RESEARCH AND DOCUMENTATION PAPERS

Economic problems of value-added tax harmonization and completion of the internal market

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This study does not represent the official opinon of the European Parliament

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FOREWORD

Harmonization of value-added tax is one of the key aspects of creating a uniform internal market within the Community. Recent problems have high-lighted the difficulties that still have to be overcome if obstacles to the harmonization of value-added tax are to be removed. The present study discusses the economic problems of value-added tax harmonization. Its aim is to go beyond the everyday practicalities and to present considerations of principle and analyses of the economic problems arising in connection with value-added tax harmonization.

This paper obviously reflects the personal views of the author and not those of the European Parliament as an institution.

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INTRODUCTION

If one were to believe the newspaper headlines[1], the 1992 internal market will not be completed on schedule by the end of 1992 despite the efforts of all those involved. The discussions on the removal of the last borders within the European internal market would not appear to be making any headway, at least in the case of fiscal barriers. Since the Commission presented an ambitious programme in its 1985 White Paper[2], the issue of fiscal barriers has been much more hotly debated than those of physical and technical barriers together.

This is hardly surprising since there are conflicting considerations and interests to be reconciled: in principle, all those involved are opposed to border tax adjustments whereby the exporting country exempts all goods from its tax and the importing country levies a tax at the same rate as for domestic products on all goods. Such a system is costly in terms of delays for transporters and industry, and the administrative formalities it entails for government; it is frequently used as a means of protecting domestic industry (non-tariff barriers to trade) and is generally regarded as incompatible with a single internal market. At the same time, however:

- France is not prepared to accept any loss of tax revenue as a result of harmonization of tax rates,

- The United Kingdom wishes to maintain its widespread zero rating of basic necessities,

- German industry does not want to be burdened with further red tape,

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[1] cf. ZEIT (1988), Binnenmarkt - Steuer als Bremse (Internal market - taxation as a brake), Die Zeit Nr. 38, 16 September 1988, p. 24

[2] cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1985), Completing the internal market, White Paper from the Commission to the European Council, Luxembourg

- The Danish and Belgian retail trade in frontier areas does not want to lose business constantly as a result of consumers shopping in neighbouring countries with lower tax rates,

- The Italian inland revenue authorities have no wish to encourage tax evasion merely to complete the internal market.

An impossible undertaking?[3]

Hence the need for a detailed analysis of the economic aspects of tax harmonization, since the problem is often approached without taking all economic models and proposals into account. Harmonization is also erroneously equated with equalization of tax rates. Conversely, it is also important to take into account proposals put forward in the current debate, which at first sight would appear to provide simple and convincing solutions to the problem, e.g. the abolition of border tax adjustments with parallel adjustments in exchange rates.

Discussion of fiscal barriers is focussed primarily on indirect taxes. The reason why the present paper deals solely with the value added tax, is that in all traditional areas of public finance - allocation, distribution and stability - it plays a more important and proportionately greater role than specific excise duties. However a number of the arguments and conclusions also hold true for specific excise duties.

This study has two important features: firstly it is an interdisciplinary approach since the topic covers two normally separate fields of economics, namely international economics and public finance. In a work of this kind it is clearly not feasible to separate the two issues. Secondly, the results of the analysis will primarily serve to assess a number of proposals and mechanisms.

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[3] Particularly since harmonization of indirect taxation pursuant to Article 99 of the EEC Treaty requires a unanimous decision by the Council of Ministers. cf. EWG-VERTRAG. GRUNDLAGE DER EUROPAISCHEN GEMEINSCHAFT (1987), text of the EEC Treaty and supplementary provisions as at 1 July 1987 edited and introduced by Thomas Läufer, published for the Federal Office for Political Studies, Europa Union Verlag, Bonn, second edition, December 1987

These two features are not new and can be found in the large volume of literature on this subject. However, this paper attempts to incorporate and to give greater emphasis to certain wider issues. These are factors such as labour and capital mobility and the effects of tax harmonization on the role of fiscal policy, which is changing following the greater degree of convergence of economic policies. At the same time greater stress is placed on welfare theory considerations and the normative aspects of the problem.

Following a short conceptual, factual and quantitative definition of the value-added tax and its previous harmonization in section A, section B sets out the fundamental principles of the taxation of international trade and analyses them by means of a simple general equilibrium model since without an understanding of these principles it is impossible to assess the tax harmonization proposals and their effects. The proposals themselves and their basic mechanisms are presented in section C. Section D then goes on to give a comparative analysis of their wider implications leading to conclusions that can be applied to the removal of fiscal frontiers. Section E discusses aspects arising from the theory of second-best.

A. THE HARMONIZATION OF VALUE-ADDED-TAX - DEVELOPMENT, STRUCTURES AND CONCEPTS

I. The tax harmonization debate in the European Community

The activities carried out by the public sector vary considerably from one Member State of the Community to another in terms of nature and quantity, mainly for historical reasons. However, as a result of increasing integration this divergence has become the target of widespread criticism and simultaneous calls for 'harmonization'.
Nonetheless, in the chorus of calls for harmonization it has often been difficult to make out what exactly should be understood by the term harmonization in practice, although the need for harmonization has almost always been justified on the grounds of distortion of competition.

Harmonization was presented, for instance, in terms of an equal government share of gross national product or an equal ratio of direct to indirect taxation. In many cases the demands also extended to tax systems, for example insistence that the same types of taxes should be imposed in all Member States[4]. Moreover, there were even some calls for identical tax rates.

As regards the harmonization of taxes in the Community, the ratio between direct and indirect taxation is a secondary issue. In the forefront of the debate is the distortion of resource allocation resulting from differences in the level and nature of direct or indirect taxation.

While direct taxation and social security levies are relevant in the international context primarily because of their effect on the location of production, in the case of indirect taxes it is important to ensure that tax systems are mutually compatible in the case of international transactions. Both double taxation and immunity from taxation and the resulting distortions of trade and competition are to be avoided.

In international trade and within the Community this is generally achieved by means of a border tax adjustment designed to ensure that imported goods bear the same tax as domestically produced goods.

Furthermore the main goal of completion of the Community internal market is to create a single market without fiscal barriers. Hence the problem of tax harmonization can be seen from another angle, 'harmonization is advocated as an instrument by which a desired objective (the abolition of frontier controls) can be achieved, rather than as anend in itself.'[5]

Consequently, there is a need for a taxation principle that avoids costly and time-consuming border controls and is neutral in its effects on revenue

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[4] The debate on the potentially adverse effects on competition of the German 'Gewerbesteuer' is a good example

[5] LEE, PEARSON and SMITH (1988), Fiscal harmonization: An analysis of the European Commission's proposals. The Institute for Fiscal Studies, London, p. 10. Italics as in original.

allocation[6]. These considerations possibly constitute an argument in favour of the harmonization of tax structures and rates.

Even the Commission of the European Communities is not necessarily aiming for complete equalization of tax rates. Instead, its objective is merely the minimum degree of harmonization required to complete the internal market, while minimizing possible distortions in the allocation of revenue. It therefore quite rightly talks of 'approximation'[7] and not of harmonization.

The following section gives a brief review of the development and characteristics of the value-added tax.

II. Development, characteristics and significance of the present value-added tax (VAT)

1. From a gross turnover tax to a value-added tax

When the Treaty of Rome was signed in 1957 by the six founder Member States of the Community - Belgium, the Federal Republic of Germany, France, Italy, Luxembourg and the Netherlands - the primary aim was to create a common market by abolishing import duties within the Community. This was achieved on 1 July 1968. However, it did not bring about a common market since there was neither freedom of movement for production factors - labour and capital - nor free and unrestricted trade.

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[6] The cost of border adjustments in terms of domestic administrative formalities and delays for industry has been estimated at some 8 bn ECU or about 2% of intra-Community trade in value. In addition there is lost turnover of between 4.5 and 15 bn ECU and public expenditure of somewhere between 0.5 and 1 bn ECU. See CECCHINI (1988), Europa '92: Der Vorteil des Binnenmarktes (The advantage of the internal market), Nomos Verlagsgesellschaft, Baden-Baden, p. 28. For a detailed presentation of the results cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1988), The economics of 1992, European Economy No. 35.

[7] COMMISSION OF THE EUROPEAN COMMUNITIES (1985), p. 44.

At that time the types of general sales taxes varied from one Member State to another[8]. Although all the Member States applied a multistage tax which, unlike the single-stage retail sales tax in the USA, applied to all stages of production (excluding the retail trade), in all the Community States except France the tax was a gross turnover tax.

This system taxes at each stage of production the value added plus the gross input value with a cumulative effect. A tax of this kind creates considerable distortions firstly since the final tax component depends on the number of stages of production, the negative effect of this being to promote vertical integration, and secondly, because the relative prices of products also depend on the number of stages of production.

France was the only country to apply a 'net turnover tax' in which the element taxed at each stage of production was the added value rather than turnover itself. A 'net turnover tax' at all stages of the production of consumer goods is a consumption-type value-added tax which, at a given rate, imposes a tax burden equivalent to that of a sales tax[9].

Consequently, as long ago as 1963, the Fiscal and Finance Committee set up by the European Commission and chaired by Fritz Neumark[10] advocated the introduction of a value-added tax in all Member States.

In order to calculate the VAT amount which has to be paid by the firm there exists two procedures, both are subtractive methods in nature. In the tax-base-on-tax-base deduction, the value of the inputs, is deducted from the total turnover of a firm and the tax rate is applied to the net product. In the tax credit system, the arithmetical tax liability, the product of the tax

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[8] cf. CNOSSEN and SHOUP (1987), 'Coordination of value-added taxes', in CNOSSEN (ed.), Tax coordination in the European Community, Kluwer Law and Taxation Publishers, Deventer, pp. 59-84; here pp. 60-65

[9] cf. MUSGRAVE, MUSGRAVE and KULLMER (1985), Die öffentlichen Finanzen in Theorie und Praxis, (Public finance in theory and practice), Volume 2, 3rd edition, Mohr, Tübingen, pp. 300-302

[10] cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1962), Report of the Fiscal and Finance Committee (Neumark Report), p. 46.

rate multiplied by total turnover (excluding tax), can be reduced by deducting the tax previously paid on the purchase of inputs.

Provided that a single tax rate is applied at all stages, both procedures result in the same tax burden[11]. At the same time it is possible to make an exact calculation of the tax previously paid at each stage of processing, thereby permitting an accurate border tax adjustment with the refund of input tax and zero-rating of exports. This is the advantage of a value-added tax.

Pursuant to the two Council directives of 1967, all the Member States have now introduced a value-added tax with deduction of input tax (VAT).[12]

The Sixth VAT Directive of 1977 attempted, inter alia, to create a uniform basis of assessment. This included the establishment of rules on tax liability, defining turnover which is taxable and defining the tax base[13]. However, the directive is primarily concerned with the rules on exemptions. Necessities such as medicinal products, postal services, books, education, social and cultural activities and also insurance and banking services are

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[11] cf. NOWOTNY (1987), Der Öffentliche Sektor, Einführung in die Finanzwissenschaft (The public sector, introduction to public finance), with Christian Scheer and Herbert Walther, Springer Verlag, Berlin, Heidelberg, p. 224. Differences between the two procedures arise when different tax rates or tax exemptions are applied at the various stages. In the case of a tax-base-on-tax-base deduction the tax burden is derived from the sum of the value added at each stage multiplied by the relevant tax rate, in the case of the tax credit system (also tax-on-tax deduction system or deduction of input tax) the final tax burden is equivalent to the net price to the final consumer multiplied by the tax rate at the last stage. Exemptions or different rates at earlier stages are offset by the deduction of tax previously paid. This phenomenon is referred to as the 'catching-up-effect' of the value-added tax with deduction of input tax.

[12] cf. CNOSSEN and SHOUP (1987), p. 62 et seq.

[13] cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1980), Report on the scope for convergence of tax systems in the Community, Bulletin of the European Communities, Supplement 1/80, p. 26

generally subject to a reduced rate. In the United Kingdom a zero-rating was even applied[14].

2. <u>Present VAT structures and rates and their implications for the national budgets</u>

Although all the Members States have now implemented the same type of value-added tax, there are currently considerable differences in the VAT structure, i.e. the number of rates, the goods subject to the various rates, the rate levels and the degree of zero rating.

Denmark and the United Kingdom apply a single (standard) rate, the Federal Republic of Germany, the Netherlands, Ireland and Luxembourg apply a standard rate plus one or two reduced rates. Spain, Portugal, Italy, France, Greece and Belgium have not only the standard rate and the reduced rate but also one or two higher rates on luxury goods such as cars, jewellery, perfume and yachts[15].

In the United Kingdom, although there is only one standard rate and no reduced rate, many goods are zero rated, as is the case to a much lesser extent in Ireland, Italy, Portugal, Denmark and Belgium. The significance and extent of zero rating is clearly reflected in the proportion of the VAT tax base accounted for by such goods. In the United Kingdom the value of zero rated goods accounts for some 40% of the tax base, whereas the proportion accounted for by the reduced rate in the Federal Republic of Germany is only about 20%[16].

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[14] Zero-rating can be interpreted as tax exemption at the final stage with the refund of input tax, hence the product is not taxed. Special arrangements for small and medium-sized enterprises and agriculture are not discussed here.

[15] For the structure, levels and quantitative significance of VAT in the Community Member States see Tables in Annex I. For details of the goods subject to higher rates Cf CNOSSEN and SHOUP (1987), p. 66.

[16] Cf Ibid, p 66

The level of tax rates also varies considerably. The most important, the standard rate, ranges from 12% in Luxembourg and Spain to 25% in Ireland[17]. The significance of VAT revenue in terms of total tax revenue or GNP also varies from one Member State to another. It accounts for between 17.9% (Luxembourg) and 33.5% (France), of total tax revenue and between 5.3% (Italy) and 9.8% (Denmark) of GNP.

B. THE THEORY OF TAXATION OF INTERNATIONAL TRADE

I. Methodology

1. Selection of the incidence concept

As a rule the taxpayer is not the economic entity which bears the economic burden of taxation, a factor that must be borne in mind in any public economics analysis. This is also true for any type of general sales tax. It is therefore interesting to look at the implications, in terms of price and quantity effects, of the various tax rates in the Member States concerned. This is also referred to as the problem of incidence.

One of the main questions arising in assessing the distributional effects of a tax, concerns the expenditure side of the national budget. The extent to which the expenditure side is taken into account is also reflected in the three possible incidences. Whereas the revenue or tax incidence relates only to the revenue side and the expenditure incidence only to the expenditure side of the budget, the budget incidence takes both sides into account[18].

Since an analysis of a value-added tax in international trade is primarily concerned with the trade and direct income effects resulting from price

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[17] The rates exclude tax i.e. they apply to the net price of goods

[18] For details of the incidence concepts, see NOWOTNY (1987), pp. 309-327

changes, there is every reason for selecting the concept of revenue incidence.

Although as a whole this analysis is based on a number of restrictive assumptions, the initially highly simplified and rather systematic model will be extended from a formal to an effective incidence approach. A justification for this approach is given in the paper by Dieter BIEHL: "despite these limitations, the approach used here is valuable in that it demonstrates that very differentiated results are obtained even under extremely simplified assumptions and 'ideal' theoretical comparative static conditions[19].

The basis for this analysis is a Pareto optimal situation, which is one of non-taxation. This demonstrates the effects of various tax principles before analysing the effects of a changeover from the existing system with border tax adjustments to an alternative system.

In parallel, the types of general sales tax discussed are widened from a single stage production tax in this section to the consideration of a value-added tax in section C.

2. The Model

The initial assumptions are that there is equilibrium between the two or more states and that all factors of production are fully employed but, unlike the goods, not traded internationally. On the assumption that the economies are operating with given resources, it follows that the factor supply is fixed[20].

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[19] BIEHL (1989), 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) Carl Heymanns Verlag. Köln, p. 316. Translation of the quotation was made by the author.

[20] Later in this paper the effect of this assumption on the allocation of tax revenue will become clear. The assumption of internationally fixed production factors is abandoned in section D. I. 1

In accordance with BIEHL, this chapter examines the principles of taxation on the basis of two simple and clear variants of tax incidence, namely where tax is shifted backwards and where tax is shifted forward.

In the second case all prices rise by exactly the nominal amount of tax so that the general price level rises by the tax rate. In the framework of a partial equilibrium analysis, this case can be equated with an inelastic demand curve with respect to the price. The tax burden is borne exclusively by the consumer and producer prices correspond to the equilibrium price before the imposition of taxation.
Since the income of the consumer remains constant, but prices have risen, the tax affects the spending of private households. The nominal value of the national product rises by the tax rate multiplied by the previous national product[21]. The tax means that consumer and producer prices are no longer identical.

Conversely, where tax is shifted backwards, the tax is not added to the previous price but is passed on by reducing the remuneration of all factors of production. This case corresponds to an inelastic supply curve. Consumer prices, and thus the general price level, remain constant but producer prices fall by the amount of the tax[22]. In this case the incomes of private households are cut at source.

To be able to assess the effect of taxation in the international context, it therefore has to be verified whether the relevant national demand and supply structures change. It must therefore be assumed that in both cases - tax shifted backwards or forwards - the tax does not affect the individual's labour supply decision or the range of products purchased by a representative

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[21] Cf BIEHL (1969), p. 319 et seq., appropriate adjustments in the money supply are assumed.

[22] Cf Ibid p. 370 the flexibility of all prices is a necessary although restrictive assumption here.

private household. On the assumption that government spending offsets the reduction in private demand, overall demand and supply remain constant.[23]

It is not difficult to imagine how complicated the analysis becomes when the tax is not fully shifted, or not shifted in the same way in all markets or in the same way at home and abroad.

The border tax adjustments made in practice are based on a similar restrictive assumption. Only if supply and demand elasticities are the same in both countries will the border tax adjustment even out prices. A uniform price cannot be guaranteed unless the respective degree of distortion is exactly offset[24].

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[23] See Tresh: 'Harberger, and others, actually assume that the government spends the revenue exactly as the consumer(s) would have had they received it, but this is equivalent to redistributing the revenue lump sum and letting the consumer(s) spend it' from TRESH (1981), Public Finance: A normative analysis, Business Publications, Plano, p. 380 et seq.

[24] Cf. PEFFEKOVEN (1983), 'Probleme der internationalen Finanzordnung' (Problems of international fiscal relations), in Andel et al. (Ed): Handbuch der Finanzwissenschaft, (Handbook of Public Finance) Volume 4, third edition , Tübingen, pp. 219-268; particularly p. 232 et seq. From a purely theoretical point of view, it appears necessary to drop the assumption of equal elasticities, but a system of adjustment based on it- using adjusted tax rates or the exchange rate - would be highly confused and economically impractical to implement and monitor and politically unacceptable. The consideration of variance of the tax incidence serves however to illustrate polar elasticity.

The exchange rate between the two countries is determined by real purchasing power, i.e. the lcomparative price levels[25]. We refrain from transportation costs.

II. Taxation principles and their international incidence

1. Fundamental principles in a two-country framework

Before going on to analyse practical proposals for removing fiscal frontiers in the next chapter, it is necessary to clarify the fundamental principles of the taxation of international trade. The basic considerations are as follows: In the case of a single-stage production tax, i.e. producers in the exporting country supply the consumer in the importing country directly without any further processing. There are four conceivable taxation scenarios:[26]

Case 1: If the exporting country taxes exports and the importing country taxes imports there is double taxation. As a result imported goods are relatively more expensive in the importing country than similar domestic goods. There is discrimination against exports.

Case 2: If neither the exporting nor the importing country tax foreign trade there is immunity from taxation. Such a situation is extremely unrealistic

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[25] This is also referred to as naive purchasing power parity theory. Cf. ROSE (1986) Theorie der Außenwirtschaft (Theory of international economics), 9th Edition, Verlag Vahlen, Munich, pp. 93 et seq. Although it is usually assumed that flexible exchange rates are incompatible with the single internal market, the exchange rate here is assumed to be flexible. Since the existing European Monetary System (EMS) allows the realignment of exchange rates, the assumptions of the model can be justified and the economic effect must be regarded as equivalent. On the other hand, the achievement of monetary union with a single central bank and one currency is not foreseeable in the medium-term. Otherwise proposals based on exchange rate adjustments had to be excluded. Cf EG-MAGAZIN (1988) 'Der Binnenmarkt 1992 braucht nicht notwendigerweise eine einheitliche Währung'. Ein Interview mit Prof. Leonard Gleske, (The 1992 internal market does not necessarily need a single currency. An interview with Professor Leonard Gleske)in: EG-Magazin, Issue of 7/8 July 1988, pp. 30-33.

[26] Cf. PEFFEKOVEN (1983), p. 221.

since the national exchequers' primary concern is to increase their tax revenue. Moreover the situation is the exact opposite of Case 1 in that imports would be favoured since they would be cheaper than similar domestically produced goods.

Case 3: If the importing country taxes its imports and the exporting country does not tax its exports there is neither double taxation nor tax immunity. This is referred to as the destination principle.

Case 4: The last possible scenario is the reverse of the destination principle. The exporting country taxes exports but the importing country allows imports to enter free of tax. This is the origin principle.

Since the last two options are probably the only methods of taxation which are neutral in terms of allocation and yet generate a positive tax revenue, they will now be examined in greater detail[27].

a. Destination principle

aa. Variant A: Tax shifted forward

Under the destination principle no tax is levied on exports. Instead the importing country levies a tax on the net value of the imports (compensatory import tax) at its national rate. Consumer prices rise by the tax rate t_j, (country j = A,B) multiplied by the producer price. This method ensures that all goods consumed in a given country are taxed at the same domestic rate irrespective of where they were produced.

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[27] The breakdown is taken from ROBSON (1984), The economics of international integration, 2nd edition, London, pp. 94 et seq.

Since there is no change in relative prices for consumers or producers within the two countries, nor any change in the trade balance, the equilibrium is maintained after tax[28]. The exchange rate remains constant.

This system permits the countries involved to apply different tax rates, which affect their domestic consumers only. At the same time it is clear that the consumer's choice of domestic or foreign products does not affect the allocation of tax revenue between the two countries. The tax always accrues to the country where the goods are consumed (importing country).

However, the system requires a border tax adjustment.

ab. Variant B: Tax shifted backwards

Where tax is shifted backwards, the producer price, and with it all factor incomes, falls by the tax factor $1/(1+t_j)$, $(j = A,B)$, so that the consumer price remains the same. The border tax adjustments in the case of international trade where there are different tax rates results in a relative shift in price on the producer side: exports from the high tax country are relatively cheaper compared with goods produced in the low tax country and its imports are comparatively dearer. Consequently all producers want to sell goods in the low tax country.
This will tend to lead to a trade imbalance since in the high tax country exports will increase and imports fall. This will therefore be followed by a corresponding revaluation of the high tax country's currency.

b. Origin principle

ba. Variant A: Tax shifted forward

In this case the tax levied leads to differences between consumer and producer prices in each country. Whereas producer prices are the same internationally at a given exchange rate this no longer applies to consumer

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[28] On the assumption of constant demand and supply structures, the volume of goods exported and imported remains constant. Cf. comments on the results in subsection B.II.I. Annex 2.

prices where tax rates vary. Since consumer prices correspond to prices in transfrontier trade - no border tax adjustments being made - distortions will arise since the exports (imports) of the high-tax country are relatively dearer (cheaper) than goods in the low-tax country.

This results in a trade deficit for the high-tax country. Adjustments will then occur in the monetary sphere. The currency of the high-tax country would tend to depreciate and the trade balance to be corrected.

Contrary to the destination principle, all tax revenue will accrue to the producing country (exporting country). The origin principle is often advocated however on the grounds that no border tax adjustment is required[29].

bb. Variant B: Tax shifted backwards

However, if the tax is passed on to factors of production, consumer prices remain the same and producer prices fall by the tax factor $1/(1+t_j)$, $(j = A,B)$. Since we are concerned, as above, with tax inclusive prices in cross-border trade, trade between the countries involved will remain in balance and there will be no exchange rate change. Producers will be unconcerned whether their products are sold on the domestic market or abroad.

2. The general equivalence of the destination principle and the origin principle in a two-country framework

On the assumptions made above it can be shown that where a general tax is levied with tax shifted forward or backwards, no distortions of competition or disequilibrium in the trade balance will result either in the case of the destination principle or in the case of the origin principle. This is because the different tax levels are offset by a tax adjustment (border tax adjustment) or by monetary changes (adjustment in exchange rates).

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[29] Cf. BERGLAS (1981), "Harmonization of commodity taxes. Destination, origin and restricted origin principles", Journal of Public Economics 16, p. 386 and ROBSON (1984), p. 104.

On the basis of these assumptions, the destination principle and the origin principle must be regarded as equivalent. This implies that it is possible to switch from one to the other without causing distortions since any such change would also be accompanied by a corresponding adjustment[30].

As a first step to a more realistic assessment of the situation, it is necessary to turn from a two-country framework, in which both countries are members of the Common Market, to a framework involving several countries.
So far the destination principle and the origin principle have been discussed in their pure form where no other countries or no countries which are not members of the Community were involved.

However since the European Community does not include all the countries in the world and trades extensively with the rest of the world, the findings outlined above would not necessarily hold true if the Community were to apply a different principle of taxation from that used by non-Member States.

3. The origin principle in a framework of several countries

These issues were raised some time ago but first analysed in greater detail by Shibata[31]. Shibata analysed the allocation where the Community went over to the origin principle while the rest of the world retained the destination principle. Shibata refers to such a system as the restricted origin principle. Since the destination principle is dominant in world trade and will probably remain so in the immediate future, this is a logical extension of the analysis[32].

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[30] Cf. WHALLEY (1979), "Uniform domestic tax rates, trade distortions and economic integration", Journal of Public Economics 11, p. 215. See also the author's proofs in Annex 3.

[31] The problem was first raised in the Neumark Report. Cf. EUROPEAN ECONOMIC COMMUNITY, COMMISSION (1962), p. 82 et seq. A detailed analysis can be found in SHIBATA, The theory of economic unions, in SHOUP (ed)(1967), Fiscal harmonization in common markets, Vol 1, New York, pp. 145-264, in particular pp. 206 et seq.

[32] The following results are taken from Berglas and Whalley, who use a general equilibrium model. Cf. WHALLEY (1979), pp. 218 et seq and BERGLAS (1981), pp. 381 et seq. These also contain a formal analysis.

Now, in addition to high tax country B and low tax country A forming a single market without fiscal frontiers as above, we have the rest of the world in the form of country W. In view of its dominant size W determines the level of world commodity prices. A and B apply the destination principle in trade with W, i.e. exports free of tax with a refund of input tax and a compensatory import tax at the domestic rate. Between themselves, however, A and B apply the origin principle.

In comparison with the straightforward destination principle or origin principle, the high-tax country now has a loss of revenue which cannot be offset by an adjustment process since relative prices remain unchanged.

The reason for this is that in the common market under the origin principle consumer prices are the same. Therefore consumer prices in high-tax country B fall to the level of country A[33]. In trade with A producer prices in B would have to fall by the tax factor $(1+t_A)/(1+t_B)$ and would thus be below the pre-tax level. However, this would not happen since in trade with W B's producers would still be able to obtain the old producer price owing to the border tax adjustment and the prevailing world prices.

B's total production would therefore be sold to W. The tax authorities in B would lose tax revenue from domestic production since they are obliged to refund input tax at the border. They would not recover this amount since domestic consumption would have to be covered by imports from A[34], with which it is assumed that the origin principle applies. Consequently, there would be no compensatory import tax. This would result in an initial loss of revenue for country B, reflected in an equivalent gain in low-tax country A. Owing

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[33] There will be a similar result if the difference in tax rates were initially offset by a devaluation in the high-tax country. See FRATIANNI and CHRISTIE (1981) "Abolishing fiscal frontiers within the EEC", Public Finance 36, pp. 411-429, here p. 422. A detailed discussion of the authors' views can be found in section C.I.2.

[34] It is conceivable that these might be supplied by W but owing to the higher compensatory import tax in B such products would be more expensive than those supplied through A.

to its fixed production capacity, A can only cover B's additional consumption with the help of imports from world market W whose supply is elastic. This generates additional compensatory import tax revenue for A.

A further reallocation of tax revenue favourable to A and unfavourable to B results from the following distortion: producers in A will not export to W directly but indirectly via B since this will give them a higher refund which will have to be met by B's tax authorities without them having levied any input tax[35].

In this case there is no pressure on the exchange rate. Producer prices in A and B are the same and correspond to the world price level. Consumer prices in the two countries are also the same. Since the net trade positions of A and B remain unchanged - additional imports being offset by additional exports of equivalent value - the exchange rate remains constant[36].

In this analysis of the various proposals there is one more important assumption that must be relaxed: so far a single stage production tax has been assumed. However, the basis for discussion must be a value-added tax which is a multistage tax. This is essential even if it may well complicate the analysis. Unless otherwise indicated, the framework is one in which tax is shifted forward.

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[35] A possible solution would be the introduction of a common external tax for imports and exports but here too distortions are likely to arise. See WHALLEY (1979), p. 219.

[36] A detailed discussion of the restricted origin principle in the case of the same tax rates in A and B but disequilibrium in bilateral trade balances with W can be found in Whalley and Berglas. Here there may also be distortions in the form of income effects. cf. Journal of Public Economics: WHALLEY (1979), pp. 218 et seq.; BERGLAS (1981), pp. 382 et seq. and WHALLEY (1981), 'Border adjustments and tax harmonization: Comment on Berglas', Journal of Public Economics 16, pp. 389-390

C. PROPOSALS FOR TAX HARMONIZATION WITH THE REMOVAL OF FISCAL FRONTIERS

I. Proposals based on an exchange rate adjustment

1. Origin principle with deduction of input value in transfrontier trade

In an opinion on the Commission's White Paper on the internal market, the Economic Advisory Council to the Federal German Ministry for Economics expressed its views on fiscal harmonization[37]. Under the heading 'less need for harmonization with the origin principle' it advocates a switch to the origin principle in transfrontier trade both within the Community and with third countries.

As show in section B.II.1.b. under the origin principle differences in the level of taxation are generally offset by the exchange rate, provided that two conditions are fulfilled. Firstly - as the Advisory Council rightly points out - there must be only one tax rate in each country; secondly - abandoning the assumption of direct supplies to the consumer in importing countries - it must be ensured that in the case of a value-added tax there is no double taxation in the importing country.

The Economic Advisory Council therefore proposes that provision should be made for a tax-base-on-tax-base deduction (corresponding to the gross value of imports) in transfrontier transactions whereas for domestic transactions the tax-amount-on-tax-amount deduction should continue to apply.

In view of the obvious diversity in the number and level of tax rates in the Community it is unlikely that these conditions - specifically a single tax rate in each country - can be fulfilled in the near future. The same holds true of implementation of the proposal (origin principle with tax-base-on-tax-base deduction) in trade with third countries. For this reason alone it is somewhat surprising that such a proposal should have made by the German

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[37] cf. DER WISSENSCHAFTLICHE BEIRAT BEIM BUNDESMINISTERIUM FÜR WIRSTSCHAFT (1986), Stellungnahme zum Weissbuch der EG-Kommission über den Binnenmarkt, Gutachten vom 21/22 Februar 1986, (opinion on the EC Commission's White Paper on the internal market), Bonn, Section IV Tax harmonization (paragraphs 13-16), particularly pp. 20-24

Economic Advisory Council which itself admits that 'it would not be easy to create the conditions for such a reform'[38].

In addition to this obvious objection it is worth looking more closely at further stages of processing in the importing country. How can double taxation of imports be avoided at subsequent stages in the importing country?

There is no double taxation for the importer since he can make a tax-base-on-tax-base deduction. Even though the importer will only shift forward the amount of tax corresponding to the value he has added, at the subsequent stages the deduction of input tax will inevitably lead to double taxation since the subsequent producers will not be able to deduct previous turnover.

Surprisingly the German Economic Advisory Council disregards this problem totally in its opinion. A possible means of preventing double taxation would be to pass on separately the input tax _and_ previous turnover to the value of the imports[39]. This would avoid double taxation since every producer in calculating his liability would be entitled to deduct both the previous tax and the gross value of the imports. The exchange rate would then even out tax inclusive prices.

This proposal would be neutral in terms of allocation. However, considerable complications arise when one abandons the unrealistic and fictitious assumption that there is always one type of end product. As a rule many products are semi-finished and are combined in a variety of ways with other semi-finished products in the production process. How is it then possible to distribute the foreign previous turnover to individual (semi-finished)

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[38] DER WISSENSCHAFTLICHE BEIRAT BEIM BUNDESMINISTERIUM FÜR WIRTSCHAFT (1986), p.20. Translation of the quotation was made by the author.

[39] Andel proposes instead of this a fictitious deduction of input tax. In this case a further problem arises since this is only possible for persons entitled to deduct input tax and not for consumers. cf. ANDEL (1986),Sollte man in der EG im Rahmen der Mehrwertsteuer zum Ursprungs landprinzip übergehen? Bemerkungen zu einem Vorschlag des Wissenschaftlichen Beirats beim Bundesministerium für Wirtschaft (Should the EC change over to the origin principle for VAT? Comments on a proposal made by the Economic Advisory Council of the Federal Ministry for Economics; Finanzarchiv, Neue Folge. Vol. 44. No 3, pp. 484-488; here pp. 486 et seq.

products and pass it on? It is doubtful whether such a system could work in practice. Moreover allowing a tax-base-on-tax-base deduction involves a combination of deduction arrangements, which is undesirable on control grounds alone. Consequently this proposal is unrealistic particularly since it requires a far-reaching degree of harmonization, namely a single tax rate.

It is also evident from this that if border tax adjustments are abolished the exchange rate does not even out differences in tax rates to the extent that there is no double taxation at subsequent stages in the importing country.

2. An exchange rate approach with multiple tax rates and a degree of harmonization

Does this mean that the origin principle is a textbook solution for the abolition of fiscal frontiers? Or is there an approach which would permit several tax rates, prevent double taxation in the importing country and be neutral in its effect on semi-finished products? The last two conditions could be satisfied if, instead of passing on previous turnover and input tax or a fictitious input tax, one opted for a combined deduction of previous turnover/input tax[40]. In this case the gross import turnover consisting of the price and the tax component would be broken down as if it were a domestic purchase with the same gross price. The 'new' tax component corresponds to the domestic tax rate multiplied by the corrected tax base and is passed on as input tax in the importing country.

In an article in Public Finance[41] Michele Fratianni and Herbert Christie take this mechanism as a basis for their proposal for a modified exchange rate approach which assumes a degree of 'pre-harmonization'.

This proposal is based on the following assumptions: instead of waiting until international negotiations achieve an approximation or standardization of tax

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[40] cf. BIEHL (1969), p. 165 et seq. There is a difference between passing on previous turnover and input tax separately - as discussed earlier - and this combined deduction of previous turnover and input tax

[41] cf. FRATIANNI and CHRISTIE (1981), pp. 419 and 428

structures, and in particular a single rate, as in the German Economic Advisory Council's proposals, it is assumed that fiscal frontiers will be abolished by a given deadline - in three to five years[42].

According to Fratianni and Christie, this would result in 'semi-automatic adjustments' thereby permitting an effective exchange rate adjustment even before the deadline, despite the existence of several tax rates.

This would come about because trading partners realize that the abolition of fiscal frontiers without coordination of tax rates and levels would lead to considerable windfall profits for some sectors or industries and counterpart losses in other countries. Since each country has relative tax advantages for certain sectors, negotiations would be bound to lead to respective national 'approximation' of tax inclusive prices for each product.

In this case 'approximation' does not mean an international equalization of the price for a given product - differences here being offset by the exchange rate - but that relative domestic product prices would be the same internationally.

If perfect competition means that the net prices of goods are identical there is no need for prior harmonization to achieve a single tax rate in each country. The exchange rate will offset the relative difference in gross prices. Where there are several tax rates, the same tax rate ratio at home and abroad will not result in the same gross price ratio. Tax rates must be such (pre-harmonization) that relative gross prices coincide. Thus tax rates do not need to be standardized but serve as a parameter of pre-harmonization.

On completion of this phase when fiscal frontiers are abolished the exchange rate will even out the relative gross price difference and thus the tax rate differences they include. Fratianni and Christie show in their general equilibrium model involving two countries that in the single market prices will be the same when converted into one specific currency[43].

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[42] cf. ibid p. 414

[43] cf. ibid pp. 417 et seq.

Fratianni and Christie also discuss the situation in which there is a third country which is not a member of the common market. Their findings are basically the same as those of Shibata and Berglas[44]. A change in the tax rate in one Member State can be offset by the exchange rate between countries in the common market. However this will automatically alter the exchange rate position vis-à-vis the non-Member State - simply because of freedom of arbitrage. It is unlikely that the resulting fluctuations in prices and exchange rates between all the countries will remove all distortions.

On the assumption that supply is infinitely price elastic, equivalent gross prices cannot be achieved unless there is balanced trade with non-Member States[45].

II. The Deferred Payment Scheme (DPS)

As described in section B, under the destination principle it is the tax rate of the importing country which is applied and the total tax revenue accrues to the country in which the goods are consumed. However, it was also shown that the destination principle in its current form has the distinct disadvantage of necessitating a border tax adjustment which is time consuming and administratively cumbersome.

It might be wondered therefore why we are now considering a proposal based on the destination principle. The reason is this: as in the case of the origin principle, the results of an analysis of a single-stage tax cannot be applied on a general basis and the results are quite different if one takes a value-added tax. The same holds true here. In the case of a value-added tax with

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[44] See section B.II.3.

[45] cf. FRATIANNI and CHRISTIE (1981), pp. 423 et seq.

deduction of input tax it is possible to shift the border tax adjustment from the border to elsewhere within the country[46].

The Deferred Payment Scheme (DPS) is a system used in the Netherlands, Belgium, Luxembourg and by the United Kingdom until 1984[47] under which exports are still zero-rated and input tax refunded. However, collection of the compensatory import tax is shifted to the first taxable unit in the importing country. One of the major advantages of the DPS is that it would require only few changes in the existing system and would maintain present revenue sharing.

The DPS operates as follows: as at present, exports are still zero-rated by the exporting country. Proof that the goods have actually been exported abroad, the basis of tax exemption and refund of input tax, must be provided by the exporter in the form of appropriate documents, for example bills of lading or evidence of payments from abroad. Thus proof in the form of physical controls at the border establishing that the goods have been exported is replaced by existing documents[48].

Under the DPS the importing country levies the compensatory import tax not at the border but on the first taxable unit in the importing country. As a rule this is the importer who, when calculating his tax liability, can deduct from the arithmetical tax payable only input tax paid on domestic input purchases.

To give an illustration[49]: a producer with full tax liability who has a net sales turnover of DM 50 000 with domestic input purchases of DM 30 000 and imports of DM 10 000 can, at a tax rate of 19%, deduct from his arithmetical liability of DM 9 500 (i.e. 50 000 * 0.19) input tax of only DM 5 700 (i.e

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[46] The British Government recently supported simplifying border formalities in this way as a first step towards removing fiscal frontiers. cf. British Embassy (Ed.) (1988), Taxation in the internal market. A market-orientated concept, European notes from the United Kingdom, E 15/88, Bonn.

[47] This method is also referred to as the Postponed Accounting System (PAS), cf. LEE et al. (1988), p. 21.

[48] cf. CNOSSEN and SHOUP (1987), p. 74

[49] Example taken from Cnossen, cf. ibid p. 75

30 000 * 0.19). If the imports were also domestic purchases his tax liability would not be DM 3 800 as above but only DM 1 900.

It is obvious that this scheme involves only a technical change in processing. The tax burden and exchange rates remain the same as under the present system.

However the system merely reduces border controls in that documentary evidence is required to establish that the goods have actually been exported[50]. To ensure that the producer deducts input tax only on domestic input purchases, the exporter/transporter would have to present a copy of the invoice at the border.

III. Proposals based on transfrontier deductions

1. The Common Market Principle (CMP)

The proposal by the Economic Advisory Council for the German Federal Ministry for Economics is based on a mechanism allowing the importer to deduct previous turnover in international trade. Since the gross value of imports can be deducted, the exchange rate mechanism offsets different levels of taxation. However the difficulty that arose was how to avoid double taxation at subsequent stages of production in the importing country, particularly where it applied a system of deduction of input tax.

However would it be possible to have a system allowing deductions to be made across borders, i.e. either a value-added tax with deduction of previous turnover or deduction of input tax on all stages of production? This must be possible, for it would mean the exporting country taxing the value of the

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[50] Cf. C. LEE et al. (1988), p. 21. The British Government also fails to discuss how further simplification could be achieved, cf. British Embassy (1988), p. 9.

exports and the importing country the net domestic turnover without any double taxation. Biehl refers to this as the Common Market Principle (CMP)[51].

In such a case what would be the final taxation borne by the product? In the case of goods supplied to a non-registered trader it would be the same as under the origin principle, in the case of goods supplied to a registered trader it might correspond, depending on the subtraction method, to the destination principle or to a combination of the tax rates of the exporting and importing countries[52].

Where the deduction of previous turnover applies, the tax burden corresponds to the arithmetical mean of the tax rates weighted by the added value and thus does not coincide with the nominal tax rate of one or the last stage. In a common market without internal frontiers this can lead to different consumer prices, thereby indirectly benefiting those producers whose products or a large proportion of their components are produced in a low-tax country.

This potential distortion can be removed by deduction of input tax since its compensatory effect gives the same tax burden (in a given country) irrespective of where production took place. In the case of supplies to a registered trader, which will generally be the case, it then corresponds to the destination principle.
The difference between this and the previous destination principle with compensatory effect lies in the abolition of the border tax adjustment-instead tax deduction is possible across borders - and in a change in the allocation of tax revenue, which is now determined by tax rates and added value[53].

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[51] Cf. BIEHL (1986) Die Beseitigung der Steuergrenzen in der EG. Die neue Strategie der EG-Kommission, (The removal of fiscal frontiers in the Community. The new Commission strategy), Wirtschaftsdienst 10/86, pp. 518-524; here p. 521.

[52] Cf. PEFFEKOVEN (1983), p. 224. As Peffekoven rightly points out the usual classification of destination principle and origin principle is no longer valid here.

[53] Cf. BIEHL (1982), Towards a general theory of taxing international transactions - a taxonomy of international taxation principles, Public Finance 37, p. 196. Biehl refers to these two factors only in writing. Mathematical calculations of the parameters can be found in Annex 4(a).

The CMP with deduction of input tax can be illustrated by an example[54]: a Danish exporter sells goods to the United Kingdom at a net price of 30[55] including 22% VAT i.e. 36.60. The British importer adds value of 70 to give a total value of 100. UK VAT of 15% would be payable on this amount i.e. 15, with the import tax of 6.60 already paid in Denmark being deductible. Hence 15 minus 6.60 equals 8.40. The tax is thus exactly the same as under the destination principle, the status quo is maintained - all goods (unless they are direct imports) in one country are taxed at the same rate.

Let us now see whether the CMP with deduction of input tax in the case of supplies to a registered importer is identical to the destination principle apart from the allocation of tax revenue. At first sight this would appear to be the case. However, a changeover from the present destination principle to the CMP would not be neutral in its effects on the trade balance where tax rates are different. Since deduction of input tax means that producers still go by producer prices, to ensure that producer prices are the same as under the destination principle in the common market exchange rates must not alter. However this inevitably causes disequilibrium in the trade balance which is made up of gross prices[56].

2. The Clearing-House

A proposal based on the CMP with deduction of input tax is the clearing-house system proposed by the European Commission for the first time in its 1985

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[54] Example based loosely on LEE et al. (1988) p. 18

[55] As under the destination principle with tax shifted forward the exchange rate plays no role in this simple example since the producer takes the net price only into account. To simplify matters one currency unit is used rather than several currencies.

[56] Cf. Annex 5(a). This simple model merely proves that there is no exchange rate that can even out both the trade balance and the producer prices. This implies that changeover from the destination principle to the CMP must be offset by a change in volume. Hence the CMP could not be regarded as neutral. This shows only the existence of an adjustment process but nothing about how it operates and its stability. This shortcoming becomes obvious if it is no longer assumed that production factors are immobile. See section D.I.I.

White Paper on completing the internal market[57]. An analysis of this system was already made in 1981 by A. L. C. Simons in an article in Intertax[58]. The system differs from CMP with deduction of input tax in its effects on tax revenue sharing and its effects on the trade balance but not as regards the tax burden. Revenue continues to accrue to the country in which the goods are consumed[59].

The importing country therefore claims back the input tax paid to the authorities in the exporting country. Since each country will receive payments and have to make payments to the other Member States, a clearing system would operate at regular intervals.

To take the example used in the previous section, the UK tax authorities would reclaim from Denmark the 6.60 input tax paid by the importer. The Danish tax authorities received this 6.60 from the exporter which means that the transaction would not result in any revenue or loss, the effect being the same as under the present system. This net transfer from the high tax country to the low tax country would also be neutral in its effects on the balance of payments. The exchange rate remains the same[60].

There are a number of different ways in which claims, such as that in our example of a single transaction, could be dealt with.

Firstly it could be done bilaterally on a micro-economic basis, i.e. transaction by transaction. Or the redistribution could be done on a macro-

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[57] Cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1985), p. 41 et seq. ....
(1987a), and .... (1987b), Completion of the internal market:
introduction of a clearing-house system for VAT in intra-Community trade.
Commission working document, COM(87) 323 final, Brussels, 4.8.1987.

[58] Cf. SIMONS (1981), Simplification of VAT procedures in intra-Community
trade, Intertax 10, pp. 375-382.

[59] Where the trade balance, tax burden and revenue distribution correspond to
the destination principle, this proposal can be classified under
destination principle as had been done by CNOSSEN, cf. CNOSSEN and SHOUP
(1987), p. 74. However it is not the classification that is relevant but
the economic effects.

[60] Cf. Annex 5(b)

economic basis, e.g. using foreign trade statistics[61]. In the second case it is not clear how it will be possible to make exact calculations when internal frontiers have been abolished and there is only vague data, if any, on trade patterns.

The Commission therefore proposes a modified micro-economic approach not on a bilateral basis[62]. Instead, each Member State will calculate the tax payments on exports to the Member States and the input tax deducted on imports by domestic producers and calculate its net position vis à vis the Community as a whole. On the basis of this each national exchequer will pay in or receive a balance.

A system of this kind clearly requires detailed documentation from industry showing the country from which products have been purchased and the tax included in the price and hence the amount of tax deductible as input tax[63].

In order to prevent tax fraud and cross-border shopping, the Commission proposes that the number of rates be reduced to a standard rate and a reduced rate. The first would be between 14% and 20%, the second between 4% and 9% since the standard rate in 10 out of 12 of the Member States would currently fall within this band[64]. The broader implications of these proposals will be discussed in greater detail in section D.I. below.

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[61] Cf. PARSCHE et al. (1988), Die Beseitigung von Steuergrenzen in der Europäischen Gemeinschaft, Vorteile und Probleme einer Harmonisierung von Mehrwertsteuer and Verbrauchssteuern im europäischen Binnenmarkt, (The removal of fiscal frontiers in the European Community. Advantages and problems of harmonizing VAT in the European internal market), DIW Sonderheft 145, Berlin, pp. 436 et seq.

[62] Cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1987a), p. 7

[63] Cf. ibid p. 10. German industry has objected to the additional administrative work that this would involve. See contribution by Dr. Otto Wolff von Amerongen in the minutes of the public symposium on tax harmonization in the Community held by the German Bundestag (1988) on 3 February 1988, in German Protokoll No. 14, Az. 2450, Bonn, p. 44

[64] Cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1987a), p. 12

D. TAX HARMONIZATION AND THE ABOLITION OF FISCAL FRONTIERS - A COMPARATIVE, EXTENDED ANALYSIS OF THE EFFECTS OF VARIOUS PROPOSALS

I. Possible distortions of the economies

Building on Section B, the theory of taxation of international trade, the last section analysed the direct effects of the taxation of goods at a single rate or modified multiple rates. These direct effects were the effects on the prices of goods, trade volumes, the exchange rate and the resulting trade balance; the reduced or luxury rates in their present form were disregarded and the analysis was based on a single rate or on modified multiple rates.

These restrictions have been relaxed here although this makes the analysis much more complex. An adequate assessment would require a comprehensive micro-economic model that could take account of international factor mobility and the incidence of multiple tax rates in an open economy. At present there is no such model. Despite this it is possible to arrive at a number of conclusions which are set out in this section.

1. Taxation and overall factor mobility

At first sight it might appear surprising that a tax on goods should have any indirect effects. What is meant here? Does a general sales tax affect anything other than the prices of goods, the volume and trade? Or, in other words, are there effects on other markets (factor markets)?

First of all it is helpful to draw a distinction between domestic and international effects. In analysing the first, it has already been pointed out that distortion of consumer decisions is possible in two ways:[65] in comparison to a no tax situation, a shift in consumption from goods taxed at the luxury and standard rates to products at the reduced rate is conceivable since their relative price has fallen. It can also influence the choice between working and leisure. Such distortions can be ruled out on the assumption that the government redistributes the revenue lump sum. ·

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[65] Cf.MUSGRAVE et al (1985), pp. 104 et seq.

Hence it must be assumed that there will be effects on decisions and factors not specifically related to goods in the international context. This has particular significance against the background of an internal market with full mobility for all economic operators and factors.

Where tax is shifted forward there is an incentive for migration of the production factors labour and capital[66]. Under the destination principle - in this section the DPS and Clearing House scheme should be regarded as equivalent - there is no international equalization of consumer prices. 'The application of export rebates and import taxes acts as a devaluation and therefore leads to a revaluation of the currency of the country with the higher tax rates'[67]. The fact that there is an exchange rate for goods different from that for factors will trigger labour and capital migration to the low tax country where wages and capital income may be the same but have greater purchasing power owing to lower prices. This situation remains the same when factors cross borders: the labour factor is not taxed and capital can be transferred at a constant exchange rate [68].

This is not the same under the origin principle where it is worthwhile for the labour factor to move from the high tax country to the low tax country. Although in the latter the nominal income earned is the same and consumer prices in both countries are identical, it is worth retransferring income to the high tax country where purchasing power is greater owing to the devaluation of the high tax country's currency[69].

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[66] Cf. BIEHL (1969) pp. 339-369. Here too there is no closed specific micro-economic model but considerations of principle.

[67] BIEHL (1986), p.521, translation was made by the author.

[68] See BIEHL (1969), pp. 340-348. If under the CMP with deduction of input tax balanced trade is achieved by a change in the volumes traded, where there is international factor mobility the qualitative effects of the CMP tend to be the same as under the destination principle.

[69] Cf. ibid p. 343. The exchange rate approach of Fratianni/Christie would give the same result as the origin principle. However, since some degree of harmonization must be assumed in the approximation of tax rates, the quantitative effects will probably not be identical.

Under the origin principle there is no incentive for capital migration where tax is shifted forward. The transfer and retransfer of capital are subject to exchange rate fluctuations which means that purchasing power remains the same despite different tax rates[70].

The conclusions to be drawn here are as follows: owing to the lesser degree of distortion, there is a slight advantage in proposals based on the exchange rate argument. This is because where tax is shifted forward there is no incentive for capital migration. This is also more significant in the case of the Community internal market since in the more immediate future there is likely to be less labour mobility, on the grounds of language alone, than capital mobility.

However, the limitations of this model are clear: it looks at the incentive for factor migration on the basis of a model concerned with the real side of the economy. It remains to be seen what repercussions actual factor migration will have on markets for goods, particularly if capital transactions have a direct or indirect effect on exchange rates.

2. The problem of cross-border shopping, zero rating and luxury rates

The last section discussed distortions in the case of non-goods transactions. However, there may be distortions regarding the trade of goods attributable to tax structures and tax rates, for example the problem of cross-border shopping in frontier areas which has frequently given rise to a call for the equalization of tax rates. This means purchases by consumers from high tax countries in low tax countries to avoid high tax rates at home. The fact that this problem has not been touched upon before is indicative of the fact that

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[70] Cf. ibid p. 345. Where tax is shifted backwards under the destination principle and the origin principle, factor mobility leads to distortions. Given the same consumer prices, different tax rates lead to different factor remuneration. There is an incentive to work in a low tax country and spend earned income there. In the case of capital, exchange rate conditions mean that a transfer of capital to a low tax country is either neutral (origin principle) or advantageous (destination principle), and owing to different factor remuneration worthwhile in any case. Cf. ibid pp. 370-378.

it is a derived issue, which differs according to the taxation principle adopted.

This is particularly clear where the origin principle is applied - in this case consumer prices converted into a single currency are evened out by the exchange rate mechanism thereby dealing with the problem of cross border shopping provided there is a single VAT rate or if a degree of harmonization has been achieved, as in the Fratianni and Christie proposal.

The situation is rather different in the case of the other proposals since the final consumer is not entitled to deduct input tax; for such consumers there is an incentive to shop directly in the low tax country[71]. The only situation in which there is no such incentive is where the tax rates are fully harmonized but if the economic and political price of this is regarded as too high the question that must be posed is whether it is necessary to have a band within which tax rates can vary so as at least to reduce direct cross border shopping? And if so what band should be introduced[72].

The example of the USA is repeatedly cited in this connection[73]. In the US there is trade between the federal states without any border tax adjustment despite the imposition of sales taxes at different rates. The differences in tax rates are generally up to 5 percentage points and the Commission therefore regards a band of 6 percentage points for the standard rate as appropriate.

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[71] Such fears are expressed by the European Commission and by the German Chamber of Commerce and Industry. Cf. the GERMAN BUNDESTAG (1988), pp. 40 et seq.

[72] This pragmatic approach is advocated by BIEHL in particular. Cf. BIEHL (1986) p. 522 et seq. and can best be described as the maximum and optimal harmonization. The British Government adopts a different approach, believing in its 'market orientated concept' that the simplification of border formalities and pressure of competition will result in harmonization of tax rates at a relatively low level. Since the only simplification it proposes is the DPS, and the example of the BENELUX states it quotes have not given rise to any pressure for adjustments, the effectiveness of the whole proposal is doubtful. Cf. British Embassy (Ed) (1988) p.9.

[73] Cf. Commission of the European Communities (1985), p.44.

Any comparison between the USA and the Community[74] naturally has limitations.
Firstly in the USA the retail sales tax accounts for a smaller proportion of
consumer prices owing to the low tax rates. Secondly, specific non-fiscal
factors are also significant: in the USA there are no differences in languages
or currencies which suggests that competition is greater than in the
Community. On the other hand, the greater distances mean that differences in
tax rates are less of an incentive for inter-state shopping[75].

Despite these differences a number of conclusions can be drawn from the US
example, namely the need for and possibility of a pragmatic solution. What
does this mean in terms of completion of the internal market? We should now
look at the reasons given by the European Commission for the tax rate band it
has proposed. The first is that the national revenue authorities in a high-
tax country would lose revenue, the second that producers in the high-tax
country in frontier areas would be at a competitive disadvantage owing to
cross-border shopping.

The solution to the question of a tax rate band therefore comes down to a
cost-benefit analysis, the costs being a loss of national fiscal autonomy
whereas the benefits are minimising shifts in trade patterns. Restricting the
standard rate to within 6 percentage points may well be too high a price to
pay since the problem of cross-border shopping arises at only a few borders in
Europe, e.g. the German/Danish, Belgian/Luxembourg and Ireland/Northern
Ireland borders[76]. In these cases the VAT rates of Greece and Portugal are
irrelevant.

Moreover, in a high tax country the national revenue authorities and producers
in border areas are always at a disadvantage. It is thus up to the country
concerned to decide whether it will forego this revenue, which is generally
insignificant in relation to other VAT revenue, and possibly compensate

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[74] Cf. KUHN and WHITE (1986), 'Examination of differences in US and
state/local taxation as they relate to interstate commerce'. Intertax 5,
pp.110-120.

[75] Cf. ibid p.110 et seq.

[76] Cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1985), p.42.

producers in frontier areas[77]. Such matters could conceivably be dealt with bilaterally between the states involved.

The problems of zero-rating and luxury rates could be dealt with in a similar manner. Zero-rating is defended on distributive or political grounds, particularly in the United Kingdom. Since the zero rate is applied to certain basic necessities - for which there is little incentive for personal importation - there is no compelling reason for harmonization[78], even if it would be desirable for such goods to be taxed at a reduced rate for systematic reasons. It is thus possible to deal with problems of income distribution if the additional tax revenue is given back by a means of corresponding adjustments in income tax[79].

Luxury tax rates pose a much greater problem since they affect goods which are traded to a greater extent (cars) and there is an incentive for personal importation. Since the higher rates apply to a relatively small and diverse proportion of the tax base[80], it would be logical to bring these goods under the standard rate. This holds true for any of the proposals.

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[77] This is the view taken by LEE et al (1988) p.13. This appears to pose a major problem in the case of excise duties on tobacco and alcohol. In the case of consumer goods of a high value there is generally a notification or authorization requirement (for example for cars and yachts) so that tax can be levied at the domestic rate.

[78] The IFS study points out that 'The English Channel, and more subtle matters of culinary preference, are presumably the main reasons why the French would not flock to the UK to buy zero rated food, and the imposition of 4 per cent VAT on food in the UK would be unlikely to have much effect on this, one way or the other.' from LEE et al (1988) p.35.

[79] Cf. ibid p.52. for a detailed analysis of the distributional effects of a change in tax structure and the effects of an approximation of tax rates in the United Kingdom.

[80] The European Commission puts the average share of the tax base at less than 10%. Cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1987a), p.10 et seq.

3. Internal market and tax evasion

When a tax rate band is discussed, it is often argued that it would reduce tax evasion. Are wide differences in the standard tax rates an incentive for tax evasion?

In the case of proposals based on exchange rate adjustments there is unlikely to be any greater incentive for tax evasion than at present since the exchange rate mechanism means that the gross cost of input purchases from abroad is exactly the same as those purchased domestically. This is not the case under the deferred payment scheme, which has proved successful in the Netherlands but would greatly increase the problems of enforcement in countries like Italy[81].

In the case of the CMP with deduction of input tax or a clearing-house system, the self-policing element in the deduction of input tax may well prove to be insufficient. Importers in high tax countries have an incentive not to declare input purchases from low tax countries. This is to their advantage if they reduce their turnover by the same amount, since the input tax deductible in respect of imports at a lower tax rate is less than the additional tax liability that would result from the correct application of the higher domestic tax rate to the correct total turnover.

The only way of counteracting this trend is if instead of the present controls at frontiers there is a kind of a posteriori control through closer cooperation and a better exchange of data between the national tax authorities. This is quite feasible in the Clearing-House system proposed by

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[81] Cf. CNOSSEN and SHOUP (1987), p.76; PEDONE (1981), 'Italy' in: Aaron (ed), The value-added tax. Lessons from Europe, The Brookings Institution, Washington D.C., pp. 31-42; here p.35. See also the interesting comment by Wolff von Amerongen, that the Italian authorities have been one of the largest clients of IBM computer systems in recent years cf. German Bundestag (1988) p.59

the Commission since the clearing of claims necessarily implies more centralized data[82].

In the case of all the proposals it is necessary and sensible to have a uniform tax base and fewer tax rates applied to the same goods. An approximation of the standard rates can be justified to a limited extent only between certain neighbouring states.

II. Revenue allocation according to destination, origin or common market principle?

Before discussing an 'equitable' sharing of the revenue, we shall consider the tax yield allocation under the CMP in greater detail, including the effect on trade balances.

Whereas under the origin principle revenue from total domestic production and under the destination principle revenue from total domestic consumption, accrued to the national tax authorities, under a system based on CMP with deduction of input tax, the allocation of revenue is not clearly determined. Insofar as goods are not supplied directly to consumers, revenue allocation depends on the tax rates ratio and the degree of added value.

It may happen that the importing country systematically loses tax revenue to the exporting country (tax export)[83]. This arises specifically when the total value-added resulting from a cross-border production process multiplied by the tax rate of the importing country is lower than the amount of tax in the

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[82] cf. COMMISSION OF THE EUROPEAN COMMUNITIES (1987b), p. 8 et seq. and 12 et seq. On the other hand, the French Government fears that Commission proposals will create a greater incentive for tax evasion. cf. COMMISSION DE REFLEXION ECONOMIQUE POUR LA PREPARATION DE L'ECHEANCE DE 1992 (1988). Fiscalité et marché unique européen, (Taxation and the Single European Market) interim report to the Minister of State, Ministry of the Economy, Finance and Privatization, Paris, p.15 et seq.

[83] A definition of tax export can be found in PEFFEKOVEN (1975) Zur Theorie des Steuerexports (On the theory of tax export), Mohr, Tübingen, particularly pp. 1-6

exporting country arrived at by multiplying the export value by the tax rate there. This is obviously only the case if the tax rate in the importing country is lower than in the exporting country.

If this is applied to the two-country model it means that, assuming balanced trade, a country will lose revenue compared to a situation in which the destination principle applies, if its tax rate is lower than that of the other country[84].

A greater or lesser loss or gain in revenue occurs where the trade balance is not in equilibrium. If the country with the lower tax rate wants to obtain the same revenue as under the destination principle, its exports must exceed imports by a factor of the inverse tax rate ratio, i.e. it must be a net exporter[85].

It is obvious from this that the implementation of each proposal will give a different allocation of revenue. Whereas, under the destination principle, the deferred payment scheme, the clearing-house scheme and the origin principle, the impact on revenue allocation is clear - in principle the first three favour countries which are net importers whereas the origin principle favours net exporters - in the case of the CMP, the deduction of input tax across borders makes any projection of the change in revenue allocation compared to the status quo more complex.

Estimates produced by the Commission give an indication of how revenue allocation would look under a system of cross-border deduction of input tax, but without clearing, compared to the present situation[86]. However, all calculations indicate that Ireland and Denmark would suffer a relatively large

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[84] See calculations in Annex 4(b).

[85] See Annex 4(c)

[86] Indirectly because the Commission's working document gives the annual net amount that would result under the clearing-house scheme. However, these figures are not based on its suggested bands of 4% to 9% for the reduced rate and 14-20% for the standard rate, but on average values of 16.5% for the standard rate and 6.5% for the reduced rate. cf. Commission of the European Communities (1987b), p. 14

loss of revenue, whereas Luxembourg, Spain and Portugal would gain[87]. Even if the Clearing-House scheme were implemented with a tax rate band, Ireland and Denmark would still lose revenue owing to their high standard tax rate.

In view of the hard-fought battles in the Member States of the Community over the budget, any change in the status quo of revenue sharing would generally be unwelcome even if it is imperative on economic grounds. This seems to be the reason why the Commission is proposing the Clearing-House scheme which would guarantee the same revenue sharing as at present.

This view also concurs with the almost unanimous stance adopted by economists that VAT revenue should accrue to the country in which the goods are consumed[88]. For this very reason proposals based on the exchange rate argument are not readily accepted because the national tax authorities would receive revenue from domestic production, but not from domestic consumption. Moreover, the problems of international transfers are rarely discussed.

Does this mean that revenue sharing under the CMP is not only unfeasible politically but also unjustifiable on economic grounds? CNOSSEN raises a point which has been overlooked in the economic arguments set out above: "In the real world, the appropriate system would seem to be to hold a middle course between the origin and the destination principles. At least, it seems a bit extreme for one country, the country of importation, to get all the tax revenue from a traded good; surely the country of exportation did give some services to the producer."[89]

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[87] cf. LEE et. al. (1988), p. 46. A detailed analysis of the effects of the Commission proposals on Ireland can be found in FITZGERALD (1986), The economic implications of tax harmonisation, in: The Economic and Social Research Institute, The Economic Consequences of European Union. A symposium on some policy aspects, Dublin. pp. 21-33. For Germany cf. PARSCHE ET. AL. (1988) p. 60 et seq.

[88] The Commission does not even raise the question of revenue sharing. cf. Commission of the European Communities (1985), p. 50. Even authors such as Fratianni and Christie, whose proposal would alter revenue allocation, agree with a destination-principle allocation: 'Windfall increases or deductions in tax revenues could be offset by international transfers, if that were desired' from FRATIANNI and CHRISTIE (1981), p. 418

[89] CNOSSEN and SHOUP (1987), p. 69

The decision to choose a specific location for production could be determined by public services such as infrastructure, a good legal system, a good climate for exports, etc. and for this reason the country of exportation could be justified in claiming a share of the revenue.

This argument is based on a benefit approach which attempts to internalize external effects with a view to subsequent efficient allocation by taking into account the expenditure side of the national budget.

The opposite of this is an approach based on the ability-to-pay principle whereby revenue accrues to the country of consumption merely because of this fact [90]. Such a proposal is all the more reasonable if a tax incidence concept which disregards the expenditure side is applied.

III. Tax harmonization and discretionary taxation policies

The issues of allocation and revenue sharing are at the forefront of the fiscal harmonization debate, as they have been in this analysis. A further central issue is the position of fiscal policy, and tax policy in particular, as an instrument of economic policy and stabilization, as well as in relation to monetary policy. This applies particularly to the transitional period in which the economic policies of the European Member States still differ in a number of areas. Significant here is the attempt to coordinate monetary policy more closely by creating the EMS. By and large this appears to have been successful. [91] The constant pressure to maintain exchange rate parities within the permitted margins as far as possible imposes constraints on money supply and interest rate policy.

During the present period of limited convergence of economic policies and the parallel pressure for a coordinated monetary policy, fiscal policy is taking on a proportionately greater role in correcting potential regional imbalances.

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[90] cf MUSGRAVE et al (1985) pp. 10-35

[91] cf TANZI and TER-MINASSIAN (1987) "The European Monetary System and Fiscal Polices", in : CNOSSEN (Ed), pp. 337-357

Since a fiscal policy managed via the issue of bonds is more closely linked with the monetary sphere (via interest rates), a variation in tax rates could be a useful instrument.

Since the nature and scope of VAT would seem to make it a suitable means of influencing overall demand in the economy, the harmonization of tax rates or bringing them within too narrow a band would involve curtailing the political choices open to the Member States, particularly those which are now at the limits of or outside the proposed tax rate band.

Conversely, fiscal policy has repercussions in the monetary sphere. If, as under the origin principle, a change in tax rates were to give rise to a corresponding change in exchange rate parities and were implemented in the EMS, the stability of the monetary sector would be further disrupted, not only within Europe but in relation to third countries.

E. **TAX HARMONIZATION? WELFARE CONSIDERATIONS BASED ON THE THEORY OF SECOND BEST**

In both the theoretical analysis given in section B of this paper and in the current debate on fiscal harmonization, conclusions are drawn on the basis of a Pareto-optimal equilibrium. It is assumed that it is possible to achieve an efficient allocation of this kind despite taxation ("first-best"). From the point of view of welfare economics, the marginal conditions are not fulfilled unless taxation and state transfers are possible in lump sum form.[92] This is certainly not the case with the present VAT. It is a second-best situation.

The question which immediately arises is this: do the advantages of a taxation principle or mechanism within the framework of our ideal model also hold true in a second-best situation? This question has been investigated in greater

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[92] cf ATKINSON and STIGLITZ (1987). Lectures on Public Economics, International Edition, McGraw-Hill Book, Singapore, pp. 356 et seq.

detail in the theory of optimal taxation and a series of other scientific studies but has virtually never been applied to the problem of VAT harmonization in the Community.

The question remains whether a change in the existing system is acceptable. How, for example, would the proposal for complete harmonization of tax rates, the simplest on grounds of efficiency, be assessed in terms of its welfare effects. Michael Keen was the first to discuss the welfare effects of tax harmonization in 1987.[93] Using a two-country model and assuming different tax rates, Keen shows that if both sides move towards a weighted average a Pareto improvement is possible. Although this analysis is highly simplified, Keen points out that in general a Pareto improvement cannot be achieved without the help of compensatory transfers between States and between consumers.

This relatively simple question demonstrates how difficult it is to estimate the effects and advantages of a change in the taxation principle. This background must be taken into account when drawing any conclusions.

CONCLUSIONS

This detailed discussion of various aspects of taxation of intra-Community trade highlights the core of the problem analysed: many distortions which arise in one particular case do not arise in another or not in a comparable way. None of the proposals is neutral, which means that the choice of principle is a question of trade-offs. The main conclusions to be drawn are set out below.

It would appear to be advisable to reduce the number of VAT rates to two only in all Member States, it being assumed that there is a uniform tax base. There should be a standard rate and a reduced rate. There is no need for several luxury rates or for several reduced rates. As a rule these are not effective as an instrument of distribution policy, nor are they significant as

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[93] cf KEEN (1987), "Welfare effects of commodity tax harmonisation", Journal of Public Economics 33, pp. 107-114

a source of national tax revenue. Moreover, in a proposal based on the exchange rate argument they make the necessary mechanism more difficult to operate; in the case of the other proposals there is an incentive for cross-border shopping in the case of luxury goods.

On systematic grounds it is obviously desirable that the United Kingdom should replace its zero rate with a reduced rate. This would necessitate a corresponding reduction in direct taxation to offset the distributional effects. Since goods subject to the reduced rate are not widely traded internationally or the subject of personal importation, the discussion of zero rating in relation to competition is irrelevant.

The question of the level of tax rates is more difficult to answer, being more closely linked to the mechanism involved; whereas in the case of the exchange rate mechanism there is no need for coordinated tax rate bands, serious distortions arise as soon as one looks at a value-added tax under complex production processes.

It is doubtful whether the proposal put forward by Fratianni and Christie is a viable alternative. In order to bring about the required gross price structure it would be necessary to have a large number of tax rates which would then have to be adjusted simultaneously, resulting in lack of flexibility. It cannot be assumed that setting a date for the abolition of fiscal frontiers would create the necessary pressure to bring about pre-harmonization. Those industries suffering windfall-losses would not necessarily be parties to the negotiations.
Distortions would also persist as a result of the difficulties in adjustments with third countries.

A further question is that of "perceived fairness." If the origin principle were adopted, would producers in a high tax country regard imports from low tax countries from the point of view of the exchange rate compensation? Neutrality is not only a question of objective facts but also a question of perception. Such criticisms cannot be levelled at the destination principle or the common market principle.

Under the common market principle with deduction of input tax and the clearing-house scheme, a standard tax rate band can be justified as a means of limiting tax evasion and incentives for factor migration. A band of 6 percentage points for the standard rate is too narrow if appropriate measures (such as greater cooperation between national tax authorities) are taken against tax evasion and special arrangements are made to deal with cross-border shopping.

The deferred payment scheme raises problems in combatting tax evasion and would not really abolish fiscal frontiers. The market-orientated concept proposed by the British Government and based on the DPS cannot be expected to result in harmonization of tax rates. Even if there were a degree of adjustment it is not clear at what point tax rates would level off, which makes it difficult to project the changes and fiscal effects for the Member States which would be greater in certain circumstances than with a coordinated adjustment.

Cross-border deduction of input tax undoubtedly provides the simplest solution from a technical point of view and thus offers effective protection against tax evasion. The clearing-house system, which operates technically in the same way as the common market principle, requires a central clearing-house and imposes an additional administrative burden on industry, although the Commission's proposals aim to minimize this burden. The advantage of the clearing-house system is that it is neutral in terms of international trade.

The origin principle would result in revenue sharing that would differ most from the status quo and cannot be justified on normative grounds since a large proportion of the added value occurs at the last stage of production which generally takes place in the importing country. In a single market the sharing of revenue is a justifiable goal. "In a true economic union or common market, revenue sharing according to the distribution of value added is certainly a solution which corresponds with and can therefore be justified by other goals of economic integration on which a common market idea normally is based."[94]

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[94] BIEHL (1982), p. 197

This approach would probably be unacceptable politically which means that a clearing-house scheme of some kind would be required to achieve the Community internal market. The reason why the clearing-house scheme has not received more support from governments may be a refusal or reluctance on their part to accept the abolition of border controls for other, non-fiscal, reasons such as combatting terrorism or drug-trafficking.

From the point of view of discretionary taxation policies, the DPS, the clearing-house scheme, and, with some reservation, the CMP present no disadvantages in principle. All three systems have the advantage of impinging less on the monetary sphere in so far as the distortions under capital mobility have no major repercussions, and they permit an active tax rate policy. On the other hand, a system based on the exchange rate would create a constant interplay with the monetary side of the economy.

In conclusion, cross-border deduction of input tax combined with a clearing-house mechanism to redistribute revenue gives rise to the least distortions and problems in comparison with the other proposals and mechanisms.

1 (a) Table showing the structure and level of VAT in the Member States(1)

Member State	Reduced Rates	Standard Rate	Increased Rates
Belgium(2)	1 and 6	19	25 and 33
FRG	7	14	-
Denmark	-	22	-
France	2.1/4/5.5/7	18.6	33 1/3
Greece	6	18	36
Ireland	2.4 and 10	25	-
Italy	2 and 9	18	38
Luxembourg	3 and 6	12	-
The Netherlands	6	20	-
Portugal	8	16	30
Spain	6	12	33
United Kingdom	-	15	-

Rates applicable as at 1.4.1987

(1) Source: Commission of the European Communities (1987a), Completion of the Internal Market: approximation of indirect tax rates and harmonization of indirect tax structure. Global communication from the Commission, COM(87)320 final, Brussels, 4.7.1987, p.9

(2) Also applies an intermediate rate of 17%. For details of zero rating see text.

(b) Table showing the fiscal impact of VAT in the Member States(3) in 1986

in %

Member State	[1]	[2]	[3]
Belgium	64.5	23.3	7.0
FRG	60.6	24.3	5.7
Denmark	55.1	20.1	9.8
France	65.2	33.5	8.5
Greece	37.3	25.2	6.2
Ireland	47.3	24.3	8.4
Italy	59.6	22.3	5.3
Luxembourg	54.5	17.9	5.7
The Netherlands	63.5	28.7	7.5
Portugal(4)	43.8	30.6	6.8
Spain(4)	56.4	29.6	5.5
United Kingdom	50.1	18.9	6.0

Column [1] : VAT revenue (Account 5110) as a percentage of indirect tax
revenue (Account 5000)

Column [2] : VAT revenue as a percentage of total tax revenue (Table 2 and
Table 36)(5)

Column [3] : VAT revenue as a percentage of GDP (Table 36)

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(3) Source: OECD (1987), Revenue statistics of OECD Member Countries, Paris;
author's calculations. See also LEE et al (1988), p. 45 and CNOSSEN (1987),
'Tax structure developments' in Cnossen (Ed), Tax Coordination in the European
Community, Deventer, p. 21. The indications in brackets in the explanations
are references used in OECD statistics.

(4) Since Spain and Portugal did not join the Community until 1986 and have
not yet changed over completely to VAT with deduction of input tax, the
calculations are based on heading 5110 (General turnover taxes) used in OECD
Statistics.

(5) Contrary to the definition used in OECD statistics, in these figures total
tax revenue does not include social security levies.

2 The effect of different tax rates in a two-country model

The effects of different tax rates under the origin and destination principles are analysed here using the following model[6]: There are two countries, each of which produces the same two goods. Prices correspond to marginal costs and there is perfect competition. In the initial no-tax situation, given the same technology, prices are the same internationally. However, country A exports only good 1 and country B only good 2.

The trade balance between A and B is thus

(1) $P^1 \ X_A^1 = e_{AB} \ P^2 \ X_B^2$

where X_A^1 is country A's exports (B's imports) of good 1 and X_B^2 is country B's exports (A's imports) of good 2. e_{AB} is the exchange rate between A and B giving the price of a unit of country B's currency in terms of that of country A.

Where the trade balance is in equilibrium and in the absence of taxation, at prices P^1, P^2 and e_{AB}^* there are associated quantities X_A^{1*} and X_B^{2*}, which satisfy (1).

Where a uniform national tax is levied on the two goods and the tax revenue is redistributed lump sum to consumers, the effects are as follows:

a. DESTINATION PRINCIPLE

aa. tax shifted forward: The border tax adjustment means that exports are free of the exporting country's tax and imports are taxed at the tax rate of the importing country on entry, so that the equilibrium condition

$P_A^1 \ X_A^1 = e_{AB} \ P_B^2 \ X_B^2,$

(P_j^i where j=A,B being the price of good i in country j) will prevail and be satisfied with the same values. Producer prices, when converted, are the same internationally

$P_A^i = e_{AB}^* \ P_B^i \quad$ for i=1,2.

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[6] This model combines, in an amended form, the models of WHALLEY (1979) and BERGLAS (1981). The same supply and demand elasticities are still assumed.

However, where the tax rates in A and B are different, consumer prices in A and B vary

$$P_A^i \ (1+t_A) \neq e_{AB}^* \ P_B^i \ (1+t_B) \quad \text{for } i=1,2.$$

ab. tax shifted backwards: Producer prices fall by the factor $1/(1+t_j)$ $j=A,B$, so that the equilibrium condition for the trade balance is given by

$$(2) \qquad [P_A^1 \ / \ (1+t_A)] \ X_A^1 = e_{AB}^{**} \ [P_B^2 \ / \ (1+t_B)] \ X_B^2.$$

A tax is non-distortive if, for unchanged quantities X_A^{1*} and X_B^{2*}, equation (2) is satisfied. This is the case where

$$e_{AB}^{**} = (1+t_B) \ e_{AB}^* \ / \ (1+t_A).$$

Where $t_A \neq t_B$ consumer prices again vary

$$P_A^i \neq e_{AB}^{**} \ P_B^i \quad \text{for } i=1,2$$

b. ORIGIN PRINCIPLE

ba. tax shifted forward: In the absence of border tax adjustments, consumer prices which enter in the trade balance equation must be balanced out

$$(3) \qquad P_A^1 \ (1+t_A) \ X_A^1 = e_{AB}^{**} \ P_B^2 \ (1+t_B) \ X_B^2$$

For unchanged quantities X_A^{1*} and X_B^{2*} the equilibrium condition will hold if there is an adjustment in the exchange rate

$$e_{AB}^{**} = (1+t_A) \ e_{AB}^* \ / \ (1+t_B).$$

Where $t_A \neq t_B$ producer prices are no longer identical internationally

$$P_A^i \neq e_{AB}^{**} \ P_B^i \quad \text{for } i = 1,2$$

bb. tax shifted backwards: Here too producer prices fall by the factor $1/(1+t_j)$ $j=A,B$, although under the origin principle gross prices are used in the trade balance equation. The equilibrium condition is thus given by

$$(4) \qquad P_A^1 \ X_A^1 = e_{AB}^{**} \ P_B^2 \ X_B^2$$

which has the same structure as (1) and is satisfied for the same quantities where $e_{AB}^{**} = e_{AB}^*$. Producer prices again vary where $t_A \neq t_B$

$$P_A^i \ / \ (1+t_A) \neq e_{AB}^{**} \ P_B^i \ / \ (1+t_B) \quad \text{for } i = 1,2$$

3 Effects of a switch from the destination principle to the origin principle

The four variants discussed in Section 2 show that a switch from the destination to the origin principle is possible given a corresponding exchange rate adjustment. Where tax is shifted forwards, the trade balance equation under the destination principle corresponds exactly to equation (1) and thus to the initial non-tax situation or that prior to the introduction of the origin principle. The switch is thus reflected in the exchange rate adjustment, as shown in ba.

Where tax is shifted backwards, under the destination principle the exchange rate adjusted to bring about equilibrium balance of trade - made up of producer prices. This means that where tax rates vary the balance of trade is no longer in equilibrium after a switch to the origin principle

$$P_A^1 \; X_A^{1*} \neq (1+t_B) \; [e_{AB}^* \; / \; (1+t_A)] \; P_B^2 \; X_B^{2*}.$$

since it is known from the equilibrium conditions in the no tax situation that

$$P_A^1 \; X_A^1 = e_{AB}^* \; P_B^2 \; X_B^2.$$

The equilibrium condition is satisfied where the exchange rate adjusts to

$$\overline{e}_{AB} = (1+t_A) \; e_{AB}^{**} \; / \; (1 + t_B) = e_{AB}^*.$$

The exchange rate thus reverts to exactly what it was in the initial situation.

4   The distribution of tax revenue under the common market principle

To evaluate the distribution of tax revenue under the common market principle
with deduction of input tax, the following simple two-country model has been
assumed: each country taxes exports to the other country and domestic added
value,   incorporating foreign added value from imports. However, since
domestic producers can deduct the input tax on imports, the latter generate no
revenue for the domestic tax authorities.   The revenue of the two countries A
and B is thus

$$T_A = (V_{AB} + V_{BA} + V_A) \, t_A - V_{BA}t_B \quad \text{and}$$
$$T_B = (V_{BA} + V_{AB} + V_B) \, t_B - V_{AB}t_A.$$

were V_{jk}: is the value added of country j's exports to country k; j,k = A,B,

   j ≠ k

   V_j: value added in country j

   t_j: tax rate in country j

   T_j: tax revenue of country j

(a) What is the distribution of revenue if a product with a net value V is
produced internationally under the common market principle?   The product is
sold in A and the total tax revenue is

$$T = T_A + T_B = V \, t_A = (V_A + V_{BA}) \, t_A.$$

The tax revenue of B and A is thus

$$T_B = V_{BA} \, t_B \quad \text{and} \quad T_A = T - T_B = (V_A + V_{BA}) \, t_A - V_{BA} \, t_B.$$

The ratio is thus:

$$\frac{T_A}{T_B} = \frac{(V_A + V_{BA}) \, t_A - V_{BA} \, t_B}{V_{BA} \, t_B} = \frac{(V_A + V_{BA}) \, t_A}{V_{BA} \, t_B} - 1$$

$$= \left(\frac{V_A}{V_{BA}} + 1 \right) \frac{t_A}{t_B} - 1.$$

The revenue ratio is thus determined by the value added ratio and the tax rate ratio. For the specific case $t_A = t_B$, the distribution of revenue corresponds to the respective value added (V_A/V_{BA}).

(b) We now turn to the change in revenue compared to the existing destination principle, in other words under what conditions will the tax revenue of country A under the Common Market Principle be at least as great as under the destination principle? Where revenue under the destination principle is

$$T_A^* = V_{BA} \, t_A + V_A \, t_A, \quad \text{the problem is thus}$$

$$T_A = V_{AB} \, t_A + V_{BA} \, t_A + V_A \, t_A - V_{BA} \, t_B \gtreqless V_{BA} \, t_A + V_A \, t_A = T_A^*$$

This is the case where

$$t_A \gtreqless \frac{V_{BA}}{V_{AB}} \, t_B$$

and if the balance of trade is in equilibrium

$(V_{AB} = V_{BA})$ it requires that $t_A \gtreqless t_B$.

(c) Given $t_A < t_B$, how great must A's trade surplus be for its tax revenue to be the same as under the present destination principle? It is assumed that V_{BA} is constant and that only V_{AB} varies. The export surplus is expressed by the parameter β. Then

$$V_{AB} = \beta \, V_{BA}, \quad \text{where } \beta > 1 \text{ and } V_{BA} = \text{constant}.$$

If this equation is substituted in (b) and solved for β it yields

$$\beta \gtreqless \frac{t_B}{t_A}$$

A's exports must exceed B's exports by the inverse tax rate ratio.

5 The effect of different tax rates in the case of a switch to the Common Market Principle and a Clearing-House scheme

(a) Common Market Principle with deduction of input tax

Let us again take the two-country model from Section 2 with tax shifted forward. In this case the current destination principle was characterized by neutrality as regards equilibrium of the trade balance and the same producer prices. The border tax adjustment meant that in the case of an unchanged exchange rate e_{AB}^* both these conditions were satisfied.

The introduction of a tax based on the Common Market Principle or a switch from the destination principle to the Common Market Principle with different tax rates in A and B means that producer prices remain the same but the trade balance equation does not.[7]

The trade balance equation is now

$$P_A^1 (1+t_A) X_A^1 = e_{AB} P_B^2 (1+t_B) X_B^2$$

The (unchanged) equilibrium exchange rate e_{AB}^*, which gave the same producer prices under the destination principle, cannot however satisfy both this condition and the new balance of trade equation for different tax rates and unchanged quantities X_A^{1*} and X_B^{2*}. Given a constant exchange rate, the quantities must adjust.

(b) The Clearing-House

In contrast to the Common Market Principle with deduction of input tax, under the Clearing-House there is a calculation of claims in respect of imports on which foreign tax has been paid. Thus country A would be required to transfer to B taxes amounting to

(1) $t_A P_A^1 X_A^1$

Conversely, it would receive from B taxes amounting to

(2) $e_{AB} t_B P_B^2 X_B^2$.

The net amount received or paid by A is the difference between (2) and (1). If the Clearing-House system is neutral, given an unchanged exchange rate e_{AB}^*

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[7] Only imports made by registered taxpayers have been taken into account so that the Destination and Common Market Principles are comparable.

and quantities X_A^{1*} and X_B^{2*}, the balance of payments must be restored to equilibrium. Substitution of (1) and (2) in the balance of payments gives

$$P_A^1 (1+t_A) X_A^{1*} + e_{AB}^* t_B P_B^1 X_B^{1*} - t_A P_A^1 X_A^{1*} = e_{AB}^* P_B^2 (1+t_B) X_B^{2*}.$$

Multiplying out and collecting terms gives the original equilibrium namely

$$P_A^1 X_A^{1*} = e_{AB}^* P_B^2 X_B^{2*}.$$

The Clearing-House mechanism is thus neutral regarding international trade and the balance of payments.

LIST OF ABBREVIATIONS AND SYMBOLS

DPS	Deferred payment scheme
CMP	Common market principle
A, B	Countries of the common market
W	Country (rest of the world)
i	Product index $i = 1, 2$
j, k	Country indices $j, k = A, B$
t_j	Tax rate in country j
P^i	Price of good i
X_j^i	Country j's exports of good i
e_{AB}	Exchange rate: price of a unit of country B's currency in terms of country A's currency
T_j	Tax revenue of country j
V_j	Value added in country j
V_{jk}	Value added of country j's exports to country k

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