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## What Have We Learned About the Economic Effects of EC Integration ?

A Survey of the Literature

Claudia Ohly*

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### A Survey of the Literature

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# WHAT HAVE WE LEARNED ABOUT THE ECONOMIC EFFECTS OF EC INTEGRATION? - A SURVEY OF THE LITERATURE

## 1. Introduction

After the signing of the Treaty on European Union the EC is entering into a new stage of integration. This is the time to look back and ask what benefits membership in the Community has brought about so far.[1]

Given the number of countries applying for membership in the EC, it must be assumed that participation in regional integration arrangements implies economic (or other) benefits. However, undertakings such as the accession to the EC or a further deepening of the Community should not be based on intuition and some general and vague expectations of its effects. Politicians want facts and figures on the basis of which they can take decisions. Therefore, economists try to quantify the economic consequences of integration.

Since the early days of the EC, numerous studies have examined different types of effects using a large variety of methods. In the 1960s and 70s, it was mainly the effects stemming from customs union, i.e. trade creation and diversion, that were the subject of research. Today the Internal Market and EMU are the main topics. A subject of discussion which is presently coming up is the expected effects of enlargement.

In this paper, an attempt is made to give an overview of the different approaches found in the literature, with an emphasis on quantitative studies and excluding EMU or enlargement. Section 2 focuses on the impact of the EC budget, while in section 3, the main part of the paper, the effects of integration induced by the customs union and the Internal Market are treated. In that part, different methodologies for the quantification of those effects are discussed. Section 4 briefly deals with the "anti-monde" problem and, in section 5, some final conclusions are drawn.

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1    This paper will also consider the effects of measures taken in the past which will only show up in the future, notably as a result of the Internal Market programme.

Annexed to this paper are a number of tables of quantitative studies concerning the subject matter of section 3. The studies are classified according to several criteria, namely the countries studied, the type of effect analysed, the sectors, time perspective and methodology. Hence, the criteria mentioned in section 3.1 are largely taken up. Moreover, the publications are grouped under the broad headings concerning methodology which were identified in the main text. Within those groups they appear in chronological order. In the column "results" it was attempted to briefly summarize the outcome of the respective study. Given the restricted space, however, only very general and often incomplete information is presented.

Furthermore, a list of references is attached to this paper, which not only covers the literature mentioned in the text and the tables but also other publications, a large number of which are restricted to a qualitative assessment of the costs and benefits of integration. The latter are, however, important for a complete overview of aspects which have not yet been (or cannot be) quantified.

## 2. The impact of the Community budget

### 2.1 The effects of financial flows in general

The financial flows to and from the EC budget are in principle easy to measure. This does, however, not imply that general consensus exists concerning their appropriate size and direction, but - on the contrary - endless discussions or even serious political conflicts have taken place on that matter.

It is possible either to measure the *overall impact* of budgetary flows on a certain country or to evaluate separately the effects on the *revenue* and *expenditure* side. In the latter case, revenues and expenditures can be regarded globally or item by item. As far as expenditures are concerned, this would imply the evaluation of certain EC policies, such as agricultural or structural policy.

The *stabilisation effect* has not played a major role up to now but is likely to become more important in connection with EMU.[2] Impacts on the *allocation of resources* have, if at all, rather been discussed in the context of single policies, e.g. the CAP, the structural funds, R&D or environmental policies. The *redistributive effects* of the budget have mainly been the subject of controversy. Therefore, we are not going into

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2    See Eichengreen (1989), pp. 22-25 and Italianer/Vanheukelen (1993).

more detail here on the overall efficiency effects of the Community budget, but are concentrating on its redistributive impact on individual Member States.

One important aspect of research has been the redistributive effect of the Community's *own resources*, i.e. the question of whether the financing of the EC budget is regressive or not.[3] As customs duties and agricultural levies are collected at the external frontiers of the Community, it is quite difficult to attribute those revenues to the countries which eventually consume the imported products, i.e. the formal incidence differs from the effective incidence, even if the difference is quite limited from a macroeconomic point of view.[4] On the other hand, it is obvious that the GNP-based fourth resource does not pose problems in this respect. The discussion therefore focuses on the regressivity of the VAT resource. Some authors argue that, as the VAT contribution is dependent on consumption, poorer Member States have to carry a relatively heavier burden because their share of consumption in GDP is higher. Others, however, hold that what is true for individuals does not necessarily apply to countries and show empirically that there is no clear (negative) correlation between consumption and GDP of Member States.[5]

*Table 1* gives an overview of the Member States' contributions to the budget.

The lion's share of *expenditures* is spent on the Common Agricultural Policy, which will be dealt with below in more detail. Another important item on the expenditure side is the Structural Funds which consist of the guidance section of the European Agricultural Guidance and Guarantee Fund (EAGGF), the Regional Development Fund (ERDF) and the Social Fund (ESF). Grants from these funds are mainly aimed at strengthening economic and social cohesion in the Community. For an assessment of their impact, see Gordon (1991). The Community expenditures per Member State are presented in *table 2*.[6]

The problem of the differing formal and effective incidince also occurs on the expenditure side. Administrative expenditure, for example, is allocated to the Member States where the Community institutions are located. Those countries certainly benefit considerably from these expenses, but not the complete amount is spent there (e.g. part of the salaries is disbursed in other countries). The same argument as for customs

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3      See, for example, Messal (1991) or Ott (1987).
4      For estimates, see Messal (1991).
5      Biehl(1985), Messal (1991), Ott (1987).
6      The difference between the total of own resources on the one hand and total expenditures on the other is mainly due to the fact that only amounts *actually collected and spent in 1991* are taken account of. The surplus from the preceding financial year as well as appropriations for payments carried over to 1992 are excluded.

*Table 1:*     **Actual own resources by Member State in 1991**
(Mio. ECU)

| | Agricultural levies | Sugar and isoglucose levies | Customs duties | Collection costs | VAT resources | GNP resources | TOTAL |
|---|---|---|---|---|---|---|---|
| B | 130.6 | 72.0 | 840.8 | -104.3 | 1,058.7 | 219.6 | 2,217.4 *4.2%* |
| DK | 13.0 | 40.0 | 255.7 | -30.9 | 596.3 | 159.3 | 1,033.5 *2.0%* |
| D | 180.7 | 350.7 | 3,998.7 | -453.0 | 9,386.2 | 1,931.0 | 15,394.2 *29.1%* |
| GR | 18.2 | 17.7 | 183.4 | -21.9 | 484.1 | 80.7 | 762.1 *1.4%* |
| E | 228.2 | 60.6 | 583.9 | -87.3 | 3,192.8 | 602.0 | 4,580.2 *8.7%* |
| F | 130.3 | 323.3 | 1,578.5 | -203.2 | 7,357.9 | 1,415.2 | 10,602.0 *20.1%* |
| IRL | 2.7 | 12.6 | 153.0 | -16.8 | 255.8 | 45.1 | 452.4 *0.9%* |
| I | 404.5 | 117.2 | 1,158.8 | -168.0 | 5,742.8 | 1,444.5 | 8,699.8 *16.5%* |
| L | 0.2 | - | 18.4 | -1.9 | 79.3 | 12.8 | 108.8 *0.2%* |
| NL | 154.5 | 81.2 | 1,427.1 | -165.5 | 1,715.3 | 325.1 | 3,537.7 *6.7%* |
| P | 104.7 | 0.1 | 131.0 | -25.1 | 425.1 | 76.2 | 712.0 *1.3%* |
| UK | 253.7 | 66.4 | 2,421.9 | -274.2 | 1,111.9 | 1,156.7 | 4,736.4 *9.0%* |
| EC 12 | 1,621.3 | 1,141.8 | 12,751.1 | -1,552.1 | 31,406.2 | 7,468.3 | 52,836.5 *100%* |

Notes:  a) Actual own resources = own resources recovered during the financial year.
  b) It should be noted that, in the case of customs duties, the agricultural levies and the sugar and isoglucose levies, the Member States are responsible for collecting the amounts due on behalf of the Communities. With effect from the financial year 1988 Member States keep 10% of the corresponding amounts payable.
  c) Figures after UK rebate.

Source: Court of Auditors (1992), p. 46.

duties and agricultural levies holds for export subsidies, which are assigned to the countries from which products are exported and not to those that eventually benefit.[7]

The problem of the differing formal and effective incidence also occurs on the expenditure side. Administrative expenditure, for example, is allocated to the Member State where the Community institutions are located. Those countries certainly benefit The concept of *net contributions*[8] is based on the calculation of the difference between a country's payments to and receipts from the Community budget. (Here, again, the above-mentioned problem arises of attributing customs duties and agricultural levies to a certain Member State.) Mainly in the 1980s these figures were the subject of political controversy which eventually led to the establishment of a correction mechanism for Great Britain, which had been complaining that it was paying too much. In the recent discussion of the Delors II package, this problem came up again. Only after political wrangling was agreement reached that the mechanism would be continued.

It is often argued that net contributions provide a very imperfect measure of the costs and benefits of integration as they ignore the effects induced by trade or welfare effects more generally. Even so, the calculation of the net positions makes the national budgetary impact of the Community's revenue and expenditure policies more transparent and can therefore be a useful source of information. It should, however, always be kept in mind that those financial flows just reflect one aspect of EC membership and should not be misused as an argument in distributional conflicts which might threaten the "acquis communautaire" and solidarity between Member States.

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7      Reichenbach (1983).
8      See Ardy (1988), Edwards (1984) or Reichenbach(1983) .

*Table 2:*  **Payments to the Member States in 1991**

(Mio. ECU)

| | EAGGF-Guarantee | EAGGF-Guidance (Agr.) | EAGGF-Guidance (Fish.) | Regional Fund | Social Fund | Repayments to Member States | Others | TOTAL |
|---|---|---|---|---|---|---|---|---|
| B | 1,459.4 | 11.3 | 0.6 | 46.4 | 65.3 | 12.5 | 1,038.5 | 2,634.0 *4.9%* |
| DK | 1,215.6 | 14.1 | 1.9 | 11.3 | 45.8 | 4.2 | 86.9 | 1,379.8 *2.6%* |
| D | 4,990.5 | 181.0 | 3.5 | 94.8 | 239.7 | 252.9 | 835.0 | 6,597.4 *12.3%* |
| GR | 2,211.8 | 223.4 | 1.8 | 537.2 | 349.1 | - | 365.2 | 3,688.5 *6.9%* |
| E | 3,300.3 | 420.3 | 4.5 | 1,488.8 | 697.0 | 482.3 | 481.5 | 6,874.8 *12.8%* |
| F | 6,332.7 | 362.9 | 3.2 | 323.2 | 513.5 | 63.2 | 553.8 | 8,152.5 *15.2%* |
| IRL | 1,628.7 | 153.6 | 3.4 | 411.9 | 403.8 | 101.5 | 106.9 | 2,809.7 *5.2%* |
| I | 5,347.0 | 203.8 | 7.1 | 710.8 | 414.5 | 5.7 | 622.4 | 7,311.2 *13.6%* |
| L | 2.8 | 5.5 | - | -18.3 | 1.8 | - | 240.2 | 268.5 0.5% |
| NL | 2,469.8 | 15.2 | 0.4 | 34.6 | 122.5 | 211.6 | 145.6 | 2,999.8 *5.6%* |
| P | 316.4 | 196.9 | 3.2 | 971.2 | 379.3 | 49.4 | 311.9 | 2,228.2 *4.1%* |
| UK | 2,252.7 | 98.5 | 4.7 | 530.1 | 636.9 | 137.6 | 408.9 | 4,069.5 *7.6%* |
| Allocation not available[a] | 0.0 | -5.4 | - | 1.3 | - | 0.0 | 4,786.8 | 4,782.7 *8.9%* |
| EC12 | 31,527.8 | 1,881.0 | 34.4 | 5,179.9 | 3,869.3 | 1,320.8 | 9,983.4 | 53,796.6 *100.0%* |

a    Including payments relating to administration

Source: Court of Auditors (1992), p. 15.

## 2.2 The impact of the Common Agricultural Policy

The CAP is historically the most important Community policy in budgetary terms. The lion's share of EC expenditures is spent on it, notably on the guarantee section. During the 1980s, about two thirds of the budget were allocated to the agricultural sector; this share is now declining, but agriculture is still the most costly item on the expenditure side of the budget. The CAP has been widely criticized for keeping production prices higher than would be desirable under efficiency considerations and for redistributing income from consumers (tax payers) to farmers. Its impact on welfare can be examined with the aid of partial equilibrium analysis which gives the net welfare effects as the difference between producers' gains on the one hand and consumer loss and government expenditure on the other. A general assessment of the CAP and an abundant bibliography can be found in Rosenblatt (1988).

The CAP's impact on individual Member States has been widely discussed with emphasis on the *net budgetary flows*. Expenditures by country can be easily obtained from the Financial Reports of the EAGGF.[9] The attribution of the financial resources spent on the CAP is more complicated as revenue categories are not assigned to specific expenditures. An appropriate method seems to be to apply each Member State's percentage share of total contributions to the Community budget to total agricultural expenditure.[10] Taking account of the above-mentioned problem, customs duties and agricultural levies could be left out of the calculation.

Furthermore, the *trade transfer effects* resulting from the difference between world market and Community prices implying the benefit of higher export prices on the one hand and the cost of higher import prices on the other can be measured. These trade transfers generally tend to increase the above-mentioned budget transfers.

More recently, calculations of these effects have been carried out by Brown (1989) and Munk (forthcoming). They show that countries with a relatively large-sized agricultural production relative to consumption, i.e. net exporters, such as France and the Netherlands, benefit much more than other Member States.

A survey of older studies on the country-specific effects is provided by Buckwell et al. (1982). The results of the different works presented differ considerably depending on the assumptions made concerning what alternative policy would be pursued in the

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9       European Agricultural Guidance and Guarantee Fund
10      See Rollo/Warwick (1979).

absence of the CAP. Here the substantial problem arises of defining an appropriate "anti-monde" that will also play an important role in the discussion below. In the case of agriculture we would most probably be confronted with protectionist and costly national policies. This should always be kept in mind when the agricultural policy of the Community is assessed.

## 3. Effects induced by trade

The Community budget has regularly been thesubject of controversy in the past and is likely to continue to be so in the future. However, when it comes to the effects on the Member States that are induced by opening up their markets to each other, the discussion becomes even more complex. Not only do differences of opinion exist on what impact integration should have but also on the effects actually observed. In order to be able to discuss those effects, they need to be quantified. In many fields, such a quantification has not taken place yet, and where it exists the results are often criticised. This paper will try to give an overview of studies attempting to measure the costs and benefits of integration. As only a limited number of publications can be explicitly mentioned in this section, a broader spectrum is presented in the annexed tables.

### 3.1 Characterisation of studies measuring the costs and benefits of integration

The studies in question can be classified according to different criteria. First of all, we have to ask what exactly we want to measure. Trade has been the focus of attention in a lot of studies. Even so, it is just an instrument for achieving welfare gains and must not be regarded as an end in itself. The concentration on trade, however, might be due to the fact that trade flows are relatively easy to grasp, whereas the term "welfare" is hard to define in an operational way. This might explain why it is not explicitly treated in a huge proportion of the relevant literature. Studies measuring trade creation and diversion could rely on traditional customs union theory (see section 3.3) which calculates welfare gains or losses on the basis of consumer surplus, producer surplus and tax revenues. In practice, however, most authors just estimate the value of the trade created (or diverted) and do not engage in any welfare calculations. The underlying assumption in most studies seems to be the classical one that trade leads to a more efficient allocation of factors, i.e. production and income increase with given resources. The more trade created, the higher the welfare gains.

Even studies which go beyond the mere measurement of trade flows are not very explicit about the welfare implications of their work. They generally concentrate on one particular aspect, e.g. jobs created or income increases due to integration. In other studies models are designed in which a country maximises an explicit utility function. It has to be kept in mind, however, that those functions can only present a very simplified, if not distorted, picture of reality.

Despite those problems, welfare seems to be a positive function of the effects that are examined in the literature. Welfare can basically be defined as a function of the size and composition of output or consumption in an economy. As mentioned above, an increase in trade flows is considered to be beneficial as it induces specialisation in the production structures of Member States in line with their respective comparative advantage. Consumption possibilities increase for individuals and society as a whole, leading in turn to an increase in welfare. As a consequence of trade, restructuring takes place so that the factors of production are allocated in a more efficient way. This implies that with the same input more goods can be produced. Moreover, larger scale production after restructuring leads to learning effects and economies of scale.[11] Competition from foreign producers also forces industries to reduce x-inefficiencies. All these effects are welfare enhancing as they increase output. If the formation of a customs union (or internal market) leads to an improvement of the Member States' terms of trade vis-à-vis the rest of the world[12], more import goods can be received in exchange for exports, which increases consumption possibilities and therefore welfare in the union. Eventually, dynamic effects raising the rate of growth increase the amount of commodities that can be consumed. At the same time, employment and income are created which are needed to pay for consumption.

On the basis of these considerations empirical studies generally focus on the following *types of effects* which can be taken as a criterion for the classification of such research:

- changes in trade flows and, as a consequence, adjustments in the structure of
  production

- impacts on employment and income,

- terms of trade changes,

- learning effects in production,

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11    Krugman (1979).
12    Petith (1977).

- an increase in technical efficiency,

- economies of scale, and

- changes in the rate of growth (i.e. dynamic effects).

Moreover, in the context of the internal market gains such as cost savings following the elimination of non-tariff barriers, the reduction of prices (the reduction of price cost margins) or an increase in innovative processes, both due to increased competition, are mentioned.

Once-and-for-all gains following integration measures are referred to as *static* effects whereas effects leading to an increase in the rate of growth of the economy in the long run are called *dynamic*. Static effects could also be defined as resulting from a more efficient allocation of *given resources* while dynamic effects imply the creation of *extra resources*.

Often in the respective literature the distinction between those two effects becomes blurred. Or, as Robson puts it: "The term is not without ambiguity in its usage".[13] This might be due to the fact that phenomena like economies of scale and increased technical efficiency result in (static) resource savings on the one hand and induce higher growth rates on the other.

Attempts to measure the effects of integration can be classified according to the *time perspective* as *ex ante* and *ex post*. *Ex ante* studies attempt to predict the effect of prospective integration measures using data from past experience and on the present situation of the countries regarded and some model of how integration works. *Ex post* studies look back at several years of integration and compare the actual economic performance with some estimate of what would have happened without integration. For that purpose a so-called *anti-monde* has to be constructed (see section 4.).

Furthermore, a distinction between aggregate or economy-wide studies and studies concerning particular sectors, industries or even enterprises can be made.

Economic literature usually distinguishes three types of methodology.[14] The *analytical approach* aims to give an economic explanation of the developments following integration and regards the effects observed as a function of certain variables. It attempts to estimate the impact of integration directly using a specified analytical model, the pa-

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13      Robson (1987), p. 32.
14      See e.g. Robson (1987).

rameters of which are estimated from available empirical data using standard statistical techniques. This method can be applied to *ex ante* as well as *ex post* studies.

The second approach is referred to as *residual imputation*. It does not give any explanation of the effects of integration but attempts to make estimates on the development that the economies in question would have experienced in its absence. A so-called *anti-monde* is created, based on assumptions of what would have happened had integration not taken place. The impact of integration is considered to be the unexplained residual that is obtained by subtracting the projections so arrived at for the past period from the developments actually observed in the same period. This method can, of course, only be used for *ex post* research.

A third type of evaluation is the *survey method*. It bases its estimates of the effect of integration on the views of entrepreneurs and other experts. Those persons are interviewed about their opinion on the situation of particular sectors and industries or the extent to which they consider that certain changes due to past or future integration policies have influenced or will influence relevant market-determined variables such as sales or prices. Moreover, the behaviour of entrepreneurs concerning investment, export strategies or specialisation in a particular policy environment can be surveyed. This method shades over into the *case-study approach* (also referred to as *microeconomic studies*), which may generate verifiable statistical data to which other methods, such as the "analytical" one, can be applied.

The classification of methods for the quantification of the potential effects of "1992" used by the Commission[15] differs a little from that described above. While it also comprises surveys and microeconomic studies, it divides the remaining approaches used into

- partial equilibrium microeconomic studies,

- general equilibrium microeconomic approaches,

- macroeconomic analyses and models and

- studies attempting to quantify the dynamic effects of integration.

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15      Commission of the European Communities (1988a).

### 3.2 Business surveys and case studies

The survey approach is less formal, and in practice less aggregative than other methods. The results depend largely on the quality of the questionnaire that is presented to experts or enterprises or of the interviews carried out. No standard description of how to employ this method can be given.

A practical example of its application is the study by Buckley and Artesien (1987b) on direct investment of British, French and German multinationals in Greece, Portugal and Spain, and its impact on employment. The authors designed questionnaires for a sample of 19 firms in the automobile, engineering and chemicals (including pharmaceuticals) industries. The questions covered direct employment numbers, the nature of substitution or complementarity between exports and employment, local purchasing behaviour, tariffs, transport costs and other impediments to trade, taxation etc. The results served as a basis for estimating direct employment impacts of FDI in both source and host countries. Buckley and Artisien identified largely positive employment impacts for the host country. For the source country the effects were more ambiguous: In several cases job losses could be observed. Regarding the overall impact, direct employment has by and large benefited from FDI, although in a significant number of cases the effect was small. (No exact figures are given.)

In the framework of the "Cost of Non-Europe" project, researchers also made use of this method: a survey of European industry's perception of the main barriers to trade and the impact of the internal market on sales volume was carried out. The size of the total increase in sales is estimated to amount to 5% on average; total unit costs are expected to fall by 2%.[16]

The study undertaken by Buckley and Artesien is also one of the very rare examples of research in the field of capital movements. On the whole, "the empirical evidence on the 'trade' and welfare effects of the *integration of European capital markets* is very thin."[17] However, integration in this field is extremely important: it does not only affect the efficiency of the sector itself but also that of resource allocation of sectors using financial markets. Moreover, it influences the conduct of macroeconomic policy, especially when taken with exchange rate commitments as in the EMS.

The "Costs of non-Europe" project made an attempt to quantify the welfare effects of integration of short-term and long-term capital markets through Price Waterhouse (1988) in their case-study on financial services. The existing effects of regulations were

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16     See Commission of the European Communities (1988a).
17     Molle (1990), p. 243.

taken as a basis for the estimation of potential gains. For the quantification of these effects, factors such as comparative prices of specific products or services, the value added to output ratios, net margins in the banking sector or the impact of specific regulations in certain countries were considered. An average price reduction in financial services of 10% can be expected in the Community (8 countries). This amounts to 21 bn ECU in terms of a static reduction in the cost of financial services to the economy or 0.7% of GDP.[18]

In the same context, various industry case-studies were made of the cost structure of enterprises and of the market barriers that they face, including attempts to estimate the possible impact of the restructuring of the industry branch in response to increased competitive pressures.[19]

The methodology applied is based on studies by Müller (1981), Owen (1983) and Müller/Owen (1985), namely an industry-based statistical analysis which has been shown to be capable of establishing the size and direction of the effects of trade on industrial structure, and vice versa, also taking into account economies of scale. In order to quantify the effects of trade on plant size and efficiency, case-studies were carried out in various manufacturing industries collecting information on factors such as trade flows, plant size, concentration or unit costs. First of all, an attempt was made to identify the Minimum Efficient Technical Scale (METS) necessary to exploit the available economies of scale and the rate at which unit costs fall as output increases. Then the empirical evolution of plant size structure in the industries studied was examined. Thirdly, the development of international trade was considered in order to assess if, and to what extent a relationship exists between trade and changes in the industries' structures. Where such changes could be identified, the resource savings involved were estimated on the basis of the unit cost gradients.

A study on the effects of the 1992 project on the 40 industrial sectors which are mostly affected by non-tariff barriers impeding trade was carried out by Buigues et al. (1990). The method they used consisted of three different stages. Firstly, in a static approach, the present performance of the relevant sectors in each Member State was assessed with the help of 4 indicators calculated for recent years. They comprised the ratio of intra-EC exports to intra-EC imports, the ratio of extra-EC exports to extra-EC imports, an export specialisation index and a production specialisation index. In a

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18    For a general equlibrium study on financial services, see Ryan (1992). This
      paper is briefly mentioned in section 3.4.
19    These studies, covering subjects such as "Technical Barriers in the EC: An
      Illustration by Six Industries", "The Cost of Non-Europe for Business
      Services" or "The EC 92 Automobile Sector" were published in: Commission
      of the European Communities (1988b).

second step the historical trends in external performances were calculated and at the third stage the current dynamic adjustment was assessed. For this purpose, several sources of information such as the direct investment made in Member States, the occurrence of take-overs, joint ventures or minority holdings and surveys of companies were used. The results vary between countries and sectors as, of course, the opening up of markets will benefit the more competitive firms, sectors, or countries at the expense of the less competitive ones.

## 3.3 Partial equilibrium microeconomic studies

The partial equilibrium approach can be used to insert information obtained from microeconomic studies and other sources into a more complete framework distinguishing the ultimate ("equilibrium") impacts on consumers, producers and government, all of which add up to the impact in terms of net economic welfare. " Partial" in this context means analysing the impact on individual product markets one at a time. By aggregating the results of partial equilibrium studies for all individual branches of the economy, a first idea can be obtained about the total macroeconomic impact of integration policies.

The conventional method for quantifying the effects of integration-induced trade-flow changes is the partial equilibrium approach. It is based on the *theory of customs unions* and involves measuring changes in consumers' and producers' surplus. A large variety of studies of that type were already published in the 1960s and 70s, being the first attempts to quantify the effects of the creation of a customs union in Europe. The methodology used then is still of some importance today: "Despite four decades of subsequent research the basic tools for analysing the effects of customs unions remain Viner's (1950) trade creation and trade diversion."[20] *Trade creation* refers to a shift from the consumption of higher-cost domestic products to lower-cost imports from a partner country as a consequence of the creation of a customs union. It implies welfare gains. *Trade diversion* refers to a shift from lower-cost imports from third countries to higher cost products of partner countries after the formation of the union. Trade diversion leads to a welfare loss for the importing country. In reality both effects are likely to occur at the same time; so the direction of change in welfare depends on which effect outweighs the other.

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20      Winters (1987), p. 123.

In the following analysis the effects of a customs union are shown in a three-country model.[21] The market conditions in the home (H) and partner country (P) forming the customs union are depicted in the graph below. The third country represents the rest of the world. $S_H$, $S_P$, $D_H$ and $D_P$ are the supply and demand curves in the home and partner country. Curve $S_H+M_P$ combines the home country's supply curve with the supply of (duty-free) imports from the partner country. $P_W$ is the world market price.

Before the formation of the customs union, both countries use tariffs ($P_W T_H$, $P_W T_P$) to protect their home producers so that none of them need import the good in question. If a customs union were established with a common external tariff (CET) calculated as the average of the two national tariffs, supply would exceed demand at the new price (OCET). Hence, the price would go down to the equilibrium price OCET'. In the home country consumption would rise from ON to OQ whereas production would fall from ON to OL. In the partner country production would go up to OT, of which the amount OR would be consumed within P while RT would be exported to H.

For the home country this case implies *trade creation*. The resources saved by replacing its domestic production by imports from the customs union amount to the area *ABD*. It also benefits from a consumer's surplus equivalent to *ADC*. Those two effects sum up to H's total gain from trade creation. In country P a consumption loss equal to *d* would occur. The cost of the additional production would amount to *e*. The extra income from exports (hatched rectangle) would, however, exceed these costs so that the partner country is also better off than in the initial situation. Neither before nor after the formation of the union would there be any trade with the rest of the world.

If the initial tariffs were equal to $P_W CET$ in country H, parts of its consumption (MP) would be imported from the rest of the world. There would be a tariff revenue of $MP*P_W CET$. The formation of a customs union with the common external tariff equal to $P_W CET'$ would in this case result in a *trade diversion* as imports from third countries would be substituted by (more costly) imports from the partner country. The tariff revenue would be lost and the total cost of imports would increase by $MP*P_W CET$. On the other hand a trade creation effect resulting from a gain in consumer's surplus (*c*) and a reduction in production costs (*a*) could still be observed. Those two effects have to be compared in order to judge the overall effect. In this case it would clearly be negative.

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21    This presentation follows closely that of Robson (1987), pp. 14-21.

*Graph 1:* **Trade creation and trade diversion**
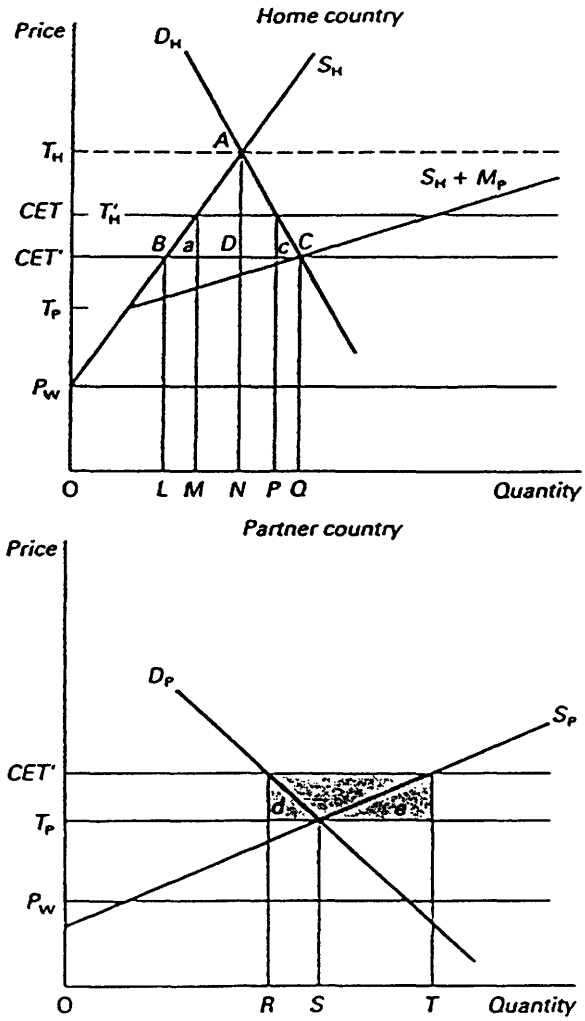


Source: Robson (1987), p. 17.

The concept of trade creation and diversion is concerned with absolute levels. This fact is often not taken account of by critics of integration measures such as the Internal Market who argue that it leads to trade diversion talking of the so-called "fortress Europe". However, they disregard completely the growth effect of the Common Market: only the *share* of third countries in extra trade due to integration decreases; the *absolute amount* is likely to increase.

The following table gives an overview of the results obtained by the early studies on trade creation and diversion in manufacturing shortly after the establishment of the EEC.

*Table 3:* **Empirical ex post measurement of annual trade creation and diversion in the EEC[a]**

| Author | Year(s) considered | Trade creation (US$ bn) | Trade diversion (US$ bn) |
|---|---|---|---|
| Kreinin (1972) | 1967/68 | 4,3 | 1,8 |
| | 1969/70 | 8,9 | 1,9 |
| Truman (1972) | 1968 | 8,7 | 0,9 (incl. trade eroded:[b] 1,6) |
| Verdoorn/Schwartz (1972) | 1969 | 11,1 | 1,1 |
| Aitken (1973)[c] | 1967 | 9,2 | 0,6 (only vis-à-vis EFTA) |

a    Trade in manufactures only.

b    A decrease in trade due to the formation of a customs union (by replacing imports through national production) is called *trade erosion*

c    Projection estimates.

Similar trade-creating and trade-diverting effects are expected as a consequence of the creation of the Internal Market when non-tariff barriers will be eliminated. Those changes can be measured analogously.

Corden (1974) has shown that apart from trade creation and diversion two additional welfare effects can be expected: The *cost reduction* effect can be observed, if integration increases the scale of existing domestic production. It increases welfare.

*Trade suppression,* which is welfare reducing, occurs, if imports from third countries are replaced by more expensive domestic supplies.

Going beyond trade creation and diversion, further effects of integration can be distinguished: as competition increases, inefficient firms will be forced to close down and major restructuring will take place. Larger scale production leads to gains in terms of *economies of scale.* The industrial structures determining the allocation of resources will move closer to an optimal, i.e. efficient, situation. Furthermore, enterprises will have to reduce *X-inefficiencies* if they want to survive under the new market conditions. This means the elimination of overmanning, excess inventories or excess overhead costs. Competition will also threaten *excess profit margins* which have been protected by monopolistic or oligopolistic market structures. These results will not occur as immediately as the direct cost savings due to barrier removal; it will take a longer adjustment period before they will have fully materialised. A graphic explanation of those effects is presented in Annexes A and B.

The Commission, in its study on the impact of the Internal Market, tried to grasp the different types of effects according to the following schema:

*Graph 2:* **The impact of the Internal Market in stages**

|  | Sectors, branches of the economy 1 2 3 ........ N | Total economy |
| --- | --- | --- |
| **Barrier removal effects** | | |
| *Stage 1:* Cost of barriers affecting trade directly | | |
| *Stage 2:* Cost of barriers affecting all production | | |
| **Market integration effects** | | |
| *Stage 3:* Economies of scale from restructuring and increased production | | |
| *Stage 4:* Competition effect on X-inefficiency and monopoly rents | | |
| **Total effects** | | |

Source: Commission of the EC (1988a), p. 152.

For the assessment of the effects of the internal market the partial equilibrium approach was used, considering the production, consumption and trade flows of single commodity groups before and after the elimination of trade barriers.[22] For that purpose

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22    Commission of the European Communities (1988a).

a number of external studies aiming at the identification of these effects have been undertaken for the Commission.[23]

At stage 1 the cost savings due to the elimination of trade barriers, such as border delays at customs posts and related administrative costs, as well as the trade and income effects induced by them were calculated. Production cost reductions after the abolition of barriers limiting market entry or competition were dealt with at stage 2.

Economies of scale and competition effects (stagees 3 and 4 in the Commission study) can in principle be analysed using the same partial equilibrium methods as applied for measuring trade creation and diversion. However, it is difficult to assess the impact of economies of scale or of reduced X-inefficiency on unit costs. Assumptions on how and to what extent increased competition will influence those variables are much more speculative than estimations of direct barrier removal effects.

The Commission's solution was to use a multiplier approach for the calculation of the market integration effects. The direct gains from the removal of non-tariff barriers were taken as a base on which the indirect effects were calculated. For this purpose coefficients which increase as a function of the degree of concentration and the potential economies of scale were used. Those coefficients were derived from the partial equilibrium model designed by Smith and Venables (1988). They were applied to 9 different groups of sectors which were formed according to their relative degree of concentration and their potential for economies of scale and range between 1 ( in the case where the degree of concentration and the economies of scale are low, e.g. food products) to 6 (where those two indicators are high, e.g. in the car industry).

## 3.4 General equilibrium studies

Whereas partial equilibrium approaches only look at individual sectors, general equilibrium studies consider the economy as a whole. They take account of secondary effects that arise when changes in individual product markets affect the supply and demand conditions in other branches. These secondary effects may lead to a different, and possibly bigger, aggregate result for the economy than the adding up of partial equilibrium results would have arrived at.

The general equilibrium approach has been widely used for the measurement of the trade effects of integration (i.e. mainly of trade creation and diversion). Of course, the

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23    See Cawley/Davenport (1988) or Smith/Venables (1988b).

models used can only reflect the interdependence between the different sectors of the economy in a simplified way, i.e. they regard a very restricted number of countries and goods traded, sometimes also incorporating input factors.[24]

In 1974 Prewo attempted to measure integration effects of the EEC between 1959 and 1970 using a multinational input-output model with national inter-industry structures linked together via gravitational trade flows. He found substantial trade creation and only little trade diversion. In 1970 total imports were above the hypothetical imports of the anti-monde by 26% and intra-EEC imports by 64%.

Viaene (1982) tried to quantify the long-term effects of the customs union between Spain and the EC with a general equilibrium model of tariff manipulation. He expected a redistribution of trade away from Spanish producers towards EC and third country producers. For the EC as a whole he calculated gross trade creation ranging from 3.5% in 1983 to 2.8% in 1986.

Where the formation of the customs union causes trade diversion, the demand for imports from the rest of the world decreases, leading to price falls for the goods in question on the world markets. It has been attempted to quantify these *terms of trade effects* of customs union formation using the general equilibrium approach. Petith (1977) has done so by creating a 3-country, 3-goods model, finding gains that by far outweighed the gains from trade creation calculated in traditional customs union theory. His estimates of the effects of terms of trade changes on the level of GNP range from 0.34% to nearly 1%.

An interesting approach - not concerning the EC but Canada and the U.S. - was made by Harris (1984) and Harris and Cox (1984). In their real trade general equilibrium model they incorporated some features associated with the "industrial organisation" approach to trade, i.e. they took account of factors such as imperfect competition, economies of scale, entry barriers and product differentiation. Their findings suggest that the latter might lead to welfare gains from trade liberalisation about four times larger than estimated by the traditionally used competitive models. A survey of imperfect competition trade literature is given by Richardson (1989).

Ryan (1992) attempted to estimate the impact of the 1992 programme on financial services. He also regarded the welfare effects in that sector in six Member States. For that purpose he employed a general equilibrium model taking account of short-term consumption-smoothing inter temporal transfers on the one hand and long-term life

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24    See, for example, Prewo (1974), Miller/Spencer(1977), Grinols (1984) or Gasiorek/Smith/Venables (1992).

cycle related inter temporal transfers on the other. As the financial services sector only accounts for around 6% of EC GDP, the results of the calibrations naturally remain very small in absolute terms. However, in relative terms they are quite significant.

## 3.5 Macroeconomic analyses and studies on the dynamic effects of integration

The microeconomic approaches presented so far describe the final, i.e. "equilibrium" situation, after all effects of integration have worked through. They disregard the effects occurring during the adjustment period as well as the conditions affecting this adjustment process. Macroeconomic approaches are therefore used to examine how the evolution of costs, prices, income and other macroeconomic variables, including macroeconomic policy, respond to changes in market policies. The research has sought to identify the development of employment, investment and growth rates in the period directly following integration policies. Studies are generally carried out *ex ante* and on the basis of macro econometric modeling.[25] Due to the complexity of these models in this framework, no more detailed description of the methodology can be given. Models vary with respect to factors such as time horizon, coverage of countries and products, the production function used, and numerous other assumptions.

Just to give an example, the main characteristics of the models used by the Commission for the macroeconomic evaluation of 1992 are presented:

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25    See, for example, van Frausum (1986), Catinat/Donni/Italianer (1988) or
      Bakhoven (1989).

*Graph 3:*    **Characteristics of two macroeconomic models**

| Model | HERMES | INTERLINK |
|---|---|---|
| Constructed by | EEC (DG XII) and national teams | OECD |
| General characteristics | econometric<br>annual<br>dynamic<br>simultaneous | econometric<br>bi-annual<br>dynamic<br>simultaneous |
| Horizon | medium term | medium term |
| Geographic coverage | B, F, I, UK<br>+ 7 other EC<br>countries<br>+ USA + Japan<br>+ 5 external areas | 24 OECD<br>countries<br>+ 6 external<br>areas |
| Linkage | bilateral flow<br>covering<br>5 products | bilateral flow<br>covering 4 products<br>+ 1 service<br>+ capital flows<br>+ investment income |
| Production | putty-clay with<br>3 or 4 production<br>factors | putty semi-putty<br>with 3 production<br>factors (for the<br>main countries) |
| Size | large | large for the<br>main countries<br>average for the<br>small countries |

Source: Commission of the EC (1988a), p. 191.

The approach underlying most microeconomic studies and partial or general equilibrium analyses can be described as "comparative static". It just deals with the once-and-for-all gains of integration and neglects the impact it can have on the continuing, dynamic evolution of the economy. Those dynamic effects are extremely difficult to explain with scientific rigour, to isolate them from purely static effects, or even to quantify. Economic analysis has so far not managed to throw much light on their operation.[26]

However, there have been some attempts to identify the growth effects of integration. Marques Mendes' (1986/1987) study is based on what he called a "balance of payments constrained growth model framework". He started from the assumption that integration effects are mainly derived from trade and therefore the most appropriate procedure for measurement is to use the foreign trade multiplier, with export growth as the major component of autonomous demand. Furthermore, he assumed that the balance of payments position sets the limit to the growth of demand to which supply can adapt, and that therefore the long-run growth rate can be approximately gauged by the so-called the dynamic version of the foreign trade multiplier. As a result, Marques Mendes found that between 1974 and 1981 for the EC 9 (with the exception of Denmark) average annual growth rates due to membership of the Community have been positive, ranging from 0.31 for Ireland to 1.57 for France.

The Commission of the European Communities also considered growth effects in its report on the potential effects of the internal market.[27] However, in this framework, the dynamic effects are likely to have been underestimated. Baldwin (1989) found considerably higher potential growth rates by multiplying the static output increases calculated in the Cecchini report with the elasticity of output with respect to the capital stock in a Cobb-Douglas type production function with non-constant returns to scale. He considered the Commission's estimates of static effects and the medium-run growth bonus to be at least 30% too low. Regarding the long-run effects, Baldwin's estimate of the total effect amounted to approximately double that of the Cecchini Report, namely from 5 to 13%. Under certain assumptions he even calculated an upper bound for the increase in discounted income which ranged from 11 to 35%.

The issue of underestimation of dynamic effects of integration also arises in the context of Economic and Monetary Union (EMU). First, because the costs and benefits of

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26    Robson (1987), p.33.
27    For the results obtained, see Commission of the European Communities
       (1988a).

EMU have different dimensions and cannot be brought under the same denominator as done in the traditional literature on optimal currency areas. Furthermore, the literature does not seem to sufficiently take the static and dynamic effects of the introduction of a single currency into account. According to Matthes and Italianer (1991), it seems that only a small proportion of the potential benefits has actually been identified up to now and it would seem most probable that the total gains will by far outweigh the costs. Moreover, the costs of creating a Monetary Union would in general only be transitory. Also it would be likely that the gains from a single currency will be considerable for the poorer countries in the Community, notably in comparison with their present situation. In their case, the defects of the traditional theory become particularly obvious.

On the basis of the gains forecast in the Commission study on the "Cost of Non-Europe", the Prognos Institute (1990) attempted to allocate the overall employment effects to individual Member States. For this purpose matrices taking account of the distribution of locational advantages between sectors and countries were designed. They were used to predict to where production will move in the case of major restructuring. The results are presented in the table below.

De Melo, Panagariya and Rodrik (1992) used a relatively simple cross-country regression model for the ex post quantification of growth effects due to regional integration arrangements. They did not find any impact of EC membership on per capita income growth. This, however, might be due to the fact that one of the explanatory variables used in the regressions is the share of investment in GDP, which is likely to be positively correlated with membership in the Community. The ordinary least square procedure employed in the study is therefore biased against finding positive growth effects.

## 3.6 Conclusions

Research on the effects of integration was sparked off by the creation of a customs union in Europe. A vast number of studies were published in the late 1960s and the 1970s. They mainly attempted to measure trade creation and trade diversion. During the 1980s the methods used became more sophisticated. Research also turned towards phenomena such as intra-industry trade and economies of scale. In 1988 a new "boom" started with the publication of the Cecchini report. In this study a wide spectrum of methodologies was used in order to obtain a comprehensive view of the possible

*Table 4:*   Effects of the internal market on employment in the Member States by the year 2000 (in 100)

| | B | DK | D | E | F | GR | IRL | I | L | NL | P | UK | EC12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 4 | 7 | 41 | 66 | 56 | 48 | 7 | 93 | 0 | 13 | 39 | 24 | 398 |
| Mining | 3 | 1 | 34 | - | 22 | 6 | 1 | - | 1 | - | - | 25 | 92 |
| Manufacturing | 111 | 73 | 1328 | 381 | 604 | 93 | 26 | 592 | 5 | 133 | 157 | 776 | 4,281 |
| Building | 44 | 41 | 466 | 228 | 391 | 50 | 16 | 384 | 3 | 84 | 80 | 441 | 2,228 |
| Energy, water supply | 7 | 4 | 54 | 17 | 38 | 8 | 3 | 39 | 0 | 10 | 6 | 50 | 235 |
| Transport, communication | 72 | 47 | 439 | 259 | 408 | 52 | 15 | 423 | 4 | 111 | 36 | 443 | 2,310 |
| Wholesale, retailing | 95 | 31 | 470 | 262 | 414 | 77 | 22 | 594 | 3 | 96 | 42 | 768 | 2,874 |
| Catering | - | 14 | 233 | 210 | 185 | - | - | 256 | 4 | 29 | 42 | - | 973 |
| Banking, insurance | 190 | 55 | 230 | 83 | 653 | 33 | 20 | 573 | 3 | 103 | 26 | 1,028 | 2,997 |
| Housing | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Government | 114 | 104 | 707 | 273 | 911 | - | 11 | 514 | 3 | 107 | 75 | 832 | 3,652 |
| Other services | 12 | 22 | 984 | 231 | - | 95 | 36 | 102 | 4 | 147 | 41 | 539 | 2,216 |
| Total | 653 | 399 | 4,985 | 2,012 | 3,682 | 463 | 158 | 3,571 | 30 | 833 | 545 | 4,926 | 22,255 |

Source: Prognos AG (1990), p. 401.

impact of the 1992 project. Numerous economists have since then attempted to assess either the overall effect or particular aspects of the single market.

Even though some authors come to the conclusion that EC membership has had a negative impact on a particular country or region, the consensus view seems to be that the overall effects of integration are positive. As for the quantification of those effects, however, the exactness of the results is doubtful, as models need to present a very simplified picture of reality. Moreover, with methods and assumptions widely differing, the figures obtained are hardly comparable. Despite these reservations, it has to be concluded that the research into the effects of integration has been very useful in showing that these have in principle been positive and - what is more - of a non-negligible size. As for the impact of the Internal Market, expectations are generally positive. At present, is is, however, too early for an ex post evaluation.

## 4. The "anti-monde" problem

All empirical studies attempting to quantify the effects of integration have been faced with the problem of how to isolate those effects from the developments that would have taken place (or will take place) in the absence of integration. For example, was the increase in trade between two countries due to integration policies or was it a consequence of growth which led to an increase in consumption in general and in the demand for imports in particular? How will employment develop in the future, if certain measures in the field of integration are taken, and how will it, if they are not? In the real world integration is just one of a large number of factors that influence international trading patterns and the variables affected by them.

In residual imputation models this anti-monde must be explicitly estimated in order to calculate the effects of integration as the unexplained residual. In other types of studies this problem does not necessarily need to be explicitly dealt with. This does, however, imply that implicitly assumptions have been made about the anti-monde even if they are just very simplifying ones such as assuming that in the absence of integration everything will remain unchanged or develop along the trend which is currently observed. The impact of integration can not possibly be isolated and quantified without the use of an anti-monde in one way or another.

Even in the early studies of the *residual imputation* type attempting to quantify the above-mentioned trade effects of integration, a large variety of methods were used to

estimate the anti-monde.[28] Many of these studies use *import models*, i.e. for the creation of the anti-monde they concentrate on explanatory variables from the importing country alone. Three different types of import models can be distinguished. The first refers to the *demand for imports*, and assumes that imports would have increased over time without the trading agreement at exactly the same rate as they did before the agreement came into effect. The second type takes the relative *shares* of various suppliers *in apparent consumption* as the point of reference assuming a linear trend in the shares in the anti-monde. The third type makes the assumption that the anti-monde is such that *income elasticities of demand for imports* would not have changed.

The methodology described so far can be improved by *incorporating supply variables*. It could, for instance, be assumed that trade between a pair of countries depends on variables in both of them and that it is a function of total trade of each of the two countries. Then the anti-monde varies proportionally with total exports of the exporting country and total imports of the importing country. A further improvement of the methodology is achieved by the so-called gravitational model. It suggests that the trade flows between any pair of countries is a multiplicative function of their respective national incomes, populations and the distance between them. The model is estimated using cross-section data and the effects of trading arrangements are calculated by the unexplained residual in the regression or by the inclusion of a dummy variable for trade between partner countries.

Last but not least, some residual models incorporate *information from third countries*, e.g. they regard the change in shares of non-members and Member States of the EC in other markets, where neither suffers nor benefits from discrimination.

*Analytical models* attempt to provide an economic explanation of the actual post-integration situation. This is a necessary requirement for all ex ante models as of course the actual values of trade flows in the future are unknown. Many of the numerous models developed in the 60s and 70s concentrate on the economic behaviour of the importing country. In particular it is assumed that imports are a function of income or economic activity and the relative prices of imported and domestic products. Therefore, trade creation can be predicted from the change in tariff levels if the relation between tariff changes and price changes is assumed, and trade diversion can be estimated if the elasticity of substitution with respect to price changes between partner and excluded countries is known.

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28    For an overview, see Mayes (1978).

The more sophisticated the methods of research, the more complicated is the definition of the anti-monde. In macroeconomic models, for example, one does not only have to make assumptions about trade flows but a complete baseline-scenario must be developed against which the results of the simulations of the integration situation can be measured. This comprises assumptions about the economic, monetary and exchange rate regime that would prevail in the absence of integration, as well as about the economic policies pursued in the framework of this regime. Moreover, it implies suppositions about a lot of variables such as the behaviour of economic agents, institutions or the economic development in third countries. This, of course, raises the potential for errors in the sense of unrealistic hypotheses which in turn distort the results obtained.

Regarding what has been said so far, it can be concluded the definition of an appropriate anti-monde is a serious problem for the quantification of the benefits of integration.

## 5. Conclusions and outlook

Since the establishment of the European Community, quite a number of studies have been published on the effects of integration. Mostly they cover just one particular type of benefit, country or sector. The bulk of research was done on trade effects from an *ex post* perspective.[29] Hardly any of the studies attempt to give a complete overview of the impact of EC membership on one or several countries. If they do so, the evaluation is mainly done in qualitative terms.

A major problem of all research done is that the underlying assumptions tend to be generally simplifying, abstracting from reality. In particular, the identification of the anti-monde causes a lot of difficulties. It implies making statements on what would happen (or would have happened) if integration had not taken place or, in other words, the isolation of the effects of integration from economic developments due to other influences. This is a task that requires imagination more than anything else, and is often decisive for the results obtained.

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29    The ex ante approach was used relatively often, too, but rather in more recent studies and/or for the estimation of macroeconomic effects.

The considerable differences between the results of various studies investigating the same subject (e.g. concerning the estimations of the impact of the internal market) can be taken as an indication of the complexity of the task.

At present, a sound and comprehensive analysis in a unified framework of the overall economic benefits of integration in the EC does not exist. More sophisticated methods for the measurement of its effects remain to be developed.

Effects of eliminating market barriers and distortions for a given commodity (the case in which comparative advantage can be exploited by trade)
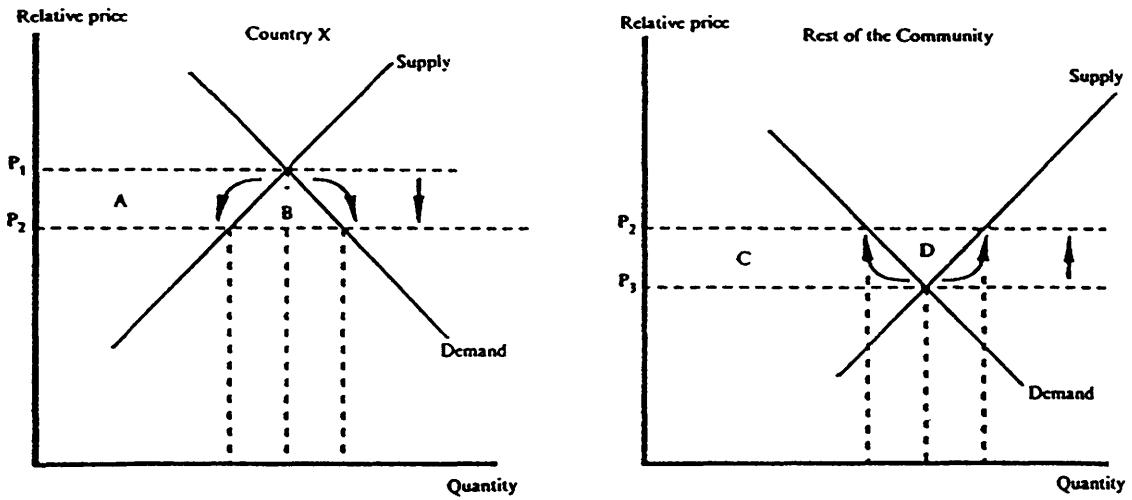


**Comments**

As a result of removing certain market barriers or distortions, the relative price of a given commodity is equalized throughout the economy, at $P_2$, compared to the higher protected price $P_1$ in country X, and the lower price $P_3$ elsewhere, that prevailed earlier. These differences in supply conditions between country X and the rest of the Community reflect the existence of a comparative disadvantage for country X.

In country X, consumers gain to the extent of the areas A + B, while producers lose to the extent of area A. In the rest of the Community, producers gain to the extent of areas C + D, while consumers lose to the extent of area C. Overall, the Community economy makes an aggregate net welfare gain to the extent of areas B + D, and both consumer and producer groups make net gains too in the economy as a whole.

Analogous reasoning can be used to show how net gains are made when price distortions between two products within a single economy (due for example to subsidies for one product, financed by taxes on another) are removed.

Source: Commission of the European Communities (1988a), p.35.

Effects of eliminating cost-increasing trade barriers (the case of enhanced competition where there are no comparative advantages between countries)
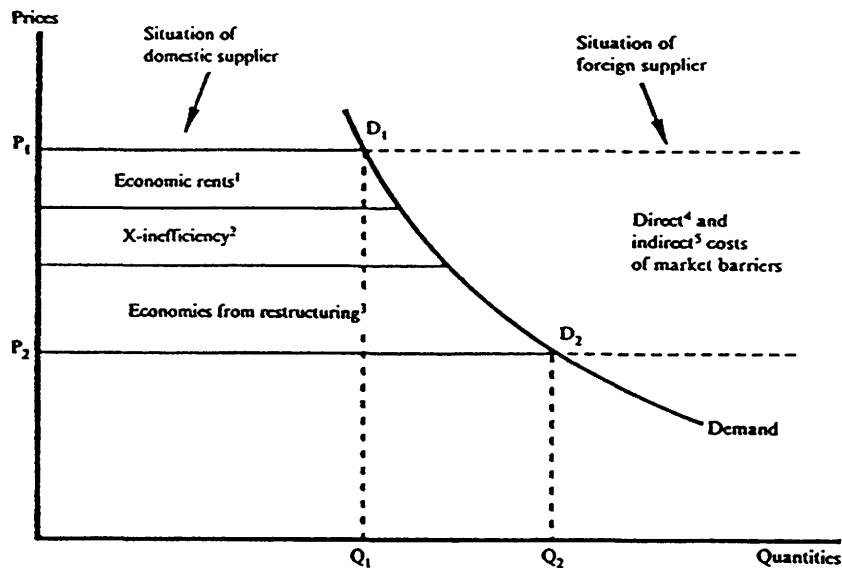


**1** Economic rents consist of the margin of excess profits or wage rates that result from market protection.
**2** X-inefficiency consists of, for example, the costs of overmanning, excess overhead costs and excess inventories (i.e. inefficiencies not related to the production technology of the firm's investments).
**3** Economies from restructuring include, for example, the greater economies of scale or scope obtained when inefficient production capacity is eliminated and new investments made.
**4** Direct costs are those, such as delays at frontiers and the cost of differing technical regulations, that would immediately fall if the market barriers were eliminated.
**5** Indirect costs are those that would fall as foreign suppliers adjust to the more competitive situation with more efficient production and marketing.

Comments

As barriers are eliminated, importers are able to reduce their prices down from P₁, initially in line with the direct costs of these barriers. Domestic suppliers of the same product respond in order to defend their market, and in the first instance they reduce excess profits or wages, or eliminate inefficiency of different kinds (overhead costs, excess manning and inventories, etc.). As prices decline, demand also increases from Q₁ and this is partly responsible for triggering investment in new productive capacity, and this results in improved economies of scale and further price reductions. Further, the more competitive market environment leads enterprises to reconsider their business strategies in a more fundamental way. As a result, a process of restructuring ensues over a period of years (mergers and liquidations as well as new investments), which leads to a still fuller exploitation of technically available economies of scale. The price eventually falls to the lower equilibrium level of P₂ with total demand increasing to Q₂.

Consumers gain as a result of these price reductions, both with respect to their initial level of purchases and the increased purchases induced by the fall in price. This gain is indicated in the figure by area P₁ - D₁ - D₂ - P₂.

Producers are largely able to offset the price reductions by cost reductions, although there will be some losses of 'economic rents' (excess profits or wages in the previously protected enterprises, represented by the rectangle under P₁-D₁). On the other hand, producers have become more efficient, and so may gain world market shares, thereby increasing production and profits. To some extent this may be offset by increased home market penetration by suppliers from third countries, since the reduction in barriers may benefit not only other Community suppliers, but also those from third countries (these third country effects are not shown in the figure).

The total welfare gain for the economy, in this simplified case, amounts to the consumer gain, less the loss of protected profits. This assumes that all the resources released in the reduction of costs are re-employed productively in the economy, although there may be some time-lag before this happens completely.

Source: Commission of the European Communities (1988a), p. 36.

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## Characterisation of empirical studies on the impact of integration

## Business surveys and case studies

| Author | Countries Studied | Type of Effect | Sector | Time Perspective | Methodology | Result |
|---|---|---|---|---|---|---|
| Müller (1981) | D, F, I, UK | Trade (intra-industry), productivity growth | Car, truck, white goods industries | ex post | Rough calculation of resource saving effects of trade | Significant savings of production costs (e.g. about 1% on French car production, 7% on Italian washing machines |
| Owen (1983) | D, F, I, UK | Trade, industrial structure, efficiency | Car, truck, white goods industries | ex post | - Case studies: development of trade flows, plant size, concentration, unit costs<br>- Test of hypothesis on interdependence of these indicators<br>- Rough estimation of resource saving effect | Resource savings of around 50% of the value of trade itself |
| Buckley/ Artesien (1987a)/ (1987b) | D, E, F, GR, P, UK | FDI, employment | Manufacturing | ex post | - Survey (interviews with investors)<br>- Estimation of direct employment effects in the sample | Generally positive employment impact in host country; mixed effect on source country; overall effect positive but often small |
| Müller/ Owen (1985/89) | Germany | Industrial structure, efficiency | Manufacturing (12 industries) | ex post | Estimation of resource savings due to plant size changes | 1963-78: unit cost reduction of 8%; efficiency gain of 20% of trade created |

## Partial equilibrium studies

| Author | Countries Studied | Type of Effect | Sector | Time Perspective | Methodology | Result |
|---|---|---|---|---|---|---|
| Kreinin (1972) | EC 6 | Trade | Manufacturing | ex post | Vinerian calculation of trade creation and diversion | Trade creation :<br>1967/68: 4.3<br>1969/70: 8.9<br>Trade diversion:<br>1967/68:1.8<br>1969/70:1.9 (US$ bn) |
| Truman (1972), | EC 6/EFTA | Trade | Manufacturing | ex post | Estimation of changes in shares of expenditure on apparent consumption of manufactured goods | 1968:<br>Trade creation: 8.7<br>Trade diversion: 0.9<br>Trade diversion + erosion: 1.6 (US$ bn) |
| Verdoorn/ Schwartz (1972) | EC 6/EFTA | Trade | Manufacturing | ex post | - Weighted Share Analysis<br>- Combination by means of regression of gravitational model with application of traditional demand analysis to trade | 1969:<br>Trade creation: 11.1<br>Trade diversion: 1.1<br>(US$ bn) |
| Aitken (1973) | EC 6/EFTA | Trade | Manufacturing | ex post | Cross-sectional trade flow model | 1967:<br>Trade creation: 9.2<br>Trade diversion: 0.6<br>(US$ bn) |
| Smith/Ven ables (1988) | EC 12 | Welfare gains due to internal market | Manufacturing (several industries) | ex ante | Model of imperfect competition with economies of scale; simulation of:<br>a) Reduction in intra-EC trade barriers<br>b) Elimination of price discrimination | Electrical household appliances:<br>a):Increase in welfare by 0.64% of base consumption<br>b) Increase in welfare by 1.79% |
| Neven (1990) | EC 12 (distinction between "North" and "South" | Trade, production, economies of scale | Clothing, footwear | ex ante | - Estimation of effect of removal of NTBs with small model of imperfect competition<br>- Estimation of economies of scale left unexhausted on the basis of data on distribution of firm size across countries | South: Increase in production by 14%; boost in GNP by 0.6%<br>North: deterioration of BoP of about 0.5% |
| Brenton/ Winters (1992) | F, D, I, UK | Trade-effects of 1992 | Manufacturing | ex ante | Almost Ideal Demand System model, estimation of international trade elasticities | - Domestic prices constant: welfare increase of 0.7% of base year sales<br>- Fall in domestic prices: welfare increase of 2.7% of base year sales |

# General equilibrium studies

| Author | Countries Studied | Type of Effect | Sector | Time Perspective | Methodology | Result |
|---|---|---|---|---|---|---|
| Prewo (1974) | EC 6 | Trade | 11 trade goods sectors (agriculture, food products, fuels + mining, manufacturing) | ex post | Multinational input-output model with national inter-industry structures linked together via gravitational trade flows | *1970:* Trade creation (EC): 17.3; Net external trade creation: 2.3 (US$ bn) |
| Petith (1977) | D, F (EC 6) | Terms of trade, effects on GNP | Manufacturing | ex post | Extension of Mundell's (1964) three-country model | Average improvement of tot: 3.0% Average growth of GNP due to tot: 0.4% |
| Miller/ Spencer (1977) | UK | Welfare effects of UK entry into EC: trade + transfers of tariff revenues to CAP | 8 final goods (manufacturing, agriculture) | ex ante | Four-country trade model | Virtually no change without transfer of tariff revenues. Welfare loss of 1.8% in case of transfers. |
| Viaene (1982) | Spain | Trade, general macro-effects of accession | | ex ante | Model of tariff manipulation linked to macro-economic model of Spain | *1983:* Trade creation with EC:0.103 External trade creation: 0.143 (US$ bn) %age increase in unemployment: 0.774 |
| Grinols (1984) | UK | Trade, financial transfers after accession | | ex post | Model of customs union formation (incorporating financial transfers) | Annual welfare losses of up to 4% of GDP |
| Winters (1984) | UK | Imports after accession | Manufacturing | ex post | "Almost Ideal Demand System" model | Increase in UK imports from EC by at least £ 6 bn p.a. by 1979 |
| Winters (1985) | UK | Trade + output effect of accession | Manufacturing | ex post | - Discussion (and rejection) of two-stage (separable) import model - Non-separable, non-homothetic model | 1979: US$ 9.4 bn increase in UK exports overall effect: worsening of trade balance + reduction in gross output |
| Gasiorek/ Smith/ Venables (1992) | EC 12 | Trade- + welfare-effects of 1992 | | ex ante | General equilibrium model of imperfect competition and economies of scale | e.g. integrated markets, long-run (= upper bond): welfare gain as %age of GDP ranging from 0.8 (BLEU, DK), 1.8(I), 1.9(UK) to 2.9 (GR, IRL) |
| Ryan (1992) | B, D, F, I, NL, UK | 1992 effects on trade in... | ...financial services | ex ante | Model of intermediation of intertemporal financial services | %age change in output. 0.95 (D), 0.13 (F), 0.09 (I), 0.136 (NL), 0.168 (UK) |

# Macroeconomic analyses

| Author | Countries Studied | Type of Effect | Sector | Time Per-spective | Methodology | Result |
|---|---|---|---|---|---|---|
| Askari (1974) | EC 6 | Employ-ment, growth | | ex post | Simple calculation of contribution of foreign labour on growth (multiplication of annual contribution of labour to growth [Denison 1967] by foreign workers as %age of total labour force) | Annual contribution of foreign labour to growth (in % of total growth) ranging from 0 in I, 0.3 in NL to 1.7 in B and 7.3 in L *(1970)* |
| Van Frausum (1986) | Greece | Macro-effects | | ex ante | GRACINT: aggregate demand type econometric model; TSLS | After 6 years: - 20,000 additional jobs in industry - 3.4 to 4.5 %age point rise in level of real GDP |
| Marques Mendes (1986/ 1987) | EC 5/8 | Growth | | ex post | "Balance of Payments Constrained Model Framework" | 1974-81: Growth rate due to EC ranging from -0.64 for DK, 0.31 for IRL to 0.91 for D and 1.57 for F. |
| De Grauwe (1987) | EMS countries | Effect of decline in X-rate variability on trade | | ex post | Regression model to isolate exchange rate variability effect on growth of trade | 1975-85: Decline in X-rate variability only added 0.1% of intra-EMS growth of trade |
| Commis-sion of the EC (1988a) | EC 12 | Potential micro- and macro-effects of 1992 | | ex ante | Combination of various methodologies | Medium-term: 4.5% increase in GDP; 1.866 mio. increase in employment |
| Bakhoven (1989) | EC 12 | Macro-effects of 1992 (ex-pected, not potential!) | | ex ante | Simulation with CPB world model | After 6 years: 2.3% increase in GNP; 0.1% reduction in employment |
| Baldwin (1989) | EC 12 | Dynamic growth effects of 1992 | | ex ante | Multiplication of static output increases with output capital elasticity (Cobb-Douglas function) | Long-term growth effects: between 5 and 13% (or higher) |
| Central Planning Bureau (CPB) (1989) | Nether-lands | Expected effects of 1992 (macro + sectoral) | | ex ante | - Basic methodology of Cecchini Report - Macro-effects on NL: Athena sector model - Effects on EC + 3rd countries: CPB world model | By 1998: 3.25% increase in volume of GNP; 1.5% increase in employment in manufacturing industry; 1% fall in employment in tertiary services |
| Ten Brink/ Groenen/ Kolodzie-jak (1989) | EC 12 | Macro-effects of 1992 | | ex ante | World simulation model GLOBUS incorporating political processes | By 1998: 4.6% GNP increase; 0.4% reduction in employment |
| de Melo/ Pana-gariya/ Rodrik (1992) | EC 12, other regional integration arrange-ments | Growth | | ex post | Cross-country regression model | 1960-85: No significant effect on growth |

# Economic Papers

The following papers have been issued. Copies may be obtained by applying to the address mentioned on the inside front cover.

No. 1    EEC–DG II inflationary expectations. Survey based inflationary expectations for the EEC countries, by F. Papadia and V. Basano (May 1981).

No. 3    A review of the informal Economy in the European Community, By Adrian Smith (July 1981).

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