,215	4,191	51,637	14,966	140,795
Tasmania	2,212	17,207	1,023	14,040	3,519	38,001
Total	51,240	622,533	29,707	328,577	175,860	1,207,917

§ capita

State	Health	Education	Welfare	Transport (roads)	Other	Total	Personal income 1972-73
New South Wales	3	44	2	21	10	80	2,673
Victoria	3	52	2	18	10	85	2,622
Queensland	4	41	3	34	25	107	2,368
South Australia	6	57	3	27	20	112	2,342
West Australia	8	57	4	48	14	131	2,350
Tasmania	6	43	3	35	9	96	2,228
Total	4	48	2	26	14	94	2,542

Source: see Annex

The total grant amount for the five year period was \$ 1,250 million. \$ 1,200 million was distributed in the following way ; 5 % to Tasmania and the remaining 95 % between all states by giving equally one-third weights to area, population and motor vehicle registrations. The remaining \$ 50 million went as supplementary grants to the three less populous states, South Australia, Western Australia and Tasmania.

Matching requirements, which were formerly 50 : 50, have been altered such that each state must increase its own road expenditure at the same rate as the increase in its registered motor vehicles.

3.3.5. Nearly half of the 'other' category comprises grants for industrial assistance. A large diversity of project grants to one or more states for specific geographic or industrial and agricultural areas exists under this heading.

3.4. Federal Republic of Germany

The analysis of the German inter-governmental grants system is a rather difficult task. Specific purpose grants are not a clearly identified subject of analysis (by comparison with the U.S., Canada and Australia) with the result that the data base is not readily available from published official sources (1), and analytical contributions on the subject are only now beginning to appear (2). It has therefore been necessary to build up the content of this note from various primary sources (constitutional literature, unpublished working papers (3) etc.), and some of the detail is set out to permit reconciliation with established terminology.

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- (1) The main official sources, the Finanzbericht (financial report) of the Finance Ministry, Statistisches Jahrbuch (statistical year book) and other publication of the Federal Statistical Office and the Federal Budget documents, do not give a distribution of specific purpose grants programmes by Länder.
 - (2) Bernd Reissert, Die finanzielle Beteiligung des Bundes an Aufgaben der Länder und das Postulat der "Einheitlichkeit der Lebensverhältnisse im Bundesgebiet", (Financial participation of the Bund in functions of the Länder, and the norm of "Uniformity of Living Standards"), Schriftenreihe des Vereins für Verwaltungsreform und Verwaltungsforschung e.v., Nr. 4, Bonn, 1975. Reissert's work is part of a research project undertaken at the International Institute of Management (in the Wissenschaftszentrum), Berlin, directed by F.W. Scharpf. The Scharpf-team prepared various papers on 'fiscal federalism' for the International Seminar on Public Economics (ISPE), which took place on January 1976 in Berlin.
 - (3) Working papers for the Enquête-Kommission Verfassungsreform (Commission for Constitutional Reform), e.g. document 137, Zahlenmaterial über gemeinsame Finanzierungen von Bund und Ländern im Haushaltsjahr 1974 (Figures on common financing of Bund und Länder in 1974), February 1975.

In the constitution certain functions are identified as exclusive Bund responsibilities (defence, external affairs, rail and air transport and communications). The social security system is also organized centrally at the national level. Functions not otherwise identified in the federal constitution are the financial responsibility of the Länder and local government, although there are many areas of joint legislative responsibility. The subject of the present section concerns, therefore, a limited area of mixed financial responsibility.

The following broad categories of federal expenditure, identified by their basis in constitutional law (Articles of the Grundgesetz (abbr. GG 'Basic Law'), are here classified as specific purpose grants :

3.4.1. Common tasks, 'Gemeinschaftsaufgaben', (Art. 91 a GG)

Three areas of expenditure are recognized as being of national importance, with joint planning and financing by the Bund and Länder. These are :

- university construction
- improvement of the regional economic structure (i.e. creation of employment, infrastructure investment, etc. in needy regions (Fördergebiete))
- improvement of the agricultural structure and of the coastal protection.

The Bund financial contribution is usually 50 % in the first two areas, 60 % for agriculture and 70 % for coastal protection. The allocations are generally made on the basis of the recommendations of joint Bund-Länder Commissions, adopted by the Federal Government and at least 6 Land Governments.

3.4.2. Coordination in Education and Research (Art. 91 b GG)

While Education is basically a responsibility of the Länder, there is constitutional provision for joint Bund-Länder planning and coordination (Bildungsplanung) and the Bund meets certain costs in this area incurred by the Länder.

The Bund finances research of national importance through subsidies to forty or so research institutes (Forschungsförderung)

3.4.3 Restitutions for federal delegated functions ('Bundesauftragsverwaltung' and 'Geldleistungsgesetze'), (Art. 104 a, 2 & 3 GG)

While as a general rule each level of government finances its responsibilities from its own resources, there are a number of cases in which the Länder execute Bund programmes, and are in full or in part compensated by restitution payments from the Bund.

The cases of 100 % restitution arise under Art. 104 a, 2 (Bundesauftragsverwaltung) and concern military administration, air and road costs. Since the Länder have no say in either the legislation or financing, these programs are closer to direct federal expenditure than to specific purpose grants. No information is available on the distribution by Länder of these restitutions (Erstattungen).

The concept of delegated functions is broadened, however, under Art. 104. a 3 for certain programmes of cash aids to individuals ('Geldleistungsgesetze') used for student grants, housing and savings subsidies and other programs, whereby the Bund is able to have an important say in determining functions which would otherwise be the responsibility of the Länder. The Bund contributes at least 50 % of the program costs, and where its contribution exceeds 75 % it can determine the program without agreement of the Bundesrat.

Student grants are open-ended programs with a 65 % federal matching ratio, whereas graduate grants are closed-end.

The housing, savings and rent grants are open-ended programs with a 50 % federal matching ratio.

3.4.4. Federal grants-in-aid (Finanzhilfen) for investment (Art. 104 a, 4GG)

Specific purpose grants (zweckgebundene Zuweisungen) are provided to the Länder and municipalities to support investment projects with the aim of short-term economic stabilisation or long-term growth policy ; sectors covered are local transport, urban development, social housing, and hospitals.

A wide interpretation of this constitutional basis could allow the Bund to step into various fields of investment expenditure constitutionally reserved to Länder and municipalities. This possibility has been somewhat limited by a restrictive interpretation of the Article by a High Court decision of March 1975, which stipulates that the Bund has broadly to accept the investment project plans elaborated by the Länder. Federal anti-recession programs in the investment area in 1974/75 were based on this Article, and also Federal aid for storm damage.

The hospital construction and investment program is allocated, first, as to a fixed amount divided on the basis of hospital bed numbers, and, secondly, as to about 90 % of the total on a population basis.

The federal matching ratio is one-third.

The local transport program is a closed-end allocation, distributed partly (for roads) on the basis of the number of registered motor vehicles, weighted by type of vehicle, and giving a special weighting of 1.25 in favour of the eastern border regions (Zonenrandgebiete) and partly for public transport projects. The federal matching ratio is 60 %, except for 75 % in the case of the eastern border regions.

The social housing grants are based on a long-run federal housing program, supporting construction in certain problem regions, for low-income families, and refugees etc. The allocations are based on a population key, and to a small extent on target population keys. (e.g. refugees)

The urban development grants are allocated on the basis of Bund-Länder negotiations for specific projects, the distribution intentionally favouring the fiscally poor Länder, and the city states of Bremen and Hamburg. The federal matching ratio is one-third.

3.4.5. Other grants and restitutions

This is a miscellaneous category of grants (some already described) on which we have no information on the distribution by Länder :

	<u>1973</u>
	<u>mill. DM</u>
'unwritten competences of the Bund' (<u>ungeschriebene Zuständigkeiten des Bundes</u>)	2.000 approx.
transfers to various public agencies (other than Länder and local government)	680
other unallocated grants, including a considerable amount of federal delegated functions (Bundesauftragsverwaltungen, Art. 104 a, 2, see above)	<u>1.459</u>
total unallocated by sector	4.139
education and research (see above)	732 *
subsidies for general savings (see above)	<u>460</u> *
total unallocated by Land	5.331
total allocated by Land (Table 6)	<u>10.076</u> *
total specific purpose grants	<u>15,407</u>

* Reconciliation with Table 5 : 10,076 + 732 + 460 = 11,268

Source : See Annex

TABLE 5

German Specific Purpose Grants, 1973

- by constitutional basis
- by programme and functional area

in Mio DM

Art. 91 a GG Shared cost programmes (Gemeinschaftsaufgaben)	Art. 91 b GG Coordination in the educational and research field (Bildungsplanung Forschungsförderung)	Art. 104, a, 3 Restitutions (Geldleistungsgesetze)	Art. 104, a, 4 Grants-in-aid (Finanzhilfen)	Total 1 - 4
1.	2.	3.	4.	5.
University construction 1,422	Bildungsplanung 84	Student grants 1,137	Local transport 2,008	
Improvement of regional economic structure 206	Forschungsförderung 648	Premiums for savings schemes for house construction (Wohnungsbauprämien) 1,458	Urban development 85	
Improvement of the agricultural structure and coastal protection 1,052		Private housing subsidies (Wohngeld) 569	Social housing grants (sozialer Wohnungsbau) 592	
		Other 1,033	Hospital construction 972	
Total 2,680	732	4,197	3,657	11,268

in Mio DM

Health	Education	Transport	Housing	Regional and other structural policies	Other	Total 1 - 6
Hospital construction (104 a, 4)* 972	University construction (91 a) 1,422	Local transport (104 a, 4) 2,010	Saving subsidies for housing (104 a, 3) 1,459	Improvement of regional structure (91 a) 206	Subsidies for general saving schemes (104 a, 3) 460	
Tuberculosis aid (104 a, 3) 12	Student grants (104 a, 3) 1,137		Private housing subsidies (104 a, 3) 570	Agricultural and coastal programmes (91 a) 1,052		
	Grants for graduates (104 a, 3) 49		Social housing grants (104 a, 4) 592	Petrol subsidies for agricultural enterprises (104 a, 3) 511		
	Education and research (91 b) 732			Urban development (104 a, 4) 85		
984	3,340	2,010	2,620	1,853	460	11,268

* constitutional basis in brackets

Source: see Annex

TABLE 6

German Specific Purpose Grants, 1973

in Mio DM absolute amounts

Land	Health	Education	Transport	Housing	Regional and other structural policies	Sub-total	Others	Total
Baden-Württemberg	136	395	268	434	232	1,465		
Bayern	169	421	319	490	440	1,839		
Berlin	47	99	92	85	14	337		
Bremen	12	41	17	33	8	111		
Hamburg	33	93	95	72	12	305	not	
Hessen	90	235	245	224	127	921	allo-	
Niedersachsen	115	279	204	316	413	1,327	ated	
Nordrhein-Westfalen	258	865	632	663	219	2,637		
Rheinland-Pfalz	63	99	78	152	128	520		
Saarland	23	32	19	36	46	156		
Schleswig-Holstein	38	50	41	115	215	459		
Total	984	2,609	2,010	2,620	1,853	10,076	5,331	15,407

in IM per capita

Land	Health	Education	Transport	Housing	Regional and other structural policies	Sub-total	GDP 1973
Baden-Württemberg	14.8	42.9	29.1	47.1	25.2	159.1	15,280
Bayern	15.6	38.9	29.5	45.3	40.7	170.0	14,260
Berlin	22.9	48.2	44.8	41.4	6.8	164.1	16,498
Bremen	16.4	56.0	23.2	45.1	10.9	151.6	19,823
Hamburg	18.8	52.9	54.0	40.9	6.8	173.4	25,496
Hessen	16.2	42.3	44.1	40.3	22.8	165.7	15,651
Niedersachsen	15.9	38.5	28.2	43.7	57.1	183.4	12,596
Nordrhein-Westfalen	15.0	50.2	36.7	38.5	12.7	153.1	15,221
Rheinland-Pfalz	17.0	26.8	21.1	41.1	34.6	140.6	14,045
Saarland	20.6	28.7	17.0	32.3	41.3	139.9	13,243
Schleswig-Holstein	14.8	19.4	15.9	44.7	83.6	178.4	12,215
Total	15.9	42.1	32.4	42.3	29.9	162.6	14,951

Source: see Table 5 and Annex (for reconciliation of Tables 5 and 6 see text)

4. Redistributive Effects

The redistributive effects of specific purpose grants in the four federations are set out in :

- Table 7, which gives (i) in per capita index form the minimum and maximum values for grants received (range of index numbers), (ii) the volume of grants as a percentage of personal income, (iii) the elasticity of grants with respect to personal income, (iv) its statistical significance, (v) the budgetary redistributive power and (vi) the change in Gini-coefficients due to the grants.
- Chart 1, which plots for each country the index numbers for total grants received per capita and personal income per capita used for the computations summarised in Table 7, and the slopes representing the elasticity coefficients from regression equations ;

The assumption underlying this methodology is that the specific purpose grant expenditures can be treated for the purpose of incidence analysis as transfer receipts. This assumption is debatable, although less so than would be the case for other categories of expenditure which give 'indivisible' national benefits (defence, central government administration). The specific purpose grants mostly concern types of expenditure whose benefits are identifiable with the regions in question.

The United States case, while highly complex and warranting a detailed commentary, does nonetheless yield a number of interesting summary conclusions.

A preliminary point is that the picture given by the budgetary redistributive power is greatly different according to whether three exceptional states, Washington D.C., Alaska and Hawaii are treated apart. All three states have clearly been able to secure exceptional advantages, Washington D.C. because of the direct federal government responsibility and its obvious political exposure, Alaska and Hawaii because of their geographic separation, their ethnic differences and/or their relatively recent accession to the federation. For most types of grants these states receive up to 400 % of the per capita national average benefits, in spite of their high per capita personal income levels, whereas the mini-max range for grants per capita in the other 48 states tends to be in the region of 50 % to 200 %. In the use of regression techniques these extreme deviations from the main body of observations have a very great influence on the results, hence the ability of the three states to change the sign of the relationship with personal income. In the Gini measure, on the other hand these exceptional cases are weighted with their rather small populations and therefore have a modest influence only.

Concentrating now on the '9' and '48' variants of the U.S. case, there is in four categories a broad consistency in these two sets of results. In order of importance 'food stamps' etc, highways,

education and health have a significant redistributive effect in the order of 2.5 % to 0.3 %. Out of the two remaining groups, 'economic opportunity' has a relative unimportant redistributive power, whereas for 'welfare' the redistributive effect differs according to the regional breakdown as well as the measure used. The population weighted measure in the census region variant show a negative redistributive effect of the order of - 2%. This is mainly due to the favourable treatment of rich and populous states such as New York and California, which when aggregated with smaller states into census regions have a dominant influence on the whole region. The redistributive effect of total grants is heavily influenced by the 'welfare' group and thus shows a variation between 2 % (9 census regions, Gini measure) and 5.5 % (48 States, redistributive power measure), but with about 3 % as the most convincing value, since two variants are close to it and for these variants the corresponding 'welfare effect is equal and about the average of the two other variants (cp. Table 7).

The main progressively redistributive results seem to be traceable to the following characteristics :

- for the elementary and secondary school programme the use of target population keys aimed at children living in 'poverty';
- for the vocational education programme the combined use of target population keys and variable matching ratios inversely related to personal income ;
- for the Food Stamp programme the use of nationally uniform benefit standards criteria defining low-income families.

These cases contrast with those in the welfare and economic opportunity and manpower groups, where regressive or no significantly redistributive results are obtained

- in the Medicaid and Maintenance Assistance programmes the open-ended formula, combined with states' options to exercise relatively high minimum matching ratios and their considerable liberty in setting the standard and cost of benefits, has resulted in the high income states of New York and California securing exceptionally high federal contributions (these two states obtain 30 % of Medicaid grants as against their 21 % share of personal income and 19 % share of population);
- in the Economic Opportunity and Manpower programmes, while there is a marked use of target population criteria (like local unemployment rates), it is reportedly the case that the heavy reliance on the project form of aid has resulted in the 'grantmanship' of local and state governments becoming an important determinant of the outcome, with the more active and better staffed local administrations obtaining more money.

TABLE 7

Redistributive Power of Specific Purpose Grants

		i	ii	iii	iv	v	vi
		Range of Index Numbers	Programme Volume as % of personal income	Elasticity of programme with respect to personal income (1)	Statistical significance of elasticity (2)	Redistributive power (3)	% change in Gini-Coefficient (4)
Germany, 10 Länder Berlin excluded 1973	Health	93/144	0.2	0.12	0.023	0.1	0.1
	Education	46/126	0.4	1.30	0.477	- 0.1	0.2
	Transport	49/138	0.3	1.68	0.457	- 0.2	0.3
	Housing	76/111	0.4	0.14	0.044	0.3	0.4
	Regional Deve- lopment	23/279	0.3	- 3.38	0.422	1.2	1.9
	Total	86/113	1.5	0.10	0.025	1.35	2.0
Australia 6 Provinces, 1971/1972	Health	75/200	0.2	- 4.85	0.533	1.0	1.0
	Education	85/119	2.1	- 0.03	0.000	2.2	3.3
	Welfare	80/200	0.1	- 5.45	0.615	0.6	0.5
	Transport	69/185	1.2	- 3.75	0.478	5.5	5.3
	Other	64/179	0.6	- 2.21	0.162	2.0	3.8
	Total	85/139	4.2	- 1.68	0.421	11.2	14.2
Canada, 10 Provinces, 1973/74	Health	91/113	2.7	- 0.04	0.017	2.8	2.9
	Education	38/121	1.3	1.16	0.658	- 0.2	0.7
	Welfare	71/139	1.0	- 0.63	0.519	1.7	2.5
	Regional and other	33/827	0.4	- 6.52	0.442	3.0	1.7
	Total	83/139	5.3	- 0.36	0.327	7.2	7.9
United States 51 States F.Y. 1974	Health	55/538	0.1	0.34	0.003	0.08	- 0.14
	Education	61/756	0.4	2.03	0.060	- 0.39	- 0.33
	Welfare	39/214	1.2	0.61	0.054	0.47	- 0.16
	Economic Oppor- tunity	64/562	0.4	1.19	0.031	- 0.06	- 0.25
	Highways	59/1145	0.4	2.02	0.026	- 0.44	0.74
	Foodst. Urban etc	62/293	1.2	0.06	0.000	1.12	0.97
	Total	59/375	3.7	0.79	0.046	0.77	0.79
United States 48 States D.C., Alaska, Hawai excluded F.Y. 1974	Health	57/303	0.1	- 1.85	0.182	0.3	0.3
	Education	63/159	0.4	- 1.69	0.372	1.0	0.8
	Welfare	39/200	1.2	0.51	0.039	0.6	- 1.3
	Economic Oppor- tunity	54/480	0.4	- 0.14	0.001	0.4	0.6
	Highways	60/475	0.4	- 2.01	0.066	1.3	1.1
	Foodst. urban etc	61/183	1.2	- 1.17	0.246	2.6	2.5
	Total	58/154	3.7	- 0.68	0.161	6.2	3.8
United States 9 Census regions, F.Y. 1974	Health	67/163	0.1	- 1.39	0.242	0.3	0.2
	Education	69/150	0.4	- 1.88	0.695	1.1	0.9
	Welfare	64/146	1.2	2.04	0.466	- 1.2	- 2.4
	Economic Oppor- tunity	79/127	0.4	0.64	0.120	0.1	- 0.1
	Highway	69/198	0.4	- 1.12	0.089	0.9	1.0
	Foodst. urban etc	83/136	1.2	- 1.30	0.602	2.7	2.6
	Total	83/111	3.7	- 0.07	0.004	3.9	2.2

Footnotes to Table 7

(1) Examples of elasticity coefficients :

- 2.0 - per capita grant differentials twice as big as per capita personal income differentials (negative redistributive effect - regional inequalities are increased by grant programme)
 - 1.0 - per capita grant proportional to personal income per capita (no redistributive effect)
 - 0.0 - per capita grant equal for all regions (redistributive effect proportional to volume of programme)
 - 1.0 - per capita grant inversely proportional to personal income per capita (strong redistributive effect)
- (2) An elasticity coefficient of almost zero is statistically insignificant by the usual tests ; however, for the purposes of the present analysis a distribution close to equal-amounts-per-capita has clearly meaningful redistributive implications (cp. also methodology of redistributive power developed in Chapter 5).
- (3) Redistributive power of the grants measured by the reduction in personal income differentials between regions due to the grant programme under the assumption of a regionally neutral financing of these payments (i.e. proportional to income). It is equal to the deviation from neutrality - measured by the difference between one (neutral case) and the elasticity - multiplied by the equalisation volume as a percentage of personal income.
- (4) A modified income is calculated by adding to personal income per capita grants per capita and subtracting amounts representing the regional breakdown of the neutrally financed national total amount of grants. The Gini-coefficient of this modified income is compared with the Gini-coefficient of personal income.

Among other programmes, the road grants are in effect allocated mainly on the need and cost criteria, which gives a distribution unrelated to income showing up in the low statistical significance of the elasticity.

Canada appears in an intermediate position. As shown in Table 7 the overall redistributive power of its specific purpose grants is about 7 %.

The groups 'welfare' and 'regional and other' show a substantial amount of redistribution in the order of 2 %. In the welfare group populous Quebec is the greatest beneficiary, in the 'regional and other' groups it is small Prince Edward Island. This explains the difference between the two measures of the redistributive effect.

The health programmes also contribute a substantial amount of redistributive power (about 2.5 % of income differentials), mainly as a result of elements in distribution formulae that are based on national average cost calculations (i.e. equal amounts per capita).

The education programme is approximately proportional to income in its distribution, as a result of formulae based on flat percentage federal contributions.

Australian specific purpose grants show overall a quite high-powered progressive redistributive effect (with a redistributive power of at least 10 % in relation to personal income differentials).

About half of this result is obtained through road grants, under which the large and least populated states of Western Australia, Southern Australia and Queensland are highly favoured in relation to the smaller highly populated and richest states of Victoria and New South Wales.

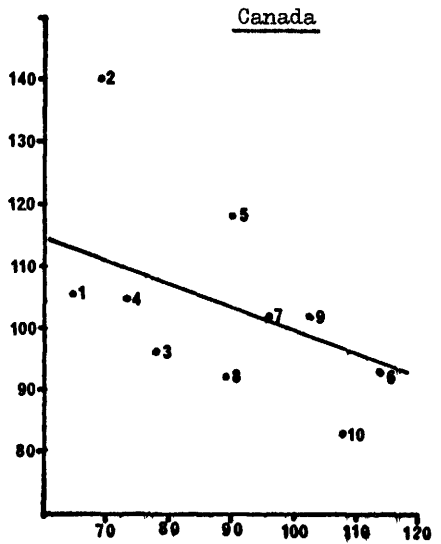
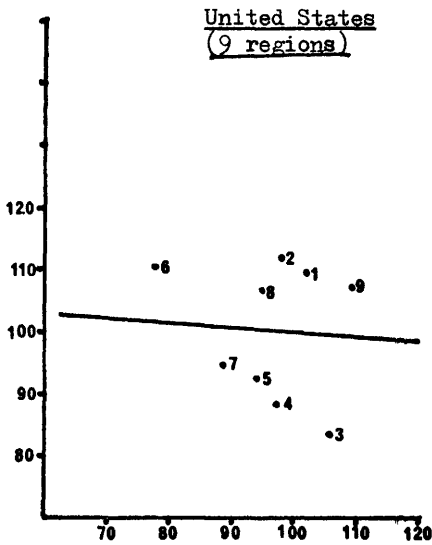
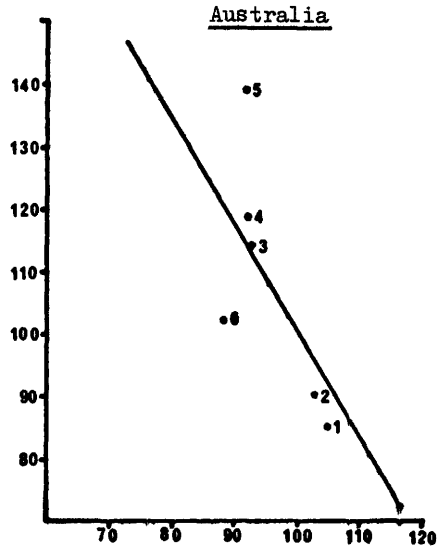
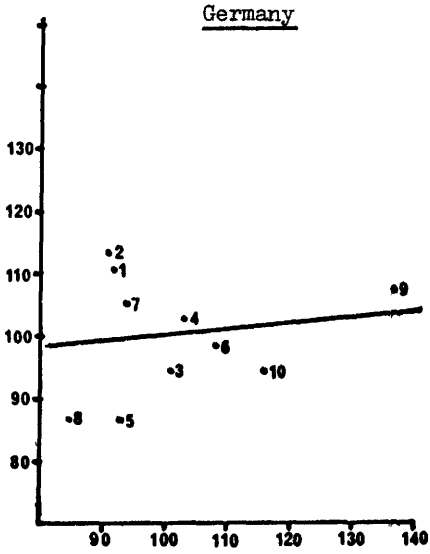
The health and welfare programmes appear also to be highly progressive in their distribution, although they are quite small in volume and therefore modest in redistributive power. The important education programme is not significantly related to income differentials at all.

For Germany the overall result, for the total of the conditional grants for which a distribution by Länder was possible, is that only a slight progressive redistribution of 1 % - 2 % takes place. The tendency is for the amount of grants per capita to be invariant to per capita income differentials, i.e. to be equivalent to the result of using a population key. These findings are broadly consistent with those of Reissert.(1)

This overall result is the combination of the effect of the regional policy programmes and offsetting effects arising from the other programmes. As might be expected, the regional policy programmes are sharply negatively correlated with income percentage although their weight is rather small. The negative elasticity is even greater if the city states of Bremen and Hamburg (which benefit from the urban development programme) are disregarded.

(1) B. Reissert, Die finanzielle Beteiligung ..., op. cit. pp. 64-65

Chart 1



Horizontal axis- personal income per capita

Vertical axis- total specific purpose grants per capita

Regional key to Charts

Germany

1. Schleswig-Holstein
2. Niedersachsen
3. Nordrhein-Westfalen
4. Hessen
5. Rheinland-Pfalz
6. Baden-Württemberg
7. Bayern
8. Saarland
9. Hamburg
10. Bremen

United Kingdom

- North
- Yorkshire and Humberside
- North West
- East Midlands
- West Midlands
- South East
- South West
- Wales
- Scotland
- N. Ireland

France

1. Région Parisienne
2. Champagne
3. Picardie
4. Haute-Normandie
5. Centre
6. Basse-Normandie
7. Bourgogne
8. Nord
9. Lorraine
10. Alsace
11. Franché-Comté
12. Loire
13. Bretagne
14. Poitou-Charente
15. Aquitaine
16. Midi-Pyrénées
17. Limousin
18. Rhône Alpes
19. Auvergne
20. Languedoc
21. Provence-Cote d'Azur-Corse

Italy

- Valle d'Aosta
- Piemonte
- Lombardia
- Trentino Alto Adige
- Veneto
- Friuli Venezia Giulia
- Liguria
- Emilia Romagna
- Toscana
- Umbria
- Marche
- Lazio
- Abruzzi
- Molise
- Campania
- Puglia
- Basilicata
- Calabria
- Sicilia
- Sardegna

Australia

1. New South Wales
2. Victoria
3. Queensland
4. South Australia
5. Western Australia
6. Tasmania
- 7.
- 8.
- 9.
- 10.

Canada

- Newfoundland
- Prince Edward Island
- Nova Scotia
- New Brunswick
- Quebec
- Ontario
- Manitoba
- Saskatchewan
- Alberta
- British Columbia

US 9

- New England
- Middle Atlantic
- East North Central
- West North Central
- South Atlantic
- East South Central
- West South Central
- Mountain
- Pacific

The programmes for health and housing appear approximately invariant to personal income differentials, which is what one would expect from the population key elements present in the distribution formulae.

Their slight redistributive effect is offset by the education and transport programmes, which clearly favour the rich Länder (this is even more pronounced if Hamburg and Bremen are excluded). For education this is due to the higher proportion of universities and for transport the higher proportion of 'Autobahnen' built in the richer states.

5. Allocative Effects

The allocative effects of specific purpose grants are much more difficult to identify in a simple way. The fact that the funds are ear-marked by function tells very little about what resources the state and local governments would otherwise have allocated to the functions in question. It is even more difficult to demonstrate whether federal contributions in given specific purpose grant programmes corresponded or not to such theoretical concepts as spillover correction.

Very substantial research efforts have nonetheless been made in the United States to throw light on these questions - since specific purpose grants are essentially aimed at allocative objectives. A valuable review article by Gramlich draws on over sixty studies.(1) In synthesising this vast literature, Gramlich polarises intergovernmental grants into three types:

- unconditional grants
- open-ended conditional grants
- closed-ended conditional grants

('Unconditional' is here termed 'general purpose', 'conditional is here termed 'specific purpose'.)

In each case an attempt is made to assess the effects on total spending at the state/local government level, be it financed by state/local or federal funds.

As regards general purpose grants the broad finding (based on the experience of U.S. block grants and revenue sharing) is that there tends to be a substantial leakage of federal funds into local tax cuts (of perhaps a third or a half) with the remainder of the funds resulting in expenditure increases. These grants are interpreted as having essentially an income effect on the local governments, and the effect on public expenditure is therefore analysed in terms of income elasticities of demand.

(1) Edward M. Gramlich, Intergovernmental Grants : A Review of the Empirical Literature, paper prepared for the ISPE conference on fiscal federalism, Berlin, January 1976.

The open-ended specific purpose grants (which are few in number in the United States, but more used in Canada) are seen as achieving a relative price reduction for the function in question, and the effects on expenditure are accordingly interpreted in terms of the price elasticities of demand. The broad finding indicates price elasticities of demand for most services somewhat below unity, although the expenditure increase resulting from the grants tends to be substantially greater than for the general purpose grants.

The most complex category, and that most often used in practice, is the closed-end specific purpose grants. These can be interpreted in terms of a price reduction effect up to the size of the fixed allocation ; this interpretation can be consistent with the minimum-standard objectives to which specific purpose grant programmes are often addressed. Whether these price effects take place, however, will depend on two main factors.

- (a) whether the money is allocated for narrowly controlled types of projects, or more simply distributed on the basis of formulae for broad programme categories, and
- (b) whether the amount of the grant is a small or substantial part of the programme that the local government would have implemented in any case.

Where (under (b)) the federal funds are only small, Gramlich concludes that the "grant money will probably get lost in the shuffle anyway and it may as well simply avoid administrative hassles by converting the grants to .. (the unconditional) form". In these circumstances, the closed-end grants should be reinterpreted as having the income effects that are usually ascribed to general purpose grants.

In his review of econometric analyses of closed-end specific purpose grants, Gramlich notes that several studies have pointed to very high elasticities (of between 1 1/2 to 2 1/2) in the growth of expenditure with respect to the federal grants. While discounting some of these findings for reasons of upward bias (in econometric techniques), his overall conclusion is that the amount of spending induced by these grants tends to be close to unity (as large as the grant itself or a little more) and therefore somewhat more than for the open-ended specific purpose grants. This is attributed to the higher elasticities of demand for the services for which (in the U.S.) this type of grant is used, or the effort maintenance provisions in the conditions.

6. Concluding Remarks

Specific purpose grants in the four federations predominate in the fields of education, health, welfare, transport and regional policy. These are sectors very often lying to a large degree in the hands of lower levels of government, but in which there is a national interest for reasons of economic development, or to assure minimum standards in certain public services.

Many different types of specific purpose grants have been described, and there is a continuous spectrum of degrees in which policy control can be shared between the federal or lower levels of government. The distribution of power can therefore be tailored to constitutional and political objectives. However, the weaker the federal or central power, the more will be the tendency for the grant to have only income (redistributive) effects, to the detriment of allocative objectives ; unless the open-ended form of 'price-reducing' grants is used, but this tends to be unpopular with the grant-giving governments because of its uncertain financial implications.

It is not impossible to combine allocative and redistributive objectives in specific purpose grant programmes through using certain types of formulae, (examples have been given above of variable matching ratios, target population keys, weighting factors inversely related to personal income etc.). However, there are serious pitfalls (causing for example, perverse redistributive results) to be avoided if this approach is adopted. From the purely economic standpoint there is much to be said for a clear-cut separation of functions between allocative specific purpose grants and redistributive general purpose grants. Where this is politically not possible or appropriate, and combined objectives have to be pursued, great care has to be taken in the design of the grant formulae and rules to avoid unintended or incoherent results.

The Community - which operates programmes of specific purpose grants and loans in the fields of social, regional, structural and agricultural policy - could no doubt usefully apply the techniques of economic appraisal that have emerged in the experience of the federations here reviewed. Various further ideas for Community financial intervention, for example in unemployment benefits (as in the 'Marjolin' report), cross-frontier transport infrastructure (Channel Tunnel) and education facilities for migrant families, could also suitably be formulated in terms of the theory and practice of inter-governmental grants.

TABLE A 1
Federal Specific Purpose Grants per Head, by Region,
U.S.A. (51 regions) 1974

U.S. \$ per annum

	Total	Health	Education	Welfare	Economic opportunity	Transport (roads)	Others	PI	POP
Maine	229	10	18	76	24	26	76	4012	1050
New Hampshire	165	7	20	42	13	28	56	4577	810
Vermont	283	11	24	84	23	54	88	4123	470
Massachusetts	192	7	18	77	20	15	56	5111	5800
Rhode Island	233	4	20	77	24	34	74	4769	940
Connecticut	192	5	15	53	17	16	86	6074	3090
New York	248	5	22	122	21	13	65	5579	18110
New Jersey	152	4	13	53	19	16	48	5820	7330
Pennsylvania	172	6	17	56	13	18	62	4985	11830
Ohio	140	4	13	39	13	16	56	5116	10730
Indiana	109	3	12	27	11	18	37	4964	5330
Illinois	174	3	14	69	14	18	55	5877	11130
Michigan	170	4	14	68	16	19	49	5432	9100
Wisconsin	145	4	12	60	15	15	38	4914	4560
Minnesota	190	4	16	60	16	28	66	5086	3920
Iowa	175	5	15	81	12	17	45	5181	2850
Missouri	155	7	17	37	17	24	54	4628	4780
Kansas	145	6	22	36	14	24	43	5216	2270
Nebraska	147	6	19	41	13	26	42	5037	1540
South Dakota	267	17	31	43	21	57	96	4493	680
North Dakota	198	10	25	41	20	40	62	5339	640
Delaware	178	8	19	40	16	37	59	5952	570
Maryland	155	8	16	44	11	19	57	5569	4090
Virginia	164	4	25	41	11	31	53	4998	4910
West Virginia	290	9	17	41	23	101	99	3902	1790
North Carolina	157	6	25	40	12	16	58	4355	5360
South Carolina	180	6	23	32	17	18	86	4069	2780
Georgia	210	6	20	70	13	21	80	4465	4880
Florida	264	6	17	26	95	22	100	4811	8090
District of Columbia	537	31	104	130	81	22	169	6246	720
Kentucky	218	9	24	50	18	24	93	4111	3360
Tennessee	176	7	25	40	14	19	71	4213	4130
Alabama	204	7	26	51	15	27	78	3877	3580
Mississippi	257	8	50	60	20	19	100	3417	2320
Louisiana	215	5	22	57	17	32	83	4075	3760
Arkansas	203	8	26	55	19	16	78	3906	2060
Oklahoma	200	6	27	66	18	18	65	4394	2710
Texas	157	5	18	44	13	19	58	4775	12050
Montana	249	11	30	39	26	74	69	4704	730
Idaho	197	5	23	39	23	55	53	4781	800
Wyoming	248	13	27	24	34	96	55	5389	360
Colorado	181	11	21	53	15	25	56	5200	2490
Utah	203	13	24	44	18	54	49	4250	1170
Nevada	256	5	18	28	31	61	112	5810	570
Arizona	185	9	28	27	25	38	59	4723	2150
New Mexico	258	11	27	50	29	42	100	3898	1120
California	195	5	17	89	21	16	47	5571	20910
Oregon	182	7	16	47	24	28	60	4947	2270
Washington	200	10	18	58	24	31	59	5161	3480
Alaska	691	17	145	46	58	248	176	6764	340
Hawaii	269	12	44	63	18	52	80	5670	840
United States	184	6	19	61	17	22	60	5053	211380
United States (absolute)	38894	1268	4016	12894	3593	4650	12683	1068103	
Range of index numbers	58/154	57/303	63/159	39/200	54/480	60/475	61/183	68/120	
Grants as % of PI	3.7	0.1	0.4	1.20	0.4	0.4	1.2		
Elasticity	- 0.68	- 1.85	- 1.69	0.51	- 0.14	- 2.01	- 1.17		-48 States
Statistical significance R ²	0.161	0.182	0.372	0.039	0.001	0.066	0.246		
Redistributive power	6.2	0.3	1.0	0.6	0.4	1.3	2.6		
Change in Gini-coefficient	3.8	0.3	0.8	- 1.3	0.6	1.1	2.5		
Range of index numbers	59/375	55/538	61/756	39/214	64/562	59/1145	62/293	68/134	
Grants as % of PI	3.6	0.1	0.4	1.2	0.3	0.4	1.2		
Elasticity	0.789	0.336	2.027	0.608	1.194	2.024	0.061		
Statistical significance R ²	0.046	0.003	0.060	0.054	0.031	0.026	0.000		-51 states
Redistributive power	0.77	0.08	- 0.39	0.47	- 0.06	- 0.44	1.12		
Change in Gini-coefficient	0.79	- 0.14	- 0.33	- 0.16	- 0.25	0.74	0.97		

TABLE A 2
Federal Specific Purpose Grants per Head, by Region,
Germany (BRD) 1973

DM per annum

	<u>Total</u>	<u>Health</u>	<u>Education</u>	<u>Housing</u>	<u>Regional & structural</u>	<u>Transport (roads)</u>	<u>PI</u>	<u>POP</u>
Schleswig-Holstein	178	15	19	45	84	16	10053	2580
Niedersachsen	183	16	39	44	57	28	9951	7259
Nordrhein-Westfalen	153	15	50	39	13	37	11005	17246
Hessen	166	16	42	40	23	44	11253	5584
Rheinland-Pfalz	141	17	27	41	35	21	10183	3701
Baden-Württemberg	159	15	43	47	25	29	11750	9239
Bayern	170	16	39	45	41	30	10296	10853
Saarland	140	21	29	32	41	17	9310	1112
Hamburg	173	19	53	41	7	54	14966	1752
Bremen	152	16	56	45	11	23	12627	729
Berlin	164	23	48	41	7	45	11384	2048
BRD	163	16	42	42	30	32	10914	62101
BRD (absolute)	10123	994	2608	2608	1863	1987	677770	
Range of index numbers	86/113	93/144	46/126	76/111	23/279	49/138	85/137	
Grants as % of PI	1.5	0.2	0.4	0.4	0.3	0.3		
Elasticity	0.10	0.12	1.30	0.14	-3.38	1.68		
Statistical significance R ²	0.025	0.023	0.477	0.044	0.422	0.457		
Redistributive power	1.4	0.1	-0.1	0.3	1.2	-0.2		
Change in Gini-coefficient	2.0	0.2	-0.2	0.4	1.9	-0.3		

Federal Specific Purpose Grants per Head, by Region,
Australia 1973/74

Aus. \$ per annum

	<u>Total</u>	<u>Health</u>	<u>Education</u>	<u>Welfare</u>	<u>Transport (roads)</u>	<u>Other</u>	<u>PI</u>	<u>POP</u>
New South Wales	80	3	44	2	21	10	2673	4916
Victoria	85	3	52	2	18	10	2622	3617
Queensland	107	4	41	3	34	25	2368	1945
South Australia	112	6	57	3	27	20	2342	1309
Western Australia	131	8	57	4	48	14	2350	1083
Tasmania	96	6	43	3	35	9	2228	398
Australia	94	4	48	2	26	14	2542	13268
Australia (absolute)	1247	53	637	226	345	186	33727	
Range of index numbers	85/139	75/200	85/119	80/200	69/185	64/179	87/105	
Grants as % of PI	4.2	0.2	2.1	0.1	1.2	0.6		
Elasticity	-1.68	-4.89	-0.03	-5.45	-3.75	-2.21		
Statistical significance R ²	0.421	0.533	0.000	0.615	0.478	0.162		
Redistributive power	11.2	1.0	2.2	0.6	5.5	2.0		
Change in Gini-coefficient	14.2	1.0	3.3	0.5	5.3	3.8		

TABLE A 3
Federal Specific Purpose Grants per Head, per Region,
Canada 1973/74

Can. \$ per annum

	Total	Health	Education	Welfare	Regional & other	PI	POP
Newfoundland	209	113	22	48	26	2039	541
Prince Edward Island	279	91	18	45	124	2305	115
New Scotia	192	97	44	35	16	2775	805
New Brunswick	210	98	25	49	38	2517	652
Quebec	233	103	54	53	23	3315	6081
Ontario	185	99	51	27	8	4376	7939
Manitoba	204	107	38	40	19	3590	998
Saskatchewan	183	98	30	40	15	3312	908
Alberta	203	104	57	33	9	3868	1683
British Columbia	166	91	34	36	5	3998	2373
Canada	200	100	47	38	15	3748	22095
Canada (absolute)	4419	2209	1038	840	331	82812	
Range of index numbers	83/139	91/113	38/121	71/139	33/827	54/117	
Grants as % of PI	5.3	2.7	1.3	1.0	0.4		
Elasticity	- 0.36	- 0.04	1.16	- 0.63	- 6.52		
Statistical significance R ²	0.327	0.017	0.658	0.519	0.442		
Redistributive power	7.2	2.8	- 0.2	1.7	3.0		
Change in Gini-coefficient	7.9	2.9	0.7	2.5	1.7		

Federal Specific Purpose Grants per Head, by Region,

U.S.A. (9 regions) 1974

U.S. \$ per annum

	Total	Health	Education	Welfare	Economic opportunity	Transport (roads)	Other	PI	POP
New England	201	7	17	68	19	20	70	5161	12150
Middle Atlantic	204	6	19	88	18	15	59	5437	37270
East North Central	153	4	13	55	14	18	50	5352	40860
West North Central	161	6	18	42	15	26	54	4969	16690
South Atlantic	170	6	21	41	13	25	63	4748	33190
East South Central	203	8	29	48	16	22	82	3959	13390
West South Central	173	5	20	49	14	20	64	4510	20590
Mountain	194	10	23	39	21	43	59	4791	9390
Pacific	197	6	19	78	21	22	51	5487	27850
U.S.A.	184	6	19	61	17	22	60	5053	211380
U.S.A. (absolute)	38894	1268	4016	12894	3593	4650	12683	1068103	
Range of index numbers	83/111	67/163	69/150	64/146	79/127	69/198	83/136	78/109	
Grants as % of PI	3.6	0.1	0.4	1.2	0.3	0.4	1.2		
Elasticity	- 0.069	- 1.39	- 1.881	2.037	0.636	- 1.125	- 1.300		
Statistical significance R ²	0.004	0.242	0.695	0.466	0.120	0.089	0.602		
Redistributive power	3.9	0.3	1.1	- 1.2	0.1	0.9	2.7		
Change in Gini-coefficient	2.2	0.2	0.9	- 2.4	- 0.1	1.0	2.6		

ANNEX

Sources of Tables 2 to 6

1. United States

- (a) Specific purpose grants, by function, from Sophie R. Dales, Federal grants to state and local governments, fiscal year 1974, Social Security Bulletin, September 1975, Tables 2 and 4. The composition of grouped grants can be found in Sophie R. Dales, Federal grants to state and local governments, fiscal year 1973; Social Security Bulletin, October 1974, p. 34-36.
- (b) Personal income p.c. from Survey of current business, U.S. Department of Commerce, August 1975, Table 2

2. Australia

- (a) Specific purpose grants from Payments to or for the states and local government authorities 1974-75, 1974-75 Budget paper No 7, Canberra 1974, Tables 87 and 95.
- (b) Personal income p.c. from Grants Commission, Forty-first Report 1974 on Special assistance for states, Canberra 1974, Table 12.

3. Canada

- (a) Specific purpose grants from Federal-provincial fiscal relations in Canada, An overview, Department of Finance, Ottawa, September 8, 1975, Table I.
- (b) Personal income p.c. from Economic Review, April 1975, page 115.

4. Federal Republic of Germany

- (a) Total Federal transfers from Finanzbericht 1976, Ministry of Finance, Bonn, October 1975, Table 5, p. 166-167.
- (b) Constitutional classification of specific purpose grants from an unpublished working paper for the Commission on Constitutional Reform, document No 137, February 27, 1975
- (c) Own functional classification

- (d) GDP p.c. from Statistisches Jahrbuch 1974, p. 513
- (e) Personal income p.c. derived from Volkswirtschaftliche Gesamtrechnungen der Länder, Heft 5 : Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern, Standardtabellen 1960 bis 1970, Table 5 a (1970 basis) and National Accounts Aggregates 1960 - 1974, ESA, 1-1975 (used for extrapolating 1970 Länder data to 1973).

Chapter 8

REGIONALISATION OF FEDERAL OR CENTRAL GOVERNMENT
EXPENDITURE IN SEVEN INTEGRATED ECONOMIES

(working paper)

1. Methodology of Regional Distribution

This chapter sets out estimates of the inter-regional redistributive effect of federal or central government expenditure. For the four federations, Germany, Australia, Canada and the United States, chapters 6 and 7 above have already analysed general and specific purpose grants in detail ; these grants are therefore not systematically covered in the present chapter. The data presented here are based on various studies and statistical sources which have been published elsewhere.(1) As in the case of taxes treated in chapter 9, the regional distribution of expenditure can be approached in two ways, by considering either :

- the regional disbursement of expenditure, or
- the regional benefit which residents of a region derive from the expenditure.

The benefit approach is the more appropriate for the evaluation of the redistributive effect of public expenditure. For salary and wage payments and social security and other transfers this approach is followed by allocating them as far as possible to the region of residence rather than, for example, the region of employment.

Attempts to regionalise the benefits from expenditure on goods

(1) Quite detailed studies on the regionalisation of expenditures are available for France : BETURE (Prud'homme, Nicol et Rochefort), Répartition spatiale des fonds budgétaires, Commissariat du Plan 1973 ; Italy : cp. Chapter 4 ; the United Kingdom : V.H. Woodward, Regional Social Accounts for the United Kingdom. NIESR, Regional Papers I, Cambridge 1970 ; and the United States : I.M. Labovitz, Federal Revenue and Expenditure Estimates for States and Regions : Averages for the Fiscal Year 1969-71 (Congressional Research Service : in preparation); House of Representatives, Federal Revenue and Expenditure Estimates for States and Regions, Fiscal Years 1965-67. Washington 1968 ; and National Journal, Federal Spending : The North's loss is the sun belt's gain. Special Report 61261/76. For Germany there exists an official statistical source for the regionalisation of total current and social security expenditures : Volkswirtschaftliche Gesamtrechnungen der Länder, Heft 5 : Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern, Standardtabellen 1960-1970. For Australia and Canada data sources only exist for the regionalisation of social security expenditures, Australian Bureau of Statistics, Authorities of Australian Government, No 12 (1973-74) and unpublished material provided by the Canadian Federal Statistics Office.

and services encounters two major problems. (1) First, there is the familiar characteristic of 'pure' public goods. (e.g. defence and general administration) that their benefit accrues 'indivisibly' to the whole population. Secondly, even for expenditure which is more readily localisable such as regional aids or education, their welfare impact may be different and more diffuse than the place of disbursement.

In the studies for France, Italy, the United Kingdom and the United States different approaches are used in the face of these problems.(2) For the regional breakdown of expenditure in France 15 different alternatives are offered by dividing expenditures into rather homogenous groups and using different keys for groups with uncertain regional impact, some of them being closer to the disbursement, others to the benefit concept.(3) Since no single alternative can be identified as representing unambiguously the benefit concept, the average of the 15 alternatives is used in this paper.

A detailed description of the allocation procedure for Italy can be found in Chapter 4. (4) In general, expenditure on goods and services is allocated to regions where the disbursement are made.

In the United Kingdom the public goods problem is dealt with by excluding from the analysis central government expenditure on administration, defence and capital formation related to trading services (5) The remaining 'beneficial' expenditure is allocated to the region where the money has been spent.

In the study by Labovitz for the United States "estimates of expenditure impacts generally represent allocations of Federal expenditure to States where services are rendered or goods are

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- (1) These problems also occur in studies of redistribution of money between income groups, cp. A. Peacock, The Treatment of Government Expenditure in Studies of Income Distribution, in Public Finance and Stabilisation Policy. Essays in House of R.A. Musgrave, ed. by W.L. Smith and J.H. Culbertson, Amsterdam 1974.
 - (2) For Germany the official statistical source relies partly on original data, and partly on distribution keys. It is not clear how far the benefit approach is followed in the distribution of expenditures on goods and services. For Australia and Canada data exist only on the regional allocation of social security expenditures.
 - (3) Cp. Chapter 2 on France,
 - (4) Cp. Chapter 4 on Italy,
 - (5) Implicitly it is thus assumed that this expenditure has no redistributive effect. Since its allocation according to the population key resulting in equal amounts per capita for all regions is a sensible alternative with a considerable redistributive effect, the exclusion of these expenditures might be thought of as understating the redistributive effect of total public expenditures in the United Kingdom.

produced" (1); in the National Journal study expenditures on goods and services are allocated to regions where they are spent.

In both studies expenditures on defence and general administration are included in regionally allocated amounts. For expenditure on general administration the redistributive power results will not be severely distorted since Washington D.C., Alaska and Hawaii are, as highly exceptional cases, excluded from the analysis. Expenditure on military contracts, on the other hand, has been allocated to the region where it is spent. As will be seen, this is a decisive influence on the overall redistributive effect of federal expenditure.

The statistical material for the regionalisation of central or federal expenditures is presented in unified form in Tables A1-A4 in the Annex.

2. Redistributive Effects

The redistributive effects of federal or central expenditure are set out in :

- Table 1 which gives (i) in per capita index form the minimum and maximum values for expenditures allocated (range of index numbers), (ii) expenditure as a percentage of personal income, (iii) the elasticity of expenditure with respect to personal income, (iv) its statistical significance, (v) the redistributive power, and (vi) the change in Gini-coefficients due to expenditure.
- Charts 1 and 2, which plot for each country total allocated central or direct federal expenditure in per capita index form against personal income in per capita index form.

The overall redistributive power varies in the European countries between about 20 % and 50 %, (2) with an average of about 35 %. For Australia and Canada social security expenditures show a redistributive effect of respectively about 10 % and 5 %. (3)

(1) House of Representatives, op. cit. p. 5.

(2) For methodology of redistributive power see chapter 5.

(3) If other direct expenditures in Australia and Canada were actually distributed on a per capita basis, as they turn out to be approximately distributed in the other countries, they would have a redistributive power equal to their share in personal income, which for 1973/74 in Australia and 1973 in Canada respectively are about 13 % and 21 %. In this case total direct expenditure in both countries would have a redistributive power of approximately 25 %.

Table 1 : Redistributive Power of Federal or Central Expenditures

		i	ii	iii	iv	v	vi
		Range of index numbers	Expenditure volume as % of personal income	Elasticity of expenditure with respect to personal income (1)	Statistical significance of elasticity (2)	Redistri- butive power (3)	% change in Gini coefficient (4)
Germany 10 Länder 1973 Berlin excluded	Direct consumption	93/125	10.2	- 0.03	0.002	10.5	14.2
	Social security	81/140	13.2	0.49	0.152	6.8	11.8
	Total current expenditures	88/126	23.4	0.26	0.113	17.3	25.4
France 1970 21 regions	Current and capital expenditures	83/130	28.1	0.11	0.019	25.2	23.0
	Social security	63/120	16.3	0.54	0.263	7.4	7.0
	Total	90/112	44.5	0.27	0.293	32.6	31.7
France 1970 8 regions	Current and capital expenditures	89/106	28.1	0.10	0.052	25.3	26.2
	Social security	79/118	16.3	0.42	0.267	9.4	8.1
	Total	93/109	44.5	0.22	0.437	34.7	33.3
Italy 1973 20 regions	Current	74/119	27.5	0.34	0.243	18.1	18.0
	Wages and salaries	23/186	7.9	- 0.28	0.057	10.0	10.4
	Goods and services	16/283	2.2	1.29	0.231	- 0.6	0.0
	Transfers	87/113	12.9	0.25	0.662	9.6	9.0
	Capital	67/227	9.8	- 1.10	0.228	20.6	19.2
	Social security	78/122	19.1	0.59	0.609	7.8	6.5
United Kingdom 1964 10 regions	Total	82/123	51.9	0.07	0.026	48.4	45.3
	Beneficial current expenditures	90/107	12.2	0.13	0.135	10.5	10.2
	Beneficial capital expenditures	86/163	3.1	- 1.00	0.479	6.1	4.7
	Agricultural sub- sidies	38/420	1.0	- 4.90	0.519	6.0	3.5
	Other grants	89/117	11.0	- 0.21	0.169	13.3	14.4
Total	91/114	27.2	- 0.32	0.423	36.0	32.9	
Australia 1973/74 6 provinces	Social security	91/115	7.5	- 0.59	0.345	11.8	9.0
Canada 1973 10 provinces	Social security	93/138	4.8	- 0.39	0.319	6.7	5.1
	Pay to personnel	30/348	5.4	- 0.23	0.003	6.6	6.3
United States 1969/71 48 states D.C., Alaska, Hawaii excluded	Transfers	74/127	8.0	0.19	0.060	6.4	4.5
	Direct expenditure excluding military contracts	73/186	14.9	0.18	0.017	12.1	9.9
	Military contracts	14/311	4.8	1.75	0.257	- 3.6	- 2.0
	Total direct expenditures	66/169	19.7	0.57	0.152	8.5	5.7
	Grants	61/217	3.2	- 1.12	0.283	6.7	3.8
	Total expenditures	68/157	22.9	0.33	0.072	15.2	8.5
United States 1969/71 9 census regions	Pay to personnel	49/187	5.6	- 1.18	0.115	12.2	12.9
	Transfers	86/111	8.0	0.58	0.645	3.4	2.4
	Direct expenditures excluding military contracts	77/123	15.1	- 0.01	0.000	15.2	14.7
	Military contracts	60/164	4.9	1.23	0.178	- 1.1	0.2
	Total direct expenditures	73/132	20.0	0.30	0.044	14.1	12.3
	Grants	73/132	3.2	- 0.65	0.202	5.3	3.6
Total expenditures	73/131	23.3	0.17	0.016	19.4	15.2	
United States 1975 48 states D.C., Alaska, Hawaii excluded	Direct expenditures excluding defence contracts	60/161	17.5	0.07	0.002	18.8	14.0
	Defence contracts	23/392	3.8	1.22	0.061	- 0.8	- 3.6
	Total direct expenditures	67/153	21.3	0.15	0.011	18.0	8.3
	Grants	65/156	4.7	- 0.58	0.150	7.4	3.6
	Total expenditures	71/145	26.0	0.02	0.000	25.4	11.5
United States 1975 9 census regions	Direct expenditures excluding defence contracts	78/134	18.4	- 0.38	0.052	25.2	25.4
	Defence contracts	48/190	3.8	- 1.48	0.101	- 1.5	- 3.8
	Total direct expenditures	73/128	22.2	- 0.07	0.002	23.7	19.9
	Grants	86/115	4.7	- 0.04	0.002	4.9	2.9
	Total expenditures	75/124	26.9	- 0.07	0.002	28.6	20.7

Footnotes to Table 1

(1) Examples of elasticity coefficients :

- 2.0 - per capita expenditure differentials twice as big as per capita personal income differentials (negative redistributive effect - regional inequalities are increased by expenditure programme)
 - 1.0 - per capita expenditure proportional to personal income per capita (no redistributive effect)
 - 0.0 - per capita expenditure equal for all regions (redistributive effect proportional to volume of programme)
 - 1.0 - per capita expenditure inversely proportional to personal income per capita (strong redistributive effect)
- (2) An elasticity coefficient of almost zero is statistically insignificant by the usual tests; however, for the purposes of the present analysis a distribution close to equal amounts per capita has clearly meaningful redistributive implications (cp. also methodology of redistributive power developed in Chapter 5).
- (3) Redistributive power of the expenditure measured by the reduction in personal income differentials between regions due to the expenditure programme under the assumption of a regionally neutral financing of these payments (i.e. proportional to income). It is equal to the deviation from neutrality - measured by the difference between one (neutral case) and the elasticity - multiplied by the equalisation volume as a percentage of personal income.
- (4) A modified income is calculated by adding to personal income per capita expenditure per capita and subtracting amounts representing the regional breakdown of the neutrally financed national total amount of expenditure. The Gini-coefficient of this modified income is compared with the Gini-coefficient of personal income.

For the United States direct expenditure shows a redistributive power of about 10 % for the average 1969-71 and 20 % for 1975 (1). Inter-country differences are to a large degree due to different shares of expenditure as percentages of personal income, whereas the elasticities vary much less.

Indeed, the most striking feature of the redistributive characteristics of total allocated expenditures is the similarity of the elasticity of expenditure with respect to personal income in such constitutionally different countries as Germany, France, Italy and the United States. For these countries the elasticity varies around the value of 0.20, meaning that on average expenditure per capita income will benefit from federal or central spending only to the extent of about 4 % of average.

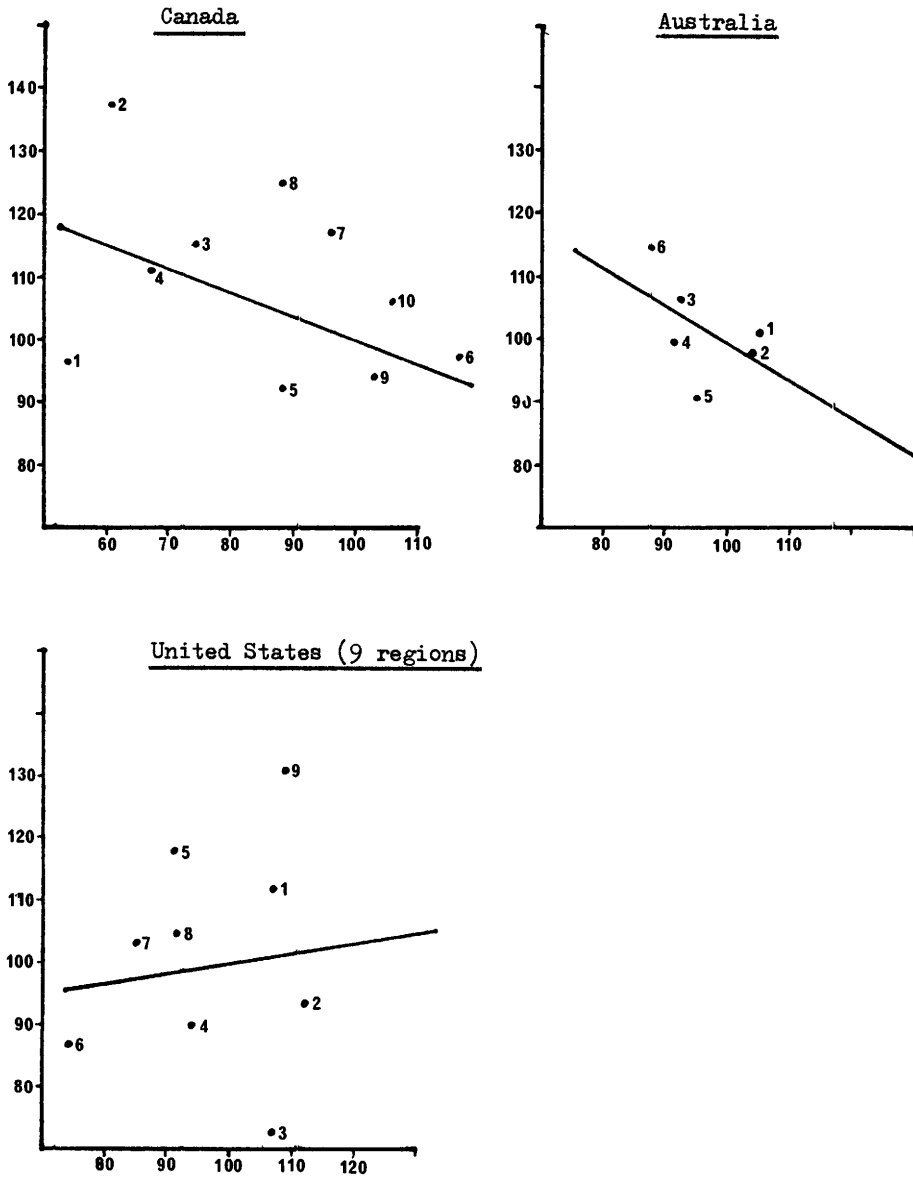
The plausibility of these overall results is reinforced by the similarity of the results obtained for the main components : in Germany, France and Italy social security payments have an elasticity close to 0.5, whereas current plus capital expenditure per capita (2) are nearly equally distributed, i.e. the elasticity is close to zero.(3)

Social security expenditure in Australia and Canada shows a different pattern compared to the European countries, being higher per capita in the poorer regions, thus achieving a sizeable redistributive power with small volumes.

In the United Kingdom beneficial current expenditure per capita is on average nearly equal for all regions (the elasticity being 0.13) The other categories show a negative elasticity with high values for agricultural subsidies (- 4.9) and beneficial capital expenditures (-1.0). Total beneficial expenditure has thus also a negative elasticity with respect to personal income. (4) With a volume of beneficial expenditure of 27 % of personal income, this gives a redistributive power of about 35 %.

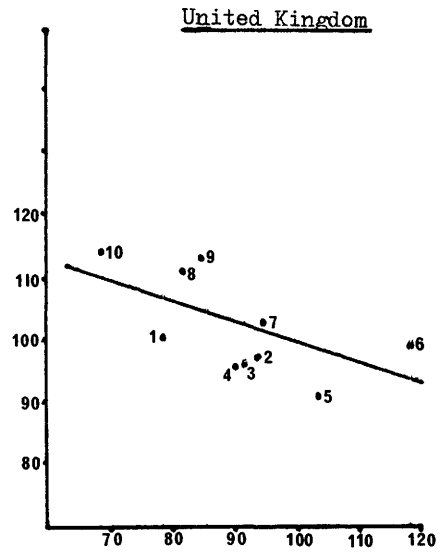
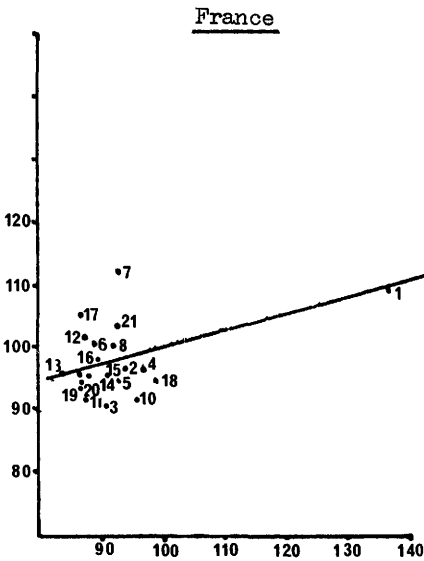
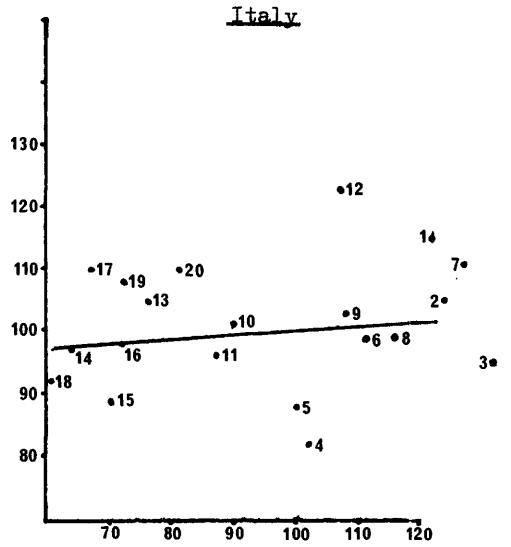
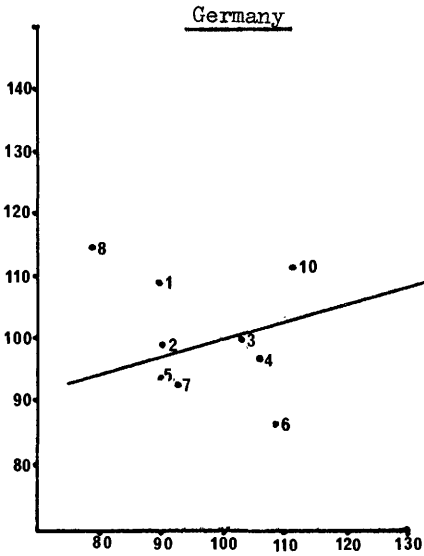
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- (1) For the 48 states version : direct expenditures excluding defence contracts (cp. Table 1)
 - (2) Direct consumption in the case of Germany
 - (3) The United States case will be treated separately in greater detail below.
 - (4) The difference of these results from those of other countries might partly be due to the exclusion of non-beneficial expenditures.

Chart 1



Horizontal axis - personal income per capita
Vertical axis - total expenditure per capita

Chart 2



Horizontal axis—personal income per capita
Vertical axis—total expenditure per capita

Regional key to Charts

Germany

1. Schleswig-Holstein
2. Niedersachsen
3. Nordrhein-Westfalen
4. Hessen
5. Rheinland-Pfalz
6. Baden-Württemberg
7. Bayern
8. Saarland
9. Hamburg
10. Bremen

United Kingdom

- North
- Yorkshire and Humberside
- North West
- East Midlands
- West Midlands
- South East
- South West
- Wales
- Scotland
- N. Ireland

France

1. Région Parisienne
2. Champagne
3. Picardie
4. Haute-Normandie
5. Centre
6. Basse-Normandie
7. Bourgogne
8. Nord
9. Lorraine
10. Alsace
11. France-Comté
12. Loire
13. Bretagne
14. Poitou-Charentes
15. Aquitaine
16. Midi-Pyrénées
17. Limousin
18. Rhône Alpes
19. Auvergne
20. Languedoc
21. Provence-Côte d'Azur-Corse

Italy

- Valle d'Aosta
- Piemonte
- Lombardia
- Trentino Alto Adige
- Veneto
- Friuli Venezia Giulia
- Liguria
- Emilia Romagna
- Toscana
- Umbria
- Marche
- Lazio
- Abruzzi
- Molise
- Campania
- Puglia
- Basilicata
- Calabria
- Sicilia
- Sardegna

Australia

1. New South Wales
2. Victoria
3. Queensland
4. South Australia
5. Western Australia
6. Tasmania
- 7.
- 8.
- 9.

Canada

- Newfoundland
- Prince Edward Island
- Nova Scotia
- New Brunswick
- Quebec
- Ontario
- Manitoba
- Saskatchewan
- Alberta
- British Columbia

US 9

- New England
- Middle Atlantic
- East North Central
- West North Central
- South Atlantic
- East South Central
- West South Central
- Mountain
- Pacific

For the United States four sets of results exist depending on the year (average 1969-71 and 1975) and the regional breakdown (48 states (1) or 9 census regions). Grants are included as a crosscheck on the results in Chapters 6 and 7 on general and specific purpose grants. The figures obtained there refer to the years 1972 and 1974. The results are summarised below :

Redistributive effect of total federal grants in
the United States

Year	1972-74		Average 1969-71		1975	
	(1)	(2)	(1)	(2)	(1)	(2)
48 states	7.2	4.4	6.7	3.8	7.4	3.6
9 census regions	4.6	2.7	5.3	3.6	4.9	2.9

(1) Redistributive power (cp. footnote 3, Table 1)

(2) Percentage change in Gini Coefficient (cp. footnote 4, Table 1)

Source : Table 1; Chapter 6, Table 10 ; Chapter 7, Table 7

The summary suggests that the introduction of 'revenue-sharing' in 1972 seems to have had no significant impact on the overall redistributive effect of total federal grants, though the grant volume increased from 3.0 % in 1969-71 to 4.2 % in 1975.

In 1969-71 and 1975 direct expenditure in the United States had a redistributive power of approximately 10 % and 20 % respectively (see the different variants in Table 1). Defence contracts - the only common subcomponent for both years - exhibit an indeterminate redistributive pattern, with a redistributive effect varying between - 3.8 % and + 0.2 % (including both measures). Analogous to results for Germany, France and Italy pay to personnel has a substantial redistributive effect, while this is much less so the case for transfers.

(1) Washington, D.C., Alaska and Hawaii are excluded because the exceptionally high federal spending in these rich states would distort the redistributive power measure (cp. the analogous discussion for specific purpose grants in Chapter 7)

The low statistical significance of most of the elasticity results indicates that in very few cases does regional income turn out to be a major determinant of regional public spending (1). Nevertheless, the actual outcome of federal or central spending does on average have a definite redistributive effect, though the variance of this effect between regions is much greater than in the case of most taxes and general purpose grants.

The preceding discussion refers to the average redistributive effect and as such conceals exceptions in that some regions are treated favourably and others unfavourably.(2) In the case of favourable treatment, the relative (3) public finance outflow is modest relative to the average in rich regions and the relative public finance inflow greater than average in poor regions ; in the case of unfavourable treatment, the outflow is substantial and the inflow modest relative to the average.

In Germany the rich 'Stadtstaaten' Hamburg and Bremen receive preferential treatment since the 'Bund' expenditure is almost proportional to their personal per capita income. Relative to the average pattern rich Baden-Württemberg is clearly disfavoured mainly due to low social security receipts because of the low percentage of people over 65 in its total population. The poor Länder Saar and Schleswig-Holstein are in an outstandingly positive position For the Saar this is mainly due to social security receipts because of retired coal-miners, whereas in Schleswig-Holstein much direct consumption at the federal level is at least partly due to its coastal position implying expenditure for harbours, coastal protection, navy, etc.

In France two regions - Bourgogne and Limousin - seem to be treated extremely favourably : Limousin and Bourgogne received respectively the highest current and capital expenditure per capita (at 1.3 times the national average) and social security expenditure benefits (at 1.2 times the national average) ; the case of Bourgogne can partly be explained by a relatively high percentage of people over 65 (16.8 % compared to the 13.3 % national average). Three regions, with a per capita expenditure index of 91, are significantly disfavoured : Picardie since it has the lowest current and capital expenditure per capita (0.8 of the national average) and Alsace and Franche Compté scoring low on both types of expenditure.

(1) cp. footnote 2, Table 1.

(2) The exceptions can be identified by using Chart 1, and part of the discussion is based on Tables A1-A4 in the Annex.

(3) The concept of relative outflow or inflow is appropriate because the national budget as a whole can be in overall deficit or surplus.

In Italy the most striking examples of favourably treated rich regions are Valle d'Aosta, Liguria, Lazio and Toscana. For Valle d'Aosta this can be explained by its mountainous characteristics and the fact that it is thinly populated. In the case of Liguria the relatively favourable position can be explained by the 'overstatement' of primary income which is explicable by two main factors - tourism and probably revenue from oil excises (via Genova) Lazio owes its apparently preferential position to the simple fact that it contains the seat of central government (Rome) and thus benefits from high expenditure on administration. The reasons underlying Toscana's favourable position are partly historical and partly demographic. Before the unification of Italy this region had numerous small states and a large number of public employees and this has remained the case ever since. The percentage of people over 65 is 13.9 % compared to 10.9 % national average.

Of the poor regions Sardegna is clearly treated favourably, whereas Veneto and Trentino benefit from public expenditures less than the average. For Trentino no obvious explanation suggests itself. In Sardegna the high per capita expenditures are due to the size of the territory and a low population density. Veneto has a relatively high population density and thus receives proportionally smaller amounts of public expenditure per capita. In addition, a relatively low percentage of people enjoying pensions reduces the benefits from social security expenditures.

In the United Kingdom the South, Scotland and Wales are in a favourable position compared to the rest of Great Britain. This is especially pronounced when comparing Scotland and the North. In the South this is due to high expenditures in the capital (London). Scotland and Wales are regions with large sparsely populated areas and a strong movement towards autonomy.

TABLE A 1

Federal Expenditure per Head, by Region,

Germany (BRD) 1970					DM per annum	
	Total	Public consumption	Social security	PI	POP	
Schleswig-Holstein	2241	1114	1127	7810	2924	
Niedersachsen	2050	961	1089	7847	7082	
Nordrhein-Westfalen	2068	835	1233	8951	16914	
Hessen	2003	888	1115	9228	5382	
Rheinland-Pfalz	1952	939	1013	7887	3645	
Baden-Württemberg	1802	869	933	9504	8895	
Bayern	1920	900	1020	8111	10479	
Saarland	2380	880	1500	6919	1120	
Hamburg	2582	963	1619	11845	1794	
Bremen	2309	948	1361	9653	723	
Berlin	2897	846	2051	8809	2122	
BRD	2047	894	1153	8725	60650	
BRD (absolute)	124150	54221	69929	529171		
Range of Index numbers	88/126	93/125	81/140	79/136		
Expenditure as % of PI	23.4	10.2	13.2			
Elasticity	0.26	- 0.03	0.49			
Statistical significance R ²	0.113	0.002	0.152			
Redistributive power	17.3	10.5	6.8			
Change in Gini-coefficient	25.4	14.2	11.8			

Central Expenditure per Head, by Region,

France (8 regions) 1970					FF per annum	
	Total	Current & capital	Social security	PI	POP	
Région Parisienne	5917	3629	2288	16731	9638	
Bassin Parisien	5055	3170	1886	11312	9360	
Nord	5388	3050	2338	11164	3864	
Est	5706	3510	2197	11098	4803	
Ouest	5186	3483	1703	10505	6636	
Sud-Ouest	5380	3799	1581	10806	5440	
Centre Est	5053	3173	1880	11751	5921	
Méditerranée	5397	3499	1897	11102	5368	
France	5411	3422	1989	12174	51030	
France (absolute)	276123	174625	101498	621239		
Range of index numbers	93/109	89/106	79/118	86/137		
Expenditure as % of PI	44.5	28.1	16.3			
Elasticity	0.22	0.10	0.42			
Statistical significance R ²	0.437	0.052	0.267			
Redistributive power	34.7	25.3	9.4			
Change in Gini-coefficient	33.3	26.2	8.1			

Central Expenditure per Head, by Region,

United Kingdom 1964						£ per annum	
	Total Expenditure	Current	Capital	Agricultural subsidies	Other	PI	POP
North	120	51	13	5	51	350	3270
Yorkshire and Humberside	117	52	12	4	50	418	4713
North West	116	53	12	2	50	409	6635
East Midlands	116	49	16	6	46	405	3203
West Midlands	110	50	13	4	43	462	4877
South East	119	57	13	3	47	527	18295
South West	124	54	14	8	49	419	3555
Wales	134	58	16	6	54	362	2671
Scotland	137	56	16	7	57	377	5208
N.Ireland	138	50	22	19	47	306	1458
U.K.	121	54	14	5	49	443	54033
U.K. (absolute)	6538	2918	756	270	2648	23937	
Range of index numbers	91/114	90/107	86/163	38/420	89/117	69/119	
Expenditure as % of PI	27.2	12.2	3.1	1.0	11.0		
Elasticity	- 0.32	0.13	- 1.0	- 4.9	- 0.21		
Statistical significance R ²	0.423	0.135	0.479	0.519	0.169		
Redistributive power	36.0	10.5	6.1	6.0	13.3		
Change in Gini-coefficient	32.9	10.2	4.7	3.5	14.4		

TABLE A 2
Central Expenditure per Head, per Region,
France (21 regions) 1970

FF per annum

	<u>Total</u> <u>Expenditure</u>	<u>Current &</u> <u>capital</u>	<u>Social</u> <u>security</u>	<u>PI</u>	<u>POP</u>
Région Parisienne	5917	3629	2288	16731	9638
Champagne	5174	3089	2086	11482	1315
Picardie	4853	2868	1985	11099	1623
Haute-Normandie	5196	3216	1980	11869	1547
Centre	5083	3326	1757	11275	2056
Basse-Normandie	5388	3050	2338	10788	1285
Bourgogne	6063	3678	2385	11316	1534
Nord	5402	3248	2154	11164	3864
Lorraine	5332	3500	1831	10934	2323
Alsace	4939	3336	1603	11729	1454
Franche-Comté	4933	3209	1724	10574	1026
Loire	5492	3851	1641	10613	2637
Bretagne	5155	3365	1790	10286	2503
Poitou-Charentes	5119	3285	1835	10680	1496
Aquitaine	5121	3352	1769	11072	2492
Midi-Pyrénées	5160	3356	1804	10590	2208
Limousin	5702	4444	1259	10558	740
Rhône Alpes	5087	3163	1924	12073	4592
Auvergne	5033	3140	1893	10640	1329
Languedoc	5066	3166	1900	10619	1742
Provence-Côte d'Azur-Corse	5556	3659	1896	11335	3626
France	5411	3422	1989	12174	51030
France (absolute)	276123	174625	101498	62/239	
Range of index numbers	90/112	83/130	63/120	84/137	
Expenditure as % of PI	44.5	28.1	16.3		
Elasticity	0.27	0.11	0.54		
Statistical significance R ²	0.293	0.019	0.263		
Redistributive power	32.6	25.2	7.4		
Change in Gini-coefficient	31.7	23.0	7.0		

Central Expenditure per Head, by Region,

Italy 1973

Lire per annum

	<u>Total</u>	<u>Current</u>	<u>= wages +</u>	<u>goods &</u>	<u>+transfers</u>	<u>Capital</u>	<u>Social</u>	<u>PI</u>	<u>POP</u>
			<u>services</u>				<u>security</u>		
Valle d'Aosta	612565	210515	18756	3658	145767	230630	228788	1854537	112
Piemonte	560766	303550	60728	35896	149736	82488	238749	1745146	4489
Lombardia	507969	270081	55156	17242	142214	76775	228715	1825083	8712
Trentino Alto Adige	438515	252630	70878	7191	130893	74403	154876	1472130	856
Veneto	470503	257297	82958	18960	124689	69117	173644	1297060	4211
Friuli Venezia Giulia	526778	286533	78205	11906	142688	68066	237932	1579009	1233
Liguria	590073	336610	86083	32154	148329	76279	255731	1838372	1869
Emilia Romagna	527258	280665	64225	24236	138734	75878	234258	1533252	3900
Toscana	549169	300617	82866	20579	141169	80253	226754	1436290	3527
Umbria	539460	273900	80031	15396	141048	85378	239958	1123842	786
Marche	511956	259137	75810	9994	135048	100358	192220	1147938	1375
Lazio	654161	428834	150784	62809	129759	87808	176464	1503424	4810
Abruzzi	561663	251552	79197	8287	125825	171444	171377	983431	1192
Molise	515789	240124	84783	7444	125761	131914	174964	748687	326
Campania	473272	250435	86309	21534	115409	100476	153903	846801	5177
Puglia	525157	257743	90885	14992	119595	125197	162030	897856	3647
Basilicata	589886	231114	77824	7280	127066	225094	171336	744695	609
Calabria	489609	235056	81036	6471	125567	118367	154595	696922	2009
Sicilia	578696	242989	74249	7957	124279	198315	165519	881531	4772
Sardegna	588870	265182	90302	13558	123676	187862	155289	964295	1515
Italy	533660	282696	80864	22159	132651	101219	196499	1330487	55153
Italy (absolute)	29432949	15591532	4459892	1222135	7316100	5582531	10837509	73380349	
Range of index numbers	82/123	74/119	23/186	16/283	87/113	67/227	78/122	60/134	
Expenditure as % of PI	51.9	27.5	7.9	2.2	12.9	9.8	19.1		
Elasticity	0.07	0.34	-0.28	1.29	0.25	-1.10	0.59		
Statistical significance R ²	0.026	0.243	0.057	0.231	0.662	0.228	0.609		
Redistributive power	48.4	18.1	10.0	-0.6	9.6	20.6	7.8		
Change in Gini-coefficient	45.3	18.0	10.4	0.0	9.0	19.2	6.5		

TABLE A 3
Federal Expenditure per Head, by Region,
Australia 1973-1974

Aus. \$ per annum

	<u>Total Expenditure</u>	<u>Social security</u>	<u>PI</u>	<u>POP</u>
New South Wales	169	169	2368	4916
Victoria	164	164	2339	3617
Queensland	181	181	2071	1945
South Australia	168	168	2068	1309
Western Australia	154	154	2144	1084
Tasmania	194	194	1972	398
Australia	169	169	2558	13269
Australia (absolute)	2242	2242	29961	
Range of index numbers	91/115	91/115	87/105	
Expenditure as % of PI	7.5	7.5		
Elasticity	- 0.59	- 0.59		
Statistical significance R ²	0.345	0.345		
Redistributive power	11.8	11.8		
Change in Gini-coefficient	9.0	9.0		

Federal Expenditure per Head, by Region,

Canada 1973

Can \$ per annum

	<u>Total Expenditure</u>	<u>Social security</u>	<u>PI</u>	<u>POP</u>
Newfoundland	173	173	2039	541
Prince Edward Island	248	248	2305	115
Nova Scotia	208	208	2775	805
New Brunswick	199	199	2517	652
Quebec	167	167	3315	6081
Ontario	176	176	4376	7939
Manitoba	211	211	3590	998
Saskatchewan	225	225	3312	908
Alberta	170	170	3868	1683
British Columbia	191	191	3998	2373
Canada	180	180	3748	22095
Canada (absolute)	3977	3977	82812	
Range of index numbers	93/138	93/138	54/117	
Expenditure as % of PI	4.8	4.8		
Elasticity	- 0.39	- 0.39		
Statistical significance R ²	0.319	0.319		
Redistributive power	6.7	6.7		
Change in Gini-coefficient	5.1	5.1		

Federal Expenditure per Head, by Region,

U.S.A. (9 regions) 1969-71

U.S. \$ per annum

	<u>Total Expenditure</u>	<u>Grants</u>	<u>Direct</u>	<u>Pay to personnel</u>	<u>Transfers</u>	<u>Military contracts</u>	<u>Direct less military</u>	<u>PI</u>	<u>POP</u>
New England	964	121	842	155	325	297	545	3967	11875
Middle Atlantic	809	120	689	123	324	169	520	4140	37255
East North Central	629	87	542	100	280	115	427	3956	40302
West North Central	771	108	663	147	309	158	505	3481	16357
South Atlantic	1015	116	899	386	280	176	723	3350	30890
East South Central	752	151	601	193	262	108	493	2734	12862
West South Central	880	124	757	229	253	222	535	3131	19392
Mountain	899	157	743	303	268	104	619	3345	8362
Pacific	1121	145	976	296	318	208	688	4032	26564
U.S.A.	858	119	739	207	294	181	558	3690	203859
U.S.A. (absolute)	174925	24244	150651	42199	59934	36898	100998	752240	
Range of index numbers	73/131	73/132	73/132	48/187	86/111	60/164	77/123	74/112	
Expenditure as % of PI	23.3	3.2	20.0	5.6	8.0	4.9	15.1		
Elasticity	0.17	- 0.65	0.30	- 1.18	0.58	1.23	- 0.01		
Statistical significance R ²	0.016	0.202	0.044	0.115	0.645	0.178	0.000		
Redistributive power	19.4	5.3	14.1	12.2	3.4	- 1.1	15.2		
Change in Gini-coefficient	15.2	3.6	12.3	12.9	2.4	0.2	14.7		

TABLE A 4a
Federal Expenditure per Head, by Region,
U.S.A. (51 regions) 1969-71

U.S. \$ per annum

	<u>Total expenditure</u>	<u>Grants</u>	<u>Direct</u>	<u>Pay to personnel</u>	<u>Transfers</u>	<u>Military contracts</u>	<u>Direct less military</u>	<u>PI</u>	<u>POP</u>
Maine	728	124	604	177	322	62	542	2921	1000
New Hampshire	804	101	703	195	297	167	536	3487	742
Vermont	799	186	613	85	317	164	449	3040	446
Massachusetts	940	124	816	155	336	258	558	3994	5704
Rhode Island	986	132	854	332	349	136	718	3642	947
Connecticut	1142	106	1036	94	306	551	485	4616	3035
New York	853	141	712	108	332	182	530	4361	18238
New Jersey	778	90	688	160	306	161	527	4393	7198
Pennsylvania	759	105	654	125	323	154	500	3645	11819
Ohio	664	84	580	116	272	149	431	3874	10663
Indiana	668	71	597	92	271	195	402	3634	5198
Illinois	646	93	554	127	285	84	469	4308	11119
Michigan	571	93	478	74	280	79	399	4011	8893
Wisconsin	568	83	485	60	293	86	399	3536	4428
Minnesota	705	114	591	83	289	166	425	3583	3814
Iowa	610	91	520	78	320	78	442	3455	2831
Missouri	908	111	797	177	312	254	543	3505	4683
Kansas	837	101	735	227	321	143	592	3572	2247
Nebraska	691	93	598	165	318	75	524	3547	1491
South Dakota	725	156	569	188	313	30	539	2874	669
North Dakota	893	148	744	257	296	156	588	2961	622
Delaware	747	97	651	179	275	85	566	4329	550
Maryland	1325	97	1228	688	255	210	1018	4079	3937
Virginia	1272	102	1171	681	244	207	964	3461	4662
West Virginia	698	185	513	76	354	44	469	2703	1753
North Carolina	663	104	559	210	219	102	457	3053	5093
South Carolina	722	112	610	289	226	75	535	2788	2599
Georgia	880	123	757	291	216	220	537	3162	4703
Florida	907	77	830	208	372	145	685	3371	6837
District of Columbia	3940	558	3382	1569	634	1037	2346	4666	756
Kentucky	705	151	554	205	282	33	522	2855	3233
Tennessee	675	127	548	146	257	119	429	2887	3941
Alabama	850	153	697	252	253	124	573	2693	3459
Mississippi	802	188	614	165	254	171	442	2354	2229
Louisiana	715	149	566	143	233	119	448	2908	3652
Arkansas	651	145	506	120	307	58	448	2548	1930
Oklahoma	898	161	738	312	294	92	646	3040	2569
Texas	969	103	866	257	241	314	552	3347	11241
Montana	823	198	625	221	308	51	574	3167	700
Idaho	631	134	497	167	273	26	472	3052	720
Wyoming	924	253	671	238	286	61	610	3472	334
Colorado	943	135	808	354	255	127	681	3622	2222
Utah	975	154	821	379	235	179	642	3040	1070
Nevada	821	149	672	310	257	63	610	4278	494
Arizona	914	127	786	264	291	187	600	3378	1797
New Mexico	970	217	753	346	255	118	635	2840	1025
California	1164	145	1019	278	321	334	686	4127	19997
Oregon	682	146	536	131	327	49	486	3438	2101
Washington	970	120	850	305	334	176	674	3739	3399
Alaska	2373	418	1955	1296	170	397	1559	4478	305
Hawaii	1372	153	1220	785	209	188	1032	4314	762
U.S.A.	858	119	739	207	294	181	558	3687	203859
U.S.A. (absolute)	174925	24244	150651	42199	59934	36898	100998	751628	
Range of index numbers	68/157	61/217	66/169	30/348	74/127	14/311	73/186	64/125	
Expenditure as % of PI	22.9	3.2	19.7	5.4	8.0	4.8	14.9		
Elasticity	0.33	- 1.12	0.57	- 0.23	0.19	1.75	0.18		
Statistical significance R ²	0.072	0.283	0.152	0.003	0.060	0.257	0.017		
Redistributive power	15.2	6.7	8.5	6.6	6.4	- 3.6	12.1		
Change in Gini-coefficient	8.5	3.8	5.7	6.3	4.5	- 2.0	9.9		

TABLE A 4b

Federal Expenditure per Head, by Region,

U.S.A. (51 regions) 1975

U.S. \$ per annum

	<u>Total expenditure</u>	<u>Grants</u>	<u>Direct</u>	<u>Military contracts</u>	<u>Direct less military</u>	<u>PI</u>	<u>POP</u>
Maine	1206	309	897	54	843	4104	1059
New Hampshire	1399	215	1184	244	940	4656	818
Vermont	1360	376	984	262	722	4290	471
Massachusetts	1456	266	1190	314	876	5393	5828
Rhode Island	1342	317	1025	90	935	5078	927
Connecticut	1663	255	1408	763	645	6257	3095
New York	1449	341	1108	213	895	5869	18120
New Jersey	1154	212	942	146	796	6014	7316
Pennsylvania	1241	238	1003	135	868	5205	11827
Ohio	1010	193	817	124	693	5377	10759
Indiana	1027	158	869	164	705	5127	5311
Illinois	1230	240	990	60	930	6205	11145
Michigan	996	234	762	89	673	5642	9157
Wisconsin	966	209	757	55	702	5134	4607
Minnesota	1144	261	883	114	769	5272	3926
Iowa	970	185	785	67	718	5416	2870
Missouri	1500	211	1289	305	984	4802	4763
Kansas	1398	200	1198	244	954	5462	2267
Nebraska	1193	207	986	52	934	5731	1546
South Dakota	1395	360	1035	49	986	4531	683
North Dakota	1734	277	1457	315	1142	5425	635
Delaware	1145	244	901	90	811	6308	579
Maryland	1933	216	1717	231	1486	5896	4098
Virginia	1809	211	1598	297	1301	5166	4967
West Virginia	1318	380	938	60	878	4134	1803
North Carolina	1124	211	913	87	826	4346	5451
South Carolina	1240	234	1006	98	908	4047	2818
Georgia	1402	270	1132	167	965	4479	4926
Florida	1379	163	1216	137	1079	4733	8357
District of Columbia	13957	690	13267	1706	11561	6676	716
Kentucky	1327	286	1041	76	965	4094	3396
Tennessee	1296	234	1062	93	969	4268	4188
Alabama	1374	268	1106	167	939	4019	3614
Mississippi	1599	342	1257	446	811	3514	2346
Louisiana	1236	293	943	171	772	4260	3791
Arkansas	1202	261	941	63	878	3780	2116
Oklahoma	1443	259	1184	128	1056	4447	2712
Texas	1296	205	1091	192	899	4965	12237
Montana	1512	322	1190	78	1112	4970	748
Idaho	1358	256	1102	51	1051	4535	820
Wyoming	1569	307	1262	109	1153	5645	374
Colorado	1646	231	1415	161	1254	5377	2534
Utah	1449	265	1184	169	1015	4445	1206
Nevada	1544	248	1296	105	1191	6014	592
Arizona	1639	224	1415	325	1090	4751	2224
New Mexico	1974	325	1649	124	1525	3989	1147
California	1700	258	1442	396	1046	5887	21185
Oregon	1282	240	1042	45	997	5016	2288
Washington	1968	258	1710	494	1216	5616	3544
Alaska	3736	753	2983	531	2452	8704	352
Hawaii	2347	324	2023	408	1615	5964	865
U.S.A.	1412	247	1165	201	964	5253	213121
U.S.A. (absolute)	300927	52641	248286	42837	205449	1119525	
Range of index numbers	71/145	65/156	67/153	23/392	60/161	67/120	
Expenditure as % of PI	26.0	4.7	21.3	3.8	17.5		
Elasticity	0.02	- 0.58	0.15	1.22	0.07		
Statistical significance R ²	0.000	0.150	0.011	0.061	0.002		
Redistributive power	25.4	7.4	18.0	- 0.8	18.8		
Change in Gini-coefficient	11.5	3.6	8.3	- 3.6	14.0		

TABLE A 4c

Federal expenditure per capita by region

§ US per annum

United States (9 regions) 1975

	<u>Total ex- penditure</u>	<u>Grants</u>	<u>Direct</u>	<u>Military contracts</u>	<u>Direct less military</u>	<u>PI</u>	<u>POr</u>
New England	1470	272	1198	382	816	5385	12198
Middle Atlantic	1325	283	1042	175	867	5687	37263
East North Central	1064	212	852	96	756	5602	40979
West North Central	1287	225	1062	177	885	5206	16690
South Atlantic	1719	230	1489	194	1295	4817	33715
East South Central	1377	275	1102	169	933	4027	13544
West South Central	1295	234	1061	167	894	4650	20856
Mountain	1615	258	1357	174	1183	4897	9645
Pacific	1745	265	1480	382	1098	5820	28234
U.S.A.	1412	247	1165	201	964	5253	213121
U.S.A. (absolute)	300927	52641	248286	42837	205449	1119525	
Range of index numbers	75/124	86/115	73/128	48/190	78/134	78/111	
Expenditure as % of PI	26.9	4.7	22.2	3.8	18.4		
Elasticity	0.07	0.04	0.07	1.48	0.38		
Statistical significance R ²	0.002	0.002	0.002	0.101	0.052		
Redistributive power	28.6	4.9	23.7	1.5	25.2		
Change in Gini-coefficient	20.7	2.9	19.9	3.8	25.4		

Chapter 9

REGIONALISATION OF FEDERAL OR CENTRAL TAX BURDEN

IN SEVEN COUNTRIES

(working paper)

1. Incidence Assumptions and Regional Distributors (1)

The present paper is concerned with the regional origin of federal or central tax revenues. The regional distribution of taxation can be done in two ways, by considering either :

- regional tax collection, or
- the regional incidence of tax burden, i.e. the amount of tax revenues that is effectively borne by residents of the region.

Since the aim of this paper is to deal with the redistributive power of tax revenues and not with financial flows, we are concerned with the location of the effective burden of the taxes, and so the approach of regional incidence analysis is used.

Table 1 shows the assumptions underlying the regional incidence analysis. The spectrum of assumptions made by the authors gives a rather true reflection of the state of the theoretical and empirical evidence available in tax incidence analysis.

For personal income tax all authors assume that no shifting takes place. Since, furthermore, regional tax collections are available for all countries, no problems arise with this source of federal tax revenue.(2)

For the general sales taxes, excises and import duties all authors assume that these taxes are borne by consumers, but the degree of disaggregation and the availability of distributors differs among countries. In all countries "general" sales taxes in fact apply multiple rates according to products, so that using total consumption or retail sales as a distributor can only be an approximation due to the lack of more detailed data. Fortunately a rough estimate of the degree of error likely to arise in such a global regional allocation is available from the French study, in which a thorough breakdown of TVA was made. The difference in the results, as between the detailed allocation and a global allocation according to household consumption, is below 2.4 % for all but one of 21 regions with an average difference of 1.1 % (excluding the exceptional case which

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- (1) For France, Italy, the United Kingdom, Canada and the United States the regionalisation is largely based on published and unpublished studies on the subject ; for Germany and Australia no such studies are available. For these two countries the regionalisation of revenue is directly obtained from statistical sources.
 - (2) Commuting between work and living places over regional boundaries is accounted for in Germany by the "Zerlegung" but ignored in all other countries, but this should not affect the results severely since the overall importance is quite small (see Chapter 5).

TABLE 1

Incidence Assumptions and Regional Distributors used in Studies of Tax Reallocation

(1) Incidence assumption (2) Distributor

Tax	France		Germany		Italy		United Kingdom		Australia		Canada		U.S.A.	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Personal income tax	Source 100%	Tax Revenues	Source 100%	Tax revenues + "Zerlegung"	Source 100%	Tax revenues	Source 100%	Tax Revenues	Source 100%	Tax revenues	Source 100%	Tax Revenues	Source 100%	Tax Revenues
Corporate income tax	Capital owners 75% Consumers 25%	Dividends household consumption	Capital owners 75% Consumers 25%	Tax revenues + "Zerlegung" private consumption	Capital owners 100%	Capital income	Capital owners 50% Consumers 50%	Stockholders 48.75% Consumers 2% Foreigners 26.25%	Capital income private consumption	Capital income private consumption	Stockholders 48.75% Consumers 2% Foreigners 26.25%	Dividends Retail sales not region-alized	Stockholders 50% Consumers 50%	Dividends Retail sales
General sales tax	Consumers 100%	Type of consumption	Consumers 100%	private consumption	private consumption	private consumption	Consumers 100%	Consumers 100%	private consumption	private consumption	Consumers 100%	Retail sales	-	-
Excises and import duties	Consumers 100%	Type of consumption	Consumers 100%	private consumption (preliminary)	Type of consumption	Type of consumption	Consumers 100%	Type of consumption	Type of consumption	Type of consumption	Consumers 100%	Type of consumption	Consumers 100%	Type of consumption
Social security contributions														
- of Employers				Social security contributions		Keys for different social security systems	Employees 100%	Wages and salaries			Employees 50% Consumers 50%	S.S.C. of employees Retail sales	Consumers 100%	Retail sales
- of Employees							Employees 100%	Numbers of employees excl. married women			Source 100%	S.S.C. of employees	Source 100%	S.S.C. of employees

Source: Op. Appendix 1

gave a 12.1 %). This indicates that the approximation due to the global approach is sufficiently good.

For excises it was possible in all countries except Germany to allocate the taxes according to the consumption (or some close proxy) of the product in question.(1)

For corporate income tax the assumptions range from 50 % borne by shareholders and 50 % by consumers (U.S.A.), to 100 % borne by capital owners (United Kingdom). In the light of the recent controversy over the incidence of the corporate income tax this is not surprising. As regards the likely impact of this controversy on the results, it is to be expected that the more the tax is supposed to be borne by consumers the more equal will be the distribution of tax burden, since in general consumption is more evenly spread than dividends or profits.

With respect to social security contributions all authors assume that employees bear their part of the contributions, whereas there is a total difference of opinion as regards the employers' part : for the U.S.A. 100 % is assumed to be shifted forward to consumers, for Canada 50 % is assumed to be borne by consumers and 50 % by employees, and for Germany and the United Kingdom 100 % is assumed to be shifted backward to employees. The impact of the different assumptions is not obvious since it is uncertain whether consumption or social security contributions are spread more evenly between regions.

These are the most important federal or central taxes in all countries, but there exist other taxes of some significance in terms of revenue and Appendix 1 shows how these are treated.

2. The Regional Distribution of Federal or Central Tax Burdens

For the five major taxes considered, and total federal or central taxes, the regional distribution or revenue per head in national currency can be found in detail in Appendix 2, Tables A1 - A4. Table 2 summarises the results of Tables A1 - A4 in giving the range of index numbers for tax revenues, the average tax rate as a percentage of personal income, the elasticity of tax revenues with respect to personal income, the R^2 , the redistributive power and the change in the Gini-coefficient due to tax revenues.

(1) As it follows from the later analysis, the global allocation approach for excises in Germany is likely to overstate the amount of redistribution due to tax payments.

TABLE 2
Redistributive Power of Federal or Central Tax and Social Security Burdens

		Range of Index Numbers	Average tax rate (1)	Elasticity of tax with respect to personal income	Statistical significance of elasticity	Redistributive Power (3)	% change in Gini-Coefficient (4)
Germany	PIT ⁽⁵⁾	70/176	4.2	1.96	0.954	4.1	3.0
10 Länder	CIT ⁽⁶⁾	59/152	0.8	1.53	0.713	- 0.4	0.9
Berlin	GST ⁽⁷⁾	92/126	5.0	0.58	0.880	- 2.1	- 3.0
excluded	EXC ⁽⁸⁾	92/126	4.3	0.58	0.880	- 1.8	- 2.6
1970	SSC ⁽⁹⁾	88/142	14.8	1.01	0.856	0.1	- 1.2
	<u>Total</u>	89/142	30.6	1.03	0.920	0.8	- 3.0
France	PIT	59/210	4.6	2.73	0.966	8.0	7.7
21	CIT	60/160	3.2	1.79	0.691	2.5	2.0
regions	GST	82/133	12.2	0.53	0.299	- 5.8	- 5.9
1969	EXC	74/117	3.2	0.31	0.193	- 2.2	- 2.4
	SSC	66/171	16.6	1.82	1.000	13.7	14.0
	<u>Total</u>	73/159	42.8	1.43	0.955	18.5	18.6
France	PIT	65/210	4.6	2.73	0.953	8.3	7.7
8 regions	CIT	66/160	3.2	1.62	0.808	2.0	1.9
1969	GST	90/134	12.2	0.68	0.738	- 4.0	- 5.8
	EXC	74/111	3.3	0.23	0.117	- 2.5	- 2.3
	SSC	70/171	16.6	1.80	1.000	13.8	13.9
	<u>Total</u>	75/159	42.8	1.51	0.955	22.4	20.7
Italy	PIT	20/193	5.0	2.10	0.818	5.3	6.2
20	CIT	65/126	0.6	0.68	0.867	- 0.2	- 0.2
regions	GST	61/134	7.0	0.89	0.891	- 0.8	- 1.5
1973	EXC	66/218	3.9	0.86	0.388	- 0.5	- 1.3
	SSC	47/140	15.8	0.61	0.570	- 6.1	- 5.0
	<u>Total</u>	44/151	40.0	0.96	0.879	- 1.6	- 1.8
United Kingdom	PIT	51/136	11.7	1.65	0.963	7.6	8.5
10	CIT	56/124	3.0	0.86	0.435	- 0.4	- 1.4
regions	GST						
1964	+ EXC	80/109	16.2	0.55	0.842	- 7.2	- 8.5
	SSC	61/118	5.8	1.06	0.891	0.3	- 0.3
	<u>Total</u>	66/119	36.8	1.00	0.926	0.2	- 1.8
Australia	PIT	81/110	14.2	1.44	0.966	6.3	9.3
6	CIT	86/107	5.6	1.04	0.895	0.2	- 0.2
Provinces	GST	89/108	2.5	0.94	0.904	- 0.2	0.6
1971/72	EXC	87/108	6.2	0.46	0.317	- 3.4	0.2
	SSC						
	<u>Total</u>	86/108	29.5	1.09	0.925	2.7	9.4
Canada	PIT	55/135	9.3	1.61	0.921	5.7	7.0
6	CIT	60/188	3.5	1.25	0.286	0.9	- 0.2
regions	GST	84/116	4.0	0.60	0.722	- 1.6	- 1.6
1969	EXC	82/109	2.9	0.46	0.747	- 1.6	- 1.9
	SSC	81/116	3.1	0.68	0.925	- 1.0	- 0.7
	<u>Total</u>	68/129	23.1	1.11	0.839	2.4	2.6
United States	PIT	42/144	11.8	1.64	0.942	7.5	6.0
48 States	CIT	54/187	4.3	1.50	0.581	2.1	1.7
D.C Alaska	GST						
Hawai exoluded	EXC	84/166	2.1	0.36	0.154	- 1.4	- 1.6
Average	SSC	61/125	4.7	1.06	0.798	0.3	0.3
1969-71	<u>Total</u>	53/143	24.7	1.35	0.928	8.5	6.6
United States	PIT	63/119	11.7	1.53	0.949	6.2	5.5
9	CIT	63/135	4.3	1.48	0.753	2.0	1.6
regions	GST						
Average	EXC	86/112	2.1	0.29	0.278	- 1.5	- 1.8
1969-71	SSC	81/117	4.7	1.14	0.880	0.7	0.9
	<u>Total</u>	69/119	24.4	1.32	0.946	7.7	6.9

Footnotes to Table 2

- (1) National percentage share of tax and/or social security in personal income
- (2) Examples of elasticity coefficients
 - 2.0 - per capita tax differential twice as big as personal income differential (regionality progressive tax)
 - 1.0 - per capita tax differential equals personal income differential (regionally neutral tax)
 - 0.0 - per capita tax completely equal as between regions (regionally regressive tax)
- (3) Contribution of tax to the total redistributive effect of the budget measured by the reduction in personal income differentials between regions due to the tax under the assumption of regionally neutral spending of national tax revenues ; it is equal to the deviation of the tax from neutrality - measured by the difference between the elasticity and one (neutral case) - multiplied by the average tax rate.
- (4) A modified income is calculated by deducting per capita taxes from personal income per capita and adding amounts representing the regional breakdown of the total national amount of taxes spent neutrally. The Gini-coefficient of this modified income is compared with the Gini-coefficient of personal income.
- (5) PIT - personal income tax
- (6) CIT - corporate income tax
- (7) GST - general sales tax
- (8) EXC - excises and import duties
- (9) SSC - social security contribution

Source : Tables A1 - A4

The following part of this chapter is an interpretation of the range of index numbers. The use of the term "equal" in this context relates to per capita values of the variable in question and is not to be confused with the question of regressivity or progressivity of taxes which is dealt with in the next chapter.

The personal income per head differentials are substantial in all countries but Australia. (1) The ratio of income per head in the richest to that in the poorest area (mini-max ratio) varies between 1.7 and 2.1 with an extreme value for Italy with 2.7. In France and Germany the high mini-maxi ratio is due to the existence of a particularly rich region : Région Parisienne for France and Hamburg for Germany, whereas in the United Kingdom and Canada it is due to the existence of particularly poor regions ;Northern.Ireland for the United Kingdom and the Atlantic Provinces for Canada. In Italy and the U.S.A. there exist several relatively poor and rich states. In the U.S.A. income differentials narrow considerably if the states are aggregated into nine big geographical regions. The extent of apparent income differentials is more sensitive to the size of the regions considered in the case of the U.S.A., compared to France where the aggregation of departments does not yield significantly different results.

Personal income tax revenues per head, compared to income, show a substantial increase in regional variation with 'mini-maxi' ratios up to [3.7]. This fact reflects the progressiveness of the personal income tax is a very powerful factor in reducing pre-tax income differentials.

In discussing the regional variation of corporate income tax burden per head it has to be kept in mind that different incidence assumptions have been made. For Germany corporate income taxes show an even greater regional variation than personal income taxes. Since corporate income tax is proportional, this must be due to a very high concentration of the headquarters of enterprises subject to corporate income tax in high income areas, which is only partly equilibrated by the "Zerlegung". For Canada and the U.S.A. a similar picture of the relationship between regional differences in the tax burdens emerges as for Germany, but the reason for this is different. In Canada and the U.S.A. part of the tax burden was distributed in proportion to dividend payments. Thus the regional variations of the corporate income tax burden indicate an even wider divergence in the regional distribution of dividends per head, since the other distributor used, namely consumption expenditure, shows a much smaller regional variation as was noted above. In the United Kingdom

(1) Compare Tables A1 - A4

and France the regional distribution of the corporate income tax burden is more equal than that of personal income tax revenues, indicating a more equal regional distribution of wealth compared to the U.S.A. and Canada.

Since the general sales tax burden is in most cases allocated in proportion to consumption expenditure, its regional distribution is equal to that of consumption expenditure, the per capita differentials being significantly less than for personal income in all countries but France and Australia. The mini-max ratio is reduced to about 1.4 for Germany, the United Kingdom and Canada, which compared to the income ratio means a reduction of 20 % (for the United Kingdom and Canada) and 50 % (for Germany).

The burden of excises is, except for some special cases (e.g. D.C. and Nevada in the U.S.A., and Nord in France), the most equally spread of all.

For Germany, the United Kingdom and Canada, the regional distribution of the burden of social security contributions is - as expected - more equal than the distribution of personal income tax burden. For the U.S.A. the situation is not as different as Table 2 seems to indicate since D.C. is an exception, the next highest being Illinois and Connecticut with 126.

The regional distribution of the burden of total federal or central taxes is a compound of the distribution of the five major taxes discussed and the remaining federal or central taxes which are of varying importance.

3. The Regional Redistributive Power of Federal or Central Taxes

The range of index numbers offers already some insight into the likely narrowing of income differentials due to federal or central taxes. In the other columns of Table 2 an attempt is made to evaluate the redistributive power of federal or central taxes more precisely. The budgetary redistributive power of a tax is defined as the percentage change of post-tax income differentials relative to pre-tax income differentials, under the assumption of regionally neutral spending of national tax revenues (1).

As a first step, the index numbers of regional per capita tax burdens were regressed on the index numbers of regional personal income. In Table 2, column (3), the regression slope is shown, i.e. the parameter showing by how many percentage points the tax burden per head is above average if the personal income per head is one percentage point above average. This parameter can be interpreted as a measure of the regional progressiveness versus regressiveness of

(1) For comparative purposes the percentage change in Gini-coefficient of inequality is computed as explained in Footnote 4 of Table 2 and given in the last column of Table 2.

the tax. If the slope is greater than one the tax is regionally progressive, if it is less than one it is regressive. As can be seen from Table 2, total federal or central taxes are approximately neutral (range of elasticities between 0.96 for Italy and 1.11 for Canada) for all countries except France and the United States where they are progressive (elasticity about 1.5 and 1.3). The rather close results obtained for the two different regional partitions in France and the U.S.A. show that the sensitivity of the results with respect to different definitions of regions seems to be small, thus adding to the reliability of the results obtained.

The character of the total taxes is an aggregate of the character of the five most important taxes and the other more or less important taxes. Personal income tax is regionally progressive in all countries, the degree of progressiveness varying between 1.4 for Australia and [2.7] for France. In France the high regional progressivity is due to the difference in tax regimes concerning farm and non-farm income and not so much to a high tariff progressivity. For corporate income tax a similar answer is obtained : the tax is progressive in all countries except Italy and the United Kingdom with small variations between these countries. This variation is still smaller (Australia and Italy being exceptions) for general sales taxes which show a significant degree of regressiveness. Not surprisingly the most regressive taxes are excises. Social security contributions are regionally either slightly progressive or slightly regressive, France with a significant progressiveness and Canada and Italy with significant regressiveness of social security contributions being exceptions.

These results alone are not sufficient to evaluate the redistributive power of the taxes, since this depends not only on the character of the tax but also on its importance. This importance measured by the share of national tax revenue per head in national income per head is shown in column 2 of Table 2. From the values in columns 2 and 3 of Table 2 the redistributive power can be easily computed.(1)

Column 5 in Table 2 shows the final results of the analysis of the redistributive power of federal taxes. For the five most important taxes a fairly reliable pattern evolves from these results.

The personal income tax shows a high-powered effect in equalizing regional pre-tax differentials with a relatively small variation of the redistributive power between 6.2 and 8.3 per cent if Germany and Italy are excluded (2).

(1) c.p. Footnote (3) in Table 2

(2) Germany and Italy represent special cases. In Germany only 43 % of total income tax revenues are allocated to the federal level, whereas the other federations allocate at least 70 % to this level. In Italy the personal income tax is of relatively small importance : this is also true for France, but the high elasticity (2.7) compensates for the small volume.

The statistical reliability of these results measured by the coefficient of determination of the regression (R^2) is with about 0.95 very high for a cross-section analysis.

Despite different assumptions concerning the corporate income tax, the results for this tax are also quite satisfactory. (1) Although the statistical reliability is lower than for the personal income tax, it is generally still statistically significant. The redistributive power is positive but considerably smaller than for the personal income tax. The apparent difference between the North American countries on the one hand and the European on the other, reflects the fact that the corporate income tax has a greater importance in Canada and the U.S.A.

This difference between the European and North American countries is even more significant when looking at the general sales taxes and excises. For the European countries a very similar pattern emerges, both taxes tending strongly to aggravate pre-tax income differentials. The negative redistributive power varies (for the sum of both taxes) between 4 % for Germany to 8 % for France (excluding again Italy). For Canada the federal general sales taxes are of small importance compared to the European countries with about the same degree of regressiveness, such that the redistributive power is much lower. For the U.S.A. no federal general sales taxes exist. Thus, the negative redistributive power of excises is, in North American countries, lower than in Europe, either because the taxes there are less important or because of their weaker regressiveness. Not too much weight should be placed on the reliability of the regression results for excises since the fit is generally quite poor.

Though the redistributive power of social security contributions has opposite signs for different countries, the absolute difference between countries (excluding France and Italy) is not bigger than for the other taxes. For France the results apply in fact to the year 1962 and are only for comparative purposes transferred to 1969. Nevertheless the figures indicate the characteristic already discussed of regional versus tariff progressivity due to different structural mixes of regional income. In terms of statistical reliability the regression results for the social security contributions are satisfactory with R^2 values around 0.8.

The results obtained by the redistributive power measure and the change in Gini-coefficients are generally quite similar but there are cases where differences in the order of more than 2 percentage points occur, the most important being the personal income tax and excises results in Australia, where 9 % instead of 6 % and 0 % instead of - 3 % are

(1) Italy and the United Kingdom are exceptions for which the results are difficult to explain on the basis of the assumptions made.

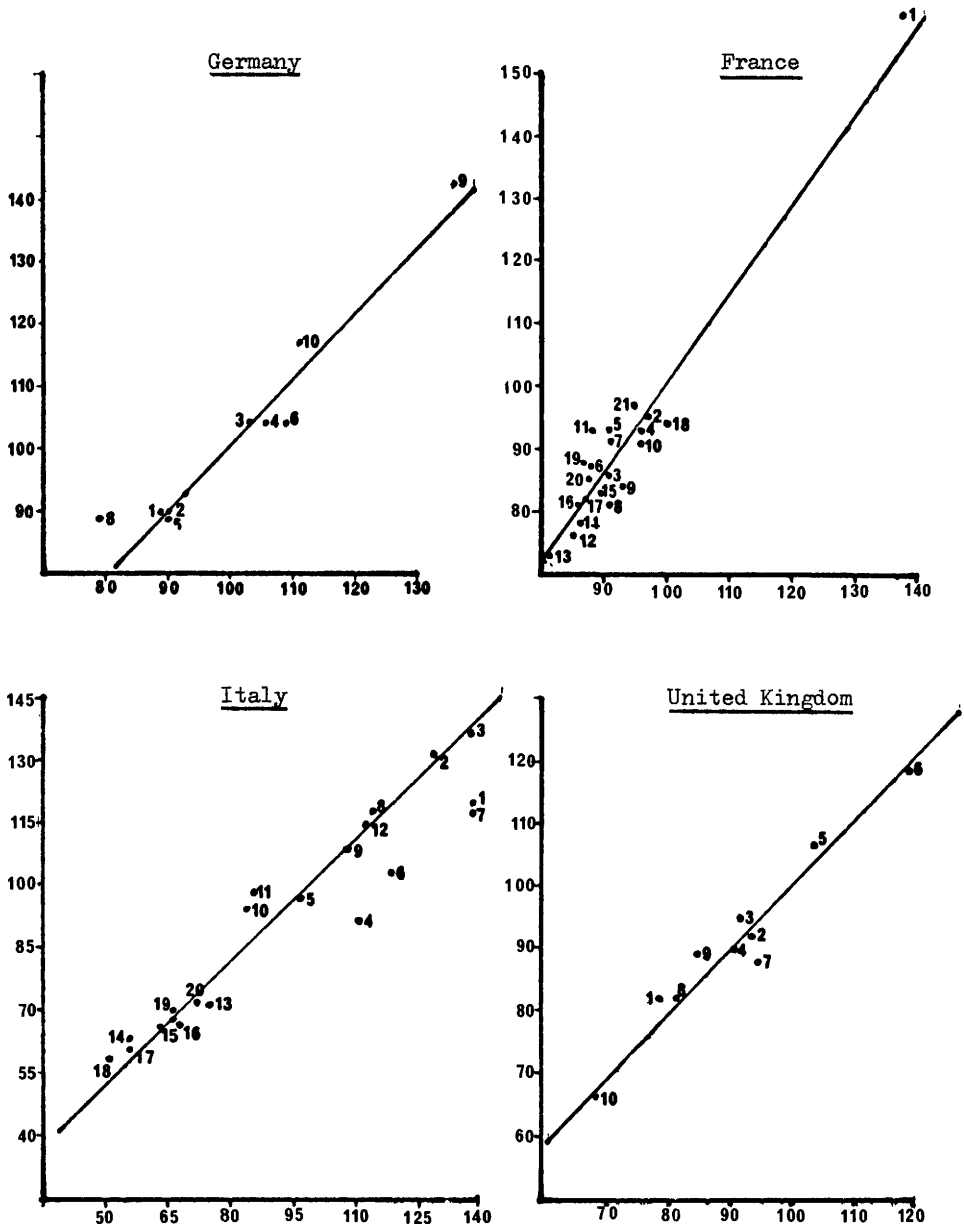
obtained. The difference between the two measures is mainly due to the different weighting given to the relatively unfavourable tax payment position of Tasmania, which, in the redistributive power calculations is weighted strongly since its personal income differential is largest, whereas the reduction in the Gini-coefficient gives it a smaller weight because of its relatively small population.

The difference between the redistribution power and the Gini measure for total revenues is substantial only for Australia and Germany. For Australia the above explanation for single taxes carries over to the 'total'. The difference (even in sign) in the German case can be mainly attributed to the different weighting given to the low tax payments in Baden Württemberg and the high payments in Hamburg (both rich Länder). The Gini measure weights Baden-Württemberg more because of its greater population, whereas the redistributive power weights Hamburg more because of its extreme richness.

The most important explanation of the inter-country differences seems to be simply the varying weights of the individual taxes in the total-which is commented on further below. Statistical anomalies have also to be considered. The results should certainly be interpreted with care since they apply to one rather arbitrarily chosen year only and the reliability of the results is questionable in some cases. For France the reliability of the results for all single taxes seems to be quite satisfactory, (1)except for the social security contributions already mentioned. For Germany the only major drawback would seem to be the likely understatement of regressivity of excises. For the United Kingdom the implicit assumption about corporate income tax incidence is atypical. For Australia the proxy for dividends is questionable. In the Canadian results there seems to be no major drawback.

(1) As is always the case, the assumptions concerning corporate income tax are questionable, but only extremely different assumptions from the reasonable one taken would seriously affect the overall picture.

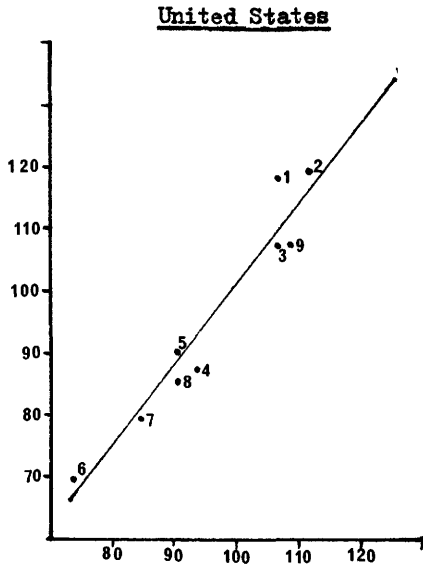
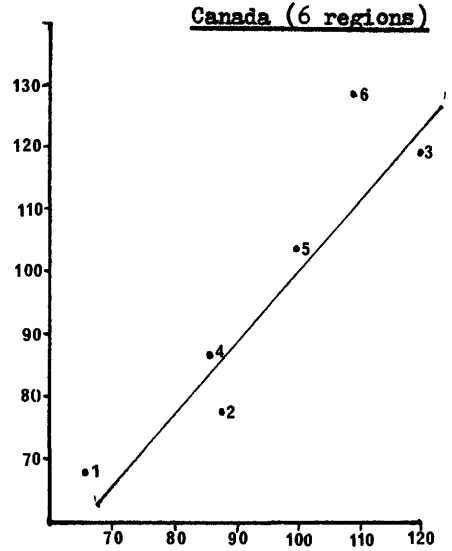
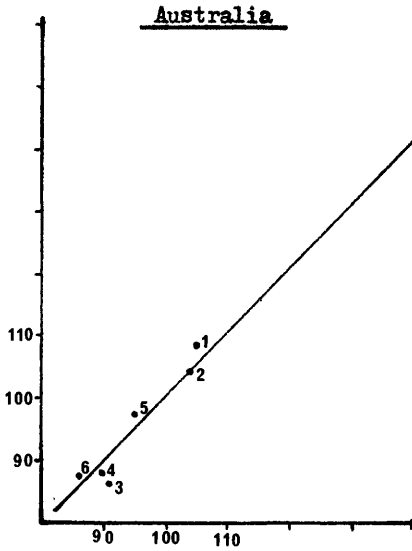
Chart 1



Horizontal axis- personal income per capita

Vertical axis- total taxes per capita

Chart 2



Horizontal axis -personal income per capita

Vertical axis -total taxes per capita

Regional Key to Charts

Germany

1. Schleswig-Holstein
2. Niedersachsen
3. Nordrhein-Westfalen
4. Hessen
5. Rheinland-Pfalz
6. Baden-Württemberg
7. Bayern
8. Saarland
9. Hamburg
10. Bremen

United Kingdom

- North
Yorkshire and Humberside
North West
East Midlands
West Midlands
South East
South West
Wales
Scotland
N.Ireland

France

1. Région Parisienne
2. Champagne
3. Picardie
4. Haute-Normandie
5. Centre
6. Basse-Normandie
7. Bourgogne
8. Nord
9. Lorraine
10. Alsace
11. Franché-Comté
12. Loire
13. Bretagne
14. Poitou-Charentes
15. Aquitaine
16. Midi-Pyrénées
17. Limousin
18. Rhône Alpes
19. Auvergne
20. Languedoc
21. Provence-Côte d'Azur-Corse

Italy

- Valle d'Aosta
Piemonte
Lombardia
Trentino Alto Adige
Veneto
Friuli Venezia Giulia
Liguria
Emilia Romagna
Toscana
Umbria
Marche
Lazio
Abruzzi
Molise
Campania
Puglia
Basilicata
Calabria
Sicilia
Sardegna

Australia

1. New South Wales
2. Victoria
3. Queensland
4. South Australia
5. Western Australia
6. Tasmania

Canada

- Atlantic Provinces
Quebec
Ontario
Manitoba-Saskatchewan
Alberta
British Columbia

US 9

- New England
Middle Atlantic
East North Central
West North Central
South Atlantic
East South Central
West South Central
Mountain
Pacific

The differences in the redistributive power of total taxes are to a certain degree caused by constitutional differences in tax arrangements of the federations. In the U.S.A. no federal general sales taxes exist and the personal and corporate income taxes are federal to about 90 %, thus tending to allocate the progressive taxes to the federal government and the regressive ones to the lower levels. (1) For Germany the constitutional arrangements in 1970 were just the other way round, i.e. the progressive taxes (personal and corporate income tax) were only 43 % and 50 % allocated to the federal level, whereas the 70 % of general sales taxes and all excises were federal. This explains the rather striking difference between the regional incidence results for Germany and all other countries. Taking these factors into account, therefore, the present study gives a coherent set of results for total taxes as well as for the individual taxes.

4. Conclusions

A reasonably coherent picture of the regional incidence of federal or central government taxes emerges from the present study. The findings are presented with quantitative indicators of the redistributive effect of taxes.

As regards the individual main tax categories, the results show a very consistent pattern of redistributive effects. The personal income tax has in all cases a high-powered effect in reducing regional pre-tax income differentials - by between 4 to 9 per cent. The corporate income tax also has an equalizing effect, but only

(1) This fact also helps to explain the difference of the results obtained for regional tax incidence versus the results obtained by the usual household tax incidence studies, which for the U.S.A. indicate a mildly regressive overall tax system, cf. e.g. J.A. Pechmann and B.A. Okner, **Who bears the Tax Burden ?**, Washington, D.C., 1974

about one quarter to one half of that for personal income tax. These effects are offset, to varying degrees and usually incompletely, by the regressive incidence of general sales taxes and excise duties. The effect of social security contributions is, except for France, small and has different signs for different countries.

The principal differences between countries, in the regional pattern of incidence of total taxes, reflect the varying relative importance of the regressive general sales taxes and excise duties, compared to the progressive income taxes and the varying degrees of progressivity or regressivity of these taxes. There is a cleavage in this respect between the North American and European countries, the latter making a much heavier use of the indirect taxes and so offsetting a larger proportion of the progressivity of the income taxes.

These comments on the regional incidence of federal or central tax systems are not to be confused with the more habitual descriptions of the general progressivity or regressivity of the whole tax system with respect to income differentials. This point is best illustrated in considering the results for two federal countries ; the United States' federal taxes appear to reduce regional income differentials substantially by about 10 per cent, whereas in Germany a very slight reduction of about 1 per cent is obtained.

These important differences seem to be explained to a considerable degree by basic constitutional choices made in the two countries in assigning given taxes, or shares of taxes, to the upper or lower levels of government. In the U.S.A. a high percentage of progressive taxes are federal and there are no federal general sales taxes (which would normally be regressive). In Germany the opposite was true in 1970: 70 % of general sales taxes and only 43 % of personal and 50 % of corporate income taxes were federal. Thus, in the U.S.A. there is a tendency for the regressive taxes to be internalised at the level of the state economies, and so progressive redistribution occurs at the federal level ; in Germany it is the progressive taxes that tend relatively to be internalised at the level of the state economies, and so it seems that regressive redistribution occurs at the federal level.

Incidence Assumptions and Distributors Used in Studies of Tax
Regionalisation in Seven Integrated Economies

France

For France, the regional allocation of taxes was made by Morin (1) for the year 1969. In his study Morin made use of two earlier studies by Bobe and Prud'homme et. al., (2) which provided the methodological basis. For social security contributions other sources will have to be employed since they are excluded from the Morin study.

For the personal income tax (IRPP et TC), the assumption is made that the person who pays the tax has to bear it. Accordingly the personal income tax is allocated to the region where it is paid. Data on this are directly available.(3)

The corporate income tax is assumed to be borne partly (75 %) by shareholders and partly (25 %) by consumers. The incidence on share-holders is approximated by the key : "revenus des capitaux mobiliers des ménages", whereas the incidence on consumers is approximated by the key : "consommation des ménages" (4)

For the regional distribution of the value added tax (TVA) - by far the most important single tax in France - Morin chose a rather sophisticated approach.(5) In this, TVA is split into five broad categories. One category (5.6 % of total TVA) is not regionalised, one (26.3 %) is allocated in proportion to household expenditures on consumption, one (8.3 %) in proportion to household savings, one (6.7 %) in proportion to capital expenditures, and the final one (53.1 %) in proportion to the consumption of eight groups of products. If one takes the usual approach of allocating TVA in proportion to household expenditure on consumption instead of the Morin approach, the difference is below 2.4 % for all but one of 21 regions with an average of 1.1 % (excluding the exceptional case which gave a 12.1 % difference).(6)

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- (1) J. Morin, Fiscalité et redistribution spatiale, unpublished 1975.
(2) B. Bobe, Budget de l'Etat et redistribution des revenus. Etude quantitative appliquée à l'économie française en 1965, and Beture (Prud'homme, Nicol et Rochefort), Répartition spatiale des fonds budgétaire, Commissariat du Plan 1973.
(3) Morin, *ibid.*, p. 20
(4) *ibid.*, p. 20 ff.
(5) *ibid.*, p. 35 ff.
(6) *ibid.*, p. XIII (Annex).

Selected excise taxes are assumed to be borne by consumers and accordingly regionally allocated in proportion to the relevant consumption goods. Where a specific key was not available, the distribution was made in proportion to overall consumption of households, as was the case with import duties (1).

The remaining tax revenues making up 12.8 % of the total revenues are partly allocated to the region where they are paid (timbre et enregistrement, etc.): 48 %, partly in proportion to total consumption (taxe sur salaire, taxe sur conventions d'assurance, etc. : 38 %), and partly in proportion to specific keys (prélèvement libératoire, impôt sur opérations de bourse, etc. : 14 %). (2)

If the Morin study is simplified by using only two distribution keys (revenue des capitaux mobiliers des ménages and consommations des ménages) besides the Morin allocation of IRPP, excises on tobacco, alcohol, and oil products, and TVA, the regional differences - as compared to the more sophisticated method described - vary between 0.1 % and 11 % with an average of 3.5 %.(3) This suggests that the sensitivity of the results to the choice of assumptions is rather low.

The regionalisation of social security contributions is for 1962 directly available from a French regional accounts study made in 1966 (4), which was not repeated in that form in later years. The progressivity characteristics in 1962 are transferred to 1969 and scaled up such that the actual national total in 1969 is obtained.

(1) *ibid.*, p. 29 ff.

(2) *ibid.*, p. 41 ff.

(3) own computations

(4) INSEE, *Etudes de Comptabilité Nationale*, No 9 Comptes Economiques Régionaux, Paris 1966, p. 157

Germany

For Germany no study of regional tax incidence was available, but since there exist good primary sources (1) in Germany it was possible to undertake a study directly.

Personal income taxes were assumed to be borne by those on whom they are levied. The regional division of personal income taxes is available on a collective base from the "Steuerhaushalt von Bund, Länder und Gemeinden." Since the place of tax payments is the location of a firm, it is recognised that a correction had to be made in order to get the regional burden distribution. This correction called "Zerlegung" started in 1970, so that data from official but unpublished sources were available (see Chapter 16)

The incidence assumptions concerning the corporate income tax is that 75 % is borne by the owners of equity capital and 25 % is shifted forward to consumers. This 25 % is distributed in proportion to consumption expenditures. For the capital owners' burden an approach analogous to that for the income tax was taken with "Zerlegung" figures again proportional to 1970 official figures.

Because of the lack of detailed regional consumption data for single products, TVA, excises and import duties were distributed in proportion to consumption expenditures.

Social security contributions are assumed to be borne by employees. The regional partition is directly available from the "Volkswirtschaftliche Gesamtrechnungen der Länder, Heft 5".

Besides these taxes there are two other important sources of federal revenue : the Kapitalertragssteuer and the Ergänzungsabgabe. The Kapitalertragssteuer is treated in a similar way to the corporate income tax, but since a forward shifting seems to be less possible it is apportioned on the assumption that 87.5 % is borne by capital owners and 12.5 % borne by consumers. The Ergänzungsabgabe is distributed according to the distribution of the tax to which it is a supplement. The small amount of other federal taxes is distributed in proportion to consumption expenditures.

(1) Statistisches Bundesamt Wiesbaden, Fachserie L : Finanzen und Steuern, Reihe 2 : Steuerhaushalt von Bund, Länder und Gemeinden, 4. Vierteljahr und Jahr 1970 ; Volkswirtschaftliche Gesamtrechnungen der Länder, Heft 5 : Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern, Standardtabellen 1960 bis 1970 ; and unpublished Federal Ministry of Finance sources.

Italy

Details of the regionalisation procedure for Italian taxes are given in Chapter 4 .

United Kingdom

For the United Kingdom the regionalisation of taxes was done by Woodward.(1) The regional division of personal income taxes and surtaxes is directly available from the Inland Revenue survey. The regional division of personal taxes on expenditures was achieved by a breakdown of expenditures into different items and estimating the appropriate taxes on these items.(2) The regional split of the expenditure items was made by using the Family Expenditure surveys.(3)

The amount of income and profits taxes paid by firms in each industry on the national level was estimated from the Inland Revenue Annual Report. The regional distribution of tax paid by each industry was assumed to be proportional to its gross profits. (4) The regional distribution of gross profits, in turn, was achieved by using Census Production data (5). Indirect taxes on intermediate products purchased by industry were allocated to consumers' expenditures.(6)

One part of the national insurance and health contributions - the employers' contributions in total - were divided regionally in proportion to the wage and salary bills estimated for the regions ; the other half was divided in proportion to the number of employees excluding married women working part-time.

(1) V.H. Woodward, Regional Social Accounts for the United Kingdom
In : National Institute of Economic and Social Research. Regional
Papers I, Cambridge 1970, pp. 61-174.

(2) *ibid.*, p. 149

(3) *ibid.*, pp. 147-48

(4) *ibid.*, p. 170

(5) *ibid.*, p. 119 ff

(6) *ibid.*, p. 170

Australia

For Australia no study of regional tax incidence was available, but since there exist good primary sources (1) it was possible to undertake a study directly.

Personal income taxes were assumed to be borne by those on whom they are levied. The state breakdown of personal income tax payable per head of population is available from the Grants Commission Report (2).

The incidence assumption concerning the corporate income tax is that 50 % is shifted forward to consumers. The first 50 % are distributed in proportion to the category "All other income" (3), the largest part of which would seem to be income from incorporated enterprises. The shifted part is allocated proportionally to consumption expenditures (4).

Oil, tobacco and alcohol excises are distributed proportionally to the private state consumption of these products.(5)

All other taxes are allocated proportional to consumption expenditures.

(1) Australian Bureau of Statistics, Authorities of Australian Government, 1973-74, No 12, Canberra 1975 ; Australian National Accounts, National Income and Expenditure 1973 - 74, Canberra 1975, and Grants Commission, 41. Report 1974 on Special Assistance for States.

(2) Grants Commission Report p. 127

(3) Australian National Accounts, pp. 68-70

(4) Grants Commission Report p. 129

(5) Australian National Accounts, pp. 77-79

Canada

The allocation of taxes to provinces on an incidence basis was done for Canada by Maslove.(1) For the personal income tax no proxy distribution series was needed since (a) it was assumed that the incidence is at the source, and (b) the distribution of tax receipts to the provinces was directly available from Taxation Statistics and Financial Management series. (2)

The incidence assumption concerning the corporate income tax was that 75 % is borne by the owners of equity capital ; of the owners' portion of the tax, 35 % is deemed to be paid by foreign owners, the rest - 65 % - is distributed in proportion to dividends ; and 25 % is shifted forward to consumers and distributed in proportion to retail sales.(3)

The federal general sales tax is assumed to be borne by consumers and allocated in proportion to retail sales. The selective excise taxes are handled in the same manner : federal excise taxes are allocated in proportion to the relevant consumption item, alcohol and tobacco taxes in proportion to alcohol/tobacco consumption, and the other relatively unimportant federal excise taxes in proportion to retail sales the proxy chosen for provincial consumption. Import duties are also assumed to be passed fully to consumers and thus allocated in proportion to retail sales.(4)

For social security contributions except public service costs, the assumption regarding final incidence is that employees bear their own share plus one-half of the employers' share that is shifted backward. Therefore three-quarters are distributed to provinces in proportion to wages and salaries. The other half of the employers' share is assumed to be shifted forward to consumers and hence distributed in proportion to retail sales. Contributions of public service employees are assumed to be borne by the employees and therefore allocated among the provinces by the provincial distribution of federal government employees.(5)

(1) A. M. Maslove, The Pattern of Taxation in Canada, Economic Council of Canada, Ottawa 1972

(2) *ibid.*, p. 54

(3) *ibid.*, p. 50 ff

(4) *ibid.*, p. 55 f

(5) *ibid.*, p. 57, 60 f.

All other taxes amount to only 6 % of all allocated taxes, the more important being natural resources taxes, business taxes, succession and estate duties and motor vehicle taxes, which are allocated either in proportion to consumption expenditures, i.e. retail sales, or to the province in which they are collected.(1)

U.S.A.

For the United States Labovitz's estimates of the regionalisation of federal revenues have been used.(2)

"In the revenue allocations, reported collections are used for only a few minor items. Instead, total Federal receipts from each type of tax are attributed to states on the basis of distribution factors that reflect as nearly as practicable the broad assumptions summarised below

Assumptions for the major types of taxes are as follows:

- (1) Individual income taxes are borne by the individuals on whom they are initially imposed.
- (2) Employment taxes levied on employers are shifted to consumers. Employment taxes levied upon employees and self-employed are borne by them.
- (3) Corporation income taxes are borne one-half by shareholders and one-half by consumers.
- (4) Estate and gift taxes are derived from the state of residence of the decedent or donor.
- (5) Excise taxes levied upon business or collected through business enterprises are borne by consumers. Other excise taxes are borne generally by the persons from whom they are collected by the Government.
- (6) Custom duties are borne by consumers."(3)

(1) Maslove, op. cit., p. 58 f, 60, 61 f

(2) I.M. Labovitz, Federal Revenue and Expenditure Estimates for States and Regions : Averages for the Fiscal Years 1969-71 (Congressional Research Service : in preparation) and House of Representatives, Federal Revenue and Expenditure Estimates for States and Regions, Fiscal Years 1965-67, Washington 1968. Hereafter cited as FREE.

(3) FREE, op. cit. p. 15 f.

Following these assumptions, the following regional distribution keys are used :

For the individual income tax simply the amount of income tax after credits by state was used as distributors. (1)

The social security contributions of employees were directly available for state allocation. Employers' share of social security contributions were allocated in proportion to retail sales. (2)

One-half of the corporate income tax was distributed in proportion to dividends received by individuals, the other half in proportion to retail sales.(3)

Estate and gift taxes are allocated to the state where they are paid. (4)

For the compound "excise taxes and customs", a detailed breakdown into various components was made for each component and the allocation to states is in proportion to the relevant consumption patterns by states. Where no specific consumption distribution was available several proxies were chosen.

- (1) retail sales (e.g. for customs, lubricating oils (non-highway portion)).
- (2) selected retail sales (e.g. for radio, television, etc., sugar) ;
- (3) population (e.g. for transportation of persons by air) ;
- (4) property income (e.g. for documents, playing cards).

Furthermore, some excises were distributed to the state where they were paid (e.g. retailers' excises (jewelry, furs, etc.)) club dues).[5]

(1) *ibid.*, p. 40.

(2) *ibid.*, p. 40 f.

(3) *ibid.*, p. 41

(4) *ibid.*

(5) *ibid.*, p. 41 ff.

TABLE A 1
Regions of Origin Federal Tax Revenue per Head, by Source,
Germany (BRD) 1970

	Total	PIT	CIT	GST	EXC	SSC	PI	POP
Schleswig-Holstein	2398	293	43	435	378	1140	7810	2494
Niedersachsen	2412	293	61	425	369	1153	7847	7082
Nordrhein-Westfalen	2792	398	71	445	386	1366	8951	16914
Hessen	2780	386	97	435	377	1348	9228	5382
Rheinland-Pfalz	2383	289	63	408	354	1156	7887	3645
Baden-Württemberg	2764	399	91	444	385	1322	9504	8895
Bayern	2455	339	62	415	360	1169	8111	10479
Saarland	2368	257	56	400	347	1199	6919	1120
Hamburg	3792	649	110	550	477	1827	11845	1794
Bremen	3133	484	66	476	414	1564	9563	723
Berlin	2787	192	45	541	469	1391	8809	2122
BRD	2669	362	72	440	382	1291	8725	60650
BRD (absolute)	161875	21955	4367	26686	23168	78299	529171	
Range of index numbers	89/142	70/176	59/152	92/126	92/126	88/142	79/136	
Average tax rate	30.6	4.2	0.8	5.0	4.3	14.8		
Elasticity	1.03	1.98	1.53	0.58	0.58	1.01		
Statistical significance R ²	0.920	0.954	0.713	0.880	0.880	0.856		
Redistributive power	0.8	4.1	- 0.4	- 2.1	- 1.8	0.1		
Change in Gini-coefficient	- 3.0	3.0	0.9	- 3.0	- 2.6	- 1.2		

Regions of Origin Central Tax Revenue per Head, by Source,

	France (8 regions) 1969						PF per annum	
	Total	PIT	CIT	GST	EXC	SSC	PI	POP
Région Parisienne	7483	1070	560	1790	370	3123	15174	9438
Basin Parisien	4271	400	340	1270	350	1581	10142	9232
Nord	3811	350	280	1210	260	1541	10023	3837
Est	4146	380	240	1300	330	1596	10202	4727
Ouest	3512	330	230	1320	320	1272	9206	6586
Sud-Ouest	3832	340	260	1440	350	1412	9620	5403
Centre Est	4384	440	300	1250	340	1764	10637	5811
Mediterrannée	4353	420	360	1290	390	1563	10210	5284
France	4696	510	350	1340	350	1826	10652	50315
France (absolute)	236279	25661	17610	67422	17610	91875	535955	
Range of index numbers	75/159	65/210	66/160	90/134	74/111	70/171	86/142	
Average Tax rate	42.8	4.6	3.2	12.2	3.3	16.6		
Elasticity	1.51	2.73	1.62	0.68	0.23	1.80		
Statistical significance R ²	0.955	0.953	0.808	0.738	0.117	1.000		
Redistributive power	22.4	8.3	2.0	- 4.0	- 2.5	13.8		
Change in Gini-coefficient	20.7	7.7	1.9	- 5.8	- 2.3	13.9		

Regions of Origin Central Tax Revenue per Head, by Source,

	United Kingdom 1964						Pounds per annum
	Total	PIT	CIT	GST + EXC	SSC	PI	POP
North	134	35	12	66	22	350	3270
Yorkshire and Humberside	150	43	15	66	26	418	4713
North West	154	42	16	71	25	409	6635
East Midlands	147	41	14	67	24	405	3203
West Midlands	174	51	17	77	29	462	4877
South East	194	70	15	78	31	527	18295
South West	143	47	10	64	21	419	3555
Wales	134	36	11	65	22	362	2671
Scotland	146	43	12	68	22	377	5208
N. Ireland	107	26	8	58	16	306	1458
U.K.	163	52	14	72	26	443	54033
U.K. (absolute)	8807	2810	756	3890	1405	23937	
Range of index numbers	66/119	51/136	56/124	80/109	61/118	69/119	
Average tax rate	36.8	11.7	3.0	16.2	5.8		
Elasticity	1.00	1.65	0.86	0.55	1.06		
Statistical significance R ²	0.960	0.963	0.435	0.842	0.891		
Redistributive power	0.2	7.6	- 0.4	- 7.2	0.3		
Change in Gini-coefficient	- 1.8	8.5	- 1.4	- 8.5	- 0.3		

TABLE A 2
Regions of Origin Central Tax Revenue per Head, by Source, FF per annum
France (21 regions) 1969

	Total	PIT	CIT	GST	EXC	SSC	PI	POP
Région Parisienne	7483	1070	560	1790	370	3123	15174	9438
Champagne	4444	380	350	1280	330	1724	10612	1296
Picardie	4064	400	290	1220	320	1544	10018	1601
Haute-Normandie	4365	460	290	1260	350	1705	10543	1522
Centre	4381	400	460	1260	360	1551	10038	2027
Basse-Normandie	4068	380	240	1240	340	1438	9682	1273
Bourgogne	4255	380	320	1350	380	1535	9998	1517
Nord	3811	350	280	1210	260	1541	10023	3837
Lorraine	3942	370	240	1230	320	1602	10234	2289
Alsace	4292	420	210	1330	330	1702	10537	1432
France-Comté	4392	360	320	1440	330	1432	9650	1006
Loire	3572	340	210	1550	310	1342	9361	2608
Bretagne	3418	320	240	1170	310	1198	8889	2486
Poitou-Charentes	3670	330	220	1170	340	1370	9462	1491
Aquitaine	3881	360	270	1730	370	1481	9820	2475
Midi-Pyrénées	3792	320	260	1220	340	1362	9341	2190
Limousin	3834	300	240	1110	320	1384	9512	738
Rhône Alpes	4407	470	330	1250	350	1827	10943	4491
Auvergne	4138	330	210	1270	320	1406	9588	1320
Languedoc	4011	310	320	1270	360	1441	9677	1736
Provence-Cote d'Azur-Corse	4581	470	370	1300	410	1681	10472	3548
France	4696	510	350	1340	350	1826	10975	50315
France (absolute)	236279	25660	17610	67422	17610	91875	552207	
Range of index numbers	73/159	59/210	60/160	82/133	77/117	66/171	85/138	
Average tax rate	42.8	4.6	3.2	12.2	3.2	16.6		
Elasticity	1.43	2.73	1.79	0.53	0.31	1.82		
Statistical significance R ²	0.955	0.966	0.691	0.299	0.193	1.000		
Redistributive power	18.5	8.0	2.5	- 5.8	- 2.2	13.7		
Change in Gini-coefficient	18.6	7.7	2.0	- 5.9	- 2.4	14.0		

Regions of Origin Central Tax Revenue per Head, by Source, Lire per annum
Italy 1973

	Total	PIT	CIT	GST	EXC	SSC	PI	POP
Valle d'Aosta	495500	47110	6413	92851	87869	208717	1854537	112
Piemonte	544488	74710	7125	83650	45431	217125	1745146	4489
Lombardia	567960	100562	7415	83746	42529	226955	1825083	8712
Trentino Alto Adige	379607	41746	6290	72742	51676	168847	1472130	856
Veneto	404919	38799	6513	71724	42246	151748	1297060	4211
Friuli Venezia Giulia	426450	53202	6608	79907	38213	195144	1579009	1233
Liguria	487354	81626	7958	96685	47986	210312	1838372	1869
Emilia Romagna	486651	51708	7659	84607	50827	175190	1533252	3900
Toscana	447825	49229	7161	82076	49664	161081	1436290	3527
Umbria	388507	29771	6206	69953	43016	143901	1123842	786
Marche	403062	30067	6129	75964	44805	129933	1147938	1375
Lazio	473357	84658	6824	85301	46598	200010	1503424	4810
Abruzzi	292580	19333	6262	59474	39599	100909	983431	1192
Molise	259990	10390	4697	48787	33972	77050	748687	326
Campania	271341	21659	4764	53126	27531	108526	846801	5177
Puglia	281967	18195	4936	50148	31506	111958	897856	3647
Basilicata	252474	13570	4676	46815	28581	94290	744695	609
Calabria	341179	10330	4106	44056	26413	90691	696922	2009
Sicilia	276697	22096	5069	57776	29355	115105	881531	4772
Sardegna	294021	23709	5629	58432	32986	116698	964295	1515
Italie	411364	51874	6338	72123	40253	162728	1330487	55153
Italie (absolute)	22687958	2861007	349560	3977800	2220074	8974937	73380349	
Range of index numbers	44/151	20/193	65/126	61/134	66/218	47/140	60/134	
Average tax rate	40.0	5.0	0.6	7.0	3.9	15.8		
Elasticity	0.96	2.10	0.68	0.89	0.86	0.61		
Statistical significance R ²	0.879	0.818	0.867	0.891	0.388	0.570		
Redistributive power	- 1.6	5.3	- 0.2	- 0.8	- 0.5	- 6.1		
Change in Gini-coefficient	- 1.8	6.2	- 0.2	- 1.5	- 1.3	- 5.0		

TABLE A 3
Regions of Origin Federal Tax Revenue per Head, by Source,

	Australia 1971-72						Aus. \$ per annum
	Total	PIT	CIT	GST	EXC	PI	POP
New South Wales	664	325	122	57	141	2196	4798
Victoria	641	309	126	53	135	2180	3535
Queensland	528	249	102	48	113	1893	1851
South Australia	543	252	104	47	123	1891	1184
Western Australia	601	286	118	52	128	1982	1047
Tasmania	538	240	103	47	134	1791	392
Australia	616	297	118	53	130	2090	12896
Australia (absolute)	7944	3830	1522	683	1676	26953	
Range of index numbers	86/108	81/110	86/107	89/108	87/108	87/105	
Average tax rate	29.5	14.2	5.6	2.5	6.2		
Elasticity	1.09	1.44	1.04	0.94	0.46		
Statistical significance R ²	0.925	0.966	0.895	0.904	0.317		
Redistributive power	2.7	6.3	0.2	- 0.2	- 3.4		
Change in Gini-Coefficient	9.4	9.3	- 0.2	0.6	0.2		

Regions of Origin Federal Tax Revenue per Head, by Source,

	Canada 1969						Can. \$ per annum	
	Total	PIT	CIT	GST	EXC	SSC	PI	POP
Atlantic Provinces	415	137	56	88	63	66	1739	2028
Quebec	479	168	60	94	77	74	2323	5984
Ontario	734	335	101	116	79	95	3178	7386
Manitoba-Saskatchewan	533	189	111	93	67	70	2288	1937
Alberta	636	255	102	117	76	79	2640	1559
British Columbia	787	316	174	123	83	86	2898	2106
Canada	611	248	93	106	76	82	2650	21000
Canada (absolute)	12831	5208	1953	2226	1596	1722	55650	
Range of index numbers	68/129	55/135	60/188	84/116	82/109	81/116	70/118	
Average tax rate	23.1	9.3	3.5	4.0	2.9	3.1		
Elasticity	1.11	1.61	1.25	0.60	0.46	0.68		
Statistical significance R ²	0.839	0.921	0.286	0.722	0.747	0.925		
Redistributive power	2.4	5.7	0.9	- 1.6	- 1.6	- 1.0		
Change in Gini-coefficient	2.6	7.0	- 0.2	- 1.6	- 1.9	- 0.7		

Regions of Origin Federal Tax Revenue per Head, by Source,

	U.S.A. (9 regions) 1969-71						U.S. \$ per annum
	Total	PIT	CIT	EXC	SSC	PI	POP
New England	1066	515	213	80	193	3967	11875
Middle Atlantic	1070	514	197	74	203	4140	37255
East North Central	966	486	157	76	198	3956	40302
West North Central	798	366	139	77	162	3481	16357
South Atlantic	813	375	150	80	147	3350	30890
East South Central	617	273	99	67	133	2734	12862
West South Central	715	338	118	75	142	3131	19392
Mountain	768	347	139	82	140	3345	8362
Pacific	966	467	158	86	178	4032	26564
U.S.A.	900	431	157	77	174	3690	203859
U.S.A. (absolute)	183473	87863	32006	15697	35471	752240	
Range of index numbers	69/119	63/119	63/135	86/112	81/117	75/113	
Average tax rate	24.4	11.7	4.3	2.1	4.7		
Elasticity	1.32	1.53	1.48	0.28	1.14		
Statistical significance R ²	0.946	0.949	0.753	0.278	0.880		
Redistributive power	7.7	6.2	2.0	- 1.5	0.7		
Change in Gini-coefficient	6.9	5.5	1.6	- 1.8	0.9		

TABLE A 4

Regions of Origin Federal Tax Revenue per Head, by Source,

U.S.A. (51 regions) 1969-71

U.S. \$ per annum

	Total	PIT	CIT	EKC	SSC	PI	POP
Maine	739	319	157	77	141	2921	1000
New Hampshire	885	391	162	104	169	3487	742
Vermont	798	331	171	87	146	3040	446
Massachusetts	1034	503	199	76	196	3994	5704
Rhode Island	904	416	152	71	187	3642	947
Connecticut	1360	687	293	85	218	4616	3035
New York	1148	545	219	76	214	4361	18238
New Jersey	1091	549	190	79	194	4393	7198
Pennsylvania	933	444	167	68	189	3645	11819
Ohio	928	472	152	72	197	3874	10663
Indiana	865	423	132	73	186	3634	5198
Illinois	1079	557	179	79	218	4308	11119
Michigan	990	496	157	78	198	4011	8893
Wisconsin	834	390	140	76	166	3536	4428
Minnesota	824	379	143	77	172	3583	3814
Iowa	767	353	127	72	159	3455	2831
Missouri	864	398	155	80	177	3505	4683
Kansas	766	359	126	73	147	3572	2247
Nebraska	838	377	154	84	161	3547	1491
South Dakota	592	253	104	74	112	2874	669
North Dakota	610	255	103	74	127	2961	622
Delaware	1298	545	352	97	200	4329	550
Maryland	1004	525	160	77	157	4079	3937
Virginia	797	393	130	75	132	3461	4662
West Virginia	672	309	105	62	145	2703	1753
North Carolina	700	299	122	82	147	3053	5093
South Carolina	602	257	93	73	131	2788	2599
Georgia	726	339	119	75	141	3162	4703
Florida	871	391	206	84	137	3371	6837
District of Columbia	1401	515	243	140	332	4666	756
Kentucky	647	294	107	72	131	2855	3233
Tennessee	695	315	110	66	153	2887	3941
Alabama	596	264	90	63	130	2693	3459
Mississippi	481	186	84	65	107	2354	2229
Louisiana	628	292	102	70	130	2908	3652
Arkansas	563	237	93	68	120	2548	1930
Oklahoma	695	319	115	76	129	3040	2569
Texas	774	374	127	77	153	3347	11241
Montana	725	313	126	84	137	3167	700
Idaho	684	268	124	74	161	3052	720
Wyoming	886	372	189	104	148	3472	334
Colorado	803	379	150	80	149	3622	2222
Utah	668	287	111	63	137	3040	1070
Nevada	1157	626	160	129	171	4278	494
Arizona	808	353	165	81	140	3378	1797
New Mexico	610	275	96	81	98	2840	1025
California	988	475	165	89	182	4127	19997
Oregon	849	396	136	82	167	3438	2101
Washington	920	459	140	76	170	3739	3399
Alaska	946	506	85	80	152	4478	305
Hawaii	930	465	152	70	152	4314	762
United States	900	431	157	77	173	3687	203859
United States (absolute)	183473	87863	32006	15697	35268	751628	
Range of index numbers	53/143	42/144	54/187	84/166	61/125	64/125	
Average tax rate	24.7	11.8	4.3	2.1	4.7		
Elasticity	1.35	1.64	1.50	0.36	1.06		
Statistical significance R ²	0.928	0.942	0.581	0.154	0.798		
Redistributive power	8.5	7.5	2.1	- 1.4	0.3		
Change in Gini-coefficient	6.6	6.0	1.7	- 1.6	0.3		

B. STUDIES ON THE PERSPECTIVES FOR THE

PUBLIC FINANCE FUNCTIONS

OF THE COMMUNITY

Chapter 10

FISCAL FEDERALISM IN THEORY AND PRACTICE :
APPLICATIONS TO THE EUROPEAN COMMUNITY

by

Wallace E. Oates

Introduction

The purpose of this report is to probe the literature on fiscal federalism and the experiences of various federal nations to seek out insights into intergovernmental fiscal relations in the emerging European Community. Over the past two decades, a substantial economics literature has developed which attempts to determine a set of basic principles of federal finance (1). At the same time a large number of studies have explored the working of federal fiscal institutions in several different countries. The result is a rich collection of analyses of the theory and functioning of federal fiscal systems, a literature which should provide some useful lessons for the structuring of intergovernmental fiscal relations in Europe.

This report comes in three distinct parts. Part I explores the problem of macroeconomic stabilization policy within an explicitly multi-tiered government. Using the fiscal-federalism literature as background, the paper surveys the current wisdom on stabilization policy in a federal system and then examines the applicability of this material to the particular circumstances in the European Community. The analysis takes a concrete focus in the consideration of a specific policy alternative for central government stabilization policy : the manipulation of the VAT rate to regulate aggregate demand.

Part II of this report addresses the redistribution function of the public sector. Once again, I proceed by summarizing the relevant literature on fiscal federalism to serve as a point of departure for an exploration of redistributive policies in Europe. The general thrust of the argument is that there exists a wide range of options for redistributive programs in Europe with the appropriate type and scope of redistributive activities depending largely on the extent of social and economic integration that the Community desires.

Part III turns to a set of fiscal instruments that have come to play a central role in federal (and, as well, in many unitary) fiscal systems ; intergovernmental grants. Such grant programs constitute a primary policy tool for the realization of central-government allocative and redistributive goals. After exploring the diverse forms that such grants may take in order to realize differing policy objectives, the paper examines the potential for these grants in the European setting.

(1) For a survey of this literature, see my Fiscal Federalism (New York : Harcourt Brace Jovanovich, 1972)

I. On Macroeconomic Stabilization Policy in the European Community

After some introductory remarks on current views regarding stabilization policy in Section 1, I will summarize in Section 2 the thrust of the fiscal-federalism literature on macroeconomic stabilization policy. This will lead, in Section 3 through 6, to an investigation of stabilization policy in the European Community and to an examination of a specific tax proposal as one element of a countercyclical fiscal program at the central-government level.

1. Any discussion of macroeconomic stabilization policy must, at this moment in time, acknowledge the divergence of views concerning both the relative efficacy of different policy tools and the desirability of active countercyclical measures. At the risk of some oversimplification, I will characterize this divergence in terms of a "monetarist" position and a "neo-Keynesian" perspective (1).

The first source of dispute is the effectiveness of monetary policy relative to that of fiscal policy in the regulation of the level of aggregate demand. It is the monetarist's contention that changes in the nominal stock of money exert far and away the predominant effect on the level of money expenditure. Changing the level of debt-financed public expenditure will have little impact on the level of total demand, since it will tend to "crowd out" an equal amount of private expenditure. It is thus the monetary authority, not the Treasury, who has the real power to influence aggregate spending.

In contrast, the neo-Keynesians see a more positive role for fiscal policy. In particular, their claim is that the displacement of private spending by government expenditure is far from complete so that bond-financed spending has a significant expansionary impact on the level of aggregate demand. It should be emphasized, moreover, that the neo-Keynesians also admit to important effects from monetary policy; their view is that an effective countercyclical policy will consist of a balanced use of both fiscal and monetary policies so as to complement and reinforce one another.

The second set of issues relates to the desirability of trying to influence aggregate demand in the short run. In this debate, the monetarists have stressed the long time lags inherent both in the decision process and in the response of the economy to actual changes in policy variables. These lags, combined with the uncertainty surrounding both the forecasts of future economic conditions and the estimates of key parameters in the system, have given rise to deep

(1) For an excellent analysis of the issues summarized in this section, see Alan S. Blinder and Robert M. Solow, "Analytical Foundations of Fiscal Policy", in A. Blinder et al., The Economics of Public Finance (Washington, D.C. : Brookings Institution, 1974), pp. 3 - 118

skepticism as to the capacity of public policy to smooth out short-run fluctuations in the level of economic activity. Some monetarists have claimed that public policy tends to exacerbate, rather than reduce, these fluctuations. From this perspective, the monetarists have tended to support proposals that eschew short-run stabilization objectives and emphasize, instead, a stable framework for longer-run growth (proposals such as a fixed rate of growth of the nominal money supply).

The neo-Keynesians, in contrast, are a good deal less pessimistic about the scope for an effective countercyclical policy. While there are few remaining supporters of a detailed "fine tuning" of the economy, the view is that discretionary stabilization policy has real potential for reducing the severity of fluctuations in economic activity.

There is a large existing literature which explores the implications of time lags and of uncertainty for the effectiveness and desirability of countercyclical policy. (1) I think that it is fair to say, however, that this literature has not reached a consensus on how damaging these problems are to the case for an active stabilization program. In fact, certain lag structures can even enhance the effectiveness of countercyclical measures.

These differences in perspective on stabilization policy are of obvious importance for the design of fiscal and monetary institutions in the European Community. If one has monetarist inclinations, one is likely to put a primary emphasis on monetary unification and on the development of longer-run guidelines for the growth of the stock of money. (2) Fiscal integration will hold little interest in terms of macroeconomic policy. For the neo-Keynesian, however, fiscal institutions, as well as monetary integration, become a basic part of the Community structure for stabilization policy. Moreover, he will look to a positive role in the short run for the use of both monetary and fiscal instruments to regulate aggregate demand.

This paper, as will become clear, adopts something closer to the neo-Keynesian stance. The underlying premises are that both fiscal and monetary measures matter and that discretionary policy to stabilize aggregate demand has a real capacity to improve the performance of the economy in terms of limiting the extent of unemployment and reducing the intensity of price inflation over the course of the business cycle.

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- (1) See Blinder and Solow, op. cit., for a summary of this literature and for references.
 - (2) For one intriguing proposal in this spirit, see "The All Saints" Day Manifesto for European Monetary Union, "The Economist, November 1, 1975, pp. 33 - 38.

2. With this general perspective on stabilization policy, I turn next to the implementation of this policy in a multi-level government system. The fiscal-federalism literature has addressed this matter⁽¹⁾ but it is important to stress the institutional framework for this analysis. In particular, the "federal system" is envisioned as an existing and well-defined entity with a central government along side of a set of decentralized levels of the public sector. It is a single currency area in which the central government is presumed to have the power to create or destroy money, to undertake spending and levy taxes and to issue non-monetary debt ; decentralized governments have only the fiscal prerogatives of expenditure and taxation (along, perhaps, with the power to issue bonds).

Within this institutional framework, the thrust of the literature is that the central government must assume the primary responsibility for the stabilization function in the public sector. First, and most obvious, the central government exercises control over the size of the money supply. This must be so within a single-currency area, for the incentives for "localities" to create money with which to acquire real resources from their neighbors would be irresistible, if individual local governments could create money, we would have essentially a fixed exchange-rate system with each jurisdiction possessing, for all practical purposes, an infinite stock of reserves. Each locality could simply print money and purchase goods and services from other jurisdictions with no effective budgetary constraint. The exercise of monetary policy must, therefore, rest with the central government.

Second, the governments of small and highly-open jurisdictions will tend to be highly restricted in the scope for an active countercyclical fiscal policy. The relatively high marginal propensity to import implies that injections of new spending into the local economy will rapidly dissipate themselves into flows of spending into other areas. As a result, the expenditure multiplier (the reciprocal of the sum of the marginal propensity to save and the marginal propensity to import) will tend to be quite small. Professor Brown has stressed these and other leakages in the regional economy in a recent report to this Study Group in which he estimates a typical regional export multiplier for the United Kingdom of about 1.2. (2). This implies only the most limited capacity for influencing the demand for locally produced goods and services through an active local fiscal policy. A local or regional tax-cut multiplier, for example, could well be less than unity.

It is also worth noting that, to the extent that a local or regional government attempts to use debt-financed spending to stimulate its

(1) See, for example my Fiscal Federalism, Chapters 1, 5

(2) A.J. Brown, Chapter 1.

economy, it will generate what is largely an "external debt" for its residents. Many of the bonds it issues will flow into the hands of residents of other jurisdictions so that later repayment of principal and interest will imply a transfer of real income from the residents of the locality to outsiders. In contrast, most of the debt created by the central government is typically held domestically and, thus, constitutes an internal debt.

Finally, since the localities or regions within a federation are normally tightly linked in terms of economic flows, movements in levels of economic activity will transmit themselves rapidly among the jurisdictions. Contractions or booms in one area will make themselves felt quickly in other localities through a depressed or expanded demand for the latter's exports. The result is that cyclical movements in the level of economic activity will tend to be federation-wide ; as such, they are best dealt with by countercyclical policies operating at the federation level.

The fiscal-federalism literature thus contends that the central government must assume primary responsibility for the macroeconomic stabilization function ; decentralized levels of government simply do not possess the capacity to regulate effectively levels of aggregate demand within their respective jurisdictions. Moreover, if one looks at the actual experience within various countries, one finds that, in fact, central governments have taken the lead in the formulation and implementation of countercyclical programs. Both in terms of constitutional provisions and of actual economic policy, central governments have assumed the task of stabilizing the economy (1). It remains, however, to explore the relevance of all this for the European Community with its unique institutional setting.

3. At this juncture, the European Community differs from the model of the fiscal-federalism literature in two fundamental ways. First, it is not yet a well-defined structure with an established central government. The upper-tier of the public sector is in the process of emerging as a distinct level of government with independent taxing and expenditure authority. This is important, because it means that fiscal institutions are themselves variables ; the central government is not yet locked into a carefully specified role by a permanent constitution.

Second, and of obvious relevance to the stabilization function, the European Community, unlike individual nations, is not (as yet) a single-currency area. Each member country has retained its own currency along with the power to regulate its own money supply. While at some point in the future monetary unification may become an accomplished fact, it seems unlikely in the near term. This creates the rather peculiar prospect of a federation in which some measure

(1) For a survey of stabilization policy in some federal countries, see Fiscal Federalism, Chapter 5.

of fiscal integration will precede monetary unification. The relevant "model" for the European Community, at least for the short term, is thus one in which the central government has fiscal powers including, perhaps, the capacity to issue non-monetary debt to finance budgetary deficits, but in which the monetary prerogatives rest with decentralized levels of government.

The case for centralization of monetary policy followed naturally in the fiscal-federalism model from the premise of a single-currency area. Circumstances are obviously a good deal more complicated in the European Community with the continued existence of national currencies. Unlike a single currency area, decentralized monetary authorities do not have access to what would constitute an essentially infinite stock of international reserves ; their limited holdings of foreign currencies and other reserves place a balance-of-payments "discipline" upon their monetary activities. A monetary authority which engages in a rapid expansion of the domestic money supply can expect this to generate a deterioration in the balance of payments within a short time.

Even though decentralized levels of government retain monetary authority, it is clear that a growing interdependence or integration of goods and financial markets lessens the scope for an independent monetary policy. (1) In the limiting case of perfect capital mobility among jurisdictions, it can be shown that the local monetary authority may totally lose control over the size of the money supply in its jurisdiction (2). Thus, even though decentralized, or in this case national, governments have constitutionally independent monetary powers, the high degree of economic interdependence within the Community does severely restrict the scope for its exercise.

But I really don't want to digress here into the issue of the case for and against monetary union. Rather, I wish to pose another question : In the absence of monetary unification but with a central government with fiscal powers, does it make sense to pursue a Community-wide stabilization policy at the federal level ? My own response is a qualified "yes" and I will present a tentative proposal for purposes of discussion in the concluding section of this report.

(1) For a useful survey of the literature dealing with these issues, see Marina von Neuman Whitman, Policies for International and External Balance (Princeton, N.J. : International Finance Section, 1970).

(2) The above discussion assumes a regime of fixed exchange rates. There is admittedly greater range for an independent monetary policy under a system of flexible exchange rates ; however, there does seem to be strong sentiment both among academics and Community decision makers that stable exchange rates are needed to facilitate the integration of the European Economy.

4. In a "federal system" characterized by a high degree of economic interdependence, cyclical forces operating on the level of economic activity quickly spread this impact from any local source to the federal economy as a whole. Surges in spending in one area result in sizeable increases in imports from , and hence an increase in aggregate demand in, other jurisdictions ; likewise, declines in expenditure in one region mean reduced exports and output elsewhere. In view of the relatively large marginal propensities to import among different regions within the federal system, these trade linkages are both large in magnitude and quick to manifest themselves so that alterations in economic activity in one area transmit themselves rapidly to others.

This is not to say that economic conditions will be identical everywhere or that the policies appropriate to one region will perfectly suit the needs of another. We are all aware that cyclical movements superimpose themselves on longer-term trends in the economy. Some regions constitute relatively depressed areas because of certain structural characteristics that require development efforts over a larger period. Moreover, certain localities will have a larger share of industries which are the more sensitive to cyclical changes in the level of aggregate demand. More on this later.

The point here is simply that the extent of economic interdependence that typically characterizes a federal system is quite substantial so that we can identify periods during which, from the perspective of the system as a whole, there exists either excessive or deficient aggregate demand. There is, as I see it, a real role for a central government, using if need be fiscal tools alone, to counteract these excesses or deficiencies.

There are a number of policy tools (and they are certainly not mutually exclusive) that the central government could use for countercyclical purposes. One recent report makes an interesting proposal for a Community program for unemployment benefits (1). It is clear that a harmonization of national unemployment schemes has much to commend it, and a Community program might be an extremely effective way to achieve this. There are, however, a number of administrative and definitional problems to be overcome. While by no means excluding this proposal as an element in a Community stabilization program, I want to examine in this part of the paper another proposal for a traditional sort of countercyclical policy : the adjustment of tax rates, more specifically VAT rates, to stabilize the Community economy.

Tax cuts during times of recession (or, alternatively, tax increases in periods of excessive spending) constitute a standard prescription

(1) Report of the Study Group, "Economics and Monetary Union 1980,"
Brussels (March 1975), EMU-63.

for countercyclical policy. There would seem to be some potential for a discretionary use of tax policy to promote macroeconomic stability in the European Community. What is needed is a broad-based Community-wide tax over which the central government could exercise some control. By reducing rates during times of economic contraction, the central government could bolster disposable income and help to maintain levels of private expenditure ; conversely, during periods of excessive spending, the central fiscal authority could raise rates to restrain spending by private economic units.

The VAT is, for at least three reasons, a very attractive candidate for an instrument through which to implement such a countercyclical tax policy. First, it is a tax that is already widely used in the Community and one which the central government already plans to use as a source of its own revenues. There do remain, however, two real administrative obstacles to its use as a Community countercyclical device. Both the rate structure and definition of the base vary across member countries resulting in some, as yet unresolved harmonization problems. In addition, the central government plans, at present, to use VAT as a basis for assessing charges against member governments ; if it is used in this way, changes in VAT "rates" by the central fiscal authority might not reflect themselves in changes in national VAT rates with the desired impact on disposable incomes and prices. I will return to this issue shortly. For now, I simply want to note that, at least in principle, the central government could "piggyback" a Community VAT rate on top of the national rates and periodically adjust this rate in response to changes in levels of economic activity.

Second, the VAT promises to be an effective countercyclical tool because it is generally viewed as a kind of broad-based sales tax. Increases in VAT rates are commonly viewed by producers as increases in their costs and are pushed forward in the form of higher prices. A temporary increase in VAT rates, thus, tends to manifest itself as a temporary increase in the level of prices, while a short-run decrease in VAT rates will be interpreted as giving rise to a temporary reduction in prices. This provides a direct incentive to economic units to increase purchases when VAT rates (and prices) are low and to avoid purchases when these rates are temporarily at a higher-than-normal level. In addition to the income effects associated with increased or reduced real purchasing power, temporary changes in VAT rates also generate an intertemporal substitution effect that would be stabilizing in character.

Tax cuts in the form of reductions in VAT rates to stimulate the level of economic activity, for example, would not only increase peoples' real disposable income but would also give them an incentive to make purchases during the current period in which prices are temporarily lower than normal.

This is an important feature of a countercyclical tax policy. There was, for example, considerable concern in the United States over the apparent failure of the temporary tax surcharge on income taxes in 1968 to restrain private expenditure to the predicted extent. There now seems a widespread feeling that part of this can be understood in terms of the temporary nature of the surcharge. Since individuals saw the surcharge as only temporary, they did not view it as having a significant impact on their permanent incomes ; as a result, they tended to maintain current levels of spending, and the surcharge reflected itself to a large extent in a reduced level of saving. In response to this experience and various other bits of evidence, macroeconomists have become a good deal more skeptical over the likely effectiveness of temporary alterations in income-tax rates for stabilization purposes if they are truly believed to be only temporary, they may not exert much impact on levels of spending.

In contrast, the temporary character of countercyclical changes in sales tax rates appears to contribute to their efficacy, for private economic units have an incentive to take advantage of low tax rates (during recession) by increasing their purchases of goods and services and to avoid postponable expenditures during times of high tax rates (periods of boom). This suggests that the VAT, rather than some form of income tax, is the appropriate instrument for countercyclical tax policy (1).

A third appealing characteristic of the manipulation of a central VAT rate for countercyclical purposes is, perhaps, more a political than an economic one : its visibility. By raising or lowering the VAT rate, the central fiscal authority takes an explicit policy stance on the short-run macroeconomic position of the European economy. Not only does this influence disposable incomes and prices as noted earlier, but it provides a signal to national authorities, a kind of rallying point for a coordinated macroeconomic policy between the center and the individual member countries. The use of VAT may, in this way, facilitate an integration of community stabilization policies.

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- (1) One important qualification to the force of this particular argument in support of VAT concerns magnitudes. If we are considering periodic alterations in the Community VAT rate of, say, only one percentage point or so, the intertemporal substitution effect may be quite modest ; it could easily be swamped by other influences on the price level. This suggests one interesting alternative. In most member countries there exists a structure of VAT rates with higher rates applicable to certain durable and luxury goods ; many of these goods, including such items as motor vehicles and appliances, are precisely those for which the timing of purchase is relatively flexible. These are the goods for which the intertemporal effects are potentially important. In consequence, the central fiscal authority might choose to piggyback a sizeable central VAT rate only on such a designated class of durable commodities. In this way, countercyclical changes in the rate could be of a considerable magnitude and , at the same time, address themselves to those commodities for which a significant response can be expected. I advance this proposal with some caution and misgivings. In particular it is hard for an economist to be overly enthusiastic over a program which involves further distortions in relative prices. Yet it is, I think, at least worth some thought.

The proposal that I put forth here for purposes of discussion is, thus one under which the central government, in times of recession, would cut VAT rates and push its budget in the direction of an increased deficit, and, conversely in times of excessive demand, would raise VAT rates and push the central budget toward surplus. This raises the issue of debt instruments. How should the central government finance these countercyclical deficits in its budget ?

There are various ways in which this could be handled. The member countries of the Community could, for example, supply the central government with their own debt according to some prescribed formula. In short, the central government could conduct its fiscal activities in terms of debt instruments issued by the member countries. Alternatively, the central government could be empowered to issue its own bonds. It could then finance its own deficits by issuance of a Community debt.

This latter approach offers, I think, some compelling advantages. Of major importance, it would contribute to the integration of Community securities markets. (1) within a single country, securities issued by the central government, because of their familiarity, standardization, and typically low risk, tend to become readily acceptable in all regions. The formation of a truly national market for these securities helps to integrate the markets for other "regional" securities, for the debt issues of the central government may be substitutable for these other securities, where many of the latter may not be directly substitutable with one another (2). In the United States, for example, James Ingram (among others) has stressed the important role that federal securities have played in integrating securities markets across the nation (3)

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- (1) On this issue, see Polly Reynolds Allen, Organization and Administration of a Monetary Union (Princeton, N.J. International Finance Section, 1976) In addition to the basic conceptual issues, this monograph focuses on the European Community.
 - (2) Perhaps, it would be worth considering the establishment of a kind of "super financial intermediary", whose function it would be to issue Community debt instruments. This agency might hold, as part of its own portfolio, securities issued by other governmental units in the Community.
 - (3) "State and Regional Payments Mechanisms", Quarterly Journal of Economics, 73 (November 1959), pp. 619-632.

The existence of Community debt should thus enhance the mobility of capital across the member countries. Finally, in the event of monetary integration, the union monetary authority could use these securities for open market operations, rather than being in the position of having to support one national government relative to another.

5. In this section, I want to address two further matters relating to the implementation of the VAT proposal : the integration of explicitly national or regional policies with central fiscal measures, and the mode of administering the tax. As emphasized earlier, the case for a heavy reliance on central-government stabilization policies rests, in large part, on the close economic linkages among the various regions. These linkages imply the rapid transmission of cyclical movements in economic activity among the regional economies so that, roughly speaking, there will exist a coincidence in the general tendencies toward booms and recessions in the system as a whole to which the central government can respond with (among other things) policies to influence the overall level of demand.

This coincidence is not, however, to be exaggerated. In economic systems the size of the European Community (or of the United States for that matter), we can expect significant differences in regional economic conditions. First, there may exist some important time lags in the recovery process (or the slump). As we have seen recently in Europe, some countries and regions have rebounded from recession much more quickly and with much greater vigor than others ; this has given rise to concern over excessive inflationary tendencies in some countries, while others are still primarily occupied with unused capacity. Second (and closely related to the first point) are the structural problems which plague certain regions. The failure of these regions to achieve a satisfactory economic performance is not the result of inappropriate, short-run macroeconomic policies, but rather a problem in longer-term economic development. The kinds of policies needed to build up the economic structure of a region obviously extend well beyond short-run stabilization measures.

Third, there may well exist some national or regional differences in preferences concerning the desired degree of expansionary push. Some may prefer to tolerate a bit more inflation to reduce further the level of unemployment, while others may place a relatively greater premium on price stability. As we have discussed, the scope for the successful implementation of differing macroeconomic policies is certainly limited by the interdependencies among the regions, but it is not altogether absent, especially in a system like the European Community where the individual "regions" possess independent monetary authority.

The thrust of all this is that there will exist a continuing need for national (or regional) policies to be superimposed upon a Community macroeconomic policy. The central fiscal authority can determine, for example, a VAT rate appropriate to the general conditions in the Community as a whole, a kind of "mean" tax rate ; however, national authorities must supplement such a policy to the extent that their respective economic conditions deviate somewhat from the mean.

This brings us to the issue of the administration of VAT. The preceding section assumes that the central VAT rate is piggybacked on the individual national rates so that changes in the central rate reflect themselves in corresponding changes in each of the national rates. Note that this does not require that the national VAT rates all be the same ; what it does imply is that, if the central authority raises the VAT rate by one percentage point, the rates in each member country go up by one percentage point regardless of the initial rate (and in the absence of offsetting policies by national authorities). The point is that central adjustments to the VAT rate directly affect prices in the shops so that they generate the desired effects on disposable income and relative prices over time.

Unfortunately, under the current design of European taxation, this direct effect of the central VAT rate on the actual prices of goods and services is not assured. Under the existing structure, the central rate is used to apportion contributions from the member states. The European authority will effectively apply the central VAT rate to the tax base for each country to determine a tax bill for submission to each national fiscal authority. Each of the member nations will then decide upon the appropriate means to generate the needed revenues (which may or may not involve the use of VAT.)

This structure of administering the VAT can obviously blunt somewhat its effectiveness as a countercyclical policy tool, although it doesn't entirely nullify its effects. Consider, for example, the case where the central fiscal authority raises the VAT rate to offset excessive inflationary pressures in the Community. Under the existing plan, this would generate increased tax bills from the center to each of the member states. The national authorities, in turn, could respond either by raising additional tax revenues (perhaps, but not necessarily, by increases in their own VAT rates), or by borrowing the needed funds through the sale of government securities. In the first instance, higher taxes would serve to dampen spending somewhat ; in the second, the additional pressures in credit markets would tend to push up interest rates and thereby discourage private expenditure. In either case, there are deflationary effects associated with the rise in the central VAT rate. However, the effects operate through somewhat different channels than those described earlier.

The potential of VAT as an instrument for central stabilization policy is clearly greatest when adjustments in the rate directly affect retail prices. For this reason, it would be most desirable to administer the tax in such a way as to achieve this result. The first-best solution, it seems to me, would be to reform the method of administration so that the central VAT was effectively a tax on all persons in the European Community, rather than a levy on member governments. This would imply that the VAT in each member state would be composed of two parts : the national rate and the central rate, with the portion of revenues attributable to the latter going directly to the central government. In this case, adjustments in rates by the central government would result in corresponding changes in the rates in member countries, except in cases where the national government took explicit action to nullify the adjustment in the central rate by an offsetting change in the national rate.

If such reform is not feasible, a second-best solution would be an agreement among member states to pass along adjustments in the central VAT rate to their individual rates. There would thus be a presumption, for example, that, if the central fiscal authority raised the central VAT rate by one percentage point, member countries would respond by passing this along in the form of a one percentage point increase in their own VAT rates. The difficulty with this second approach is that explicit affirmative action is required on the part of each member state to validate the policy of the central authority; under the "first-best" technique, explicit action is necessary to offset this policy.

6. In concluding Part I, I want to stress that the preoccupation with fiscal policy is not a matter of preference, but rather a reflection of the circumstances in Europe, which make monetary unification in the near term appear unlikely. It is clear that the use solely of fiscal measures is distinctly inferior to a balanced and coordinated application of both fiscal and monetary policy. This cannot be overemphasized, and hence the conclusion of this paper should again underline the importance of the issue of monetary integration.

In the absence of such integration, however, there remains the matter of the response of the national monetary authorities to central fiscal measures. One would hope that the central fiscal authority could obtain a certain degree of cooperation from the various central banks so as to reinforce its countercyclical policies. As an example, suppose that the central fiscal officials instituted a cut in VAT rates to stimulate a depressed Community economy and that this tax cut required deficit finance. The fiscal authority would have to enter Community financial markets to sell securities to fund the deficit. However, this would tend to put upward pressure on interest rates and to crowd out a certain amount of private expenditure, thereby offsetting some of the expansionary thrust of the tax cut. If, instead, the fiscal authority could sell

at least some part of the securities to member central banks, it could effectively generate a supporting monetary expansion that would ease the upward pressures on rates of interest. In this way, some degree of coordination between fiscal and monetary policy might be achieved even in the absence of monetary union.

Finally, I want to point out that this paper has been premised on the more traditional view of stabilization policy : that it is primarily a matter of regulating aggregate demand. I think that we are coming to the position that this is a much too narrow perspective on countercyclical activities.(1) However, the regulation of total demand will surely remain an important dimension of the problem and, in this sense, the discussion here can be viewed as addressing one element of a Community stabilization policy (2).

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- (1) See, for example, William Fellner, "Theoretical Formulations of the Failure of Demand-Management Policies : An Essay, " Journal of Economic Literature, 14 (March 1976), pp. 34-53 ; and Assar Lindbeck, "Stabilization Policy in Open Economies with Endogenous Politicians," American Economic Review (May, 1976), pp. 1 - 19.
- (2) I might note here that I have placed primary emphasis on tax, rather than expenditure, policy for a couple of reasons. First is the matter to start up and shut off spending programs in response to business conditions ; the time lags inherent in the activation and de-activation of most expenditure projects makes their value as countercyclical programs dubious at best. My own judgement is that decisions on public spending should be made on grounds of their desirability in allocative terms with little consideration to short-run stabilization objectives. My second concern relates to the European situation. It is not clear at this point that the direct expenditure role of the upper-tier government will (or should be) a large one. I should be very hesitant to see a substantial and additional absorption of resources by the public sector on the grounds that this is required for central stabilization policy. I should much prefer to see such policies operate through changes in taxes which would not themselves necessitate the transfer of real resources to the central government.

II. Public Policy for the Redistribution of Income and Wealth

As in Part I, I shall begin with a summary of the fiscal federalism literature on the redistribution function. The later sections of Part II then explore this issue in terms of the emerging intergovernmental structure in Europe. As in the case of stabilization policy, there are some fundamental differences between the federal model and the European institutional setting that, at the least, make any direct and simplistic translation of federal principles into European policy highly tenuous. However, an explicit consideration of these differences does, I think, provide some insights into the character of the redistribution problem in Europe.

1. At the outset, it is important to note three, often implicit, assumptions in discussions of the economics of redistributive policies in federal systems. First, such analyses typically cast the "federal model" in terms of a static structure with a certain geographical integrity. By this I do not mean that the literature takes all jurisdictional boundaries as predetermined variables ; in fact, the determination of the optimal-size jurisdiction to provide a particular service is a central problem of the analysis. What is taken as given is the geographical totality of the federation. Moreover, the analysis of jurisdictional structure is not put into any kind of dynamic, evolutionary framework ; it proceeds as if the federal system had always existed. In short, the fiscal-federalism literature does not address the problems inherent in the formation and the sustaining of the federal polity. There is no threat, for example, of the secession of a particular state or region in response to an unpopular policy. (1) This, as I will suggest later, is an important omission for purposes of understanding the redistribution problem in the emerging European Community.

Second, this literature assumes that the central government has, in principle, the power of direct taxation of the individual citizens. It can, for example, levy taxes on the incomes of every person in the federation. This contrasts sharply with a "confederal model" in which the central government submits tax bills to the individual states rather than to the citizens themselves. This is of obvious relevance to the European system under which existing plans will have the upper-tier government use the base of the value-added tax simply to apportion its marginal revenue requirements among the member states.

Third, the federal model is premised on a high degree of mobility of individual households among jurisdictions. If a particular individual is dissatisfied with the provision of local services and the associated

(1) In contrast to the economics literature, political scientists have devoted considerable attention to problems of the stability of federal systems. See, for example, R.J. May, Federalism and Fiscal Adjustment (Oxford : Oxford University Press, 1969)

level of local taxation, he can always seek out another community with a fiscal package better suited to his tastes. This mobility assumption figures critically in discussions of redistributive policies.

Within this analytical framework, a central tenet of the literature is that the central government must assume the primary responsibility for the redistribution function. (1) The problem is that the mobility of individual economic units establishes fairly narrow bounds on the capacity for "local" income redistribution. An aggressive policy for example, to redistribute income from rich to poor in a particular locality may, in the end, simply chase the relatively wealthy to other jurisdictions and attract those with low incomes. The outcome may well be a community homogeneous in poor residents (an unappealing prospect to most local officials).

Note that this argument for the centralization of redistributive programs does not depend upon any notion of a superior set of values or a more egalitarian propensity on the part of the upper-tier level of government. Rather, it stems simply from a behavioral constraint on local policies. The ability to redistribute income to a significant extent is typically dependent on substantial impediments to mobility, which may be non-existent in a federal system. There is, moreover, considerable evidence that points to a growing predominance of central governments in the area of redistributive policies. While there have obviously been a number of factors which have encouraged this tendency, it is also the case that improved transportation and communications have, in recent decades, enhanced the mobility of households in the industrialized nations with a consequent tightening of the constraints on local capacities for income redistribution. At any rate, studies of the incidence of public budgets seem to indicate that, in general, the tax-expenditure packages of central governments have much more pronounced income-equalizing effects than those at decentralized levels (2).

In addition to the level of government best suited to pursue society's redistributive objectives, there is the matter of the appropriate fiscal instruments. To the extent that the equitable distribution of income is defined over individuals, the necessary redistribution of income and wealth is best accomplished by central-government taxation and transfers directly to individuals, not indirectly by intergovernmental grants. The problem is that such grants are transfers from one group of people to another. If, for example, the central government attempts to redistribute income from rich to poor by

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- (1) Mark Pauly has argued that there may be a modest role for local redistributive policies. See his "Income Redistribution as a Local Public Good," Journal of Public Economics, 2(1973), pp. 35-58
 - (2) See Oates, Fiscal Federalism (New York : Harcourt Brace Jovanovich 1972), Chapter 5 ; and Werner Pommerehne, "Quantitative Aspects of Federalism : A Study of Six Countries," in W. Oates (ed.), The Political Economy of Fiscal Federalism (Lexington, Mass. : Heath-Lexington, forthcoming).

transferring funds to the governments of poorer jurisdictions, it is bound to find itself engaging in some perverse transfers, because there will, no doubt, be at least a few low-income individuals in the wealthy locality and some high-income persons in the poorer jurisdiction. Equalizing intergovernmental grants are not an adequate substitute for a federation-wide negative income tax.

There are, however, other justifications both on equity and efficiency grounds for central-government programs to even out the fiscal capacity of decentralized jurisdictions. One is an extension of the principle of horizontal equity to a federal system. The maxim that "people in equal positions should be treated equally" is one of the traditional canons of equitable taxation. However, James Buchanan pointed out some years ago that decentralized finance is likely to violate this principle (1). Since the size of the tax base per capita will vary from one jurisdiction to the next, it follows that different tax rates will be required to raise the same amount of revenue per head. A resident of a locality with a relatively large tax base will thus face a lower tax rate and have a lower tax bill than his counterpart in a district with a smaller tax base. Buchanan concluded that the central government could introduce either a geographically discriminating income tax or, preferably, a set of unconditional grants to local governments to restore the equal treatment of equals.

There is one important assumption implicit in all this : the absence of significant consumer mobility. If we pose this problem in terms of the mobility model, we find that it resolves itself. Suppose, for example, that one jurisdiction possesses a notable fiscal advantage over the others ; this could take the form of a relatively large tax base, or, alternatively, superior efficiency in the provision of a public output (such as the lower cost of maintaining clean air in a town located on a hill.) In an environment of mobile individuals, the value of such differences will be capitalized into local property values. Consumers will bid for places in the fiscally advantaged community until the increased price of property exactly offsets the fiscal gain. Mobility thus ensures that equals will be treated equally, for whatever fiscal advantages are enjoyed will be paid for in the form of a higher actual (or imputed) rent. In the mobility model, horizontal equity is self-policing.

If we examine the actual functioning of intergovernmental fiscal systems, we find that in addition to equalizing fiscal capacity, a second objective is frequently cited as a justification for programs of equalizing bloc grants to subcentral governments : the provision of certain minimally acceptable levels of public outputs in all jurisdictions. The economic rationalization for this objective is not wholly clear ; it seems to draw to some extent on both efficiency

(1) "Federalism and Fiscal Equity," American Economic Review, 40 (1950), pp. 583-599.

and equity arguments. On the efficiency side, one can argue that many of these services have substantial spillover effects ; it is in my interest, for example, that all residents of the country attain a basic proficiency in reading and writing. Moreover, guaranteed service levels can have an "option value" in that I may find it desirable at some future date to reside in another community (although the force of this argument is blunted if there exists a wide choice among local jurisdictions).

In terms of equity, the basic notion seems to be that everyone should be assured a certain minimum level of public services ; to deprive an individual of adequate schooling opportunities or safety is to do him an injustice. This is typically interpreted to mean, not that all localities should provide identical levels of services, but rather that each must meet at least a certain prescribed minimum.

While a society may deem such minimum service levels an explicit objective of economic and social policy, the curious part is that in many countries, this objective has been pursued through the use of essentially lump-sum grants. Such grants may serve to equalize the fiscal capacity to provide such services, but they certainly do not ensure the attainment of the minimum level of public outputs. This requires further measures prescribing standards with which the localities must comply. Here we find a basic source of tension in a federal system between economic efficiency on the one hand and equity considerations on the other: efficiency points in the direction of a wide scope for decentralized choice in the public sector, while the desire to guarantee "adequate" service levels in all jurisdictions motivates centrally imposed constraints on local fiscal behavior.

In concluding this summary of the fiscal-federalism literature on the distribution function, I want to return briefly to the critical role of the mobility assumption, for this is obviously of questionable validity in the European context. In particular, recall, first, that the case for centralization of income redistribution rests on this premise. Second, the self-policing of horizontal equity in a federal system likewise depends on a substantial degree of mobility of households. In the absence of such mobility, unequal treatment of equals may persist. In fact, if one examines the motivation for intergovernmental grants in many countries the constitutional or legislative authorization for these programs typically carries some reference to assistance which permits all jurisdictions to provide an adequate level of services with an effort not appreciably different from the others. As Russell Mathews described it in his paper for this group, "Fiscal equalization is intended to make it possible ... for governments ... to provide a standard range and quality of ... services for their citizens while maintaining comparable fiscal effects ..." (1)

(1) See Chapter 13.

2. The existing structure of the European Community does not appear to fit the federal model very well on several counts. First, a central fact of the European system is its evolving character in contrast to the more static perspective inherent in the fiscal-federalism literature. This has some particularly important implications for redistributive activities at the upper-tier level.

The process of economic integration, while it may well confer net gains in the aggregate, does not necessarily raise the economic welfare of all members.

The changing patterns of production and exchange in response to the trade creation and diversion that characterize an integrating community typically bring gains to some but losses to others. To make integration acceptable to all participants may thus require an explicit redistributive mechanism to divide the gains from integration in a politically acceptable way. The failure to attend to this matter may obviously result in session and the dissolution of the federation.

During this formative stage in the evolution of a federal system, the central government will typically have to engage in redistributive policies to allocate both the gains and costs of economic integration among the participants.(1) This need not, incidentally, involve the use solely of taxation and transfer payments. Expenditure programs or even various regulatory activities may provide the most expedient vehicle for obtaining consensus among the members. More on this later.

Second, unlike the federal model, the central government in the European Community will not, on the basis of existing plans for the medium term, possess major tax instruments that reach directly to the individual economic units in the system. The central budget will, instead, be financed from levies on the member states. This rules out the preferred fiscal program for the redistribution of income in a federal system : a negative income tax at the upper-tier level. The European intergovernmental fiscal structure will be more "confederal" in spirit, at least in its earlier years. This suggests that redistributive activities to generate a more egalitarian distribution of income (to the extent that they operate through conventional taxes and transfer payments) will have to rely more on intergovernmental grants to poorer member states financed from revenues generated largely from wealthier members. Redistribution by explicit tax and transfer programs (if it exists at all) will tend to take the form of net transfers between member states with the states themselves then intervening to determine the final impacts on individual economic units.

(1) This type of activity may extend well beyond the formative stage as recent experience suggests, for example, in Australia and Canada.

Third, the high degree of mobility that serves to frustrate redistributive programs at decentralized levels in a federal system is surely less of a constraint in the European context. The mobility of economic units between the member countries in the European Community is obviously much less than that among localities within a single nation. Important cultural and linguistic differences (among others) impede the movement of households in response to fiscal differentials. This is not to say that such mobility is totally absent, but it is probably not so pervasive a phenomenon as to place serious limitations on redistributive programs within the member countries. This implies that, within the European system, there remains plenty of scope for independent redistributive objectives and programs at the level of the individual member state.

The situation in Europe at present is thus quite different in certain essentials from that envisioned in the federal model of the economic literature. In particular, these differences suggest that :

- (1) The redistributive role of the central government must encompass the allocation of the gains and costs from economic integration with particular attention to the compensation for losses that could otherwise threaten the political stability and integrity of the European Community.
 - (2) The central government will have only a very limited capacity (at least over the medium term) to redistribute income directly through tax and transfer programs from higher-income to poorer economic units.
 - (3) Member states, unlike subcentral units in many federal countries, will have the capability to effect substantial redistribution of income among individuals, should these states desire to do so.
3. In the concluding section, I want to explore a bit further some of the implications of these propositions for redistributive policies in the European Community. At the outset, however, it is important to stress that economic analysis cannot dictate what the general structure and objectives of redistribution in Europe should be. There, in fact, exists a broad range of alternative intergovernmental organizations for redistribution purposes. At one end of the spectrum is the "confederal" model under which the primary role for effecting income redistribution among individual economic units rests with the member states. From this perspective, the redistributive function of the upper-tier level of government (if any) is mainly that of some intergovernmental grants perhaps supplemented by certain federation-wide policies (e.g. for economic development) that have some indirect effects on the distribution of income. At the opposite pole is a tightly knit federal organization under which the central government assumes the primary responsibility for the redistribution function. There are, of course, a wide range of intermediate possibilities representing to a greater or lesser degree a sharing of redistributive policies.

The point, however, is that it is up to the people of Europe, through their elected representatives, to determine the nature of European integration. It can take the form of a loose organization of member states with explicit redistributive policies among individuals left to the states themselves; alternatively, a greater thrust toward unification can give rise to a more pervasive role for the central government in which tax and transfer instruments could be employed at the upper-tier level to achieve the desired distribution of income defined over the Community as a whole. All this, however, is a matter of the objectives of integration, not of economic principles.

The discussion in the earlier sections of Part II seems to suggest that, for the short term at least, the confederal model provides the better approximation to European goals and fiscal structure. It does not appear, for example, that the central government will have access to the direct taxation of economic units (although this could certainly change).

In this spirit, the central government will have to design redistributive policies in the context of an emerging and, as yet, politically unsettled union, which means allocating the benefits and costs of integration in such a way as to satisfy the member states and preserve the existence of the community. This can, in some instances, take the form simply of direct payments to those who suffer losses as the result of economic union. In fact, economic analysis would in general support compensation in the form of direct payments rather than alternative devices such as price supports which typically introduce allocative inefficiencies. The gains and costs of integration must be shared in an equitable and politically acceptable way, and direct transfers among member states operating through the central budget is an appealing method (on economic grounds at least) for setting up these claims.

Although the tendencies at this juncture may be more in the direction of the confederal model, this certainly doesn't rule out all Community policies with some redistributive objectives. The Commission, for example, has expressed interest in the harmonization of social-security policies among member states and has already made a proposal to extend social-security schemes to persons not at present covered. Moreover, a number of programs with important allocative purposes also have redistributive dimensions. The European Regional Development Fund seeks to assist investment to encourage the economic development of lagging regions. One of the basic criteria for the allocation of these funds is need, which implies that aid should go to the poorer areas. As another illustration, the efforts under the European Social Fund to encourage vocational training and enhance the mobility of workers have obvious redistributive, as well as allocative, impacts. While we may, for analytical purposes, distinguish between the allocative, distributive and stabilizing functions of the public sector, this separation of objectives is much less tenable when we examine actual policies.

The central government has and will, no doubt, engage in a wide variety of programs with some redistributive objectives and impacts. However, I find it hard at this juncture to envision a major central role over the medium term in the redistribution of income among individual economic units in the Community. The member states have the capacity to establish their own redistributive goals and to design and institute the policies to achieve them. This will probably account for the lion's share of redistributive activities in Europe over the next couple of decades. Over the longer run, it is obviously much harder to say; here it depends on the extent of and the commitment to, unification of economic and social policies in Europe.

Should the decision be made to press for an enlarged role for central redistributive programs, there are two directions (as noted earlier) that these efforts may take. The first, in the confederal spirit, would be the introduction of a system of equalizing intergovernmental grants under which the upper-tier would seek to reduce the differentials in the fiscal capacity and performance of the governments across Europe. The second approach, following the federal model, would require the acquisition of a set of fiscal instruments with which to effect direct transfers from wealthier economic units in Europe to poorer ones. This would require the imposition by the center of wealth or income taxes directly on individuals accompanied by a standardized schedule of payments to poorer households throughout the Community. The latter seems quite ambitious in view of the existing degree of integration of social and economic policies, but over time changing conditions and attitudes could render it a politically viable alternative.

III. On the Use of Intergovernmental Grants

The purpose of Part III is to explore the various rationales for intergovernmental grants and to try to determine the appropriate form of grant for each purpose. I shall begin in section one with a treatment of the theory of intergovernmental grants. Economic theory does suggest certain important roles for grants from one level of government to another ; moreover, it has very specific implications for the form these grants should take. The theory can take us some distance in understanding the actual use of intergovernmental grants in federal and nonfederal countries, but there remain some striking anomalies that suggest either some inadequacies of the theory or some rather misguided choices of policy instruments. Sections two and three deal with these matters ; the former examines the range of justifications for these grants in different countries, while the latter explores one particular, and rather curious, forms of grant : the variable-matching grant. The concluding section looks at the possible uses of intergovernmental grants in the emerging European community.

1. The taxonomy of grants distinguishes between two basic classes of grants : conditional and unconditional. As the term indicates, conditional grants require some specified response on the part of the recipient. Unconditional (or lump-sum) grants come with no strings attached ; more formally, they are grants whose size is in no way dependent on a particular response from the grantee. Within these two broad classes of grants, there are further distinctions of some importance. In particular, conditional grants may be of a fixed sum (e.g., bloc grants for certain broadly defined purposes) or, alternatively, of the matching variety. Each of these forms of grants obviously has different implications for the budgetary behavior of recipients, and it remains to see how they can be employed to realize the policy objectives of the public sector.

Economic theory suggests three basic roles for intergovernmental grants, and I want to examine them in turn. In each case, it is important to specify the particular malfunction or other problem in the economic system that requires repair and then to determine the grant instrument appropriate to the task.

1.1. Interjurisdictional spillover effects in the provision of public services.

A basic case for the use of intergovernmental grants may exist where the provision of services in one jurisdiction confers spillover benefits on residents of other areas. This is simply an extension of the Pigouvian prescription to an intergovernmental setting. (1)

(1) A.C. Pigou, The Economics of Welfare, 4th ed. (London : Macmillan, 1932), Part 2.

As Pigou argued, in the case where an activity of an individual decision-maker (for example, his level of consumption of a particular commodity) influences the welfare of other persons outside the scope of the market system, there exists the presumption that the individual, ignoring the spillover benefits or costs he generates, will engage in inefficient levels of the activity. Pigou's prescription for curing this malady is that, in the case of external benefits, the economic unit generating the spillover should receive a unit subsidy equal to the value at the margin of the spillover benefits it creates. In this way the decision-maker will have an incentive to take into account the external effects of his behavior.(1)

To prevent any misunderstandings from diverse terminology, it should be noted here that Pigouvian unit subsidies are equivalent to matching grants. If, for example, the cost per unit of the good is one hundred dollars and the spillover benefits per unit of output are worth forty dollars, the efficient subsidy to the economic unit consuming the good is forty dollars per unit ; this implies that the effective unit cost of the good to the grant recipient will be sixty dollars. Note that this subsidy is precisely equivalent to an open-end matching grant in which the contributions of the grantor and the recipient are two-fifths and three-fifths, respectively, or, in other words, to a grant program with a forty-sixty matching formula. (2)

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- (1) One important qualification to the Pigouvian solution has its source in the work of Ronald Coase. He points out that, under certain circumstances, voluntary collective action can remove the inefficiencies normally associated with external effects. In particular, the existence of externalities implies the presence of potential gains-from-trade, and these gains provide an incentive for mutually advantageous agreements to reach a state of Pareto efficiency. If the activity of one economic unit confers benefits at the margin on another, it is in the latter's interest to encourage (perhaps by a formal contract involving payment) an increase in the level of the activity by the generator of the externality. Coase demonstrates that, in the absence of decision-making costs and strategic behavior, maximizing behavior will lead to joint action to establish an efficient allocation of resources. The implication of the Coase analysis is that, where negotiations among the affected parties are likely, the government may do better to encourage joint planning and decisionmaking than to provide incentives in the form of grants to the individuals themselves. See Coase, "The Problem of Social Cost," Journal of Law and Economics, vol. 3 (Oct., 1960), pp. 1 - 44.
- (2) If marginal cost is not constant, as assumed in this example, a given unit subsidy is clearly no longer equivalent to a uniform matching-grant program; maintaining this equivalence would then necessitate a variable matching formula, one in which the shares of the grantor and recipient varied with the level of the subsidized activity.

While the Pigouvian theory of unit subsidies and taxes is typically treated in terms of the behavior of individual consumers or producers, it can easily be extended in principle to the case where public economic activity in one jurisdiction generates spillover benefits or costs for residents of other localities. Assuming that the "local" government extends the provision of the good to the point where the sum of these marginal benefits equals the marginal cost to the local treasury, a Pigouvian subsidy equal to the value of the spillover benefits conferred at the margin on outsiders will induce the locality to provide the efficient level of output. (1)

While this extension of Pigouvian prescriptions to intergovernmental grants is, in principle, perfectly legitimate, there are reasons to be more uneasy about the likely efficacy of such subsidies in the case where the recipients are government units rather than individual private units, for the analysis assumes first that local governments know the preferences of the individuals who make up their constituencies, and second that these governments act to maximize the economic welfare of their respective residents. These are, however, somewhat tenuous assumptions. In the first place, while the private sector can register the preferences of consumers directly in their buying and selling of goods and services, governments must seek other means, such as voting systems, to determine the preferences of their constituents. These mechanisms typically exhibit certain imperfections; for example, incentives for strategic behavior may lead individuals to misrepresent their true tastes, or perhaps not even to vote at all. (2) Moreover, even if all preferences are known with perfect accuracy, the government may well seek to achieve objectives other than the maximization of the welfare of its constituency. Anthony Downs, for example, has explored the implications of government behavior directed toward the objective of maximizing the number of votes received at the polls and has shown that it will typically result in some misallocation of resources. (3)

This suggests that intergovernmental grants may not lead recipients to provide precisely the appropriate level of output. However, my own feeling is that a strong case for such grants remains. Where interjurisdictional cooperation is absent, we can expect decentralized provision of public goods to reflect primarily local preferences with little consideration given to any existing external effects. And there

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- (1) I use the term "local" in this paper to refer generally to decentralized levels of government; it also encompasses state governments, provincial governments, etc.
 - (2) See, for example, Richard Musgrave, The Theory of Public Finance (New York: Mc Graw-Hill, 1959), chs. 4 and 6
 - (3) An Economic Theory of Democracy (New York: Harper Row, 1957).

exists a strong presumption that the failure to consider, for example, significant external benefits will result in distorted patterns of resource use involving less than efficient levels of the good. There is, therefore, good reason in such instances to adopt programs that provide incentives for expanded levels of activity ; intergovernmental grants represent a policy tool capable of creating just such incentives. There are admittedly real obstacles to determining the precise set of grants necessary to induce efficient behavior, but there is at least a presumption that the effects of such programs are in the proper direction.

The presence of external effects thus constitutes one rationale for intergovernmental grants. Note, moreover, that it has a very specific implication for the appropriate grant instrument : open-ended matching grants to those jurisdictions that generate the spillover benefits.(1)

1.2. Equalization of fiscal capacity

A second justification for intergovernmental grants has its source in equity considerations. Many countries rely, to a greater or lesser extent, on " equalizing" grants to compensate for perceived geographical inequities. The basic objective of these grants is to permit all jurisdictions to provide a satisfactory level of key public services with a "fiscal effort" that does not vary discernibly among areas. To this end, these grants typically incorporate variables to reflect "need" and "fiscal capacity" in an attempt to reduce the differences among jurisdictions in their ability to provide acceptable levels of public outputs.

Russel Matthews has already provided an excellent study of fiscal equalization so that it is unnecessary to pursue this issue in depth here (2). However, it is important to stress the grant instrument appropriate to fiscal equalization : unconditional (lump-sum) grants. As Matthews stresses, fiscal equalization implies grants to jurisdictions that vary with need and fiscal capacity, but are invariant to the fiscal response of the recipient. Our second rationale for intergovernmental grants thus establishes a role for unconditional grants.

1.3. Revenue Sharing

The case for revenue-sharing grants to decentralized levels of government stems largely from imperfections in tax instruments at "local" levels. The problems of the efficiency and incidence of a tax are typically a good deal more complicated at the local, than

(1) **Note the stipulation** that these grants be open-ended. Closed-end grants may amount to little more than unconditional grants with only income, and no price effects.

(2) See Chapter 13.

at the central, level because of the effects of the tax on the interjurisdictional flows of commodities and factors of production. Moreover, these flows impose certain types of constraints on local taxation that may not exist for the central government.

I have stressed in Part II the inability of a local government to employ strongly redistributive tax measures because of the resulting outmigration of the heavily taxed individuals. To the extent that we desire significantly progressive taxation, we must look primarily to the central government. Moreover, local governments may, with a little ingenuity, be able to shift a substantial portion of their tax burdens onto residents of other jurisdictions. The taxation of certain locally produced goods may, for example, be largely borne in the form of higher prices paid by outsiders. One particular favorite is the heavy taxation of tourists with excise taxes on hotel and restaurant bills and on other services to finance a major portion of the local budget. This "exporting" of local taxes appears not to be a trivial phenomenon : Charles McLure has estimated that, in the United States, approximately 20 to 25 percent of state taxes are shifted onto the residents of other states. (1)

In addition to these issues of incidence, local taxation has a relatively high potential for the distortion of patterns of resource use. The supply of capital, for example, may be quite price inelastic for the country as a whole so that central taxation of capital will involve only minor deadweight losses. In contrast, the supply of capital to a single local jurisdiction is likely to be highly elastic ; the same tax at the local level will divert units of capital elsewhere where they have a lower marginal product. Another interesting example involves heavy reliance on local sales taxes. To the extent that one jurisdiction pushes its tax rate above that of neighboring localities, it creates an incentive for consumers to waste the additional time and resources to travel elsewhere to purchase items available locally. There is, in fact, some evidence for the United States suggesting that even relatively small differentials in local sales tax rates have had noticeable effects on the geographical purchasing patterns of consumers.(2)

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- (1) "The Interstate Exporting of State and Local Taxes : Estimates for 1962," National Tax Journal, 23 (1970), pp. 206-13.
- (2) In a study of sales taxation in New York City, William Hamovitch estimated that increases in the city's sales tax rate of one percentage point had led, on past occasions, to declines of about 6 percent in taxable sales. Likewise, a cross-sectional econometric study of 173 U.S. metropolitan areas by John Mikesell revealed that an increase of one percentage point in the differential between city and suburban sales taxes is associated, on average, with approximately a 7 percent reduction in retail sales in the central city. See Hamovitch, "Effects of Increases in Sales Tax Rates on Taxable Sales in New York City," in Research Report of the Graduate School in Public Administration, New York University, Financing Government in New York City (New York : New York University, 1966), pp. 619-33; and Mikesell, "Central Cities and Sales Tax Differentials : The Border City Problem," National Tax Journal (1970), pp. 206-13

What all this suggests is that the design of an efficient and equitable system of local taxation is an extremely demanding task. In particular, we may expect the usual sorts of income and commodity taxes to generate greater deadweight losses per unit of revenues at the local, than the central, level and, in addition, to induce certain anomalies in incidence through such things as tax exporting.

The central government, largely free from some of these constraints, has distinct advantages in the field of taxation. Besides the capacity for a more progressive revenue structure and the avoidance of certain deadweight losses because of "national" uniformity, centralized taxation typically results in some cost savings from economies of scale in tax administration. In the United States, for instance, the administrative costs of the federal individual income tax amount to only about 1/2 of one percent of revenues ; in contrast, at the state level, these costs for income or sales taxation are roughly 1 to 2 percent of tax receipts (1).

One way to realize some of these advantages of centralized taxation without relinquishing decentralized expenditure authority is through revenue sharing ; the central government can effectively act as a tax collection agent for local governments. From this perspective, revenue sharing is best seen as a substitution of centrally raised tax receipts for local revenues. The national revenue authority simply collects a prescribed level of taxes which it then distributes in the form of lump-sum grants to local governments. It is important, however, that decentralized authorities continue to raise some significant portion of their own revenues, for at the margin fiscally responsible choice requires that each jurisdiction finance its own expenditures.

The popular case for revenue sharing has, however, taken a rather different tack ; it has stressed the so-called "fiscal mismatch" between central and local governments. This argument focusses on the constraints on local budgets imposed by the relative income inelasticity of their tax systems. Because of growing demands for local services and their rising relative costs, the expansion in local spending necessary to keep pace with the growth in demand

(1) Joseph Pechman, Federal Tax Policy, Rev. Ed. (Washington : Brookings Institution, 1971), p. 53 ; James Maxwell, Financing State and Local Governments, Rev. Ed. (Washington : Brookings Institution, 1969), p. 102.

for public outputs is more than proportionate to the growth in income. However, most local revenue systems exhibit an income elasticity not much in excess of unity so that revenue "needs" expand more rapidly than actual receipts at existing tax rates. The result is the persistent recurrence of a "revenue gap" with the implication that political obstacles to raising tax rates or instituting new taxes result in a systematic underprovision of public services.

Walter Heller made this point quite eloquently in the United States during the 1960's :

At the Federal level, economic growth and a powerful tax system, interacting under modern fiscal management, generate new revenues faster than they generate new demands on the Federal purse. But at the state-local level, the situation is reversed. Under the whiplash of prosperity, responsibilities are outstripping revenues. (1)

From this vantage point, the appeal of revenue sharing is that it puts the highly elastic central revenue system at the disposal of decentralized governments : it "matches" growth in expenditure needs with an automatic growth in revenues and thereby moderates the revenue gaps and associated "fiscal crises" besetting local governments.

The difficulty with this argument is that its premise implies some rather strange behavior on the part of the taxpayer voters. We normally assume that an individual's demand for public services (as for other commodities) depends on his tastes, his level of income, and the cost (here, a "tax-price") to him of these services. There is no reason, in principle, to think that an individual's demand for public outputs is a function of the income elasticity of the revenue system. But this is what the fiscal-mismatch argument seems to imply : people will support increases in the public budget if they can be funded without increases in tax rates (that is, from increments to revenues resulting solely from growth in income), but they will not support this same budgetary expansion if it requires a rise in tax rates. In brief, the implication is that what people care about is not their tax bill, but rather their tax rate. From this perspective, the argument simply is not consistent with our usual models of rational

(1) New Dimensions of Political Economy (Cambridge : Harvard University Press, 1966), p. 118

consumer behavior ; instead, it implies the presence of a form of "fiscal illusion." (1)

The proposition is, however, an empirical one : does a higher income elasticity of the tax structure result in a more rapid expansion over time in the public budget ? To test this hypothesis, I have examined the growth in state and local budgets in the United States over the decade of the 1960's, a period of extraordinary budgetary increases, to see if those states and cities with relatively income inelastic tax systems experienced comparatively small rises in expenditure. The approach was to take two samples (one consisting of the 48 coterminous states and the other of 33 large central cities) in which, after controlling for the effects of other explanatory variables by multiple-regression analysis, I examined the partial association between the growth in expenditure per capita over the decade 1960-70 and a proxy variable for the income elasticity of the state's (or city's) revenue system.(2)

The findings showed a statistically significant positive coefficient on tax variable (at a .05 level of significance) providing support for the hypothesis that the income elasticity of the tax structure does have some effect on the growth in the public budget. However, the magnitude of the estimated effect was not very large. Among the states, for example, the estimated coefficient indicates that a state government which generated 35 percent of its revenues through individual income taxes would, other things equal, have experienced an expansion in spending per capita over the period 1960-70 of roughly \$ 35 more than a state which relied wholly on sales and excise taxes. However, this compares to a mean increase in state expenditure per capita of \$ 228 for the decade. It would be difficult, in my judgement, to regard this as a "large" effect, hardly of sufficient size to justify major fiscal reform.

If, as I am inclined to believe, the effect of revenue sharing on the size of public budgets is quite modest, then the appropriate perspective on revenue sharing is to regard it as a substitution of central taxation for locally raised revenues. To evaluate the merits of the program, we must then look to the altered pattern of

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- (1) It is possible to try to rationalize this fiscal illusion in a kind of Downsian model of rational political ignorance. See my "Automatic Increases in Tax Revenues : The Effect on the Size of the Public Budget," in Oates, ed., Financing the New Federalism : Revenue Sharing, Conditional Grants, and Taxation (Baltimore : Johns Hopkins Press, 1975), pp. 139 - 60
- (2) For a detailed description of the approach and findings, see Oates, "Automatic Increases ..."

incidence, possible reductions in deadweight losses, and the cost-savings from administering a more centralized system of taxation.

Finally, there is one further aspect of revenue sharing on which a "narrow" economic view may be less than adequate. An implicit assumption in the analysis is that the central government can act as a tax collector for local governments without impairing the local expenditure prerogative. So long as the transfers of funds to local governments are truly of a lump-sum form, there is no reason, in principle, why the recipient should feel any constraints as to how he employs these resources. This, however, is no doubt, rather naive ; so long as the central government is a major supplier of local funds, political realities can be expected to induce the central government to use this leverage to achieve some of its own objectives. In the United Kingdom, for example, central government grants (primarily of a lump-sum form) now account for approximately two-thirds of local authority revenues, and this has given rise to widespread concern over the "erosion of local autonomy" and has generated renewed interest in additional sources of tax revenues at the local level. Important as it may be, this particular dimension of revenue sharing is difficult to incorporate into a purely economic analysis.

At any rate, the substitution of centrally raised tax revenues for decentralized taxes provides a third possible rationale for intergovernmental grants. As in the case of fiscal equalisation, the appropriate form of grant is an unconditional one. A program of lump-sum grants from the central government with relatively generous sums to those jurisdictions with the greater needs and lesser fiscal capacity can serve both to provide fiscal equalization and to shift a larger share of the taxation function onto the central government.

2. The theory of intergovernmental grants can provide a number of insights into existing programs. Most federal countries have made extensive use of both conditional and unconditional grants to more decentralized levels of government. The former are typically used to encourage spending on such items as education and roads, which involve significant interjurisdictional external effects, or in some cases to support explicitly redistributive programs for which the central government usually must assume a primary responsibility.

Moreover, one finds that these grant programs frequently involve equalizing provisions so that poorer jurisdictions receive more generous support. In fact many of these programs incorporate explicit provisions to account for the particular expenditure requirements, or "need", of each jurisdiction in addition to its "fiscal capacity" to meet that need. In fact the constitutions of many federal countries explicitly charge the central government with

the responsibility for providing financial assistance to fiscally weak jurisdictions.(1)

In some instances, however, the grant instruments adopted to meet these objectives have not been those implied by our theoretical analysis. Theory suggests, for example, that the proper form of grant to internalize external effects is an open-end matching grant. Matching grants have, in fact, been widely used (particularly in the United States) to encourage particular activities, but other grant instruments have also been employed to this end. Two types of conditional lump-sum grants are of special interest : relatively small grants of a specified sum to underwrite the cost of a particular project and large bloc grants to support a broadly defined range of activities.

For the first of these, we can, I think, find some economic justification, but not so for the second. Bloc grants amount, in practice, to unconditional grants, and any attempt to justify them in terms of supporting a particular set of functions is essentially an illusion. The problem is one of the fungibility of funds. The central government may, for example, designate a certain grant of funds for expenditures on education, but there is really no way to determine whether these funds are actually spent on education. The recipient can easily report compliance with the stipulation of the grant but can simply use the grant funds to replace own monies that would have been expended for education ; these own monies are then available to be spent for other things (including, possibly, reductions in taxation). (2)

An interesting example of this phenomenon is the case of revenue sharing in the United States. When the U.S. Congress first enacted revenue sharing by the federal government with both state and local governments in 1972, it stipulated that local governments must use these monies only for programs for certain designated high-priority functions (health, police protection, recreation, and few others). In particular, these funds were not to be used for local tax reductions. Local governments were thus required to render fiscal reports indicating how they had expended their revenue - sharing funds. But it was obviously a simple matter for a local government, for example, to use its revenue-sharing monies to meet

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- (1) For such excerpts from the constitutions of Australia, Canada, Switzerland, and West Germany, see my Fiscal Federalism (New York : Harcourt Brace Jovanovich, 1972) pp. 85-6.
 - (2) For a formal treatment of all this, see my Fiscal Federalism, pp 75-8. The grantor may attempt to tighten controls by requiring these grants to take the form of increments to existing expenditure. This might have some effect initially, but during periods of expanding budgets, it too is likely to prove ineffective.

an increase in the payroll of its policemen and firemen, which otherwise would have necessitated increases in local taxes. (1) In short, the funds from the central government permitted a reduction in local taxes relative to what they would have been in the absence of revenue-sharing. The general recognition that such budgetary requirements are, in practice, unenforceable led the Congress to delete these constraints on the local use of these funds in the revised revenue-sharing bill enacted in 1976.

In contrast, there is something of a pragmatic case to be made for certain, highly specific conditional grants of a lump-sum form. In some instances, the central government may want to sponsor a kind of demonstration project or experimental undertaking; if the particular function which encompasses this project falls under the jurisdiction of decentralized level of government, it may make best sense for the central government simply to fund the project in total. More generally, lump-sum grants for specific projects permit a degree of flexibility that a rigid matching-grant formula excludes. In particular, the grantor and recipient can negotiate the size of the grant so as to divide the costs in an equitable manner. Moreover, the grantor may, in this case, be in a position to screen project applications and select those with the greatest expected return, rather than funding all projects selected by the recipients at a designated matching rate. For such highly specific sorts of funding, there may thus be some justification for the use of lump-sum conditional grants.

A further issue in the design of intergovernmental grants is the insertion of "fiscal-effort" terms into the grant formulas. Under the general revenue-sharing program in the United States, for example, a jurisdiction's receipts depend upon its level of tax effort (defined as its own tax receipts as a fraction of its aggregate personal income): the higher its tax effort, the more revenue-sharing funds it receives. The case for such fiscal-effort provisions strikes me as a highly dubious one. First, if the grant contains any fiscal-equalizing provisions, then fiscal-effort terms are, at least in part, redundant, since the latter involves a measure of fiscal capacity in the denominator. Second, fiscal effort terms provide a direct incentive for increased expenditure

(1) There is some evidence that, in the first year or so of revenue sharing, some local governments used their revenue-sharing funds to increase expenditures in those areas designated by the Congress (e.g., on purchases of shiny new fire engines). However, there is every reason to believe that, over time, as revenue-sharing funds become a regular input into local budgetary decisions, they will be treated as essentially a lump-sum increment to existing receipts. On this see Richard Nathan, et. al., Monitoring Revenue Sharing (Washington: Brookings Institution, 1975).

on the part of the recipient ; this presumes that, in the absence of this incentive, spending would be inadequate. If the grant is an unconditional one, this would seem a highly suspect assumption (are the budgets of decentralized governments too small ?) ; if it is for a particular activity that generates external benefits, then a simple matching formula would seem most appropriate. In brief, I see no legitimate role for such provisions.

3. In this section of the paper, I want to explore a rather intriguing form of intergovernmental grant which attempts to integrate some of the allocative and distributive objectives of the grants we have examined earlier : the variable-matching grant. Under this technique, the grantor matches the expenditures of the recipient at some defined matching rate. However, the matching rate itself varies among recipients. In particular, the central government will normally try to supplement more generously the expenditures of those jurisdictions with the greater need and lesser fiscal capacity. The result is a schedule of matching rates that exhibit fiscal-equalizing properties.

On first glance, variable matching appears to have real attractions. On the one hand, the grantor can employ these grants to stimulate spending on programs with external effects and thereby further its allocative objectives. On the other, it can achieve, at the same time, a degree of fiscal equalization and thereby promote its distributional goals. In fact, if the variable-matching rates are designed properly, the central government can equalize "tax-prices" for the relevant activities across all jurisdictions ; it can create a fiscal environment in which the same "local" tax rate would generate essentially the same level of local services in any locality.

There are, however, real difficulties with all this (as there normally are when one attempts to achieve multiple objectives with a single policy instrument). From an allocative perspective, matching rates should reflect the external benefits associated with a particular activity so that the incremental cost facing a local jurisdiction is marginal cost net of spillover benefits to other areas. If, however, matching rates vary across jurisdictions in accordance with need and fiscal capacity, they are most unlikely to give the appropriate allocative signals ; they may achieve a certain measure of fiscal equalization but they cannot, at the same time, indicate marginal costs net of spillovers. In brief, one set of matching rates cannot realize two distinct sets of objectives.

Likewise, from the distributional perspective, variable-matching grants for specific functions or programs cannot provide for full fiscal equalization. Complete equalization implies that a jurisdiction should be able to provide a full range of public services at tax rates in line with those elsewhere. This condition is clearly not satisfied where equalizing funds are limited to the

provision of a select group of services. (In fact it has been a frequent complaint in the United States that in poorer areas the bulk of locally generated revenues are directed into matching-grant programs with little remaining for the support of other state and local services).

The central government may thus be able to use variable-matching grants to go some distance toward their allocative and distributive objectives, but such an approach does have some serious, inherent imperfections. Variable matching is not a perfect substitute for a set of conditional grants for allocative purposes supplemented by a set of unconditional grants to achieve fiscal equalization.

In much more pragmatic terms, however, a central government may find that variable-matching grants offer a way to use its limited grant dollars to the largest effect. Suppose that central officials have a number of high-priority grant programs in areas where central stimulus to local expenditures is viewed as highly important. In addition, the objectives of the central government often include the achievement of certain minimum levels of key public services in all jurisdictions. Matching grants are inherently an imperfect mechanism for realizing specified levels of services because actual output depends on the fiscal response of the recipient government unit. To ensure that all jurisdictions achieve the desired minimum level of operation for a specific program, it is generally sufficient for the central government to provide all the funds. If however, the central government finances all the costs of realizing the prescribed program level in all jurisdictions, it is possible that the central authorities will exhaust their available funds on a few programs. This could well mean the failure of the central government to stimulate spending on a large number of other important public goods. From this vantage point, it may make more sense to attempt to ascertain just how big a central-government share is necessary to induce recipients to provide the desired program level. If, for example, a 50-percent central share is sufficient to meet this goal, then the remaining 50 percent of the funds becomes available for use in other programs. For this reason matching grants may be an effective instrument for allocating scarce central-government funds.

There is reason to believe, moreover, that variable matching, where the grantor's share is larger for poorer jurisdictions, is likely to be more effective than uniform-matching grants in conserving central-government funds. In general, one can expect that poorer areas will require more assistance in attaining a specified program level than will relatively wealthy areas ; rich jurisdictions simply tend, in the absence of assistance, to provide higher levels of public services than do poorer ones. Where a 30-percent central government share may be sufficient to induce wealthy localities to reach the desired level of provision, it may require, for example, 50-50 matching to pull up the levels of services in poorer areas ; in the interest of conserving its own scarce funds, it would make sense in this case for the central

government to employ a variable-matching formula in which the grantor's share is 30 percent for rich jurisdictions and 50 percent for poorer localities. Variable-matching grants may in this way allow the central government to get the maximum stimulative effect from a given amount of grant funds. Thus, variable matching has a real attraction in terms of realizing minimum activity levels for a number of programs. (1)

The discussion in this section suggests that we can best regard variable-matching grants as a kind of second-best alternative to a comprehensive system of unconditional equalizing and uniform-matching grants. Variable matching can provide both a stimulus to activity levels and some redistribution toward poorer jurisdictions (although the attempt to do both simultaneously does introduce some real imperfections). Moreover, from the perspective of a central official trying to stretch a limited budget of grant dollars, variable matching may provide the most "cost-effective" of the available means to bring all jurisdictions up to a satisfactory level of certain basic public services.

4. The design of an appropriate system of intergovernmental grants for the emerging European Community requires a reconsideration of the theory of grants and of their use in mature federations against the institutional setting in Europe. Two aspects of the existing European structure strike me as particularly relevant. The first is the dominant position of the individual nation-states with their substantial range of fiscal autonomy and responsibility, the counterpart to which is relatively modest fiscal power of the upper-tier level of government. The second is the dynamic character of **European economic integration involving changing patterns of production and exchange with consequent gains and losses to various members of the Community.**

(1) A variable-matching formula of the type discussed here may also make some sense in terms of our discussion of interjurisdictional spillover effects. Suppose, for example, that the marginal value of the spillover benefits from the provision of a local public service declines as the level of the activity increases. In this case the subsidy for marginal units should presumably decline with the level of the provision of the good. Since, however, poorer jurisdictions typically provide lower levels of consumption of most public goods for their residents than do wealthier communities, it follows that the unit subsidy, or grantor's share, should generally be larger for a marginal unit in a poor locality than in a rich one. The most direct way to deal with this problem, is, of course, for the government providing the grant to allow its share to decline with the recipient's level of activity, but a grant formula under which this share varies inversely with the level of per capita income in the recipient jurisdiction will at least tend to work in the same general direction.

The first condition suggests that, over the near-term at least, there will probably not be a major role for purely unconditional grants for purposes of fiscal equalization or revenue sharing. As suggested in Ch. 14, a comprehensive program of fiscal equalization is more properly an objective of a mature federation characterized by a high degree of economic, social, and political interdependence and a high level of mobility of households. In such an environment, substantial differentials in fiscal performance are readily perceived and decried. Moreover, mobile households are likely to have an interest in the maintenance of a satisfactory quality of public services throughout society, for they will, at different times, consume these services in a variety of jurisdictions. Individuals may, in this sense be said to place an "option value" on the levels of public services elsewhere.

All this seems much less compelling at this juncture of European integration. The nation-states of Europe exhibit far more social and political independence than the states or provinces in existing federations. In addition, there exists much less mobility across national boundaries in the European Community than across jurisdictional lines in the typical federal state. As a result, the political and economic pressures for a greater equalization of fiscal performance should be correspondingly less. Finally, it is worth noting that, as Chapter 14 on simulations reveal, fiscal equalization can be a quite expensive undertaking. It could require a substantial extension of central taxation (unless handled horizontally as in West Germany).

Likewise, the case for revenue-sharing grants is less convincing in the current and near-term European context than in mature federations. In the latter, the constraints placed on decentralized taxation by mobile economic units resulting in resource misallocation and tax competition suggest a role for the central government as a tax-collecting agent for local governments. However, these constraints are much less serious in the European Community. Moreover, past and existing efforts to harmonize national tax structure suggest that the nation-states can continue to perform effectively in the field of taxation. They have access to the main forms of broad-based taxes and can presumably administer them without special difficulties that a central government could circumvent.

The evolving character of the European Community does, however, suggest one role for centrally administered unconditional grants : to compensate the losers from integration. I have developed this point in Part II. Suffice it here to say that, to maintain the viability of the emerging federation, the central government may need financial instruments with which to apportion fairly the gains and losses associated with economic integration. Unconditional grants can serve as a needed instrument for compensation.

In contrast to the very limited role for purely lump-sum grants, the central government is likely to find certain forms of conditional grants to be highly effective and appropriate instruments for the realization of the Community's objectives. We have noted earlier the rationale for matching grants to stimulate levels of activities generating external benefits. Where programs in one country provide

benefits to other members of the Community, there exists a case for central subsidization in the form of a matching grant. Such grants can serve to encourage a diverse range of activities. The E.C. Social Fund, for example, seeks to assist migrant workers and to provide vocational training to develop a skilled and mobile labor force in Europe through a system of grants. Likewise, matching grants can stimulate research and development efforts. In some instances, such grants may provide an alternative to the direct assumption of the function by the central government.

In most instances, matching grants should be the appropriate policy instrument. However, as noted earlier, there may be a case with certain highly specific programs for lump-sum conditional grants. The purpose would be to maximize the flexibility of the grantor in seeking out the most productive application of the available grant funds and negotiating the terms with the recipient. This kind of flexibility may, for example, be valuable in allocating scarce developmental funds for the creation of social-overhead capital.

Matching grants, however, should prove to be the primary grant instrument for the central government. Moreover, there is much to be said in the European context for an extensive reliance on variable matching. I argued earlier that variable-matching grants are a clear second-best to a comprehensive program of unconditional and uniform-matching grants. However, it appears doubtful that, at this juncture, the Community would choose to institute a program of fiscal-equalizing, lump-sum grants. In their absence, variable matching would at least provide a means to get some, if admittedly, an imperfect system of, equalization. By requiring a smaller matching share on the part of the poorer members of the Community, the central government could both provide a greater stimulus where program levels are, in all likelihood, relatively low and, at the same time, ease fiscal burdens most where fiscal capacity is least. Particularly in view of the highly limited budget to which the upper-tier is likely to have access, variable matching may permit the most effective use of highly scarce grant funds in generating acceptable levels of certain important services.

Regardless of whether the Community selects uniform or variable matching, there is one danger with a system of conditional grants : the proliferation of these grants into a maze of confusing and often overlapping programs. By the late 1960's, the system of special purpose grants in the United States had evolved into a chaotic mass of regulations ; no one really knew how many federal programs existed, except that it numbered in the hundreds. The sheer complexity of the system meant that local public administration became largely a game of "grantsmanship"; local officials had to go to great lengths to discover what programs existed and how to apply for federal funding. This trend has been reversed in the 1970's by the establishment of a series of bloc grants which have consolidated large numbers of the special-purpose grants. I have no simple method for avoiding such a proliferation of programs as took place in the United States ; they seem to have resulted from the independent action of a multitude of public agencies with each establishing its own grants (with the approval of the Congress). The apparent moral is that some sort of central coordination of grant programs is in order.

Chapter 11

PRINCIPLES FOR THE ASSIGNMENT OF
PUBLIC ECONOMIC FUNCTIONS IN A
SETTING OF MULTILAYER GOVERNMENT

by

Francesco Forte

1. Levels of Government

The analysis of assignment to the various levels of government of functions entailing public spending (henceforth called "LG assignment") has recently been elaborated as a federal theory and also as a regional theory. Earlier it had been developed mainly as a local finance theory. It thus seems that there is a plasticity in this body of research.

Under a two-level, local and central system of government the lines and criteria of analysis may appear to be the same - even if the focus of research is not identical - if one looks to devolution down or to devolution up. However, innovation, in the two cases, takes place at a different level of government, and this may play an important role.

Moreover, the conceptual framework is further complicated when there are three or four levels. The two lines of research, up and down, thus have more than one starting point. As regards a supra-national federal layer, the analysis for devolution up tries to see when and why the jurisdiction of the nation state is "too small" while the analysis for devolution down tries to see when and why the jurisdiction of the federal state is "too big". As for a "regional" structure, on the other hand, it is the analysis of devolution down that tries to see when and why the jurisdiction of nation state is "too big" while the analysis for devolution up tries to see when local governments' jurisdictions are "too small". Assignment criteria thus may be applied to the same entity (e.g. a given nation state) in opposite directions. The same nation state could be considered appropriate for public spending for scientific research because of its size when compared with the regional state, while this may not be so when compared with a (new) supra-national federation. In some cases, assignment criteria are utilised for the same type of devolution analysis (e.g. "devolution up") with reference to different entities: e.g. local authorities versus regions or the traditional nation state versus a (new) federation.

Here a new issue enters the picture: that of a higher versus broader level of government. The two normally coincide at least in modern times in a two-layer system where the broadest jurisdiction (i.e. that with the largest geographic extent) is also the highest level of government (i.e. that with the "ultimate" political powers). This is so because in modern times local governments are not considered as the true source of political power of the country. But with three levels, the layer with ultimate powers does not need to coincide with broadest jurisdiction. In a federation, member states may be the highest level even if they are not the broadest. As we will see, this may be important in the assignment analysis on the expenditure side, under the heading of the "homogeneity" criterion. It should be added that it is of more general importance for the assignment analysis on the revenue side: the highest

level of government is that where the ultimate tax power lies and thus has the right to enter in any sphere of taxation and public debt which has not yet been given to the other levels of government. For public expenditures there may be a similar distinction. The highest government may be allowed to spend where it likes, unless the contrary is specified, while the other may be prevented from doing so. But there are differences too. There may be residual powers of spending at more than one level since double spending is not considered a big issue, while double taxation is. There might be a constitution which provides for the assignment of the "ultimate" and of the "residual" powers in the area of taxation and of spending. In this case, irrespective of whether the constitution operates at the broadest level and is formed (and changed) through direct representation at that level, the highest level will still be that to which the constitution gives these powers. This government is so, because the constitution is "above" the various levels of government.

Another important difference in LG assignment analysis has to do with the number of entities in the given layers: it is different to decentralize to five regions or to twenty-five; and it is different to unify in a federation of five states or twenty-five states. In the second case, there is a dramatic difference in size; in the first there is not. Some arguments relating to externalities, coordination, indivisibility, and economies of scale which are clearly relevant in the second case may not be equally relevant in the first.

Whether the analysis concerns two or more levels, one should distinguish the federal and regional assignment theory from that pertaining to state or regional finance versus local finance. To include in economic federalism or regionalism local finance theory as a sub-case is too much, even if they have several elements in common and seem to form part of a more general theory relating to diversification of levels of governments. The differences do not relate to issues of size but to issues having to do with the nature of governments. First and most important, local governments have to do with the life of particular urban or rural communities while the other governments do not. Secondly, local governments lack some legal political powers because they are not considered autonomous "political" bodies. For this reason they are inappropriate for the assignment of certain functions, while because they are related to a given urban or rural settlement they are appropriate for others. Urban economics here enter into the picture. On the other hand, one can conceive a federal state where defence or an important part of it is left to the states; and also a federal state where an important part of stabilization policy is left to the states, but not a unitary state where local authorities have defence or stabilization policies, since normally local bodies do not have political relevance in security matters, nor enough monetary and fiscal powers to attempt to control the economic trend.

What are the characteristics which distinguish a federal structure or a regional structure from a structure with simple decentralization? Political autonomy is more than decentralization and includes a power of setting laws, i.e. legislative rules. This may imply rules for public services and also other important regulatory activities performed through legislation. There is a federal or a regional structure, in contrast with a merely decentralized structure, if there are significant legislative powers at both levels of government. To be "significant" they must have not only an important content, they must also have a compulsory character, rather than simply be guidelines (as energy saving and environment protection guidelines of the EEC).

A debatable question is whether these powers to originate a federal structure should be attributed to the citizens or to the states: clearly the power of the federation is much stronger in the first case, where it can appeal directly to the people. In several instances the change from "guidelines" to effective intervention may be done through financial intervention. Here also there is a question of autonomy and size of powers. One must distinguish between a tax power whose exercise can be limited by rules by other layers of government and a tax power which cannot be thus limited, and has its limits only in a "constitution" or in a general treaty.

Some aspects of the distinction between political autonomy and decentralization as the difference in character between economic federalism (inclusive of regionalism) and local finances seem to escape rigorous analysis, at least from the economist's viewpoint. A pure theory of LG assignment must necessarily overlook them.

2. Contents of the Allocation Function

The study of LG assignment in public expenditure theory has been mostly developed with reference to the supply of public goods in the narrow sense. However it can, and should, fruitfully be extended, as a unitary body, to the entire spectrum of public functions: whatever can be included under allocation, distribution, stabilisation and employment. But in addition allocation must be viewed more broadly than the mere problems of supply of public goods in the narrow sense. Under this broad expression one should distinguish four headings:

- (a) functions relating to the efficiency of the market economy, i.e. measures to ensure efficiency in production, trade and other tertiary services and finance;
- (b) functions relating to the final destination of resources in the market process, i.e. measures influencing the level of different kinds of consumption and the level of consumption as a whole;
- (c) functions consisting of the supply of public goods and services;
- (d) functions related to economic growth, i.e. to the investment and structural policies of enterprises, and to the productive investments of government. (1)

It is thus clear that allocation functions do not include only the supply of public goods and services, to which the literature of LG assignment mostly refers (2), but also governmental measures relating to allocative aspects of the market process.

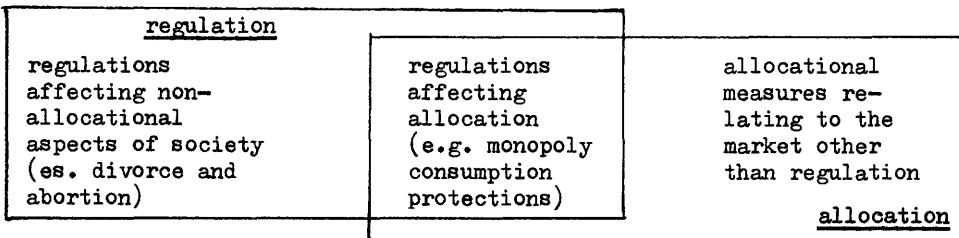
These functions may be realised either through regulations, or through positive transfers (normally conditional grants), or negative transfers (indirect taxes, corporation taxes and related allowances, personal income, taxation of dividends, etc.), or through monetary and related powers. Also the supply of public goods and services may be instrumental to the functioning of the market process because there are regulatory public services which constitute the framework in which the market operates. This is important for the LG assignment analysis, particularly when focussed, as in the present paper, on supra-national federal issues, because the most important feature of such a federation is normally a new "common market" (3). To unify the national markets and to maintain their unitary operation is an important task for a federation.

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- (1) Obviously this group of functions can be logically reduced to the previous three groups: however, as a "complex" may deserve an autonomous consideration in modern public policy.
 - (2) But see René Frey, Gregory Meugebauer, Marcel Zumbühl, *Der Schweizerische Föderalismus aus ökonomischer Sicht*, Institut für Sozialwissenschaften, Universität Basel, 1975.
 - (3) We do not need to review here the reasons why a "common market" may be desirable.

We thus need now to consider a second distinction within the allocation function which has to do with the supply of public goods and services. Among these functions may be distinguished the supply of economic goods, and the supply of regulations for the economy and society and their enforcement. For enforcement one requires goods and manpower, i.e. commodities and (personal) services. But the essence and importance of the regulatory activities does not consist in the goods included in the enforcement activities, it consists in the power embodied in them at each stage. One may conceive of the functions of regulation being carried out at one level, and its enforcement through bureaucracy, police and courts at other levels.

Regulatory activity, carried on either through legislative or quasi-legislative norms (rules) or through administrative specific acts (authority) and through judicial decisions, refers to the most diverse aspects of life: from distributional issues (such as those having to do with property rights, minimum wages, inheritance laws, the right to strike and so on), to individual and family rights (the various personal freedoms and rights, marriage and divorce laws, abortion laws and so on), to moral and religious matters, to ruling of the market, to ruling for the supply and utilisation of public goods and for the general organisation of governments. Within the broad realm of the functions consisting in regulations, one can thus disentangle those having to do with the market process, both in its (productive) efficiency and in its final destination of resources (consumption) aspects.

As we shall see, there are reasons why in seeking to identify the functions proper to the (supranational) federal level one should think of regulatory activities more than as the supply of goods in the narrow sense, as well as of ruling the market processes in general. It is therefore interesting to consider the overlapping between allocation through ruling the market and allocation through the supply of regulation activities. This overlapping (it may be said with a degree of simplification)



gives the area which fits conveniently as the core of a federation scarce of financial resources but rich in well-founded ambitions.

3. Criteria for Assignment of Functions by Level of Government

But let us come back to the general framework of the LG assignment analysis relating to public expenditure. (1)

The basic assignment criteria may be grouped as follows:

- (a) externality
- (b) indivisibility and fixed costs economies and diseconomies of scale in the supply and delivery of public goods and policies
- (c) unification, uniformity, coordination (as referred to the market, to social life or to public goods supplied)
- (d) democratic control and flexibility: i.e. satisfaction of individual and small groups' preferences with a minimum of frustration; information and checks between the constituency, the political class and the administration; flexibility and speed in satisfying the emerging needs
- (e) innovation, comparison and competition in the performing of existing functions and in developing (or choosing not to be developed) new functions
- (f) political homogeneity, i.e. necessity or compatibility of the function with the political powers of the LG considered.

These criteria should not necessarily be considered "all or nothing" criteria. They might lead to the "partial" assignment of a function or a set of activities within a function to a given LG rather than to "complete" assignment. Furthermore, their results may not be clear-cut and may be divergent so that one may distinguish "weak" and "strong" assignment cases. Finally, conflicts and changes may develop and solutions may be unstable.

These criteria may lead to the creation of a new level of government: or, conceivably, to the impoverishment and disappearance of an existing level of government.

(1) Remember that here we do not deal explicitly with the revenue side of the assignment analysis. Matters relating to revenues enter here indirectly because they are related to fiscal and monetary policy for stabilisation and employment. Tax regulation-harmonization is one of the market ruling activities.

4. Criteria for Public Goods

Before analysing these criteria in relation to allocational functions, it is important to consider those criteria which make a good "public" As we shall see, there are differences between the criteria for the publicness of goods and the LG assignment criteria: but consideration of these differences is a fruitful starting point for deepening our analysis of LG assignment.

One must distinguish criteria through which a good must be public from criteria through which a good may be public.

In essence, a good must be public when it

- (a) can only be supplied by a public institution because of its political nature; enactment and enforcement of laws is a significant example; but also defence is relevant here, even if it comes also under the next heading; (1)
- (b) cannot be divided in selling units, or the amount which can be appropriated to the supplier is small in comparison with the cost and this cannot be further reduced through the fractioning of supply: the externality argument;
- (c) there is no private demand, even if the community believes that there should be some: merit goods.

Largely but not completely similar criteria can be used, to argue when goods may be public:

- (a) some goods are better supplied by public institutions, because given their "public" nature, they ensure (or are supposed to ensure) a given quality: e.g. independence from particular

(1) It should be noted that this "institutional" argument can also be applied to show why some goods "must" be private: while criminal justice and defence "must" be public services, associations of entrepreneurs and workers unions cannot be of the government because a "state" labour union is no more a union. Similarly one can argue for "professional associations".

- pressure groups, and uniformity of standards; (1)
- (b) some goods are supplied by public institutions in a better quantity and quality because they can take account of indivisibility and of external economies and diseconomies arising from the suppliers' behaviours;
 - (c) for some goods there is not enough market demand for distributional reasons and because of "wrong" judgement by the consumers;
 - (d) the size and scope of government may make possible, or more efficient, activities which need a very large scale, a central coordination, a big financial base to cover very large risks.

These later reasons are also relevant to explain public sector activities which are not public goods proper, because they are sold at a price and, therefore, cannot be defined as free goods. An important class of these public activities are those in the area of infrastructural services: railways, postal services, local transport services, tolls. These public infrastructures may be characterised by externalities and great risks of monopoly exploitation if left to the private sector. Transfers and regulations, however, may be able to take care of these "market failures", better or as well as direct intervention by public enterprises.

The theory of public goods, following Samuelson, emphasises the jointness of the source of benefits, in the sense that one unit of supply affects simultaneously several people. But what really matters - for the good to be public - is the indivisibility in selling units, not the indivisibility of the source of utility. It is true that it is often this characteristic of the source of utility (jointness) that leads to the non-exclusion; or that makes profitable a collective free supply, so that even if it is not necessary, it becomes sufficient to have a public good. Exclusion may be possible, in spite of jointness, but it may be very costly and/or it may involve a large waste of (unused) resources.

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- (1) This line of analysis may also be applied in reverse to justify why a good may conveniently be supplied privately rather than publicly: e.g. in a state where religious differences are relevant, the quality of certain kinds of private education may not be granted by the public authority. Instead of direct supply by the government of public goods, one might resort to public transfers to private persons who are enabled to consume given goods and to choose the kind of supply they prefer. But there may be also room for privately financed consumption, alongside with those financed by the government; a private doctor may provide a personalised service that publicly financed doctors are not able to provide.

In the theory of public goods the concept of jointness receives very much attention because it explains the advantage of replacing the market supply by a free public supply and because it is crucial to the problem of distribution of tax burdens, i.e. to the issue of sharing the rents of public services. But, as noted, jointness is not a necessary condition for assignment to the public sector.

This jointness, however, is a fundamental issue in the LG assignment theory, because it leads to the territorial map of the benefit of the public services considered.

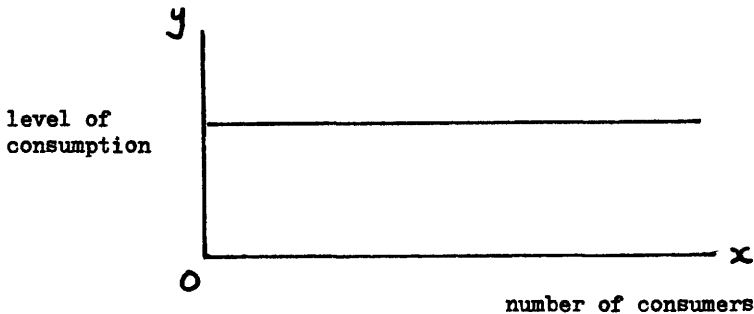
5. Assignment of the Allocation Function

(a) Externality or spillovers

There are collective goods with a cosmopolitan or international influence; others with a national or regional or local influence.

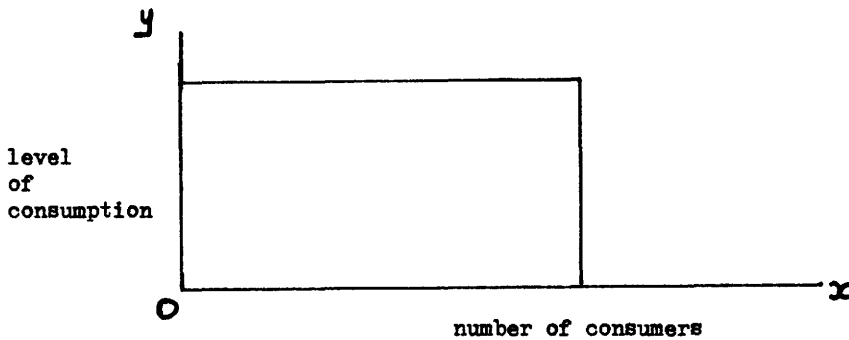
Public goods, from the point of view of the extension of the benefit, may be of different types. The first is a Samuelsonian "universal" pure public good, where everybody shares in equally and with its consumption does not reduce that of others. (Fig. 1)

Fig. 1



A more frequent case of a pure public good, however, is that of a limited number of consumers who are in a given territorial area. The good is still "pure" (everybody shares in it equally without interfering with the consumption of others) but not "universal".

Fig. 2

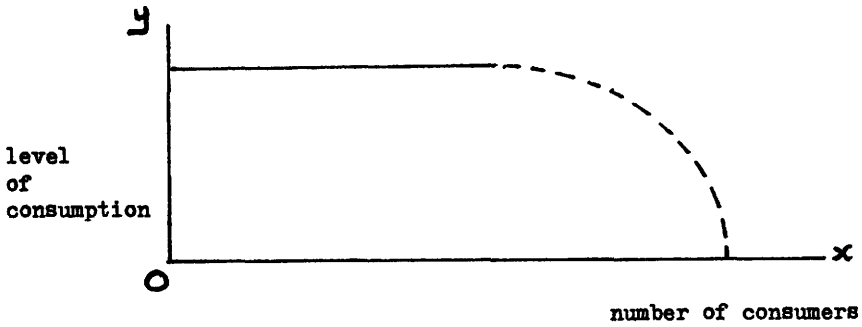


The area may be determined by the technological characters of the good (a lighthouse or an elementary school) which cannot give its services beyond a certain territorial sphere; and/or by regulations (laws, byelaws and administrative decisions) on its supply (a police service which is operating within a given jurisdiction dealing with given offences or offenders, a higher education school which enrolls students coming from a given district); or by regulations and contracts (a scientific research programme whose know-how is reserved to a defined group of members, the others who do not sign the contract, being excluded by the patent law); or by political commitments (a national defence system may protect a given list of allied nations).

But this was still the hypothetical case of a "pure" public good where the consumption is equal for everybody and the addition of new consumers does not affect the level of consumption of the others. More realistically, consumption declines with the distance of the consumers from the place where the good is supplied or originates.⁽¹⁾ Here it is more difficult to identify the proper territorial area. (Fig. 3)

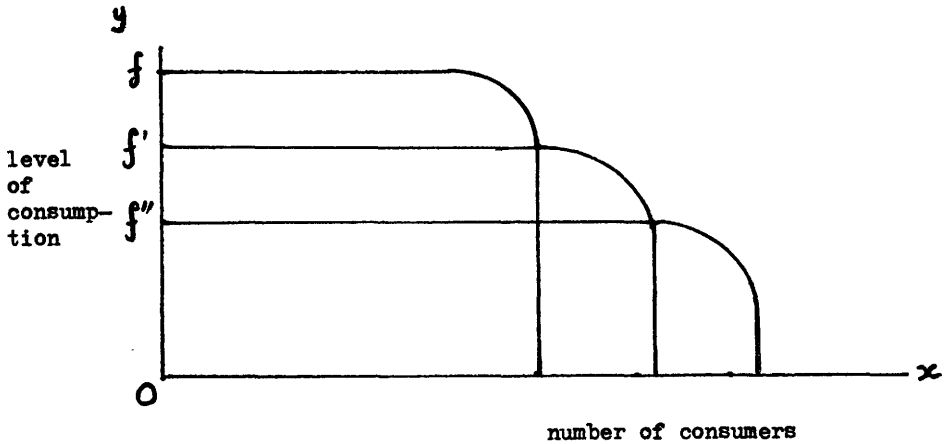
(1) When it is the consumer that has to move to get the good (as in the case of school and medicare services), one may argue that the amount of consumption does not decline with the distance: it is its utility which declines, because of the cost of movement. However, we can also say that consumption net the transfer costs, i.e. the net amount of resources available to the consumer, declines. We find this approach more convenient, since in this way we keep as separate the question of different marginal utility of consumption of identical units of goods by different peoples.

Fig. 3



But the individual's consumption may be reduced also by the number of additional consumers: here the extent of the area served has an effect not only of reducing the consumption of the more distant consumers, but also of reducing the level of consumption of those who are closer to the centre of supply. (Fig. 4)

Fig. 4

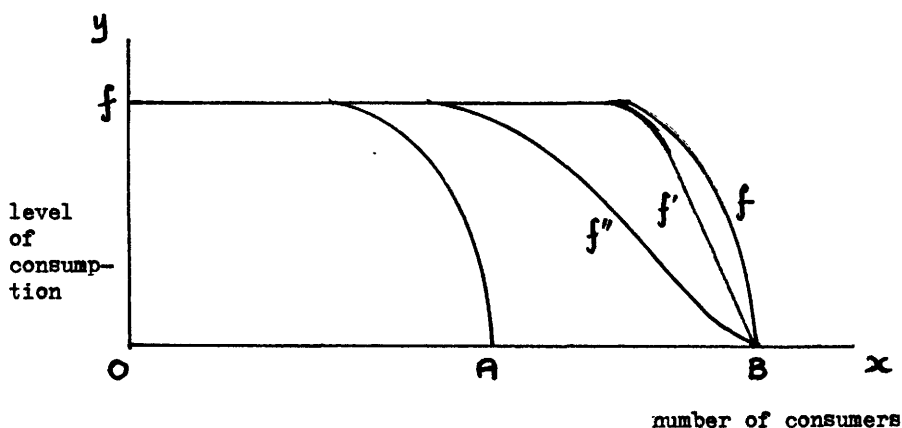


Assuming a given expenditure, the individual level of consumption may be given by the lines originating in f or f' or $f'' \dots f^n$ according to different degrees of congestion, due to the different extent of the area served.

If one could always consider the supply of a definite, indivisible amount of a given good or if one could assume that marginal costs are constant as a function of the size of the expenditure, the problem of the proper size of the good supplied would not complicate the picture of the choice among different levels of jurisdiction. But in real life often there are increasing and decreasing costs. Thus the question of the proper size of the good supplied becomes important.

Suppose that with a given amount of expenditure E and a given level of individual consumption f in the centre of supply, the number of consumers is OA and with $2 E$ they are OB ($= 2 OA$)

Fig. 5



Suppose further three different cases for the supply of AB : the curve of available levels of consumption is alternatively f or f' or f'' . In the third case decreasing returns make it unprofitable to move the service to a broader jurisdiction, in the second returns are constant for OA and OB (1). In the first case, returns increase from OA to OB and it is likely that OB should be preferred.

(1) If utilities of peoples in different areas differ, obviously OB could give either $>$ or $<$.

From the point of view of the analysis of the territorial map of their benefits and the possibilities of exclusion of members of other jurisdictions, public goods may be distinguished according to whether they primarily give a direct technological quantifiable (tangible) benefit to somebody or consist of joint consumption of externalities as such. The first kind of goods (let us call them T goods) can be consumed either through individual consumption (T_i goods) or through "collective" (normally quasi collective), i.e. "joint" consumption (T_j goods). In the case of the second kind of goods (let us call them E goods), there is no specific physical relation between the receivers of the benefit and the supply of the good, so that the consumption or the benefit of each subject is not quantifiable.

There are a number of cases in which the consumption consists of a basket of T_i and T_j goods, e.g. schools. T goods may cause intangible spillovers (E_i spillovers) through the fact that they may give also an indirect intangible benefit, either technological but not quantifiable or pecuniary. The territorial map of the T benefits and of the E spillovers do not necessarily coincide: normally the second is much broader than the first and less easy to draw than the first, because these spillovers are generated not only through actions of the receivers of the direct benefits but also through actions of persons and entities coming in relation with them. Education and care of infectious diseases are examples of this. Most T public goods have spillovers: if not of a technological kind, in the sense that, because of the (free) supply of public goods, supplies of other commodities may become better and cheaper (though taxes to pay for these goods have a contrasting, compensating effect, their territorial map may be different).

Education has physical technological spillovers which normally enclose the entire area of mobility of educated labour supply. It can be the entire market; but it can also be less than it if different languages are spoken in its different areas in a monopolistic way; and it can be more than the given market if emigration outside it is relatively easy. This, again, among others, is related to languages.

Apart from "intangible" spillovers, whose area may be very broad and not precise, T goods may give also "tangible" spillovers of a direct type, i.e. T spillovers: local highways may be used also by transit traffic, thus giving tangible benefits outside the community; repopulation of game and fish may benefit other areas; low price or free museums may be visited by outsiders, and so forth. This concept of "spillovers", unlike the other, is conventional. It is relative to the sphere of jurisdiction of the government which supplies the service. The smaller the jurisdiction, the greater will be the spillover. The former concept of spillover was in the nature of the goods. No matter how large the government's jurisdiction, there are B goods which entail external economies, in the form of intangible benefits for others than their direct consumers.

As said, there are also public goods (we called them E goods) which primarily consist of intangible externalities as such: defence or crime prevention are examples.

Some E goods, however, from time to time materialize also in some T goods: in the case of public order, people whose life or property have been endangered by a crime may receive specific services through the public action, even if the true essence of the service consists of discouraging crimes and it is thus jointly consumed in an immaterial way by the entire community.

In the case of E goods the territorial map of the "spillovers" is conventional since it related to the area of legal-political action of the considered level of government. This area normally - but not necessarily - identifies with its jurisdiction. Defence may be granted by a government not only to the territory of its jurisdiction but also to those of other countries in which it has a strategic interest. One can then say that, while the benefits given to the first community by its defence are the consumption of an E good by its members, the E benefits accruing to second communities are spillovers. Much the same may be true with ET goods: prosecution of criminals who are found in a given area and committed their offences in other areas, may give T and E spillovers to the members of this other area. This is an important reason why public order activities tend to develop at the broader level of government: i.e. that which has jurisdiction on the entire common market, if this is really characterized by free movement of persons, i.e. abolition of the internal borders. Other public order activity at the broader level in the realm of justice, may be justified with a similar argument: the territorial indivisibility of the E part of the considered ET or E good. Violations of regulations relating to the entire area affect its enforcement everywhere and therefore should be judged at the broader level. Here, however, another argument enters the picture: that of the uniformity of the service. Suppliers at lower levels may lack uniformity, and this, because of the amplitude of the E components of the public good, may interfere with the unification of the area.

It may be very hard to define the broader E area of E or ET goods in a permanent and less than approximate way, since much depends on the scope of the regulations and policies relating to their supply.

What from the point of view of public sector assignment theory is a mere problem of externality, from the point of view of the LG assignment theory may become a problem of jointness: it may be that exclusion of other communities is possible, as for most scientific research, where patents and secrecy of know-how may "exclude" most benefits from those who are not members of a given initiative; or as in the case of military powers, where the territory "protected" may be formally defined in a way to exclude those who do not share its costs. But it may well be that appears more profitable to increase the size of the "club" of communities involved, to take advantage of jointness and reduce the share of fixed

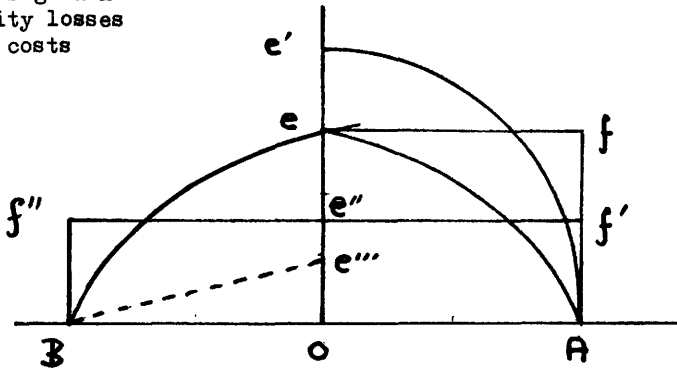
costs apportioned to each participant (as it may be in such research projects as those of aerospace, atomic energy and new sources of energy, or with missiles and nuclear systems of deterrents).

Spillovers in the supply of public goods are nearly always unavoidable. However, this does not imply that there is always a condition of undersupply and small consumption if the goods are supplied through a "wrong" level of government. This is because one should distinguish three kinds of spillovers. Those which, because of their relative size, do not allow the good to be supplied at all; those which because of their importance at the margin of decision cause an undersupply; and those which have distributional implications but do not influence the rise and the size of the supply.

Suppose that with a given indivisible amount of public expenditure E, there are supplied to the members of the community C, OA units of joint usage of a given public good x with the utility represented on y by O e A. Suppose further that other OB units are supplied with the same utility (O e B area) as a spillover to members of another community C'. Suppose that the expenditure of E, evenly distributed among the beneficiaries of OA, gives them a utility loss of O e Af. Clearly there is no reason to supply that good under a rational decision-making by members of C. However, if members of C' were called to share in the costs and had the same utility for money, an equal personal distribution of the costs would lead to f'Af''B e A (the aggregate utility of C+C').

Fig. 6

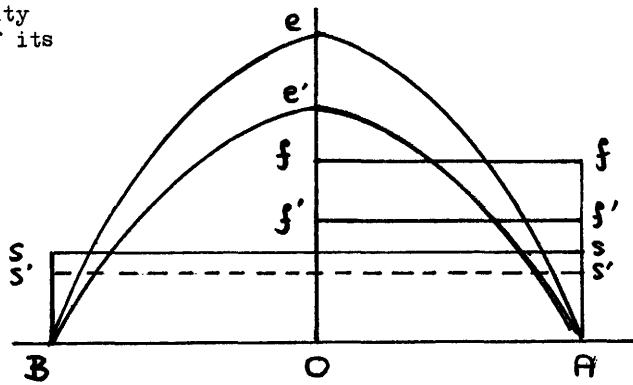
utility of good x
and utility losses
from its costs



units of joint usage of good x

Fig. 7

utility of x
and utility
losses of its
cost



units of joint usage of good x

Thus, if the jurisdiction covers only C and not also C' the good will not be supplied at all. But it will be supplied if the jurisdiction covers C+C'. Suppose now that the utility to C of x is $O e' A > O e f A$, the good will be supplied even if the jurisdiction is limited to C. Since the good x is indivisible, there will not be any marginal under-supply and under-consumption by C arising from the external benefits given to C', which does not contribute to the cost $O e f A$.

Actually, it may be that on the whole there will be excess of supply of the good considered. Namely, suppose that C can exclude C' from a large part of the benefits of x, which remains in the $O e'' B$ (this may be the case with scientific research and also with defence and several other public goods). In principle C' should try to buy from C the benefits from which it is excluded. But it may be that, because of the difficulties of the bargaining and of the uncertainties of the arrangement through which C' would be admitted to share in the benefits, it prefers to develop its own supply of x, which, if the utility of x for C' is $O e' B$, gives it an excess of benefits on the costs, in spite of the spillover generated for C. Other communities may be led to the same action. Thus excess capacity will be generated with what Liebenstein calls x inefficiency: since x could be provided, with a common programme, through a lower cost for each community.

It is also easy to figure cases in which under-consumption and excess of supply exist. Assuming, as is more realistic, that x has some degree of divisibility, and that it is possible to provide less of x with an expenditure $E' < E$, it may be that the net benefit (i.e. the

benefit in excess to the cost) will increase for C spending E' , so that it prefers this smaller supply of x to E , leading to a smaller consumption of x by C. But it may be that, on the whole, taking account also of the external economies which may be given to C' , if x was made freely available to it, and was called to share in the cost, the net benefit of E would be greater and E would be chosen. This case is represented in Fig. 7, where two expenditures E and E' are assumed. Under the first the benefit for C is $O e A$ and the cost, if equally and completely distributed on C, is $ff'OA$. Costs and benefits balance and the supply of x is barely convenient for C. Reducing the expenditure to E' , the benefit decreases to $O e' A$ but the cost decreases to $f'f'OA$. The net benefit now exceeds the cost. Thus this alternative is preferable for C, under the assumption of no sharing by C' in the utility and cost of x . But assuming that there was a full sharing by C' , then for E there would have been a (sizeable) net benefit; and E' would have given a smaller net benefit than E . This is so because with two communities C and C' (assumed for simplicity identical), with a diminution of expenditure for semi-indivisible goods, the diminution in the cost per person decreases by half in respect to the case where only one community C is considered, while the net benefit per person decreases exactly as before.

(b) Indivisibility and economies of scale

Externalities arising from joint supply of public goods imply an "indivisibility" of a fixed cost. On the other hand, indivisibility of costs may or may not lead to effective externalities and/or to try to internalize them is sometimes too expensive or awkward. Thus there is an ambiguity in referring to one or the other concept as LG assignment criteria. In LG assignment analysis one may agree to consider as "indivisibility" the situation of joint supply of public goods where externality, i.e. inability to exclude, is not absolute and to consider as "externality" the opposite case. (1)

Jointness of supply of T goods may imply elements of congestion which makes their indivisibility of supply different from the pure jointness, typical of E goods. Economies of scale are, conceptually, a sub-case of indivisibility where this is not complete and can be dealt with accordingly as an LG assignment criterion. Absolute indivisibility implies a finite good of a given size, while economies of scale imply the possibility of varying the size of the good. To break the clarity of the distinction, however, there may be the possibility of duplicating the good of the given size: which may lead to economies of scale for the addition of the second good to the first, in relation to general supply expenses. The lumpiness of this process obviously implies that the first unit of consumption of the second good entails increasing rather than decreasing costs; however, after this marginal costs are decreasing.

(1) Remember, however, what has been observed at p. 329.

This is normal with fixed costs. If the size of the goods is not fixed, this may lead to goods of different size and thus to the assignment to different levels of government of supplies of a given class of goods.

That the addition of other units of supply to the first ones implies economies of scale of administration is a proposition that needs careful specification. It seems to be true until a given size and thus, for instance, may be an argument to prevent too small units of government. However, after a given size, which may correspond to relatively small governments, costs of administration may increase because of the technical problem of coordination and of the difficulties of transmission of information in a big organisation and, more important, because the bigger the bureaucracy, the larger is the incentive to shirking and resistance to change. Moreover, quality of the goods supplied inclusive of the adherence to the variability of needs may be lower for larger organisations. Quality may decrease when a large organisation supplies the goods, because it is more difficult to manage and control a large bureaucracy.(1) Note, however, that this is not necessarily an argument for devolution to lower levels of government. It is properly an argument for reducing the size of the government under criticism. Thus it may also lead to devolution to a new, higher level of government whose bureaucracy is smaller than that of lower levels: as it may be the case for a new federal state vis-à-vis the national states; or for a new regional government vis-à-vis big, local governments ruling on large metropolitan areas. And devolution from the given level to a higher level of government may be better than devolution to lower levels, where indivisibilities in administration costs are relevant.

Diseconomies of scale of administration may be important for specific functions where there are repetitive unity of the service, without a greatly relevant problem of coordination between them, so that the increased cost of administering them through a highly centralised system is not (appreciably) compensated by decreasing supply cost per unit or by the possibility of more efficient and less expensive coordination (elementary schools and health and hospital services may be the case). However, this may also lead to a dual partition in the exercise of a function in question: general regulation and basic choices to one higher LG and implementation to lower LGs.

A peculiar case of economies of scale is that relating to bargaining power. A bigger organisation or entity may have more bargaining power than a set of smaller entities whose aggregate dimension equals its size. This is an important argument for the devolution to higher levels of government which represent a larger jurisdiction of some functions which imply to deal with other governments (as in the matter of international agreements).

(1) Note, however, that some of these shortcomings may be lessened through "decentralising" the large organisations. See p. 344.

Indivisibilities and economies of scale are at times argued not to be an issue per se in the assignment analysis since through "transactions" or organisational activities among the various governments, the proper size may be reached. Surplus capacities of the supply of a given good by a given unit of government may be allocated either horizontally to other governments at the same level or vertically to lower or higher levels of government. However, this will not always be the case. A first reason why not is that there are services which cannot be shared because they imply a direct exercise of the decision-making power. A small government cannot share in most of the administration activities of larger governments, because they would then be managed by these others in a tutorial way. A second reason is that there are services which imply a delicate problem of power, that neither party would like to share: a government cannot lend (nor another hire) its police services while it can lend (or hire) its fire protection services. A third reason is that a prestige element may be associated with a given service: it is not the same thing for a given community to have its own university or hire the services of another community. A fourth related reason is that this hiring and lending may require the dislocation of the services to other places, non central for both jurisdictions. It is true that if the service was devolved to a higher level of government the same problem would arise. However, psychologically these distant users of the service of a broader jurisdiction would not feel hurt as much as those who are obliged to go outside "their territory" to benefit from a given service which is provided by their government.

In many cases of joint usage, there is the question of setting the plans and the rules for the service. If they are different for the different governments this may lead to very difficult situations for sharing in the service. Finally, those governments who hire the goods or services of another are not certain whether in the future they will be able to get them. The agreement may not be stable. And certainty may be an essential character for some public services, including those having to do with bargaining power.

Costs are, in any case, involved in the transaction designed to make the sharing possible; and bargaining among the interested parties may rule it out even if it is convenient to both parties, because they do not reach agreement.

In addition, it is likely that intergovernmental sharing of provision of public goods and agreement for common activities takes place on a much smaller scale than that which could be justified, because of jealousies of their apparatus and their ambition to expand their size and autonomous power. These motives obviously should not be considered relevant, but rather opposed by the citizens and their representatives. The same point can be made, however, as for the resistance to devolution to different (new) governments or functions of a given LC.

(c) Uniformity and system of services

A peculiar case of indivisibility has to do with the need for certainty and uniformity of the service rendered. This need in turn may be found both in the supply of goods in the narrow sense and in the supply of regulatory services. The chief justification of it is to avoid geographical distortion in the allocation of resources arising from unequal supply of goods and services instrumental to production. Here one may observe, again, that the issue of certainty and uniformity as a case for LG devolution may simply resolve itself in the problem of transaction or organisational costs, because the various governments may permanently and generally agree on providing "the same service" and in harmonizing, in the same permanent and general way, their activities with those of the others. But to be sure of this result, one must count on superior power (i.e. a higher LG) which permanently enforces this "uniformity through harmonization". The problem here is not only that of organisation of the uniformity and its stability: it is also that of choosing the ones who must renounce their preferences and be compelled to do so continuously.

Thus, if what is involved is a complex regulation with a wide element of discretionary power in a dynamic changing situation, true uniformity can be better assured by the superior government by direct action. Otherwise it would be obliged to perform detailed controls of inferior government activities, which may be time-consuming and cause too much interference with the service itself.

Lack of uniformity of the service may, in some cases, be tolerated or even be considered a positive value, to make life more varied.

However, regulation may play a role with another aspect of indivisibility, i.e. strong interdependence of given activities, performed in different parts of the given area which may be viewed as being elements of a system whose efficiency will increase if they are actually integrated. Coordination by a broader LG should be weighed against direct authority. Thus railways, postal services, airlines and highways of different countries closely related may be coordinated with each other or unified in a unitary system at the highest LG. If the autonomous entities to be coordinated are too many and each perform too many activities, coordination may become too difficult a job; furthermore, the superior authority, being external, may not have enough detailed knowledge and effective power to perform the task.

An important concept in the LG assignment (leading to higher, broader LGs) is that of a "system" of services requiring coordination and some certainty and uniformity. This may have to do with a "complex" of goods or with a sphere of regulatory powers or with a combination of them. The "system" concept may lead to the fact that an activity which, per se, could be most properly assigned to a given LG, is better assigned to another because it is part of a system of which the other already takes care.

Among these "systems" emerges that of the complex of rules for assuring the functioning of the market. This complex includes the rules for assuring uniformity of institutional conditions (taxes and other burdens and benefits by governments) in competition; the rules for protecting the consumer in an identical way everywhere; the rules for insuring the freedom of movement of labour, capital and commodities and of settlement of new initiatives; rules and authority for business entities (corporations and the like) and for financial markets; rules for standardization of products. One may develop these sets of regulations separately in the various countries belonging to the same market to satisfy different preferences and traditions of different communities. But if the idea of a unified market has some overriding importance, they should be at least harmonized under the same power to avoid contradictions and inconsistencies; and this can be done properly only at the level of the government which covers the entire market area. Sometimes a two level regulations system may be too complicated and the case may be made for complete devolution of this ruling complex to the broadest LG.

In addition to allocative geographical neutrality, "basic rights" may be another important frame of reference to nuclearize "system" of regulations and of services which require coordination and some degree of uniformity. Thus a system may be that relating to the effective possibility of circulation to peoples within a given community: which has to do both with the rights to move and with the provision of communication and transportation facilities. Another system may be that relating to the freedom of expression and of communication of thought and of information; and here again both the protection of basic rights and services are called in. It should be noted that the facilities in question may not be public (or freely provided); but they are, in any case from this point of view, a matter of public concern for regulation.

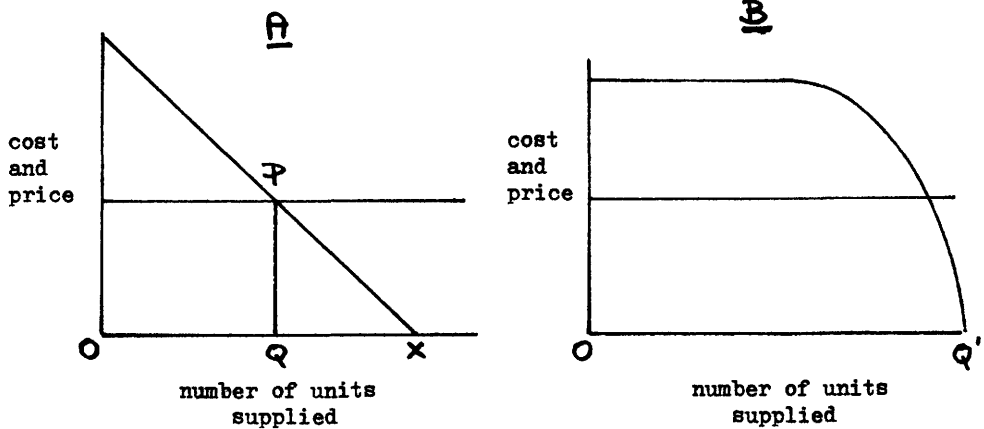
Other basic rights may be those of basic education and basic health protection. Here distributional arguments enter strongly into the picture together with straight externality arguments particularly for education. But what we are considering at this point is not whether the goods should be publicly provided and which government can more properly take account of the map of the benefits. We are considering the theme of "uniformity" as a character of the services conceived as "system".

Inequality of provision of these final consumption public goods in different areas may violate allocational efficiency since it may create distortions in the allocation of population, artificially stimulating migrations to more affluent areas where a better level of these services (among others) is granted. This apart, it may appear unjust. It may be thought that each citizen of a given community should be entitled to a given share of some goods designed to provide him with a starting point in his life and activity and to satisfy his basic needs. It should be observed that unification of these provisions will normally

result in an average increase in the level of supply, since one can scarcely conceive that the harmonization could take place not only raising the less favoured areas to a "normal" standard but also deteriorating the standards already granted to some more favoured population.

It should be observed, however, at this point that this movement to insure uniformity in satisfaction of basic needs may be an insidious movement. Bureaucracies and personnel involved in the provision of these services may be interested in emphasizing the social virtues of their supply in satisfying "basic needs", in order to increase their output as far as possible.

Fig. 8



In Fig. 8A a normal collective demand curve for a given public good is depicted, with cost (assumed to be constant) crossing it at OQ, leading to consumption OQ which is much less than what citizens would consume at zero price. With a "social" collective demand curve as depicted in Fig. 8B, the quantity consumed with the same price (and cost) is OQ', which is nearly the amount consumed at zero price. This "plateau" demand curve implies, however, that each "need" covered by it is a "basic" need for which everybody is entitled to satisfaction and the community, because of its inherent value, is ready to pay a much higher price than its unit cost. Where this "plateau" demand curve exists, it may be easy to argue that a zero price does not lead to allocative distortion. And the cost may also be substantially increased - as may happen through a centralization which increases the standards of the services uniformly to the higher standards - without affecting the size of the supply, which appears justifiable.

In general, it may be said that the uniformity and coordination criterion, prima facie, leads to centralization while that of democratic control (as we will see later) entails a presumption of decentralization. But there is more than one line of argument that prima facie leads to the centralization of allocative activities relating to the market process and to general life. We have already partly discussed them in the course of the previous pages, but it is now convenient to review them together.

- uniformity: a unified area cannot be regulated in different ways in its different parts if it is to be conceived as a unitary market; if basic rights are to be generally assured; if principles of a basic equality of treatment are to apply. This principle applies also to market regulations affecting specific sectors (e.g. agriculture or steel);
- coordination: services unifying the area must be coordinated in a unique network;
- externality: allocative activity which channels resources to less developed or declining regions of the area has a positive external effect on more developed regions also in other nations because it increases investment opportunities for the capital; increases the possibilities of selling and mutual gains from trade within the community; increases the possibility of (or reduces the deviations from) a monetary union, thus increasing the benefits of the integration; some allocative activities relating to given industries (e.g. oil) may entail spillover for the entire community through a cheaper and safer supply; manpower training and labour mobility policies may spill their benefits around;
- indivisibilities and economies of scale: some regulatory activities which imply important research and technical know-how (e.g. standards of health, and of safety of foods) can be more conveniently carried on at a broader LG; as for the external relations (in the areas of trade and so on) unitary action at a broader LG may provide substantial increase of bargaining power.

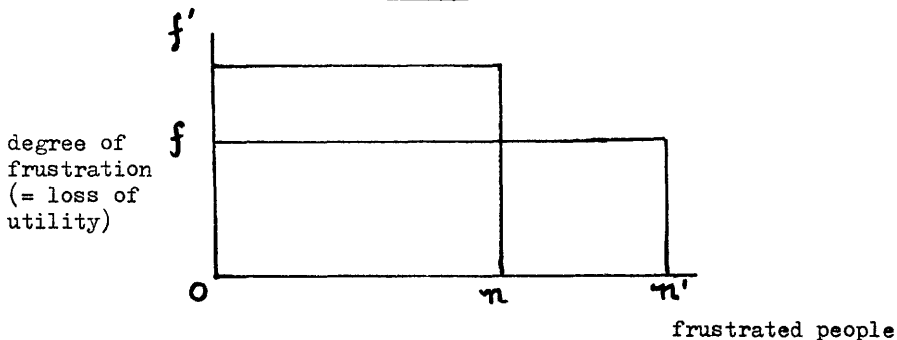
(d) Democracy and the decentralization theorem

The democratic control argument entails a presumption of decentralization. In this connection has also been formulated a "decentralization theorem". However, the issue is a complex one and must be analysed in its different elements. These appear to be: the flexibility of "delivery"; the expression of diversified preferences (or minimization of frustration); the feed-back between preferences, choices and results of action taken; and a better check on the efficiency of public administration.

The first argument is rather obvious: the closer a government is to the area where the needs arise, the quicker and more accurate its administration will be in satisfying these needs; the more flexible will be the service to the variation of the needs. This, however, applies only to some public goods. An analogy here may be drawn with business operations, having to do with certain kinds of market oriented industries, where a high degree of decentralization is needed to cope with the varied and ramified demands. But the same analysis suggests that this is not necessarily an argument in favour of a lower LG; it may simply be an argument for territorial decentralization of the structure of a given activity of a higher LG. Just as there are large national corporations which serve local consumers in diversified markets through a high degree of decentralization, the same may be conceived for a large national (or federal) government. Or one may conceive the lower government as a mere executor of the higher level of government, which appears useful only because of its capillarity.

The second argument is much more important. It is certainly true that if smaller communities are more homogeneous in tastes and criteria of choice, due to the impact of the common environment and cultural tradition, than the larger communities of which they form a part, the "frustrated" minority will be smaller, since it will be possible to differentiate (subject to the constraints of the "uniformity" criterion for the larger community) the public supplies to adhere to the different tastes and criteria of choice of the different communities. In addition, those who want to join a majority in a large community may be obliged to renounce the peculiarities of their preferences. However, there are functions where differences in tastes and in criteria of choice are not related to the differences in the environment and cultural traditions of the different territorial communities, but to differences in income, sex, age class, ethnic beliefs, education, profession, and several other factors which are dispersed on the territory of the broader community. In this case, the frustrated minority may not be smaller in the smaller community. Furthermore, there is a problem which is very difficult to solve, in considering the degree of frustration, i.e. the intensity of frustration versus the number of frustrated people.

Fig. 9



Suppose first that the number of frustrated people is on with a unit (or per head) degree of frustration of' referring to their loss of utility as it can be observed. Suppose then that the number of frustrated people is on' = 2 on, while their unit degree of frustration is of = 1/2 of'. According to the assumption that lower governments are better because they frustrate less people, the degree of frustration should be measured only in terms of numbers of people: thus the second case (where unit frustration is of) should always be considered worse than the first (where unit frustration is of'). But this is a faulty reasoning. Nearly all citizens have some degree of frustration even if they belong to the ruling majority, because their preferences cannot be fully reflected in the standardized supply of public services or activities. Thus by necessity one must introduce the notion of intensity of frustration. Then, however, one should consider that with a more heterogeneous majority, as the large size communities are assumed to be, a less sharp contrast between majority and minority will exist and a lesser degree of frustration of the minorities may emerge. Obviously if there is a very high mobility, frustration may be reduced through changes in residence (voting by foot), as in the familiar Tiebout theorem. Mobility decreases as the extension of the community increases.

To sum up, the thesis that "minimization of frustration" supports devolution to a lower LG does not always appear true or unambiguous: the degrees of frustration of different people must be assessed and weighed one against the other. However, this thesis retains important elements of validity.

Against the proliferation of small units of government, however, another point should be made: democracy entails a "cost of participation" for those involved in it, if nothing else at least through the time and attention required to "participate". Since for some services, economies of scale, spillovers, need of uniformity point to larger units of government, the argument for minimization of the degree of frustration would lead to a large number of governments to which the individual should participate. Ideally, one might conceive a multiplication of government to take account of the variation of preferences which leads to decentralization together with the factors which, in many cases, lead to centralization. However, this multiplicity entails costs of participation and therefore must be limited. The same argument applies also for other benefits of decentralized or participatory democracy which we are going to explore now.

The "decentralization theorem" states not only that at the lower levels it is easier to deliver a service complying with preferences because the government and its administration is closer to the people and that there may be a lesser degree of frustration. It adds that it is easier to obtain services and policies closer to the preferences and more consistent and informed choices because those who consume the public supply can better control whether what is supplied corresponds to them and is really satisfactory. Small size bureaucracies may also be better controlled by politicians, and small governments by the electorate.

This is often true. However, the argument is not without limits. First of all, it should be noted that it does not necessarily work "in a continuum" from smaller to larger size jurisdictions. There may be a level at which the size is large enough to exclude a "personal" relationship between the citizens and the government. A big municipality may already be in that range. At the broader levels of a federation in relation to large national states, the difference of size may no more be relevant. Furthermore, the degree of this relationship depends also on the institutions and on the degree of participation. An active federal parliament where interest groups cannot easily combine may perform a more efficient control than defective representative bodies of a large local administration.

In addition, one must distinguish between T goods and E goods. The first, because they give a tangible benefit, may be the object of material check by the local consumers. They are mostly "localized" goods which operate with a distribution on the territory according to the places where their users are resident, live or work. Thus the check by the local consumers is also (even if not always because of commuters, tourists, and transit traffic) a check by the voter of the local community.

But for E goods the situation is different. Very often consumers do not enter into tangible contact with their supply and therefore they cannot express judgements by direct experience. When they enter into tangible contact as it may be the case of public order and judiciary services it may be an occasional experience which leads to a distorted balance of assessments. A technical, informed intermediation by a political class, by the parliament, by the press, by professional people involved in this activity may thus be the most relevant or even the only relevant element for effective, informed choice and control. And there is no reason to imagine that this is done better at the local level. In such technical areas as monetary policy or external defence, the technical qualifications may be lacking here. Furthermore, they may have a territorial distribution which does not coincide with the local community where the contact with the tangible components of the benefits is realized (e.g. justice, much of police, scientific research): and therefore decentralization is not a legitimate choice system. Finally, as noted, broader governments need not be "bigger" governments.

(e) Innovation and competition

An important argument favouring the development of a number of governments (i.e. of regions or of a federation), as against unitary states, is that of innovation and of comparison. Competition among different governments may lead to more innovation, both in the quality and kind of services and in the efficiency of performance and administrative aspects. Improvements may be obtained through comparison (relative innovation). The argument may also be applied to local bodies, even if here there may be less scope for innovation, because of their limited autonomy.

The argument may be used to favour the assignment to a multiplicity of governments of functions formerly or elsewhere assigned to one government; and therefore also to favour the creation of a new level of government with many entities which take over functions from the superior layer. It might appear that it cannot be used to favour the emergence of a federal level of government, since in this case functions which formerly were given to several governments will be assigned to one government alone. However, this is not correct. If devolution does not concern an entire function but only a part or an aspect, what really takes place in respect to that function is the increase in the number of governments involved in it and therefore the energy potential devoted to innovation. Furthermore, there are general aspects of government and administration in which a fresh unit of government, creating new, modern criteria, may offer important elements of comparison.

More generally, innovations depend also on the capacity of innovating. The scale of technical qualification of government may be an important element in it together with its age. The innovative characteristics of the U.S. federation in respect of its states has often been recognized.

Thus also some degree of centralization (in a broader layer of government), particularly if related to a (level of) government which is young and therefore more modern and elastic, may be conducive to innovation and fruitful comparison.

(f) Political homogeneity

Economic and collective choice arguments in favour of devolution of a given LG may run counter to an important "homogeneity" argument which is often overlooked by economists: that of political compatibility or political necessity of a given function for a given level of government. This argument, in a sense, relates to "constitutional" choices rather than to the specific choices under a given constitutional frame. The term, however, is used here not to mean a written, rigid pact on a constitution.

Nobody would leave defence and related foreign policy matters to regional governments. This is because defence is thought to be the task of the level of government which has more political powers. A similar case arises for the devolution of defence to an economic union which does not appear politically ripe to have more powers than the national states. The same reasoning is relevant for general powers of taxation as contrasted with specific tax powers in given areas. Political necessity may require that a given LG has at least some functions in areas endowed with significant political powers in order to give it the required political status. So if a federation cannot be given defence and related foreign affairs, it should be given at least some other important foreign affairs, because a state cannot be considered such if it has no foreign policy. This may be an important argument to give foreign aid to the EEC (federal) level. (1)

(1) We will see that is not the only one.

Political homogeneity may change through time: a new central federal government may gain the confidence of its citizens through time and thus may be granted some powers, as those in the area of defence and money which appeared improper to it before. But this process implies also a change in the hierarchical levels, through which the member states become not only a smaller but also a lower level in respect to the federal state.

Increased trust in a new government over time may be a factor conditioning assignment to it of functions; citizens may wait to see how its bureaucracy is able to administer its affairs, how the parliament and government is able to interpret their choices, how they are able to control its activity. Resistance to innovation may be won through time. Still, the political homogeneity argument implies something more: it requires qualitative change, i.e. something like a change in the constitutional (even unwritten) pacts.

6. Assignment of the Stabilization and Employment Function

Allocative functions, as is well known, are only a part of the list of functions of a government; LG assignment must deal also with distributional objectives and stabilization and full employment functions. The LG assignment analysis can follow here the spectrum of criteria that we have sorted out for allocation. All of them seem relevant both for full employment and stabilization, and for distribution. But whatever the specific criteria in these cases, one cannot overlook the connection of these functions with the allocative ones. A too small federal government may not have enough scope to perform stabilization and full employment activities; thus arguments for the assignment of allocative functions with an important spending effect to a new broader central government may be derived from the opportunity of enabling it to perform stabilization functions which are better suited to this level. On the other hand, a sub-federal state may be so big and may cover so large a share of the common market as to be able to carry out its fiscal policy, even if it may be thought better to have this function performed mostly at the central-federal level. As we will see, there are also specific reasons why national governments may be preserved or granted functions in the area of stabilization and full employment policy.

Allocative functions may have an important impact on distribution. This fact may provide the government which performs them with good arguments to justify its role in distribution: either to exploit the opportunities furnished by these effects or to counteract them, if they are considered to be in the wrong direction.

Finally, growth policies, which are an important part of allocative functions, are strictly related to fiscal policies for stabilization and full employment, and also with distributive functions, particularly in the area of regional policies.

Several arguments seem to lead to devolution of fiscal policy to the broadest level of government. The externality criterion requires that stabilization policies would be done at the broadest LG as measured in relation to the extent of the market area involved because, as is well known, multipliers of fiscal policy actions exert themselves on the entire market area. But even more important, to assign this function to the broadest level of government (i.e. in an economic union to the central-federal level) is the unification and uniformity criterion as related to the functioning of the market economy. If an effective fiscal policy at this level is not carried out, and contradictory policies are executed at the national levels, the market could be broken by changes in currency parities and by interference with movements of commodities, capital and labour within the area. This consideration provides also important reasons to carry on regional and sectoral policies for employment and growth at the central-federal level in case they are not enough at the sub-federal states level: without these, it is likely that different national monetary and fiscal policies will be retained and waged in conflicting ways, thus leading to lack of unification and uniformity in basic monetary and credit conditions, and perhaps to backward steps in the functioning of the market.(1) To sum up, to make a substantial devolution of monetary policy powers to the central-federal level workable, one requires regional and sectoral employment and growth policies. And without this monetary policy devolution, one cannot keep a unified and uniform functioning of the market.

The innovation and competition criterion, however, may lead to some devolution down, given the bad experiences of "huge" national governments in these areas.

In favour of devolution of monetary and fiscal policy to a broad "new" government and parliament such as that of a federal European Community, an important argument may be that of fresh ideas and energies found here vis-à-vis the existing states and parliaments. But this, obviously, is more valid in comparison with some of the member countries than with others. The homogeneity criterion, however, may contradict the others. Monetary policy is a jealous prerogative, which politically may appear inappropriate, both to lower (regional) governments as well as for broader new federal levels; and so also is fiscal policy in its relationship with monetary policy (particularly public debt).

(1) As seen in the discussion of allocative functions relating to growth, one may justify regional policies also in terms of externality: because to develop less developed regions may reduce the congestion and external diseconomies of more advanced regions.

Also the criterion of democratic choice and control may lead to refusal of devolution from the nation state to either lower or higher layers of government. As for the lower governments, one may believe that they lack appropriate democratic control on fiscal and monetary matters because they lack a skill in this area. As for the higher, new federal level of government, one may recognize that they may have the proper democratic decision-making bodies only when democratic structures such as a directly elected parliament are created. It may further be recognized that they can acquire the proper skills, but it may be argued that basic differences exist among the preferences of various nation states for the rate of inflation versus the rate of employment, for the rate of growth and for the rate of inflation versus the fiscal burden, and these factors affect both the conduct of monetary and fiscal policies and their relationship.(1)

Here we find a dramatic problem of devolution theory which has not been explored enough: that of a clash of criteria. Disequilibrium may emerge, because of that clash, if a sharp solution is chosen. A second-best and weak solution may appear preferable, thus leading to partial assignment.

7. Assignment of the Distribution Function

As for distribution, the externality argument here applies in several related ways: the first is the "solidarity" among individuals, i.e. the altruistic disposition through which utility functions of different people are interdependent; the second is the "public order" argument, i.e. the egoistic motivation that redistribution prevents disorder and thus protects from violence and disruption and fosters improvements of inferior classes, thus helping to promote better economic conditions and hence more trade; the third is the insurance or choice under the veil of ignorance argument, i.e. the uncertainty argument about the situation facing ourselves or our children in the future, such as for our income and our needs (which are also related to the health conditions). Everybody else's altruism aids us in solving these problems, as our's is aiding the others: thus a prisoner's dilemma may arise, since we personally are a small entity which does not affect much with its "avaricious" or "generous" behaviour the degree of "solidarity" existing in society. To apply this reasoning,

(1) The indivisibility or decreasing return argument could be applicable to the centralization of fiscal policy and sectoral policies for growth and employment, only when small versus large governments are confronted.

which is an application of the externality theorem (1) to the broadest LG relating to a given common market area, one has to have given conditions under the above three arguments. "Strong" solidarity may be limited to our own region or nation: with the more distant populations, even if members of the same common market or economic union area, only a "weak" solidarity may exist. This fact may limit the willingness to undertake internal redistribution on solidarity grounds. However, it does not constitute a limiting factor as for external solidarity, i.e. that vis-à-vis the third world: all nations of the union are here on the equal footing of a "weak" generosity. The externality argument operates in favour of doing this at the federal-central level since here the external effects of behaviour of other nations may be "internalized" and the prisoner dilemma and free rider problems reduced.(2) Also the public order argument may apply in a "weak" way to distant populations belonging to the same market area. It may be objected that disruptions of the existing order may affect the union, if they lead to separatism from the common market. But one may reply that there are more efficient methods than mere redistribution to avoid this. One perhaps may dare to say that the consideration of this problem may constitute a case for the assignment to the central-federal level of sectoral and regional policies implying some redistribution, but emphasizing allocational and stabilization objectives rather than mere redistributive policies. Clearly, as for international order problems outside the economic unions, nations will share a common interest: here again the externality arguments suggest assignment of the distributive functions to the central-federal LG.

The "insurance" argument may justify redistribution through the central-federal level if disequalities of incomes and economic opportunities among the different regions do not appear stable and/or if very high mobility exists also from the rich to the poor areas. This may, for instance, justify a central-federal programme for aid to unemployment.(3)

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- (1) Note that "altruistic" people may be happy to "give", even if the others do not give; however, they may be reluctant in giving because of fear that no result will be reached because the others do not give (because of the same fear). If we consider "egoistic" people who give for egoistic motivations only, an additional "free rider" reasoning will be applicable: they do not give because they expect that all the others will give and the small addition of their gift will not add significantly to the total.
 - (2) Fear that the aid might be "wasted" may limit the solidarity. This is a delicate point in a federation where member nations who give are not allowed to administer aid. It is not an issue making for a centralization of foreign aid.
 - (3) This argument is not relevant for foreign aid, if consideration is limited - as here - to that of aid from developed to underdeveloped countries.

The indivisibility and economies of scale criterion is very important in justifying redistribution by a higher level of government if specific projects have to be undertaken, whose size overrides the capabilities of a given smaller level community. Assignment of foreign aid to the central-federal government is a clear case here, since there are many nations to be aided and "big pushes" are needed to reach significant results.(1) This may also be the case for some specific projects within a given economic union, even if one should remember that a preliminary condition must here be met, i.e. that there is a willingness by the majority of the community belonging to the union to do so.

Uniformity and coordination (2) may be a strong argument to centralize redistribution activities, since many governments acting in this area may lead to an overlapping of interventions in favour of certain groups and areas while others are unequivocally overlooked. This is a powerful argument for assigning the foreign aid functions to the central-federal level. It may also be an important criterion for having the central-federal level government completing the member states and the lower LGs in their redistributive activities, in order to assure certain uniform standards. It should be noted that disequilibrium in distributional policies in different areas of the same community may entice distortive emigrations to the more advanced areas, thus artificially congesting them. They may also increase the room for free rider behaviour, stimulating rich "egoistic" people to leave areas with higher tax rates, while they still enjoy the benefits of the redistribution made possible with the high taxes levied on others. However, it should be noted that if a broader LG "unconditionally" completes a standard left incomplete by a smaller LG, this may result in an incentive for "egoistic" governments at this other layer to reduce their standards.

Political homogeneity is involved in the redistributive issue indirectly through the fact that spending requires a power to tax. This power may not be given to a new government for broad redistributive activities (e.g. to a new federal government which may be given allocative or other "economic" functions) because it may interfere too much with given political equilibria and property rights. Redistribution may appear homogeneous only if contained within given limits. It should be noted that this argument is not relevant for foreign aid by developed countries since it is already conceived as a function with a rather limited scope.

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- (1) Note that here the issue of redistributions changes in a problem of allocation of resources for growth: however, what matters for the budget of the donor countries is the distributional activity, since the allocative functions made possible by it are done in the recipient countries.
 - (2) The unification of the market criterion coincides with the "public order" argument reviewed under the heading of "externality".

The democratic control criterion, as usual, pushes towards "decentralization". Preferences in such a delicate matter as redistribution may be very different as between member states. However, for foreign aid it seems that what generally exists is mostly a "weak" solidarity, together with limited appreciation of the public order argument. Here homogeneity of preferences is not much related to the territorial distribution of the population. It should be noted that, in this area, control at the national or local level of the results of the expenditure is not possible for those paying for it, since the aid is spent outside the country, while as for domestic aid the case is the opposite: decentralization may help in checking that the aid is not wasted.

The innovation and comparison argument may allow distributive activities to be practised by a number of governments and also by smaller LGs. However, one must remember that the risk of waste is thus increased. This may be a particularly important consideration for foreign aid since the amount that developed countries are willing to transfer is very limited in comparison to that which seems to be required by underdeveloped nations for a significant reduction in income disparities.

8. Partial Assignment Solutions

Having explored the LG assignment criteria one may come to the conclusion that in many instances no satisfactory solution may be found because the different criteria support different conclusions. To mitigate this pessimism, however, one must consider two points. The first is that every decision, in general, entails opportunity costs. Clearly in the area of private versus public supply and free offer versus pricing for the public good it is so. That this is the case with LG assignment too, therefore, should not constitute a surprise.

The second point is that functions may be broken down in different components assigned to different levels of government. Actually when they are performed entirely by a given LG, they are often carried on by different administrations.

The public expenditure process undergoes many stages. In the case of the provision of goods they are:

1. Decision-making at the basic level and general regulations
2. Planning of projects and activities
3. Finance
4. Procurement of personnel
5. Procurement of products to be processed and/or to be employed as factors of production, or to be supplied
6. Procurement of investments

7. Maintenance
8. Day-to-day management and administration
9. Delivery

Also transfer expenditures and regulatory activities may be broken down into several stages, repeating in a simplified way this classification. As noted, one should distinguish between complete and partial assignment of a function to a given LG. Participation in a given function by different LGs, i.e. partial assignment, might be the proper choice which maximizes the constrained objectives.

We may distinguish between vertical and horizontal participation in assignment: the first being that where different stages of the given activity are assigned to different LGs in a different position of power, and the second that where different LGs cooperate in the same function on an equal basis. From the first point of view, the chief distinction is that between control (such as basic decision-making, regulation and revision) and execution. There are several ways in which control may be exerted:

- (a) Conditional finance: either with a simple connection of a given transfer to a given function or with specific conditions attached to the transfer related to a given function
- (b) Power to enact provisions to regulate in a general way that function
- (c) Supervision or actual realization of decision-making
- (d) Simple veto power
- (e) A posteriori control (auditing)

One may define as "active" control, finance with specific conditions, regulatory provisions, supervision of actual realization of decision-making; and as passive controls, finance for a given function without specific conditions, veto power and auditing. Some of the criteria of assignment may be satisfied by simple negative controls: externalities often through global transfer for the given activities generating them; some major aspects of uniformity through veto powers. Others could be satisfied through active control: thus "system" coordination and uniformity; some cases of indivisibility.

Horizontal participation may take basically two different forms:

- 1) Cooperation by different LGs in the same function, by:
 - (a) each performing a given activity or policy which belongs or relates to that function (education and social assistance to the scholars);
 - (b) performing the given activity for a given segment of the population or a given area;

- 2) Participation by different LGs in the same activity or policy, in an equal position:
- (a) providing different factors of production (the teachers and the school premises) or different components of the same good (the building and the furniture of the school);
 - (b) providing different stages of the supply: investment, maintenance and repairs, exercise, materials to be processed and their processing;
 - (c) sharing the finance;
 - (d) sharing the planning and the decision-making.

An assignment of functions table, like that elaborated by Breton, may thus be built (in the positive or in the normative sense) with further complications. To Breton's cases 0 and 1, which indicate no performance and performance of a function by the given government (either in the positive or in the normative sense), one may add other cases relating to vertical (1) and horizontal (2) participation in a function.

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- (1) The + symbol would indicate active control and - symbol passive control. The exercise of an active control function by a government on another, in the box relating to the first government, will be indicated with a + above the symbol of this other government; while the exercise of a passive control will be indicated with a - above that symbol. In the box for the government under control there will be the symbol of the controlling government with sign - or + above the sign 1.
- (2) Horizontal participation in a function generates a number of cases which can be easily dealt with through adding a subscript relating to the government sharing in the function with the considered government, to the number 1 with which its performance of the given function is indicated. Suppose that the levels of government are indicated in the rows with Roman numbers I, II, III, IV ... X and the functions in columns with $f_1, f_2, f_3 \dots f_n$. Suppose that government II shares function f_1 with government III in a horizontal participation. In the box of f_1 relating to government I we will then write 1_{II} to indicate this joint participation, while in the same column for the row of government II we will write 1_I . And if government III, for instance, is controlling actively government II, we will write $III+$. If a government shares a
- 1 II
- function with several others, subscripts and superscripts will be more complicated.

If functions are finely split, each box will contain one symbol; but if they are presented synthetically, it will contain more than one; to make the table clearer, it would then be useful to cut each box in two parts, one for the cases of control functions and the other for complete or partial performance of it in a non-control position.

The assignment table thus modified can show not only the presence of the various governments in the various functions but also, to a point, their degree of presence and autonomy in its exercise, and their regulatory and financing activity as contrasted with the execution of the functions.

To arrive at this functions assignment table, another kind of assignment table may be constructed, i.e. the criteria of assignment table. This will give the various LG assignment criteria in the rows, and the various LG called in discussion for assignments in the columns, with the various types of assignment under analysis: complete or partial assignment; and in this second case, assignment of a controlling or an executive type. For each case one must distinguish at least two possibilities: yes or no. But the analysis might be refined distinguishing three cases: a strong positive solution, a weak positive solution and the negative. It is worth noting that one does not necessarily need to build an "assignment criteria" table complete for all the levels of government. One may concentrate on a given level, e.g. the central-federal, leaving the others not distinguished. (1) Similarly, it can be done as for the "assignment of functions" table: even if this approach may be objected to because of its appearing as a partial equilibrium analysis, one must note that, in a dynamic setting, it may be a very useful approach because it concentrates on marginal choices, i.e. on the elements under change, rather than on the general system.

(1) See the criteria of assignment table developed in Chapter 12.

Chapter 12

PERSPECTIVES FOR THE PLACE OF THE EUROPEAN
COMMUNITY IN THE SECTORAL ECONOMIC FUNCTIONS
OF GOVERNMENT

(working paper)

1. Introduction

This chapter reviews what economic functions of government, or parts of functions, would seem plausible or implausible subjects for E.C. level activity, based on the general criteria set out in Chapter 11, the existing objectives of the Community and the perspectives that may open up with the directly elected European Parliament.

The approach is summarised schematically in Table 1, which presents in matrix form a list of functions on the one hand, against the criteria and instruments of possible intervention on the other hand.

About 75 economic functions are itemised in the list, grouped under the following summary headings :

1. general public services (including administration, foreign affairs, law and order, and research)
2. defence
3. education
4. health
5. social security and welfare
6. housing and community amenities
7. other community and social services
8. economic services
9. other (including general purpose intergovernmental transfers)

This list and its detailed disaggregation, follows as closely as possible that generally used for international comparative purposes - as will be seen below in statistical tables on public expenditure in the Community and certain federations. (1)

The criteria used for considering whether there is a case for an E.C. level activity are mainly :

- i. the presence of externalities or spillover effects - i.e. where the effects of public policies, or their absence, extend significantly beyond the frontiers of member states ;
- ii. the availability of economies of scale beyond the national level;

(1) See also Eurostat, National Accounts ESA Detailed Tables 1970-1974, 1975 Yearbook ; IMF, Manual on Government Finance Statistics, 1974

- iii. the case for technical uniformity or unity in systems of policies at the E.C. level ;
- iv. the appropriate level of government for the exercise of democratic control ;
- v. the sufficiency, at present or in sight, of political homogeneity for an E.C. level responsibility.

The range of instruments considered are :

- vi. various forms of policy-making, ranging from coordination to directly applicable legislation ;
- vii. various forms of financial intervention, including inter-governmental grants as well as direct expenditures (the use of taxation, however, is not considered in this chapter, but in chapter 16)

A short explanation of the criteria and instruments is given in the Notes to Table 1, and a full theoretical presentation is, as mentioned, given in Chapter 11.

Section 2 of the paper reviews, in more explicit terms than is possible in Table 1, the application of these theoretical criteria to the list of sectoral functions, viewed from the Community-level standpoint.

Section 3 provides financial data on the amount of public expenditure in the Community (mainly by member states, but also, where significant, by Community institutions) on the main functional headings, giving at the same time some information as to how five federations have divided these functions by level of government. The federations are Germany, the United States, Canada, Australia and Switzerland.

The summary and conclusions of the Group drawn from the material set out in this chapter are found in section 4.1. of the General Report.

Table 1 : Schema of the functions of government viewed from the E.C. level

	CRITERIA for or against E.C. level involvement					INSTRUMENTS	
	(i) Externalities or spillover effects at E.C. level	(ii) Economies of scale available at E.C. level	(iii) Case for uniformity of systems at E.C. level	(iv) Case for democratic control at E.C. level	(v) Sufficiency of political homogeneity at E.C. level	(vi) Policy (coordination, harmonisation, regulation)	(vii) Finance (direct expenditure, specific or general purpose grants or loans)
1. GENERAL PUBLIC SERVICES							
1.1. General administration	some	some	-	some	some	-	running costs of Community institutions
1.2. Foreign policy	yes	yes (barg. power)	yes	some	some	coordination	-
1.3. External trade	yes	yes (barg. power)	yes	yes	yes	policy negotiation	-
1.4. International development aid	yes	yes (barg. power)	yes	yes	yes	policy negotiation	grants, loans to third countries
1.5. Justice law and order	no	no	no	no	no	-	-
. in general	yes	-	some	some	some	court of Justice	-
. intra E.C. trade	yes	-	some	some	some	some coordination	-
. intern. terrorism	yes	-	some	some	some	some coordination	-
1.6. General research (not elsewhere covered)	yes	no	no	-	-	-	-
- pure sciences, social services	no(excl. poss.)	yes	-	-	-	-	-
- commercial R & D	yes	yes	-	-	-	club decision making	club contributions
- military R & D	no(excl. poss.)	yes	-	-	-	club decision making	club contributions
- radical, humanitarian R & D	yes	some	some	-	-	some coordination	-
2. DEFENCE							
. in general	yes	yes	yes	some	no	club alliance	-
. procurement policies	yes	yes	yes	some	some	some coordination, joint negotiation	-
3. EDUCATION							
3.1. Schools	some	no	no (except lang.)	no	no	some coordination	-
. in general	yes	no	no	some	yes	some regulation	some special. institutions
. migrants' children	some	no	some	no	no	some coordination	some special. institutions
3.2. Universities and (non-adult) vocational training	yes	no	no	some	some	some harmonisation	-
3.3. Statutory professions (doctors, architects, lawyers, accountants)	yes	no	yes	some	some	-	-
4. HEALTH							
. general health services	some	no	no	no	-	-	-
. infections, epidemic diseases	yes	no	some	some	-	-	-
. drugs	-	some (R&D)	yes	some (control multinationals.)	-	coordination	-

CRITERIA for or against E.C. level involvement						INSTRUMENTS	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	
Externalities or spillover effects at E.C. level	Economics of scale available at E.C. level	Case for uniformity or unity of systems at E.C. level	Case for democratic control at E.C. level	Sufficiency or political homogeneity at E.C. level	Policy (coordination, harmonisation, regulation)	Finance (direct expenditure, specific or general purpose grants or loans)	
8.7. General regulation of industry and commerce, & allied services (continued)	yes no	yes some	shared some	largely yes ?		some research contracts -	
8.8. Manpower policy	yes no	some some	shared shared	yes ?	coordination, harmonisation, regulation	specific purpose grants	
8.9. Regional policy	yes no	some some	shared shared	yes ?	coordination, some policy negotiation	specific purpose grants and loans	
9. OTHER							
9.1. Disaster aid	-	-	no	some	ad hoc coordination	ad hoc grants	
9.2. General purpose inter-governmental transfers	-	-	yes	?	policy negotiation	general purpose grants	

	CRITERIA for or against E.C. level involvement					INSTRUMENTS	
	(i) Externalities or spillover effects at E.C. level	(ii) Economies of scale available at E.C. level	(iii) Case for uniformity or unity of systems at E.C. level	(iv) Case for democratic control at E.C. level	(v) Sufficiency or political homogeneity at E.C. level	(vi) Policy (coordination, harmonisation, regulation)	(vii) Finance (direct expenditure, specific or general Purpose grants or loans)
5. <u>SOCIAL SECURITY & WELFARE</u>							
5.1. Pensions, old age	no	no	no	no	-	coordination for migrants	-
5.2. Invalidity, handicapped	no	no	no	some	some	coordination on objectives	specific purpose grants
5.3. Work accidents	no	no	some	some	some	coordination on min. standards	-
5.4. Unemployment	yes	no	some	some	yes	coordination, policy negotiation	specific purpose grants
5.5. Income maintenance	some for migrants	no	no	no	-	coordination for migrants	-
5.6. Family benefits	some for migrants	no	no	no	-	coordination for migrants	-
6. <u>HOUSING AND COMMUNITY AMENITIES</u>							
. in general	no	no	no	no	-	coordination policy objectives	grants for some programmes
. migrant communities	yes	no	no	some	yes	ad hoc, link to regional policy	grants for some programmes
. severe urban decay cases	some	no	no	no	?		
7. <u>OTHER COMMUNITY & SOCIAL SERVICES</u>							
. in general	no	no	no	no	no	-	-
. architectural monuments	some	no	no	no	?	ad hoc projects (Venice-type)	ad hoc projects
8. <u>ECONOMIC SERVICES</u>							
8.1. Agriculture	some (security)	no	yes	yes	yes	policy negotiation, regulation	direct expenditure
- market support	yes	no	some	shared	yes	policy negotiation, regulation	specific purpose grants
- structural measures							
8.2. Fisheries	yes	yes (barg.power)	yes	yes	yes	policy negotiation, regulation	-
- market organisation	yes	no	some	shared	yes	policy negotiation, regulation	specific purpose grants
- structural measures	yes	yes (barg.power)	yes	some	?	coordination, policy negotiation	-
8.3. Energy	yes	yes (barg.power)	yes	some	?	coordination, policy negotiation	specific purpose grants
- foreign procurement conditions	yes	-	yes	some	?	coordination, policy negotiation	-
- stockholding	yes	-	yes	some	?	coordination, policy negotiation	-
- energy saving	yes	-	yes	some	?	coordination, policy negotiation	-

Explanatory Notes to Table 1

- (i) Externalities or spillover effects. External benefits or costs, or spillover effects, arise in the present context when public economic functions necessarily have a significant effect across member state frontiers. An example of an external benefit is where one country's defence effort serves to protect another ; an example of an external loss (resulting from the absence of an adequate environmental policy) is where one country's factory pollutes the waterway of another country. Regional policy subsidies at the Community level may be thought of as avoiding certain external losses of migration by preventing congestion in immigration areas, or as creating external benefits by permitting trade integration to advance further than would otherwise be possible. Wherever 'externalities' are important there is a prima facie case for some responsibility for the function being attributed to a level of government which encompasses them. Note that for advanced technology R & D expenditure, it is frequently possible to prevent a spillover of benefits because the technology can be kept as a commercial or military secret, and incorporated in sales prices or licenses (these cases are indicated in the table as 'exclusion possible').
- (ii) Economies of scale. Positive economies of scale are available when it is possible to share the fixed costs of a given function at a broader level, without incurring new offsetting diseconomies that may result from centralisation. Economies of scale in the present context cover not only tangible cases where the fixed costs consist of production facilities, but also the less tangible (although here more important) case of fixed costs that contribute to effective bargaining power in international economic affairs ; the fixed costs may in the second case consist of limitations of freedom of political and administrative action at the national level.
- (iii) Uniformity or unity of systems. There is first the case where certain technical uniformity requirements are inherent in the function in question, or extremely important to its efficient functioning. Examples are a common external tariff for trade negotiations, or common technical norms for industrial goods. Secondly there is the concept of unity in a system of policies, where unity under one policy is important in order to secure the full benefits available through unity under another. The interdependence of trade aid and energy policies in international economic diplomacy is an example.
- (iv) Requirements of democratic control. This criterion assesses the relative merits of exercising democratic control over given functions at different levels of government. For example, there is a strong case for low level democratic control wherever preferences by region are profoundly different,

and where the differences are valued as such. While there is a subjective element here, one can distinguish, for example between 'fundamental' questions of choice of principal language in schools and 'trivial' questions of whether regulatory electrical plugs should have round or square holes. The scope for E.C. level democratic control is enlarged by the prospects of a directly elected Parliament (E.P.) from 1978 onwards. In many instances in the Table it is envisaged that 'some' (small) or 'shared' (somewhat greater) degree of E.P. involvement is called for, together with national responsibilities for the administrative implementation of policies and their differentiation in varying permissible degrees.

- (v) Political homogeneity. This column seeks to record whether there exists already sufficient political homogeneity and legitimacy for the E.C. to be responsible, partly or wholly, for the function in question. Functions which are plausible subjects for E.C. level policies, but in which national governments have not yet reached sufficient consensus, are marked : ?.
- (vi) Policies. Graduations exist in the strength of E.C. level involvement. 'Coordination' is the weakest and involves the largely unenforceable and voluntary alignment of national policies. 'Harmonisation' of national policies may have a stronger content, and is usually thought of as being subject at least to a Directive to ensure enforcement in broad terms although not in all details. 'Regulation' is Community legislation that is directly and wholly applicable in member states ; 'regulations' may or may not contain a financial power. The term 'club' refers to cases where there are strong tendencies for multi-national activity to be organised on an ad hoc or specialised membership basis outside the Community institutions.
- (vii) Finance. The main forms of financial participation are : 'direct expenditure', where the Community budget finances 100 % of given expenditure functions ; 'specific purpose grants', where the Community budget finances a fixed share of the total public subsidy for agreed classes of expenditure (usually in the range of 25 to 65 % at present), with the remainder matched by national government contributions ; 'general purpose grants', where the Community would make financial grants to member states without its being tied to any particular expenditure function. The term 'club contributions' concerns the financing of ad hoc or specialised multinational activities outside the Community institutions (see also under 6 above).

2. Qualitative commentary on the list of sectoral functions (1)

- 2.1. External trade relations [1.3]. To have effective bargaining power at the world level the size of the unit must be very large, and the formation of a unit such as the Community entails large fixed investments in a political and economic system. This is a type of economy of scale, in which the costs are mainly in terms of some degree of freedom of national action and economic adjustment costs for adapting to the competitive conditions of the common market.

Externalities at the international level are of major importance, since many countries - within and outside the Community - stand to benefit or lose from the world trading climate negotiated essentially between the major trading blocs, and through the existence of 'most-favoured-nation' principles at the GATT level.

The existence of a technically uniform system (common external tariff, negotiating procedures) is essential to the efficient functioning of a trade bloc.

No public expenditure is involved, except indirectly to the extent that redistributive policies are prompted by needs to balance the distribution of gains from internal and external trade.

- 2.2. Foreign policy [1.2.] Similar bargaining power economies of scale exist as for trade relations. Externalities in the effects of policies are again of major importance, since on many issues it is impossible or undesirable to restrict the benefits to single member states. There is less of a technical uniformity requirement than in trade relations and more scope for an à la carte selection of issues on which to act in concert - which is reflected in present methods of Community political cooperation. But there are major links, of course, in the system with trade, aid and energy policies which increase the potential benefits obtainable from foreign policy cooperation.

- 2.3. External development aid [1.4]. There are major externalities in the benefits (in terms of world economic and political order, and humanitarian values), and some bargaining power economies of scale. Efficiency advantages should accrue from the possibility to concentrate the aid effort. Further economy of scale features are in administrative costs (for donor and beneficiary), in the use of uniform policy criteria, and in the value of aid when there is competition for procurement throughout the Community rather than tying to single member states. Tendencies in internal economic diplomacy ('north-south dialogue') are leading to an increasing integration of the system of trade, aid and raw materials policies.

(1) The bracketed numbers following the headings relate to Table 1.

Considerably increased transfers of competence for aid expenditures, notably for African, Caribbean and Pacific countries under the Lomé Convention and for Mediterranean countries, have been organised since enlargement of the Community in 1973. Further transfers of competence for public expenditure in this field may be envisaged ; the German government has proposed a policy of progressive and, ultimately, total Communitarisation of external development aid.

2.4. Justice, law and order [1.5]. There are no general reasons for Community involvement, on the contrary, much of the diversity in national traditions is positively valued. There are, however, some exceptions where specialised functions are called for at the E.C. level, for example, certain 'supreme' Court of Justice functions in specialised fields of jurisdiction (common market law, agreed areas of social policy), and coordination arrangements for certain types of international crime (hijacking). Note that this entirely excludes the enforcement functions which entail significant public expenditure (police, prisons).

2.5. General research [1.6.] This has to be broken down into several subcategories. The major economy-of-scale cases (R & D in military equipment, aerospace, nuclear energy) do not necessarily result in externalities at the E.C. level to the extent that exclusion is possible and practised : e.g. the companies or governments restrict the diffusion of the technology by secrecy, or patents and licensing. Where exclusion is possible but very high level economies of scale remain, ad hoc clubs tend to be formed. This is seen in the several multinational civil and military aircraft projects (Concorde, Jaguar, Airbus, MRCA, etc.), in the space research sector (European Space Agency), and in nuclear energy groupings (EURODIF, URENCO, etc.)

These kinds of groupings lack the potential advantages of integration into the Community political structure (improved bargaining power vis-à-vis third countries, and greater assurance of markets within the Community) ; on the other hand, they achieve some technical economies of scale in the sharing of fixed costs, while costing little in terms of loss of political freedom of action for member states. This leaves scope for improved economic returns as and when the degree of political homogeneity in the Community may increase, although mainly for new projects and technologies, since existing investments in national technologies are sunken costs.

In other fields of research, such as the arts, social sciences and humanitarian sciences, exclusion is either impossible or considered unethical and so not practised. Economies of scale at the supra-national level are more limited, and in any case world level specialisation is often effectively achieved by voluntary coordination and the free dissemination of knowledge.

This leaves only a much reduced share of the research sector that, in the absence of important political developments, would seem to present a strong case for Community responsibility. There are many

quite detailed but small projects serving the existing sectoral responsibilities of the Community (e.g. agriculture, technical and environmental standards). In addition there are some major completely new technologies, especially in the energy field (e.g. solar and thermonuclear fusion). There are also peripheral areas of research (nuclear safety, data-processing software) where valuable economies of scale can be achieved without encountering the political objections that limit common research efforts in the central activities.

- 2.6. Defence [2]. This is the most clear-cut case where the economic arguments all massively vote in favour of the highest level of government. Economies of scale are strongly present both of the technological and bargaining power types. Externalities are powerfully present in that small countries cannot be excluded from the benefits of peace which result from the defence efforts of the largest countries ; 'free-rider' tendencies may be countered in some degree by pressures exercised through alliances as in NATO. There are also strong technical requirements for uniformity and unity in the system, in terms of standardised weaponry and the command structure. Economy of scale considerations mean that innovation in weaponry can virtually only take place at the largest government levels.

The political prerequisites of a Community defence function are, however, absent.

More limited advantages in cost-effectiveness are available by pooled procurement policies, and this takes place on an ad hoc club basis, especially for aircraft (either through pooled purchasing as in the Benelux-Denmark-Norway consortium for a jet fighter in 1976, or production as in the case of the British-German-Italian combat aircraft 'MRCA') ; the 'Eurogroup' in NATO is seeking to establish a more generalised system of pooled procurement efforts.

- 2.7. Education [3]. There are no positive economy of scale arguments at the Community level. Diverse national or sub-national traditions are positively valued in themselves, and also provide a testing ground for innovation. More limited Community desiderata are high standard of learning of foreign languages, and the mutual recognition of examination standards, particularly for the protected professions (doctors, architects, lawyers, accountants etc.), which calls for some efforts of coordination at the Community level.

Externality considerations become important (as they are, for example, in the United States) where migration takes place on a large scale. For immigration areas there will be problems of assimilation (disadvantaged minorities, ghettos) if the immigrants have sub-standard levels of education and culture. For emigration areas there will be problems of losing the public investment in education. These have not so far been significant issues in the Community as between member nationals, since educational standards are broadly comparable and migration quite slight. They could become very real issues, however, in a further enlarged Community, where educational standards in the candidate states may be distinctly lower and the propensity

to migrate much higher. This might lead to pressure at some stage for grants to aid minimum standards in the provision of educational services, and large scale regional development aid to stem excessive emigration.

The education of migrants from third countries is already becoming a Community-level issue where it is linked to trade, aid, and other foreign policy issues. (See also below on social security and housing).

As regards present member states, it is not impossible that a continued divergence of general economic performance could lead to public expenditure cuts in the weaker states of such severity as to encroach perceptibly on existing standards of education, to the point of being considered a question of solidarity over basic rights by the European Parliament, or as being linked to the macro-economic policy objectives of the Community.

There are a small number of specialised schools and institutions that the Community may finance - e.g. European schools, where there are particular concentrations of migrant children, or European university institutes.

- 2.8. Health [4]. There are no economy of scale considerations favouring E.C. level undertakings, except perhaps in certain highly specialised fields where coordination activity may suffice and in certain medical research undertakings. There are no a priori reasons why health services should be organised in a uniform way, although lessons can no doubt be learned from comparing diverse systems.

Problems of financing minimum standards could arise at some stage in the future, although the externality effects of migration are weaker than the case of education : health is more of a current service and less of an investment compared to education, so the public investment losses of an emigration region are less, and the assimilation of immigrants to the (higher) standards of an immigration region easier.

- 2.9. Social security and welfare (except unemployment) (1) [5]. The arguments are similar to the education and health cases in a low-migration rate Community. But in addition there is a sharper income distribution dimension, which should in general be controlled according to the preferences of national political systems. Limitations to national responsibility for income distribution issues would only arise where divergences in fiscal capacity resulted in differences in standards that similarly might become a major migration factor. Migration may also act as a constraint on national tax policies without this necessarily being a reason for Community involvement.

(1) See below with manpower and employment

The Community should be seen as abstaining from involvement in inter-personal income distribution issues if it is to pursue confederal as opposed to federal objectives, and a fortiori even more so if the Community is viewed as a pre-federal entity. (This does not mean, however, that the Community should not be involved in inter-member state income distribution issues where these are relevant to its general economic objectives - see further below and Chapter 14).

To facilitate the free movement of labour there are many technical requirements for reciprocal and non-discriminatory coverage of migrants, and possibly there will be needs for financial compensation between national social security systems with respect to the rights and dues of migrants and their families.

It may also be argued that the Community should seek to establish a common base of 'human rights' in the fields of social policy and social security ; this will no doubt be a subject of interest to the directly elected European Parliament. This is already illustrated by the equal pay directive (for men and women) and proposed measures for the harmonisation of social security systems. However, existing philosophies and practises as between Community member states already probably have more in common than, for example, as between some of the states in the U.S. In addition, there could be dangers in the Community at the present stage in setting absolute minimum standards of social security benefits, since this might lead to negative work incentives in poorer areas.

- 2.10. Housing and community amenities [6]. There are no general reasons for a Community involvement. However, severe and large-scale cases of urban decay may be considered as an aspect of regional policy, and in this context urban redevelopment programmes could be candidates for specific purpose matching grants similar to regional policy grants for industrial and infrastructural investment.

Financial intervention to alleviate acute concentrations of migrant housing problems could also become a field for Community participation, especially in the event that such cases were identifiable with migrants from third countries with which the Community had developed a system of trade-aid-foreign policy relations.

- 2.11. Other community and social services (recreation, sport, culture, religion, etc.) [7]. There are in general no reasons for Community involvement.

Exceptional cases may arise, for example in the case of ancient monuments in danger of irrecoverable loss, where the cases in point were important features in the European heritage, and where the financial resources of the member state were inadequate - Venice might be an example. The benefits of such expenditure 'spill over' national frontiers through tourism. Other miscellaneous cases with

strong 'spillover' characteristics will arise (a minor but clear-cut example is seen in the recently adopted directive for the safeguard of migratory birds).

- 2.12. Economic services [8]. Here there is a long list of sub-functions, a first group of which are sectoral (agriculture, fisheries, etc.), a second group dealing with the general regulation of industry and commerce and with semi-macroeconomic policies (manpower, employment regional, etc.)

Sector-specific policies

- 2.13. Agriculture [8.1] Agricultural market support measures have to form part of a uniform system if a common market for the produce is to function; the Community has a uniform system which, however, has become distorted, with a system of double exchange rates supported by border taxes and subsidies. The maintenance of excess (reserve) agricultural capacity may be seen as representing an external benefit or cost, since the consumer cannot exclude himself from either the benefit (of a margin of security of supply) or its budgetary cost.

Structural policy subsidies also aim at generating an external benefit (beyond the farmers directly concerned) by lowering the price level at which marginal production may be supplied.

- 2.14. Fisheries [8.2]. Off-shore fishing resources are a rare type of good where exclusion is difficult to enforce, but where there is 'rival consumption': hence overfishing and dangers of irrecoverable depletion of stocks. These are reasons for a Community level responsibility, especially when combined with the bargaining power advantage in negotiations with third countries.

Structural and compensatory measures, of budgetary or regulatory (e.g. quota) form, may be required to make a common policy acceptable.

- 2.15. Energy [8.3]. In present circumstances all measures affecting the price or reliability of foreign energy supplies generate strong externalities beyond the member state level in that no country can be excluded from the benefits obtained by other countries' efforts. The effective use of bargaining power relies strongly on economy of scale characteristics, since no individual country can by its efforts alone obtain a strong leverage on the conditions of foreign supplies. Relevant measures may include negotiations with oil producers, and, less directly, measures in member states for energy saving, stock-holding and domestic production.

The last two cases may involve Community financial participation (for example, grants for aiding the costs of common stock-holding, and possibly at some stage for supporting a minimum oil price). The Community in all these respects may be one tier in a broader grouping of industrialised countries, as in the International Energy Agency. Cooperation at the higher international level does not preclude more intense policy integration at the Community level.

The nuclear energy sector is basically controlled at the level of the larger member states, reflecting their unwillingness to proceed far with the integrated approach intended under the EURATOM Treaty. Multinational efforts at present mainly follow the ad hoc club pattern, with licensing and other commercial arrangements for excluded parties.

There are, as mentioned above, major economies of scale possible in R & D on new energy technologies. The Community is currently, for example, negotiating investment in a large common enterprise - the JET thermonuclear fusion project.

- 2.16. Transport [8.4]. Certain infrastructure projects which generate strong spillovers of benefits should be eligible for partial Community financing, for example where cross-frontier motorway connections are much inferior to national network standards and especially where the benefits would concern several member states (cooperative bilateral arrangements may suffice for projects only interesting two states). Investment in roads may also be considered for partial Community financing in the context of Community regional policy (in addition to the border region cases).

The main international transport sectors - trucking, air and sea - tend to be subject to public regulation at the national level as to standards of service, tariffs and freedom of entry ; this leads to the need for an international dimension to prevent distortions of competition or erosion of conditions of service or employment. Inter-member state trucking licenses are regulated at the Community level. IATA is an example of regulation at the global level which maintains important tariff discriminations to the disadvantage of international versus national traffic. The objectives of the E.C. warrant regulation at the Community level which would aim to eliminate discrimination as regards national and international E.C. traffic.

- 2.17. Communications [8.5]. The technology of telecommunications, especially as regards space satellites, offers economies of scale at the world level. Joint programmes of R & D among Community countries may reduce exposure to international monopoly. The club formula has been attractive here, as exemplified by the European Space Agency, whose particular form of organisation makes it a 'club of clubs': different contribution formulae are used for each of a series of main projects (space capsule, various communication satellites) in which West European states participate on an à la carte basis, one member state assuming project leadership for each.

An example of a Community sponsored project is EURONET, under which a consortium of PTT administrations agreed in 1975 to set up a common network for automatic telecommunication links between documentation and data-bank systems.

Broadcasting across national frontiers, especially television, could greatly improve understanding between the peoples of member states and so increase political homogeneity in the Community. (The European Parliament is seeking to improve the televised transmission of its debates into all member states.)

- 2.18. Problem sectors [8.6]. One generic type is that of industries suffering from severe over-capacity at the Community level, and also possibly at the global level. Current examples are seen in steel, shipbuilding and textiles. Economic reasons for Community involvement are, firstly, externality implications, since the financial gains or losses from individual producers' decisions to reduce or expand capacity affect all producers. This points to international coordination in general. Secondly, however, E.C. member states may improve their bargaining power by common organisation for negotiations with other major producing countries. This is related to the case for an integrated system of responsibility at the European level (with links to trade negotiations, etc.), since this further increases bargaining power vis-à-vis third countries, and gives broader possibilities for compensation arrangements between member states.

Community grant and loan finance may be called for to aid the restructuring of 'problem sectors' and for redeploying excess labour. The Coal and Steel Community has such financial powers, but other sectors are confined to the limited resources of the Regional and Social Funds, and of the European Investment Bank.

A second generic type concerns 'growth industries of the future', often with high R & D components in their value added, where member states and non-Community countries are often involved in competitive promotion efforts. Data-processing, electronics and aerospace are examples. Economy of scale considerations here often point to a Community-level organisation of public involvement. However, the possibility of exclusion through commercial secrecy and licensing arrangements, combined with a strong reluctance to relinquish national political control, has resulted in a predominance of 'club' solutions.

General industrial and commercial policies

These activities, which are not sector-specific, may be grouped under two sub-headings :

- general regulation of industry and commerce in the sense of deepening the common market, where the budgetary implications are small, and
- semi-macroeconomic financial intervention (e.g. through manpower, employment and regional policies) to help ensure that the integration process produces a balanced pattern of economic development.

2.19. General regulatory activities [8.7]. The list of general regulatory activities covers technical norms, standards for safety and environmental purposes, conditions of competition, and aspects of company and commercial law.

Uniformity of regulation is, to some extent, a precondition of effective competition. There are also economies of scale in the fixed costs of researching, testing and establishing standards (e.g. automobile safety regulations). However, uniformity for its own sake should not be advocated, and each proposed legislative action must be the subject of a cost-benefit appraisal including the costs of compliance and change in established practices.

In several of the sub-categories in question there is considerable scope for debate whether broad framework directives are adequate (leaving details open for national preferences) or whether directly applicable regulation is necessary. Company law and patents give examples of the parallel development of directly applicable Community

instruments (European company statute, patents office), which are, however, optional alongside national legislation which is only submitted to framework constraints from the Community. In compromise cases like these, the economy of scale gains may be less or nil or even negative, at least in the short run, but the losses in terms of national preferences are reduced.

The whole of this field has a considerable administrative cost, but almost no other direct budgetary implications. Indeed the explicit principle in some sectors is that the cost of conformity must be internalised into the price of goods and services (most clearly, for example, in the polluter-pay-principle for environmental policy).

Among the regulatory functions listed in the Table, one that is highly political (as opposed to technical) is the pursuit of common standards of industrial democracy (worker participation). Technical uniformity is not here required ; the argument is of the externality family, notably that 'participatory' industrial relations in all member states are required to ease acceptance of structural economic changes, that are in turn necessary to secure the economic benefits of common market integration. (We do not here imply a view on the controversial question as to what kind of participation system is to be advocated).

- 2.20. Manpower and employment policy [8.8] and unemployment benefits [5.4]
This concerns a broad family of policy measures, of which those with the main budgetary implications include adult vocational training and retraining, labour mobility incentives, temporary employment creation or maintenance measures, permanent employment creation, aid for employment of handicapped persons, and unemployment benefits.

Both the demand for such measures and their supply have strong externality implications of cause and effect at the E.C. level. The case for a degree of Community responsibility for such policies is based on, first, the structural competition effects of the common market, and, secondly, the extent to which the cyclical fortunes of each member state are affected by the Community (or higher) level business cycle. The effects of Community level financing should be to provide a partial insurance cover for the labour force of the Community, at either national, regional or sectoral levels, against unfavourable employment trends by comparison with the Community as a whole. Advantages accrue to the Community as a whole by helping to avert situations in which the economic integration process would be arrested.

The measures listed fall into three categories :

- measures to improve economic capacity permanently (training, retraining, mobility),
- contracyclical measures maintaining or creating employment,
- purely compensatory measures (unemployment benefits).

2.21. Regional policy [8.9]. This also concerns a broad family of policy measures including regional capital subventions, interest rate subsidies, fiscal exemptions, and employment premiums. The subsidies may in general relate to private industry as well as to public infrastructure and redevelopment programmes.

The first reason for a Community participation in regional policy comes directly from the basic political choice reflected in the preamble to the Treaty of Rome : "anxious to strengthen the unity of their economies and to ensure their harmonious development by reducing the differences existing between the various regions and the backwardness of the less favoured regions, ...".

Economic reasons arise with externalities of two kinds ; first, the general welfare increases resulting from integration are dependent upon a reasonably balanced regional distribution of these increases ; secondly excessive geographic concentrations of economic development lead to congestion diseconomies that need to be countered by a policy of regional taxes and transfers particularly related to new investment activities and public infrastructure. By redressing regional disparities in employment levels it should be possible for the Community economy to run at a higher overall level of output.

- 2.22. Disaster aid [9.1]. This would reflect solidaristic and humanitarian sentiment at the Community-level. Disaster relief may also have the characteristics of regional policy aid, as has been recently illustrated in the case of Community aid following the Friulia earthquakes.
- 2.23. General purpose inter-governmental transfers [9.2]. The economic case for transfers of this kind is based on the notion that a reasonable inter-member state distribution of the fruits of integration has to be assured if the integration process as a whole, with the benefits it provides in aggregate, is to be advanced or be maintained. The first-round distribution of these benefits through the private market place may or may not meet these conditions. (This subject is further pursued in Chapter 14).

3. Quantitative information on the public expenditure functions (1)

This section sets out information on the amounts of money spent on sectoral public expenditure functions by all levels of government in the E.C., and in five federations (United States, Germany, Switzerland, Canada, and Australia), for which a cross-classification by level of government is also given.

Total figures for public expenditure in the Community amounted in 1970 to about 250 billion EUR, or 40 % of GDP at market prices, this being the latest year for which a complete estimated sectoral breakdown can at present be given - see Table 2 at the end of this section. By 1974 public expenditure had risen to 43 % of GDP, amounting at current prices to 394 billion EUR.

For the federal states in question, total public expenditure, as shown in Tables 3 to 7, (see below) amounted in the United States to 38 % of GDP in 1971/72, in Germany to 41 % of GDP in 1971, in Switzerland to 40 % of GDP in 1973, in Canada to 39 % of GDP in 1971/72, and in Australia to 28 % of GDP in 1972/73. (The figures quoted below for these countries relate also to years just indicated).

3.1. International development aid [1.4]. In the five federations development aid expenditure is always entirely a federal-level responsibility.

Targets for development aid expenditure have been adopted in international organisations (OECD, UNCTAD) to which E.C. member states subscribe. The present target is that official development assistance should reach 0.7 % of GNP. In 1974 E.C. member states' performance was, by comparison with other major donors, as follows : (2)

(1) See Annex

(2) Source : OECD, Development Cooperation, 1975 Review

Official development assistance

	<u>mill. U.S. \$</u>	<u>% GDP</u>
<u>E.C. total</u>	4,868	0.42
4 larger member states	3,994	0.40
Germany	1,430	0.37
France	1,615	0.59
United Kingdom	731	0.38
Italy	218	0.15
5 smaller member states	874	0.54
Netherland	435	0.63
Belgium	271	0.51
Denmark	168	0.55
Ireland		
Luxembourg		
<u>United States</u>	3,439	0.25
<u>Japan</u>	1,126	0.25

Ireland and Luxembourg are not members of the OECD Development Assistance Committee, and do not report their (small) aid expenditures to this body.

The aid payments by Community institutions have recently evolved as follows :

	<u>million U.S. dollars</u>		
	1974	1975	1976 estimate
European Development Fund	141	279	346
Community Budget	242	419	246
European Investment Bank	30	38	148
	<u>413</u>	<u>736</u>	<u>740</u>

In 1974 this Community aid amounted to 8 % of the total of national and Community aid ; in 1975 and 1976 this share rose to about 13 %. Further increases will follow as a result of the Lomé Convention and the increasing network of agreements with Mediterranean countries. Under the former 3,550 million ECU is to be made available for the years 1976 to 1980 to 43 African, Caribbean and Pacific countries.

Under the latter about 1,775 million EUA will be made available for Portugal, the Maghreb group (Algeria, Morocco and Tunisia), Malta, the Maschrek group (Egypt, Syria, Jordan and Lebanon), Israel, Greece, Turkey, Cyprus and Yugoslavia. The Mediterranean agreements in general also cover a five year period beginning after ratification - which in most cases remains (as of January 1977) to be completed.

No precise time path for these expenditures can at present be forecast. However, as very rough hypothetical orders of magnitude, it might be supposed that in about 1979 the Lomé and Mediterranean programmes could be disbursing aid at an annual rate of one-fifth of the totals. This would give 710 million EUA for Lomé, 355 million EUA for the Mediterranean countries, to which may be added other development assistance from the budget (mainly food aid, and aid to non-associated countries) which has been forecast at 650 million u.a. (1). This total might be compared with a projected total aid effort (bilateral and multilateral) of the Community and its member states of around 7 1/2 to 8 billion EUA (2), implying a Community share of around 20 to 25 per cent.

- 3.2. Justice, law and order [1.5] This cost about 1 % of GDP in the Community member states in 1970. For the five federations similar orders of magnitude are found, ranging from about 1 to 1 1/2 % of GDP. The federal level generally accounts for only a small share of direct expenditure.
- 3.3. Research [1.6]. In 1971 7,100 m.u.a., or about 1 % of GDP, was spent on publicly financed research in the Community. This was broken down as follows (in EUR) : (3)

(1) Triennial Financial Forecasts 1977-1978-1979, Preliminary Draft General Budget, 1977.

(2) This is based on a recorded figure of 4,868 m. \$ in 1974, or 4,726 m. EUA, which at a hypothetical growth rate of 10 % per annum gives 7,611 m. EUA in 1979.

(3) Source : Public Financing of Research and Development in the Community (1st report of the statistical sub-committee to the Committee on Scientific and Technical Research (CREST)), Brussels, 1976.

	<u>m.u.a.</u>	<u>% of total</u>
1. Nuclear R & D (non-defence)	843	12
2. Space R & D	295	4
3. Defence	1,743	24
4. Earth and its atmosphere (soil, mining, seas, atmosphere etc.)	117	2
5. Human health	212	3
6. Human environment (construction, engineering, transport, telecommunications)	177	3
7. Agriculture and fishing	211	3
8. Industrial technology	771	11
of which : civil aeronautics	(414)	(6)
9. Computer science and automation	149	2
10. Social sciences and humanities	148	2
11. General promotion of knowledge	2,425	34
of which : natural sciences	(651)	(9)
engineering sciences	(224)	(3)
medical sciences	(422)	(6)
social sciences	(266)	(4)
Total	7,100	100 %

For the federations data on a comparable basis is not available. General research (excluding defence) identifiable in the Tables below amounted to 0.2 % of GDP in Australia, and 0.4 % of GDP in Canada. In the United States space research alone accounted for 0.3 % of GDP. All this expenditure took place at the federal level, except in Germany where the federal share was about three-quarters.

As regards private, industrial sectors for which public funding of R & D is economically significant, the following U.S. data for 1970 is quite revealing :

Research Intensity of Major Industries in relation to Sales
in the United States, 1970

(Research and development expenditure
as per cent of sales)

	total	company funded	other (including public sector) funding
aircraft and missiles	18.3	3.9	14.4
electrical equipment	7.5	3.6	3.9
instruments	5.9	4.3	1.6
non-electrical machinery	4.2	3.5	0.7
motor vehicles	3.5	2.9	0.6
chemicals	4.1	3.7	0.4
rubber	2.1	1.7	0.4
petroleum, stone, clay glass, metal products, non-ferrous metals, paper, textiles and clothings, food processing, lumber and wood products	less than 2.0	less than 2.0	less than 1.0

Source : derived from Patrick and Rosovsky ed., Asia's New Giant
How the Japanese Economy works, Brookings Institution, 1976,
Tables 8-12.

Total R & D expenditure exceeded 5 % of sales only in aircraft and missiles, electrical equipment (including nuclear power plants and computers) and instruments. Public financing of R & D was outstandingly high for aircraft and missiles (14 % of sales) ; it was also significant for electrical equipment (3.9 % of sales), but of slight importance for other sectors.

3.4. Defence [2]. This is always entirely a federal level function in the five federations studied.

Defence spending in 1974 is given below for Community member states as well as for the United States and an estimate for the USSR :

<u>Defence expenditure</u>		
	<u>millions U.S. \$</u>	<u>% GDP</u>
<u>E.C. total</u> (1)	39,298	3.6
4 larger countries	34,947	3.7
Germany	12,897	3.6
France	8,533	3.4
United Kingdom	9,387	5.1
Italy	4,130	2.8
5 smaller countries	4,351	2.9
Netherlands	2,238	3.5
Belgium	1,373	2.8
Denmark	645	2.3
Ireland	79	1.2
Luxembourg	16	0.8
<u>U.S.A.</u> (1)	84,680	6.0
<u>USSR</u> (2)		13.1

The figures give some credence to the 'free-rider' theorem to the effect that smaller governments will tend relatively to under-supply a public service for which the benefits 'spill over' frontiers to a large extent, especially when, as is here the case, this is combined with major economy of scale considerations.

Compared to the United States defence effort of 6 % of GDP in 1974 (against a statistically uncertain estimate of 13 % for the USSR), the Community average was 3.6 % of GDP, with the four larger member states averaging 3.7 % of GDP, and the 5 smaller states 2.9 % of GDP - with particularly low figures for Ireland and Luxembourg.

Source : World Armaments and Disarmament, SIPRI Yearbook 1975, Stockholm.

(1) SIPRI op. cit., derived from Table 6B3, p. 122

(2) SIPRI op. cit., Table 6B7. This is a 1973 figure, giving the SIPRI estimate of the dollar-equivalent of Soviet military expenditure as a percentage of official Soviet estimates of Soviet national income.

- 3.5. Education [3]. Public spending on education amounted to 4 1/4 % of GDP in the Community in 1970, and, as regards the federations, amounts ranging from 4 % of GDP in Germany to 7 % of GDP in Canada.

The federal level of government in all cases accounts only for a very small share of direct expenditure on schooling, although its indirect financing through intergovernmental grants tends to be substantial, either through budget equalisation grants as in Australia and Germany, or through specific purpose grants as in the United States. Federal involvement in university financing tends to be larger.

- 3.6. Health [4]. Different forms of organisation in this sector make statistical comparisons difficult. In the Community it is estimated that public expenditure on health, on a broad definition including social security reimbursements, amounted to 5.3 % of GDP in 1970. Figures for the federations range from around 1 1/2 % of GDP on a narrow definition (e.g. mainly hospital expenditure in Germany, United States), to 5 % of GDP in Canada on a broad definition of health services.

Direct expenditure by the federal level of government accounts for only a small share of identified health expenditure, ranging from 1 to 3 % in Germany and Switzerland, to 20 to 24 % in Australia, Canada and the United States.

- 3.7. Social security and welfare [5]. Simple statistical comparisons are also very difficult in this sector. For the Community total expenditure is estimated to have been 10 1/2 % of GDP in 1970, excluding the health benefits already mentioned. The most important categories of benefit were :

	<u>% of GDP</u>
old age and survivors	5.8
family, maternity and child allowances	2.1
invalidity, disability and occupational injuries	1.8
unemployment	0.3

In the federations the total ranges from 7 % of GDP in Australia to 17 % in Germany. The degree of direct federal financing is usually high : 92 % in Australia, 88 % in Germany, 71 % in Canada 75 % in Switzerland, and 64 % in the United States.

In the United States case, where the degree of direct federal financing is lowest, there is a very large number of federal specific purpose grants programmes which provide matching funds for differing state or local systems.

3.8. Housing and Community amenities [6]. Public expenditure in these sectors is estimated to have amounted to 1.9 % of GDP in the Community in 1970, compared to a range from 0.5 % of GDP in the United States to 1.7 % of GDP in Germany. Financing in the federations tends to be shared between levels of government with no clear-cut pattern of predominant responsibility. State or local governments usually have the detailed executive responsibilities.

3.9. Economic services [8]. While this is an extremely heterogeneous group of activities (covering public policies for agriculture, industry, transport, energy, manpower, regions, etc.) with great variations in organisation by country, it is interesting to note considerable similarity in the amount of public expenditure involved : 6 % of GDP in the Community in 1970, 4 % in Australia, Germany and the United States, and 7 % in Canada and Switzerland

As regards the financing by level of government in the federations, the pattern is one of a broad sharing between the federal and other levels. Thus in Australia and Switzerland the federal share was one-third, in Germany and Canada one-half, and in the United States nearly two-thirds.

3.9.1. Agriculture, with forestry and fishing, tends to benefit from expenditure of around 1 % of GDP : 1.7 % in the Community (all levels of government) in 1970, 1.3 % in Canada, 1 % in Switzerland, and 0.7 % in the United States.

3.9.2. Another large and homogeneous sector is transport and communications, where the Community member states spent 2.1 % of GDP in 1970, as against 2.2 % in the United States, 2.5 % in Australia, 2.6 % in Germany, 3.9 % in Canada, and nearly 5 % in Switzerland.

3.9.3. By comparison, budgetary aids to mining, manufacturing and construction are quite small, and usually below 0.2 % of GDP.

Two kinds of semi-macroeconomic policy services, both of strong relevance to the Community, are poorly measured in the available statistics - manpower and employment, and regional policies. This is because in both cases the concepts inevitably overlap to a large degree with sectoral activities already mentioned. Manpower policy includes training activities, which may be considered as part of the education sector, and employment aids that may be considered public works or aids to industry. Likewise, regional aids can be regarded as aids to industry, or public works expenditure, or, in the case of employment premiums, as manpower policy. For these reasons no useful information can be drawn from Tables 2 to 7 on the amount of public expenditure spent on these functions.

In view of the policy importance of manpower, employment and regional policies, special ad hoc efforts have been made to compile data on the main sub-heads of expenditure.

- 3.9.4. Total identifiable manpower and employment policy expenditure in 1975 for Germany, France, the United Kingdom, Netherlands and Denmark (these countries accounting for 82 % of Community GDP) has been estimated as follows : (1)

	<u>Public manpower and employment expenditure</u>	
	<u>million u.a.</u>	<u>% GDP</u>
training (in enterprises or publicly aided institutions, excluding the formal education system)	1,649	0.2
temporary employment maintenance or creation (temporary public employment, or temporary aids to private enterprise or individuals)	2,335	0.3
geographic mobility (incentives for mobility of individuals)	11	..
public employment services	947	0.1
aids for training or employment of handicapped persons	174	..
other programmes not covered (excludes regional employment premiums - see below under regional policy)	130	..
Total	<u>5,248</u>	<u>0.6 %</u>

By comparison, the amount allocated to the Community's Social Fund in 1975 was 612 million u.a., these amounts being available principally for adult training schemes, and aids for the training of handicapped workers. The Fund contributes 50 % of the public subsidy for projects covered ; the eligibility criteria give some special priority to projects in problem regions. Although it is difficult to make comparisons with the national expenditure data, it would seem that the Social Fund matches a fairly high proportion of eligible training programmes. However, it is unable to make any contribution to other types of manpower and employment programmes listed. The overall contribution to broadly defined manpower and

(1) Source : derived from OECD sources

employment policy is therefore not large.

- 3.9.5. Community participation in the financing of unemployment insurance was recommended in the Marjolin Report (1). Among the variants considered, it was suggested the Community might finance a flat money amount contribution (of 2 budgetary units of account per day per unemployed person) to national schemes which would, within certain constraints, remain quite different in accordance with national economic conditions and preferences. The Community contribution would be financed by a uniform percentage levy on wages and salaries. The scheme would be redistributive in two ways, firstly as between the employed and unemployed or as between states or regions with high or low average rates of unemployment, and secondly as between high income and low income employees as a result of the flat amount benefits combined with flat percentage contributions.

Given below is a simple updating of the financial characteristics of this variant of such a scheme, applied to the unemployment situation of 1975. Official registered unemployment data is taken, and there are many problems of differences in statistical as well as real policy coverage as between member states which the present paper cannot attempt to explore.

The United States example is a reminder that a strong harmonisation of member state schemes is not necessarily a prerequisite of federal participation.

(1) Report of the Study Group "Economic and Monetary Union 1980", Brussels, March 1975.

Simulation of a Community participation in the financing of unemployment insurance

	Benefits		Financing		Net financial position
	No. of unemployed 1975 (1)	Benefits at 2 u.a. per day per unemployed	Total wage and salary income, 1975 (1)	Levy on wage and salary income of 0.5 %	
	- 1000 -	million u.a.	billion u.a.	million u.a.	
D	1.086	652	178	844	- 192
F	840	504	135	640	- 136
I	1.107	664	75	356	+ 308
N	195	117	38	180	- 63
B	208	125	27	128	- 3
L	0.3	0.2	1.2	0.6	- 0.4
UK	978	587	115	545	+ 42
IRL	99	59	3.3	16	+ 43
DK	127	76	15	71	+ 5
EC	4.640	2.784	587	2.784	

(1) Source : Eurostat, Monthly General Statistics Bulletin, 9 - 1976.

The total benefits simulated in 1975 amount to 2,784 million u.a. from the Community as against total present national benefits of the order of 9,200 million u.a.. Under the extreme (and debatable) supposition that Community benefits would substitute for national benefits (rather than be additional), the Community average financing share of 33 % would, by country, range from nearly 85 % for the weakest Community economies to around 20 % for the strongest Community economies. The rate of the levy on salaries and wages required to finance the Community benefit would amount to 0.5 % (the case can be made, of course, for surpluses and deficits in the year by year financing for such a scheme, but that is not provided for in the present numerical example). In terms of the redistributive power measure (used in Chapter 5), the net financial flows would result in an equalisation of about 0.7 % of per capita income differentials (at purchasing power parity exchange rates).

The purpose of establishing an unemployment scheme of this kind would in part be to establish a limited automatic budgetary mechanism for redistributing resources in the Community as a function of the changing economic fortunes of member states, and also to make the individual members of the Community labour force

more aware of an act of solidarity across the Community.

3.9.6. Regional policy aids in the Community as a whole in 1974 may, under a narrow definition, be broken down as follows : (1)

	<u>million EUR</u>	<u>% GDP</u>
capital subventions	1,240	0.1
interest rate rebates	287	..
employment premiums	933	0.1
fiscal exemptions	361	..
other	27	..
Total	<u>2,848</u>	<u>0.3</u>

The above mentioned figures refer only to direct regional aids to enterprises, mainly in the manufacturing industry. Aids paid to Berlin (in the case of Germany) and aids given directly by regions (see the case of Italy) are excluded.

The figures exclude most of investment in public infrastructures in the development regions (e.g. roads, harbours, communication systems, housing development and redevelopment, etc.) as well as all the sectoral aids (small enterprises, agriculture, coal mining, textiles, shipbuilding, steel etc.) which may have an important impact on regional development.

The Community's Regional Development Fund's initial allocation has been 238 million EUR 1975, and 397 in each of 1976 and 1977.(2) The grants may not exceed 50 % of the public subsidy to private investment; they may range from 10 to 30 % for public infrastructure projects. For purposes of comparison with national regional aid expenditure, the foregoing total of 2,848 million EUR in 1974 might have grown to, say, about 3,300 million EUR in 1976, in which case the Regional Fund's grants would have amounted to about 12 % of national regional expenditure on the narrow definition used ; i.e. at any event only a small fraction.

A straightforward comparison of Community grants with national regional expenditure is not possible, as the former are given not only for private investment but also, and mostly, for the financing of infrastructure works (60 % of ERDF allocation in 1975 ; 75 % in 1976).

(1) Source : Estimates of the services of the Commission

(2) The corresponding amounts in budgetary units of accounts are 300 (for 1975) and 500 (for 1976 and 1977).

3.10. Inter-governmental transfers. The purposes, techniques and amounts of transfers from federal to state and local governments have been set out in detail elsewhere in Chapters 6,7, 10 and 13. In the present context it is sufficient to recapitulate the orders of magnitude for the federations :

	specific purpose grants	general purpose grants or transfers
	% of GNP	
United States (1973-74)	2.7	0.4
Germany (1973)	1.7	0.3 (1)
Canada (1973-74)	3.2	1.0
Australia (1973-74)	2.4	3.1

(1) Excluding VAT tax-sharing

TABLE 2

Estimated Breakdown of
Public Expenditure in the European Communities by Function in 1970

	Units of account in millions	Percentage of total expenditure	Percentage of GDP (1)
1. <u>General Public Services</u>	32,333	13.05	5.24
General administration	15,103	6.10	2.45
International relations	4,233	1.71	0.68
Public order and safety	6,950	2.81	1.13
General research	6,047	2.44	0.97
2. <u>Defence</u>	17,428	7.04	2.82
3. <u>Education</u>	32,632	13.18	5.29
4. <u>Health</u>	32,909	13.29	5.33
5. <u>Social Security and Welfare</u>	64,804	26.17	10.50
Old age and survivors	35,776	14.44	5.80
Invalidity, disability and occupational injuries	11,196	4.52	1.81
Unemployment	1,824	0.74	0.29
Family, maternity and child allowances	12,858	5.19	2.08
Other	3,149	1.27	0.51
6. <u>Housing and Community Amenities</u>	11,743	4.74	1.90
Sanitary services	3,953	1.60	0.64
Housing and other	7,790	3.14	1.26
8. <u>Economic Services</u>	38,425	15.51	6.23
Labour, wage and employment programmes	996	0.40	0.16
Agriculture, forestry, fishing and hunting	10,414	4.20	1.69
Mining, manufacturing and construction	1,326	0.53	0.21
Mining	(796)	(0.32)	(0.13)
Manufacturing and construction	(529)	(0.21)	(0.08)
Electricity, gas and water	2,473	1.00	0.40
Roads	7,236	2.92	1.17
Inland and coastal waterways	1,164	0.47	0.19
Other transport and communication	5,171	2.09	0.84
Other economic services	9,645	3.89	1.56
9. <u>Other</u>	17,385	7.02	2.82
TOTAL	247,660	100	40.13

(1) GDP at market prices

Note on Transfers: Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

Sources: EUR 6 - Evolution des finances publiques dans les états membres de la Communauté, 1966-70; UK, Ireland and Denmark - National accounts, 1970-74 SOED; + Ireland - National income and expenditure, 1974; UK - national income and expenditure, 1963-73; Denmark - Economic survey of Denmark 1972 and Statistics Yearbook, 1971. Germany - Finanzbericht 1976 and Statistisches Jahrbuch 1973; France - Le budget de 1970; Italy - Nota introduttiva al bilancio 1970; Belgium - unpublished government statistics; S.O.E.C. 'Public financing of research and development in the countries of the Community' (CREST/20/75); 'Eléments chiffrés et statistiques concernant l'utilisation des crédits inscrits au budget 1968/1973'.

TABLE 3

Public Expenditure in West Germany by Function and Level of Government in 1971

DM m.

	Federal	State/ Local	Total	Total as per- centage of GDP ⁽¹⁾
1. General Public Services	11,988	19,976	31,964	4.21
General administration	2,854	10,137	12,991	1.71
International relations	5,290	30	5,320	.70
Public order and safety	573	8,712	9,285	1.22
Research	3,271	1,097	4,368	.58
2. Defence	22,715	-	22,715	2.99
3. Education	2,053	29,319	31,372	4.13
Primary and secondary	516	22,058	22,574	2.97
Further education (excluding universities)	515	4,657	5,172	.68
Universities	1,022	2,604	3,626	.48
4. Health	84	9,733	9,817	1.29
Hospitals	19	7,312	7,331	.97
Other	65	2,421	2,486	.33
5. Social Security and Welfare	116,579	15,755	132,334	17.42
Social security	99,819 ⁽²⁾	54	99,873	13.15
Family, social and youth	4,457	8,578	13,035	1.72
War pensions, etc.	9,074	3,950	13,024	1.71
Other	3,229	3,173	6,402	.85
6. Housing and Community Amenities	759	11,844	12,603	1.66
Housing and planning	658	4,142	4,800	.63
Other community amenities	101	7,702	7,803	1.03
7. Other Community and Social Services	501	4,660	5,179	.68
Sport and recreation	424	2,379	2,821	.37
Art, culture and religion	77	2,281	2,358	.31
8. Economic Services	15,793	16,366	32,159	4.23
Labour, wage and employment programmes	191	225	416	.05
Food, agriculture and forestry	3,731	2,026	5,757	.76
Mining and construction	806	262	1,068	.14
Electricity, gas and the construction of buildings for cultural purposes	941	1,466	2,407	.32
Motorways	3,891	68	3,957	.52
Other roads	2,021	10,161	12,182	1.60
Inland waterways and harbours	922	379	1,301	.17
Other transport and communications	1,700	502	2,202	.29
Regional assistance	1,305	462	1,767	.23
Other (incl. gen. purpose inter-govt. grants)	286	816	1,102	.15
9. Other	17,524	16,642	34,166	4.50
TOTAL FINANCING	187,996 (60.2)	124,313 (39.8)	312,309 (100)	41.11
TRANSFERS	- 13,892	+ 13,892	-	
TOTAL FINAL EXPENDITURE	174,104 (53.8)	138,205 (41.2)	312,309 (100)	41.11

(1) GDP at market prices

(2) Includes DM 87,127 bill spent by the Sozialversicherungsträger (independent social security institutions)

Source: Statistisches Jahrbuch 1975, pp. 402-405

Note on Transfers: Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

TABLE 4

Provisional Estimate of
Public Expenditure in Australia by Function and Level of Government in 1972/73

§ m.

	Federal	State/ Local	Total	Total as per- centage of GDP ⁽¹⁾
1. <u>General Public Services</u>	934	735	1,669 (2)	4.01
General administration	466	375	841	2.01
External affairs	344	-	344	.83
Law, order and public safety	41	360	401	.96
General research	83	-	83	.20
2. <u>Defence</u>	1,190	-	1,190	2.85
3. <u>Education</u>	371	1,398	1,769	4.24
4. <u>Health</u>	197	687	884	2.12
5. <u>Social Security and Welfare</u>	2,738	123	2,861 (2)	6.87
6. <u>Housing and Community Amenities</u>	177	91	268 (2)	.64
7. <u>Other Community and Social Services</u>	114	165	279	.67
8. <u>Economic Services</u>	896	786	1,683 (2)	4.04
Agriculture, forestry and fishing	216	266	482	1.16
Mining, manufacturing and construction	61	2	63	.15
Transport and communication	511	517	1,028	2.47
Other	109	1	110	.26
9. <u>Other</u>	2,775	- 1,723		
Other	15	1,037	1,052 (2)	2.52
General Purpose Transfers	2,760	- 2,760		
TOTAL FINANCING	9,392 (80.6)	2,261 (19.4)	11,655 (100)	27.56
TRANSFERS	- 3,614	+3,614	-	-
TOTAL FINAL EXPENDITURE	5,778 (49.6)	5,875 (50.4)	11,655 (100)	27.96

(1) GDP at market prices

(2) Includes estimates

Source: Australian National Accounts : National Income and Expenditure 1973-74, pages 51-65

Note on Transfers: Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

TABLE 5

Public Expenditure in Canada by Function and Level of Government in 1971/72

\$ m.

	Federal	Provincial/ Local	Total	Total as per- centage of GDP ⁽¹⁾
1. <u>General Public Services</u>	2,094.6	2,357.5	4,452.1	4.75
Total direct	2,044.8			
Total intergovernmental	49.8			
<u>General administration</u>	1,110.2	1,173.9	2,284.1	2.43
Direct	1,109.5			
Intergovernmental	0.7			
<u>Foreign affairs and international assistance</u>	311.5	-	311.5	.33
Direct	311.5			
Intergovernmental	-			
<u>Protection of persons and property</u>	341.4	1,161.4	1,502.8	1.60
Direct	292.3			
Intergovernmental	49.1			
<u>Research establishments</u>	331.5	22.2	353.7	.38
Direct	331.5			
Intergovernmental	-			
2. <u>National Defence</u>	1,871.6	-	1,871.6	1.99
Direct	1,871.6			
Intergovernmental	-			
3. <u>Education</u>	864.2	5,673.8	6,538.0	6.97
Direct	106.0			
Intergovernmental	758.2			
4. <u>Health</u>	1,603.4	3,239.3	4,842.7	5.16
Direct	133.5			
Intergovernmental	1,469.9			
5. <u>Social Security and Welfare</u>	5,417.9	1,549.9	6,967.8	7.43
Direct	4,945.0			
Intergovernmental	472.8			
6. <u>Housing and Community Amenities</u>	93.2	1,130.4	1,223.6	1.30
Total direct	52.6			
Total intergovernmental	40.7			
<u>Housing</u>	70.5	439.1	509.6	.54
Direct	45.5			
Intergovernmental	25.1			
<u>Environment</u>	22.7	691.3	714.0	.76
Direct	7.1			
Intergovernmental	15.6			
7. <u>Other Community and Social Services</u>				
<u>Recreation and culture</u>	164.2	595.6	759.8	.63
Direct	151.9			
Intergovernmental	12.3			
8. <u>Economic Services</u>	3,147.0	3,200.0	6,347.0	6.76
Total direct	2,846.4			
Total intergovernmental	300.6			
<u>Development of the regions</u>	141.6	67.9	209.5	.22
Direct	71.1			
Intergovernmental	70.5			
<u>Labour employment and immigration</u>	289.0	1.2	290.2	.30
Direct	260.3			
Intergovernmental	28.7			
<u>Agriculture, trade, industry and tourism</u>	896.9	302.4	1,199.4	1.28
Direct	813.0			
Intergovernmental	83.9			
<u>Transport and communication</u>	1,207.2	2,475.8	3,683.0	3.92
Direct	1,163.1			
Intergovernmental	44.1			
<u>Natural resources</u>	276.7	352.7	629.4	.67
Direct	266.4			
Intergovernmental	10.3			
<u>Transfers to own enterprises</u>	335.5	63.0	335.5	.36
Direct	272.5			
Intergovernmental	63.0			
9. <u>Other</u>				
Direct	1,479.1	247.9	3,273.0	3.49
Intergovernmental	1,546.0			
TOTAL FINANCING	18,218.5 (50.2)	18,057.3 (49.8)	36,276.0	100
TRANSFERS	- 4,588.9	+ 4,588.9	-	-
TOTAL FINAL EXPENDITURE	13,629.6 (37.6)	22,646.2 (62.4)	36,276.0	100

(1) GDP at market prices

Source: The national Finances 1974/75 : The Canadian Tax Foundation, Table 2/14, p. 23

Note on Transfers: Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

TABLE 6

Public Expenditure in Switzerland by Function and Level of Government in 1973

S.Fr. m.

	Federal	State	Local	Total	Total as percentage of GDP ⁽¹⁾
1. <u>General Public Services</u>	1,167	1,801	1,436	4,404	3.46
General administration	514	825	966	2,305	1.81
International relations	474	-	-	474	.37
Police and fire protection	26	561	338	925	.73
Law enforcement	92	375	118	585	.46
Prison service	61	40	14	115	.09
2. <u>Defence</u>	2,291	50	21	2,362	1.85
3. <u>Education</u>	1,195	2,956	2,210	6,361	4.99
Universities and basic research	964	555	6	1,525	1.20
High schools	32	719	45	796	.62
Primary schools	33	1,354	1,884	3,271	2.56
Education system for employees	166	328	275	769	.60
4. <u>Health</u>	34	2,345	473	2,852	2.24
5. <u>Social Security and Welfare</u>	12,217	3,273	874	16,364	12.83
Social insurance	11,736	1,695	264	13,695	10.74
Contributions to employees' retirement (insurance trusts)	460	1,077	246	1,783	1.40
Social welfare payments	21	501	364	886	.69
6. <u>Housing and Community Amenities</u>	267	423	883	1,573	1.24
Housing	130	73	98	301	.24
Sewerage (including waste treatment facilities)	131	292	568	991	.78
Cemetery and public lavatory	1	24	152	177	.14
Urban planning and development	5	34	65	104	.08
7. <u>Other Community and Social Services</u>	4,923	218	544	5,685	4.45
Recreational and cultural services	60	218	544	822	.64
Broadcasting system	4,863	-	-	4,863	3.81
9. <u>Economic Services</u>	3,435	3,482	2,417	9,334	7.31
Agriculture (especially stabilisation of farm incomes and prices)	1,090	173	36	1,299	1.02
Forestry, hunting and fishing	29	102	74	205	.16
Subsidies to tourism, industry and commerce	32	21	27	80	.06
Public industrial utilities	-	1,004	240	1,244	.98
Water supply service	-	26	225	251	.20
Roads	2,127	1,842	1,733	5,702	4.47
Transportation (excluding postal services, railroad and air)	-	242	80	322	.25
Air transportation	157	72	2	231	.18
9. <u>Other</u>	950	495	370	1,815	1.42
TOTAL FINANCING	30,125.6 (59.4)	13,755.5 (27.1)	6,868.9 (13.5)	50,750 (100)	39.78
TRANSFERS	- 3,646.6	+3,646.6	+2,359.1	-	-
		-2,359.1			
TOTAL FINAL EXPENDITURE	26,479 (52.2)	15,043 (29.6)	9,228 (18.2)	50,750 (100)	39.78

(1) GDP at market prices

Source: Öffentliche Finanzen der Schweiz, 1973

Note on Transfers: Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

TABLE 7

Public Expenditure in the United States by Function and Level of Government in 1971/72

\$ m.

	Federal	State	Local	Total	Total as percentage of GDP ⁽¹⁾
1. <u>General Public Services</u>	6,269	-	-	6,269	.59
Total direct (expenditure)	6,269				
Total intergovernmental (transfers)	-				
<u>International Relations</u>	2,900	-	-	2,900	.27
Direct	2,900				
Intergovernmental	-				
<u>Space research and technology</u>	3,369	-	-	3,369	.32
Direct	3,369				
Intergovernmental	-				
2. <u>Defence</u>	76,358	-	-	76,358	7.19
Direct	76,358				
Intergovernmental	-				
3. <u>Education</u>	13,045	30,407	27,466	70,918	6.68
Direct	5,104				
Veterans education benefits	1,800				
Other	3,304				
<u>Intergovernmental</u>	7,941				
Grants in aid: School lunch and school milk programmes	616				
Maintenance and operation of schools	595				
Other grants in aid	5,846				
Payments for services: Scientific research and development	787				
Tuition payments	87				
4. <u>Health</u>	5,478	5,651	6,059	17,188	1.62
Total direct	4,166				
Total intergovernmental	1,312				
<u>Hospitals</u>	2,446	4,954	5,396	12,796	1.21
Direct	2,350				
Intergovernmental	96				
<u>Other health</u>	3,032	697	663	4,392	.41
Direct	1,816				
Intergovernmental	1,216				
5. <u>Social Security and Welfare</u>	71,736	15,267	3,527	90,530 ⁽²⁾	8.53
Direct	57,729				
Intergovernmental	14,007				
6. <u>Housing and Community Amenities</u>	4,611	149	604	5,364	.51
Direct	2,630				
Intergovernmental	1,981				
8. <u>Economic Services</u>	29,173	12,302	5,269	46,804	4.41
Total direct	23,322				
Total intergovernmental	5,851				
<u>Natural resources</u>	11,729	1,971	528	14,228	1.34
Direct	11,105				
Stabilisation of farm prices and income	4,895				
Farm credit and insurance	397				
Other agricultural resources	482				
Soil, water and electricity energy resources	3,500				
Forests and parks	1,484				
Mineral resources	311				
Other natural resources	35				
Intergovernmental	624				
<u>Highways</u>	5,540	10,272	3,641	19,453	1.83
Direct	432				
Intergovernmental	5,108				
<u>Air transport</u>	2,538	59	1,100	3,697	.36
Direct	2,419				
Intergovernmental	119				
<u>Postal Services</u>	9,366	-	-	9,366	.88
Direct	9,366				
Intergovernmental	-				
9. <u>Other</u> ⁽³⁾	35,516	13,875	36,336	85,725	8.07
Direct	33,024	9,117	35,666		
Intergovernmental	2,492	4,758	670		
TOTAL FINANCING	242,186(60.7)	77,651(19.4)	79,261(19.9)	399,098 (100)	37.58
	-33,584	+ 33,584	- 36,759	-	-
TOTAL FINAL EXPENDITURE	208,602(52.3)	74,476(18.7)	116,020 (29.0)	399,098 (100)	37.58

(1) GDP at market prices

(2) Includes insurance trust expenditures classified as direct expenditure

(3) Includes liquor stores

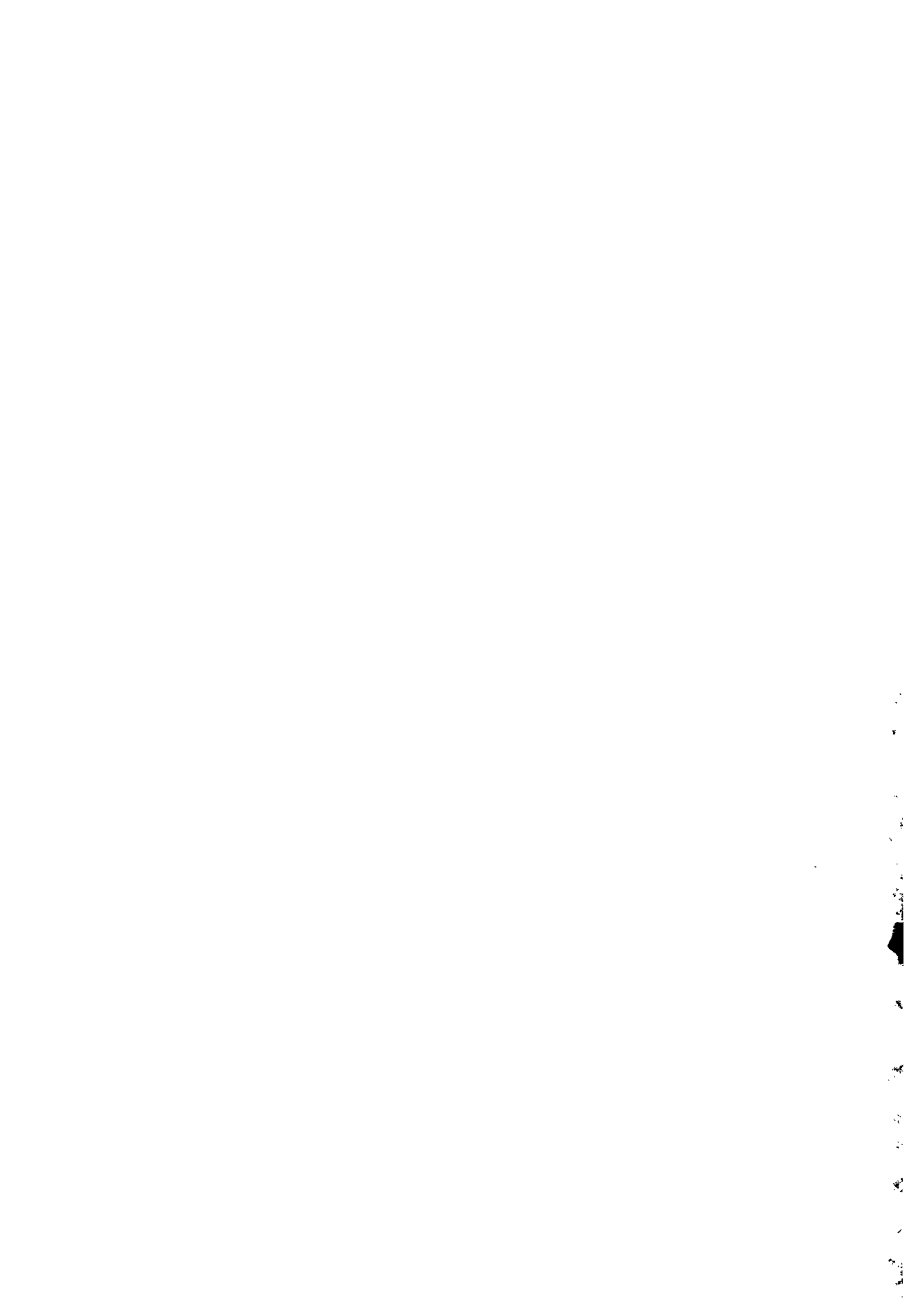
Source: 1972 Census of Government, Vol. 4, No. 5, Tables 7 and 9, pp. 29-31

Note on Transfers. Specific purpose transfers (i.e. for given sectors) are included under the sectoral headings for the donor level of government. The amounts of total transfers, for specific or general purposes, are shown in the total lines. General purpose transfers are reflected in sectoral expenditure amounts of recipient levels of government.

Conversion rates between units of account and other currencies

This section refers to three different units of account :

- (a) The statistical unit of account, EUR, is defined in terms of a fixed quantity of gold. Its conversion rates are based on the central rates of the "snake" currencies and market rates of exchange for the other freely floating currencies. The EUR in 1975 had the following average exchange rates :
1 EUR = DM 3,21978 ; Ffr. 5,68, Lit 863, FL 3,35507 ;
Fb/Flx 48,6572 ; £ 0,597 ; Dkr 7,57831 ; \$ US 1,32.
- (b) The budget unit of account, u.a., is defined in terms of conversion rates which were the last parities for national currencies declared to the IMF. It uses fixed exchange rates.
1 u.a. = DM 3,66 ; Ffr. 5,55 ; Lit 625,- ; Fl 3,62 ; Fb/Flx 50,-
£ 0,4166.
- (c) As from 1978 the Community's budget expenditure will be expressed in European units of account, EUA, which is already used by the ECSC and EIB. This unit of account is defined in terms of a fixed basket of the currencies of the member states. The EUA in 1975 had the following average exchange rates :
1 EUA = DM 3,04932 ; Ffr. 5,31914 ; Lit 809,526 ; Fl 3,13482 ;
Fb/Flx 45,5677 ; £ 0,560019 ; \$ 1,24074.



Chapter 13

MECHANISMS FOR FISCAL EQUALISATION
IN AN INTEGRATING EUROPEAN COMMUNITY

by

Russel Mathews

I. THE NATURE OF FISCAL EQUALISATION

For the purposes of this paper, fiscal equalisation is defined as a systematic process of intergovernmental financial transfers directed towards equalisation of the budget capacity or economic performance of a number of associated governments.

1. Fiscal Equalisation as Horizontal Fiscal Adjustment

In principle, equalisation transfers may take the form of vertical fiscal adjustments, designed to maintain or restore financial balance between two or more levels of government (such as a federal government on the one hand and the governments of the member states of the federation on the other). In this paper, however, attention will be concentrated on the process of horizontal fiscal adjustment, which is designed to equalise the budgetary position of governments operating at the same level of jurisdiction, such as states or provinces in a federal system, local governments in a system of unitary government (or, indeed, a federation), recipient countries in an international aid program, or the member states of an economic community or political association such as the European Community.

In this context, it should be noted that the term horizontal refers to the level of government within which budgets are equalised; the purpose of the adjustment is to achieve horizontal fiscal balance. As noted below, the process of horizontal fiscal adjustment may take the form either of transfers from one level of government to another (usually from a higher level, such as a federal government, to a lower level, such as states or provinces) or of transfers within the same level of government (such as from some states in a federation to other states in the same federation).

2. Budget Equalisation and Redistribution Among Individuals

In this paper, fiscal equalisation also needs to be interpreted as budget equalisation, directly affecting governments rather than the individuals whom the governments represent. However, individuals are indirectly affected and are intended to be affected by the equalisation arrangements. The purpose of fiscal equalisation may thus be stated broadly as being to permit or encourage governments to equalise the fiscal burdens and benefits accruing to individuals in the different jurisdictions subject to equalisation. More specifically, fiscal equalisation is intended to make it possible (and, under certain circumstances, worth while) for governments within the equalisation system to provide a standard range and quality of administrative, social and economic services for their citizens, whilst maintaining comparable fiscal efforts in the form of standard rates of taxation and other charges. The purpose (and the effect) of

redistributing financial resources among governments rather than individuals is to decentralise the responsibility for resource allocation decisions (for example, by making possible a diversity of taxing and spending patterns among the member states of a federation), whilst leaving citizens in the different jurisdictions which are subject to equalisation equally well off in terms of their governments' capacity for, or effectiveness in, service provision.

3. Equalisation Standards

Fiscal equalisation is systematic when, as is assumed in this study, equalisation standards of capacity or performance are adopted and the intergovernmental transfers are based explicitly on the measurement of departures from those standards. The choice of equalisation standard is a political decision and at least four kinds of equalisation standards may be distinguished :

- (a) a fixed and arbitrarily determined amount, which is distributed in accordance with designated allocation criteria, as under the scheme of general revenue sharing which was introduced in the U.S.A. in 1972 ;
- (b) equalisation to the standards of revenue raising and service provision which are available to the government or governments with the highest fiscal capacity, as under the Grants Commission arrangements in Australia where the standard is based on the budgetary performance of the two States with the highest fixed capacity - New South Wales and Victoria ;
- (c) equalisation to the average standard of revenue raising and service provision for all governments in the equalisation system, as under the West German and Canadian equalisation system.
- (d) equalisation to a minimum standard, for example a minimum standard of service provision, as under Australian grants for schools.

4. Partial Versus Full Equalisation

The adoption of the first of these equalisation standards implies that only partial equalisation is being attempted, because only coincidentally will it produce a situation in which the fiscal capacity or performance of all governments in the equalisation system is equalised. The use of a minimum standard also implies partial equalisation. The other two forms of equalisation standard may be modified in such a way as to achieve partial rather than full equalisation. Thus fiscal equalisation in Canada is restricted to equalisation of revenue-raising capacity, while equalisation in the

Federal Republic of Germany is for some purposes limited to an arbitrarily specified proportion (such as 95 per cent) of the average standard. In Australia, likewise, the Grants Commission used to reduce its recommended grants by a so-called penalty for claimancy.

Partial equalisation may also result from institutional arrangements or from the nature of the equalisation process itself. In Australia, for example, the distribution of general revenue grants (made for purposes of vertical fiscal adjustment) has been such as to make it unnecessary for all States with below-standard fiscal capacity to apply for equalisation grants, so that not all States have formed part of the equalisation system. In Canada, also, the fact that equalisation transfers have been made by the Federal Government has meant that, although Provinces with below-average revenue-raising capacity may be equalised up to the average, Provinces with above-average revenue-raising capacity are not equalised down. The Canadian system thus differs from the West German and Australian systems, which at least in principle are capable of achieving full equalisation. This is because in the case of West Germany, Länder with above-average capacity in effect make transfers to Länder with below-average capacity, while in Australia States with below-standard capacity are equalised to the standard of the two States with the highest fiscal capacity (subject to such minor differences as may exist in the fiscal capacities of those two States).

5. Limitations of Highest-Standard and Average-Standard Approaches

Both the highest-standard and the average-standard approaches are subject to technical limitations which should be noted. As a general principle, fiscal equalisation payments should be independent of the policies of governments receiving the payments. This condition can be fulfilled when the highest-standard approach is used, because the performance of the below-standard governments does not affect the standard. But the condition is not met when the average-standard approach is adopted, because the performance of the below-standard governments enters into the calculation of the standard. The problem may not be very important if the budgets of the below-standard governments are small relative to those of other governments, as in Australia ; but it can become significant if a below-standard government has a relatively large budget, as does Quebec in Canada.

The use of a highest-standard criterion presents problems of its own because it implies the adoption, as the equalisation yardstick, of the performance of the government or governments with the highest fiscal capacity or performance. There is then a dilemma if the standard governments are not engaged in an activity which nevertheless needs to be brought into the equalisation calculations. This problem has arisen in Australia in relation to the equalisation of mineral

royalties, because bauxite is not mined in the standard States, but is a significant source of royalty revenue in the claimant (below-standard) State of Queensland. The Grants Commission's normal procedure in assessing financial needs in relation to royalties is to apply the standard States' average royalty rate to the difference between the average revenue base in the standard States and the revenue base in the claimant State, adjusted for differences in population. Because the assessed financial needs (which form the basis of the recommended equalisation grants) may be negative or positive, a negative need is indicated in circumstances where the claimant State has mineral production, but the standard States do not. But the problem is to determine a standard rate under these circumstances. (In practice, the Commission has adopted a standard rate based on its broad judgement as to what an appropriate rate may be under the circumstances, having regard to standard rates for other minerals and to the rates charged by other governments for the mineral in question.)

The problem arises in a slightly different form in relation to taxation. In Australia, if a claimant (below-standard) State imposes a form of taxation which is not imposed in either of the standard States, it is not regarded as having a negative need in relation to that tax because that would make the recommended grant dependent on the claimant State's policy (and would obviously influence that policy).

But this procedure tends to introduce a bias into the equalisation arrangements in favour of the claimant States (that is, the States with below-standard capacity) and against the standard States. This is because the revenue bases which are taxed in the standard States will tend to be those in respect of which the standard States have a comparative advantage, implying a substantial shortfall in taxable capacity for the claimant States in relation to those forms of taxation. But because the standard States' tax arrangements are the basis of the standard, claimant States will not be treated as having negative needs in relation to forms of taxation in which they have a comparative advantage.

If, for example, there are two states in a federation, one standard and one claimant, and the main form of economic activity in the standard state is business whilst the main form of economic activity in the claimant state is tourism, it is likely that the standard state will tax business transactions in some way while the standard state will seek to tax tourism. Under the highest-standard equalisation procedures applied by the Australian Grants Commission, however, this will result in the assessment of substantial positive needs for the claimant state in respect of business taxation, without any off-setting negative needs in respect of taxes on tourism.

Under circumstances where there are substantial divergences in the budgetary patterns of the governments subject to equalisation, and where as in Australia such governments are prevented from imposing broad-based taxes such as the value added tax, there may be advantages in basing standards on broad indicators of fiscal capacity or performance rather than on the actual performance of the governments used as standard.

6. The Measurement Process in Fiscal Equalisation

The measurement of equalisation standards and departures from standards may thus be approached in one of two ways. The first involves the use of a standard or representative budget, and of measures of relative fiscal capacity or performance which are judged to be relevant in the context of the standard or representative budget. The second involves the use of indicators of relative fiscal capacity or performance, which are not necessarily derived from the budgets of the governments participating in the equalisation process. Indicators of fiscal capacity include, for example, statistics of the size and distribution of personal incomes, the size and age distribution of population, the dispersion of population and the degree of urbanisation, and the rate of population growth.

As in the case of the equalisation standard, the standard budget may be based on the performance of governments with the highest fiscal capacity, as in Australia, or on the average performance of all governments, as in Canada. The budget approach has the advantage of measuring relative fiscal capacity or performance directly, by reference to the items which actually form the basis of the budgets being equalised. The measurement is thus more objective than is possible when economic, demographic or other indicators are used as measures of capacity or need, as in the case of the U.S. revenue - sharing grants. This is because, in the latter case, not only must an arbitrary choice of indicators be made, but also arbitrary weights must be assigned to the indicators for the purpose of producing combined measures of capacity or need.

One disadvantage of the budget approach has been noted in the preceding section. Another is that this approach requires direct assessment of capacity or performance on the basis of what may involve a very large number of calculations, especially if many governments are involved. Because of data limitations, it may also require resort to estimations of broad judgement on a significant scale, with a consequential reduction in the objectivity of the assessments which are made.

The budget approach tends to be more easily applied to the equalisation of revenue-raising capacity than to the equalisation of expenditure needs, which no doubt explains why Canada has restricted its fiscal capacity equalisation to the former. In Australia where as noted

above the budget approach is used by the Crants Commission to assess both revenue and expenditure needs, there have never been more than three claimant States and three standard States, and at present there are only one claimant and two standard States. The Australian Grants Commission's detailed procedures could not be easily applied to the 50 States in the U.S.A., although a variant of the approach has been used by the Commission in making recommendations on equalisation grants for nearly 900 local government bodies in Australia.

The budget approach may be facilitated by harmonising budget policies, but again it is easier to harmonise taxation policy than expenditure policy. This no doubt explains why revenue equalisation has been based on the budget approach in the Federal Republic of Germany, where the Länder have harmonised their taxation systems, while expenditure equalisation has tended to rely on indicators of need such as the degree of urbanisation.

7. Types of Equalisation Transfers

Basically, there are four kinds of financial transfers which may be made for purposes of fiscal equalisation, depending on a two-way classification between general purpose payments and specific purpose payments on the one hand and between grants and advances on the other. For the purpose of the present discussion, so-called block grants, which are available for spending for a designated broad purpose (such as education), may be regarded as specific purpose payments.

General purpose payments are available for spending at the discretion of the recipient governments in accordance with their own priorities. Conflicts between the spending priorities of the governments making the payments and those receiving them are thus avoided. Specific purpose payments, on the other hand, must be spent on the purposes designated and in accordance with any other conditions laid down by the government making the payments. Specific purpose payments are partial in character and may be directed towards objectives other than fiscal equalisation. There is an inherent resource allocation problem in the use of specific purpose grants, resulting from the possibility of revenue substitution or expenditure substitution by the recipient government. Matching or other revenue conditions are sometimes attached to specific purpose payments to prevent the recipient government from reducing its own revenue efforts and thereby defeating the purpose of the payments. But action of this kind, designed to obviate revenue substitution, may encourage the recipient government to divert expenditure from fields which are not subject to matching payments to those which are, thereby distorting its own expenditure priorities.

In some countries, notably the U.S.A., specific purpose grants have been called conditional grants. It should be noted, however, that

both general purpose payments and specific purpose payments, and both grants and advances, may be conditional or unconditional. By definition, expenditure conditions cannot be attached to general purpose payments, but revenue conditions may be specified. In Australia, for example, general revenue payments which have been made by the Commonwealth Government to the States in the form of tax reimbursement grants (later called financial assistance grants) have been conditional on the States refraining from imposing their own income taxes.

Both revenue conditions and expenditure conditions may be attached to specific purpose payments. The revenue conditions may take the form of matching conditions or of more general revenue substitution conditions. The former require the recipient government to contribute funds from its own resources, in a specified proportion to the specific purpose payment, to help finance the designated expenditure. The Canadian Medicare payments, under which the Federal Government has contributed to the Provinces 50 per cent of the cost of designated medical services, provide an example of matching payments. (It should be noted, however, that until 1975, when the Federal Government placed a ceiling on its Medicare contributions, the fact that the program was open-ended and that spending decisions were taken by the Provinces meant that the Federal Government was effectively matching Provincial contributions, rather than vice versa.)

General revenue substitution conditions may take the form of requirements that recipient governments continue to make specified revenue efforts in relation to the activities being supported by the specific purpose payments. In Australia, for example, Federal recurrent grants for schools have been subject to a general condition that the States continue to devote at least the same proportion of their revenue budgets to schools as they committed in the year prior to the introduction of the Federal payments.

Whether the use of specific purpose payments results in greater allocative efficiency than the use of general purpose payments will depend on which level of government is in the better position to determine revenue and expenditure priorities. This in turn depends on which level of government is better able to evaluate the decisions which have to be made, on the basis of such factors as information sources, responsiveness to the electorate and the spillover effects of the decisions. Recipient governments may have an advantage in terms of information sources and responsiveness, up to the point where spillover effects occur; thereafter the balance of advantage must be presumed to lie with the higher level governments making the transfer payments.

Equalisation transfers may also take the form of either grants or repayable advances (i.e. loans). Grants may themselves be made either for recurrent or capital purposes, although in modern budgets the distinction may not always be especially significant. Advances may or

may not be interest bearing. In Australia, both general purpose and specific purpose payments have been made in the form of revenue grants, capital grants and advances. Thus general purpose payments include financial assistance grants from the Commonwealth to the States, which are available for general revenue purposes ; capital grants in support of States' works programs, which have the effect of reducing the States' borrowing requirements ; and payments which have been made in the form of repayable advances from time to time for the purpose of reducing State revenue deficits.

Specific purpose payments in Australia also take the form of revenue grants, in support of recurrent expenditure on, say, education ; capital grants, for example grants designated for expenditure on road construction ; and repayable advances, which are usually adopted as the form of payment when the expenditures help to create revenue-producing capital assets, such as a hydroelectric project or a natural gas pipeline.

8. Co-ordination of General Purpose and Specific Purpose Payments

A problem may arise when one level of government is making both general purpose and specific purpose equalisation payments to another level of government, because the effect of one form of payment may be either to cancel out or to duplicate the effect of the other.

The possibility of conflict between the two forms of payment arises partly because they usually have different purposes (general purpose payments being directed towards capacity equalisation and specific purpose payments towards performance objectives) ; and partly because general purpose transfers may be used to finance the same expenditures which are the subject of the specific purpose payments. The opportunities for conflict are intensified if separate departments or agencies make recommendations or decisions in respect of the two types of payment.

Three procedures have been identified by the Australian Grants Commission as possible methods of dealing with this problem. These are described as the exclusion approach, the deduction approach and the inclusion approach.

Under the exclusion approach, both the expenditures which are the subject of the specific purpose payments and the revenues used to finance those expenditures (including the specific purpose payments themselves) are excluded from the budgets or financial data which form the basis of the calculations made for purposes of the general purpose payments. In effect, a fence is placed around the activities which are the subject of the specific purpose payments and they are not allowed to affect the rest of the budget. This approach has been adopted by the Grants Commission in respect of road grants, which are the subject of separate recommendation by the Commonwealth

Bureau of Roads. The approach is feasible because State taxes used to finance road expenditure are themselves earmarked for that purpose and are excluded from the States' revenue budgets.

Where the latter condition does not hold and State revenues generally are used to finance expenditures which are the subject of specific purpose transfers, the exclusion approach cannot be adopted. The choice under these circumstances lies between the deduction approach, whereby the specific purpose payment and that part of the relevant State's expenditure which is financed by that payment are deducted from the revenue and the expenditure sides of the budget respectively ; and the inclusion approach, whereby the specific purpose payment is included in the State's budget on the revenue side while the expenditure side records total expenditure, including expenditure which has been financed by the specific purpose payment. The two procedures are likely to result in different general purpose equalisation transfers, because under the deduction approach only net expenditure will be subject to general purpose equalisation while under the inclusion approach both gross expenditure and the specific purpose payment will be equalised. Irrespective of whether net or gross expenditure is equalised, there is a possibility of conflict between the two kinds of payments, especially if one agency is concerned with general purpose equalisation and another with specific purpose transfers.

Such a situation has arisen in Australia, where the Schools Commission makes recommendations on grants for schools based essentially on performance criteria, while the Grants Commission makes recommendations on general purpose grants based on equalisation of fiscal capacity ; and where education remains one of the most important items in the budgets of the States to be financed from their own revenue sources. The Grants Commission has indicated that it proposes to deal with this problem by adopting the inclusion approach, while substituting the Schools Commission's assessment of expenditure needs for its own (subject to the inclusion of one or two items which have not been taken into account by the Schools Commission in its assessment of needs). The result of this approach will be to adopt the Schools Commission's performance criterion in relation to expenditure equalisation and the Grants Commission's capacity equalisation criterion in relation to the revenue side of the budget, which will treat the schools grants as a revenue source to be equalised along with taxes and other revenues.

9. The Equalisation Base

Fiscal equalisation may be applied to recurrent budgets (or parts thereof), loan programs or capital outlays. Where revenue budgets are being equalised there is a problem in deciding whether or not to include the transactions of public authority business undertakings. The principle which has been adopted by the Australian Grants Commission may be

considered appropriate for general application. This is to exclude the activities of those business undertakings which are inherently capable of being financially self-supporting (such as electricity undertakings); and to include for purposes of equalisation the results of business undertakings such as railways and metropolitan public transport, which have an unavoidable financial impact on the budget (because they are incapable of being operated profitably) and which give rise to fiscal inequalities among the governments whose budgets are being equalised.

Such inequalities are notoriously difficult to measure. The Grants Commission uses differences in per capita deficits (modified to a comparable basis) as a starting point, and subsequently makes adjustments for policy differences in relation to fares and freight rates, depreciation, wage rates and superannuation. But the residual differences may still reflect differences in policy or efficiency, arising for example from the operation of uneconomic branch lines.

The form of financial transfer which is made in particular circumstances tends to reflect the base which is subject to equalisation. Where the whole of the recurrent budget is subject to equalisation, as in Australia in the case of the so-called special grants recommended for claimant States by the Grants Commission, the equalisation payments will take the form of general purpose grants. The same is likely to be true of payments made to equalise revenue-raising capacity, such as the Canadian equalisation grants.

On the other hand, equalisation payments in support of general borrowing programs may be expected to take the form of general purpose loans. The Australian States' loan programs, which must be approved by the Commonwealth and State Premiers meeting as the Australian Loan Council before the Commonwealth undertakes the borrowing on behalf of the States, are not at present allocated in accordance with any explicit assessment of relative needs. However, it is easy to conceive of a situation in which the distribution would take the form of general purpose loans subject to equalisation. Specific purpose grants or advances are likely to be used when the government making the payments intends to limit its support to a particular category of expenditure. As has been noted, the choice between grants and advances is likely to depend on whether the payment is for revenue or capital purposes, and if the latter on whether or not the assets so created are revenue-producing assets. Specific purpose payments for a school building program are thus likely to take the form of capital grants, while payments for sewerage works are likely to be made in the form of advances.

10. General Distribution or Supplementary Payments

A further distinction affecting the equalisation base is of some importance in relation to the form in which equalisation payments are made. This depends on whether the equalisation payments are embodied in a formula used to distribute a pre-determined amount or are made as supplementary payments. Under the former approach, the total amount to be distributed is first determined independently of equalisation considerations, and the distribution among recipient governments is then made in accordance with equalisation principles. This approach has been used in many countries : in the U.S.A. in the case of the revenue-sharing grants to States and local governments made under the State and Local Fiscal Assistance Act of 1972 ; in Australia (implicitly rather than explicitly) in the case of the financial assistance grants and their predecessor tax reimbursement grants ; in the United Kingdom in the case of grants to local authorities ; and in the Federal Republic of Germany in the case of the horizontal financial settlements.

Under the alternative approach, the payment to a recipient government is determined in accordance with equalisation principles and made as a supplementary payment to the government concerned. The revenue equalisation grants made by the Government of Canada to the Canadian Provinces take this form, as do the special grants paid in Australia on the recommendation of the Grants Commission.

Under this approach, the amount of the supplementary payment needs to reflect not only any revenue-raising or expenditure disabilities which are included in the equalisation arrangements, but also any equalisation elements which are embodied in other financial transfers which have been made to the recipient governments. Thus, the special grants recommended by the Australian Grants Commission take account not only of the claimant State's assessed needs in relation to its relative revenue-raising capacity and its expenditure disabilities, but also of the equalisation elements which are implied by differences in the per capita amounts of the other general revenue assistance which has been received by the claimant and the standard States.

Tax-sharing arrangements which are subject to equalisation principles will generally take the form of a general distribution. However, it is of some interest to note that under the present Australian Government's new federalism policy, a three-tier system of equalisation is proposed involving : -

- (a) the general distribution of the States' share of income taxes (which will replace financial assistance grants) in accordance with equalisation criteria and procedures which will be reviewed by the Commonwealth and States quinquennially in the light of recommendations to be made by an independent body (whether this will be the Grants Commission has still to be

determined) ;

- (b) within the quinquennial period, supplementary equalisation grants, to be paid on the basis of recommendations made by the Grants Commission (in accordance with its existing principles) to any of the four States with below-standard fiscal capacity which can sustain claims that their shares under the general distribution formula are insufficient in relation to their fiscal capacity ;
- (c) at any time, supplementary equalisation grants for any of the four States with below-standard fiscal capacity, in respect of the income tax surcharges which individual States are to be permitted to impose under the new arrangements.

Specific purpose payments may be made on the basis of general distributions of predetermined amounts or of supplementary payments. Specific purpose grants not subject to revenue conditions are thus in the nature of supplementary payments. By contrast, the distribution of road grants recommended by the Commonwealth Bureau of Roads for payment by the Australian Government to the States is determined on the basis of a series of calculations, involving :-

- (a) direct assessment of the road expenditure needs of States individually and in the aggregate ;
- (b) an arbitrary decision as to the shares of the total expenditure to be financed by the Federal Government on the one hand and by the States in the aggregate on the other ;
- (c) an allocation of the States' financing share in accordance with the relative capacities of the six States to raise the motor taxes which are used to finance their share.

The difference between a State's assessed expenditure needs and its assessed tax contribution is then the amount of its recommended road grant. (The procedure which has been described over-simplifies the actual position in relation to road grants because the recommendations of the Commonwealth Bureau of Roads have not been precisely adopted.)

Although the choice between general distribution and supplementary payments is often dictated by the nature of the equalisation transfers, freedom of action will sometimes exist. The question then arises as to which approach is to be preferred ? If the same equalisation standard and criteria are adopted in each case, if the same differences in revenue-raising capacity and expenditure needs are evaluated and if the same amount is distributed (including the supplementary equalisation transfers), the distribution among recipient governments will also be the same under each approach.

However, differences between the two approaches are likely to result from the fact that supplementary equalisation transfers are not usually predetermined, so that the amounts to be distributed will not necessarily be the same in each case. Equalisation grants recommended by the Australian Grants Commission and revenue equalisation grants paid to the Canadian Provinces are thus open-ended, in the sense that the grants depend partly on the measurement of the standard and partly on the recipient governments' relative position in relation to the standard.

This was graphically illustrated in Canada at the time of the international energy crisis in 1974, when the capacity of the oil and gas producing Provinces to raise mineral royalties increased dramatically. As a result, the national average was itself raised and the shortfall in each other Province's revenue-raising capacity became so large that, in the absence of other arrangements, substantial increases in Federal taxes would have been necessary to finance the equalisation grants that would have become payable under the formula. Despite their greater revenue-raising capacity, the oil and gas producing Provinces would have contributed only marginally to these increased taxes. (The problem was eventually dealt with by partly insulating the equalisation arrangements from the price effects of the increased oil and gas revenues which were attributable to the international fuel crisis.)

11. Timing of Equalisation Payments

The problem discussed in the preceding section is related to the problem of the timing of equalisation payments and whether the payments are to be made in respect of a past year, the current year or a future year. The degree of equalisation needed may itself be partly dependent on whether payments are made on an ex ante or an ex post basis and on how the payments are financed by the government making the payments. The choice of timing will no doubt depend partly on the importance which is attached to this factor, partly on the availability of reliable information, partly on the variability of the factors which give rise to the need for equalisation payments, and partly on the extent to which the government making the payments seeks to influence the policies or performance of recipient governments.

As a general objective, equalisation payments should reflect relative needs or performance in the year for which the payments are made, after appropriate allowance has been made for the effect of the manner in which the payments are financed. The Australian Grants Commission's approach to the problem has been to adopt a two-part system, whereby an advance grant is recommended for payment in the current year (the year of payment) on the basis of preliminary estimates of a claimant State's needs, and a completion grant (which may be either positive or negative) is recommended for payment two years later when the State's needs are finally assessed on the basis of audited financial statements and other data which

by then have become available for the prior year (the year of review). The total grant recommended for payment in a particular year thus comprises the advance grant for the current year and the completion grant (positive or negative) for the year of review.

12. Vertical or Horizontal Transfers

The question of pre-determined or supplementary payments referred to earlier is also related to another problem which has so far been noted only briefly, involving the question as to which level of government should make equalisation transfers. Even in the case of horizontal fiscal adjustments for purposes of budget equalisation (as opposed to vertical fiscal adjustments), a choice exists as to whether the transfers should be made by a higher level of government (such as the federal government in a federation) or between the governments operating at the same level whose budgets are to be equalised (such as the states in a federal system).

The procedure adopted may depend on the revenue sources available to the different levels of government, and in particular on whether there is vertical fiscal balance between the different levels of government. Thus the higher level of government is more likely to accept responsibility for equalisation transfers if it has a monopoly or near-monopoly of major revenue sources (as in Australia, where the Commonwealth Government has had almost exclusive control over income taxes and sales taxes since World War II). The lower level of government, on the other hand, is more likely to accept responsibility for equalisation transfers among its member governments if the equalisation arrangements are embodied in a general system of tax sharing (as in the Federal Republic of Germany where Länder with above-standard fiscal capacity make transfers to Länder with below-standard fiscal capacity).

This question has a bearing on whether or not the equalisation transfers are likely to be open-ended. In the case of horizontal transfers, the amounts paid by governments with above-standard capacity will be equal to the amounts received by governments with below-standard capacity ; and the situation which arose in Canada at the time of the energy crisis, when the burden of adjustment fell on the Federal Government, could not arise.

Under a system of horizontal settlements, states or provinces with above-standard capacity may be expected to take a direct interest in establishing the equalisation standards, criteria and procedures, thereby helping to ensure that the arrangements are equitable and effective from the point of view of all governments. The fact that equalisation payments in Australia have been made by the Federal Government has tended to make New South Wales and Victoria - the two States with highest fiscal capacity - disinterested in the equalisation arrangements, with the consequence that other States may have been treated more advantageously than their relative fiscal capacities

may have warranted. As a result, taxpayers in New South Wales and Victoria may have been treated more unfavourable than is likely to have been the case if their own State governments had been negotiating the equalisation transfers.

This issue has obvious relevance to the problem of making equalisation transfers within the European Community. There may be some advantages, from the viewpoint of political acceptability, in having the equalisation transfers made from a Community fund, because this will tend to cloak the impact of the equalisation arrangements on individual governments with above-standard capacity or performance (which will of course be the governments which bear the burden of the equalisation). From the viewpoint of equity and responsiveness to taxpayers, however, the balance of advantage would seem to lie with a system which records the payments as horizontal transfers.

II. THE PURPOSE OF FISCAL EQUALISATION

In Part I, it was suggested that the purpose of fiscal equalisation may be stated broadly as being to permit or encourage governments to equalise the fiscal burdens and benefits accruing to individuals in the different jurisdictions subject to equalisation. More specifically, it was observed, fiscal equalisation is intended to make it possible or worth while for governments within the equalisation system to provide a standard range and quality of services for their citizens, whilst maintaining comparable fiscal efforts in the form of standard rates of taxation and other charges.

It is now time to examine the purpose of fiscal equalisation in greater detail, and in particular to distinguish between two concepts of fiscal equalisation which reflect different policy objectives.

1. Concepts of Fiscal Equalisation

There are two broad approaches to fiscal equalisation, depending on whether the purpose is to equalise the fiscal capacity of the governments participating in the equalisation arrangements or to equalise their fiscal performance.

For the purpose of the present discussion, fiscal capacity may be defined as a government's capacity to provide services, having regard to its revenue base and the cost of providing those services. In relation to fiscal equalisation, the concept of fiscal capacity is essentially a comparative concept. A government's fiscal capacity may therefore be interpreted as its relative revenue-raising capacity (assessed by reference to a standard revenue effort and the relative size of its revenue base) on the one hand and its relative cost of providing a standard range and quality of service on the other.

Fiscal performance, by contrast, may be defined as a government's fiscal effort, having regard to such factors as its revenue effort and its success in meeting expenditure and other policy objectives. Revenue effort may be measured by reference to the government's revenue capacity, but in relation to fiscal equalisation the concept of fiscal performance is again essentially a comparative concept. The definitions of fiscal capacity and fiscal performance will be expanded below.

Although both fiscal capacity equalisation and fiscal performance equalisation are concerned with the distribution function in public finance, the redistributive effects of fiscal capacity equalisation may differ significantly from those of fiscal performance equalisation. Moreover, fiscal capacity equalisation is essentially neutral in relation to its effects on resource allocation decisions and economic stabilisation. Fiscal performance equalisation, on the other hand, involves action by the governments making the equalisation transfers which is deliberately intended to influence the level and pattern of taxation or spending of the recipient governments, certainly in relation to the allocation function and possibly also in relation to the stabilisation function.

In a federal or other multi-level system of government in which the equalisation transfers are made by a higher level government to lower level governments*, fiscal capacity equalisation implies greater devolution of responsibility for decision-making than fiscal performance equalisation. This is because, under fiscal capacity equalisation, governments are merely put into a position where they may provide services on a standard scale whilst imposing taxes and other charges at standard severity. They are not obliged to match the standard revenue effort; indeed governments receiving equalisation payments are free to impose below-standard taxes and provide correspondingly below-standard services, or conversely to combine above-standard taxes and above-standard services. Similarly, their pattern of taxation and spending may differ from standard.

Fiscal capacity equalisation may thus be said to be an instrument of decentralisation or diversity in public sector decision making. In a federal context, it provides a federalist solution to the equalisation problem. Fiscal performance equalisation, by contrast, involves the specification of performance criteria and conditions by the government or governments making the equalisation transfers, with the deliberate intention of influencing or harmonising the taxation or spending policies of the recipient governments.

* The terms 'higher level' and 'lower level' are used to denote the respective ranges of jurisdiction of different levels of government and do not necessarily imply qualitative differences in degrees of autonomy or powers of decision.

Fiscal performance equalisation thus involves the loss of an important degree of freedom on the part of the recipient governments. In a system of federal or multi-level government, fiscal performance equalisation serves as an instrument of centralisation or uniformity in public sector decision-making.

It will be clear from the discussion in Part I that general purpose payments will normally be the appropriate means of providing for fiscal capacity equalisation, while specific purpose payments will normally be the most suitable means of providing for fiscal performance equalisation. However, it is possible to incorporate performance criteria in a system of capacity equalisation payments. It will be seen below that a revenue effort component may be introduced into an equalisation grants formula, so that equalisation grants reflect both differences in fiscal capacity and differences in revenue effort. Conversely, it is possible to incorporate fiscal capacity criteria in arrangements for fiscal performance equalisation.

Although the two objectives of equalising fiscal capacity and equalising fiscal performance may be combined in this way in a fiscal equalisation system, there is an inherent conflict between the two approaches. If, for example, a tax effort component is included in a fiscal capacity equalisation grants formula, in the short term at least this will have the effect of changing the distribution of grants from the distribution which would have resulted from the application of a fiscal capacity equalisation criterion. In the long run, the distribution may be expected to move closer to a distribution based on relative fiscal capacities, as governments with below-standard effort raise their taxes in order to avoid the penalty imposed by the formula. However, if the equalisation is carried out by horizontal transfers as in the Federal Republic of Germany, governments with above-standard fiscal capacity also have an incentive to maintain a relatively high tax effort.

2. Fiscal Capacity Equalisation

There are two aspects of fiscal capacity equalisation, namely equalisation of revenue-raising capacity (or revenue needs) and equalisation of expenditure needs.

Both revenue needs and expenditure needs may be positive or negative and are additive, so that a government's total financial needs for equalisation purposes are represented by the sum of its revenue needs on the one hand and its expenditure needs on the other.

A government's revenue needs in relation to a particular revenue source may be measured by the difference between its revenue-raising capacity and a standard revenue-raising capacity ; this in turn is equal to the product of a standard revenue effort and the difference between the government's per capita revenue base and a standard per capita revenue base, multiplied by the population of the territory over which the government has jurisdiction. A separate assessment of need

must be made for each revenue source.

A government's expenditure need in relation to a particular service is measured as the differential cost per capita of providing a standard range and quality of that service, multiplied by the population of the territory over which the government has jurisdiction. A separate assessment of need must be made for each expenditure category but, where per capita costs of providing services may reasonably be expected to be equal for different governments, assessed needs will be zero.

Differential costs may arise from two causes :-

- (a) the need to provide a different number of units of the service relative to standard ; and
- (b) the need to incur a different unit cost relative to standard in providing the service.

The quantity differential may arise from such factors as differences in demographic structure, resulting, for example, in the need for one government to provide more educational services than another because it has in its jurisdiction a higher proportion of school-age children to total population. The unit cost differential may arise from such factors as differences in wage costs or differences in population size or density. The latter may result in diseconomies of large scale (affecting costs of network services such as sewerage and of services subject to congestion costs such as transport), or diseconomies of small scale (affecting costs with a substantial overhead component, such as costs of general administration), or diseconomies of population dispersion (affecting costs of services which must necessarily be decentralised to some extent, such as costs of police, education and health services).

There is an inherent problem in allowing for some of these factors, because to do so may discourage the very structural changes which may be needed to remove the disabilities which give rise to the financial needs. To make capacity equalisation transfers in respect of inequalities associated with urbanisation may thus weaken urban planning pressures directed towards the achievement of better population balance. The conflict is essentially one between the short-term problem of making it possible to equalise the burdens of people in their present locations and the long-term problem of facilitating necessary structural changes.

The same kind of problem arises in relation to economic development. It is easier to apply the principle of fiscal capacity equalisation to the administrative costs of government, or the costs of providing social services, than to expenditures intended to stimulate economic development (which in any case are likely to be largely financed through loan funds or specific purpose programs rather than through revenue budgets). This is because relative rates of economic

development depend on differences in natural resources as well as on differences in the supply and effectiveness of labour and capital, and equalisation payments to compensate for differences in the resource base may represent a costly and inefficient response to the problem, at least in economic terms.

In the context of this paper and the problem confronting the European Community, about all that can be said is that the case for capacity equalisation for economic development is stronger in an international situation, in which labour especially and capital to a lesser extent are relatively immobile, than in a federal situation.

More generally, it must be emphasised that the inequalities which are subject to equalisation must in principle be restricted to financial needs which are unavoidable, and must not be due to policy differences among governments or differences in the relative efficiency with which services are provided. In practice, the distinction is not always easy to make, and many of the data problems which arise in the process of assessing financial needs have their origin in the difficulty of separating financial needs from differences in policy and efficiency.

Finally, it needs to be reiterated that, by definition, fiscal capacity equalisation is directed only towards making it possible for governments to provide a standard range and quality of services without imposing an above-standard burden of taxes and charges on their citizens. As we have seen, the measurement of capacity equalisation grants proceeds by assessing needs in relation to individual revenue and expenditure categories. However, this does not mean that a government, which has below-standard capacity in relation to, say, a value added tax and expenditure needs in relation to, say, costs of providing education services is obliged to use its equalisation payments to achieve a standard level of activity in those two categories. Nor does it mean that the aggregate burden of taxation and other charges and the aggregate level of expenditure must be brought up to standard.

The fact that equalisation payments make it possible for a government to reduce the burden of taxation is undoubtedly one of the factors which leads to a demand that capacity equalisation transfers be accompanied by a fiscal effort requirement. But the inclusion of such a requirement in the equalisation arrangements involves the introduction of a fiscal performance criterion and a corresponding departure from fiscal capacity equalisation.

3. Fiscal Performance Equalisation

Fiscal performance equalisation by definition involves specification of performance standards and action to bring the budgetary performance of recipient governments into line with those standards.

In the case of general purpose equalisation payments, performance equalisation may take the form of the inclusion of a revenue effort component in the capacity equalisation or other distribution formula. Revenue effort for this purpose may be defined as the ratio of a government's revenue collections to its revenue-raising capacity as defined above (or, alternatively, to its revenue base). For purposes of equalisation, it is necessary to measure the relative efforts of the governments subject to equalisation, and this may be done by comparing each government's revenue effort ratio with the standard revenue effort.

The original revenue-sharing proposals of the Nixon Administration in the U.S.A. would thus have resulted in a distribution of the shared revenues in accordance with the following formula *: -

$$S_i = N \left(\frac{P_i \left(\frac{R_i}{Y_i} \right)}{\sum_{i=1}^51 P_i \left(\frac{R_i}{Y_i} \right)} \right)$$

Where

S_i = the share of State i

N = total shared revenues (which were to equal one per cent of the Federal income tax base)

P = State population

R = revenues raised by a State and its local authorities from own sources

Y = State personal income (the revenue base)

* M.L. Weidenbaum and R.L. Joss, " Alternative Approaches to Revenue Sharing - A Description and Framework for Evaluation ", National Tax Journal, March 1970, page 5.

Under this formula, the basic distribution of the shared revenues would have been on a population basis, subject to adjustment for differences in revenue effort among the States. A State whose revenue effort was 10 per cent above the national average revenue effort (for the 50 States and the District of Columbia) would thus have received 10 per cent more than the grant that would have been payable on a straight population basis ; the converse would apply if a State's revenue effort was below the national average.

A revenue effort adjustment factor may likewise be included in more complicated distribution formulas, such as formulas directed towards fiscal capacity equalisation. One such formula is illustrated below in Part III.

So far it has been assumed that performance criteria must be restricted to revenue effort or other aspects of budget performance. However, performance equalisation may also be related to more general criteria of economic performance that may only have an indirect bearing on budget performance.*Such criteria may include : relative success in maintaining the level of economic activity, as measured say by changes in the level of unemployment ; relative success in controlling inflation, as measured say by changes in the consumer price index ; relative performance in relation to public sector balance and the balance of payments, as measured say by changes in the money supply associated with these factors ; and relative success in achieving economic growth, as measured say by changes in per capita gross domestic product in constant prices.

Such criteria could be applied by introducing additional performance factors into the distribution formula. The measure of a government's performance in relation to a particular factor would be expressed as a ratio of the average of all governments involved in the equalisation arrangements, and the resulting ratio (or its inverse, as may be appropriate) included in the distribution along with population, fiscal capacity and other relevant criteria. If a country's rate of inflation exceeded the average for all countries included in the distribution, its government's share of the total would be reduced accordingly.

Whereas in the case of fiscal capacity equalisation the weighting of needs elements is given by the standard budget, in the case of economic performance criteria it will be necessary to allot weights on an arbitrary or subjective basis. The decision taken in this regard will no doubt reflect judgments about the relative importance of different aspects of economic performance. The different performance measures which have been listed above are not necessarily mutually

* The author is indebted to Mr. Michael Emerson for this suggestion.

exclusive and in allotting weights care must be taken to avoid double counting.

The rationale of this kind of performance equalisation is that it will help to prevent the benefits of capacity equalisation from being dissipated or lost by unsatisfactory economic performance on the part of recipient governments. (Differences in revenue-raising capacity among Community members at the present time are thus obviously related to past differences in economic performance).

The justification for such action is obviously limited to circumstances where the governments subject to equalisation have control over their own economic performance. It is therefore likely to be more appropriate in relation to international aid programs than to fiscal equalisation in a federation, in which member states have only marginal responsibility for the level of activity, the rate of inflation, the balance of payments and the rate of economic development. The technique thus has relevance to the problems of distributing funds among the member countries of the European Community. Even in these cases, however, it will be desirable to use indicators of performance which are related to controllable factors. Thus indexes of wage rates (adjusted for productivity) and of public sector balance may provide better indicators of a country's success in controlling inflation than the consumer price index, which will reflect uncontrollable factors such as changes in the terms of trade.

Performance equalisation on the expenditure side must be achieved through specific purpose payments. Systematic equalisation of expenditure performance involves distribution on the basis of cost-benefit analysis or needs criteria such as population, number of school children, hospital patient-days, length of roads, etc.

In effect, expenditure performance equalisation makes the recipient governments spending agents of the governments which make the payments and specify the performance standards (which may include matching or other revenue conditions). As has been noted, under circumstances where recipient governments' own revenues can be earmarked to help finance the expenditures which are subject to performance equalisation, a capacity equalisation component may be introduced into the performance equalisation formula. The distribution of the specific purpose payments then depends on the total amount to be allocated, the distribution of the total expenditure among recipient governments in accordance with their assessed relative needs, and the distribution of the contributions required from recipient governments in accordance with their assessed relative revenue-raising capacity. A formula of this kind is illustrated in Part III.

III. FISCAL EQUALISATION MODELS

From the numerous equalisation models which may be constructed to illustrate the various kinds of equalisation arrangements which have been described in Parts I and II above, five may be selected as relevant to the present study : -

- (a) a general fiscal capacity equalisation model ;
- (b) a fiscal capacity equalisation model which incorporates a revenue effort adjustment factor ;
- (c) a model for the distribution of a pre-determined amount by reference to differences in fiscal capacity ;
- (d) a specific purpose payments equalisation model which incorporates a revenue capacity equalisation factor ;
- (e) a model for the distribution of a pre-determined amount by reference to differences in both fiscal capacity and fiscal performance.

1. Fiscal Capacity Equalisation : A General Model

The general fiscal capacity equalisation model is intended to provide for full equalisation of both revenue-raising and expenditure inequalities for all governments participating in the equalisation arrangements. The model may be applied to both vertical and horizontal equalisation transfers and it may incorporate either a highest-capacity or an average-capacity equalisation standard. The model which is illustrated is concerned only with equalisation of recurrent budgets through general purpose grants by reference to a standard budget, but it may be adapted to other kinds of capacity equalisation payments. In this model the equalisation grant G_i is calculated as follows :

$$G_i = P_i \cdot \frac{R_s}{Y_s} \left(\frac{Y_s}{P_s} - \frac{Y_i}{P_i} \right) + P_i \cdot \frac{E_s}{P_s} \cdot V_i \quad (1)$$

Where

P = population

R = revenue collections

Y = revenue base

$\frac{R}{Y}$ = revenue effort

E = expenditure

✓ = additional percentage cost of providing services relative to standard per capita cost.

The subscripts i and s denote the individual government being equalised and the standard government (or governments) respectively. In practice, separate calculations will be required for each revenue source and each category of expenditure, the effective weighting being determined by the standard budget.

It will be seen that the model may be used to describe the fiscal capacity equalisation arrangements which are in force in Australia, Canada and the Federal Republic of Germany. In Australia, the subscript s refers to the average standard of the two States with the highest fiscal capacity - New South Wales and Victoria ; assessed needs of the other States reflect calculations for both differences in revenue-raising capacity and differences in costs of providing services. In Canada, the subscript s refers to the national average standard of all Provinces. Assessed needs for the Canadian Provinces are restricted to differences in revenue-raising capacity, that is to the first term on the right hand side of equation (1). It is implicitly assumed that all Provinces face equal per capita costs E_s/P_s in providing services ; that is \checkmark_i is assumed to be zero.

In Australia and Canada, the equalisation grants are in the nature of supplementary payments, the size of which reflects both the standard budget magnitudes and the individual deviations from standard. The grants are paid by the Federal Government in each country to the States or Provinces. In West Germany, the grants reflect the Land proportion of the taxes which are shared with the Federal Government and G_i for an individual Land is either positive or negative depending on whether the Land's assessed fiscal capacity falls short of or exceeds the national average fiscal capacity ; in this case, as in Canada, it is an average standard.

The cost disability factor in West Germany is calculated by reference to disability indicators, whereas in Australia it is calculated as far as possible by reference to budget data. In all three countries, revenue-raising inequality is calculated by reference to budget data and standardised measures of the revenue base.

2. Fiscal Capacity Equalisation with Revenue Effort Adjustments

It is a relatively simple matter to expand the general fiscal capacity equalisation model so that it includes a revenue effort adjustment. A fiscal effort adjustment factor

$$\frac{R_i}{Y_i} \bigg/ \frac{R_s}{Y_s} - 1$$

may be calculated for each government and applied to the government's revenue entitlement as determined on the basis of its revenue-raising capacity : -

$$\left(\frac{Y_i}{Y_s} \cdot R_s \right) \left(\frac{R_i}{Y_i} \bigg/ \frac{R_s}{Y_s} - 1 \right)$$

The grant is then calculated by reference to three components, namely a revenue equalisation component, a revenue effort component and an expenditure needs component : -

$$G_i = P_i \cdot \frac{R_s}{Y_s} \left(\frac{Y_s}{P_s} - \frac{Y_i}{P_i} \right) + \left(\frac{Y_i}{Y_s} \cdot R_s \right) \left(\frac{R_i}{Y_i} \bigg/ \frac{R_s}{Y_s} - 1 \right) + P_i \cdot \frac{E_s}{P_s} \cdot \sqrt{V_i} \quad (2)$$

The effect of the revenue effort adjustment will be to reduce (or increase) the equalisation grant for a government by the amount of the government's below-standard (or above-standard) revenue-raising effort.

3. Fiscal Capacity Equalisation : Distribution of a Fixed Amount

Where the objective is to distribute a pre-determined amount by reference to differences in population, adjusted for differences in revenue-raising capacity and in relative costs of providing services, each government's share G_i of the total amount G may be calculated as follows :-

$$G_i = G \cdot \frac{\beta_i}{\sum \beta_i} \quad (3)$$

where

$$\beta_i = P_i \left(\frac{\sum R_i}{\sum P_i} \cdot \frac{p_a}{P_i} + \frac{\sum E_i}{\sum P_i} \cdot \frac{V_i}{V_a} \right) \quad (4)$$

P = population

$$\frac{\sum R_i}{\sum P_i} = \text{average revenue per head for all governments}$$

$$\frac{\sum E_i}{\sum P_i} = \text{average expenditure per head for all governments}$$

$$\frac{p_a}{P_i} = \text{average revenue-raising capacity of all governments relative to government i' s capacity}$$

$$\frac{V_i}{V_a} = \text{cost of providing services for government i relative to average cost for all governments.}$$

$$= \frac{Q_i}{Q_a} \cdot \frac{S_i}{S_a} \cdot \frac{d_i}{d_a}$$

where

$$\frac{Q_i}{Q_a} = \text{proportion of government i' s population requiring services relative to average proportion for all governments}$$

$$\frac{S_i}{S_a} = \text{relative price factor to measure government i' s salary and other costs relative to average for all governments.}$$

$$\frac{d_i}{d_a} = \text{relative scale factor to measure government i' s unit costs in standard prices relative to average for all governments}$$

Again, separate revenue capacity and cost relativities need to be calculated for each category of revenue and expenditure, the weights being given by the average revenues and expenditures for all governments. This model assumes the adoption of an average financing standard based on the performance of all governments involved in the distribution.

The distribution of rate support grants to local governments in the United Kingdom has been based on this kind of model.

4. A Performance Equalisation Model Incorporating Revenue Capacity Equalisation

The equalisation model developed in the previous section may be adapted to the problem of distributing specific purpose payments, where the distribution is made by reference to assessed expenditure needs and differences in the capacity of the recipient governments to raise revenue from their own sources to finance the expenditures in question. As noted above, the procedure is only appropriate where the recipient governments' revenues from own sources can be earmarked for the programs subject to equalisation.

To apply this model, the total expenditure program E for all governments must be determined and its distribution among the individual governments decided in accordance with relative needs as assessed. The next step requires a decision about what proportion of the total program is to be financed by specific purpose payments and what proportion from the governments' own sources. The latter amount will then be allocated among the recipient governments in accordance with their relative revenue-raising capacity, and the grant G_i to government i will be calculated as follows :-

$$G_i = E_i - \left(\frac{\sum R_i}{\sum Y_i} \cdot Y_i \right) \quad (5)$$

where

$\sum R_i$ = the total revenue required to be raised by all recipient governments from own sources

Y = the revenue base

and E_i = the assessed expenditure program for government i

The effect of this approach is to allocate expenditures among the recipient governments in accordance with their relative assessed needs while requiring financing contributions (to match the specific purpose payments) in accordance with their relative revenue capacities. As noted above, this is essentially the approach which has recently been used by the Commonwealth Bureau of Roads in Australia in making recommendations to the Federal Government on road grants to the six States.

5. Distribution of a Fixed Amount by Reference to Fiscal Capacity and Fiscal Performance

The distribution formula represented by equations (3) and (4) above may be expanded to incorporate fiscal or economic performance measures. If, for example, it is desired to adjust the distribution in such a way as to reward or penalise governments according to their relative success in controlling inflation and unemployment, this may be done by varying equation (4) as follows :-

$$\overline{\pi}_i = P_i \left(\frac{f_i}{f_a} \cdot w_1 + \frac{p_a}{p_i} \cdot w_2 + \frac{u_i}{u_a} \cdot w_3 \right) \quad (6)$$

where $\frac{f_i}{f_a} = \frac{\beta_i}{P_i} / \frac{\mathcal{E}_i}{\mathcal{E} P_i}$ (from equation (4))

$\frac{p_a}{p_i}$ = average change in the consumer price index for all countries relative to the change for country i

$\frac{u_i}{u_a}$ = change in unemployment in country i relative to average change in all countries

w_i = weight allotted to each adjustment factor ($\sum w_i = 1.0$)

After $\overline{\pi}_i$ has been calculated in this way for each country, the distribution of the total amount G will be effected in the same way as before :-

$$G_i = G \cdot \frac{\overline{\pi}_i}{\sum \overline{\pi}_i} \quad (7)$$

The effect of this formula will be to distribute the total grant by reference to population, subject to adjustments for differences in relative fiscal capacity and in relative economic performance.

The relatives for the inflation and unemployment adjustment factors may be calculated by expressing each country's variable as a percentage of its level in the preceding year (which as the base will equal 100) and relating that percentage to the simple average of the corresponding percentages for all countries (directly in the case of the unemployment factor and inversely in the case of the inflation factor). The following table shows how the necessary calculations may be made :-

TABLE 1

Calcul of Economic Performance Adjustment Factors

<u>COUNTRY</u>	<u>INFLATION FACTOR</u>				<u>UNEMPLOYMENT FACTOR</u>			
	<u>Consumer Price Index</u>				<u>Registered Unemployed</u>			
	<u>Year 1</u>	<u>Year 2</u>	<u>Relative</u>	$\frac{P_a}{P_i}$	<u>Year 1</u>	<u>Year 2</u>	<u>Relative</u>	$\frac{u_i}{u_a}$
A	110	121	110	120/110	200	180	90	90/110
B	150	180	120	120/120	40	50	125	125/110
C	130	169	130	120/130	100	115	115	115/110
Average Relative			120				110	

The choice of weights for the different adjustment factors, and indeed the selection of the performance criteria which are to be the subject of adjustment, will necessarily be arbitrary and will involve political decisions. The choice of weights will depend on the extent to which it is desired to emphasise the capacity equalisation factor relative to whichever economic performance factors are brought into the equation.

This model appears to be relevant to the problem of distributing general purpose funds among members of the European Community. There will be some data problems arising from difficulties in identifying and measuring all the variables which are to be taken into account and some political judgements will need to be made.

It will thus be necessary to convert the figures for different countries into a common currency ; to establish a budget standard and to estimate cost and revenue disability factors as part of the process of measuring the fiscal capacity inequalities for each country ; to determine which economic performance factors are to be brought into the distribution model and how they are to be measured ; and to decide on the relative weights to be allotted to the capacity factor and the performance factors. Finally, of course, it will be necessary to determine the amount to be distributed.

Conclusion

Insofar as general purpose grants arrangements are concerned, with the exception of the U.S.A. (where there has been a tendency to place rather more emphasis on fiscal effort criteria) federal countries have usually interpreted fiscal equalisation in terms of fiscal capacity equalisation rather than performance equalisation. That is to say, fiscal equalisation within federations has been concerned mainly with the distribution function of public finance, except to the extent that specific purpose payments have had a bearing on the allocation function. There has been little attempt to incorporate macro-economic performance criteria into equalisation arrangements, which have therefore had little relevance for the stabilisation function.

In the case of general purpose equalisation payments which the European Community may make to its member countries, there are strong grounds for arguing that a greater weight should be given to economic performance criteria. National governments in the Community have much greater responsibility for controlling the macro-economic performance of their economies than governments of member states in a federation. As a result, the redistribution effects which fiscal capacity equalisation is intended to achieve can be dissipated by inappropriate macro-economic policies on the part of individual countries. The inclusion of economic performance criteria in the grants distribution model, along the lines suggested in the preceding section, will encourage harmonisation of economic policies at the same time as the capacity equalisation criteria and procedures facilitate greater uniformity in standards of public services throughout the Community. Likewise specific purpose payments, which as noted above may also incorporate both capacity equalisation criteria and performance equalisation criteria, may be designed to achieve the same objectives.

Chapter 14

SIMULATIONS OF FINANCIAL REDISTRIBUTION IN THE
EUROPEAN COMMUNITY

(working paper)

Introduction

The first part of this paper sets out simulations for the Community of the kind of inter-state financial redistribution that tend to be found in federations. Conventional equalisation formulae are used to calculate hypothetical general purpose grants to economically weak member states. The examples are deliberately simplified, and stylised as extreme limiting cases. It is assumed that the entirety of interstate financial redistribution is channelled through a single equalisation mechanism. The purpose of transposing these models onto the case of the Community is to highlight one dimension of mature economic integration - that of financial redistribution. The extent of financial distribution thus simulated might only be expected in practise alongside other characteristics of mature economic integration (monetary union, an appropriate political structure, etc.)

Financial redistribution is not, however, an all-or-nothing proposition in the way that is true, for example, of monetary union ; redistribution is, on the contrary, amenable to continuous graduations both as to its amplitude and as to the conditions on which it is extended. The second part of the paper therefore explores a number of possibilities for more restricted financial redistribution under conditions which may become operationally plausible for the Community in the less distant future. The aim is to set out elements of a general framework within which limited or conditional redistributive activities can be analysed. In the third part comparisons are drawn with existing Community instruments that entail financial redistribution which, while relatively small in scale, relate to a number of interesting types of inter-government grant mechanisms.

The fourth part broadly reviews questions of economic policy and performance criteria, for use as part of redistributive mechanisms. For example, it is already the case that certain federations use criteria of fiscal performance (such as tax effort) as part of their grant formulae ; quantified macroeconomic policy targets are included in Community and international general purpose loan arrangements. There may be further scope for development of these concepts in the Community in the period ahead.

1. Simulating redistribution through fiscal capacity equalisation

The classic objective of fiscal capacity equalisation is (as explained in detail in Chapter 13) to enable member states to provide a given minimum average standard of public services without forcing them to impose unequal fiscal burdens, and without imposing centralised control over the provision of the public services covered. In the pursuit of this objective a number of political and technical choices are necessary ; these choices have also to be made in a hypothetical way in the present paper

to enable Community simulations to be made.

On the political side two issues are of principal importance :

- (i) the degree of equalisation
- (ii) the method of transfer (vertical versus horizontal transfers)

On the technical side there are two further problems of :

- (iii) the measurement of revenue raising capacity
- (iv) the measurement of expenditure needs and costs.

1.1. Choice of the equalisation standard

As regards the degree of equalisation, a Community-average standard would seem to be the most suitable starting point. This follows the Canadian and German examples. While in both these cases the national average is used as a standard, Canada pays grants to level up the poorer states to 100 % of the national average, whereas Germany pays grants up to 95 % (or more in some cases).

The examples below show, first, three cases where grants are made up to 100 %, 95 % and 90 % of the Community average standards. A fourth case is added, which follows a type used for some local government (intra-Länder) equalisation in Germany ; here equalisation payments are made up to the higher of either 80 %, or half way between the beneficiary state's level and 100 %.

Australia provides the example of a federation equalising up to the standard of the two richest states, rather than the national average. This system can only reasonably be contemplated where the beneficiary states are quite small in relation to the donors, as is the case in Australia, but would certainly not be the case in the Community. This example is, therefore, not further pursued.

1.2. Choice of the method of transfer

There are three basic models : (i) Grants paid from a federal budget to states beneath the equalisation standard, the grants financed from federal revenues and therefore borne by taxpayers in all member states. This we call the "Canadian method" after their equalisation system. (ii) Grants paid to poorer states by richer states, giving a simple settlement line of debits and credits summing to zero. This may, or may not, feature in the federal budget, but at any event the payments make no call on federal revenues. This we call the "German method" after their inter-Länder Finanzausgleich system. (iii) Grants paid to all states, but in amounts determined by an equalisation formula. This we call the "United States method" after their General Revenue

Sharing mechanism. The "Canadian" and "United States" methods are "vertical", involving payments between levels of government ; the "German" method is "horizontal", involving payments across a single level of government.

Of the three, the "United States method" is not simulated below because it is a system that is only really applicable in situations where the highest level of government has a strong fiscal imbalance in its favour (i.e. has large surplus own revenues for distribution to the states). This is an uninteresting hypothesis for the Community case.

As between the "Canadian" and "German" methods, the choice is mainly a political one as to whether transfers from rich to poor states should be transparent or not. The "German method" is transparent. The "Canadian method" is not entirely so, since it is the federal budget that pays the grants from national tax revenues.

In the examples below both the "German" and "Canadian" methods are shown. It should be recognised that the "German method", while having advantages for the purpose of economic analysis, is distinctly unusual in political terms (probably unique) and only exists in its present form because of the historical circumstances prevailing after the Second War (inter-Länder transfers had to be organized before the federal government structure was established).

1.3. Measurement of fiscal capacity

In federations which do not have unified tax systems there are two main methods of measuring fiscal capacity.

The first method is to adopt a fictitious representative tax system that either approximates to the structure of tax rates and bases in the 'average' state (as in Canada, or in studies by the U.S. Advisory Commission on Intergovernmental Relations (ACIR) in their so-called "average financing approach"), or is taken from certain states whose tax systems are adopted as the standard (as in Australia).

The second method is to use economic indicators to stand as proxies for fiscal capacity (as in many United States grant programmes where average personal income per capita is used, or in Switzerland where composite indicators are constructed). In this connection it can be argued that the federations referred to would have been long using GNP and other national accounts indicators in their fiscal federal relations had they possessed harmonized 'national' accounts statistics by state. It might then be questioned whether it is worthwhile trying to construct fiscal capacity indicators for the E.C., since the Community has detailed and completely harmonised national accounts data.

An objection to using national accounts aggregates is that these do not reflect in any way the politico-economic choices reflected in

tax systems. Tax revenues, especially for income taxes, are not a linear or simple function of national accounts aggregates (on non-linear taxes, see further below).

The following simulations therefore use the first method, with the fiscal capacity of member states being estimated by a method similar to that of the ACIR's 'average financing approach'. Fiscal capacity measures are estimated for each of seven main taxes or groups of taxes, as well as for aggregate fiscal capacity. Moreover, as will be seen, these measures may be useful for other purposes beyond the present simulations of fiscal capacity equalisation. One example would arise if a 'fiscal effort' performance criterion were to be added to the system (as discussed in the third part of this chapter) ; this can be done by comparing real tax revenues with the fiscal capacity estimates. 'Fiscal effort' data are given in Table I (iv). A second example is in the possible use of a personal income tax capacity key for further financing of the Community budget beyond its present Own Resources ; from the distributive point of view, this could balance the present use of indirect tax Own Resources (see also Chapter 16).

The seven taxes or groups of taxes for which fiscal capacity estimates have been made are set out in the columns of Table 1 : (1) value added tax (VAT) (2) excise duties (EXC), (3) other indirect taxes (OIT), (4) personal income tax (PIT), (5) corporate income tax (CIT), (6) other direct taxes (ODT), and (7) social security contributions (SSC). Column (8) gives total fiscal capacity and column (9), for comparison gives GDP data.

Table 1 (i) gives the absolute amounts in millions of units of account. In 1970 total taxation amounted to 220,356 billion units of account.

Table 1 (ii) gives the index numbers of fiscal capacity per capita in relation to the Community average of 100. Illustrating the progressivity/regressivity characteristics of different taxes, the fiscal capacity per capita for excise duties is estimated to range from 55 in Ireland to 118 in Denmark, whereas for personal income tax the range is from 32 in Ireland to 132 in Denmark. Total fiscal capacity ranges from 55 in Ireland to 131 in Denmark, whereas the range for GDP is from 53 to 128.

The calculations of fiscal capacity for individual taxes have been made by comparing the total Community real tax yield for a given tax with an estimate, obtained from the national accounts, of the tax base (e.g. for the value added tax, private consumption ; for personal income tax, personal income, etc.). This gives the 'average' Community rate of tax. This rate is then applied to individual countries' tax bases to give their fiscal capacity.

TABLE 1
Fiscal Capacity and Effort, by Categories of Taxes, by Country, 1970

(i) Fiscal capacity in mill. u.a.									
	VAT	EXC	OIT	PIT	CIT	ODT	SSC	Total	GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GERMANY	9886	8013	6436	15180	4018	1697	18647	63877	187694
FRANCE	7971	6574	5121	12275	3230	1353	15255	51780	147496
ITALY	5849	5875	3475	5965	1675	748	10487	34072	92313
NETHERLANDS	1806	1584	1134	2439	657	280	3337	11238	31951
BELGIUM	1512	1248	930	2113	574	234	2719	9331	25662
LUXEMBURG	54	44	35	74	20	9	96	332	1036
UNITED KINGDOM	7282	6560	4424	8427	2371	1013	12600	42676	120427
IRELAND	266	295	152	178	55	27	448	1422	3876
DANEMARK	936	707	571	1318	366	144	1582	5624	15591
EUR 9	35562	30900	22278	47971	12966	5506	65173	220356	626043

(ii) Fiscal capacity per capita in index numbers (EUR 9 = 100)									
	VAT	EXC	OIT	PIT	CIT	ODT	SSC	Total	GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GERMANY	116	108	120	132	129	128	119	120	124.6
FRANCE	111	106	114	127	124	122	116	117	117.0
ITALY	76	88	72	58	60	63	75	72	68.3
NETHERLANDS	98	99	98	98	98	98	99	99	98.6
BELGIUM	111	106	109	115	116	111	109	111	107.2
LUXEMBURG	112	106	118	115	116	119	109	112	123.4
UNITED KINGDOM	93	97	90	80	83	84	88	88	87.5
IRELAND	64	82	59	32	37	42	59	55	53.2
DANEMARK	135	118	132	141	145	135	125	131	128.1
EUR 9	100	100	100	100	100	100	100	100	100.0

(iii) Fiscal capacity in percentage relative shares									
	VAT	EXC	OIT	PIT	CIT	ODT	SSC	Total	GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GERMANY	27.80	25.93	28.89	31.64	30.99	30.81	28.61	28.99	29.98
FRANCE	22.42	21.28	22.99	25.59	24.91	24.57	23.41	23.50	23.56
ITALY	16.45	19.01	15.60	12.43	12.92	13.59	16.09	15.46	14.75
NETHERLANDS	5.08	5.13	5.09	5.08	5.07	5.09	5.12	5.10	5.10
BELGIUM	4.25	4.04	4.18	4.41	4.43	4.25	4.17	4.23	4.10
LUXEMBURG	.15	.14	.16	.15	.16	.16	.15	.15	.17
UNITED KINGDOM	20.48	21.23	19.86	17.57	18.29	18.40	19.33	19.37	19.24
IRELAND	.75	.96	.68	.37	.43	.49	.69	.65	.62
DANEMARK	2.83	2.29	2.56	2.75	2.82	2.62	2.43	2.55	2.49
EUR 9	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(iv) Fiscal effort in index numbers (EUR 9 = 100)									
	VAT	EXC	OIT	PIT	CIT	ODT	SSC	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
GERMANY	105.83	92.92	94.74	106.34	59.26	81.17	108.78	100.49	
FRANCE	158.23	71.48	104.14	45.66	100.47	87.51	126.68	101.99	
ITALY	234.90	99.94	47.80	51.07	110.22	108.65	102.20	81.26	
NETHERLANDS	102.44	91.46	43.38	140.20	131.40	69.53	139.96	115.15	
BELGIUM	126.10	81.19	51.60	103.21	107.35	91.83	103.00	98.74	
LUXEMBURG	63.39	59.05	110.69	114.47	222.11	11.34	104.71	99.48	
UNITED KINGDOM	40.53	134.29	172.06	171.48	157.45	162.75	54.90	106.07	
IRELAND	51.16	155.76	109.04	132.88	146.45	143.19	22.09	85.60	
DANEMARK	114.30	159.50	69.75	212.85	42.60	22.19	16.25	103.96	
EUR 9	100.00	100.00	100.00	100.00	100.00	99.99	100.00	100.00	

VAT - value added tax, EXC - excises and import duties, OIT - other indirect taxes, PIT - personal income tax, CIT - corporate income tax, ODT - other direct taxes, SSC - social security contributions, GDP - gross domestic product

Note : For general explanation of concepts and methods see text.

Most tax rates are estimated as linear percentages of their tax bases. However, this simplification is not defensible for income taxes and social security contributions. The progressivity/regressivity of these taxes has therefore been taken account of by assuming certain elasticity values for the tax capacity per capita of each tax by country with respect to differences in the amount of the tax base per capita. For example, 1.5 is the elasticity value adopted for personal income tax. This means that for a country whose personal income base per capita is 90 in relation to the Community average of 100, its income tax capacity is 85 in relation to the Community average (i.e. the tax capacity differential is 1.5 times as great as the tax base differential).

The elasticity values adopted (1.5 for personal income tax, 2.0 for corporation tax, 0.9 for social security contributions) are based on the findings set out in Table A of Chapter 9, which estimates for several countries the regional or state differentials in tax burdens per capita in relation to differentials in primary incomes per capita.

Table 1 (iii) presents the data in the form of relative shares of the Community total.

1.4. Measurement of expenditure needs and costs

Equalisation with respect to expenditure needs and costs is a straightforward idea, but one whose application in practise is problematic. The aim is to take into account differences in the volume of public services required by individual states (for example, for education different ratios of school-age children to the active labour force), and in the cost of providing them (some services are more expensive in dense conurbations and sparsely populated rural regions, as compared to medium-sized towns).

The problems concern both technical difficulties in measuring "needs" and some major economic policy issues - notably whether equalisation with respect to cost differentials implies subsidising inefficient urban or rural structures.

For these reasons, and contrary to the measurement of revenue raising capacity, the measurement of expenditure needs has not reached a level of high sophistication in Canada, the U.S.A., Germany and Switzerland, an exception being Australia. In Canada, no account at all is taken of differences in 'needs', since the equalisation system is confined simply to fiscal capacity equalisation. In the German horizontal equalisation, the fiscal capacity per capita amounts of the Länder are modified by simple (nearly linear) measures of the population density and the degree of urbanisation; this is particularly important for the City-states. In the United States General Revenue Sharing formulae, urbanised population is given some special weighting. In Switzerland tax sharing arrangements are based on a composite indicator, the expenditure needs part of

which is reflected by population density and geographical characteristics (mountain area). The local government financing systems of some other countries use relatively sophisticated 'needs' measures, for example in the U.K.'s rate-support grant system. In Australia, the Grants Commission uses in its assessment of expenditure needs the 'standard budget approach', i.e. they estimate the hypothetical budgetary cost for a number of expenditure categories for the claimant (beneficiary) state of applying the standard of services applied in the standard states.

In the context of the Community, cost differences between member states are far more important than in the foregoing cases, notably because exchange rates are determined by the productivity of the international trade sectors and not at all, of course, by considerations of purchasing power parity in the public sector. It would clearly be absurd for simulations of budget equalisation between Community countries to ignore differences in, say, teachers' salaries as between Italy and Germany.

In attempting to take account of these factors in the simulations, the following approach has been adopted, separating (i) cost and (ii) volume adjustments ; the following estimates are no more than a first rough attempt to represent the factors in question.

As regards cost adjustments for the Community case, the recent development of purchasing power parity (p.p.p.) exchange rates makes available an important new data source (1), since the global p.p.p. exchange rates have to be constructed through estimating separately p.p.p. indicators for all the main components of output. The relatively familiar global p.p.p. indicator is given in the column (5) of Table 2 for 1970 ; for 1975 private consumption p.p.p. indicators are available (in column 6). The figures work as follows : the p.p.p. factor of 104.7 for Germany in 1970 means that German 'needs' are rated as being 4.7 per cent higher on a per capita basis than the Community average. These figures are used in the global simulations below.

More precise public sector unit cost correction factors may be calculated from the same source by taking p.p.p. indicators for public consumption, public investment and private consumption (the latter being relevant for transfer payments), and by weighting them together according to their respective importance in the expenditure functions covered in the simulated equalisation system. The results given for 1970 in column (8) of Table 2 relate to the sum of education, health and sanitary services, roads and social security and welfare (excluding unemployment) ; these are sectors with respect to which certain limited equalisation simulations are set out in the second part of this paper.

(1) See source to Table 2

TABLE 2

Fiscal Capacity and Expenditure Volume and Cost Indicators used in Simulations

index numbers, EC = 100

	Fiscal Capacity Indicators				Global cost correction factors		Volume and Cost correction factors for selected sectors		
	Total Fiscal Capacity	Personal Income Tax Capacity (per capita)	1970	1975	1970	1975	Volume correction for expenditure needs 1970	Unit cost correction for expenditure needs 1970	Volume and cost correction (7) (8) 1970
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Germany	120.5	127.1	132	141	104.7	114.2	101.3	106.4	107.8
France	116.8	121.2	127	134	100.6	109.4	100.8	100.1	100.9
Italy	71.7	61.9	58	43	93.3	82.8	95.6	93.1	89.0
Netherlands	98.6	115.6	98	124	88.6	105.2	95.9	87.9	84.3
Belgium	110.8	126.5	115	139	95.6	104.2	101.1	93.5	94.5
Luxembourg	112.3	102.9	115	108	97.2	101.4	94.7	94.4	89.4
United Kingdom	88.1	78.2	80	65	90.0	88.3	102.1	(90.0)	91.9
Ireland	55.5	50.7	32	25	89.9	89.8	105.9	(89.9)	95.2
Denmark	131.3	143.4	141	159	109.0	131.1	100.3	(109.0)	109.3

Sources and methods:

- Cols. (1) (3) see Table 1.
- Cols. (2) (4) as Cols. (1) and (3), with updating estimated.
- Cols. (5) -(9) SOEG and own calculations.

General Note : Fiscal capacity indicators above 100 indicate above average per capita fiscal capacity. Cost and volume correction factors above 100 mean that expenditure has to be that much higher per capita in order to give a level of public services equal to the EC standard.

Additional Notes on Table 2

- Col. (5) V. Paretto, H. Krijnse Locker, Ph. Goybet, "Comparaison réelle du produit intérieur brut des pays de la Communauté européenne ", Analyse et Prévision, Futuribles, Tome XVIII, Juin 1974 and an internal working paper of the SOEC.
- Col. (6) SOEC, Survey of retail prices and consumer purchasing power parties - 1975
- Col. (7) Volume correction takes account of differences in age structure and participation rates affecting expenditure on education, health and social security and welfare. Volume correction is thus the weighted average of indices relative to Community average of the percentage of children below 15 years, the percentage of old people over 65 years and the participation rate. (Source : SOEC General Statistics Dec. 1975), the weights being determined by the proportion of expenditures in the mentioned sectors likely to be affected by these factors : 33 % by percentage of children, 26 % by percentage of old people, 10 % by participation rate and 31 % unaffected.
- Col. (8) Based on purchasing power parties for public consumption, investment and private consumption (source : as for Col. (5)), weighted (respectively 26 % 11 % and 63 %) according to their importance in the sectoral functions covered : education, health, sanitary services, roads, social security and welfare. For the United Kingdom, Ireland and Denmark detailed comparable purchasing power parity data are not available ; the global GDP purchasing power parity data are used.
- Col. (9) = Col. (7) X Col. (8)

As regards volume needs, these are assumed in the first instance, in the global simulations below, to be equal for all countries. However, in the sectoral simulations, in the second part of this paper, indications are given of the sensitivity of certain expenditure functions (e.g. education, social security expenditure) to some basic demographic facts for which statistics are available (number of school-age children, retired people, and other non-active population. For each relevant expenditure function an appropriate 'volume correction' factor is calculated in index number form, where 100 corresponds to the Community average. These index numbers are then weighted together according to the amounts of expenditure on the functions in question. The overall result is given in column (8) of Table 2, where the range is from the most disadvantaged case of Ireland (volume correction of 105.9) to the most advantaged cases of Italy, Luxembourg and the Netherlands (volume correction of about 95).

1.5. Results of the global simulations

Table 3 sets out the results of 'global' simulations. The term global means that the equalisation simulations have been related to the entire public sector ; i.e. the total fiscal capacity of member states is affected. Public revenues in the Community as a whole are 35.2 % of GDP in 1970 and 38.5 % of GDP in 1975 (1)

The results in Table 3 should be viewed against the background of the results obtained from the cross-country studies on the inter-regional redistributive power of the total public sector in seven countries. These studies showed a range of results between 26 % for the USA to 56 % for Australia, with an average for seven countries of 41 % - the figures here indicate the degree to which inter-regional flows of public finances equalise the differentials in average per capita primary incomes of states or regions within these countries (see Chapter 5 for details). These transfers, reduced to net terms, give total payments to beneficiary states (or from donor states) in the range of 20 % to 4 % of GDP of the national economy (i.e. this amounts to larger fractions of the GDP of the sum of beneficiary and donor states respectively).

Turning to the redistributive power of the hypotheses set out in Table 3 for the Community, it will be seen that the results in the final column (which is perhaps the most appropriate since it relates to purchasing power parity income differentials within the Community) are well clustered in the range observed for the seven countries.

For example, looking at the 1975 estimates, 100 % equalisation under the 'German method' (line 2 (a)) gives the highest redistributive power of 50 %, which approaches the highest observations among the seven countries. Under this hypothesis equalisation payments would amount to 28 billion units of account, or 2.7 % of Community GDP. The recipients would be Ireland, Italy and the United Kingdom.

(1) SOEC, Tax Statistics, 1970-1975

TABLE 3

Simulated Receipts (+) and Payments (-) under various global budget equalisation hypotheses

millions units of account

System and degree of equalisation	D	F	I	NL	B	L	UK	IRL	DK	Total	% of EUR GDP	Redistributive power (1)	Redistributive power (2)
1. 'Canadian method'													
(a) 100 % equalisation .....	..	..	+ 10,287	..	..	..	+ 919	+ 884	..	12,090	1.93	25.1	34.3
(b) 95 % equalisation .....	..	..	+ 7,974	..	..	..	0	+ 769	..	8,743	1.40	20.7	28.4
(c) 90 % equalisation .....	..	..	+ 5,761	..	..	..	0	+ 653	..	6,414	1.02	16.7	22.9
(d) 80 % or $\frac{1}{2}$ (100 - x) .....	..	..	+ 5,144	..	..	..	+ 460	+ 423	..	6,027	0.96	12.3	16.7
2. 'German method'													
(a) 100 % equalisation	- 5,345	- 4,569	+ 10,287	- 724	- 816	- 27	+ 919	+ 884	- 609	12,090	1.93	31.1	39.4
(b) 95 % equalisation	- 3,865	- 3,304	+ 7,974	- 524	- 590	- 20	0	+ 769	- 440	8,743	1.40	24.9	31.9
(c) 90 % equalisation	- 2,835	- 2,424	+ 5,761	- 384	- 433	- 15	0	+ 653	- 323	6,414	1.02	19.9	25.4
(d) 80 % or $\frac{1}{2}$ (100 - x)	- 2,664	- 2,278	+ 5,144	- 361	- 407	- 14	+ 460	+ 423	- 304	6,027	0.96	15.2	19.8
GDP (for reference)	187,694	147,694	92,313	31,951	25,682	1,036	120,424	3,876	15,591	626,043			
1975													
1. 'Canadian method'													
(a) 100 % equalisation .....	..	..	+ 17,408	..	..	..	+ 8,477	+ 1,795	..	27,670	2.74	23.3	38.5
(b) 95 % equalisation .....	..	..	+ 13,960	..	..	..	+ 4,757	+ 1,487	..	20,304	2.01	20.5	35.3
(c) 90 % equalisation .....	..	..	+ 10,512	..	..	..	+ 1,038	+ 1,378	..	12,921	1.28	15.8	28.1
(d) 80 % or $\frac{1}{2}$ (100 - x) .....	..	..	+ 8,704	..	..	..	+ 4,239	+ 962	..	13,905	1.38	13.1	22.2
2. 'German method'													
(a) 100 % equalisation	- 12,014	- 9,315	+ 17,409	- 2,113	- 3,280	- 7	+ 8,477	+ 1,795	- 941	27,670	2.74	30.1	50.4
(b) 95 % equalisation	- 8,816	- 6,835	+ 13,960	- 1,550	- 2,407	- 5	+ 4,757	+ 1,487	- 690	20,304	2.01	24.1	41.1
(c) 90 % equalisation	- 5,613	- 4,352	+ 10,512	- 1,087	- 1,532	- 3	+ 1,037	+ 1,378	- 439	12,921	1.28	18.1	31.9
(d) 80 % or $\frac{1}{2}$ (100 - x)	- 6,038	- 4,681	+ 8,704	- 1,062	- 1,648	- 3	+ 4,239	+ 962	- 472	13,905	1.38	16.5	28.1
GDP (for reference)	318,316	249,039	127,757	61,106	46,773	1,627	170,091	5,878	27,596	1,008,183			

Notes

For general explanation of methods and concepts see text

Variant (d), 80% or $\frac{1}{2}$ (100 - x) means paying to beneficiary states the higher of either an 80% equalisation standard, or half the difference between the 100% standard and the position of the member state concerned.

(1) Percentage redistribution power with respect to market exchange rate GDP per capita differentials

(2) Percentage redistribution power with respect to purchasing power parity GDP per capita differentials

Dropping the equalisation standard to 90 % (line 2 (c)) reduces the redistributive power to 32 %, which is in the region of the lower observations among the seven countries. Under this hypothesis the payments would drop to 13 billion units of account, or 1.3 % of Community GDP. The recipients would be the same three countries, although the United Kingdom is becoming a marginal case - its income per capita being higher than for Italy and Ireland.

The average observation for the seven countries finds a counterpart with a 41 % redistributive power - at the 95 % standard under the German method (line 2 (b)), where the equalisation payments amount to 20 billion units of account, or 2 % of Community GDP.

The fourth model shown (as in line 2 (c)) makes the position of beneficiary countries closest to the Community average less sensitive to the choice of the equalisation standard than under the preceding three cases. The overall redistributive power of this case is close to that of the 90 % standard.

The 'Canadian method' gives similar but somewhat diluted, and less transparent results - for the reasons of design already described. The redistributive power of the 'Canadian method' tends to be about one-fifth less than under the 'German method'.

Comparing the results for 1970 and 1975, the amounts of equalisation payments as a percentage of GDP increase from 1.9 % (under the 100 % equalisation standard) to 2.7 %. This mainly reflects the real divergence in economic performance of member states over this period, with the amounts of equalisation payments rising for Ireland and Italy as a share of their respective GDPs, and the United Kingdom moving from being a marginal case (at the 100 % standard) to a significant beneficiary. These comparisons give some illustration of how an equalisation system may behave dynamically over time as a redistributor in relation to trends in relative economic performance.

As regards the magnitude of the transactions for individual countries the following cases may be noted for 1975 :

- Under the 100 % standard 'German method', the receipts for the United Kingdom amount to 5 %, for Italy 13 % of GDP, and for Ireland 30 % of GDP ; the payments for other countries except Belgium and Luxemburg amount to about 3 1/2 % of GDP (1) (2)

(1) For Belgium and Luxemburg payments amount to 7 % and 1/2 % of GDP

(2) The major determinant for the level of receipts and payments as percentage of GDP is the difference between the fiscal capacity and purchasing power parity indicator. This difference is negative for beneficiary countries (- 21 % percentage points for Italy, - 10 for the United Kingdom and - 39 for Ireland) and positive for paying countries (22 % for Belgium, 1,5 % for Luxemburg and about 12 % for the other countries).

- Under the 90 % standard 'German method', the receipts for the United Kingdom fall to 1/2 % of GDP, for Italy to 8 % of GDP, and for Ireland to 23 % of GDP ; the payments for other countries except Belgium and Luxemburg amount to about 1 1/2 % of GDP.

The figures for beneficiary countries may also be compared very roughly with (i) the magnitude of these countries' public sector and balance of payments deficits for 1975 ; (ii) data on an inter-regional or state basis found in the country studies ; and (iii) with the Community's present budgetary funds.

In 1975 the general government borrowing requirements of the three simulated beneficiary states were for Italy 11 % of GDP, for the U.K. 5 % of GDP and for Ireland 16 % of GDP ; their balance of payments current account deficits in the same year were for Italy 2 % of GDP, for the U.K. 4 % of GDP and for Ireland 7 % of GDP. Thus the simulated equalisation payments, for the beneficiaries, are very roughly of comparable orders of magnitude as the fiscal payments imbalances of the year in question, and considerably larger than the external payments in balances (this year, of course, had a large cyclical and petro-dollar element in these financial imbalances, which affected Germany's public finances too : the significance of the comparison should not be stretched beyond noting certain orders of magnitude).

In Germany, France, Italy and the United Kingdom it was found that in richer regions there is a relative surplus of taxation over public expenditures offsetting to a considerable degree balance of payments current account surpluses ; conversely in the poorer regions there is a relative surplus of public expenditures over taxation offsetting balance of payments current account deficits. In the examples given (1) for the four countries in Chapter 5 balance of payments surpluses for richer regions range from 2 % to 17 % of regional product (average 8 %) and deficits for poorer regions from 7 % to 22 % (average 15 %) with some exceptional Italian cases with deficits up to 50 % of regional product. Corresponding to these balances there are public finance flows out of richer regions between 3 % and 12 % of regional product (average 6 %) and inflows into poorer regions between 3 % and 16 % of regional product (average 9 %), with substantially higher inflows into the exceptional Italian regions.

These figures represent orders of magnitude roughly comparable to those in the simulations for the Community, although the case of the Community with a 100 % equalisation standard tends to overshoot somewhat the inter-regional findings. The highest figures in both the Community simulations and the inter-regional studies tend to relate to relatively small poor regions which are 'carried' by the larger richer regions through transfers that are much lower magnitudes proportionately to the latter's GDPs. The case of Ireland in the Community may be compared to that of Bretagne in France, the Saarland in Germany, or Northern Ireland in the United Kingdom.

(1) These examples are a sample of significant cases in the four countries.

2. Simulation of sectoral applications

2.1. Unconditional equalisation grants for selected sectors

Moving on from the foregoing global simulations closer towards the more detailed institutional practices found in multi-level government settings, one approach is to identify a list of public expenditure functions where the Community might come to have an economic or political interest in standards not diverging too far as between member states. The economic interest would arise where spillovers or externalities across member states are significant, or could become so in the event of large scale migration ; alternatively political reactions to migration might eventually become the trigger requiring a Community response.

The list of public expenditure functions should exclude those which are already, or could suitably become, the subject of direct expenditures or specific purpose grants by the Community. These would be sectors where the Community would typically have even stronger economic or political interests (e.g. agriculture, regional policy in the Community at present).

In addition, from a technical point of view, to be suitable candidates for equalisation grants, functions should generate flows of expenditure that are continuous and comparable as between countries.

Following these criteria, the following sectors are to be included in the present simulations (total expenditure in the Community in 1970 being given for each) : education 33 billion units of account, health 33 billion units of account, sanitary services 4 billion units of account, and most of social security and welfare 63 billion units of account. The main exclusion from the social security category are unemployment benefits, on the grounds that these may be more suitable for specific purpose grants. These categories account for about two-thirds of total public expenditure.

The results are set out in Table 4, using the concepts described in the first part of this chapter. All the results are given according to the 'Canadian method', and for 1970 only in the absence of certain data for 1975.

The first set of results (cases 1 (a) to (d)) shows the fiscal capacity equalisation payments required for the selected sectors in the (highly implausible) case that no cost or volume adjustments are made. Fiscal capacity equalisation is simulated assuming equal per capita needs at market exchange rates. This case is shown only for the purpose of comparison with the next set of cases (2 (a) to (d)) which allow for cost differentials, as calculated on the basis of purchasing power parity factors for the main components of public expenditure in the sectors covered (see Table 2 above, column (7)). The total expenditure bill for 1970 ranges between 6.5 to 12.9 billion units of account under the market exchange rate hypothesis ; with cost adjustments the bill falls to 3.8 to 7.6 billion units of account, with a redistributive power in the range of 11 to 21 per cent.

TABLE 4

Simulated Receipts under various budget equalisation hypotheses applied to certain public expenditure functions

1970 data
millions units of account

System and degree of equalisation	I	UK	IRL	Total	% of EUR 9 GDP	% Redistributive power (1)	% Redistributive power (2)
1. Expenditure standard uniform at market exchange rates							
(a) 100 % equalisation	8,545	3,649	718	12,912	2.08	22.5	29.7
(b) 95 % equalisation	7,038	2,113	637	9,788	1.56	18.8	25.2
(c) 90 % equalisation	5,531	578	555	6,664	1.06	15.1	20.6
(d) 80 % or $\frac{2}{3}$ (100 % - x)	4,273	1,825	393	6,491	1.04	11.8	15.7
2. Expenditure needs adjusted for unit cost differences							
(a) 100 % equalisation	6,465	578	554	7,597	1.21	15.8	21.4
(b) 95 % equalisation	5,062	0	481	5,543	0.89	13.0	17.9
(c) 90 % equalisation	3,659	0	408	4,067	0.65	10.5	14.4
(d) 80 % or $\frac{2}{3}$ (100 % - x)	3,233	289	277	3,799	0.61	8.0	10.8
3. Expenditure needs adjusted for differences in volume requirements resulting from demographic factors, and in unit costs							
(a) 100 % equalisation	5,229	1,161	640	7,030	1.12	16.7	22.7
(b) 95 % equalisation	3,888	0	563	4,451	0.71	13.4	18.6
(c) 90 % equalisation	2,546	0	485	3,031	0.48	10.9	15.1
(d) 80 % or $\frac{2}{3}$ (100 % - x)	2,615	581	330	3,526	0.56	8.5	11.6
GDP (for reference)	92,313	120,424	3,876	626,043			

Notes: for general explanation of methods and concepts see text. Sectors covered are education, health and sanitary services; roads and social security and welfare Variant (d), 80 % or $\frac{2}{3}$ (100 % - x) means paying the higher of either on 80 % equalisation standard, or half the difference between the 100 % standard and the position of the members state concerned.

(1) Percentage redistribution power with respect to market exchange rate GDP per capita differences
(2) Percentage redistribution power with respect to purchasing power parity GDP per capita differences

Introduction of the volume requirement factor (in cases 3 (a) to (d)) is quite important, since Italy's relatively favourable demographic structure reduces its benefits substantially, whereas Ireland's extremely unfavourable demographic structure improves its benefits substantially. The United Kingdom benefits also as a result of a less marked demographic disadvantage. The total bill is reduced slightly compared to the cases with only cost adjustments, but the redistributive power is increased.

The most striking result is that for Ireland : the member state with by far the weakest fiscal capacity per capita is found to be in an even more disadvantageous position when the public service volume implications of its exceptional demographic structure are introduced. The volume adjustment for Ireland for the services covered is estimated to be 106 - i.e. 6 % more onerous than for the average member state (see Table 2, Column 7). This demographic structure is, of course, the inheritance of past generations of emigration to the United Kingdom and elsewhere, and reflects an interdependent pattern of poverty-emigration-fiscal incapacity (in the absence of budget equalisation with its trading and labour market partners).

2.2. Forms of grants for sectoral programmes

This section compares in a simple way the distributive and allocative implications of the main alternative forms of grant that may be used when a 'higher' level of government wishes to participate in the financing of a sectoral expenditure function executed at a 'lower' level of government. Possible applications are in fields relating to the objectives of convergence of economic capacity and performance between member states (e.g. subsidies for infrastructure, industrial investment, regional development, manpower training, etc.)

Five main types of financing are compared, and simulated in Table 5 in relation to a hypothetical expenditure function on which member states were, at the outset before the E.C. fund is introduced, spending 5,000 million units of account - each individual country spending in proportion to its GDP.

Case I - general purpose (unconditional) equalisation grants. This pursues the system outlined in the preceding section. By definition this is only related to the sectoral function through the processes of statistical calculation, because the decentralisation principle leaves open the question of how the money is spent by the recipient government.

Case II - specific purpose grants with a uniform matching ratio (of 30 %) without quota allocations by country but with a global ceiling. This is closest to the E.C. Social Fund case. (1)

(1) Details of these existing Funds diverge from the simplified types here analysed. The following a priori analysis does not therefore necessarily apply to these cases. For example, a number of 'priority policy rules' in the Social Fund result in a positive redistributive pattern expenditure (see more below), and its matching ratio is in fact 50%.

TABLE 5

Simulated Payments from an E.C. Fund under Various Forms of Inter-governmental Grants for a Hypothetical Expenditure Function

	Case I		Case II		Case III		Case IV		Case V a.		Case V b.		Case V c.		Case V d.		P.m. financing key P.I.F. capacity in percent
	millions units of account (except where % indicated)																
	P.m. national expenditure at outset (proportional to GDP) (1)	Equalisation payments		30 % uniform matching ratio, no quotas		30 % uniform matching ratio with quotas		20-80 % variable matching ratio		Fund open-ended for poorer countries							
20-30 % variable matching ratio		substitution case		additionality for poorer countries		incentive for poorer countries		incentive effect for poorer countries		incentive for poorer countries		incentive effect for poorer countries					
D	1579	0	158	32	101	316	(316)	(247)	(316)	(101)	(316)	(247)	(316)	(101)	20 %	34.02	
F	1235	0	124	75	79	247	(247)	(91)	(247)	(79)	(247)	(91)	(247)	(79)	20 %	27.23	
I	634	225	69	200	120	380	950	(91)	1520	1520	1520	(91)	1520	1520	60 %	9.23	
NL	303	0	30	9	29	91	(46)	(46)	(91)	(29)	(46)	(46)	(29)	(29)	30 %	6.49	
B	232	0	23	7	15	46	(2)	(2)	(15)	(15)	(2)	(2)	(15)	(15)	20 %	5.26	
L	8	0	1	1	1	2	(2)	(2)	(1)	(1)	(2)	(2)	(1)	(1)	20 %	0.15	
UK	843	109	84	140	135	422	843	116	1265	1265	209	209	1265	209	50 %	14.21	
IRL	29	24	3	30	7	22	116	(40)	209	209	(40)	(40)	209	(13)	80 %	0.30	
DK	137	0	14	6	13	40	(40)	(40)	(13)	(13)	(40)	(40)	(13)	(13)	30 %	3.11	
Total nat. exp.	5000	4142-5000	4500-5000	4500-5000	4500-5000	3434	4257	5081	5586	5586	5081	3231	5586	3231			
Total EC exp.	-	(358)	500	500	500	1566	2651	3736	3231	3231	3736	2651	3231	3231			
Nat. + EC exp.	5000	5000-5358	5000-5500	5000-5500	5000-5500	5000	6908	8817	8817	8817	8817	6908	8817	8817			
Redistributive power of EC Fund, in percent (2)		0.31	0.00	0.32	0.09	0.27	1.32	2.38	2.51	2.51	2.38	1.32	2.51	2.51			
gross net		0.38	0.10	0.42	0.19	0.58	1.85	3.11	3.15	3.15	3.11	1.85	3.15	3.15			

NOTES

Case I : as determined by equalisation formula. Case II : EC Fund expenditures proportional to national expenditures. Case III : quotes as in actual Regional Fund. Case IV : EC Fund accepts projects for financing (at variable rates) proportionately to national expenditures. Case V a. : EC Fund matches (at variable rates) all national expenditures, completely substituting for national expenditures to this extent. Case V b. : For richer six countries ceilings are imposed per Case V a., for poorer three countries EC Funds are completely additional to national expenditures. Case V c. : as Case V b., except that for poorer three countries national expenditures increase under incentive effect of EC Fund. Case V d. : as Case V c., except EC Fund expenditure limited for richer six countries as in Case IV. For fuller explanation of cases, see text.

- (1) GDP relativities (implied in the column showing national expenditures) relate to 1975 at market exchange rates.
- (2) 'Redistributive power' indicates the percentage extent to which differentials between member states in per capita average GDP are reduced by the EC Fund expenditures, either ECMS in simply adding EC Fund receipts to each country's GDP, or net in also subtracting from GDP their contribution to the financing of the EC Fund under the personal income tax (P.I.T.) key.

- Case III - specific purpose grants with a uniform matching ratio of 30 % with quota allocations by country and with a global ceiling. This is closest to the E.C. Regional Fund case (1)
- Case IV - specific purpose grants with variable matching ratios, without quota allocations by country and with a global ceiling.
- Case V - specific purpose grants with variable matching ratios, without quotas (at least not for all countries) and without a global ceiling. In the present context - that of considering types of grants for economic development purposes capable of having positive allocative and redistributive effects - this fifth type of grant has particular potential. Four variants, Cases V a. to d., are therefore examined.

In the Cases I to IV, in which the E.C. fund is introduced with a 500 m.u.a. ceiling, it is assumed that the response of national expenditures ranges somewhere between complete substitution and complete additionality ; thus national expenditures, which are initially 5,000 m.u.a., become somewhere between 4,500 - 5,000 m.u.a. as a result of the Community aid. Positive incentive effects on national expenditures are on the whole unlikely, since there is no cheapening of the tax-price at the margin for the member state managing the expenditure function.

Under the equalisation system (Case I), the redistributive effects are powerful in relation to the size of the E.C. fund expenditure (0.3 of 1 % of redistributive power, with the sectoral equalisation objective attained with 358 m.u.a. of expenditure) : however, the effect on the expenditure function will be very uncertain and unlikely to be marked.

Under the uniform matching ratio without quotas (Case II), the redistributive effects are zero. The E.C. fund is assumed to allocate its limited funds pari-passu with the submission of eligible projects from national authorities ; since these have in turn been assumed to be proportional to GDP, the E.C. fund would be close to operating on a system of quotas proportional to GDP. The 30 % E.C. fund contribution cheapens the tax-price to the national authorities of the projects covered ; however, the 500 m.u.a. ceiling has the effect that the E.C. fund only reaches about one-third of all projects, and has no impact at the margin on national expenditures. This means that the national authorities may be inclined to treat the E.C. funds, as in the preceding case, as if they were general purpose grants, in which case the effects on the expenditure function in question will again be uncertain and unlikely to be marked.

(1) Details of these existing Funds diverge from the simplified types here analysed. The following a priori analysis does not therefore necessarily apply to these cases. For example, a number of 'priority policy rules' in the Social Fund result in a positive redistributive pattern expenditure (see more below), and its matching ratio is in fact 50 %.

Under the uniform matching ratio with quotas (Case III), there will be a blending of the effects found under the preceding two cases (the quotas are here taken from the present Regional Fund). The redistributive power is as strong as under the equalisation case, although at the expense of a higher 500 m.u.a. expenditure total. For countries with relatively low quotas, the E.C. funds are again absorbed with little effect on marginal national decisions. For countries with relatively high quotas, the E.C. funds may encroach on marginal resource allocation decisions at the national level - if there is a possibility that not all the E.C. funds would be taken up, and if the national authorities have the fiscal capacity to provide their matching contribution on an increased volume of projects.

Under the variable matching ratio case (Case IV), some possible fiscal capacity constraints (as just referred to) may be relieved, with the E.C. fund taking up 80 % of the subsidy for Ireland, 60 % for Italy and 50 % for the U.K., with the matching ratio dropped to 20 % for the richest member states. This case has an intermediate-to-low redistributive power of 0.1 to 1 % ; this is because the global ceiling on the fund, and the allotment between countries, on a basis proportional to eligible projects submitted, gives very limited (if any) room for the poorer states to increase their expenditure efforts in the sector concerned before the E.C. fund is exhausted.

Cases V a. to d. open up some more dynamic hypotheses, assuming that the Community was prepared to devote increased resources to the function in question. The approach considered most promising is a development of the variable matching ratio case, as in Case IV but where for relatively weak member economies the fund becomes open-ended, while for the relatively strong member economies it is restricted to matching eligible national expenditure at a low rate of reimbursement not in excess of initial bench-mark level. Cases V a. to c. all follow from a single grant system ; the variants examine different possible economic responses in member states. The objective would be to have an E.C. fund that scored positively both as to redistributive effects and as to its incentive effects on national resource allocation and economic development programmes.

In these Cases V a. to c., for the relatively weak member economies (Ireland, Italy and the U.K.), the purpose of the open-ended commitment at high rates of reimbursement (80 %, 60 % and 50 % respectively) would be to remove the fiscal incapacity to mount larger programmes of economic development expenditure ; the open-ended commitment ensures that the tax-price cheapening effect of the

E.C. subsidies does operate as an incentive at the margin of national resource allocation decisions. The Cases V a to c. show step increases in the incentive effect starting, for purposes of comparison, with the negative case where the E.C. funds only substitute for national expenditure, Case V a. ; next is shown the case where there is complete additionality of the E.C. funds on top of maintained national expenditures, Case V b.; then there is the highly positive case when national expenditure increases as a function of the E.C. matching ratio, Case V c. . In the U.K. case the 50 % matching ratio leads to a 1.5 times increase in national expenditure. In the Italian case a 60 % matching ratio leads to a 1.6 times increase. In the Irish case an 80 % matching ratio reads to a 1.8 times increase. The increased national expenditures bring in their turn, multiplied increases in the flow of E.C. fund subsidies. The resultant total public expenditures (national and Community) in the three weaker economies reach or exceed the per capita levels of Germany. This represents the kind of change in relative economic development expenditures that could be expected as part of a process of economic convergence, between the present the six stronger and three weaker member economies.

As regards the position of the six stronger economies, their receipts from the E.C. Fund are deliberately restrained in Cases V a. to c. to a simple substitution by the Community matching contributions for national expenditures. This would be to avoid an 'undesirable' general increase in public expenditure on the functions in question ; a contrary development would, if permitted, not only add to the general problem of controlling public expenditure, but would also defeat the 'convergence' objectives of the E.C. Fund. Under this reasoning, it may be questioned whether there would be any point in the E.C. Fund contributing at all to the financing of expenditure in the stronger economies ; a counter-argument, for maintaining a low Community reimbursement rate, would be to ensure a Community voice in the expenditure functions in question in all countries. This may be important for the purpose of guarding against competitive subsidisation in such fields as regional policy and industrial investment aids (there are other political arguments, e.g. the anti 'two-tier' Community thesis).

The final example, Case V d., does however reduce the receipts of the six stronger states to below that required to match all national expenditure ; in this instance the receipts under Case IV - the variable matching fund with a global ceiling - are carried over in Case V d., and combined with the most 'dynamic' results from the open-ended fund for the three weaker economies as in Case V c.

Completely open-ended funds score very positively from the point of view of economic incentive effects, but very negatively from the point of view of political acceptability to ministers of finance. It is partly for this reason, also, that Cases V a. to d. are only open-ended for the three weaker member states. Further assurances for the purpose of budgetary control could be introduced, without

destroying the scope for the vital incentive efforts, by applying a global ceiling for the three weaker member states at, say, the levels indicated under Cases V c. and d.. Under these hypotheses the ceiling would be high enough to permit and encourage, a significant improvement in their relative economic performance in the field concerned.

The overall financial results of the several cases may be summarised as follows. E.C. Fund expenditure increases from a minimum of 358 m.u.a. in the equalisation Case I, to the 500 m.u.a. ceiling level in Cases II to IV, to 1,566 m.u.a. in Case V.a. (where, however, total expenditure remains at 5,000 m.u.a.), to 2,651 m.u.a. in Case V b., 3,736 m.u.a. in Case V c., falling back to 3,231 m.u.a. in Case V d.

The gross redistributive power of the E.C. fund expenditure (before taking into account its financing) was about 0.3 of 1 % under the equalisation system (Case I), the quota system (Case III), and the variable matching ratio system without a global ceiling but also before any incentive effects are assumed to operate (Case V a.) Cases II and IV, both with the 500 m.u.a. global ceiling, have a zero, or only a slight, redistributive power. In Cases V b. to d., however, with incentive effects assumed to be operating for the three weaker member states, the redistributive power increases successively to 1.3 %, 2.4 % and 2.5 %.

The net redistributive power, assuming a personal income tax capacity financing of the fund, is higher to a significant but not dramatic degree. Cases I, III and IV rise to the 0.4 to 0.6 of 1 % level ; Cases V b. to d. rise to 1.8, 3.1 % and 3.2 % respectively.

The foregoing numerical examples make it possible to envisage hypothetical packages of instruments which could be of significance in relation to the Community's macroeconomic convergence objectives. Assume, for example, that the Community was prepared to create a set of financial instruments with a redistributive power of 10 %, i.e. one-quarter of that found in the average fully integrated economy, on condition that the funds could directly contribute to these objectives.

This might be achieved by a set of grants instruments which spent 5,000 m.u.a. on specific purpose grant programmes along the lines of Case V d., which would yield a redistributive power of 4.9 %, and 5000 m.u.a. on equalisation payments according to Case I, which would yield a redistributive power of 5.3 %. The equalisation payments could be the subject of performance or policy conditions discussed in the third part of this paper.

To these grant expenditures may be added the prospect of a further inducement of capital flows on market conditions. The grant subsidies would in large measure be going to investment prospects whose overall financial structures contain a substantial proportion of long-term loan funds. Institutional links between Community grant funds and

capital market agencies could assure further multiplier effects in the flow of capital to the regions or sectors in question. For example, the Regional Fund is already empowered to grant interest-rate subsidies on loans from the European Investment Bank for certain types of project. The European Coal and Steel Community can also use its limited resources for granting subsidies in combination with its loan resources. While these links cannot at present be used on any substantial scale because of the limitations of the grant funds, they could become of major significance if the E.C. grant funds were developed along the lines sketched out above (in Cases V b. to d.)

3. The Community's present sectoral programmes

The distribution of the Community's main grant and loan operations is given in Table 6 in the form of per capita amounts by country, together with an indication of their redistributive power. Total grant expenditures on 'structural' funds amounted to 1,050 m.u.a., including the Regional Fund, Social Fund, Agricultural Guidance section, and E.C.S.C. operations. The Agricultural Guarantee section (market support subsidies) costs 4,245 m.u.a. with a total of all grant funds of 5,295 m.u.a.. Total loan expenditure amounted to 1,577 m.u.a., about equally split between the E.I.B. and E.C.S.C.

Of the structural funds, the Regional and Social Funds are of similar size (391 m.u.a. and 491 m.u.a.) (1) and redistributive power (0.23 and 0.24 of 1 %). These results are achieved, however, by quite different means, the Regional Fund being subject to quotas, and the Social Fund applying priority policy rules for the selection of projects. The Feoga Guidance section accounted for 131 m.u.a., with almost no redistributive power effect. The E.C.S.C. grant funds also have an insignificant redistributive power.

The Guarantee section of the Agricultural Fund spent 4,245 m.u.a. in 1975. The distribution of this expenditure is not intended to be related, of course, to the relative economic strength of member states, but to agricultural production. Italy, Germany and the United Kingdom received comparable amounts per capita ; higher amounts per capita were received by four relatively rich member states (Belgium, France, the Netherlands and Denmark) and by one poor member state (Ireland).

The regression line of best fit in the distribution of these subsidies is close to equal per capita amounts by country, which implies a slightly progressive distribution with respect to GDP per capita. The redistributive power (0.46 of 1 %) is small in relation to the size of the expenditure (in addition, the statistical quality of the line of best fit is very poor).

(1) See footnotes to Table 6 for greater precision on these amounts.

TABLE 6

Distribution of Community Grants and Loans in 1975

	Grants						Loans			
	Total	Total excluding FEOGA Guarantee	Regional Development Fund (1)	Social Fund (2)	E.C.S.C.	FEOGA Guidance	FEOGA Guarantee	Total	E.I.B.	E.C.S.C.
Germany	12.8	1.9	0.3	0.8	0.2	0.6	10.9	2.3	0	2.3
France	25.8	3.9	1.4	1.8	0.2	0.5	21.9	4.9	2.8	2.1
Italy	18.7	6.6	2.7	3.3	0	0.5	12.1	8.9	6.1	2.8
Netherlands	40.3	2.7	0.7	1.0	0.2	0.7	37.6	2.1	0	2.1
Belgium	21.4	2.8	0.7	0.9	0.3	0.8	18.6	5.1	1.0	4.1
Luxembourg	21.0	5.4	3.6	0.1	0	1.7	15.6	3.0	0	3.0
United Kingdom	14.2	4.1	1.8	1.9	0.1	0.2	10.1	9.5	5.6	3.9
Ireland	72.3	16.8	7.5	7.6	0	1.7	55.5	11.5	11.5	0.1
Denmark	65.5	4.2	1.3	1.8	0	1.2	61.3	7.4	3.3	4.1
E.C. Total in u.s. per capita	20.5	4.0	1.5	1.9	0.1	0.5	16.5	6.1	3.3	2.8
E.C. Total in million u.s. (3)	5,295	1,050	391	491	37	131	4,245	1,577	860	717
(E.C. Total in 'original' million u.s.) (3)	-	-	500 *	612 *	33 †	145 *	4,727 *	-	917 ‡	719 †
Redistributive power, in percent	0.96	0.50	0.23	0.24	-	0.02	0.46	(0.47)	(0.44)	(0.03)

(1) 1976 and 1977 allocations of 500 million budgetary units of account

(2) Commitments of the 1975 allocation

(3) Notes on units of account. The Community is in the course of reforming its multiple units of account. The total line in brackets gives unit of account figures in the form they originate: * = budgetary unit of account, † = E.C.S.C. unit of account, ‡ = U.C.E. (see below). To avoid accounting distortions these figures are converted elsewhere in the Table into 'statistical units of account' whose value in 1975 was 1.32759 U.S. dollars or 1.07 U.C.E. (which is the new 'floating basket' unit of account due to be used for the budget from 1.1.78).

The loan funds of the European Investment Bank (E.I.B.) and European Coal and Steel Community (E.C.S.C.) have no grant element beyond that reflected in the somewhat more favourable borrowing terms that these institutions can secure by comparison with the economically weaker member states. It is interesting nonetheless to assess the distribution of the gross loan funds in a similar way, particularly because of the possibility (already referred to) of providing institutional links between grant and loan funds. The loan operations of the E.I.B. in 1975 amounted to 860 m.u.a., with a redistributive power (in the limited sense indicated) of 0.44 of 1 % ; for the E.C.S.C. the figures were 717 m.u.a., with a redistributive power of 0.03 of 1 %.

Overall the redistributive power of the Community funds divides into three blocs, each of approaching 0.5 of 1 % : the structural funds through grants amounting to 1,231 m.u.a., the Agricultural Guidance section through expenditure of 4,275 m.u.a., and the loan operations through gross loans of 1,577 m.u.a.. For the reasons noted, the 'quality' of the redistributive power of the last two blocs is strongly qualified.

4. Conditionality for general purpose grants

The idea that general purpose economic aid, grants or loans, be provided against economic policy or performance conditions may contain two separate types of economic criteria :

- the first may be criteria identifying economic difficulties or weaknesses, which would warrant the aid to the beneficiary state and possibly, determine its amount ;
- the second may be criteria providing a counterpart of value to the donor, including, possibly, assurances that the beneficiary will, while consuming the aid, be doing something significant to rectify the original difficulties or weaknesses.

As to the first type of criteria, the technical and political problems are relatively slight. As explained above, general purpose grant mechanisms in federations are invariably based on objective measures of economic and/or fiscal capacity and needs, and these are well tried in practise. While the Community itself has no experience of budget equalisation systems, its Financial Mechanism (although limited in the scope of its operation) makes interesting use of a mix of macroeconomic criteria : payments can be made where states have both a relatively low GNP per capita position and a low GNP growth rate ; moreover the grants are larger if, in addition, the member state is in balance of payments difficulty. General purpose loan facilities, provided by the Community or the IMF, are based on the severity of balance of payments difficulties, taking into account the nature and size of deficits, the size of reserves, and exchange rate developments.

There is also a case for a cyclical criterion to be retained in this connection : e.g. the short run deviation of actual from potential output, or unemployment trends, may be used in combination with criteria reflecting structural economic weakness. The reasons would be, firstly, to avoid problems of time-lags before short-run developments become reflected in structural indicators, and secondly, to enable the aid from Community funds to have something of the same kind of elasticity with respect to the cycle that is normally found in the response of public finance to regional-cyclical problems in member states.

The second type of criterion is much more difficult.

A basic principle is to avoid contradicting the first set of criteria. It is natural to hope that the financial aid will rectify the original economic weaknesses. But success cannot be directly rewarded, nor can failure be directly penalised, if this were to mean giving grants as a function of economic weakness but then to increase the aid if the same weakness is eliminated, or decrease the aid if it is exacerbated. The 'counter-part' criterion therefore has to be either independent of the criterion of economic weakness, or it has to be a policy instrument under the control of the recipient government.

Within mature federations there are some, but not many, examples of explicit 'counterpart' criteria. In the U.S. a tax effort criterion is included in the general revenue sharing formulae, such that a relatively higher tax effort by a given state directly increases the amount of its federal grant. A quite different example is found in Australia, where generalpurpose ('Financial Assistance') grants are conditional on recipient states abstaining from entering into the field of income taxation. In the early days of the Australian federation, and more continuously perhaps in Canada, the avoidance of secession - with all its commercial and political implications - has been an implicit but more basic counterpart.

In the Community context the use of a tax effort performance criterion, used as an automatic modulator of the amount of grants, would appear to be conceivable. It is of clear relevance to the Italian case. Table 2 above showed Italian tax effort in 1970 to have been 81 per cent of the Community average (the UK's tax effort was 108 per cent). An (unquantified) improvement in fiscal performance was stipulated as a condition in the 1975 Community loan to Italy.

Trade restrictions, or the limitation thereof, are one of the criteria for IMF higher credit tranche facilities ; however, in the Community trade policies cannot be considered a variable.

Criteria relating to macroeconomic policy instruments, such as the rate of growth of monetary and budgetary aggregates and the amount and financing of budget balances, are used in relatively precisely quantified form in balance of payments loan negotiations (both in the IMF and E.C) but are generally absent in the context of inter-

governmental grant mechanisms. This reflects of course the fact that member states of the IMF and Community have full powers over macro-economic policy, whereas the IMF or Community have no such powers.

The scope for the use of quantified monetary or budgetary policy conditions in balance of payments loan operations is severely limited for both political (sovereignty) reasons and because of technical-economic problems (e.g. the controversial significance of intermediate target variables in the monetary area). A further very simple reason is that balance of payments loan operations are normally one-shot payments, or 'once-a-cycle' transactions. There is no continuous flow of financial aid ; most of the lender's powers are used once the payment is made. The IMF 'higher credit tranche' and 'extended facility' provide for instalment payments over a period of surveillance of economic policy and performance criteria. However the instalment period is usually only a matter of months. Post mortem reviews of conditions negotiated in the agreement of loans (such as recently in a Community loan to Italy) shows instances of 'unexpected' economic developments outside the borrowing states' control having caused performance to fall outside the negotiated conditions. It may be more plausible to envisage the use of quantified performance or policy criteria in the context of general purpose grant mechanisms within the Community. A continuous flow of grant funds would avoid the problem of one-shot payments just mentioned. The legitimacy of such criteria is in a sense greater in a Community setting than in federations, since in these cases member states are not accountable for macroeconomic policy, whereas in the Community the member state is.

Apart from policy performance criteria, such as monetary and budgetary aggregates, there may alternatively be some economic performance indicators that can be used without encountering the objections of contradicting the (first type of) criteria of economic difficulty or weakness. The rate of wage inflation may be the best example. It may make economic sense to aid a member state which is in severe economic difficulty, but which is making a commendable effort to control wage inflation. Success on this account will generally be an important precondition of general economic recovery. In addition wage inflation is less directly affected by external price and exchange rate developments than, say, the consumer price index. Inflation in general has powerful external effects across national frontiers in Europe in the sense of exacerbating or easing other countries' inflation problems and could for this reason be a logical 'counterpart' criterion for financial assistance. Finally, in the technical functioning of budget equalisation mechanisms which include cost correction factors (as described in the first part of this paper), it would be important to have a control to prevent public sector wage cost escalation from being automatically repaid through the grant mechanism.

5. Concluding remarks

In fully integrated economies there is large-scale financial redistribution between regions or, in a federal setting, member states. Interpreted in terms of regional or federal economics, this redistribution serves several inter-related purposes : (i) to assure a reasonably equal distribution of the cyclical and secular fortunes of the economic union, (ii) to help assure as far as possible a comparable economic performance as between regions, (iii) to avert flows of migration that may be excessive, either by political or economic (congestion) criteria, and (iv) to compensate and adjust for the absence of trade and exchange rate policies at the regional or state level. In unitary economies the larger part of these inter-regional flows of finance result from the operation of national policies at common standards ; in decentralised federal or confederal settings the accent is more on the use of general or specific purpose inter-governmental grants.

While in the last analysis only the political processes can determine the appropriate scale of redistributive policies, there are some major economic reasons why the model of the fully integrated economy is excessive for the Community of the foreseeable future. These are firstly, that the effective mobility of people is much less, for linguistic and other reasons, in the Community than in all mature economic unions ; and, secondly, that the Community is not a monetary union and real wage costs can still change through exchange rate changes.

Two major reasons, on the other hand, remain ; the need to assure a reasonably fair distribution of the gains from economic integration, and the objective of convergence in economic performance as between member states. The third factor, migration, will certainly grow over time ; there will be a sharp step increase in any case in the event of enlargement of the Community to include more migration-prone and less industrialised Mediterranean countries. The fourth factor, the monetary and exchange rate union, is an open question for political choice ; if the Community were to try again in this field, the implications for redistributive policies should not be overlooked.

Against these background considerations the present paper has set out a number of quantified simulations of financial redistribution in the Community, comparing :

- first, in one extreme case the model of a fully integrated economy transposed onto the Community, and in which up to 40 % of inter-regional or inter-state per capita income differentials tend to be offset by inter-regional financial redistribution ;
- secondly, in the other extreme case the reality of the Community of today with its very limited redistribution function, accounting for about a one per cent offset of per capita income differentials ;

- and thirdly, a number of hypothetical intermediate cases, accounting, for example, for a 10 % offset of per capita income differentials.

A further objective has been, at the same time, to set out simulation exercises in the main practised techniques of inter-governmental financial relations, notably in the field of general and specific purpose grants, paying particular attention to the different mixes of effects - as between improvements in economic structures and pure redistribution - depending upon the type of grant technique used.

Chapter 15

FISCAL STABILISATION POLICY IN THE COMMUNITY
AND MONETARY AND EXCHANGE RATE POLICIES

by

Theo Peeters

It is convenient to introduce a discussion of the Community role in fiscal stabilisation policy with a brief survey of some of the general issues in the debate on economic stabilisation policy measures not only because actual proposals for Community initiatives should take into account the latest developments in this area, but also because recent analysis of the role of fiscal policy has a direct bearing on the objectives of European economic and monetary integration and the approaches towards it. This point was emphasised in the first report of the Optica group (1). It needs further development and a somewhat different presentation by the Study group on the Role of Public Finance in European Economic Integration, so as to provide a general analytical framework within which various specific proposals in the Community context can be formulated and elaborated.

1. Keynesian orthodoxy

The standard Hicksian IS-LM analytical framework is not only the cornerstone of most macro-economics courses taught throughout the Western world, it also provides the analytical foundation of the neo-Keynesian policy of economic stabilisation through demand management which is briefly summarized as follows. The IS curve represents the locus of points (pairs of interest rates and real income) in which the real sector of the economy, including the government, is in equilibrium, and the LM curve represents a similar locus of points for which the demand for money equals the supply. Joint equilibrium in the real and the monetary sector determines the level of real income. This level can consequently be influenced through fiscal and monetary policy actions.

Fiscal policy actions will shift the equilibrium in the real sector (the IS-curve) ; monetary policy will affect the equilibrium situation in the monetary sector (shifting the LM curve). To the extent that the government controls the fiscal and monetary instruments, it should therefore be able to achieve the level of real income that corresponds to a full employment situation.

This Keynesian approach sees government (a) as a stabilizer of fluctuations in the private sector, (b) equilibrium as a state to be achieved by deliberate policy intervention rather than through the operation of automatic market forces alone, and (c) collective goods as an important component of the social welfare function. Furthermore, the need to insulate the domestic economy from foreign disturbances in order to permit national governments to pursue independent economic stabilisation policies, explains in a world of market integration, the concern of policy makers with explicit balance-of-payments policies under a fixed exchange rate regime and

(1) Optica Report '75, Towards Economic Equilibrium and Monetary Unification in Europe, Brussels, Commission of the European Communities, Doc. II/909/75-E-final, pp. 17-22

their frequent preference for (managed) flexibility. Basically, this view considers exchange rate policy as one instrument by which governments may preserve some independence in the policy sphere with a minimum of disruption to the benefits of market integration in the private sphere.

The challenges to this postwar orthodoxy have engendered rapid progress in the area of theoretical specification and model building. Among the most important, for the purposes of this paper, are the explicit recognition of the interactions among all markets in a general-equilibrium system ; the specification of full equilibrium in the market for money (and other financial assets) in stock as well as flow terms ; and the distinction among impact effects, the dynamic adjustment process, and the long run stationary effects of a disturbance (1).

2. Crowding-out effects (2)

The oldest, but for our purposes least interesting, controversy directs the attention to the effects of alternative fiscal and monetary policy actions and their relative efficiency. The traditional Keynesian view that increases in government expenditure, even if financed by taxes or by borrowing from the public, lead to increases in income has been challenged by the monetarists. They contend that government expenditure displaces a near-equal amount of private spending. Government spending financed through taxation displaces or crowds out private spending through the interest rate effect. This effect is not reflected in the balanced-budget multiplier, which in the conventional Keynesian analysis equals unity. Public expenditure financed through bonds also crowds out private spending through a rise in the interest rate and might result in little net effect on total spending.

Crowding-out effects that operate through the rise in the interest rate following an increase in government spending are demonstrated in the Hicksian IS-LM framework as follows. For the tax-financed case an increase in public expenditures shifts the IS curve to the right. But the rise in income through the balanced budget multiplier increases the transaction demand for money balances. With a constant money supply, this causes a rise in the interest rate. The higher interest rate has a negative effect through a decline in net wealth.

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- (1) Marina V.N. WHITMAN, Global Monetarism and the Monetary Approach to the Balance of Payments, Brookings Papers on Economic Activity, No. 3 1975 pp. 533-34
 - (2) The following analysis draws heavily on N.N. CHOUDHRY, Integration of Fiscal and Monetary Sectors in Econometric Models : A Survey of Theoretical Issues and Findings, Staff Papers, July 1976, pp. 396-408

Private expenditure is thus depressed which in turn pushes back the IS curve. It also shifts the LM curve to the left, thereby offsetting the initial expansionary effect of higher government spending. Contrary to standard Keynesian analysis the balanced budget multiplier will, therefore, be lower than unity. According to some extreme views there might even be total crowding out and a zero multiplier.

Similar effects operate with bond financed expansion in government expenditure. The initial rise in income stimulates the transaction demand for money, which causes a rise in the interest rate. The deflationary effect of a reduction in wealth can also not be excluded. Although more bonds are now held by the private sector, its effect on net wealth may be more than offset by a reduction in the market value of the existing stock of government bonds resulting from higher interest rates. Higher interest rates have a deflationary effect on private expenditure. It is therefore argued that in the absence of an accommodating monetary policy, the initial expansionary effect of a bond-financed increase in government spending is partially (or in the extreme monetarist view wholly) offset by perverse wealth effects.

The controversy about the crowding-out or perverse wealth effects associated with bond-financed or tax-financed government spending is, however, more adequately dealt with by including a government budget constraint in Keynesian models of income determination, a notorious neglect until a decade ago. A government budget constraint properly accounts for the monetary repercussions of fiscal policy actions. Even in the absence of discretionary fiscal policy, moreover, such a constraint highlights the repercussions of pure monetary actions on the budgetary balance.

3. The government budget constraint

The government budget constraint is the missing link that closes the relationship between the public sector and the rest of the economy. In the IS-IM framework if such a constraint is imposed on the system, fiscal policy actions will affect the IS and LM curves simultaneously. But this is essentially the point made by the monetarist crowding-out literature. The demonstration runs as follows.

In a closed economy, the government budget constraint implies that total expenditures by the public sector have to be equal to total financing available from taxes, new government bond issues and the net creation of base money. This constraint imposes restrictions on the governments freedom to choose arbitrary values for all policy variables. Given n policy instruments, arbitrary values can only be assigned to, at most, $n-1$ of them. More specifically, it is demonstrated that the outcome of fiscal policy actions is not independent from the monetary policy that is being pursued.

Symbolically the government budget constraint can be written as follows :

$$G + P - T = dB + dH \quad [1]$$

where G = public sector expenditure on goods and services and other transfer payments.

P = interest payments on outstanding government bonds held by the public

T = public sector taxes

B = net public holdings of government bonds

H = monetary base (high powered money)

Equation [1] states an important relation (a) between stocks and flows, and (b) between monetary and fiscal variables, by recognizing that a deficit or surplus must be financed by the creation or destruction of money or of interest-bearing public debt.

Consider the latter relationship first. Take an expansion of G. It will raise income but does not necessarily lead to an equivalent increase in T, which depends on income. A change in the budget deficit must be matched by a change in the right-hand side of the equation. Changes in the government deficit, therefore, cause changes in either the monetary base or privately held government bonds, or both, depending on the way the budget deficit is being financed. Consider first changes in privately held government bonds. They normally affect interest rates, which in turn will crowd out private expenditures. Second, if the deficit is financed through an expansion of base money, the dependence of the effect of the fiscal stimulus on an accomodating monetary policy is self-evident. In both cases a government budget constraint introduces the necessary link between the fiscal sector, the monetary sector and the rest of the economy.

As long as there are interest-elastic expenditures, the assumption that monetary forces have no role systematically overstates the net effect of fiscal policy - which is to say, overstates the multiplier. All this has by now become standard macroeconomic analysis of fiscal and monetary policy.

The budget constraint, however, has not only highlighted the interdependency of fiscal and monetary policies in the context of macro-economic stabilization. It also suggests that a condition for full-long-run equilibrium in a static model of the type being traditionally considered is that $dH/dt = dB/dt = 0$. This implies that in the long run the budget should be balanced. It is worth mentioning

that some striking conclusions have been reached with respect to the multiplier effects of government spending in the context of such a constraint. In a seminal paper by Blinder and Solow (1), published in 1973, it was pointed out that, contrary to the monetarists' position, the equilibrium (long run) multiplier for money-financed deficit spending is smaller than that for bond-financed deficit spending (2), but in the latter case the system could be unstable. With pure bond financed fiscal policy in a stable system - and stability appears to be an empirical question - the long-run effects of increased government expenditure will be more expansionary than in the pure money creation case.

The justification for this result follows once it is understood that, starting from an initial long-run equilibrium income level with a balanced budget, an increase in government spending will cause subsequent deficit financing to be larger if it is financed by bond issues than if it is financed through money creation, for two reasons : (a) initially income will rise less so that the induced increase in tax receipts will be smaller, and (b) the increase in privately held outstanding bonds requires greater interest payments. A given initial budgetary gap is therefore harder to close under bond financing, so that it takes a greater rise in income to induce tax receipts sufficient in a new equilibrium to close the budgetary gap.

In the short run, however, the well known proposition still holds that, if the IM curve is not vertical, the impact multiplier of money-financed deficit spending is more expansionary than that of a bond-financed deficit. The old debate about the relative effectiveness of monetary and fiscal policy for stabilisation purposes has thus gained a renewed momentum.

For the purposes of this paper the analysis so far suggests two conclusions : (a) it is necessary to consider fiscal stabilization policy at the Community level in close connection with monetary stabilization policy at the Community level : (b) it may be misleading to focus exclusively on the short run impact of fiscal stabilization in disregard of the long-run implications and repercussions.

(1) A.S. BLINDER, R.M. SOLOW, Does Fiscal Policy Matter, Journal of Public Economics, Nov. 1973, pp. 319-37

(2) The lowest multiplier holds for the purely tax-financed government spending (balanced budgets).

4. The balance of payments constraint

How are the results summarized so far affected in the case of an open economy ? More specifically what link, if any, does exist between fiscal stabilization and budgetary deficits on the one hand and balance of payments equilibrium on the other ? The latter question is not unimportant in the context of proposals for fiscal stabilization policy as a step towards the ultimate goal of an economic and monetary union.

As a starting point reference can be made to the views held by the "New Cambridge School". According to this School (1), the current balance of payments account is essentially determined by the government budget. Two elements are crucial in this proposition. First, three aggregate sectors for goods and services in the economy are considered, i.e. the private, the government, and the foreign sector. An excess of one sector's savings over investment must then be equal to the excess demand for commodities i.e. the net financial and/or monetary deficit of the other two sectors together. This is illustrated by the following ex-post identity.

$$(S-I) - (G-T) - (X-M) = 0 \quad (2)$$

In other words, an excess demand for financial assets in one sector must be accommodated by an excess supply of financial assets by the other two sectors.

Secondly, the New Cambridge school submits that the private sector has a rather stable financing surplus i.e. a net demand for additional financial wealth in the form of assets issued by the government and/or the foreign sector. Therefore, with $(S-I) > 0$ as a structural characteristic of the economy, a deficit on the balance of payments on current account ($(X-M) < 0$) must correspond to (and be determined by) an even bigger deficit in the government budget. The prescription for improving the current account would then imply a restrictive budgetary policy in order to reduce the government deficit. If it is true that the current account is determined by the budgetary balance, an important conclusion would follow for the countries of the European Community : they ought start urgently to coordinate their budgetary policies at the Community level in order to avoid persistent current account incompatibilities among the member countries.

More in line with the analysis in the previous section is the "portfolio approach" that was elaborated as an extension of the theory of the international adjustment mechanism developed in the writings of Mundell in the early sixties. The portfolio approach resolves a

(1) The following presentation follows closely the related discussion in the Optica Report '75, op. cit., pp. 17-20 and appendix B.

fundamental shortcoming of the underlying short-run (Keynesian) model, namely that stocks of assets are implicitly held constant although the savings and investment flows that occur cause changes in the stock of these assets. Models were therefore developed in which both stock and flow equilibrium conditions are imposed (1). The fundamental criticism against the monetary and fiscal policy mix model, i.e. that trade imbalances represent a flow while their financing affect stocks, is thus dealt with.

The importance of this point is illustrated as follows. Financing a (chronic) trade deficit by a corresponding capital inflow increases the stock of indebtedness towards the rest of the world in every period. Analogously, a country's lending to the rest of the world increases with the financing of a trade surplus in every period. With these stocks of foreign indebtedness or credit growing, there must come a point where further credits are granted only at increasingly higher interest rates because of the risk of default. Adjustment of the traditional Keynesian monetary and fiscal policy mix models are therefore necessary in order to take into account changes in the interest-rate elasticities of short-term capital flows induced by the growth in foreign indebtedness.

The stock-flow relationship also demonstrates that the servicing of this growing stock of foreign debt requires growing interest payments, which in turn have to be financed by (growing) short term capital inflows. As a result, even in a static world interest-rate differentials have to be widened continuously to attract the necessary funds. To the extent that there exist (institutional) barriers to the levels which domestic interest rates can reach, the use of the fiscal-monetary policy mix for balance of payments purposes and internal balance is thus constrained for reasons not previously recognized.

The portfolio approach extends the analysis of the implications of a government budget constraint into the framework of an open economy. For an open economy the government deficit can now also be financed by the disposal of foreign exchange reserves (R), besides the financing mechanisms for a closed economy namely new government bond issues and (or) the net creation of base money. Symbolically, the government budget constraint for an open economy is written as follows

$$G + P - T = dB + dH - dR \quad (3)$$

(1) H.G. GRUBEL, Domestic Origins of the Monetary Approach to the Balance of Payments, Essays in International Finance, N°117, June 1976, pp.15-16

The current account deficit that - according to equation (2) - corresponds to the government budget deficit, assuming for simplicity no accumulation of net financial wealth in the private sector (i.e. when $S = I$), must be financed either by a capital inflow or with a reserve outflow, depending on the financing of the government budget deficit. First, consider the case of bond financing. If the domestic private sector is not willing to acquire the bonds issued by the government ($S = I$), the government bonds will have to be bought by the foreign sector. This results in a capital inflow equal to the current account deficit and assures overall balance of payments equilibrium. In other words, the government deficit that is at the origin of the current account deficit generates for its financing a capital inflow that restores equilibrium in the overall external accounts.

If, on the other hand, the budgetary deficit is financed by a creation of base money - either directly via an advance of the Central Bank, or indirectly via a purchase of public bonds by the Central Bank - and with the private sector not willing to hold the money created by this increase in the base, these balances must end up in the foreign exchange market. Ultimately they will be exchanged against foreign reserves through Central Bank interventions, thereby entailing a deficit in the overall balance of payments, except for the case of a reserve-currency country whose the increase in money balances will be accepted as international reserves by other countries.

Unlike the current account analysis of the New Cambridge School which concentrates attention only on the government budget as a possible determinant of a current account disequilibrium, the portfolio approach examines also the choice of the financing mechanism of the government budget as a factor which determines the short-term structure of the balance of payments in its current, capital and reserve account components. The Optica Report concludes (1) :

"In the long run, the structure of the balance of payments is determined by the desire of the private sector to hold various assets and currencies. In the shorter run, the "portfolio approach" puts emphasis on the overall budget policy of the government, in the sense that a fiscal - monetary policy (2) that is not in line with the private sector's desire to accumulate money or with the foreign sector's desire to accumulate the country's money as international reserves, must produce a loss in reserves.

(1) Optica Report, op.cit., p. 20

(2) As opposed to a "pure" fiscal policy, defined as a policy where there is no monetary creation induced by a budget deficit.

As this situation is not sustainable in the long run, the government must, in such a case, either reduce its deficit or increase the part of it which is financed by issuing bonds. This second choice, however, is also limited since, even if it is small, a country cannot float unlimited quantities of bonds on the international market. In the short run, moreover, if it is not very small, it must accept an increase in the rate of interest ... the "portfolio approach" and the New Cambridge School's approach give pre-eminence to the management of the government budget over monetary policy in the determination of macro-economic variables."

The shift in emphasis suggested by the portfolio approach from fiscal stabilisation policy which deals with the problem of maintaining internal balance towards a government budgetary policy that determines a desired external current account, has rather unconventional implications. This lesson is namely that harmonisation of budgetary policies between the member-states should become a major preoccupation of European economic integration in order to assure consistent current account targets. One could even extend the argument in favour of a Community fiscal policy, In contrast however, to the argument in Oates' paper (1) such a policy would be less relevant for its direct and indirect effect on aggregate demand and employment than for its implications for net wealth creation and the external current account.

5. A tentative reconciliation of conflicting views

How are the conclusions of the previous survey to be reconciled with the conventional wisdom which argues in the European context for a selective and flexible use of fiscal policy at the national level as a necessary condition for the effective establishment of a European currency area ?

It is generally admitted that currency unification does not only imply centralisation of monetary policy (or an agreement on strict adherence to a well-defined rule of conduct in monetary expansion). Automatic equilibrating mechanisms for intra-Community payments imbalances are also required. They are based usually on capital and labour-mobility, and/or on changes in aggregate demand and hence in regional employment. If therefore in a currency union regions cannot have balance-of-payment problems, this is only because the automatic interregional adjustment process transforms them into "regional" problems. With a centralized monetary policy (and fixed exchange rates)

(1) See Chapter 10

it is argued that the regional imbalances that are likely to arise require a fully-fledged, flexible fiscal policy at the national level (1). With an insufficiently diversified and flexible fiscal system and downward real wage rigidity the overall tendency of the system towards full employment would become dependent on effective labor mobility within the whole area. If both fiscal policy flexibility and adequate labour mobility were lacking, excess supply of labour would tend to become a strong and disruptive regional problem.

How does this view fit with the prescription for harmonisation of fiscal policies derived from the portfolio theory ? The key answer is that even within the framework of the portfolio analysis and its policy conclusions, national governments will still be able to influence the geographical distribution of employment and economic activity. Taxes and public spending can still be freely determined by national governments (and/or a Community authority for that purpose) to influence the geographical disposition of aggregate demand. The same instruments also remain available for influencing the timing and the level of aggregate demand in order to smooth out remaining fluctuations. The size of the government sector deficit can still be chosen freely. The only restriction is that the deficit be financed by loans at the going market interest rate, and provided the long run equilibrium conditions which derive from a government budget constraint and a balance of payments constraint are not violated.

At this stage it is useful to point out that the portfolio approach tends to focus on the characteristics of the system in stationary-state equilibrium. But long-run tendencies are compatible with many specifications of impact effects and dynamic adjustment mechanisms. It is only in extreme formulations that short run policy implications are derived from the characteristics of long-run stock-equilibrium conditions, thereby suggesting that adjustment is actually achieved rapidly enough to make the characteristics of the transition unimportant. This latter view, however, is probably an excessive reaction against the long standing practice of a reliance on the Keynesian model as the basis for policy thinking and policy formulation. As the analysis of the conditions for stationary state

(1) See among others R. MASERA, A Stylized Model of a Highly Open Economy Under a System of Fixed Exchange Rates, and its Implications for the Establishment of Currency Areas, Oxford Bulletin of Economics and Statistics, Aug. 1975, pp. 211-225. G. MAGNIFICO, European Monetary Unification, London, MacMillan, 1973 ; Study Group on Economic and Monetary Union, European Economic Integration and Monetary Unification, Brussels, Commission of the European Community, 1973.

equilibrium suggests, it may be very misleading to rely on the standard Keynesian model as a guide to policy making over a succession of short periods within each of which the Keynesian model may appear to be a reasonable approximation to reality (1). The major shortcoming of this approach is that equilibrium conditions are only determined in terms of flows or what Swoboda has called quasi-equilibrium. (2) But the exclusive attention paid to the characteristics of longrun stock-equilibria may be equally misleading.

How long, is the long run, is in the end the critical question about the applicability of stationary-state general-equilibrium analysis to policy issues. The issue is significant not only because of the notoriously short time horizon of policy makers, but, more fundamentally, because of the very real social costs that may be associated with disequilibrium states or with different adjustment mechanisms. Today

"economists disagree relatively little about the long-run general equilibrium characteristics of the economic system. But for the short-run, when the system diverges either from some of the behavioral relations or from one or more equilibrium conditions, there is substantial disagreement about which relationships can be assumed to hold throughout and which not, about which markets can be assumed to be continuously in equilibrium and which not. And, the longer the "short run" is, the more important these divergences become in determining the policy implications of the competing approaches.

Closely related to the question of the length of run over which adjustment takes place is the question of whether the assumption of fundamental stability that underlies equilibrium analysis is valid. If the world is in fact subject to frequent disturbances and shifts in behavioral parameters, then the equilibrium model is not appropriate for policy analysis, nor is it obvious that a mode of analysis that always begins with equilibrium can yield meaningful answers for a system whose initial state is inevitably disequilibrium".(3)

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- (1) H.G. JOHNSON, the Monetary Approach to Balance of Payments Theory, in Further Essays in Monetary Economics, London, Allen & Unwin, 1972, p. 247.
 - (2) A. SWOBODA, Equilibrium, Quasi-Equilibrium and Macro-Economic Policy under Fixed Exchange Rates, Quarterly Journal of Economics, February 1972, pp. 162-171
 - (3) Marina V.N. WHITMAN, op.cit. p. 528

It appears to be difficult to model portfolio equilibrium and stock adjustment satisfactorily without shedding much of what is of interest for stabilisation policy. Marnina V.N. Whitman even concludes that :

"focussing on the long-run general-equilibrium characteristics of the economic system ... consigns to irrelevance the problems of economic stabilisation with which most policy-makers are primarily concerned and to ineffectiveness the traditional macro-economic tools of monetary and fiscal policy". (1)

In practice the challenge is one of reconciling the importance of recognizing the long-run implications of policies undertaken to achieve short and medium-term goals without ignoring short-and medium-term effects when focussing on the long-term full equilibrium situation.

(1) Ibidem, p. 536

Lessons for fiscal stabilization in the Community

6. The case for fiscal stabilization at the Community level

The case for a fiscal stabilization policy at the Community level is convincingly put forward in W. Oates' paper (1). The literature on fiscal federalism strongly argues for the stabilization function to be transferred to the upper-tier level of government. The arguments need not be repeated here. What this paper has pointed out in addition is the importance of understanding the close and necessary connection between fiscal and monetary stabilization policy at the Community level. A link was also established between the public sector deficit and its financing on the one hand and the external balance on the other. Because of its monetary repercussions harmonisation of budgetary policies, in particular of public sector deficits and borrowing requirements, between member-countries has an important role to play in assuring consistent intra-Community current account targets and capital flows. In this sense a Community fiscal stabilization policy is a key element in any program for European monetary integration. At the same time the link between fiscal and monetary stabilization policy implies that proposals for fiscal anti-cyclical actions at the Community level will become fully effective only to the extent that they will be supported by a Community control over monetary conditions.

It is hard to envisage the adequate debt financing power and mechanisms which a Community anticyclical budgetary policy would require, in a framework where the access to the member-states capital markets and monetary conditions are a jealously guarded national prerogative. However, a Community debt-issuing and debt-management policy could play an important role in the creation of a truly integrated European capital market. Such an integrated capital market in turn would be a major step forward in the direction of European monetary integration. Major fiscal initiatives of the kind envisaged in this paper turn out to be closely dependent on joint progress in the monetary field, including exchange rate developments.

A Community fiscal stabilisation policy requires occasional financing of deficits and the distribution of the burden of the resulting government debt. Indeed, if it has to be assumed that monetary policy will remain firmly in the hands of national authorities, there are hardly realistic prospects for fiscal initiatives at the Community level being financed through monetary expansion. This leaves only the possibility of bond financed deficits. But this possibility is not without problems either. A Community fiscal authority that could issue its own debt would either act as a

(1) See Chapter 10

powerful instrument for European capital market integration and thereby interfere rather strongly with the presumed continuation of national control over monetary conditions. Or, alternatively, if Community securities ought to be floated on the separate national markets, the Community borrowing capability depends on the goodwill and the policies of the national monetary authorities. If monetary conditions differ between member countries, it is important to the Community authorities in which the market the securities can actually be issued. For the national authorities it is obviously not immaterial either which market is chosen. The debt management policy implied by a credible and workable Community fiscal stabilization policy can only be operated in conjunction with effective monetary arrangements between the member states.

7. Further lessons

With the foregoing sobering thoughts in mind what other lessons for a Community budgetary policy can be suggested ?

(a) The policy implications that derive from the portfolio approach suggest that the government's budgetary accounts ought to be "balanced" in some relevant sense, with the important qualification, of course, that a balanced budget would be at best a valid proposition only for the long run. Possible conflicts between the short run stabilization function of the budget and its medium and long run allocative and redistributive functions are also a factor which should be taken into account. The allocative and distributive objectives of the government budget require an implementation in accordance with longer run financing planning schemes, whereby expenditures are linked to the growth of productive potential of the economy. This suggests a level and growth of government spending that is set primarily on the basis of allocative and distributive objectives and, therefore, independent of the requirements of stabilisation policy. A more stable public expenditure pattern would be the result. The demand management requirements for stabilisation purposes would thus be shifted to the revenue side of the budget. The discrepancies between relatively stable expenditures over the business cycle and cyclical variations in tax revenues would be covered by bond issues.

(b) The suggested budgetary rule should be operated in conjunction with an adequate measure of fiscal influence. Measures of the quantitative impact of fiscal policy are indispensable not only to analyse past fiscal policy. More important, measures of fiscal influence should enable economic advisers to prescribe the right dosage of fiscal stimulus (restraint) when an insufficient (excessive) level of private demand is forecast. Experience indicates that even at the national level forecasting as well as the use of the "right" measure of fiscal influence is not at all easy. At the Community level these difficulties will be increased. Without

discussing in detail a suitable budgetary concept the previous point suggests already two conditions that have to be met :
(i) the expenditure side of a budget is considered as cyclically neutral if expenditures increase from one year to the next at the rate of growth of potential output, and (ii) the revenue side of a budget is cyclically neutral if tax revenues increase in proportion to actual GNP (1).

(c) A conceivable stabilisation function for the Community budget cannot be dissociated from an overall framework in which Community policies are discussed and confronted with comparable policy action at the national level. In this context a clear need will exist to evaluate in a continuous process the cyclical adequacy of the Community budget in relation to the national budgets and nationally differentiated business cycle conditions. It seems hardly feasible to direct Community responsibility to some cyclical indicator(s) of an average Community situation while disregarding the actions undertaken or planned by national authorities. A minimal requirement to avoid conflicting interventions is therefore a consensus on a common framework for evaluation of Community wide business cycle conditions in which the nationally differentiated outlook is duly integrated.

Given a sufficiently integrated framework for policy analysis and policy formulation, it has been argued that there is no further need for coordination of stabilization policies among countries if each country makes adequate use of the available policy instruments (2). However, it is unlikely that national fiscal authorities would succeed better than a centralized fiscal authority in achieving some "optimal" degree of fiscal stabilization that will maximize the Community welfare function, whether that is determined by some combination of separate national objectives or is based on some aggregate measure of Community welfare (assuming competence and adequate authority at either level of government).

Even with full information concerning the actions of other member countries the sum of independent national fiscal policies may be non-optimal, possibly because of each government's failure to take full account of the externalities of its own actions or, alternatively, because of the "free riders" that rely on the convenient spillovers from other countries policies. The failure of a government to take

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- (1) For an extensive discussion see D. BIEHL e.a. Measuring the Demand Effects of Fiscal Policy, in Fiscal Policy and Demand Management, J.C.B Mohr, Tübingen, 1973
- (2) W.M. CORDEN, The Coordination of Stabilization Policies Among Countries in ANDO-HERRING-MARSTON (eds.), International Aspects of Stabilization Policies, Federal Reserve Bank of Boston, 1974, pp. 139-145.

account of the externalities of its own policies on other member countries is particularly likely in the case of conflicting objectives for stabilisation policy between the member countries. The "free rider" problem is most likely to arise when the national objectives are the same but the needed fiscal measures are unpleasant or politically costly (1). But the extent to which coordination or (partial) centralization of fiscal stabilization action is required, because of externalities, spillovers and free rider problems, will critically depend on the existing exchange rate arrangements. At the same time it should be realized that the growing interdependence among the member countries through integrating goods and services markets will weaken the efficiency of fiscal measures to change relative prices between countries because of import leakages. High marginal income propensities to import also reduce the government's expenditure multiplier.

8. A final reflection

The preceding pages leave no great scope for major initiatives in the field of Community fiscal stabilization policy in the absence of parallel progress in the monetary field. The best one can hope for in the near future are increased efforts in the coordination of national stabilization policies. In the context of the work of a group on the Role of Public Finance in European Integration an intriguing question remains, at least in the mind of the author of this paper. To what extent is it possible to dissociate the allocative and distributive functions of the Community budget from the stabilization function? Or to put it differently, to what extent is it possible to suggest a strengthening of the allocative and distributive role of the Community budget, if there are no prospects for a (increased) Community role in stabilization?

Consider for example the creation of a Community unemployment compensation scheme, the purpose of which would be essentially redistributive. The extent to which different countries, however, would benefit from this scheme, together with the total amount of expenditure involved, would depend, among other things, on the efficiency of (national) stabilization policies. Is it realistic - does it fit the facts of life - to transfer "expenditure" responsibility to the Community level whereas national stabilization policies could "decide" the amounts of money to be paid out?

The problem raised is primarily political of course. It does suggest, nevertheless, the need for some overall balance in the proposals for further progress towards economic integration, including an increased role for the Community in fiscal and monetary stabilization.

(1) P. REYNOLDS ALLEN, Organization and Administration of a Monetary union. Princeton Studies in International Finance, No 38, June 1976, pp. 58-61.

Chapter 16

THE ASSIGNMENT OF TAX RESOURCES BETWEEN LEVELS OF GOVERNMENT : THE
EXPERIENCE OF FIVE FEDERATIONS, AND PERSPECTIVES FOR THE
COMMUNITY'S RESOURCES

(working paper)

1. Broad principles and techniques

The assignment of tax revenues by level of government has a theory and practice roughly analogous, although perhaps less clearly developed, to that for the assignment of public expenditure functions. On the tax side, there are two main simple tenets. The first is that taxes should be assigned to jurisdictions whose geographic extent corresponds to where the burden of the taxes is located. This is well illustrated by the cases of customs duties, which are invariably federal taxes, as against property taxes, which are usually local. The second tenet is that as far as possible each level of government should be in fiscal balance, in the sense that its own revenue sources (separate taxes and parts of shared taxes) should match the magnitude of its expenditure responsibilities and that as a result the decision making processes for public expenditure and revenue-raising should be kept as close together as possible at the political level.

The analysis of these broad principles in practice becomes extremely complicated - the geographic incidence of tax burdens is difficult to trace at all precisely, and the nature of fiscal responsibility breaks down into multiple concepts of legislative authority, powers of collection and rights to the revenue proceeds. In addition, all countries' systems bear the stamp of historical events (specially wars) and constitutional traditions. Within these limits, however, the following brief review of the systems of five federations shows the range of possibilities in the fiscal field developed by a group of industrialised economies having in common relatively decentralised political structures.

The main techniques of interest are those of tax-sharing and tax-overlapping. Both relate to cases where more than one level of government exploits the same, or a similar, tax base. The term tax-sharing is used where the revenues of a single tax are divided between levels of government (here Germany supplies the main examples). The term tax-overlapping is used when different levels of government compete in the same tax field, but with different rates and often differences in the tax base and allowances (as notably in the United States and Canada). Tax-overlapping allows greater state autonomy, but usually requires complex vertical and horizontal coordination arrangements to avoid the ill-effects of excessive tax competition.

Questions of tax-sharing and tax-overlapping would seem to be particularly relevant in the Community context, since there are no major broadly-based tax sources beyond customs duties which, in the experience of modern federations, have consistently become the exclusive prerogative of the 'top' level of government. Personal and corporate income taxes are usually the subject of tax-sharing or overlapping arrangements. There is no common pattern for general sales taxes and excise duties.

2. The systems evolved in five federations

The federal tax structures (1) evolved in the five countries studied may be very roughly classified as follows :

- 2.1. federal predominance (Australia)
- 2.2. high degree of tax-sharing with little decentralised autonomy (Germany)
- 2.3. high degree of tax-overlapping and of decentralised autonomy (Canada and the United States)
- 2.4. state predominance (Switzerland)

2.1. Federal predominance - Australia

Since the second world war, when the states lost all powers to raise income taxes, Australia's tax system has been barely distinguishable from that of a unitary state (2). The federal government has exclusive control over personal and corporate income tax, the general sales tax, excises, and customs duties. The states and local government have between them taxes on land, motor vehicles, liquor, and miscellaneous entertainments, stamp duties, and, since 1971, the payroll tax.

This exceptional fiscal imbalance in favour of the federal government has been offset by the very important general purpose grants to states (see chapters 6 and 13), which were originally seen as repayments of the states' foregone income taxes ; indeed the grants have been conditional on the states keeping out of the income tax field.

(1) Presented in a standardised statistical form in Tables 1 to 5

(2) See Annex 1 for the unitary countries of the Community

Table 1

Australia : Distribution of Tax Revenues by Level of Government, 1973-74

	Amounts in Mio \$ Austr.				% distribution	
	Common-wealth	States	Local	Total	Common-wealth	State/local
I. <u>TAX SHARING</u> (1)	-	-	-	-	-	-
II. <u>TAX OVERLAPPING</u>						
Estate, gift and succession duties	83.1	185.6	-	268.7	31	69
III. <u>TAX SEPARATION</u>						
<u>Commonwealth :</u>						
Personal income tax	5485.1	-	-	5485.1	100	-
Corporation income tax	2013.1	-	-	2013.1	100	-
Custom duties	604.4	-	-	604.4	100	-
Excise duties	1554.6	-	-	1554.6	100	-
Sales tax	968.7	-	-	968.7	100	-
Other	208.2	-	-	208.2	100	-
<u>State/local :</u> (2)						
Property taxes	-	688.0	-	688.0	-	100
Liquor taxes	-	57.3	-	57.3	-	100
Taxes on gambling	-	208.7	-	208.7	-	100
Motor taxes	-	376.9	-	376.9	-	100
Stamp duties	-	430.9	-	430.9	-	100
Payroll tax	-	667.0	-	667.0	-	100
Other	-	157.0	-	157.0	-	100
Total	10917.2	2771.4		13688.6	80	20

(1) See text for new proposals

(2) Of which 80 % for local governments

Source : Public Authority Finance, Taxation, 1974-75, Australian Bureau of Statistics Canberra 1976, Tables 5 and 7.

This fiscal structure has given the federal authorities virtually complete control over fiscal stabilisation policy.

There are recent developments in the direction of a return towards more usual federal arrangements, with the new government in the spring of 1976 proposing to introduce tax-sharing and tax-overlapping provisions for the personal income tax. In the first instance (in 1976-77) certain general purpose grants from the federation to the states would be converted into a tax-sharing formula, and in the following year states would be empowered to apply surcharges or rebates on federal income tax.

2.2. High degree of tax-sharing with little decentralised autonomy - Germany

Most of the major taxes, notably the personal and corporate income taxes, the VAT and the larger part of the local business tax, are shared between two or three levels of government. The rates and bases of the shared taxes are uniform, (except, within limits, for the rates of the local business tax). The shares of the income taxes are fixed in the constitution as follows.

	<u>Federal</u>	<u>Länder</u>	<u>Local</u>
Personal income tax	43 %	43 %	14 %
Corporation tax	50 %	50 %	-

The bases to which these percentages are applied are the amounts of the income taxes collected at the Länder level, after certain corrections (Zerlegung). These corrections are needed to arrive at a true measurement of the effective tax capacity of a Land before sharing with the Bund and finally equalizing tax capacity between the Länder (see Chapter 6).

Distortions in the field of corporation taxes arise because corporate income is taxed exclusively at the location of the head office and not the location of branches ("Betriebsstätten"), which often are located in various other Länder. These results of corporation tax collections are therefore corrected by a pro-rata distribution of tax revenue between the Land of the head office and the Land or Länder with branches on the basis of wages paid in the various places. As a further administrative simplification only corporations with taxable profits of more than 3 million DM are considered in the process of Zerlegung.

Distortions in the field of wage taxes (the largest part of personal income taxes) arise because wage earners living in a certain Land are often employed in another (neighbouring) Land. The wage taxes, however, are withheld at the place of employment. The resulting wage tax collections are corrected by returning the wage tax revenue to the Land of domicile of the employee. Statistics for this operation are provided by the system of wage tax cards (Lohnsteuerkarten). For reasons of administrative simplicity the correction is made every three years only. The wage tax revenues that have to be transferred are expressed as a percentage of the total wage tax revenue of the collecting Länder. These percentages are then applied for the subsequent three years.

It is interesting to note that the receiving Länder in the Zerlegung mechanism are the same as the receiving Länder in the horizontal Finanzausgleich.

The total volume of inter-Länder corrections for the wage tax and corporation tax corresponded to 2 % in 1970 and nearly 4 % in 1975 of the total of the Länder (and communes) share of wage tax and of the Länder share of corporation tax.

The VAT shares can be, and have often been, changed by Federal law. Thus, in 1973 the shares were 65 % for the Bund and 35 % for the Länder ; 63 : 37 in 1974 ; 68.25 : 31.75 in 1975 ; and 69 : 31 in 1976. The Länder share is distributed between the Länder according to population and fiscal capacity (see Chapter 6).

The local business tax (Gewerbesteuer), except for the payroll tax part of it, is distributed between Bund, Länder and municipalities according to a formula, which first fixes the part of the municipalities and then splits the remaining amount 50 % to the Bund and 50 % to the Länder.

The main exclusively federal taxes are in the field of excises.

Table 2

Germany : Distribution of Tax Revenues by Level of Government, 1973

	Amounts in M. DM				% distribution	
	Federal	Länder	Local	Total	Federal	Land/ Local
I. <u>TAX SHARING</u>						
Personal income tax	37714	37714	12278	87706	43	57
Corporation tax	6456	6456	-	12911	50	50
Value added tax	32166	17320	-	49485	65	35
Local business tax (Gewerbesteuer, excl. payroll tax)	3511	3511	10755	17777	20	80
II. <u>TAX OVERLAPPING</u>	-	-	-	-	-	-
III. <u>TAX SEPARATION</u>						
<u>Federal</u> :						
Custom duties (1)	3172	-	-	3172	100	-
Excises (excl. excise on beer)	30570	-	-	30570	100	-
Other federal taxes	6704	-	-	6704	100	-
<u>Länder/local</u> :						
Net worth tax	-	3234	-	3234	-	100
Tax on motor vehicles	-	4989	-	4989	-	100
Excise on beer	-	1269	-	1269	-	100
Other Land taxes	-	1993	-	1993	-	100
Property tax	-	-	3208	3208	--	100
Payroll tax	-	-	2535	2535	-	100
Other local taxes	-	-	1123	1123	-	100
Total	120293	76486	29899	226676	53.1	46.9

(1) Custom duties are own revenue of EC (100 % since 1.1.1975), but are, however, counted as Federal revenue in this table.

Source : Finanzen und Steuern, Fachserie I, Reihe 2, Statistisches Bundesamt, 1973, p. 15 - 16

The tax autonomy of a single Land is non-existent, since the legislative powers are concentrated at the federal level. However, the Länder majority is able to control tax policy decisions through their representation in the Bundesrat, whose agreement is required for practically all changes in tax law and on questions affecting fiscal equalisation and tax sharing.

While the changes in the normal rates for the income taxes are subject to constitutional rigidities, the 1967 law on economic growth and stabilisation (Stabilitäts-und Wachstumsgesetz) allows greater flexibility in the adjustment of fiscal arrangements for the purposes of contra-cyclical policy.

2.3. High degree of tax-overlapping and decentralised autonomy - Canada and the United States

In Canada the main broadly based taxes are used by both federal and provincial/local levels of government, notably the personal and corporate income taxes and general and other sales taxes. The Canadian case is most striking for the number of major changes in the constitutional arrangements for these taxes experienced since the first world war. Canada has tried all the main forms of tax-sharing and tax-overlapping arrangements. The inter-war period, known as the "tax jungle", was characterised by wide-spread competition between provinces and with the federal government in the income tax field. During the second world war (as in Australia) the provinces temporarily ceded their income tax powers to the federal government, but in exchange received 'rental payments' which were a form of general purpose grants to the provinces (again as in Australia). After the war these 'rental' agreements lasted until 1962. The last five years of this period saw a regime of shared taxes comparable to the present German system; the provinces received a fixed share of the uniform national taxes collected in their area (10 % of the personal income tax, 9 % of the corporate income tax, and 50 % of estate duty).

In the decade 1962-1972 the provinces regained more legislative autonomy in the income tax fields. The federal government offered to collect provincial taxes as long as they conformed to the federal base, while provinces remained free to set their rates. Vertical co-ordination in the income tax field was provided by a system of limited tax credits allowed against the federal tax in favour of the provincial tax.

Table 3

Canada : Distribution of Tax Revenues by Level of Government, 1971-72

	amounts in Mio \$ Can.			% distribution	
	Federal	Prov/ Local	total	Federal	Prov/ Local
I. <u>TAX SHARING</u>	-	-	-	-	-
II. <u>TAX OVERLAPPING</u>					
Personal income tax	7227	2967	10194	71	29
Corporation income tax	2683	786	3469	77	23
General and other sales taxes	3645	2362	6007	60	40
Succession duties	132	138	270	49	51
Social insurance levies	571	340	911	63	37
Pension plan levies	826	300	1126	73	27
Other	4	67	71	6	94
III. <u>TAX SEPARATION</u>					
<u>Federal :</u>					
Custom duties	989	-	989	100	-
<u>Prov./Local :</u>					
Property taxes	-	3424	3424	-	100
Motive fuel taxes	-	1168	1168	-	100
Health insurance premiums	-	865	865	-	100
Business taxes	-	470	470	-	100
Total	16077	12887	28964	55.5	44.5

Source : The National Finances, Canadian Tax Foundation, Toronto, 1975
table 2 - 13

For the period 1972-1977 the tax supplement method was adopted whereby provincial taxes are calculated as an additional percentage to the federal rates. Collection agreements between the federal and provincial authorities are extensive, but Quebec still collects its own income taxes and Ontario its own corporation tax.

The exercise of decentralised fiscal macroeconomic policy by provinces is a more open issue than in Australia or Germany. For example, in the general sales tax field, in 1975, Ontario reduced its rate from 7 % to 5 % in order to stimulate consumer spending.

The United States system is characterised by tax-overlapping of federal and state/local governments in the fields of personal and corporate income taxes, excises and death and gift duties.

In the personal income tax field a majority of states (40) now impose a broadly-based personal income tax, mostly with a moderately progressive rate structure (in 1960 only 30 states used a personal income tax). Many states follow closely the federal income tax base, although differences still exist. The tendency towards uniformity in state personal income tax bases could now become stronger, as a result of legislation enacted in 1972 and effective in 1974, which makes possible a system of federal collection of state personal income taxes. Federal collection is optional for the states. The latter would have to introduce tax bases identical to the federal tax. Advantages of economies of scale for the tax administration and tax-payers stand against the limitation of fiscal flexibility in the field of state tax bases, e.g. exemptions. Rates could still vary between federal and states levels and between the different states. No state has opted for federal collection so far.

The situation is similar for corporate income tax. Most states (45) impose a corporate income tax, although with relatively low rates. Corporate income tax bases in the states are increasingly approximating to the federal base. Each level of government collects its corporation tax separately.

Table 4

United States : Distribution of Tax Revenues by Level of Government 1971-72

	Amounts in Mio US \$				% distribution	
	Federal	State	local	total	Federal	State/ Local
I. <u>TAX SHARING</u>						
II. <u>TAX OVERLAPPING</u>						
Personal income tax	94737	12996	2230	109963	86.2	13.8
Corporation income tax	32166	4416	-	36582	87.9	12.1
Excise on motor fuel	4167	7216	59	11442	36.4	63.6
Excise on alcohol beverages	5089	1684	70	6843	74.4	25.6
Excise on tobacco	2207	2831	166	5204	42.4	57.6
Public utilities	2237	1215	890	4341	51.5	48.5
Death and gift duties	5436	1294	-	6730	80.8	19.2
III. <u>TAX SEPARATION</u>						
<u>Federal</u>						
Custom duties	3287	-	-	3287	100	-
<u>State/local :</u>						
Property tax (1)	-	1257	41620	42877	-	100
Sales tax (2)	-	17619	2727	20346	-	100
Insurance tax	-	1477	-	1477	-	100
Motor vehicle (3) licences	-	3108	225	3333	-	100
<u>Other and unallocable</u>	4407	4758	1752	10917		
Total	153733	59871	49739	263343	58.4	41.6

(1), (2), (3) Property tax, sales tax and motor vehicle licences are subject to tax overlapping between state and local level

Source : Government Finances, Vol. 4, Number 5, Bureau of the Census, Washington D.C., October 1974, from tables 3 and 5

For both income taxes "tax co-ordination" takes place between federal, state and local income tax systems. The two, or sometimes three, tax amounts for private persons or corporations are not simply added up to arrive at the total tax burden. State (and local) income taxes are deductible in computing taxable income under the federal income tax. The tax deduction technique provides an incentive for the states to introduce personal income taxes or to use them more intensively, since in effect the Federal government is agreeing to repay a large part of any state income tax increases.

Federal and state governments make use of a wide range of excise duties. The bulk of the revenue comes from overlapping excise duties levied by both levels of government ; on alcohol, beverages, tobacco and gasoline. Rates show considerable differences as between states.

The U.S. payroll tax for unemployment programmes has interesting features (especially in view of the suggested involvement of the Community in this field). The federal tax rate of 3.2 % of wages, up to a fixed ceiling, is largely passed back to the states under tax-credit arrangements. The money is paid into state unemployment trust funds ; the states determine the basic features of their unemployment programmes, such as coverage, benefit levels, the level of state tax, and eligibility criteria. In total 90 % of unemployment benefits are state administered ; benefit levels vary significantly between states.

2.4. State predominance - Switzerland

The Swiss experience is interesting to the Community since it is a case in which the state level of government (cantons) have retained a significantly stronger hold over the tax system than in any of the preceding examples.

Federal tax revenues have recently been 41 % of the total for all governments, as against 53 % in Germany, 55 % in Canada, 58 % in the United States, and 80 % in Australia (see Tables 1 to 5 for fiscal years).

The traditional principles of distribution of Swiss taxes have been 'indirect taxes to the Confederation and direct taxes to the Cantons and local level'. The federation has exclusive use of customs duties, the turnover tax and excise duties. Unlike in all other federations, it only has a small minority share in the income taxes. The federal government's autonomy in the turnover tax and income taxes is only accepted for limited periods (e.g. at present from 1972 to 1982), at the end of which the arrangements have to be renegotiated with the cantons and voted on in referenda.

The 'federal direct tax' (former 'Wehrsteuer' or defence tax) taxes individual and corporate incomes and corporate net worth. Part of its proceeds are transferred to the cantons according to a fiscal capacity key. The federal government does not have autonomy in adjusting the rates - this requires amendment to the constitution.

Table 5
Switzerland : Distribution of Tax Revenues by Level of Government, 1972

	Amounts in Mio F			% distribution			
	Confeder.	Cantons	Local	Total	Confeder.	Cantons	Local
I.							
<u>TAX SHARING</u>							
Anticipatory (withholding) tax	858	55	-	913	94	6	-
Military service Exemption tax	53	13	-	66	80	20	-
Stamp duties	354	89	-	443	80	20	-
I., II.							
<u>TAX SHARING AND TAX OVERLAPPING</u>							
Tax sharing :							
Federal direct tax of which:							
Personal income tax	626	268	-	894	70	30	-
Corporation tax	424	182	-	606	70	30	-
Capital gains tax	18	8	-	26	70	30	-
<u>Tax overlapping</u>							
Personal income tax		3557	3468	7025	-	51	49
Corporation tax		1139	827	1966	-	58	42
Capital gains tax		264	310	574	-	46	54
III.							
<u>TAX SEPARATION</u>							
<u>Confederal</u>							
Custom duties	1326	-	-	1326	100	-	-
Turnover tax	2482	-	-	2482	100	-	-
Excise duties	2526	-	-	2526	100	-	-
<u>Cantons/local</u>							
Personal wealth tax	-	442	408	850	-	-	100
Property tax	-	42	116	158	-	-	100
Succession duty	-	269	24	293	-	-	100
Motor vehicle tax	-	463	-	463	-	-	100
Other taxes	-	244	103	347	-	-	100
Total	8667	7035	5256	20958	41	34	25

Source : Statistisches Jahrbuch der Schweiz 1974, Eidgenössisches Statistisches Bundesamt 1974, p. 440

The cantons tax the income and the net worth of individuals and corporations. The tax bases vary between the cantons, and as between the federal direct tax and the cantonal taxes. There is, however, a trend towards a harmonization of tax bases. Tax rates, however, differ considerably between the cantons which have complete fiscal autonomy in this respect.

In addition, municipalities participate in these taxes using the tax supplement approach. The municipalities in most cantons have the right to determine a coefficient which - multiplied by the cantonal tax rate - gives the amount of municipal tax.

Vertical tax co-ordination does not take place between the federal, cantonal and municipal levels in the case of taxation of individual persons (except for the political controls over the federal government already noted). The three tax amounts are added and constitute the total tax burden of the taxable private persons. In the case of corporate income and corporate net worth taxation, vertical tax co-ordination does take place by the deductions approach. Horizontal tax coordination between cantons, however, is assured by double-taxation agreements.

The federal and municipal taxes on income and net worth are collected, together with the cantonal taxes, at the cantonal level.

A long-standing feature of Swiss fiscal arrangements has been the use of fiscal capacity keys, as opposed to 'real' taxes. In the period of confederation 1830 - 1848, confederal expenditure was financed by contributions from cantons on the basis of fiscal capacity keys (1). Since federation, from 1848 to 1958, there remained the (rarely used) principle of using fiscal capacity contributions as a supplementary source of revenue to cover needs at the federal level. Fiscal capacity keys (much revised in technique) continue to be used for redistributing certain federal tax revenue (see above on federal direct tax) and in the formula for specific purpose grants.

One result of the foregoing arrangements is that the Swiss federal government is unable to conduct a positive macroeconomic fiscal policy.

(1) The development of federal revenues in Germany from 1871 to World War I was characterized also by a system of (population-based) contributions from the states to the federal level. It was stated explicitly in the Constitution that these contributions (the so-called Matrikularbeiträge) should be paid as a supplement to the federal customs and excise revenues until the Reich was given direct taxes.

3. Perspectives for the Community resources

3.1. Present own resources and related powers

The Own Resources decision of 1970 aimed at giving financial autonomy, of a very limited kind, to the Community budget.

Following federal examples, it gave 100 % of customs duties and protective levies (for produce governed by the Common Agricultural Policy) to the Community. Further financial requirements are to be met from the VAT once a common base is negotiated, and in the meantime an equivalent sum is raised on the basis of a GNP key. The use of VAT is to be limited to 1 % of the base (about 10 % of all Vat receipts).

While the customs duties and agricultural levies have become entirely Community resources, this of itself confers no significant powers of fiscal action on the Community institutions. Customs duties can only be changed in the context of multilateral trade agreements in GATT, or through once-and-for-all new preferential arrangements such as with EFTA countries and groups of developing countries. The value of agricultural levies is determined exogenously by the course of world farm prices in relation to the fixed Community prices.

As regards the VAT, negotiation of the common tax base on the basis of the so-called draft 6th directive was largely concluded in December 1976. When the system is in operation, the Community VAT rate will be decided each year as part of the budgetary procedure. Under the present system decisions are taken on the expenditure side of the budget, and the VAT rate (or at present its GNP key substitute) is calculated as the residual item : the Community's budget has to be in current equilibrium.

Since all fiscal powers in effect lie on the expenditure side of the budget, questions of 'fiscal autonomy' of the Community have also to be assessed in these terms.

The expenditure decisions are taken jointly by the Council and Parliament after the Commission has submitted a draft budget. Expenditure items can be, and are amended, as the budget goes through successive readings in the Council and Parliament. The powers of 'last word' in this iterative amendment process lie with the Council as regards so-called 'obligatory' expenditures, which includes the agricultural fund. The Parliament has the 'last word', within a limit, defined in a formula, over 'non-obligatory' expenditures, which include the Social and Regional Funds and budgetised development aid expenditure. The formula limits the 'maximum rate' of increase of non-obligatory expenditure to a percentage which is related to macroeconomic indicators.

Thus powers over the Community's fiscal decisions are vested through the expenditure decision-making system very largely in member states through the Council (voting normally under the qualified majority formula (1)), and only in a small- although actively exploited - degree in the Parliament.

The Community's VAT revenues, when operational, will constitute part of a tax-sharing arrangement. However, member states will remain uniquely responsible for the rates of VAT charged to the tax-payer. The system thus differs from Germany's internal system for sharing the VAT between Bund and Länder, where the decisions on the tax rates charged to consumers are taken jointly at the federal level by the bundestag and Bundesrat, with the Länder having their say through the latter. (Germany's contribution of VAT to the Community will come from the Bund's share).

Outside the Community budget as such, the Coal and Steel Community has the power to raise own resources through imposing a production levy. This at present stands at 0.29 %, which yielded 70 M.U.A. in 1975.

3.2. Future Resources

In the future there are a number of issues governing when further own resources would be required, and what they might consist of. These issues will be discussed with reference to the following list of conceivable further financing sources :

- more VAT, beyond the 1 % limit ;
- contribution keys, based on fiscal capacity or national accounts concepts;
- corporation tax ;
- levies for a Community unemployment fund, or from a minimum oil price mechanism,
- other tax-expenditure programmes
- borrowing (or saving)

Exhaustion of present own resources. Table 6 sets out forecasts of available resources and needs on the basis of expenditures for the years 1976 to 1979. By 1979 it is forecast that budget expenditures will reach 9,750 M.U.A. (at 1976 prices). Its financing would take all customs duties and agricultural levies and 0.71 of 1 % of the VAT

(1) A qualified majority requires 41 out of 58 votes, where members states weights are D 10, F 10, I 10, UK 10, B 5, NL 5, DK 3, IRL 3, L 2.

leaving 2,009 M.U.A. or 0.29 of 1 % of the VAT unused.

These forecasts omit, however, a number of factors which will in all probability reduce this margin by the end of the decade, notably budgetisation of certain development aid activities of perhaps 500 M.U.A., expenditure under the Financial Mechanism of perhaps 200 M.U.A. , the budgetary effects of the adhesion of Greece, expenditure in sectors where policies have been proposed but are not yet decided (e.g. energy and transport infrastructure). In addition there is the possibility of development of certain funds (e.g. Regional Fund) which are at present new and small in relation to the function in question.

While more precise forecasts cannot be made in anticipation of political decisions, there would seem to be a strong probability that the Community will exhaust its present own resources by the end of the decade. When taking also into account the time-lags inherent in the processes of negotiation and legislation, it would also seem that the issue of 'next own resources' is already ready for debate.

More VAT beyond the present 1 % limit. Assuming the common VAT goes into operation as at present planned on 1.1.1978, the institutionally easiest way of making available further own resources would be to raise the 1 % limit. A further 1 % tranche would raise about 7 billion U.A. (at 1976 prices).

The main problem would be the distributive budget-burden sharing implications. All the Community's present own resources are indirect taxes, which tend to be regressive in their incidence as between member states with respect to GNP. This was a major factor leading to the creation of the Financial Mechanism as a result of the British budgetary 'renegotiations' of 1974-75 ; the Financial Mechanism makes general purpose grants to member states in weak economic situations, reimbursing them in part for the excess of their Own Resources payments over their GNP share.

An extension of the VAT own resource system could be accompanied by a further redistributive mechanism. Apart from the Financial Mechanism precedent, another example of technique in this area is seen in some aspects of the equalisation formula used in Germany for distributing between the Länder the proceeds of the aggregate Länder's share of the VAT (see Chapter 6 for further detail).

As remarked, the effective fiscal autonomy represented by the present VAT plan is very limited. An extension of the VAT ceiling might also increase the viability of making the Community VAT rate an independent fiscal reality, perceived by the tax-payer. The national and Community elements could be made more independent. In Chapter 10 it is suggested, that for the purposes of stabilisation policy, changes in the Community VAT rate might be directly implemented at the level

Table 6

Forecasts of expenditure under the Community Budget, and of maximum available resources, 1976 - 1979

in million u.a.

	1976	1977	1978	1979
		at 1976 prices		
I. Total expenditure	7577	8979	9680	9750
II. Total revenue	7577	8979	9680	9750
1. misc. revenue	71	72	72	72
2. custom duties	3555	3979	3411	3506
3. agric. levies	737	1149	1180	1184
4. VAT/GNP contribution (% of total VAT base)	3214 (0.5 %)	3779 (0.57 %)	5017 (0.74 %)	4988 (0.71 %)
III. Maximum available VAT (% of total VAT base)	6445 (1 %)	6595 (1 %)	6814 (1 %)	6997 (1 %)
IV. Remaining VAT (% of total VAT base)	3231 (0.5 %)	2816 (0.43 %)	1797 (0.26 %)	2009 (0.29 %)

Source: Triennial financial forecasts, 1977-1978-1979, Preliminary Draft,
General budget of the European Communities for the financial
year 1977, Vol. 7, Table 3.

of the tax-payer ; instead of being absorbed by member states as now envisaged, it would be for member states to take an initiative to change their own national VAT rate if they wished to offset the effect of a Community VAT rate change. The political case for a stronger distinction between Community and national VAT rates would be to make the Community institutions more transparently responsible on the fiscal side for their expenditure policies. This would be notably relevant in the context of the role of the directly elected European Parliament.

Contribution keys, based on fiscal capacity or national accounts concepts.

The use of contribution keys for directly financing the budget is administratively convenient and can be given any desired budget-burden sharing characteristics ; however, it is devoid of positive integration characteristics, from the fiscal, institutional, or stabilisation policy points of view.

Technically it is possible to envisage keys, useable for Community financing, based either on national accounts aggregates or on fiscal capacity concepts. The United Nations has for a long-time used progressivity functions in combination with GNP keys. If, for example, the Community wished to complement its present indirect taxes with further resources having the distributive characteristics of direct taxes this could be done. A range of hypothetical keys are set out in Table 7, showing 'total fiscal capacity', and 'personal income tax capacity' and GNP keys, in addition to data relating to the present budgetary system (see footnotes to the Table for short definitions). An explanation of fiscal capacity concepts and methods is set out in Chapter 14 in the context of budget equalisation mechanisms ; the same methods can be envisaged also in the present context of direct budget financing.

Corporation tax. If the Community institutions wished to envisage extending the own resource system together with a major new fiscal initiative, a number of arguments would point to the corporation tax. These would be favourable implications for the commercial integration of the Community ; from a distributive point of view it would have the quality of taxing automatically the enterprises that were able to profit most from the integration of the common market and from economic conditions in general ; and there could be positive implications for the Community's capacity to conduct a stabilisation policy.

Experience with the VAT shows, however, that major fiscal reforms in the Community take a very long time to achieve. For the Community to enter into the corporation tax field could only be considered as a long term objective. At present the Community's activity in this field

is limited to proposals for harmonisation of the different systems of corporation tax and withholding tax on dividends (1).

In the corporation tax field the Community would not necessarily have to follow the VAT model of aiming at a complete harmonisation of the tax base. The experience of Canada, the United States and Switzerland suggests that differences in the bases, as well as the rates, of state versus federal corporation taxes, may be workable. However, as between member states in the Community, there would be major differences in the relationships between the corporate and personal income taxes to reconcile, in addition to the questions of harmonising the basic form of corporation tax as between distributed and undistributed profits.

In 1974, corporation tax yielded 18,835 M.U.A. in the Community, which is one third of that yielded by the VAT. An amount equivalent to 1 % of the VAT base would imply a corporation tax rate yielding about one-third of present corporation taxes. If the Community were to consider a tax-sharing arrangement for the corporation tax, it would seem implausible to envisage the reform for the sake of less than, say, a third or half of total corporation tax revenues.

Unemployment and energy levies. These items are to be noted as the two conceivable sources of significant revenues that might arise from the introduction of new Community policies. The idea of a Community unemployment fund is pursued in Chapter 12. As regards energy levies, proposals are being discussed for a minimum energy price, whose mechanisms might entail an import levy. However, the minimum prices envisaged are so much lower than the price of present OPEC oil supplies that questions of energy levy revenues would not appear for the time being to be of material interest in the present context.

Other tax-expenditure programmes. In a recent proposal of the Commission for a market organization of agricultural alcohol, a Community alcohol tax was favoured, which would partly finance expenditures in this sector. This would be a relatively low-rate consumption tax supplementary to the already high excises on alcohol in most member states. This case raises broader questions as to whether the Community should not be involved in the excise taxation of agricultural products for which it has market intervention responsibilities. The wine sector is a clear economic anomaly in this regard with the Community budget spending large sums on the disposal of surplus production, while some member states restrain consumption with very high excises. A potentially important example for combining tax and expenditure policies arises in the field of regional policy. To pursue the regional policy objective of transferring resources from congested

(1) Bulletin of the E.C., Supplement 11/75, "Harmonisation of systems of company taxation and of withholding taxes on dividends", July 1975

areas to less-developed regions it has sometimes been proposed to work with a double system of disincentives and incentives. The more disincentives - via taxation of economic activities in congested areas - are applied, the less financial aid is needed to give incentives for moving capital and labour to less developed regions. Such "push and pull" actions accordingly have the attraction of limiting budgetary expenditures. An appropriate tax base could be new investment expenditure in congested areas (conceivable alternatives could be payroll, capital or the increase of land values in specified areas and sectors).

Borrowing powers. The Community already has significant borrowing powers through the Coal and Steel Community, the European Investment Bank and the Community Loan, and further powers are being sought for Euratom to aid in the financing of nuclear power stations, and for the proposed European Export Bank. None of the existing loan transactions are budgetised, although this issue has been under discussion, notably in connection with the powers of the European Parliament.

Table 7

Breakdown of Budgetary Contributions, Simulated Own Resources, GNP Key and Indicators of Fiscal Capacity in 1974

	Real contributions to 1974 Budget (1)	Simulated Own Resources (2)		Total fiscal capacity (3)	GNP (4)	Personal income tax capacity (5)
		Customs duties, agricultural levies	VAT			
D	33.4	29.7	30.8	32.1	33.1	36.4
F	23.5	15.9	21.1	23.1	23.2	25.0
I	14.8	12.9	13.7	13.6	13.0	9.8
NL	10.0	9.4	5.8	6.0	6.1	6.4
B	7.4				4.6	
L	0.2	6.5	4.4	4.9	0.2	5.2
UK	9.0	23.2	20.5	16.6	16.7	13.7
IRL	0.3	0.4	0.8	0.6	0.6	0.3
DK	1.4	2.0	2.9	2.8	2.6	3.0
<u>E.C.</u>	100	100	100	100	100	100

General note : all figures are calculated at current market exchange rates, budgetary data having been converted from budgetary units of account.

- (1) Source : Bulletin of the E.C., Supplement 7/74. "Community's Economic and Financial Situation Since Enlargement", Table VIII. These data are strongly influenced by the transitional measures for the new three member states, hence their much lower contributions than under the simulated Own Resource system.
- (2) Source : Bulletin of the E.C., op. cit., Table XV. These data are 'simulated' in the sense that they estimate what the definitive Own Resources system would have given in 1974 had the transitional arrangements for the introduction of this system and for new member states not applied.
- (3) 'Total fiscal capacity' assumes applying to each member state a standard structure of tax types, bases and rates corresponding the 'average Community tax system'. See Chapter 14 for details of methodology.
- (4) Source : National Accounts Aggregates, 1960-74, S.O.E.C., 1975. 1974 GNP data are here used, rather than the time-lagged formula applied under the Community's budgetary legislation for some purposes.
- (5) 'personal income tax capacity' assumes a progressivity function (elasticity of tax capacity) of 1.5 with respect to differentials in average per capita personal incomes of member states. This figure compares with the range of 1.55 to 2.75 observed for the inter-regional distribution of personal income tax burdens in the countries studied in Chapter 9 (see Table 2 of Chapter 9).

Two ideas for a further evolution of these borrowing powers have been discussed in Chapter 10, firstly to concentrate all the Community's capital market transactions through a single agency, and secondly to add to the Community budget powers to finance conjunctural surpluses or deficits with borrowing or saving operations. The objectives would be to favour capital market integration, to economise in loan raising operations, and to provide an instrument of Community contracyclical policy.

Conclusion. The ideas on corporation tax and other functional taxes discussed above cannot be considered as adequate potential sources of general and regular revenue after exhaustion of the 1 % VAT limit. As a general system for the period ahead, there would be advantages in having open at the same time two marginal sources of finance : first a further tranche of VAT resources, and secondly a progressive revenue source. The policy intention would be for the neutral VAT source to be used for purely sectoral ('or alternative') functions, and for the progressive source to be used for functions with a strong redistributive purpose. There would not, however, be an ear-marking of funds, and it would be open for the budgetary authorities (Council and Parliament) to decide on their relative use as part of the normal budgetary procedure. In the present situation there are no effective revenue options open for the budgetary authorities at all

(the customs duties and agricultural levies can hardly be manipulated for revenue purposes) ; this is a highly abnormal situation for a budget required to fulfill multiple economic functions.

Annex 1

Assignment of tax resources between central and local levels of government in the E.C. countries.

For the eight unitary states of the Community the breakdown between central and local tax revenues in 1974 was :

Tax revenue by level of government	F	I	NL	B	L	UK	IRL	DK
Central in %	93.5	94.3	97.6	92.8	84.6	87.3	90.4	70.4
Local in %	6.5	5.7	2.4	7.2	15.4	12.7	9.6	29.6
Total	100	100	100	100	100	100	100	100

Source : Eurostat, Tax Statistics 1969 - 1974, 1975

In the only federal state of the Community, Germany, the corresponding split was 53 % federal, 34 % Länder and 13 % local.

In the unitary member states non-central (local and regional) taxes are typically of relatively minor importance with shares of between 2 % and 15 % of total tax revenue in 1974.

The major sources of local taxation in the Community fall within two groups :

- taxes on land and property
- taxes on income (personal and/or corporate income).

All countries use a tax on land and property at the local level. In Denmark, however, taxes on personal income are the principal source of local revenue. Germany and Luxembourg have a local tax on corporate income, whereas Belgian local and regional authorities impose a surcharge on the national tax on company income.

In most member states local and regional governments share in the proceeds of various central taxes. Most countries rely also on a great variety of less significant indirect taxes of low yield for local income.

In recent years local and regional government finance has become increasingly dominated by grants from central governments. Local tax revenues as a share of total local revenue vary from 80 % in Luxembourg to only 4 % in the Netherlands (the range for the other member states is from 30 % to 60 %.)

Chapter 17

BUDGETARY POWERS OF THE EUROPEAN

PARLIAMENT

by

Martin O'Donoghue



The Budgetary Powers of the European Parliament : An Economic View

Introduction

The overall project is concerned with the future role of the Community Budget, and especially with the ways in which it might contribute to the process of economic integration within the Community. Part of this examination should concern itself with the actual procedures for the operation of the Budgetary process, since the efficiency of a fiscal system is not independent of the means chosen for its operation. Apart from this specific study group interest, the issue of budgetary responsibility and operation has also been discussed in the wider Community context. In particular the budgetary role of the European Parliament has been the subject of both debate and legislative action. For these reasons a brief paper summarising an economist's perspective on the budgetary role of a parliament is of relevance.

Decision-making in economic theory

In the usual market-based models of the economic system little attention is paid to either the characteristics of decision-makers themselves or the procedures/institutions needed for decision-making when any form of group or collective decisions are required (as is the case with a government budget). Economic actors such as households or firms are assumed to be 'rational', though this concept is somewhat ambiguous and capable of varying interpretations (1). Where private action is concerned the individual actor (consumer, firm) is assumed to assemble the relevant information, and decide upon the best use of the scarce economic resources available to him in terms of their ability to satisfy his preferences (or attain his objectives).

This mode of analysis is also transferred to discussion of the fiscal system. It is assumed that in framing budgetary policy the relevant decision-maker(s) (politicians, bureaucrats) will seek to allocate resources in terms of their ability to best satisfy or attain stated objectives. 'Full employment', 'price stability', 'maximum growth in living standards' are examples of such group objectives, and policy is assumed to aim towards their attainment by the most efficient route. While some difficulties in the formulation or specification of these objectives may be noted it is nonetheless assumed that the efficient operation of the economy requires the identification and articulation of objectives in an operationally meaningful way, and the deployment of resources to attain these coherent and rational objectives in the least costly manner.

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- (1) G. Tisdell 'Concepts of Rationality in Economics' Philosophy of the Social Sciences, Vol. 5. 1975.
see also : R. Amacher, R. Tollison and T. Willet 'The Economic Approach to Public Policy' Cornell University Press 1976

Decision-making in non-profit institutions

This picture of defined objectives pursued by agreed methods, alters radically when one turns from the standard economic models to discussions of governments and other non-profit making institutions such as voluntary bodies, charities, hospitals, schools etc. (while some of these institutions can and do function as profit-maximisers, the typical observed pattern is that they pursue other goals). For these bodies the usual situation is one characterised by multiple possible goals or objectives, and with varying numbers of interested parties who may participate to varying degrees in the decision-making process.

Very different conclusions emerge from such models to those described in the standard economic case. Decisions must now be taken by some dominant or governing group-usually a majority, and the composition of this dominant group displays varying degrees of instability. Whereas individuals have sets of defined objectives, collections of people, or groups, do not. Therefore much of the decision-making activity in organisations is taken up with the search for goals or objectives which will gain the support of the necessary majority. In other words the emphasis shifts from discussions of the best means to attain stated objectives towards a search for acceptable objectives. In this process the distinction between ends and means becomes blurred.

Other interesting inferences and conclusions have been drawn from such studies, but one which is worth stressing is that the objective of 'rational' activity in such conditions becomes one of minimum revelation of preferences, both to avoid the inevitable conflicts which would accompany any comprehensive statement of preferences (since different individuals are expected to have different preferences) and to avoid any weakening of one's bargaining position. Given the lack of real or imagined agreement on goals, it is hardly surprising that the setting and defining of goals and objectives should be regarded as relatively unimportant. Thus one writer maintains that goal statements 'exert little control over action. Much of the organisation's work does not seem to be directed towards goal attainment' (1)

Economic analysis of Collective Choice

These references to the decision-making process in non-profit making institutions are of relevance to any discussion of the budgetary process - whether in an BEC or other institutional context. While there may be major and highly important economic reasons for the presence of a budgetary process, there is no reason to expect that this budgetary system will function along the lines of the standard economic model, in the sense of identifying the most efficient means

(1) K. Warck 'The Social Psychology of Organising' Addison-Wesley 1969, p. 37

of attaining clearly defined objectives. On the contrary it is more realistic to expect that it will correspond to the behavioural pattern of other organisations and groups in which the decision-making process is oriented towards identifying the minimum necessary set of goals for the formation and/or maintenance of a governing majority.

The analysis of collective decision-making relevant to any discussion of the best procedures for budgetary operation has been pursued along several different routes by economists. One avenue of study has been concerned with the formal properties of collective choice, with the necessary preconditions for satisfactory choice-making, and with the definition and content of social welfare functions (such functions in some sense to be capable of representing the community ordering of various possible situations). Since such analyses are concerned primarily with the internal logic of collective choice rather than with any institutional setting they are not the most relevant for our present purposes, though they do help to illuminate the underlying issues involved (1).

Of the analytical approaches which do attempt to allow for institutional aspects, two may be defined, which are of interest. One of these is usually termed the 'public interest' approach, and the second described as the 'self-interest' approach. In both approaches the political framework is taken as given, but in the former it tends to exist further apart from the independent voters who bring it into existence. The essence of the 'public interest' view might be described as suggesting that even though public sector decisions may not conform to the preferences of the individuals who comprise the electorate, nonetheless these decisions display a form of collective rationality. The self-interest view on the other hand views public institutions and decision-making processes as extensions of individual behaviour, and the success of such community activities is to be judged in terms of their ability to maximize individual well-being, or power, or some other objective desired by the individual(s) concerned.

Despite their differing views about the nature of the motivations which underly public decision making, it is interesting that both of these approaches tend to yield similar inferences and conclusions about the nature of the procedures which will emerge and of the decisions which will be taken.

Thus one exponent of the public interest approach, Lindblom(2) analyses the process of collective decision-making or policy making in three phases. The first of these is akin to that of our standard economic model described earlier. In this approach goals and objectives are first clarified and ranked in order of importance. The possible methods of attaining these goals are then identified

(1) D. Mayston 'The Ideal of Social Choice' MacMillan, 1974

(2) C. Lindblom 'The Policy-Making Process' Prentice Hall 1968

and their relative costs determined, thus permitting a choice of actions based on rational and comprehensive procedures. But this method, argues Lindblom, cannot be pursued for any but the most trivial problems, because it is not feasible to collect and process the volume of information required for this comprehensive approach. Instead the process is simplified by restricting the range of alternatives for consideration, by imposing constraints of time, resources of other forms, and by this process altering the nature of the decisions sought from those which 'maximize' to those which 'satisfice'. In particular as part of this process of reducing the complexity of group decision-making to manageable proportions, there is a tendency to focus on incremental changes in existing positions rather than attempt any major or far-reaching changes in policies or activities.

In this view public decision making will tend to concentrate on maximising agreement, or establishing consensus, rather than searching for the most effective policies to maximise the 'public interest'; since these latter might require drastic shifts in policy from time to time.

The 'self interest' approach on the other hand would reject any concept of a public interest which existed independently of the personal interests of individual members of the community. Instead it starts from the presumption that individuals make the fiscal or other choices for the community, and enquires why a majority of the citizens may be willing to permit a small number of (elected) representatives to make 'coercive' decisions, by which they may be obliged to pay taxes or accept other actions which lower their personal welfare. One of the best-known examples of this self interest approach is that of Buchanan & Tullock (1).

The need for some social action arises from the characteristics of various goods and services (Defence, Law), therefore the rational individual is willing to agree to group action for provision of such items. Two types of cost may be imposed on the individual by collective action. One type will be the 'external' costs which can be imposed on him if he must pay his share of any collective action authorised by others. The scale of these external costs may be expected to diminish as the number of people required to authorise collective actions increases. Thus if every individual could authorise public action these external costs would be at their peak, since many people would order services for which they would pay their tiny individual share. At the other extreme, if unanimity is required before collective action is authorised, then these external costs would be at a minimum since no action could be undertaken of which the individual in question did not approve.

(1) J. Buchanan & G. Tullock 'The Calculus of Consent' Univ. of Michigan Press 1962.

The second type of cost arising from collective action will be the decision making costs themselves. These will include the administrative costs for group action as well as the costs of acquiring relevant information and of negotiating the decision. In this instance the costs may be expected to rise as the number of people needed to authorise collective action rises. Clearly such decision costs are at a minimum when the individual need consult nobody other than himself. They will be at their peak when everybody must be a party to the decision.

The empirical question is to determine the point at which costs are minimised. No general answer is possible but typically it would be expected that something less than total unanimity and more than a majority would be identified as the acceptable balance between the two opposing cost trends.

Some of the inferences from this form of analysis are also of relevance to our later discussion of the European Parliament's role in budgetary matters. Thus one of the ways for reducing agreement costs is to adopt decision rules which will apply to particular series or groups of issues. Another procedure is to decentralise decision mechanisms so as to minimize the size of the collective unit. Vote trading in sequential decisions and side payments to secure agreement are methods of identifying the intensity of preferences on various issues which also serve to lower or contain agreement costs. (It should be added that side payments do not imply cash bribes - they may take such forms as status, authority, shifts in organisational structures or other actions which can enhance the situation of the 'voter' in question).

The Budgetary Role of the European Parliament

Equipped with this outline of the economic treatment of collective choice, we may now turn to consider the budgetary role of the European Parliament. First we may summarise the existing role of the parliament in this sphere (the account which follows draws heavily on the article by Ehlermann (1)).

The budgetary powers of parliament are regulated by Article 203 of the Treaty. This draws a distinction between compulsory and non-compulsory expenditure. In the case of compulsory expenditures parliament can submit proposals for modifications to the Council (of Ministers) but they require express approval if they are to be accepted. If approval is not given the proposals are considered to be rejected.

In the case of non-compulsory expenditures the Parliament has powers

(1) C.D. Ehlermann 'Applying the New Budgetary Procedure for the First Time' Common Market Law Review Dec. 1975.

of decision-making within specified limits, of what are described as a subjective and objective nature.

The subjective limit arises from the requirements concerning majority of votes cast, any Parliamentary amendment to the Council's draft budget at the first reading stage must be by a majority of its members. If the Council then modifies these amendments, the Parliament view can only prevail at the second reading if it has both a majority of its members and three-fifth of the votes cast in its favour.

The objective limit applies to all Community institutions, including the Council. In the case of Parliament it restricts its powers to increase non-compulsory expenditure to a maximum rate established annually by the Commission on the basis of GNP, inflation and budget data for the member states. If Council proposals remain under half of this amount the Parliament is entitled to the remainder ; If the Council exceeds half the Parliament is nonetheless entitled to 50 % of the maximum calculated. Beyond this level any further increases require the joint approval of Council and Parliament (with Parliament applying the second stage voting rule - majority of members and three-fifth of votes cast).

In addition the Parliament also claims to have the right to reject the entire draft budget. Whether this right actually exists is not clear.

These arrangements stem from the revision of the Treaties in 1970 and 1971. At that juncture the classification of expenditures into compulsory and non-compulsory groups was made on the basis of what was termed the 'Harmel list', which designated 3.6 % of the 1970 budget as non-compulsory. When this function was taken over by the Commission for the first time in the classification of the 1975 budget, 22.6 % was placed in this non-compulsory category. These changes led to some debate in the Community institutions ; the outcome was that expenditure was deemed to be compulsory only when the Council had determined the principle and amount of such spending in a legal act outside of the budget. All other items are to be regarded as non-compulsory.

Possible developments in the budgetary role of Parliament

This brief outline of parliament's budgetary role indicates that it has been acquiring expanded powers in this area, and that there is the possibility of further development in the future. We may now ask in the light of the earlier theoretical summary, what the direction or nature of such changes might be.

Budget related activities which are relevant to such consideration may be grouped under four headings (a) powers of initiative (b) powers to legislate or authorise (c) power to audit or evaluate and (d) powers to disseminate information concerning expenditures.

Insofar as (a) is concerned the Parliament already possesses power to propose initiatives to the Council in the case of compulsory expenditures, hence no discussion of this point is needed. (We are ignoring the possibility that such powers of initiative be removed or curtailed.)

Insofar as (b) is concerned it has been seen that Parliament already possesses some powers to authorise spending of a non-compulsory nature. The question is whether these powers should be amended in any way. This question might for convenience be best thought of in terms of whether the Council or the Parliament is the preferable decision-making body for budgetary matters.

The earlier discussion suggests that in general the Council would be the more efficient decision-making unit because of its smaller size and more clearly defined composition. It has been seen that decision making costs rise as the numbers participating in this process increase. This would be so even in a national parliament which already possessed clearly defined groups or 'parties' of like-minded people, hence the emergence of governments or smaller policy-making bodies within the larger governing parties. Within the European Parliament where there are less clearly defined groupings of more recent origin, the costs of organising majorities for or against each proposal, are likely to be greater, the more so since there is no 'government' to shape or organise policy.

It might be held against this view that the Parliamentary solution would be preferable to the Council one, because the very size of parliament permits a much greater range of views to find expression and these more diverse positions can be given concrete financial shape through the organisation of the necessary committees and systems of side payments, decentralised decision making and other features which were seen to emerge as part of the collective choice mechanism.

A second point to be made in favour of the Parliamentary solution is that the presumed instability of its majorities are a guarantee of no systematic 'oppression' of specified groups of the sort which can occur when a dominant majority is formed of sufficient stability to pursue its policies for prolonged periods. In effect majorities which continuously or frequently change in composition provide the maximum possibility for people or groups to be on the 'winning' side at least some of the time.

Two counter arguments which favour the small group (Council) solution also fall to be considered. One is the obverse of the flexibility inherent in unstable majorities. Given this instability there will be a tendency for marginal support to be secured for a group or policy by specific incentives for these marginal potential supporters. Such action frequently leads to patterns in which there are specific or 'tailored' benefits financed by general taxes, or general benefits financed by tailored taxes, both of which can generate local 'exploitation' and hence inefficiency in the overall budgetary system.

The second argument in favour of small groups centres on the nature of the decisions which emerge from groups of differing sizes. It is suggested that larger groups tend to generate 'incremental' changes, because the wide representation of interest does not permit substantial departures from the status quo, whereas smaller groups are better able to process the necessary data, negotiate in several dimensions and organize the required 'trade-offs' which will accompany more radical and sweeping policy changes. At its simplest small groups are more radical than large.

Persuasive cases can thus be built up both for and against the view that the European Parliament should have increased powers to legislate /authorise Community expenditures. Support for either viewpoint will be influenced by a number of factors including (i) individual value judgements (ii) the experience of existing procedures for making expenditure decisions and (iii) consideration of the other developments which would need to accompany any increased role for the Parliament in this field.

Insofar as (i) is concerned the generalisation might be advanced that those who subscribe to a 'self-interest' theory of collective decision making will tend to favour a nationalistic procedure via the Council of Ministers, whereas those favouring a 'public interest' viewpoint will incline towards a strengthening of the European Parliament. As with all generalisations this will not apply precisely to each case. Insofar as (ii) is concerned it would take a major empirical research project to establish whether and to what extent the Council has functioned as a more radical decision-making body than the Parliament, and whether it has been capable of major policy initiatives or has been primarily confined to more incremental or trivial forms of decision. Examples have been cited to illustrate both possibilities. It would be interesting to document the pattern more extensively before seeking to derive any conclusions. Meantime one need simply note that the case for a smaller decision making body (e.g. the Council of Ministers) being capable of more radical behaviour than a larger body (the Parliament) is not proven.

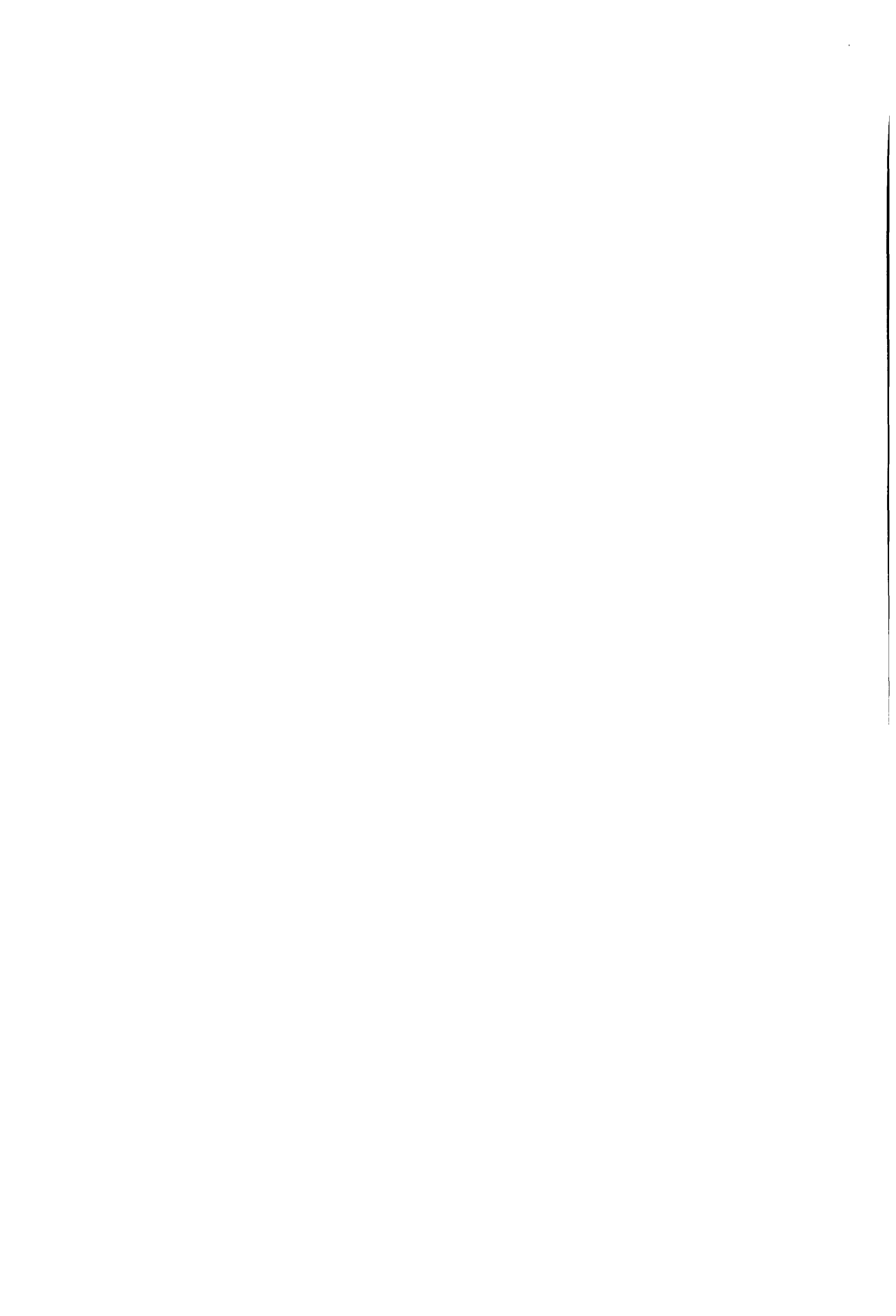
Insofar as (iii) is concerned the question arises as to whether any expansion in the budgetary powers of the Parliament would call for consequential changes in other aspects of its organisation and operation. Specifically it would be expected that any substantial expansion of the Parliament's financial powers would generate pressures to formalise or organise its decision-making procedures. Following the pattern of other fiscal entities it would in effect develop some embryonic form of European government or executive from the prevailing majority. This would be the more likely if the Parliament were faced with expenditure decisions of importance to several member states or interest groups (parties). Those who would welcome progress towards some form of Community government or executive might thus be expected to support the granting of greater fiscal powers to the Parliament, whereas those who favour the emphasis on national sovereignty are likely to be more lukewarm in their support for such moves.

Whatever the outcome regarding the Parliament's powers for authorising or legislating on fiscal matters there should be considerably less dispute concerning the third of the four functions listed at the outset of this section, namely the powers to audit and evaluate Community tax and expenditure programmes. This function should be seen as allied to the fourth function namely that of disseminating information. For the peoples of the Community to be convinced that taxation and spending programmes are worthwhile it is necessary for them to have adequate information about the purposes of each programme and the extent to which these purposes have actually been achieved. Parliament can play a vital role in this area by undertaking systematic and detailed studies on the effects and effectiveness of budgetary programmes, and by ensuring that the results of these studies are widely publicised throughout the Community. This would serve the function of keeping the people aware of Community activities as well as demonstrating that financial resources were being used efficiently. These auditing evaluation activities of Parliament would also serve as a spur to effective performance within the Community institutions themselves and would demonstrate that Community personnel were acting in the interests of the Communities as a whole.

Conclusion

It is not the intention in a brief paper such as this to attempt any comprehensive assessment of the fiscal role of the European Parliament. The aim was rather to draw attention to the fact that fiscal systems do not operate in a political or administrative vacuum, and that any policy decisions on the future development of the Community fiscal system (whether based on the work of our Study group or not) should take account of the legislative/executive context in which they will operate. While these aspects are not primarily matters on which economists can adjudicate, there is a substantial body of experience and theorising concerning the interaction of these political/administrative/legislative factors with economic considerations. One purpose of the paper was to summarise the approach which economists would bring to bear on issues of this nature in the hope that it will stimulate further discussion and work in this area.

A more specific purpose of such a paper would be to establish whether the proposals put forward in our report would necessarily entail developments in the decision-making or executive functions of the Communities. The broad conclusion is that they do not require any such changes in the immediate future. However any longer - run evolution of the Community's fiscal system along the lines illustrated by us could have some noticeable impact on these other features of the Community's operations, and would therefore deserve proper consideration at the appropriate juncture.



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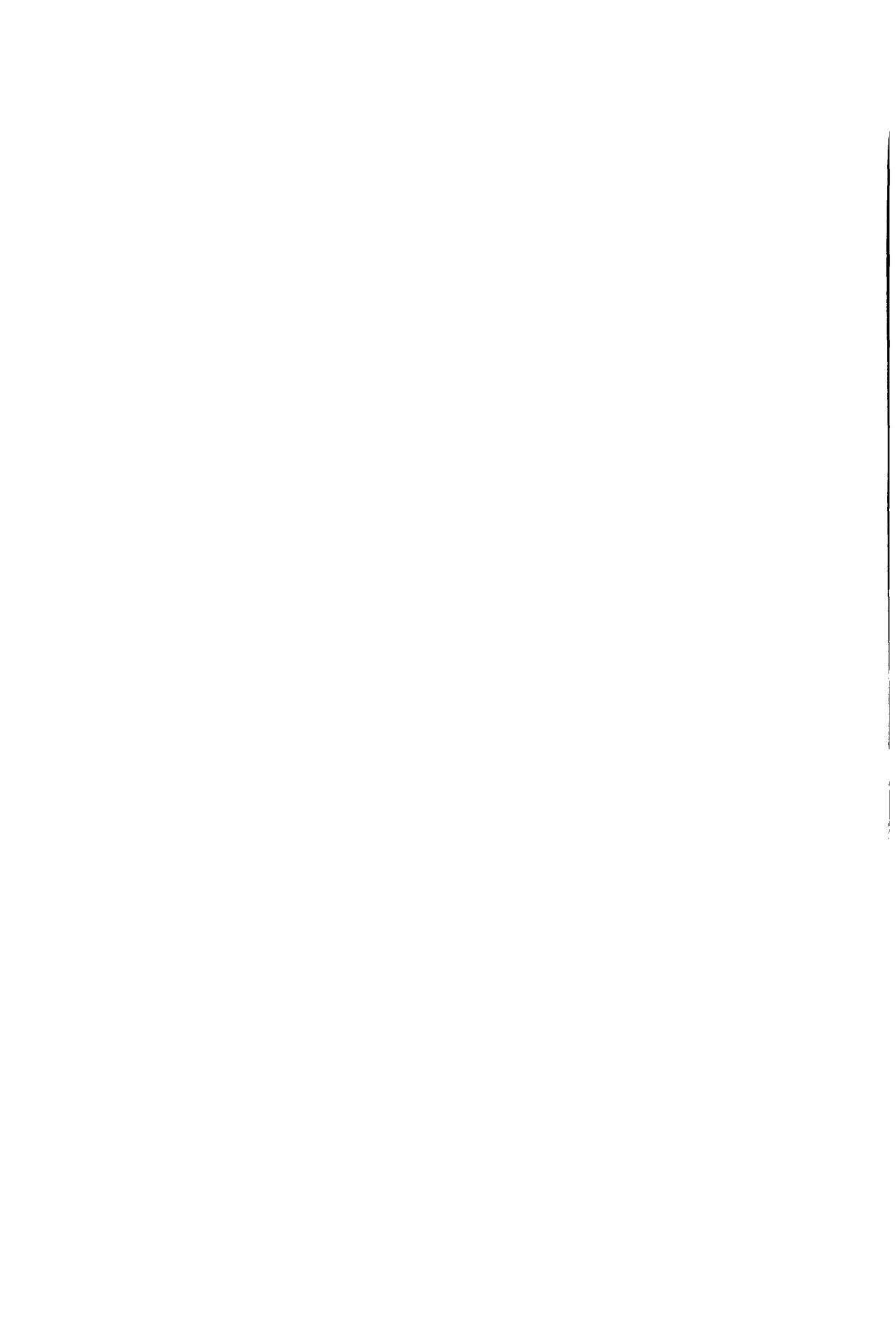
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