CEPII

CENTRE
D'ÉTUDES PROSPECTIVES
ET D'INFORMATIONS
INTERNATIONALES

Central and Eastern European Countries
In the International Division of Labour in Europe

_____

Michael Freudenberg
Françoise Lemoine

3

CENTRAL AND EASTERN EUROPEAN COUNTRIES
IN THE INTERNATIONAL DIVISION OF LABOUR IN EUROPE

TABLE OF CONTENTS

RÉSUMÉ

Dix pays d'Europe centrale et orientale sont candidats à l'entrée dans l'Union européenne et cinq d'entre eux ont déjà engagé des négociations d'adhésion. Dans le cadre des accords d'Association que ces dix pays ont avec l'UE, les échanges de produits industriels ont déjà été, pour l'essentiel, libéralisés. Dans la perspective de leur intégration dans l'Union européenne, cette étude analyse l'évolution de la place des pays candidats dans la division internationale du travail en Europe au cours de ces toutes dernières années.

L'étude montre que, par delà la relative stabilité de leurs avantages comparatifs, des changements sont en cours et suggère que l'état actuel de leurs avantages comparatifs pourraient refléter plus des points forts hérités du passé que leurs futures spécialisations. Premièrement, on observe une tendance à la déspécialisation : le commerce des pays d'Europe centrale se caractérise par une réduction de leurs avantages comparatifs dans les secteurs où ceux-ci étaient les plus forts (habillement) et une réduction de leurs désavantages comparatifs les plus marqués. Deuxièmement au cours de cette brève période certains pays ont réussi à se bâtir des avantages comparatifs dans de nouveaux secteurs industriels. L'émergence de nouveaux points forts a été particulièrement remarquable dans les industries mécaniques, où certains pays d'Europe centrale ont réussi une forte percée à l'exportation. Troisièmement, les investissements directs étrangers jouent désormais un rôle significatif dans les industries manufacturières de ces pays et sont souvent à l'origine des bonnes performances à l'exportation.

L'étude analyse ensuite la structure du commerce des pays candidats à la lumière de deux phénomènes observables dans le commerce entre pays industrialisés et qui caractérisent le processus de globalisation. D'abord, la division internationale des processus de production (la segmentation internationale de la chaîne des valeurs ajoutées), qui permet une spécialisation plus profonde. Ensuite, le commerce intra-industriel, qui peut porter sur des produits différenciés horizontalement (échange de variétés) ou sur des produits différenciés verticalement (échanges de qualités).

Le poids croissant des produits intermédiaires dans les exportations comme dans les importations des pays candidats suggère que ces pays sont de plus en plus engagés dans une division internationale des processus de production en Europe. L'analyse des échanges par stades de production montre que cette segmentation internationale des processus de production entre les deux parties de l'Europe, qui était autrefois cantonnée à des industries traditionnelles (textile-habillement), s'est étendue ces dernières années à de nouvelles industries (automobile, matériel de télécommunication). Cette analyse permet aussi de nuancer la portée des changements intervenus dans la structure sectorielle d'échanges des pays d'Europe centrale et orientale. Ainsi la progression des exportations des pays d'Europe centrale dans les industries mécaniques est due à celle des produits intermédiaires et non à celle des biens d'investissement. La diversification des exportations s'est donc faite au profit des productions les moins élaborées. L'écart entre les structures d'exportation par stade de production des pays candidats et celles de l'UE reste important. D'un autre coté, la production des pays candidats incorpore une fraction croissante de produits intermédiaires importés, ce qui devrait à terme améliorer la compétitivité des secteurs aval.

Pour apprécier le degré d'asymétrie structurelle entre les pays de l'est et de l'ouest de l'Europe et les effets potentiels de la première vague d'élargissement sur les structures de production, l'étude met en évidence l'importance respective du commerce inter et intra-industriel, en se fondant sur une analyse des échangés bilatéraux au niveau le plus fin de la nomenclature.

Une des principales conclusions est que le commerce des pays baltes et des pays balkaniques avec l'UE reste pour l'essentiel un commerce univoque (intersectoriel), correspondant à une division traditionnelle du travail conforme aux avantages comparatifs. Par contre, le commerce des pays d'Europe centrale (en particulier la République tchèque, la Hongrie et la Slovénie) se caractérise par le poids relativement important et croissant des échanges intra industriels, qui correspond, en partie, à la "nouvelle économie internationale", fondée sur les économies d'échelle et la différenciation des produits. Cette situation révèle que ces pays ont des structures de production qui convergent progressivement avec celles des pays d'Europe occidentale. Les différences ainsi mises en évidence entre les pays candidats ont des implications sur les coûts de l'élargissement dans la mesure où ceux-ci sont censés être moins importants dans le cas d'un commerce intra-industriel que dans le cas d'échanges interindustriels. Dans ce dernier cas en effet, le renforcement de la spécialisation implique l'abandon des productions qui ont un désavantage comparatif et la réallocation des facteurs de production vers un nombre limité de secteurs exportateurs. Cependant l'analyse des échanges en termes de différenciation des produits montre que pour tous les pays candidats, le commerce intra-industriel de produits différenciés verticalement (associé à une spécialisation sur des gammes de qualité) est beaucoup plus important et plus dynamique que le commerce de produits différenciés horizontalement (associé à des échanges de variétés).

D'où la question de la spécialisation des pays candidats en termes de qualité. Ceux-ci demeurent globalement spécialisés sur les produits bas de gamme et moyenne gamme. Cependant, tous les pays d'Europe centrale ont réduit le désavantage comparatif qu'ils ont dans les produits haut de gamme et certains d'entre eux ont développé un avantage comparatif dans le haut de gamme sur certains des secteurs où ils ont les plus gros excédents commerciaux. On observe aussi dans bien des cas la coexistence au sein d'un même secteur d'un relatif excédent sur une gamme de qualité et d'un relatif déficit sur une autre gamme. Les pays d'Europe centrale et orientale ont généralement un désavantage comparatif dans le haut de gamme des secteurs où elles ont globalement un avantage comparatif, mais ils ont aussi, parfois, un avantage comparatif dans le bas de gamme des secteurs où ils sont globalement déficitaires. Il existe ainsi une division qualitative du travail entre l'est et l'ouest de l'Europe. Entre 1993 et 1996, les pays d'Europe centrale ont tous amélioré leur position relative sur le haut de gamme, ce qui n'est pas le cas des pays baltes et des pays balkaniques. Ainsi l'intégration de la première vague de candidats ne devrait pas suivre un scénario qui les cantonnerait dans une spécialisation résiduelle dans le bas de gamme, avec toutes les conséquences négatives que cela implique pour leurs perspectives de rattrapage.

7

SUMMARY

Ten countries in Central and Eastern Europe have applied for EU membership and five of them (Estonia, Hungary, Czech Republic, Poland, Slovenia) have already begun negotiation for accession . All ten countries have Association agreements with the EU, which have liberalised most trade in industrial products. In the perspective of their future integration in an enlarged EU, the present paper analyses the position of the ten candidates in the international division of labour in Europe, for the recent period (1993-1996).

The paper points out that beyond the relative stability in the pattern of comparative advantage observed at the industry level, changes are underway. The present pattern of comparative advantage may reflect more the past strengths of these countries than their future specialisation. First, there has been a trend towards de-specialisation: trade of Central European countries has been characterised by a decrease of their revealed comparative advantages in the very sectors in which they were the strongest (mainly in clothing and footwear industries), as well as by a decrease of some of their largest comparative disadvantages. Second, in this short period of time, some countries succeeded in building new comparative advantages. Most remarkable changes took place in engineering industries in which Central European countries have achieved high export growth. Third, the involvement of foreign capital in manufacturing industry has reached high levels and has been an important element underlying export performance.

The patterns of CEECs' trade with the EU and their implications was also analysed in the light of two phenomena which can be found in trade among industrialised countries and which have characterised recent trends in globalisation: first, the international division of the production process (i.e. the international splitting of the value added chain) which allows an ever-deeper specialisation; second, intra-industry trade which may concern horizontally differentiated goods (exchanges of varieties) or vertically differentiated goods (exchanges of qualities).

The increasing share of intermediate products in the CEECs' exports and imports over 1993-1996 period suggests that these countries are more and more involved in the international division of the production process within Europe. A closer investigation confirms that the international segmentation of production between the two parts of Europe which was in the past concentrated in traditional sectors (textile-clothing and leather-shoe industries), has recently been extended to other industries (electrical machinery, motor vehicles). The analysis of trade by stage of production also allows the changes in the structure of trade by industry to be qualified. The CEECs' exports of engineering products, which are increasing at an accelerated pace, are for their largest part made up of intermediate, and not of capital goods. Despite a progress towards diversification, CEEC exports are still largely dominated by less elaborated products. The gap between EU and CEEC export structures remains large. But as CEEC domestic production incorporates an increasing proportion of imported inputs, it should lead to an improvement of their competitiveness in downstream sectors.

To assess the degree of (structural) asymmetry among Western and Eastern European countries and the potential effects on production structures in the CEECs due to the first

wave of EU's Eastward enlargement, the paper also analyses the nature of trade in terms of inter-versus intra-industry trade, using the most detailed level of trade statistics.

One of the main findings is that trade with Balkan and Baltic countries remains almost exclusively one-way trade, thus corresponding to the traditional division of labour according to comparative advantage. In contrast, the EU's trade with Central European countries (especially the Czech Republic, Hungary and Slovenia) shows up a significant, and rising, share of two-way trade, which partly corresponds to the "new international economics" based on economies of scale and product differentiation, and suggests that their productive structures are progressively converging with those of Western Europe. The differences among the CEECs have implications for the adjustment costs as they are supposed to be much smaller in the case of intra-industry trade than for inter-industry trade, for which, increased specialisation implies the abandonment of contested, comparatively disadvantaged industries and the displacement of factors towards a limited number of export-oriented industries. However, a breakdown of two-way trade by product differentiation shows that two-way trade in vertically differentiated products (associated with a specialisation along quality ranges) is much more important and more dynamic than in horizontally differentiated goods (associated with a specialisation in varieties), and this for each country.

This leads to the more general question about the quality segments the CEECs are positioned on. The CEECs remain globally disadvantaged in up-market goods in their trade with EU countries, and advantaged in down-and medium-market goods. However, in all Central European countries the contribution to trade balance improved in up-market products and some of them show up a revealed comparative advantage in up-market goods in some of their leading industries. Another finding is that often, a structural surplus in one quality segment coexists with a deficit in another quality segment, within a same industry: while the CEECs often show a disadvantage for up-market goods in their industries with comparative advantages, they are sometimes advantaged in down- or medium market goods in industries which are globally a strong point in EU countries. This suggests a "qualitative" division of labour between Western and Eastern European countries. Between 1993 and 1996, the relative position in up-market products improved for all Central European countries, strongly contrasting with the situation of Balkan and Baltic countries. The scenario of the integration into the EU of a first wave of countries based on a "residual" specialisation on down-market products, with its correlative adverse consequences for catching-up, is not supported by the evidence at this stage.

**CENTRAL AND EASTERN EUROPEAN COUNTRIES
IN THE INTERNATIONAL DIVISION OF LABOUR IN EUROPE**

Michael Freudenberg – Françoise Lemoine[1]

INTRODUCTION

The initial phase of the transition of Central and Eastern European countries (CEECs) to a market economy can now be considered complete, as the geographical reorientation of trade, away from the former Comecon countries towards the EU, seems to have reached its limit. All the CEECs are now experiencing often-rapid growth. Industrial recovery in the CEECs and rapidly rising levels of productivity are likely to contribute to changes in the sectoral composition of output which will in turn influence patterns of foreign trade. The inflows of foreign direct investment in these countries have become substantial enough to play an important part in the restructuring of industrial production and foreign trade. As a result of industrial growth and of FDI inflows, trade relations between the EU and the CEECs now display characteristics that are somewhat different from those prevailing in the initial phase of transition, and the prospects for future trade may, therefore, look quite different when analysed from the perspective of this new mature phase of transition rather than during the major adjustments of the initial phase.

There is now an extensive literature which documents changes in the volume and the structure of trade between the EU and the CEECs since the beginning of their transition to a market economy. Different approaches have been used to analyse EU-CEEC trade patterns and their structural changes.

A first approach considers the CEECs' trade within the framework of the traditional theory of international trade and focuses on the pattern of their comparative advantage in the light of their factor endowments. Given the large disparities between the level of income between Eastern and Western Europe, it can be expected that the two regions have very different factor endowments. These differences should reflect in trade patterns, as a country tends to export goods, which embody relatively large amounts of its abundant and thus relatively cheap factor. Following this approach, several analyses have put forward the factor content of traded goods *(EC, 1994; Landesmann, 1995 and 1996; Dobrinski and Landesmann, 1996; Wolfmayr-Schnitzer, 1996; Neven, 1995)*. Their conclusions were similar: the CEECs were specialised in labour-intensive industries, as well as in resource- and energy-intensive sectors and they were disadvantaged in industries which are capital-intensive, R&D-intensive, and human capital-intensive. As a result of this pattern of comparative advantage, the CEECs tend to specialise in a limited number of products *(Dobrinski, 1995)*. However, recent studies also emphasised that most Central European countries have displayed a growing diversification of industrial exports towards engineering products

(ECE, 1996; Lemoine, 1998). Thus, a growing differentiation among the CEECs can be detected, as Central European trade structures are converging with those of lower-income EU members such as Greece, Portugal or Spain *(Neven, 1995)*, whereas the gap has widened between the Balkan countries and Western Europe.

Although comparative advantages remain an important determinant of East-West trade, the growing importance of intra-industry trade (IIT) was also underlined in several studies *(Landesmann, 1996; Lemoine, 1994; Dobrinski, 1995; Neven, 1995).* The rise of IIT suggests that a process of reintegration with Western Europe in which trade determinants, other than comparative advantages, are beginning to play an increasing role. As export performance in the CEECs seems to be closely linked to the growth of intra-industry trade *(Hoekman & Djankov, 1996),* CEECs-EU trade has to be analysed in the light of new theories in international trade which explain the rise of intra-industry trade among industrialised countries, having similar factor endowments, by such determinants as economies of scale or product differentiation. This feature is important in assessing the impact of the CEECs integration into the European economy, as trade liberalisation accompanied by IIT is expected to create less adjustment costs than in the case of inter-industry trade. However, the distinction between horizontal and vertical product differentiation, applied to EU-CEEC trade, has shown that the most important part of IIT is vertical in nature (exchange of different qualities within narrowly defined product groups) and may thus potentially drive to income divergence between the East and the West. Overall, and although there are large differences across countries, Central European exports are concentrated on low quality products *(Wolfmayr-Schnitzer, 1996; Landesmann & Burgstaller, 1996).*

A last approach considers the links between international capital flows and international trade of goods. It highlights the integration of production between Western and Eastern firms and considers the role of FDI and non-equity based relationships in the development of CEEC trade. Recent research work on CEEC trade has emphasised the role of production networks as a determinant of trade patterns between Western and Eastern Europe *(Naujoks & Schmidt, 1995).* Studies on outward processing have underlined that subcontracting activities (OPT) have played a decisive role in the export performance of CEECs in individual sectors *(ECE, 1995).* Foreign firm affiliates account for an important part of foreign trade in individual CEECs, although no correlation was found between FDI and sector export performance *(Lemoine, 1996; Hoekman & Djankov, 1997)*, a situation that can be attributed to the fact that FDI is going into industries where host countries do not have (yet) a revealed comparative advantage. This implies that FDI could be a force for change, as foreign investors perceive the industries concerned to be viable in the medium term. For Western firms CEECs are thus seen both as a "manufacturing base" and as "markets" *(Kurz & Wittke, 1997).*

The present research work adds its contribution to the findings brought out by these different approaches. An important part of this new contribution is to provide evidence that the patterns of trade of EU countries with CEECs and their implications may usefully be analysed in light of two phenomena which can be found in trade among industrialised countries. In fact, while it has become commonplace to state that the extent of globalisation

through international trade (as measured, for example, by the openness ratio) reached pre-World War I levels for many countries only in the 1970s or early 1980s, the changing nature of globalisation can be seen by two characteristics which are markedly different from the past *(Krugman, 1995)*.

First, the international splitting-up of the value added chain (i.e. the international division of production processes, see *Lassudrie-Duchêne, Berthélemy & Bonnefoy, 1986)* allows an ever more in-depth specialisation, not only within multinational firms across countries, but also among independent enterprises. This vertical specialisation (in different stages of the production process within a same industry), involving trade in intermediate goods, implies additional gains of trade to those associated with the traditional, horizontal specialisation (in different industries).

Second, intra-industry trade (IIT), which may concern horizontally differentiated goods (two-way trade of varieties) or vertically differentiated goods (two-way trade of qualities), also leads to important gains of trade in providing the consumer (as well as producers) with a larger choice of close substitutes and/or a wider range of qualities. Empirical research on intra-EU trade at the product level has shown that vertical IIT is not only more important than horizontal IIT, but it is also rising faster *(Fontagné, Freudenberg & Péridy, 1997, 1998)*. The vertical differentiation of products may lead firms (as well as countries) to specialise into different quality segments within narrowly defined product groups. Considerable differences can be found among countries of the European Union, with countries such as Germany specialised in up-market goods and others such as Southern European countries in down- or medium-market products *(Freudenberg, 1998)*.

Thus, "trade within industries" can have two different meanings, as the "international division of production processes" and "intra-industry trade" are two analytically separate concepts, and this distinction is important as their implications clearly differ. However, this difference can only be detected empirically if trade flows are examined at a disaggregated (i.e. the product) level, rather than at the industry level[2]. This distinction is at the core of the present paper.

The first part of the paper analyses the comparative advantages of CEEC trade at the Nace two and three digit levels and the evolution of their specialisation over the recent period. It

---

[2] Indeed, if trade flows were analysed at the *industry* level (and this is often the case in empirical studies), imports of an intermediate good (e.g. motors) and exports of a final good (e.g. assembled cars) are interpreted as intra-industry trade, as exports and imports concern the same industry. However, apprehending trade at the *product* level would suggest one-way trade (imports) of intermediate goods and one-way trade (exports) of final goods. Thus, such a phenomenon should be considered as witnessing an international division of production processes rather than intra-industry trade. As argued elsewhere *(Fontagné, Freudenberg and Ünal-Kesenci (1995, 1996a, 1996b) and Fontagné and Freudenberg (1997))*, the "real intra-industry" trade (i.e. two-way trade) needs be apprehended at the product level: only simultaneous exports and imports of products having the same principle, technical characteristics can be considered as "two-way trade". An exchange of motors for motors (of a certain cylinder capacity) represents two-way trade in intermediate goods; likewise, an exchange of cars for cars (of a certain cylinder capacity) represents two-way trade in final goods.

highlights the role of FDI in the export performance of individual industries of Central European countries.

The second part focuses on the position of the CEECs in the *international division of production processes.* Using the United Nation's classification of Broad Economic categories (BEC) it defines four categories of products by end-use or stage of production: primary, intermediate, capital or consumption goods. The analysis to CEECs-EU trade by stages of production provides useful insight into the factors influencing the structural changes in trade patterns. The analysis shows that intermediate products are the most dynamic component of CEEC-EU trade and that an international segmentation of production is increasingly taking place between the two parts of Europe.

The third part examines more closely the nature of CEEC-EU trade, particularly in respect to *intra-industry trade*. It is shown that IIT in vertically differentiated goods (two-way trade of qualities) is much more important than IIT in horizontally differentiated goods (two-way trade of varieties). This evidence raises the more general question on which market segments (in terms of price/quality) the different CEECs are positioned, as the range on which countries specialise is not "neutral", but might have important consequences in terms of income distributions. To examine in which market segments different countries are specialised, three price/quality ranges are finally defined: down-, medium, and up-market products, depending on the difference between unit values of bilateral trade flows and the intra-EU average for each product.

The research work is based on EU-12 trade data (Eurostat Comext) with the ten candidates (Central European countries, Balkan and Baltic States) over the recent period (1993-1996).

1. THE CEECs' SPECIALISATION BY INDUSTRY

1.1. Measurement of Revealed Comparative Advantages

The "contribution to the trade balance" *(Lafay, 1987)* is a *structural* indicator which tries to eliminate business cycle variations -by comparing an industry's performance to the overall one- and, unlike many other indicators, a *symmetrical* indicator in the sense that it focuses not only on exports, but also on imports.

If there were no comparative advantage or disadvantage for any industry j, then a country's total trade balance (surplus or deficit) should be distributed across all industries according to their share in total trade. The "contribution to the trade balance" is the difference between the actual and this theoretical balance. Expressed in thousandths of total trade, that is:

$$\left(\frac{1000}{X+M}\right)\left(\left(X_j - M_j\right) - \left(X - M\right)\frac{\left(X_j + M_j\right)}{\left(X+M\right)}\right)$$

A positive contribution is interpreted as a "revealed comparative advantage" for that industry. By definition, the sum over all industries is zero. Another important feature is that

13

the indicator is additive: thus the values for products or industries can be aggregated to any desired level **(see Methodological Appendix 1)**.

1.2. Major Strengths and Weaknesses

As shown in **Table 1**, in 1996, the CEECs tend to be specialised in a limited number of industries, and are generally advantaged in resource-intensive sectors (basic metals; wood; and coke and refined petroleum products), as well as in labour-intensive industries (wearing apparel). In contrast, they are disadvantaged in capital intensive sectors (machinery and equipment; motors vehicles; chemicals), as well as in textiles. The patterns of major strengths and weakness of the CEECs in 1996 thus seem broadly in line with the conclusions of most studies realised since the beginning of the transition.

Table 1 - Comparative Advantage of CEECs with the EU-12, 1996

NACE Rev. 1	Hungary	Czech R.	Poland	Slovenia	Romania	Slovakia	Bulgaria	Lithuania	Estonia	Latvia
18 Wearing apparel	++	+	+++	+++	+++++	++	++	++		
27 Basic metals	+	+	+	+	++	+++	++++	+	+	
20 Wood		+	+	+				++	+++	+++
23 Coke, refined petrol. pr.								+	+++	+++++
36 Other manufacturing		+	+	+	+					
26 Other non-met. min. pr.		+								
28 Fabricated metal pr.		+								
32 Radio, TV, comm. Equip.						–				
15 Food and beverages	+	–		–				–	– –	– –
34 Motor vehicles	++	–	–			– –		–	–	–
24 Chemicals	– –	–	–	– –						
17 Textiles	–		–	–	– –	–	–	–		
29 Machinery & equip.	– –	– –	– –		– –	– – –	– –	– –	–	–

Revealed comparative advantages (+) or disadvantages (–) are measured in terms of the indicator of the contribution to the trade balance. This indicator is transformed here, so that all advantaged industries add up to 100%, and all disadvantaged industries to –100%. Thus, each + or – represents 10% of positive (or negative) contributions in all advantaged (or disadvantaged) industries. Only industries with at least one positive or negative sign are indicated.
Source: Eurostat Comext. Authors' calculations.

However, a closer look confirms these general findings for some countries, but at the same time reveals important differences for others.

A strong specialisation in a limited number of industries can be found for Slovakia and Bulgaria, and to a lesser extent Romania (who all show up similar strengths in basic metals and wearing apparel); as well as for Latvia and Estonia (whose main strengths are in coke and refined petroleum products and in wood). Lithuania is somewhere in-between these two groups of countries.

A similarity in their specialisation profile can also be found between Poland and Slovenia (strengths in wearing apparel; basic metals; wood; and other manufacturing).

However, two countries clearly deviate from the view of the general strengths of CEECs: Hungary and the Czech Republic.

The Czech Republic is a case apart concerning the *number* of its industries with a comparative advantage: in addition to the traditional industries (wearing apparel; basic metals; wood), it also has comparative advantages in fabricated metal products; in other non-metallic mineral products; and in other manufacturing.

But the difference is more remarkable for Hungary, which has also comparative advantages in industries *for which most other CEECs are disadvantaged*: this is the case of food and beverages, and, more strikingly, in motor vehicles, due to changes which occurred between 1993 and 1996. The role of foreign-controlled firms in this situation will be examined below.

Sectors with a comparative advantage account for between half and two-thirds of Central European countries exports, and more than 70% of the exports of Bulgaria and Romania and Baltic states. Comparative advantages remain an important determinant of trade, but less important in Central Europe than in other parts of the region. The sizes of the sector contributions to trade balance are much larger in Baltic countries and Romania than in Central European countries, meaning that the former have a trade pattern much more influenced by inter-sectoral complementarity than the latter (**Figure 1**).

Figure 1 - Magnitude of Comparative Advantages of CEECs, 1993 and 1996
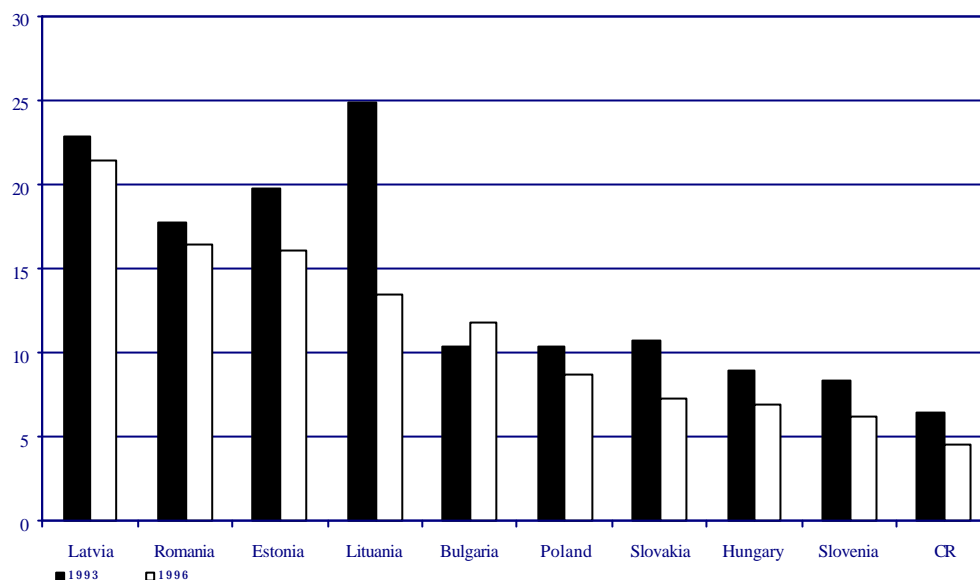
* Standard deviations of the indicators of contribution to trade balance calculated at the 3-digit level of NACE Rev. 1.
Source: Eurostat, Comext. Authors' calculation.

Even the candidates which have been selected for starting their accession negotiations in March 1998 (Estonia, Hungary, Czech Republic, Poland, Slovenia) exhibit quite different profiles, as Polish trade remains characterised by a relatively strong sectoral complementarity compared to the Czech Republic. The two Balkan countries differ strongly as the range of comparative advantage in Romania's trade is close to that of Baltic states, whereas the Bulgaria's case is more similar to that of Poland.

There was a general trend towards a reduction in the intensity of specialisation as measured by the relative magnitude of the sectoral contributions to trade balance from 1993 to 1996. Relative sectoral surpluses and deficits narrowed from 1993 to 1996, indicating that inter-sectoral complementarity played a diminishing role in CEECs-EU trade. The pace of change was also quite different across countries.

1.3 Evolution of Specialisation

To assess more precisely the specialisation process and to identify the underlying sectoral changes in trade structures, we distinguished three categories, which can each be further subdivided:

(1) *increased specialisation* occurs when revealed comparative advantages or disadvantages at the industry level become more pronounced between 1993 and 1996 (growing positive or growing negative contribution to the trade balance);

(2) *reduced specialisation* ("despecialisation") occurs when comparative advantage or disadvantages become less pronounced (reduction of the absolute level of the contribution to the trade balance);

(3) *shifts in comparative advantage* occur when an industry switches either from comparative advantage to a comparative disadvantage, or vice-versa.

It is, however, not clear at which level of disaggregation this indicator is most pertinently applied. As shown in **Table 2**, the results differ quite strongly for the ten countries when applied to the 2 digit or the 3 digit level of the NACE Rev. 1 classification. Four countries are characterised by a strong move towards despecialisation: Poland, Slovenia, Hungary, Slovakia. The sectors in which their specialisation decreased represent a much larger share of their trade than the sectors in which their specialisation increased. Moreover increased specialisation resulted more from growing structural deficits than from strengthening structural surpluses **(Table 3**).

The evolution for two other countries is not so clear as the results depend on the level of industry breakdown: the Czech Republic shows a trends towards despecialisation at Nace 3 digit level, but not at the 2 digit level. This means that the increasing surpluses and deficits existing at Nace 3 digit level are compensated at the more aggregated level. The situation is opposite in Latvia, (despecialisation observed at Nace 2 and no clear trend at Nace 3) meaning that the growing surpluses and deficits at Nace 3 digits are concentrated on industries with a relatively small share in trade.

The other four countries, Estonia and Lithuania, Bulgaria, Romania, show a trend towards increased specialisation. The sectors with growing contribution to trade balance (positive or negative) have a dominant part in their trade. Despecialisation in Balkan countries, was more the result of a decline in comparative advantage than in comparative disadvantage, while the reverse is observed in the two Baltic States.

**Table 2 - Share in Trade with EU-12 of Categories Depending
on the Evolution of Specialisation Between 1993 to 1996**

	Nace 2 digits			Nace 3 digits		
	Increased specialisation	Reduced specialisation	Shift	Increased specialisation	Reduced specialisation	Shift
Slovakia	16.5	**80.0**	3.5	27.2	**54.6**	18.2
Slovenia	12.6	**64.2**	23.2	23.1	**56.0**	20.9
Poland	41.6	**53.8**	4.6	32.1	**61.3**	6.6
Latvia	32.6	**62.9**	4.5	**47.0**	**46.3**	6.6
Hungary	35.9	**46.0**	18.1	33.6	**54.7**	11.7
Czech Rep.	**46.0**	**43.5**	10.5	34.2	**55.5**	10.2
Bulgaria	**47.6**	36.8	15.5	**50.4**	42.0	7.6
Romania	**62.9**	34.7	2.4	**60.8**	35.9	3.3
Lithuania	**60.5**	32.2	7.3	**65.0**	23.6	11.4
Estonia	**54.6**	28.9	16.4	**62.7**	30.4	6.9

The countries are ranked by decreasing importance of despecialisation in terms of Nace 2 digits. For each country, the most important category is in bold.
Source: Eurostat, Comext. Authors' calculation.

Which industrial sectors contributed to these specialisation/despecialisation process? The following broad conclusions can be drawn from the analysis of the specialisation pattern of by industrial sectors **(see Tables 1.5 to 1.10 in Statistical appendix to part 1)**.

Most Central European countries exhibited a common trend towards despecialisation in the very sectors in which they had their highest comparative advantage, that is textile industry as well as footwear. In textile industry, in which exports of finished products heavily depend on imported inputs within the framework of outward processing trade, their relative trade surplus in finished goods (apparel) was substantially reduced and, correspondingly, their relative trade deficit in intermediate products shrieked. This confirms the hypothesis that the division of labour between Central and Western Europe in the textile and clothing industry which supported the two-way trade flows is loosing momentum, as Central European countries competitiveness in these labour intensive sectors declines, due to rising labour costs and the move Eastward of outward processing trade *(ECE, 1997; Lemoine, 1997)*. The Central Europe comparative advantages in this category of industry may be considered to reflect more the countries past strengths than their future trade specialisation. This could also be the case industries some heavily intensive in natural resources (forestry and wood products) in which all Central European countries reduced their comparative advantage. The same trend is observed in basic metals, in Poland, Czech Republic and Slovakia.

Table 3 - Changes in Specialisation Patterns, 1993 to 1996

Share in trade with EU-12 of categories
depending on the evolution of specialisation between 1993 to 1996

	Increased specialisation *Increase in comparative advantage (CA) or disadvantage (CD)*		Reduced specialisation *reduction in comparative advantage (CA) or disadvantage (CD)*		Shift *from comparative advantage (CA) to disadvantage (CD or vice versa*	
	CA	CD	CA	CD	CA to CD	CD to CA
Nace 2 digits						
Slovakia	3.6	12.9	30.6	**49.4**	3.4	0.1
Slovenia	5.4	7.2	29.9	**34.3**	4.9	18.3
Poland	14.7	27.0	23.1	**30.7**	0.0	4.6
Latvia	15.2	17.4	**31.9**	**31.0**	0.0	4.5
Hungary	4.9	**31.0**	**29.1**	16.8	1.9	16.2
Czech Rep.	17.0	**29.0**	16.7	**26.8**	1.9	8.6
Bulgaria	**23.1**	**24.5**	21.7	15.2	0.1	15.5
Romania	17.5	**45.5**	24.7	10.0	0.0	2.4
Lithuania	**33.2**	27.3	10.6	21.5	1.3	6.0
Estonia	**34.6**	20.1	10.2	18.8	16.3	0.2
Nace 3 digits						
Slovakia	9.6	17.6	**28.1**	**26.5**	2.6	15.6
Slovenia	9.2	13.8	**30.2**	**25.8**	3.0	17.9
Poland	16.9	15.2	21.3	**40.0**	2.3	4.3
Latvia	19.6	27.4	**32.0**	14.3	0.5	6.2
Hungary	9.6	24.0	**32.2**	22.5	1.8	9.8
Czech Rep.	14.9	19.4	22.4	**33.2**	1.8	8.5
Bulgaria	22.4	**28.1**	29.8	12.2	6.8	0.8
Romania	23.3	**37.5**	27.3	8.6	1.6	1.7
Lithuania	**32.8**	**32.2**	9.2	14.4	3.0	8.5
Estonia	**33.5**	29.2	15.1	15.4	1.8	5.0

For each country, the most important category is in bold. The countries are ranked by decreasing importance of despecialisation in terms of Nace 2 digits.
Source: Eurostat, Comext. Authors' calculation.

Among the sectors in which Central European countries increased their specialisation, there are, on the one hand, some traditional industries in which they strengthened their comparative advantages (such as furniture and metal products for Poland and the Czech Republic) and, on the other hand, sectors which appear to be at the core of their structural weaknesses as they are responsible for large and widening structural deficits: chemicals (Hungary, Czech Republic, Slovakia); machinery and equipment (Hungary and Poland).

The commodity pattern of specialisation of Baltic States displayed one common feature: the strengthening of their comparative advantage in sectors intensive in natural resources (forestry and wood, raw materials). But Lithuania and Estonia registered increasing

comparative disadvantages in engineering industries, in which Latvia recorded a decrease in its disadvantages.

In Balkan countries the trend towards specialisation was driven on the one hand by the growing structural surpluses in a rather limited number of sectors (the most important was basic metals) and by increasing structural deficits in a much larger number of sectors. Despecialisation was driven by a decline in their comparative advantages in clothing industry for both countries as well as other labour intensive industries (furniture in Romania, footwear in Bulgaria).

Considering the shifts in comparative advantages, it is especially interesting to focus on industries, which switched from a negative to a positive contribution to trade balance, as they provide an indication about the future strengths in the pattern of specialisation **(Table 4)**.

Table 4 - Shifts From a Comparative Disadvantage to a Comparative Advantage

Nace Rev. 1	Contribution to each country's trade balance		Country's export share		Country's import share	
	1996	1993-96	1996	1993-96	1996	1993-96
Rise in exports						
Hungary -- Motor vehicles (34)	34.6	72.0	17.4	13.0	10.5	-1.5
Bulgaria -- Chemicals (24)	17.1	18.0	16.4	4.8	11.6	-0.2
Lithuania -- Radio, TV & comm. equip. (32)	10.2	15.7	4.5	4.4	2.4	1.2
Czech Republic -- Electrical machinery (31)	3.5	12.0	9.1	4.0	8.3	1.5
Latvia -- Wearing apparel (18)	13.1	18.0	5.6	3.0	2.9	-0.8
Poland -- Electrical machinery (31)	2.8	5.0	4.9	1.9	4.4	1.0
Slovenia -- Machinery & equip. (29)	2.6	5.2	12.9	1.0	12.4	0.0
Lithuania -- Leather & footwear (19)	7.2	11.7	2.4	1.6	1.0	-0.7
Slovenia -- Basic metals (27)	11.6	12.8	7.0	1.4	4.7	-1.1
Bulgaria -- Other transport equip. (35)	3.0	3.6	1.0	0.3	0.7	-0.1
Lithuania -- Other transport equip. (35)	2.7	5.4	1.2	0.2	0.6	-0.9
Slovakia -- Mining of metal ores (13)	0.6	0.7	0.1	0.1	0.0	0.0
Stronger decline in imports than in exports						
Romania -- Agriculture (01)	2.1	34.2	1.9	-0.2	1.5	-7.2
Romania -- Other transport equip. (35)	1.8	5.7	0.9	-0.8	0.5	-2.0
Hungary -- Furniture & other manuf. (36)	1.6	1.6	2.6	-0.7	2.3	-1.0
Lithuania -- Fishing (05)	0.8	1.6	0.2	0.0	0.0	-0.4

The figures in parentheses refer to 2-digit groups of the NACE Rev. 1.

Source: Eurostat-Comext. Authors' calculations.

Although CEE countries did not display a radical change in the pattern of comparative advantage in this short period of time, switches from structural deficit to structural surplus occurred in a number of cases and provide evidence that some countries were relatively successful in building new comparative advantages. At Nace 2 digit level, the sectors which switched to relative trade surplus ("new comparative advantage") make a substantial share of trade in the case of five countries: Slovenia (18%); Hungary (16%), Bulgaria (15.5%), the Czech Republic (8.6%). In two more countries Slovakia and Lithuania, new comparative advantages also appear relatively important at the Nace 3 digit level. Interestingly, in most cases, new comparative advantages were mainly the result of accelerated export growth. Some remarkable switches took place in the engineering sector in Central Europe: in 1993 motor vehicles was responsible for the biggest negative contribution to Hungary's trade balance and became its strongest positive contribution in 1996; electrical machinery in Poland and the Czech Republic, machinery and equipment in Slovenia also switched from a negative to a positive contribution to trade balance. Lithuania recorded new comparative advantages in several industries (footwear, telecommunication equipment, other transport equipment), Bulgaria in chemicals.

1.4. Foreign Direct Investment and Specialisation

Since the beginning of the transition, the CEECs have attracted substantial inflows of foreign direct investment. The major part of it was directed in the manufacturing industries of the five Central European countries (Czech Republic, Hungary, Poland, Slovakia and Slovenia). Although the amount of FDI was not large by world standards, it plays an important part in these relatively small economies. In 1996, the share of firms with foreign capital in manufacturing output account for between two-thirds (Hungary) and one fifth (Slovenia). The share in exports is even higher, and this for virtually each industry **(Table 5)**.

As can also be seen in **Table 6**, the presence of firms with foreign capital is particularly important in tobacco (Czech Republic, Poland), in office machinery and computers (Hungary), electrical machinery (Hungary), motor vehicles (Poland, Slovenia, Hungary and the Czech Republic), and in radio, television and communication equipment (Hungary): in each of these industries, firms with foreign capital account for at least three quarters of total output.

As between two-thirds and three-quarters of these FDI come from West European firms, it can be expected that foreign firms are playing an important role in shaping the trade patterns between CEECs and the EU. But how?

**Table 5 - Share of Firms with Foreign Capital in
Central European Manufacturing Industry, 1996**

Nace Rev. 1	Poland		Hungary		Czech Rep.		Slovenia	
	Exports	Output	Exports	Output	Exports	Output	Exports	Output
15 Food & beverages	44.0	27.7	64.0	53.7	37.0	17.1	13.2	10.0
16 Tobacco pr.	94.9	86.2	na.	na.	100.0	100.0	na.	na.
17 Textiles	16.2	7.7	65.4	45.4	23.7	14.6	10.5	8.4
18 Wearing apparel	35.9	30.8	49.3	35.0	17.4	10.9	1.4	1.4
19 Leather & footwear	22.4	10.1	56.2	42.0	10.1	7.8	0.5	0.3
20 Wood	37.5	29.9	69.5	46.5	38.5	21.5	1.0	0.1
21 Pulp, paper & paper pr.	60.9	46.3	76.0	68.0	28.9	27.6	41.1	35.4
22 Publishing & printing	65.0	44.7	38.9	42.6	25.3	25.7	38.0	5.9
23 Coke, refined petrol. pr.	2.6	0.6	na.	na.	0.0	0.2	na.	na.
24 Chemicals	12.3	24.7	na.	na.	22.9	14.3	17.1	17.4
25 Rubber & plastic pr.	71.5	47.0	60.9	55.0	63.8	45.0	24.5	16.0
26 Other non-met. mineral pr.	47.3	34.7	73.6	66.5	44.8	38.9	17.1	13.3
27 Basic metals	8.3	7.6	50.5	35.1	11.3	4.0	6.5	5.0
28 Fabricated metal pr.	35.9	22.2	51.0	35.3	42.0	24.6	5.2	4.4
29 Machinery & equipment	25.7	18.6	71.3	47.1	17.2	12.6	25.5	21.3
30 Office mach. & computers	24.0	13.5	97.4	88.5	20.2	11.6	0.0	11.6
31 Electrical machinery	50.2	32.7	95.8	85.3	54.4	37.4	17.9	14.4
32 Radio, TV & comm. equip.	90.9	64.5	91.2	79.6	47.1	35.4	46.9	40.4
33 Medical, precision instr.	28.1	28.4	65.7	45.5	63.0	24.8	12.3	10.9
34 Motor vehicles	91.7	82.3	90.4	78.6	82.2	76.2	91.3	82.3
35 Other transport equip.	23.5	15.8	63.2	64.0	5.2	2.6	0.3	0.7
36 Other manufacturing.	63.0	45.9	64.8	33.0	35.4	29.8	5.4	5.6
Total manufacturing	40.0	30.4	75.0	60.0	42.0	26.2	26.2	19.6

Data for the Czech Republic are for 1997.
Source: contributions to the ACE Project "Trade Between the EU and Associated States, Prospects for the Future". B. Majcen (Slovenia), K. Marczewski (Poland), E. Viszt (Hungary), and A. Zemplinerova (Czech Rep.).

If foreign firms were to exploit *already existing* comparative advantages, the presence of foreign firms in output would be expected to be particularly high in industries with a positive contribution to the trade balance. However, foreign firms are not only present in sectors where the host countries have a comparative advantage, but also in others **(see figure 1.1 to figure 1.4 in the Statistical appendix to part 1)**. One possible reason for this finding is that

the main motivation of foreign investors in Eastern Europe is to take advantage of the domestic markets, rather than to use these countries as a production base for exports. Although firms with foreign capital have a propensity to export above that of domestic firms, some of them are located in sectors which supply mainly the domestic market (e.g. food and beverage). Another reason is that foreign firms have also a high propensity to imports, so that they may not have a positive contribution to trade balance in the sectors in which they are located. Data on imports by firms with foreign capital are currently not available, but several studies found that these firms contribute even more to imports than to exports, thus contributing to trade deficits *(FTRI, 1996; Hamar, 1993)*.

**Table 6 - 15 Industries with the Highest Share of Firms
with Foreign Capital in Output, 1996**

Country	NACE Rev.1	Share in output	Share in exports
Czech Rep.	16 Tobacco products	100.0	100.0
Hungary	30 Office machinery and computers	88.5	97.4
Poland	16 Tobacco products	86.2	94.9
Hungary	31 Electrical machinery	85.3	95.8
Poland	34 Motor vehicles	82.3	91.7
Slovenia	34 Motor vehicles	82.3	91.3
Hungary	32 Radio, TV and comm. equip.	79.6	91.2
Hungary	34 Motor vehicles	78.6	90.4
Czech Rep.	34 Motor vehicles	76.2	82.2
Hungary	21 Pulp, paper and paper prod.	68.0	76.0
Hungary	26 Other non-met. mineral products	66.5	73.6
Poland	32 Radio, TV and comm. equip.	64.5	90.9
Hungary	35 Other transport equipment	64.0	63.2
Hungary	25 Rubber and plastic products	55.0	60.9
Hungary	15 Food and beverages	53.7	64.0
(...)			

Data for the Czech Republic are for 1997.
Source: contributions to the ACE Project "Trade Between the EU and Associated States," from B. Majcen (data for Slovenia), K. Marczewski (Poland), E. Viszt (Hungary), and A. Zemplinerova (Czech Republic).

Nevertheless, it can be observed that the *accelerated export growth of individual industries is often linked to the strong presence of foreign capital*. The case of Hungary is most striking (**Figure 2**): the four industries which have the highest share of foreign firms in output are also growing at the fasted pace (motor vehicles; radio, television and communication; equipment office machinery and computers; and electrical machinery). This finding is less pronounced in the other countries, but in several cases, the remarkable export performance coincided with a strong involvement of foreign firms: Poland (motor vehicles; radio, television and communication equipment; furniture, see **Figure 3**); the Czech Republic

23

(motor vehicles; rubber and plastics; electrical machinery; radio, television and communication equipment, see **Figure 4**); Slovenia (motor vehicles, see **Figure 5**).

Figure 2 - Hungary: Share of Firms with Foreign Capital and Export Performance
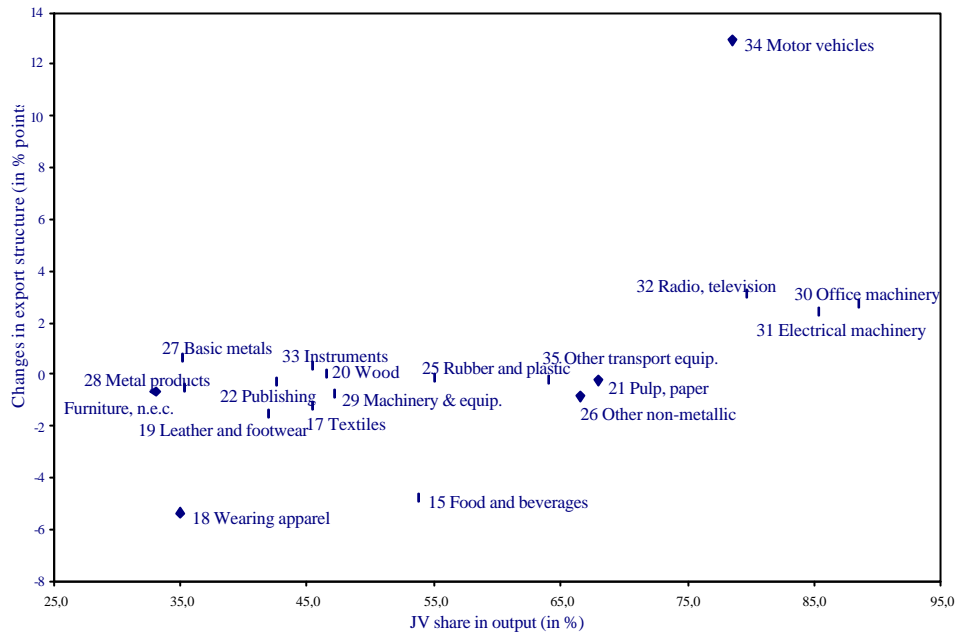
Source: Trade data from Eurostat, Comext. Share of firms with foreign capital from E. Viszt (1998).

Figure 3 - Poland: Share of Firms with Foreign Capital and Export Performance
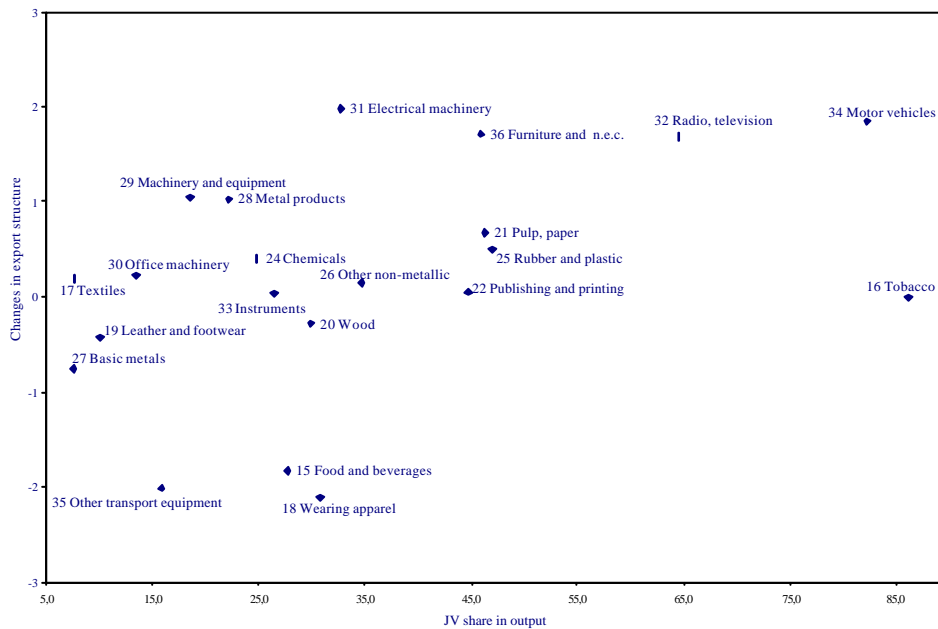
Source: Trade data from Eurostat, Comext. Share of firms with foreign capital from B. Majcen (1998).

Figure 4 - Czech Republic: Share of Firms with Foreign Capital and Export Performance
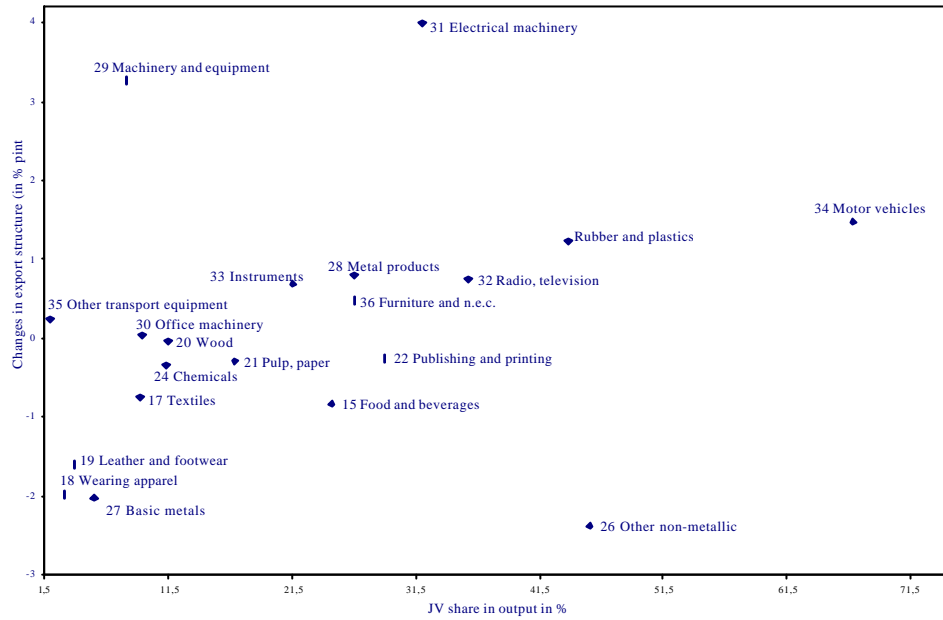
Source: Trade data from Eurostat, Comext. Share of firms with foreign capital from A. Zemplinerova (1998).

Figure 5 - Slovenia: Share of Firms with Foreign Capital and Export Performance

Source: Trade data from Eurostat, Comext. Share of firms with foreign capital from B. Majcen (1998).

The most conspicuous case of a strong relation between export performance and foreign capital involvement is the motor vehicle industry: now completely dominated by multinational firms in all four countries, this industry is among the top exporting industries. However, since the high level of FDI is not only associated with an export expansion, but also with high import levels, the sector still recorded a negative trade balance in 1996 in three out of four countries. Only in Hungary did the str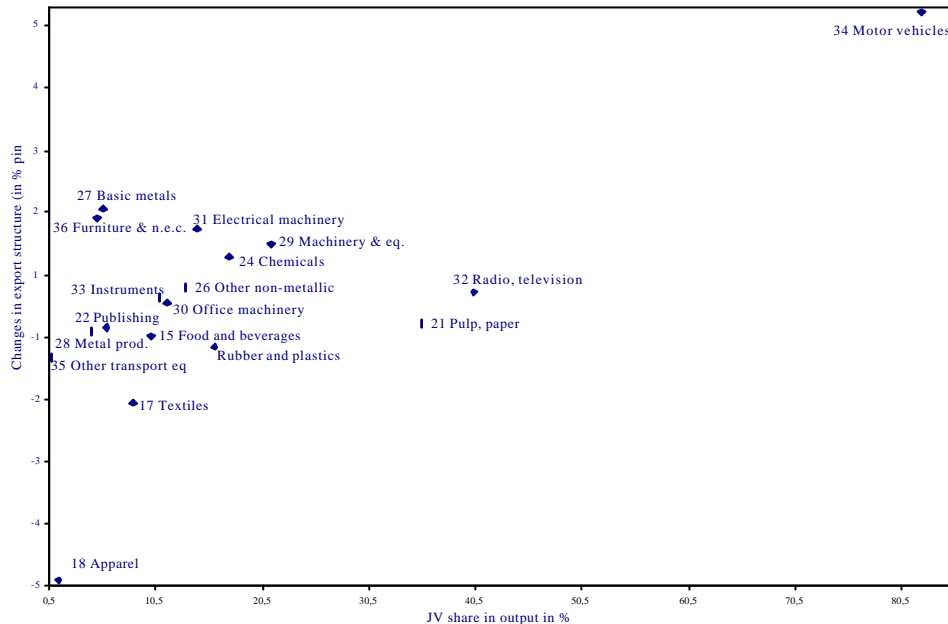ong involvement of foreign capital coincide with a switch from a relative trade deficit to a relative trade surplus ("new comparative advantage"). This provides a remarkable example of how the emergence of individual competitive firms can lead to the building of new competitive advantages in a relatively short period of time, when multinational firms invest in the modernisation of existing industrial capacities.

These observations suggest that the strategy of Western firm is playing an important role in the process of integration of CEECs in the international division of labour in Europe.

2. THE CEECS' SPECIALISATION BY STAGES OF PRODUCTION

To interpret the changes in the patterns of specialisation by industry and to get a more in-depth understanding of the current position of CEECs in the international division of labour, it is useful to identify in what stages of the production process these countries are specialised. The United Nations' Broad Economic Categories (BEC) make it possible to group products according to their end-use **(see Methodological Appendix 2)**. The classification adopted here is the following:

- primary goods;
- intermediate goods;
- capital goods;
- consumption goods.

2.1. Globalisation and the Reorganisation of Production on a World Basis

An important factor explaining the product composition of a country's exports and imports lies in the international segmentation of industrial production process. A production process is considered as a sequence of different stages of production, which ensures the transformation of raw materials (and the assembling of parts) into a finished product. The different stages of production correspond to different production functions so that a country may have a comparative advantage in one segment of the production process and a disadvantage in another segment. This so-called vertical specialisation, corresponding partly to intra-firm trade, implies additional gains of trade, compared to those associated with traditional, horizontal specialisation in different industries *(Lassudrie-Duchêne, Berthélemy & Bonnefoy, 1986)*.

In this approach, a revealed comparative advantage that a country displays in a given industry may correspond to two different situations. If comparative advantages can be found in all stages of production, from upstream to downstream production, we are in the presence of a so-called "horizontal" specialisation. If comparative advantages can be found only in some stages of production, whereas others are disadvantaged, this is referred to as "vertical" specialisation[3].

Several factors foster international segmentation of production process. As manufactured products are becoming more and more technologically sophisticated, the number of stages of production increases and the productivity at the different stages changes rapidly; in this context a country tends to maintain its comparative advantage only in individual segments. Moreover, globalisation means a reorganisation of production on a world-wide basis, which leads to vertical specialisation. Firms have developed sourcing policies which relies on foreign, and even distant suppliers; they have localised the production of components, standardised and semi-assembled goods in different countries; as a result, intermediate products (including component parts) are traded prior to final assembly and they make up for an increasing share of international trade *(Fontagné, Freudenberg & Ünal-Kesenci, 1996)*.

Foreign direct investment realised in the Central European countries indicates that these countries are now being integrated in the localisation policies of Western firms and thus in the globalisation process. Their industries are likely to be involved in the segmentation of the production process at the European level. The analysis of their trade with the EU by stages of production allows to assess their present place in the segmentation of production

---

[3] Note that the notions "horizontal" and "vertical" have a different meaning when they refer to product differentiation: the former concerns similar products, i.e different varieties, and the latter different qualities.

in Europe. The question to be answered is whether their integration in the European economy is based on vertical complementarity, characterised by a pattern of trade involving goods of the same industry but located at different stages of production; or whether their integration is based on horizontal specialisation in different industries.

A vertical division of labour would imply the existence of strong productive links between industries in the EU and the CEEC, a situation which might be connected with the development of intra-firm trade. It would confirm the hypothesis that CEECs industries are progressively integrated in the production networks of Western firms. This would indicate that Eastern and Western industries are becoming more complementary than competing.

2.2. CEEC-EU Trade by Stages of Production

Intermediate products form the largest part of trade flows between the CEECs-10 and the EU-12 **(Table 7)**. Their share reached more than 50% in 1996. Their increasing share both in imports and exports suggests an increased participation of the region in the international segmentation of production.

On the *import* side, the share of intermediate products for the CEECs as a whole increased from 47% to 54% from 1993 to 1996, at the expense of all the other categories: consumption goods, capital goods and primary products, the latter having now a marginal importance. It is worth stressing that productive goods (intermediate and capital goods) thus account for an overwhelming share of imports (at least 70%) as the relative decline of investment goods was compensated by the rise of intermediate products. There are differences among countries in the composition of their imports by stages of production but trends were relatively similar over 1993-1996. All of them registered a rise in intermediate imports (excepted Slovenia). This rise was especially strong in Baltic states imports, although intermediate products still made a relatively low share of their imports in 1996, compared to Central Europe or Balkan countries. Conversely most countries registered a relative slowdown of consumption goods imports (excepted Romania and Slovenia) but these category still accounted for a much larger share in Baltic states imports than in other countries in 1996. Imports of capital goods which represented about the same share of total imports of all countries (between one sixth and one fifth in 1996) slowed down over this period (excepted in the case of Estonia). Primary goods which accounted for a small share of imports were also on the decline everywhere.

On the *export* side the shift in favour of intermediate products was even more marked than on the import side as the share of this category in CEEC exports rose from 45% to 54%. It took place mainly at the expense of primary and consumption goods, as the share of capital goods slightly increased. But the differences among countries in the composition of exports by stages of production are much larger than on import side. Intermediate good exports increased at an accelerated pace in all countries (excepted in Lithuania) but there were still large differences in their share in individual country exports in 1996: it ranged from 36% (Romania) to 73% (Estonia). The importance of consumption goods also varied: from 11% (Latvia) to 57% (Romania) and even among Central European countries it ranged from 22% (Czech Republic) to 42% (Slovenia). Capital goods take a significant place in exports only in

three Central European countries (Czech Republic, Slovenia, Hungary) and a rising share in only two of them (Czech Republic, Hungary). Finally, although their importance declined in all countries exports, primary goods had still a significant share of Baltic States' exports in 1996.

The indicator of contribution to trade balance **(Table 8)** shows that CEECs' comparative advantages are located at the two ends of production process: in upstream production (primary goods) and in downstream production (consumption goods); disadvantages are located in intermediate and capital goods. If we consider primary and intermediate goods taken together, this overall category of inputs has a positive contribution to trade surplus, while final goods (capital and consumption goods) taken together, have a negative contribution to trade balance.

Table 7 - Composition of CEECs' Trade with EU-12 by Stages of Production

	Share in 1996 (in %)				Changes 1993 – 1996 (in % points)			
	Prim.	Interm.	Capital	Cons.	Prim.	Interm.	Capital	Cons.
Imports								
Romania	2.4	55.4	21.4	20.8	-7.3	9.2	-4.6	2.7
Czech Rep.	3.3	52.4	21.1	23.3	-0.4	5.8	-5.7	0.3
Slovakia	2.9	58.9	20.4	17.7	-2.4	9.1	-4.3	-2.5
Estonia	3.8	35.4	19.4	41.5	-5.2	8.7	5.5	-8.9
Hungary	2.1	58.1	18.9	20.8	-0.9	9.0	-0.2	-7.9
Poland	6.2	52.7	18.8	22.3	-2.3	5.3	-1.3	-1.7
Bulgaria	4.1	49.0	18.5	28.3	0.0	7.9	0.9	-8.8
Lithuania	4.1	47.8	17.2	30.8	-5.6	21.5	-0.2	-15.7
Latvia	6.2	36.5	15.3	42.0	-2.0	13.6	-2.8	-8.8
Slovenia	2.9	54.2	14.9	28.1	0.2	-2.0	0.2	1.5
CEECs	4.0	53.5	19.2	23.2	-1.8	6.1	-1.9	-2.4
Exports								
Czech Rep.	4.7	61.6	11.3	22.4	-3.3	7.1	1.6	-5.4
Slovenia	1.7	46.6	9.1	42.6	-0.6	4.7	-1.0	-3.1
Hungary	6.5	54.0	8.0	31.5	-3.8	11.4	2.0	-9.6
Poland	7.9	47.0	6.5	38.6	-5.2	6.1	0.3	-1.1
Slovakia	2.8	61.6	5.9	29.7	-2.9	3.3	-1.1	0.8
Bulgaria	7.3	52.2	5.4	35.1	-3.7	11.5	-0.8	-7.0
Romania	2.6	36.4	3.8	57.2	-1.4	11.2	-0.4	-9.4
Latvia	11.0	76.2	1.8	11.1	-12.9	8.1	1.1	3.6
Estonia	12.3	73.7	1.0	12.9	-18.8	22.8	-0.8	-3.1
Lithuania	15.4	55.4	0.8	28.3	0.2	-16.1	0.1	15.7
CEECs	5.9	52.7	7.4	34.0	-3.9	7.5	0.4	-4.1

The countries are ranked by the importance of capital goods in 1996.

Source: Eurostat Comext. Authors' calculation.

All countries have in common a large deficit in capital goods, but they show nevertheless different patterns of comparative advantage. Three different cases can be observed:

1) countries having their biggest comparative advantages in intermediate goods. This is the case of Estonia, Latvia and the Czech Republic;

2) one country, Lithuania, having its biggest comparative davantage in primary goods;

3) countries having their biggest comparative advantage in consumption goods. This is the case of Slovenia, Slovakia, Bulgaria, Poland, Hungary, Romania.

Table 8 - Revealed Comparative Advantages by Stages of Production, 1996

	Primary	Intermediate	Capital	Consumption
Slovenia	-5.5	-38.1	-28.7	72.3
Slovakia	-0.8	13.2	-72.0	59.6
Bulgaria	15.9	16.0	-65.6	33.7
Poland	8.1	-27.6	-58.4	77.8
Hungary	22.0	-20.5	-54.8	53.3
Romania	1.3	-94.3	-87.8	180.8
Czech Rep.	6.9	44.7	-47.6	-4.0
Estonia	42.9	191.6	-92.0	-142.5
Latvia	23.0	193.5	-65.8	-150.7
Lithuania	56.3	37.8	-81.6	-12.5
CEECs	1.9	-0.8	-11.7	10.6

Source: Eurostat Comext. Authors' calculation.

2.3. Trade by Stages of Production and by Industry

Table 9 shows the composition of CEECs trade with the EU-12 by industry and stage of production. As we have identified above the intermediate goods as the most dynamic part of CEECs-EU trade, the analysis will focus on the commodity structure of trade in intermediate products, in order to determine which industrial sectors contributed to this evolution.

CEEC *imports* of intermediate products consist of four main categories of products: textile, chemicals, machinery and electrical machinery account for more than two thirds of intermediate imports. Imports of intermediate products for textile industry recorded a relatively slow growth, while in the three other sectors, there was a sharp rise in imports of intermediate products. The engineering sector, (machinery, electrical machinery, vehicles) accounted for most of the increase in intermediate goods imports. In this sector the structure of imports changed in favour of intermediate goods as capital goods imports lagged behind the average pace of imports since 1993. More generally, in all industries which recorded a high import growth, the structure of imports by stages of production

shifted towards the middle segment of the production process (intermediate goods) away from downstream production (final goods).

Table 9- CEEC's Trade with EU-12:
Composition by Industry and Stage of Production

	Imports					Changes from 1993 to 1996				
	Primary	Interm.	Capital	Consump.	Total	Primary	Interm.	Capital	Consump.	Total
Total	4.0	53.5	19.2	23.2	100.0	-1.8	6.1	-1.9	-2.4	0.0
Electrical, elect. mach.	0.0	8.1	3.6	0.4	12.2	0.0	2.1	-0.2	0.1	2.0
Chemical	0.0	11.3	0.0	4.7	16.0	0.0	1.1	0.0	0.1	1.2
Vehicles	0.0	4.3	2.4	5.5	12.2	0.0	1.7	-0.2	-0.4	1.1
Machinery, metal prod.	0.0	8.6	10.7	1.7	20.9	0.0	1.5	-1.0	0.2	0.7
Basic metals	0.0	3.7	0.0	0.0	3.7	0.0	0.4	0.0	0.0	0.4
Non metallic prod.	0.0	2.2	0.0	0.1	2.3	0.0	0.3	0.0	0.0	0.4
Wood & paper	0.1	3.5	0.1	2.4	6.1	0.0	0.6	0.0	-0.7	-0.1
Other transp. material	0.0	0.4	0.4	0.1	0.9	0.0	0.0	-0.1	0.0	-0.1
Coke and refining	0.0	1.1	0.0	0.0	1.1	0.0	-0.3	0.0	0.0	-0.3
Instruments	0.0	0.4	2.1	0.3	2.8	0.0	0.0	-0.4	0.0	-0.4
Mining	0.7	0.0	0.0	0.0	0.7	-0.6	0.0	0.0	0.0	-0.6
Agriculture	2.5	0.0	0.0	0.1	2.7	-1.1	0.0	0.0	0.0	-1.1
Textile	0.2	8.7	0.0	4.2	13.0	0.0	-1.2	0.0	-0.1	-1.3
Food	0.5	1.2	0.0	3.6	5.3	0.0	-0.3	0.0	-1.5	-1.8

	Exports					Changes from 1993 to 1996				
	Primary	Interm.	Capital	Consump.	Total	Primary	Interm.	Capital	Consump.	Total
Total	5.9	52.7	7.4	34.0	100.0	-3.9	7.5	0.4	-4.1	0.0
Electrical, elect. mach.	0.0	7.0	2.2	0.9	10.1	0.0	3.0	0.9	0.4	4.3
Vehicles	0.0	4.6	0.7	5.0	10.3	0.0	3.0	-0.1	1.0	4.0
Machinery, metal prod.	0.0	7.8	3.1	1.5	12.4	0.0	1.4	0.3	-0.4	1.2
Chemical	0.0	8.5	0.0	1.0	9.5	0.0	0.5	0.0	0.1	0.7
Wood & paper	0.2	6.9	0.0	5.3	12.4	0.0	1.2	0.0	-0.8	0.4
Basic metals	1.1	8.6	0.0	0.0	9.7	-0.9	1.1	0.0	0.0	0.2
Instruments	0.0	0.2	0.8	0.1	1.1	0.0	0.1	0.1	0.0	0.2
Non metallic prod.	0.0	3.0	0.0	0.4	3.4	0.0	-0.8	0.0	0.0	-0.8
Other transp.	0.0	0.3	0.6	0.2	1.1	0.0	0.0	-0.8	0.0	-0.8

Material										
Agriculture	2.4	0.0	0.0	0.0	2.5	-1.1	0.0	-0.1	0.0	-1.2
Mining	1.5	0.1	0.0	0.0	1.6	-1.5	0.0	0.0	0.0	-1.5
Coke and refining	0.0	2.5	0.0	0.0	2.5	0.0	-1.5	0.0	0.0	-1.5
Food	0.6	1.0	0.0	2.8	4.3	-0.3	-0.3	0.0	-1.3	-1.9
Textile	0.1	2.3	0.0	16.8	19.1	0.0	-0.2	0.0	-3.1	-3.3

Industries are ranked according to the changes in export(import) share.

For industry classification see table 13.

Source: Eurostat, Comext. Authors' calculations.

The share of intermediate products means that the domestic output of Central European countries incorporate an increasing proportion of imported inputs. In the future this should be a source of comparative advantage for the downstream sectors based on imported inputs, as it should lead to a better adaptation to external demand and to an improved quality of the finished products. Research work based on input-output tables concluded that there was a positive relationship between the share of imported input and the export performance of industries *(Hoekman & Djankov ,1997)*.

CEEC *exports* of intermediate goods are quite diversified: five industries account for the bulk of intermediate good exports, each with about the same weight: basic metals, chemicals, wood and paper, machinery, electrical machinery. All these industries were responsible for the rise of intermediate products in the CEECs export structure, but the most dynamic component of the export surge of intermediate products were electrical machinery, motor vehicle, machinery and equipment.

The analysis by stages of production thus provides interesting insights into the export performance realised by the CEECs in the engineering sector. The largest part of these exports are made up of intermediate products and not of capital goods, a situation which is quite different from that prevailing on the import side. CEECs exports are still largely dominated by the least elaborated products of this sector. The growing importance of intermediate products means that these countries lack of competitiveness in investment goods. Although the shift in Central European exports in favour of engineering industries can be regarded as a positive move since such industries generally incorporate more technology and skills than traditional Eastern Europe exports, this success is mitigated by the fact that the diversification of industrial exports was achieved in the least elaborated products. The situation is relatively different in the car industry where the pattern of CEEC exports by stage of production tends to converge with the pattern of their imports. In this industry, CEECs exports of intermediate products are catching up with their exports of consumption goods. This situation reflects the strategy of Western investors which see the region as a base of production for lower-end world cars as well as a market *(Tulder & Ruigrok, 1998)*.

A process of restructuring can be observed in consumer goods exports, which are shifting away from the most labour or resource intensive industries towards more capital intensive ones. Textile products still make up nearly half of CEECs exports of consumption goods, but these traditional exports tend to slow down whereas new sectors are emerging: exports of vehicles rose fast and in 1996 accounted for 15% of consumption goods exports of the region.

Comparative Advantage

In primary goods CEECs have a comparative advantage which is mainly due to basic metals and mining **(Table 10)**.

In consumption goods their comparative advantage comes from three sectors: textile, which is responsible for most of the relative trade surplus, wood and paper and also electrical machinery, which records a growing relative trade surplus.

Table 10- CEEC 10-EU 12: Indicator of Contribution to Trade Balance by Sectors and Stages of Production

	1996					Changes from 1993 to 1996				
	Primary	Intermediate	Capital	Consumption	Total	Primary	Intermediate	Capital	Consumption	Total
All sectors	1,9	-0,8	-11,7	10,6	**0,0**	-2,1	1,4	2,4	-1,8	0,0
Vehicles	0,0	0,3	-1,7	-0,5	**-1,9**	0,0	1,3	0,1	1,5	2,9
Electrical & electronic mach.	0,0	-1,1	-1,4	0,5	**-2,0**	0,0	0,9	1,1	0,3	2,3
Machinery & metal product	0,0	-0,7	-7,5	-0,2	**-8,4**	0,0	-0,2	1,4	-0,6	0,6
Instruments	0,0	-0,2	-1,3	-0,2	**-1,7**	0,0	0,0	0,5	0,0	0,6
Wood & paper	0,1	3,3	-0,0	2,8	**6,1**	-0,0	0,6	-0,0	-0,1	0,5
Food	0,1	-0,2	0,0	-0,9	**-1,0**	-0,3	0,0	0,0	0,1	-0,1
Agriculture	-0,1	0,0	-0,0	-0,1	**-0,2**	-0,0	0,0	-0,1	-0,0	-0,1
Basic metals	1,1	4,8	0,0	0,0	**5,9**	-0,8	0,6	0,0	0,0	-0,2
Chemical	0,0	-2,7	0,0	-3,6	**-6,4**	-0,0	-0,5	0,0	0,1	-0,5
Other transport material	0,0	-0,1	0,2	0,1	**0,3**	-0,0	0,0	-0,7	-0,0	-0,7
Mining	0,8	0,1	0,0	0,0	**0,8**	-0,8	0,0	0,0	0,0	-0,8
Non metallic prod.	0,0	0,8	0,0	0,3	**1,1**	0,0	-1,2	0,0	0,0	-1,2
Coke and refining	-0,0	1,3	0,0	0,0	**1,3**	-0,0	-1,2	0,0	0,0	-1,2
Textile	-0,1	-6,4	0,0	12,4	**6,0**	-0,0	1,0	0,0	-3,0	-2,0

Sectors are ranked according to changes in the contribution to trade balance, descending order.

Source: Eurostat Comext, Authors calculations

In intermediate goods CEECs have a global comparative disadvantage but a comparative advantage in resource intensive sectors (basic metals, wood and paper, coke and oil refining) and the region has built a new comparative advantage in a intermediate good for motor vehicles, in which they had a comparative disadvantage in 1993.

In investment goods CEECs have no comparative advantage, in any industry, excepted "other transport material", which registered a shrinking surplus. This underlines the fact mentioned above that their rapidly growing exports of machinery and equipment did not concern capital goods.

The CEECs keep their largest structural deficits in four categories of products: *1)* machinery and equipment used as investment good, *2)* in intermediate products for textile industry, *3)* chemical products, used as consumption goods as well as *4)* chemical intermediate goods. In these two last categories of products there is no tendency towards a reduction in the trade deficit.

Country Differentiation

The above analysis identified the major industrial sectors, which were responsible for the rise of trade in intermediate products between the CEECs as a whole and the EU-12. The specialisation pattern of the region mainly reflect that of the five Central European countries, as these account for an overwhelming share (80%) of CEEC trade with the EU-12. In fact the commodity composition of trade in intermediate products shows strong differences between Central European countries and the others five countries. Differences appear to be especially significant on the export side, even though the ten countries share some common features. In the case of most Central European countries, engineering industries account for a large share part of intermediate product exports and they are the most dynamic component **(Table 13)**. Trade of intermediate products within these industries may correspond to the development of an international division of production process between Central Europe and the EU. By contrast, in other countries the bulk of intermediate exports come from sectors intensive in natural resources, and their rising share is likely to reflect the strengthening of a traditional division of labour **(Table 14)**. Wood and paper, coke and refined petroleum make up for the largest part of intermediate products exported by Estonia and Latvia. Basic metals make up for the largest part of intermediate product exports for Bulgaria and Romania. Differences across countries can also be observed on the import side **(see tables 2.1 to 2.10 in Statistical Appendix to part 2)**. The commodity structure of trade in intermediate products seems to draw a dividing line between Central Europe and other countries, once again. However the distinction is not so clear-cut and may change as shown by the cases of Lithuania expanded rapidly its intermediate exports of electrical and electronic machinery. Electrical machinery took an increasing share of Lithuania's exports of intermediate product.

2.4. The International Segmentation of Production Processes: Vertical Versus Horizontal Specialisation?

The above analysis suggests that the international division of production process may have a role in the evolution of trade of Central European countries and influence the changes in their specialisation patterns. To provide a precise answer to this question it is necessary to consider the respective specialisation of individual countries at a more detailed level of commodity disaggregation (at Nace 2 and 3 digit levels). We used the concepts of horizontal and vertical specialisation defined above (point 2.1) in order to characterise their position in the international division of labour in Europe.

International segmentation of production can take place either within an industry (this is intra-industrial segmentation of production): in this case the imported inputs belong to the same industry (nomenclature category) as the output; either between industries (inter industrial segmentation): in this case the intermediate products imported to be used as an input originate from a different industry but input and output belong to the same "chain of production".

Table 13 – Central Europe: Exports of Intermediate Products by Industry

	Nace Rev. 1	Share in total exports				
		Poland	Hungary	Czech R.	Slovakia	Slovenia
All intermediate prod.		47.0	54.0	61.6	61.6	46.6
Electrical & electronic mach.	30+31+32	5.8	12.7	9.1	7.0	5.2
Vehicles	34	1.9	14.3	4.0	6.2	2.5
Machinery & metal prod.	28+29	8.1	6.2	12.8	7.0	8.1
Basic metals	27	8.8	5.5	6.9	14.9	6.7
Chemical	24+25	7.0	7.3	10.0	12.2	6.1
Wood & paper	20+21+22+36	7.1	2.5	7.7	6.3	10.8
Non-metallic prod.	26	3.0	1.6	4.9	4.5	2.9
Textile	17+18+19	1.4	1.5	3.4	1.7	3.5
Coke and refining	23	1.6	1.0	1.2	0.3	0.0
Food	15+16	1.9	0.7	0.6	0.6	0.1
Other transport material	35	0.2	0.2	0.5	0.8	0.4
Instruments	33	0.1	0.4	0.3	0.0	0.2
Mining	10+11+13+14	0.0	0.0	0.3	0.0	0.0
Agriculture	01+02+05	0.0	0.0	0.0	0.0	0.0
Engineering industries	*28 to 35*	*16.1*	*33.9*	*26.7*	*21.0*	*16.4*

	Nace Rev. 1	Changes from 1993 to 1996. in % points				
		Poland	Hungary	Czech R.	Slovakia	Slovenia
All intermediate prod.		6.1	11.4	7.1	3.3	4.7
Electrical & electronic mach.	30+31+32	2.5	4.4	4.4	4.3	1.1
Vehicles	34	1.0	10.6	2.4	5.4	*-0.4*
Machinery & metal prod.	28+29	2.1	*-0.6*	3.2	*-0.3*	0.7
Basic metals	27	0.3	1.4	*-0.9*	*-0.3*	1.5
Chemical	24+25	0.7	-2.7	0.4	-0.6	0.1
Wood & paper	20+21+22+36	0.6	0.2	1.3	-0.8	1.7
Non-metallic prod.	26	0.0	-0.8	-2.5	-4.5	0.3
Textile	17+18+19	*-0.3*	*-0.4*	*-0.5*	*-0.4*	*-0.1*
Coke and refining	23	*-0.3*	*-0.6*	*-0.3*	*-0.3*	*-0.1*
Food	15+16	*-0.3*	*-0.4*	*-0.5*	0.2	*-0.1*
Other transport material	35	*-0.1*	0.1	0.0	0.5	*-0.0*
Instruments	33	0.0	0.1	0.1	*-0.0*	0.0
Mining	10+11+13+14	*-0.0*	*-0.0*	0.0	0.0	*-0.0*
Agriculture	01+02+05	*-0.0*	0.0	*-0.0*	0.0	0.0
Engineering industries	*28 to 35*	*5.4*	*14.6*	*10.1*	*9.9*	*1.4*

Source: Eurostat Comext. Authors' calculations.

Sectors are ranked according to variation of their shares in the five countries' exports.

Table 14 – Balkan and Baltic States: Exports of Intermediate Products by Industry

	Nace Rev. 1	Share in % of total exports in 1996				
		Bulgaria	Romania	Estonia	Latvia	Lithuania
All intermediate pr.		52.2	36.4	73.7	76.2	55.4
Basic metals	27	20.3	13.8	5.8	3.0	0.9
Chemical	24+25	16.6	6.8	10.1	3.1	16.4
Wood & paper	20+21+22+36	2.3	2.5	20.2	23.3	13.8
Machinery & metal prod.	28+29	3.7	5.3	2.3	0.7	0.9
Electrical & electronic mach.	30+31+32	1.2	2.0	0.6	0.1	7.3
Textile	17+18+19	3.2	1.0	6.8	2.1	4.0
Non-metallic prod.	26	2.0	2.2	1.8	1.0	1.1
Vehicles	34	0.4	1.3	0.2	0.0	0.1
Food	15+16	0.8	0.4	2.5	0.8	3.7
Other transport material	35	0.5	0.2	0.0	0.0	0.1
Instruments	33	0.3	0.1	0.1	0.0	0.1
Agriculture	01+02+05	0.0	0.0	0.0	0.0	0.0
Mining	10+11+13+14	0.0	0.0	0.0	0.0	0.0
Coke and refining	23	0.9	0.9	23.5	42.0	7.0
Engineering industries	*28 to 35*	*6.0*	*8.8*	*3.1*	*0.9*	*8.4*

	Nace Rev.1	Changes from 1993 to 1996, in % points				
		Bulgaria	Romania	Estonia	Latvia	Lithuania
All intermediate pr.		11.5	11.2	22.8	8.1	*-16.1*
Basic metals	27	10.2	8.1	*-4.1*	*-6.8*	*-6.6*
Chemical	24+25	4.5	1.7	*-0.5*	*-0.2*	8.9
Wood & paper	20+21+22+36	*-0.2*	0.6	12.3	16.4	10.9
Machinery & metal prod.	28+29	0.6	1.8	1.9	0.4	0.2
Electrical & electronic mach.	30+31+32	*-0.3*	0.8	0.5	0.1	6.8
Textile	17+18+19	*-0.5*	*-0.1*	2.0	1.4	2.5
Non-metallic prod.	26	*-0.5*	*-1.3*	0.0	0.8	0.3
Vehicles	34	0.1	1.0	*-0.0*	*-0.0*	0.0
Food	15+16	*-0.9*	0.1	0.3	0.0	1.1
Other transport material	35	0.0	*-0.1*	0.0	*-0.0*	0.1
Instruments	33	0.1	0.0	0.0	0.0	0.0
Agriculture	01+02+05	0.0	0.0	0.0	0.0	0.0
Mining	10+11+13+14	0.0	0.0	0.0	0.0	0.0
Coke and refining	23	*-1.6*	*-1.4*	10.2	*-3.9*	*-40.2*
Engineering industries	*28 to 35*	*0.5*	*3.5*	*2.5*	*0.4*	*7.2*

Source: Eurostat Comext. Authors' calculations.
Sectors are ranked according to variation of their shares in the five countries' exports.

The analysis focuses on the four Central European countries, the Czech Republic, Hungary, Poland, Slovenia (similar data for other CEECs can be found in tables 2.21 to 2.26 in Statistical appendix to part 2).

Horizontal Specialisation Still Dominant

The contributions to trade balances by stages of production and by industries (Nace 2 digits) suggest that, in most cases, Central European countries are still involved in horizontal specialisation **(Tables 15 to 18).** In most industries they displayed either a comparative advantage or a comparative disadvantage in all stages of production. Moreover, the switches from a relative trade surplus to a trade deficit (and the reverse) along the production process do not always reflect a reversal in comparative advantage along the production process as it may be due to the heterogeneity of the sector at Nace 2 digit level. This is the case, for instance, of machinery and equipment in Hungary and Slovenia, of electrical machinery in Poland and the Czech Republic. Observed at a more disaggregated level (Nace 3), their specialisation in these industries appears to be horizontal as they display trade surplus in all stages of production of some products and deficit in all stages of production of others

Table 15 – Hungary: Comparative Advantages by Stage of Production in Manufacturing Industry 1996*

Nace 2 digits	Primary	Intermediate	Capital	Consumption	Total
Motor vehicles		49.2	-9.2	-5.4	34.6
Wearing apparel	-0.4	-0.1		32.9	32.3
Food and beverages	3.1	-0.1		20.8	23.8
Basic metals	4.7	10.9			15.7
Electrical machinery		8.5	0.5	5.3	14.2
Coke and refined petroleum products	-0.0	3.8			3.8
Wood	0.2	4.8		0.2	5.2
Furniture and manufacturing n.e.c.	-0.0	0.6	-0.0	1.0	1.6
Leather and footwear	-0.0	-6.7		9.1	2.4
Radio, television and comm. equip.		-4.7	-1.9	5.4	-1.2
Tobacco products	-0.0			-0.3	-0.3
Other non-metallic mineral products		-2.0		0.5	-1.5
Other transport equipment	-0.0	-1.1	-2.2	0.0	-3.3
Publishing and printing		-0.8		-0.8	-1.6
Fabricated metal products		-3.5	-1.5	-0.4	-5.3
Office machinery and computers		-6.3	2.6		-3.7
Pulp, paper and paper products	-0.2	-10.8		-1.1	-12.1
Rubber and plastic products	-0.0	-8.8		-3.4	-12.2
Medical, precision and opt. instr.		-0.7	-6.9	-1.1	-8.7
Textiles	0.0	-27.5		4.4	-23.0
Chemicals	-0.0	-14.4		-19.5	-33.9
Machinery and equipment		-10.6	-36.5	5.6	-41.5

* Indicator of contribution to trade balance. Sectors are ranked according to their contribution to trade balance, descending order

Source: Eurostat Comext. Authors' calculations.

Table 16 – Slovenia: Comparative Advantages by Stage of Production in Manufacturing Industry 1996*

Nace 2 digits	Primary	Intermediate	Capital	Consumption	Total
Wearing apparel	-0.0	0.2		38.7	38.9
Wood	0.4	18.1		0.6	19.1
Furniture and manufacturing n.e.c.	-0.0	14.2	-0.1	4.1	18.1
Basic metals	1.0	10.6			11.6
Leather and footwear	0.0	0.1		2.7	2.8
Electrical machinery		3.9	4.2	0.1	8.2
Pulp, paper and paper products	-0.6	2.5		1.7	3.6
Other non-metallic mineral products		1.5		0.1	1.6
Machinery and equipment		-0.5	-17.7	20.8	2.5
Fabricated metal products		4.0	-0.7	-1.2	2.1
Medical, precision and opt. instr.		-0.7	3.5	-0.6	2.1
Publishing and printing		-0.4		0.5	0.1
Office machinery and computers		-1.0	-4.0		-5.0
Motor vehicles		-24.0	-10.8	29.7	-5.0
Other transport equipment		-0.6	-0.7	-1.9	-3.2
Radio, television and comm. equip.		-3.9	-2.3	1.9	-4.3
Tobacco products	-0.0			-4.3	-4.4
Rubber and plastic products	0.1	-4.0		-1.9	-5.8
Coke and refined petroleum products	-0.0	-9.5			-9.5
Food and beverages	0.9	-2.0		-11.8	-12.9
Textiles	-0.1	-26.8		5.2	-21.7
Chemicals	0.0	-19.8		-10.9	-30.7

* Indicator of contribution to trade balance. Sectors are ranked according to their contribution to trade balance, descending order

Source: Eurostat Comext. Authors' calculations.

Table 17 – Poland: Comparative Advantages by Stage of Production in Manufacturing Industry 1996*

Nace 2 digits	Primary	Intermediate	Capital	Consumption	Total
Wearing apparel	-0.5	0.9		58.6	59.1
Basic metals	1.9	27.0			28.8
Furniture and manufacturing n.e.c.	-0.0	0.2	-0.1	32.8	33.0
Wood	0.7	20.6		1.7	23.0
Fabricated metal products		11.6	-2.4	-0.7	8.5
Food and beverages	-0.1	1.3		2.6	3.8
Electrical machinery		3.2	-1.6	1.2	2.8
Leather and footwear	0.0	-1.7		3.5	1.8
Other non-metallic mineral products		2.0		2.4	4.4
Other transport equipment	0.0	-0.4	3.4	1.0	4.0
Coke and refined petroleum products		2.0			2.0
Tobacco products	-0.0			-0.1	-0.2
Radio, television and comm. equip.		-2.0	-3.6	1.6	-4.0
Publishing and printing		-0.7		-2.8	-3.5
Pulp, paper and paper products	-0.0	-4.3		-0.4	-4.7
Medical, precision and opt. instr.		-0.7	-7.3	-1.3	-9.3
Office machinery and computers		-2.5	-5.4		-7.9
Rubber and plastic products	0.0	-11.2		-1.4	-12.6
Motor vehicles		-12.4	-1.6	-5.2	-19.2
Textiles	-0.0	-34.5		5.9	-28.6
Chemicals	0.1	-14.6		-18.0	-32.5
Machinery and equipment		-11.5	-39.6	-3.8	-54.9

* Indicator of contribution to trade balance. Sectors are ranked according to their contribution to trade balance, descending order

Source: Eurostat Comext. Authors' calculations.

Table 18 – Czech Rep.: Comparative Advantages by Stage of Production in Manufacturing Industry 1996*

Nace 2 digits	Primary	Intermediate	Capital	Consumption	Total
Wood	0.4	14.1		0.1	14.6
Furniture and manufacturing n.e.c.	-0.0	8.3	-0.2	7.5	15.5
Basic metals	6.4	11.7			18.1
Other non-metallic mineral products		13.6		1.7	15.2
Wearing apparel	-0.5	-0.1		14.7	14.1
Fabricated metal products		12.7	-0.1	-0.2	12.3
Other transport equipment		-0.3	1.6	1.4	2.7
Textiles	0.1	-2.1		3.7	1.7
Electrical machinery		-0.3	3.7	0.1	3.5
Leather and footwear	-0.0	-1.6		3.2	1.6
Coke and refined petroleum prod.		3.3			3.3
Tobacco products	-0.0			-1.2	-1.2
Publishing and printing		-0.1		-1.3	-1.4
Medical, precision and opt. instr.		-0.9	-6.1	-1.0	-8.0
Pulp, paper and paper products	-0.0	-0.7		-0.2	-0.9
Rubber and plastic products	0.1	-4.4		1.5	-2.8
Radio, television and comm. equip.		-5.9	-3.2	-1.9	-11.1
Food and beverages	-0.4	-2.0		-8.8	-11.2
Office machinery and computers		-2.0	-6.6		-8.6
Motor vehicles		2.3	-9.8	-3.9	-11.4
Chemicals	0.0	-0.8		-14.3	-15.1
Machinery and equipment		-1.3	-26.9	-4.2	-32.5

* Indicator of contribution to trade balance. Sectors are ranked according to their contribution to trade balance, descending order
Source: Eurostat Comext. Authors' calculations.

Vertical Specialisation

Central European countries have nevertheless developed a vertical division of labour with the EU in some industries. Table 19 present four selected industries in which the segmentation of production seem most remarkable: textile and clothing, leather and shoes, telecommunication equipment, motor vehicles.

All the four Central European countries are involved in a vertical division of labour with EU firms in the textile and clothing industry **(Table 19)**. This is a case of international segmentation of production involving different industries within the same chain of production. They have an overall comparative advantage in the textile and clothing sector, which results from a large deficit in intermediate products (textile) and a large surplus in consumption goods (apparel). The segmentation of the production process across the two parts of Europe is well entrenched in this traditional industry, as Western producers (mainly German and Italian) have expanded outward processing trade with Eastern Europe and

relocated there the final stage of production (clothing) to take advantage of the low labour costs. In most recent years, rising wages and the appreciation of national currencies have reduced the comparative advantage of Central European countries in this labour intensive stage of production and explain the relative slowing down of trade in all stages of production in this sector. A similar international division of labour is taking place in leather and shoes industry in Hungary, Poland and the Czech Republic.

More recently Central European countries have also developed vertical specialisation in new industries, which incorporate more technology. This is the case of transport equipment in the Czech Republic, Hungary and Slovenia, of telecommunication equipment in Poland, Hungary, Slovenia **(Table 19)**.

In the production of radio-television and telecommunication equipment, a vertical division of labour is taking place in which Central European firms are specialised in the production of consumer goods. They register large deficits in intermediate and capital goods. This suggests that the type of division of labour existing in the textile and clothing industry has been extended to these industries, and that Central European countries are specialised in the labour intensive stage of the production.

Table 19 – International Segmentation of Production Process, 1996*

	Nace 3 Digits	Contribution to trade balance				
		Primary	Intermediate	Capital	Consumption	Total
Hungary	Textile fibres	0.0	**-1.2**		0.1	**-1.1**
	Textile weaving		**-17.7**			**-17.7**
	Made-up textile articles, except apparel		0.2		2.6	2.8
	Other textiles	0.0	**-5.5**		**-0.6**	**-6.1**
	Knitted fabrics		**-3.3**			**-3.3**
	Knitted articles				2.4	2.4
	Leather clothes				0.9	0.9
	Other wearing apparel	**-0.4**	**-0.0**		32.0	31.5
	Articles of fur		**-0.1**		0.1	**-0.0**
	Tanning and dressing of leather	**-0.0**	**-6.7**			**-6.7**
	Luggage, handbags		**-0.0**		1.1	1.0
	Footwear				8.0	8.0
	Office machinery and computers	.	**-6.3**	2.6		**-3.7**
	Electronic valves and tubes	.	**-5.1**	**-0.5**		**-5.6**
	Television & radio transmitters	.	**-1.9**	**-4.7**		**-6.7**
	Television, radio receivers, sound or video recording	.	2.4	3.3	5.4	11.0
	Motor vehicles	.	50.3	**-8.7**	**-5.5**	36.1
	Bodies (coachwork) for motor vehicles	.	2.1	**-0.5**	0.0	1.7
	Parts, accessories for motor vehicles,	.	**-3.1**			**-3.1**

their engines					

* Indicator of contribution to trade balance.

Source: Eurostat Comext. Authors' calculations.

Table 19 (continued) – International Segmentation of Production Process, 1996*

	Nace 3 Digits	Contribution to trade balance				
		Primary	Intermediate	Capital	Consumption	Total
Slovenia	Textile fibres	**-0.1**	**-0.2**		**-0.1**	**-0.3**
	Textile weaving		**-15.6**			**-15.6**
	Made-up textile articles, except apparel		0.1		2.5	2.7
	Other textiles	0.0	**-7.4**		**-1.2**	**-8.6**
	Knitted fabrics		**-3.8**			**-3.8**
	Knitted articles				4.0	4.0
	Leather clothes				1.5	1.5
	Other wearing apparel	**-0.0**	0.0		37.2	37.2
	Articles of fur		0.2		0.0	0.2
	Tanning and dressing of leather	0.0	**-0.0**			**-0.0**
	Luggage, handbags		0.1		0.2	0.3
	Footwear				2.6	2.6
	Electronic valves and tubes		**-1.1**	0.8		**-0.3**
	Television & radio transmitters		**-1.9**	**-2.4**		**-4.2**
	Television, radio receivers, sound or video recording		**-0.9**	**-0.7**	1.9	0.2
	Motor vehicles		**-11.8**	**-10.8**	27.6	4.9
	Bodies (coachwork) for motor vehicles		0.0	0.0	2.2	2.2
	Parts, accessories for motor vehicles, their engines		**-12.2**			**-12.2**
Poland	Textile fibres	**-0.0**	**-1.5**		**-0.0**	**-1.6**
	Textile weaving		**-23.4**			**-23.4**
	Made-up textile articles, except apparel		0.3		6.1	6.5
	Other textiles	0.0	**-6.2**		**-1.9**	**-8.1**
	Knitted fabrics		**-3.7**			**-3.7**
	Knitted articles				1.8	1.8
	Leather clothes				0.2	0.2
	Other wearing apparel	**-0.5**	0.0		58.4	57.9
	Articles of fur		0.9		0.0	0.9
	Tanning and dressing of leather	0.0	**-1.7**			**-1.7**
	Luggage, handbags		**-0.0**		0.7	0.7
	Footwear				2.8	2.8
	Electronic valves and tubes		1.8	**-0.1**		1.6
	Television & radio transmitters		**-2.8**	**-3.5**		**-6.3**
	Television & radio receivers, sound or video recording		**-1.0**	0.1	1.6	0.6

* Indicator of contribution to trade balance.

Source: Eurostat Comext. Authors' calculations.

Table 19 (continued) – International Segmentation of Production Process, 1996*

	Nace 3 Digits	Contribution to trade balance				
		Primary	Intermediate	Capital	Consumption	Total
Czech. Rep.	Textile fibres	0.0	0.2		0.1	0.3
	Textile weaving		1.4			1.4
	Made-up textile articles, except apparel		0.5		3.8	4.4
	Other textiles	0.0	**-3.0**		**-1.5**	**-4.4**
	Knitted fabrics		**-1.3**			**-1.3**
	Knitted articles				1.3	1.3
	Leather clothes				**-0.0**	**-0.0**
	Other wearing apparel	**-0.5**	0.1		14.6	14.2
	Articles of fur		**-0.2**		0.0	**-0.1**
	Tanning and dressing of leather	**-0.0**	**-1.6**			**-1.6**
	Luggage, handbags		**-0.0**		0.8	0.8
	Footwear				2.5	2.5
	Television & radio transmitters		**-2.8**	**-4.9**		**-7.7**
	Television, radio receivers, sound or video recording		**-0.1**	**-0.6**	**-1.9**	**-2.6**
	Motor vehicles		**-1.7**	**-9.9**	**-3.9**	**-15.5**
	Bodies (coachwork) for motor vehicles		0.5	0.1	**-0.0**	0.6
	Parts, accessories for motor vehicles & their engines		3.5			3.5

* Indicator of contribution to trade balance.

Source: Eurostat Comext. Authors' calculations.

An interesting case for the recent development vertical specialisation between the two parts of Europe is the car industry. In 1996 Central European countries which are involved in vertical division of labour with European firms as a result of large FDI in this sector display different positions in the segmentation of the production process which reflect both the strategies of Western firms and the inherited industrial capacities of the individual countries. Hungarian car industry has an overall comparative advantage in this industry, which is built up on a structural trade surplus in intermediate products. This specialisation results from foreign direct investment (General Motors, Ford-Audi) in upstream sectors (engines) and is based on the industrial capacities developed in car parts and components during the Communist era. The Czech Republic has also a comparative advantage in intermediate products but not large enough to compensate for its disadvantage in final goods. By contrast, Slovenia has developed a large relative trade surplus in consumption goods, and a large deficit in intermediate products which reflect the strategy of which has the French firm (Renault) invested in assembly of imported components and parts.

The international division of production process between the two parts of Europe, which was in the past concentrated in the most traditional sectors has recently been extended to other industries. In the car industry, Western firms which organise their production at the world level, now to relocate some segments of the production process in Central and Eastern Europe.

Although vertical specialisation has developed in few industries, it concerns a significant share of Central European exports: the sectors involved in international segmentation of production process amount to 38% of exports and 30% of imports in Hungary; one third of Slovene exports and imports; the proportion is somewhat smaller in Poland and the Czech republic: 22% of Polish exports and 16% of the Czech exports.

3. NATURE OF TRADE RELATIONS BETWEEN THE CEECS AND EU COUNTRIES

3.1. Theoretical Foundations and Implications of Intra-Industry Trade

The revelation in the 1960s of intra-industry trade (IIT) -simultaneous exports and imports *within* a same industry– between countries of similar development severely limited the scope of traditional theories of international trade. This evidence was used by some authors as an argument to reject traditional theories of international trade based on the concept of comparative advantage: IIT was seen by some observers as a phenomenon "in search of a (new) theory".

However, from today's perspective, IIT may be seen as one starting point of the renewal of international trade theory, the theoretical base in understanding this phenomenon being considerably enlarged since then. In fact, a synthesis of determinants of IIT and inter-industry trade is attained, and progress during the last 15 years **(Figure 6)** has been such that today, it is the theory, which is in search of an appropriate empirical methodology[4].

During the late 1970s and early 1980s, new models of international trade were designed, using two distinctive frameworks: the models of monopolistic competition, and the small number market structures. The 1985 synthesis by Helpman and Krugman emerged as a new orthodoxy. This synthesis consider products to be *horizontally* differentiated: products are available to consumers in different varieties, and international trade, as it increases the size of the market, leads to a greater variety of goods and possibly to the achievement of economies of scale. But apart from these elements of imperfect competition, the concept of comparative advantage still holds for countries separated by a large difference in factor endowments or technological know-how. In total, this synthesis, based upon the integrated equilibrium, associates *inter*-industry trade with *comparative advantage* and *intra*-industry trade with *imperfect competition*: the economic distance between countries increases inter-industry trade and conversely reduces IIT. Adjustment costs in the case of IIT are supposed to be much smaller than for *inter*-industry trade for which increased specialisation

---

[4] See Fontagné and Freudenberg (1997) for a discussion.

implies the abandon of contested, comparatively disadvantaged industries and the displacement of factors towards a limited number of export-oriented industries.

Figure 6 - Overview of Some Models on Inter- and Intra-Industry Trade
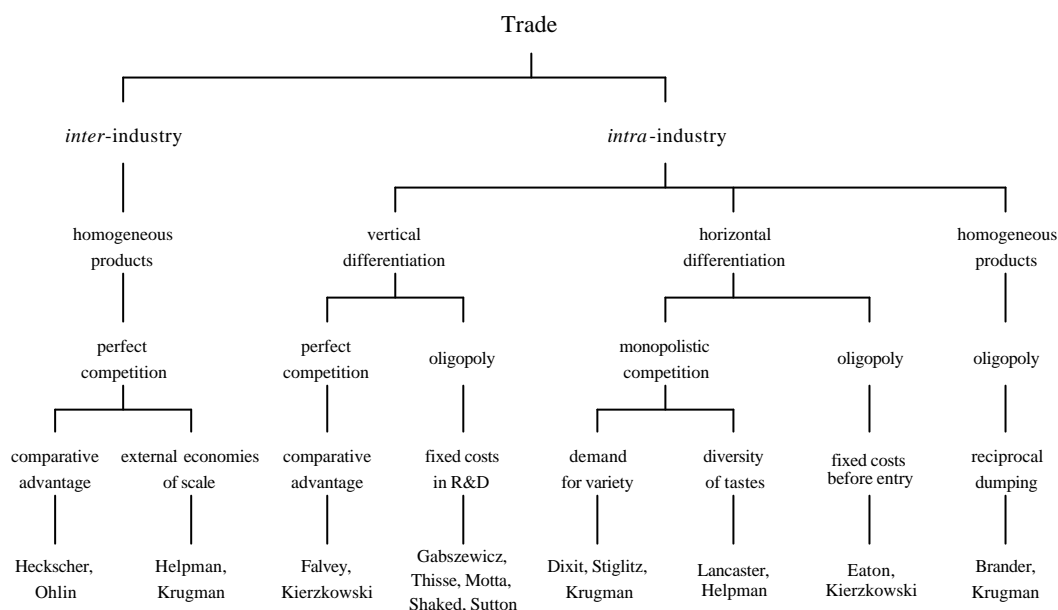
Source: adapted from Fontagné and Freudenberg (1997).

But products are not only (horizontally) differentiated by secondary attributes, but also differ by quality and price: this is a case of *vertical* product differentiation *(Falvey, 1981)*. Such a distinction modifies the theoretical framework: using the "integrated equilibrium" approach, the economic distance between countries is no longer the sole basis for an inter-industry specialisation, but also the basis for a specialisation along ranges of quality, within industries[5]. What is striking is that this distinction had not been incorporated in the Helpman-Krugman synthesis, whereas the empirical literature introduced a distinction between IIT of horizontally differentiated products and IIT of vertically differentiated products *(Abd-El-Rahman, 1986, 1987)*.

Recent empirical studies show that intra-industry trade concerns mostly vertically differentiated goods. Factors which play a key role in vertical product differentiation and

---

[5] Combining these two kinds of product differentiation into a single model of imperfect competition (in which consumers choose first among qualities and then among varieties of each quality), Fontagné and Freudenberg (1997) find following result: *different* countries will engage in IIT in *vertically* differentiated products whereas *similar* countries will engage in IIT in *horizontally* differentiated products. Thus, the economic distance between countries is compatible with IIT in vertically differentiated products.

can thus influence positively the quality of goods comprise: capital intensity, human capital, technology content and R&D expenditures as well as scale economies and market size. Theoretical models show that highly developed countries specialise in high-quality goods and less developed countries on down-market goods. For advanced countries, there is a constant need for quality upgrading, and this is even more important as international, R&D spillovers may lead to a catching-up of less developed countries[6].

In total, determinants and consequences of IIT clearly depend on the nature of product differentiation. In fact, inter-industry trade (implying a displacement of resources between industries), intra-industry trade of vertically differentiated products (associated with a specialisation along quality ranges), and intra-industry trade of similar products (associated with a specialisation in varieties) have different implications **(Table 20)**. A large diversity of trade patterns can be expected as determinants, the nature, and the effects of trade are highly dependent on market structures. This must discourage the researcher from seeking a simple representation of what the trade effects of the current and future integration of CEECs are.

Table 20 - Determinants of Trade Types and Potential Effects on Integration

	Traditional theories		New International Trade Theory	
Determinants	Factor endowments	Productivity differences	Scale economies	
			External	Internal
Trade patterns	*Inter*-industry Trade			*Intra*-industry trade in
				vertical differentiation / *horizontal* differentiation
Specialisation	along comparative advantages		through agglomeration economies	along the quality spectrum / in varieties
Adjustment costs	Important (changes in factor prices among industries within countries)		Potentially important (potential income divergence among countries)	Weak

Source: adapted from Fontagné and Freudenberg (1997).

3.2. Measurement of Intra-Industry Trade

The most widely used indicator to measure the extent of intra-industry trade is that put forward by Grubel and Lloyd (1975). It calculates the part of balanced trade (overlap between exports and imports) in all trade:

$$GL = \frac{(X+M) - |X-M|}{(X+M)}$$

---

[6] See Coe & Helpman (1995) and Coe, Helpman & Hoffmaister (1995).

Suppose that the majority flow (here: exports) is equal to 70 and the corresponding minority flow (imports) is 30 **(Figure 7)**. The GL coefficient measures the overlap between the two flows (30+30) in all trade (100), and stands at 60% in this example. The overlap is considered to be *intra*-industry trade, the remaining 40 being *inter*-industry flows.

Figure 7 - Illustration of the Grubel and Lloyd Indicator
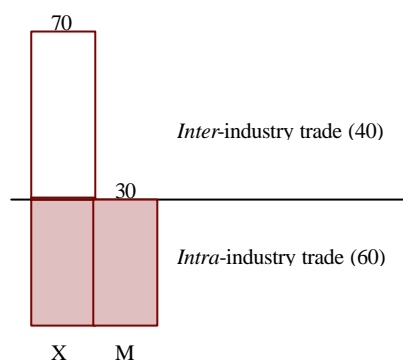
If we are interested in the *degree of overlap* in trade, this indicator is valid in the sense that it measures what it is supposed to do. But on empirical grounds, studies often made poor use of the Grubel and Lloyd or similar indicators. In fact, an important part of intra-industry trade may be due to an insufficient disaggregation, be it geographic[7] or sectoral[8].

The main reason why we do not use the Grubel and Lloyd indicator in this study is that its *interpretation* has caused some confusions in the literature as it gives a double explanation to the majority flow. Explanations of international trade have been inspired by the decomposition of total trade **(Figure 7)** in *trade overlap* (representing intra-industry trade) and the *imbalance* (inter-industry trade). In this case, the flows related to inter-industry trade remain largely explained by traditional theory, whereas intra-industry trade is explained by the "new international trade theory". This helps to reconcile what are *a priori* two incompatible paradigms, but raises the problem that there are *two different explanations for*

---

[7] *Geographical bias* arises when different partner countries are put together before doing the calculations, and in the extreme case, only a country's trade relations with "the rest of the world" are examined. However, the sign of the trade balance for a particular product may change for trade from one partner to another, corresponding to the accumulation of various inter-industry flows for the same item of the product classification, and will show up a "multilateral" intra-industry flow. This, however, is a pure artefact which is by the way compatible with traditional theories *(see e.g. Deardorff, 1979 and Lassudrie-Duchêne and Muchielli, 1979)* for the concept of the "chain of comparative advantages"): thus, empirical research ought to be done on a strict *bilateral* basis.

[8] *Sectoral bias* stems from insufficient disaggregation in the trade classifications: the lesser the detail of the nomenclature used, i.e. the more products are lumped together into a single "industry", the more trade becomes of an intra-industry nature. As already mentioned, a specific problem arises when an exchange of intermediate goods (e.g. motors) for final goods (e.g. cars) belonging to the same industry is considered as "intra-industry" trade. Simultaneous exports and imports within an industry, but at different production stages, should not be considered as intra-industry trade, but as an international splitting-up of the production processes *(Fontagné, Freudenberg & Ünal-Kesenci, 1995, 1996a, 1996b).* Thus, IIT ought to be apprehended at the *product* level.

the same (majority) trade flow, one being under perfect competition, the other under imperfect competition.

To resolve the problems put forward, this study is based on a methodology first elaborated by Abd-El-Rahman (1986) and refined by, and discussed in more detail in, Fontagné and Freudenberg (1997), which (i) minimises the bias arising from sectoral aggregation by using far more disaggregated classifications; (ii) minimises the bias of geographic aggregation by only considering bilateral flows; (iii) considers, depending on the degree in overlap, *both* exports and imports as being as being part of *either* two-way trade *or* one-way trade; and (iv) distinguishes between vertical and horizontal differentiation by incorporating price differences.

In order to operationalise the notion of "two-way trade in similar products", it is necessary to define what a "product" is empirically, what a "similar" product is, and lastly what "two-way trade" is. The following definitions are used here.

(a) *The product*. The detailed composition of the classification is the best guarantee for avoiding the empirical problems of sectoral aggregation: the data published by Eurostat for EU member states in the classification of the 8-digit "Combined Nomenclature (CN)" cover some 10,000 items.

   For each elementary flow (exports or imports of the declaring country to/from the partner country for a given product item) two criteria are applied.

(b) *The similarity of products*. Even inside an item of the "Combined Nomenclature", products may differ clearly by their quality. Here, it is assumed that differences in prices (unit values) reflect quality differences. Therefore, products whose unit values are close (in a given year) are considered as similar. Traded products are considered to be similar (or *horizontally* differentiated) if the export and import unit values differ by less than 15%, i.e. if they fulfil the following condition:

$$\frac{1}{1.15} \leq \frac{UV^X_{kk'it}}{UV^M_{kk'it}} \leq 1.15$$

   where UV stands for unit value, superscripts *X* and *M* refer to exports and imports and indices *k* representing the declaring country, *k'* the partner country and *i* the product in year *t*. When this is not the case, products are considered to be *vertically* differentiated.

(c) *The overlap in trade*. Trade in an item is considered to be "two-way" when the value of the minority flow (for example imports) represents at least 10% of the majority flow (exports in this case), i.e. if they fulfil the following condition, where *X* and *M* stand for the value of exports and imports:

$$\frac{\text{Min}\left(X_{kk'it}, M_{kk'it}\right)}{\text{Max}\left(X_{kk'it}, M_{kk'it}\right)} > 10\%$$

Below this level, the minority flow cannot be considered significant, as it does not represent a structural feature of trade.

If trade flows of a particular product with a partner country fulfil the two criteria of similarity and overlap, *both exports and imports are qualified as "two-way trade in similar products"*.

The method allows for each year total trade to be broken down into different categories according to the similarity in unit values and to the overlap in trade:

(a)   two-way trade in similar products (significant overlap and low unit value differences);

(b)   two-way trade in vertically differentiated products (significant overlap and high unit value differences);

(c)   one-way trade (no or no significant overlap).

This approach permits the *totality* of trade to be broken down according to these criteria, *both imports and exports being part of one and the same of these types*: contrasting with the Grubel and Lloyd related methodology, a trade surplus or a deficit may thus appear for each of the three types.

3.3. Nature of Trade Relations in Terms of Trade Types

The most important trade type in trade between EU-12 countries with Central and Eastern European countries in 1996 is one-way trade, suggesting a still strong complementarity between the West and the East **(Table 21)**.   However, some striking differences among CEECs in their trade relations with EU-12 countries can be detected: trade with *Eastern* European countries (Baltic and Balkan states) is almost exclusively *one*-way trade, whereas *Central* European countries show up a significant share of *two*-way trade. In fact, while one-way trade represents more than 90% for the three Baltic states, and accounts for more than 80% for Bulgaria and Romania, two-way trade represents about one quarter of trade for Poland and Slovakia, one third for Slovenia and Hungary, and is particularly important for the Czech Republic (about half of its total, bilateral trade with EU-12 countries).

A breakdown of two-way trade by product differentiation shows that two-way trade in vertically differentiated products is much more important than in horizontally differentiated goods, and this for each country[9]. Two-way trade in vertically differentiated represents some 20% for Poland and Slovakia, a quarter of total trade for Slovenia, some 30% for Hungary and almost 40% for the Czech Republic. In contrast, two-way trade in similar products is marginal for most countries, but nevertheless represents almost 10% for the Czech Republic.

---

[9] Aturupane, Djankov and Hoekman (1997) find similar results.

The variation between 1993 and 1996 shows that two-way trade increases for virtually all countries, this phenomenon being most pronounced for the Czech Republic (+11 points), Slovakia (+7.5) and Hungary (+5), and concerns mostly vertically differentiated goods.

Table 21 - Trade Types in Trade Between EU-12 and CEECs

	Share in 1996 (%)			Variation over 1993/96 (points of %)		
	Horizontal two-way trade	*Vertical two-way trade*	*One-way trade*	*Horizontal two-way trade*	*Vertical two-way trade*	*One-way trade*
Czech Rep.	9.6	38.1	52.3	5.8	5.5	-11.3
Hungary	6.4	30.9	62.7	1.9	3.2	-5.1
Slovenia	4.8	27.3	67.9	-4.2	4.0	0.2
EU-12 – CEEC-10	5.0	24.8	70.2	0.4	4.4	-4.8
Slovakia	5.7	19.7	74.6	2.0	5.5	-7.5
Poland	2.7	20.6	76.6	-2.3	5.0	-2.7
Romania	1.7	13.3	85.0	-1.0	4.9	-3.9
Bulgaria	2.6	11.2	86.3	0.7	1.3	-2.1
Lithuania	1.1	5.9	92.9	0.0	3.6	-3.6
Latvia	0.9	4.0	95.1	0.4	1.9	-2.3
Estonia	0.8	3.5	95.7	0.3	0.4	-0.8

The countries are ranked by increasing importance of one-way trade in 1996.
Source: Eurostat-Comext. Authors' calculations.

Where do the CEECs stand in comparison with other countries? **Table 22** compares the share of the three trade types for some 50 countries or regions in their trade with EU-12 countries. Not surprisingly, two-way trade with EU-12 countries is most important for countries which themselves are members of the European Union: it accounts for more than two thirds of total trade for France, Belgium-Luxembourg, Germany, and the United Kingdom, and more than half for the Netherlands, Spain, Italy and Austria. But interestingly the Czech Republic has already a higher share of intra-industry trade than several EU members. And in this respect all Central European countries stand ahead of Finland and Greece.

Among extra-EU countries, the Czech Republic and Hungary are already in the third and fourth place in terms of the share of two-way trade in total, bilateral trade, just behind Switzerland and the United States. In fact, the six Central European countries are among the 11 extra-EU countries with the highest share of two-way trade. In contrast, EU members' trade with the three Baltic States -Estonia, Latvia and Lithuania- is almost exclusively of a one-way nature, as is also the case for countries such as Algeria, Indonesia, Egypt, or the Philippines.

To compare more readily the relative importance of the three trade types for EU-15 and CEE countries, the nature of trade with EU-12 is shown graphically in the form of a triangle in **Figure 8** (situation in 1996) and **Figure 9** (evolution from 1993 to 1996): each summit

represents one of the three trade types, and the closer a country is to one summit, the more important is the corresponding trade type. The Czech Republic's situation is close to Austria's and Italy's; Hungary and Slovenia can roughly be compared to Denmark, Sweden and Ireland (and to a lesser extent, to Portugal); Poland's and Slovakia's position can be compared to Finland's; finally, Bulgaria and Romania show up a situation close to Greece's. Furthermore, *all* countries are on the *right* side of the triangles: whatever the level of two-way trade, vertical product differentiation is more important than horizontal differentiation. This finding underlines the importance of the subsequent question on which price-quality segments the different countries are positioned.

Table 22 - Trade Types in Trade with EU-12 Countries, 1996

|	Highest share of *two*-way trade				Highest share of *one*-way trade		
	Hor. two-way trade	*Vert. two-way trade*	*One-way trade*		*Hor. two-way trade*	*Vert. two-way trade*	*One-way trade*
France	21.8	47.9	30.3	Algeria	0.6	1.1	98.4
Belgium-Lux.	24.6	43.0	32.4	Indochina*	1.2	0.9	97.9
Germany	19.7	47.5	32.9	OPEC America*	1.2	2.3	96.6
United Kingdom	17.4	48.3	34.4	Indonesia	0.9	3.1	96.1
Netherlands	19.7	41.8	38.5	Egypt	1.0	3.1	95.9
Spain	18.5	37.1	44.4	**Estonia**	0.8	3.5	95.7
Switzerland	10.9	44.7	44.5	Non-OPEC Mid-East*	1.4	3.2	95.4
United States	11.0	43.0	46.0	**Latvia**	0.9	4.0	95.1
Italy	14.9	38.6	46.5	Non-OPEC Africa*	1.9	3.9	94.2
Austria	13.3	38.6	48.1	**Lithuania**	1.1	5.9	92.9
Czech Republic	9.6	38.1	52.3	Gulf countries*	1.6	5.5	92.8
Ireland	8.5	33.1	58.4	Philippines	0.9	6.3	92.8
Sweden	7.5	32.0	60.5	Rest Ex-Yugoslavia*	1.3	6.5	92.3
Denmark	8.0	30.5	61.5	Rest Ex-USSR*	3.0	5.0	92.0
Hungary	6.4	30.9	62.7	EFTA nec.*	1.4	6.7	91.9
Portugal	11.1	24.8	64.1	Morocco	3.4	5.4	91.2
Israel	21.2	13.0	65.8	China	0.8	8.2	91.1
Japan	4.7	27.8	67.5	Brazil	1.5	7.8	90.7
Slovenia	4.8	27.3	67.9	India	1.3	8.2	90.5
EU-12 – CEEC-10	5.0	24.8	70.2	South Africa	4.7	6.2	89.1
Singapore	4.0	23.6	72.4	*Greece*	2.8	9.6	87.6
Slovakia	5.7	19.7	74.6	America nec.*	7.6	5.0	87.4
Canada	3.6	21.5	75.0	Medit.Orient. nec.*	4.7	8.4	86.9
Poland	2.7	20.6	76.6	Australia & N.Zealand*	2.2	11.3	86.5
Finland	3.4	18.3	78.3	Thailand	5.8	7.8	86.4
Albania	3.7	16.6	79.7	**Bulgaria**	2.6	11.2	86.3
Tunisia	4.1	15.2	80.6	Mexico	2.4	12.0	85.7
Hong Kong	4.7	13.9	81.5	Malaysia	2.7	12.3	85.1
Croatia	3.7	13.6	82.6	**Romania**	1.7	13.3	85.0
Turkey	6.1	10.2	83.7	OPEC Africa*	14.5	0.6	84.9
Asia nec.*	4.0	12.2	83.8	South Korea	2.1	13.1	84.7
Norway	4.6	11.3	84.1	Taiwan	2.0	13.6	84.5

nec.: not elsewhere classified.

* Two-way trade may be overestimated for these groups of countries due to the geographical aggregation bias.

The countries are ranked by increasing (left columns) and decreasing (right columns) importance of one-way trade in 1996.

Source: Eurostat-Comext. Authors' calculations.

Figure 8 - Trade Types in Trade with EU-12 Countries, 1996

One-way trade

Two-way trade
in *similar* products

Two-way trade
in *vertically* differentiated products
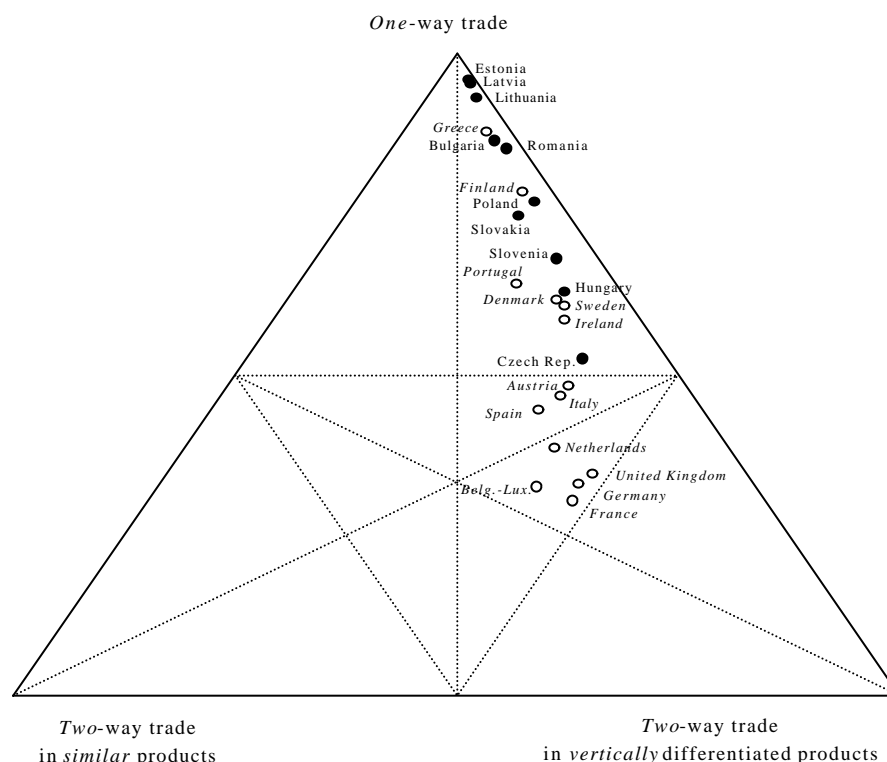
Source: Eurostat-Comext. Authors' calculations.

These overall findings need now to be examined in more detail. We will first present the nature of bilateral trade (all products taken together), and then examine the nature of trade at the industry level (average of trade between EU-12 and CEE-10 countries).

Let us turn to *bilateral* trade relations between EU-12 countries and CEECs (**Table 23**, see also **Table 3.1** in the Statistical appendix to part 3 which gives the information concerning the traditional Grubel and Lloyd indicator). Two-way trade, associated with gains in variety and/or quality, is particularly important for the Czech Republic with Germany (60%), France (37%) and Spain (34%); for Hungary with Germany (49%); for Slovenia with France (44%), Italy (37%) and Germany (31%); and for Slovakia with Germany (33%). In contrast, trade between small EU countries at the "periphery" (such as Greece, Portugal or Ireland) and the Baltic states corresponds to traditional trade patterns as it is almost exclusively of a one-way nature: in trade between these countries, each product is either (or almost exclusively, i.e. below the 10% threshold) exported or imported.

60

Figure 9 - Evolution of Trade Types in Trade with EU-12 Countries, 1993-1996
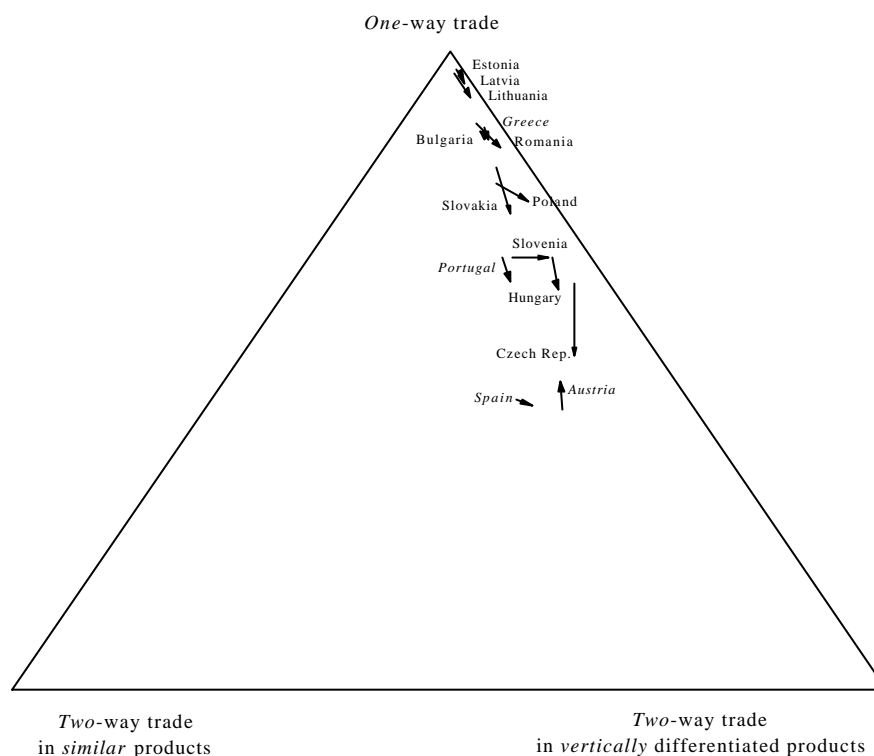
Source: Eurostat-Comext. Authors' calculations.

A breakdown by *industry* **(Table 24)** reveals without surprise that trade between EU and CEEC countries is also almost exclusively one-way trade in raw materials as well as in food and related products (crude petroleum and natural gas, mining of coal and lignite, mining of metal ores, tobacco products, coke and refined petroleum products (98%), fishing, food and beverages, agriculture, and forestry).

In contrast, two-way is especially high in electrical machinery (60%); publishing and printing (54%); fabricated metal products (53%); rubber and plastic products (43%); motor vehicles (41%); office machinery and computers (37%); wearing apparel (35%); medical, precision and optical instruments (35%); machinery and equipment (34%); radio, television and communication equipment (34%); and furniture and manufacturing not elsewhere classified (33%). Again, two-way trade in vertically differentiated is much more important than in horizontally differentiated goods: thus, for example, half of all trade between EU-12 countries and the 10 Central and Eastern European countries in electrical machinery concerns simultaneous exports and imports, but at sensibly different unit values.

Between 1993 and 1996, the share of two-way trade increased most for printing and publishing (+15 points of %); office machinery and computers (+11.5); radio, television and communication equipment; medical, precision and optical instruments; wearing apparel; and

61

motor vehicles (more than + 7 each). The most important rise in two-way trade in vertically differentiated can be found for motor vehicles (+15 points of %) and office machinery and computers (+11.5).

Table 23 - Importance of Trade Types in Overall *Bilateral* Trade

	Share in 1996 (%)			Variation over 1993/96 (points of %)		
	Horizontal two-way trade	*Vertical two*-way trade	One-way trade	*Horizontal two*-way trade	*Vertical two*-way trade	One-way trade
Germany – Czech Rep.	11.6	48.7	39.8	7.1	7.8	-14.9
Germany – Hungary	8.8	40.7	50.6	2.7	4.7	-7.4
France – Slovenia	3.2	40.8	56.0	-29.9	14.8	15.1
France – Czech Rep.	8.8	28.4	62.7	3.9	14.1	-18.0
Italy – Slovenia	5.1	31.6	63.3	-4.3	5.3	-1.0
Spain – Czech Rep.	1.7	31.9	66.5	0.5	19.6	-20.1
Germany – Slovakia	6.7	26.5	66.8	1.5	8.6	-10.2
Germany – Slovenia	6.0	25.2	68.7	3.4	1.2	-4.5
EU-12 – CEEC-10	5.0	24.8	70.2	0.4	4.4	-4.8
Italy – Hungary	4.6	24.7	70.6	1.7	5.6	-7.3
Germany – Poland	3.3	23.9	72.8	0.5	3.4	-3.9
Denmark – Lithuania	5.5	19.7	74.8	-1.5	13.1	-11.5
Netherlands – Poland	2.5	22.0	75.5	-1.6	6.1	-4.4
France – Hungary	3.3	20.9	75.8	0.1	5.4	-5.5
Italy – Czech Rep.	9.3	14.8	76.0	7.1	-1.9	-5.1
Greece – Bulgaria	9.4	14.4	76.2	9.0	6.2	-15.2
Netherlands – Czech Rep.	5.0	18.6	76.4	2.2	4.2	-6.3
(…)						
Spain – Estonia	0.0	0.5	99.5	0.0	0.5	-0.5
Portugal – Slovenia	0.0	0.4	99.6	0.0	0.4	-0.4
Ireland – Bulgaria	0.3	0.0	99.7	-3.9	0.0	3.9
Belgium-Lux. – Lettonia	0.0	0.3	99.7	-0.2	-1.3	1.5
Ireland – Slovakia	0.3	0.0	99.7	0.3	0.0	-0.3
Ireland – Slovenia	0.1	0.1	99.8	0.0	-3.2	3.2
Greece – Slovakia	0.0	0.1	99.9	-0.0	-0.5	0.5
Greece – Lithuania	0.0	0.1	99.9	0.0	-1.8	1.8
Portugal – Bulgaria	0.0	0.1	99.9	-0.0	0.0	0.0
Ireland – Lettonia	0.0	0.0	100.0	0.0	0.0	-0.0
Greece – Estonia	0.0	0.0	100.0	0.0	0.0	0.0
Greece – Lettonia	0.0	0.0	100.0	0.0	0.0	0.0
Ireland – Estonia	0.0	0.0	100.0	0.0	0.0	0.0
Ireland – Lithuania	0.0	0.0	100.0	0.0	0.0	0.0
Portugal – Lettonia	0.0	0.0	100.0	0.0	0.0	0.0

The countries are ranked by increasing importance of one-way trade in 1996.

Source: Eurostat-Comext. Authors' calculations.

Table 24 - Importance of Trade Types by Industry, Average EU-12 and CEEC-10

NACE rev.1	Share in 1996 (%)			Variation 1993/1996 (points of %)		
	Horiz. two-way trade	*Vertical* two-way trade	One-way trade	*Horiz.* two-way trade	*Vertical* two-way trade	One-way trade
31 Electrical machinery	10.3	49.5	40.2	5.6	0.1	-5.7
22 Publishing and printing	11.6	42.2	46.3	6.3	8.5	-14.8
28 Fabricated metal products	6.0	46.5	47.5	3.1	-0.1	-3.1
25 Rubber and plastic products	3.5	39.8	56.7	0.3	1.9	-2.3
34 Motor vehicles	8.3	32.8	58.9	-8.0	15.0	-7.0
30 Office machinery and computers	5.2	32.0	62.8	1.6	11.5	-13.1
18 Wearing apparel	11.2	24.1	64.6	3.4	3.7	-7.2
33 Medical, precision and opt. instr.	6.3	28.8	64.9	0.0	7.3	-7.3
29 Machinery and equipment	2.8	31.5	65.7	1.0	3.8	-4.7
32 Radio, television and comm. equip.	7.4	26.7	65.9	4.4	3.1	-7.5
36 Furniture and manufacturing n.e.c.	7.6	25.7	66.8	3.1	-3.9	0.8
Average all industries	5.0	24.8	70.2	0.4	4.4	-4.8
19 Leather and footwear	6.2	21.0	72.9	0.6	-7.7	7.1
35 Other transport equipment	3.1	21.7	75.2	-12.6	7.8	4.8
26 Other non-metallic mineral products	4.0	18.1	78.0	2.6	2.9	-5.5
17 Textiles	3.7	16.6	79.6	-0.8	0.1	0.7
21 Pulp, paper and paper products	3.3	16.8	79.9	-0.1	2.7	-2.6
20 Wood	1.6	17.0	81.4	1.0	3.6	-4.6
27 Basic metals	2.7	15.6	81.7	-1.7	1.1	0.6
24 Chemicals	1.9	10.8	87.4	-0.2	-1.0	1.2
14 Other mining and quarrying	1.5	11.0	87.5	0.4	5.6	-6.0
02 Forestry	0.1	8.2	91.6	0.1	-6.2	6.1
01 Agriculture	1.3	6.2	92.4	0.7	2.1	-2.8
15 Food and beverages	1.0	6.1	92.9	0.0	0.5	-0.5
05 Fishing	0.2	5.4	94.4	-0.2	0.6	-0.5
23 Coke and refined petroleum products	1.9	3.0	95.1	0.6	-4.6	3.9
16 Tobacco products	0.0	1.1	98.9	0.0	-0.9	0.9
13 Mining of metal ores	0.0	0.1	99.9	-3.6	-0.1	3.7
10 Mining of coal and lignite	0.0	0.0	100.0	0.0	-0.5	0.5
11 Crude petroleum and natural gas	0.0	0.0	100.0	0.0	0.0	0.0

The industries are ranked by increasing importance of one-way trade in 1996.

Source: Eurostat-Comext. Authors' calculations.

3.4. Positioning on Price/Quality Ranges

The results obtained by disentangling trade types show the (rising) importance of two-way trade in vertically differentiated products, i.e. simultaneous exports and imports of products with the same main technical characteristics, but under different prices (unit values), suggesting a "qualitatively division of labour" within Europe.

The question on which market segments (in terms of price/quality) different member states are positioned in is important for political economy issues, as this might have important consequences in terms of income distributions: products sold at significantly different prices on the same market can be considered outputs of distinctive production functions. High quality (as revealed by high unit values) means more R&D, a higher qualification of labour, specific organisation of internal procedures of firms etc. Therefore, the range on which countries specialise is not "neutral" from a policy point of view.

Here again, we assume that differences in unit values reflect quality differences. As exports and imports are analysed separately, flows for the same product with a given trade partner can exist in different European price/quality ranges *(Freudenberg & Müller, 1992)*:

(a)   *up-market* products (with unit values exceeding the intra-EU average by at least 15%),

(b)   *down-market* products (more than 15% below the norm), as well as

(c)   *middle-market* products (between +/- 15% around the average).

Being carried out at the most detailed level of the classification, this work allows headings to be aggregated to any desired level, so that a break down all trade into three trade types and three price/quality ranges may be obtained[10].

It is important to mention that despite their common use of unit values, *trade types and price/quality ranges are two distinct and strictly independent notions*[11]. The analysis by price-quality ranges can therefore not only be applied to two-way trade in vertically differentiated products, but also to the other trade types, and thus to all trade.

Some striking differences among CEECs can be found when exports and imports are distinguished by price-quality ranges **(see Table 25 and Figure 10)**.

---

[10] This approach clearly differs from Aiginger (1996, 1997) and Erkel-Rousse and Le Gallo (1998) who use relative unit values to discriminate between price and quality competition. In our approach, we are not interested if a country has *higher* relative unit values (compared to another country or exports compared to imports), but whether a country exports (imports) *more* of the high (medium, low) quality product.

[11] For example, two-way trade in *similar* products can be done in *different* European price segments. Likewise, two-way trade in *vertically differentiated* products can be done in the *same* market segment.

In 1996, the overall *import* structure by price-quality ranges is very close among the CEECs: concerning the "demand" side, consumption patterns at this aggregated level seem to be rather similar.

Table 25 - Share in Exports and Imports and Comparative Advantages
by Price-Quality Range in Trade with EU-12 Countries, 1996

	Share in exports (%)			Share in imports (%)			Comparative advantage		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Slovenia	41.5	27.5	30.9	21.8	33.8	44.4	98.1	*-31.3*	*-66.8*
Hungary	44.0	27.4	28.6	27.6	26.4	46.0	81.9	4.9	*-86.7*
Estonia	43.3	38.6	18.1	36.0	27.2	36.8	36.3	57.1	*-93.4*
Czech Rep.	65.5	18.4	16.1	26.3	31.0	42.7	190.2	*-61.2*	*-129.0*
Slovakia	56.2	28.0	15.8	26.3	24.8	48.9	148.7	15.7	*-164.5*
Poland	65.1	22.7	12.2	34.3	30.4	35.3	147.3	*-36.9*	*-110.4*
Bulgaria	60.8	28.1	11.1	32.5	26.5	41.0	141.1	7.9	*-148.9*
Romania	72.8	19.5	7.8	32.2	29.1	38.7	201.6	*-47.9*	*-153.8*
Lithuania	56.6	36.0	7.4	33.5	24.9	41.6	114.9	55.1	*-170.1*
Latvia	31.3	61.9	6.7	30.2	33.2	36.6	5.4	139.9	*-145.4*

The countries are ranked by decreasing importance of the share of up-market goods.
Source: Eurostat-Comext. Authors' calculations.

The situation is rather different for *exports*. *Down*-market goods are the most important price-quality range in exports for almost all CEECs. The share of *up*-market goods differs strongly among CEECs: exports in up-market goods are most important for Slovenia (31%) and Hungary (29%), followed by Estonia (18%), the Czech Republic and Slovakia (16% each), Poland (12%), Bulgaria (11%). In contrast, exports in up-market goods account for a very small share for Romania (8%), Lithuania and Latvia (7% each). Interestingly, the CEECs appear to be specialised on different quality segments that the Southern EU members, the latter exporting more medium market goods than down-market goods.

These results suggest that the dispersion among CEECs of consumption structures along the quality spectrum are smaller than the dispersion of production structures. Thus, for example, Czech and Slovenian consumers buy different qualities in approximately the same proportions (due to "identical" preferences as revealed by imports from EU-12 countries), but Slovenian producers export more high-price, high-quality goods than do Czech firms.

In terms of the "contribution to the bilateral trade balance" with the EU, the CEECs are globally either specialised in *down* or *medium*-market goods. But over time, things have changed **(Table 26 and Figure 11)**: between 1993 and 1996, the contribution to the trade balance improved for all *Central* European countries in *up*-market products, strongly contrasting with the situation of Eastern European countries.

Figure 10 - Price-Quality Ranges of Exports and Imports to/from EU-12 Markets, 1996

Imports

Exports

Up-market

Ireland

Sweden

Austria   Germany
           Denmark

Finland   UK   France
                 Netherlands
           Italy   Belgium-Lux.

Slovenia
Hungary

                 Portugal
                 Spain

Czech Rep.   Slovakia   Estonia
                          Greece
Poland   Bulgaria
Romania   Lithuania   Latvia

Down-market   Medium-market
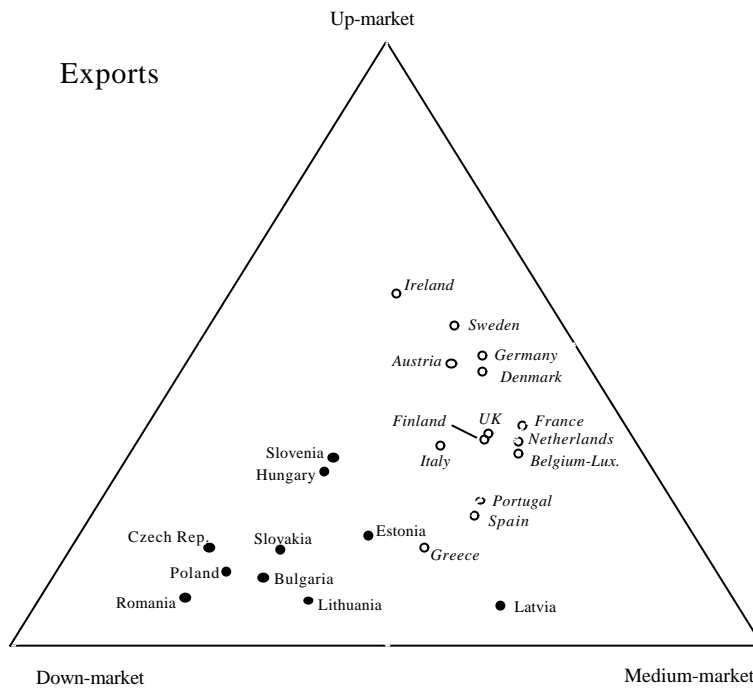
Source: Eurostat-Comext. Authors' calculations.

Table 26 - Evolution of the Share in Exports and Imports
and of Comparative Advantages by Price Quality Range, 1993-1996

	Variation of share in exports (% points)			Variation of share in imports (% points)			Variation of comparative advantage		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Slovenia	-5.8	-3.8	9.6	-4.3	7.3	-2.9	-8.0	-55.2	63.2
Slovakia	-13.5	5.8	7.6	-0.9	-0.2	1.1	-63.6	30.3	33.2
Hungary	-4.7	-1.4	6.1	-2.1	1.2	0.8	-12.2	-12.9	25.2
Estonia	-10.5	4.7	5.8	-11.2	5.1	6.1	3.2	-1.6	-1.6
Czech Rep.	-0.9	-2.3	3.2	3.3	5.2	-8.5	-24.5	-35.8	60.4
Poland	-3.6	1.0	2.6	5.0	0.4	-5.3	-46.8	4.0	42.7
Lithuania	-8.9	7.8	1.1	-8.0	-1.0	9.0	-0.4	44.0	-43.6
Latvia	2.9	-3.7	0.7	-1.6	4.8	-3.2	20.5	-22.1	1.6
Romania	-0.6	2.6	-2.0	-1.1	2.2	-1.1	5.3	1.6	-6.9
Bulgaria	1.8	0.4	-2.3	-0.3	-4.2	4.5	13.8	22.9	-36.7

The countries are ranked by decreasing importance of the variation of the share of up-market goods.

Source: Eurostat-Comext. Authors' calculations.

Figure 11 - Evolution of the Share of Price-Quality Ranges
in Exports to EU-12 Countries, 1993-1996
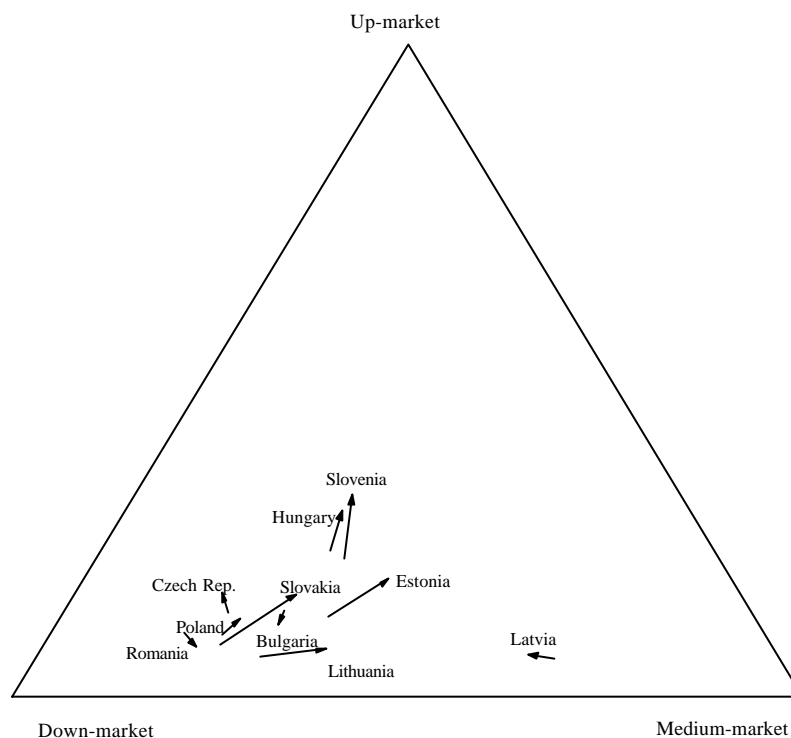
Source: Eurostat-Comext. Authors' calculations.

Figure 12 to Figure 21 show the contribution to the trade balance with EU countries for each of the CEECs, by industry and price-quality ranges. An interesting finding is that often, a structural surplus in one price/quality range coexists with a deficit in another price/quality range within a same industry.

In industries with a revealed comparative advantage, the structural surplus for the CEECs is mostly due to *medium-* and *down-*market goods. However, there are some exceptions. Most countries (Hungary, Poland, Slovakia, Slovenia, Bulgaria, Romania) show up a structural surplus in-up market wearing apparel. This is explained by the vertical integration which has been developing between Western and Eastern Europe in textile industry. Most of CEEC exports of wearing apparel takes place within the framework of subcontracting operations with Western (mainly German) firms. Hungary has also a comparative advantage in up-market goods in three others sectors: car industry, a sector dominated by foreign firms, in food-beverage-tobacco, as well as in agriculture. Slovenia and the Czech Republic drave also a structural surplus in furniture and manufacturing nec, Bulgaria and Estonia in basic metals, Slovakia in leather and footwear.

In industries with a revealed comparative disadvantage, the CEECs do not show a structural deficit in all price/quality ranges, but virtually always in up-market goods (Slovenia's advantage in up-market motor vehicles is a clear exception). However, CEE countries are in

some cases advantaged in down- or medium market goods even in industries for which they are individually disadvantaged in trade with EU countries. This is the case in:

- rubber and plastic industry for most Central European countries (Czech Republic, Hungary, Poland, Slovakia and Slovenia);

- fabricated metal products for Bulgaria, Estonia, Hungary and Romania;

- chemicals for the Czech Republic, Estonia, Romania and Slovakia;

- textile for Bulgaria, Latvia, Lithuania and Slovenia;

- electrical machinery for Bulgaria, Lithuania and Romania;

- Machinery and equipment for Bulgaria, the Czech Republic and Slovakia;

- office machinery and radio-television and communication equipment for Hungary;

- etc.

In total, these findings suggest a "qualitatively division of labour" between Western and Eastern European countries. However, the scenario of an integration of the first wave of Eastern enlargement to the EU based on a "residual" specialisation on down-market products, with its correlative adverse consequences for the catching-up, is not supported by the evidence at this stage.

**Figure 12 - Hungary: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**
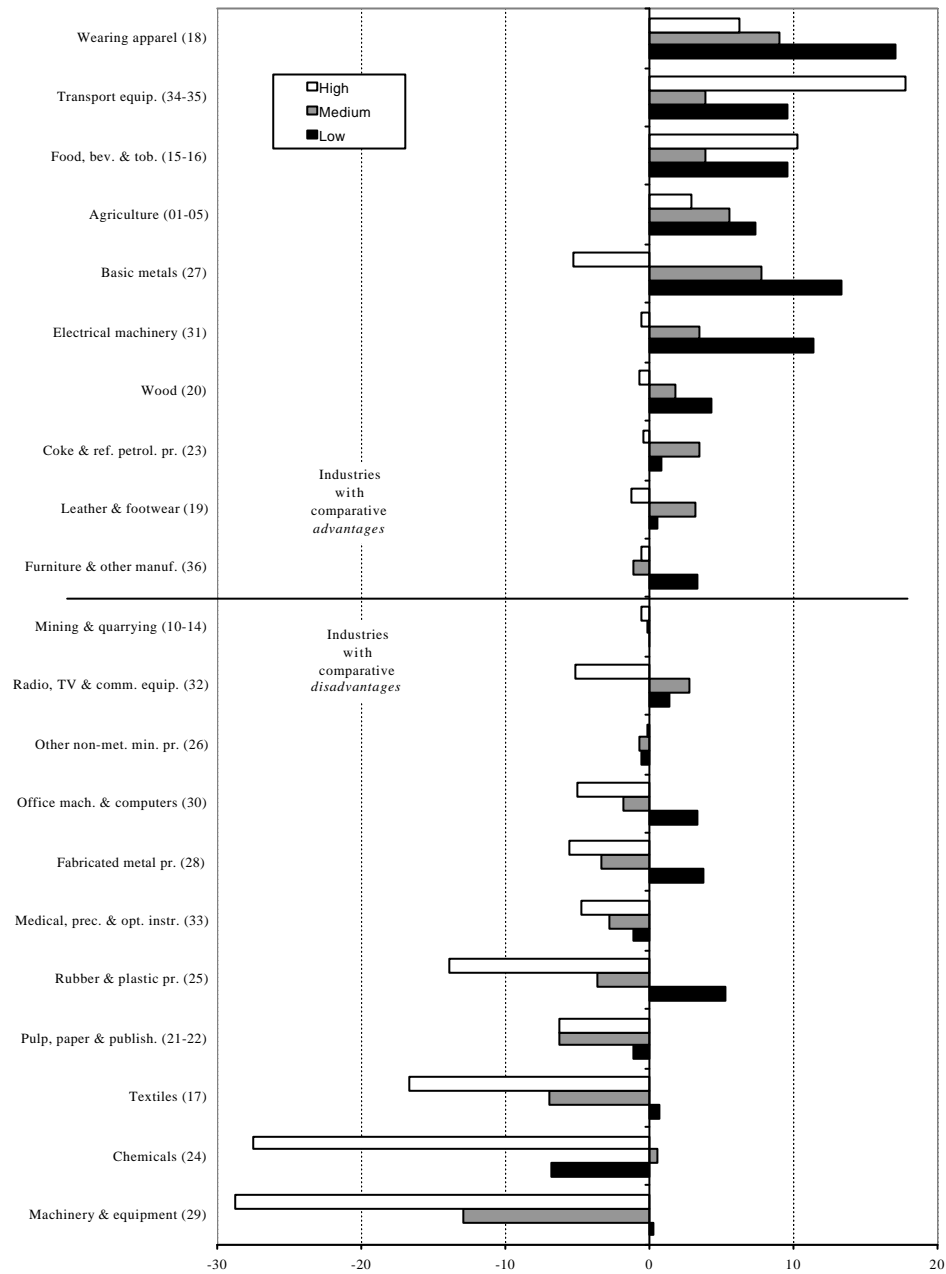
Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.
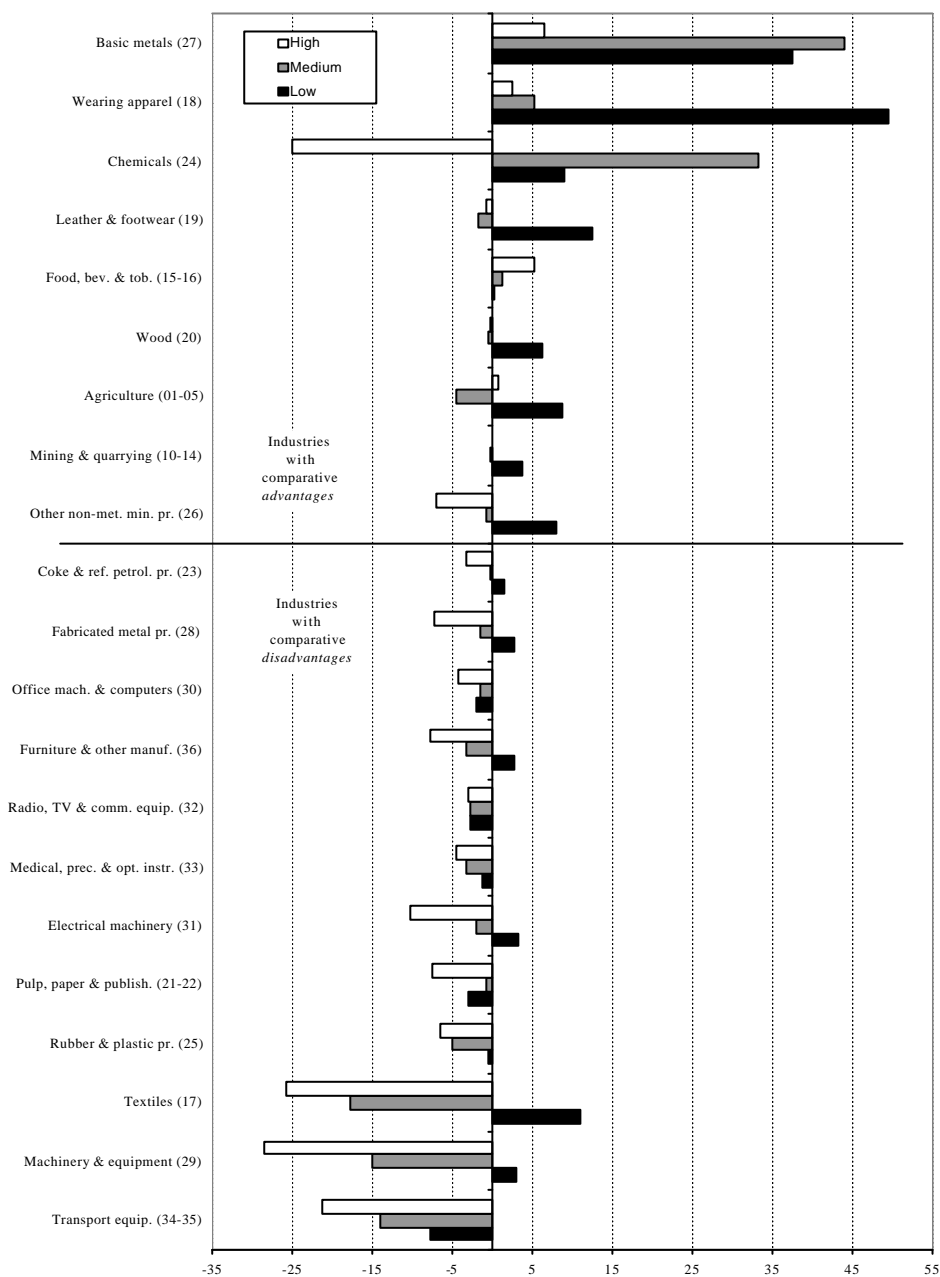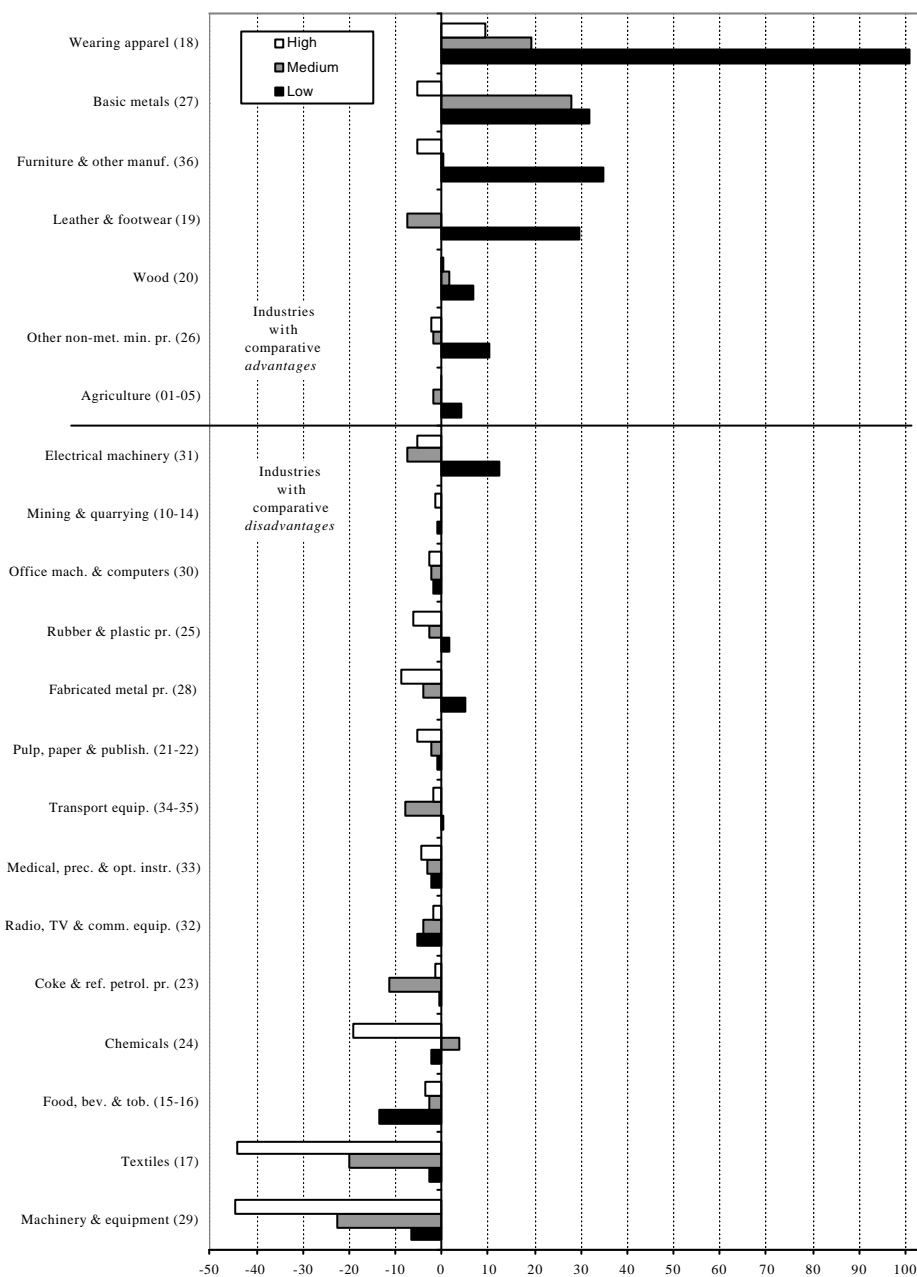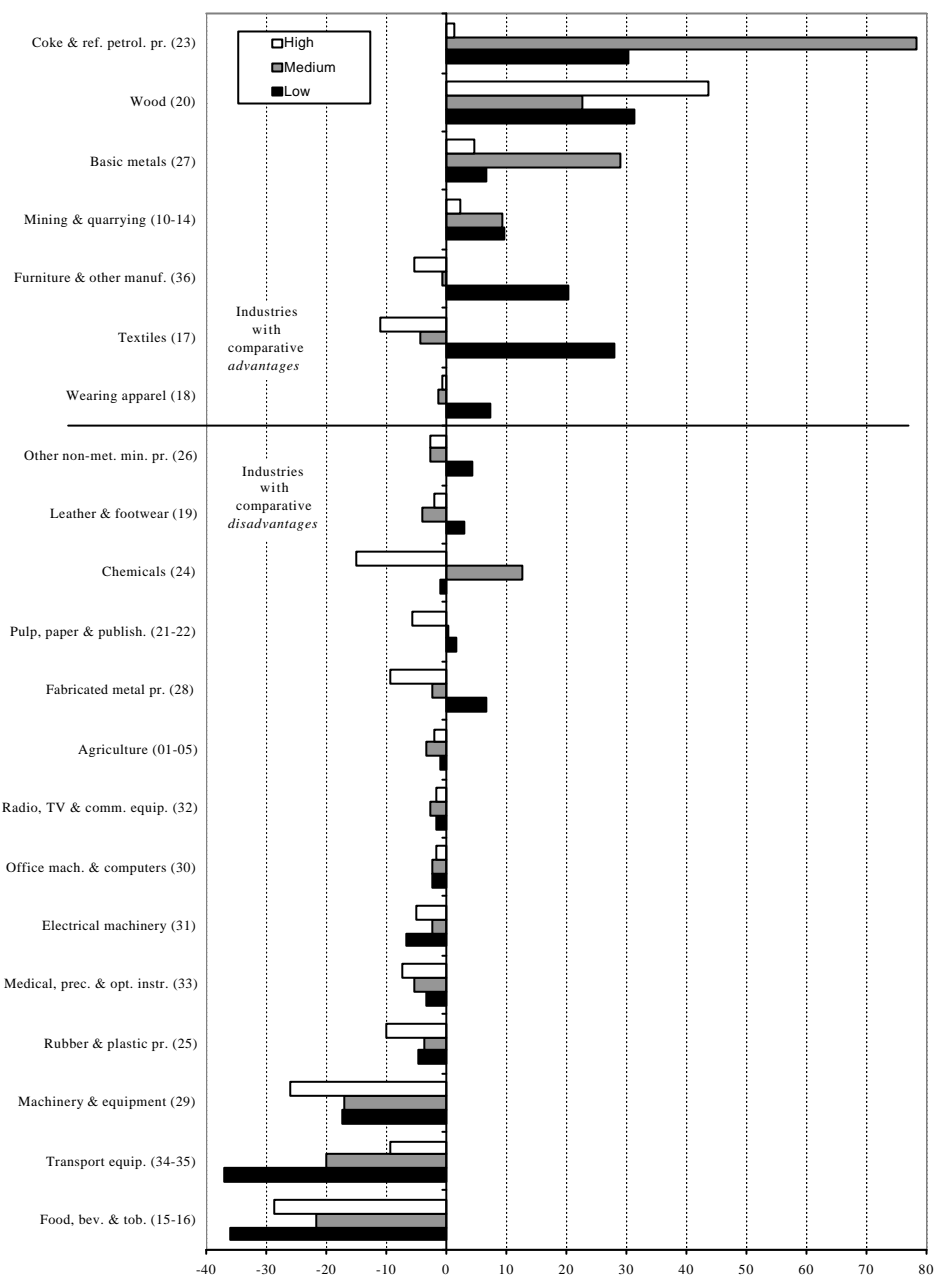Source: Eurostat-Comext. Authors' calculations.

**Figure 13 - Poland: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**
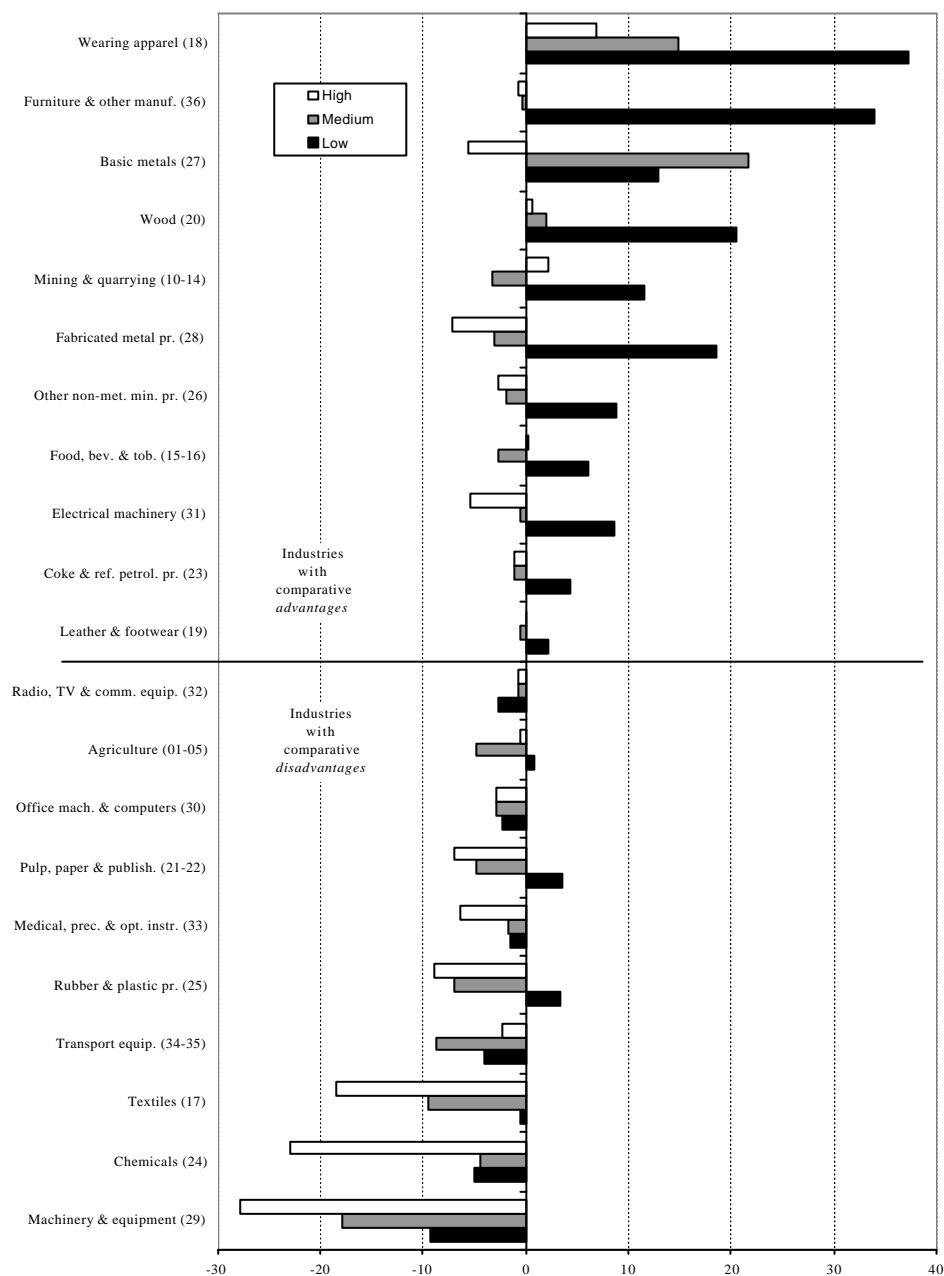
Industries are ranked by decreasing order of their contribution to the trade balance. The
numbers behind the industries refer to NACE Rev. 1 divisions.
Source: Eurostat-Comext. Authors' calculations.

**Figure 14 - Czech Republic: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**
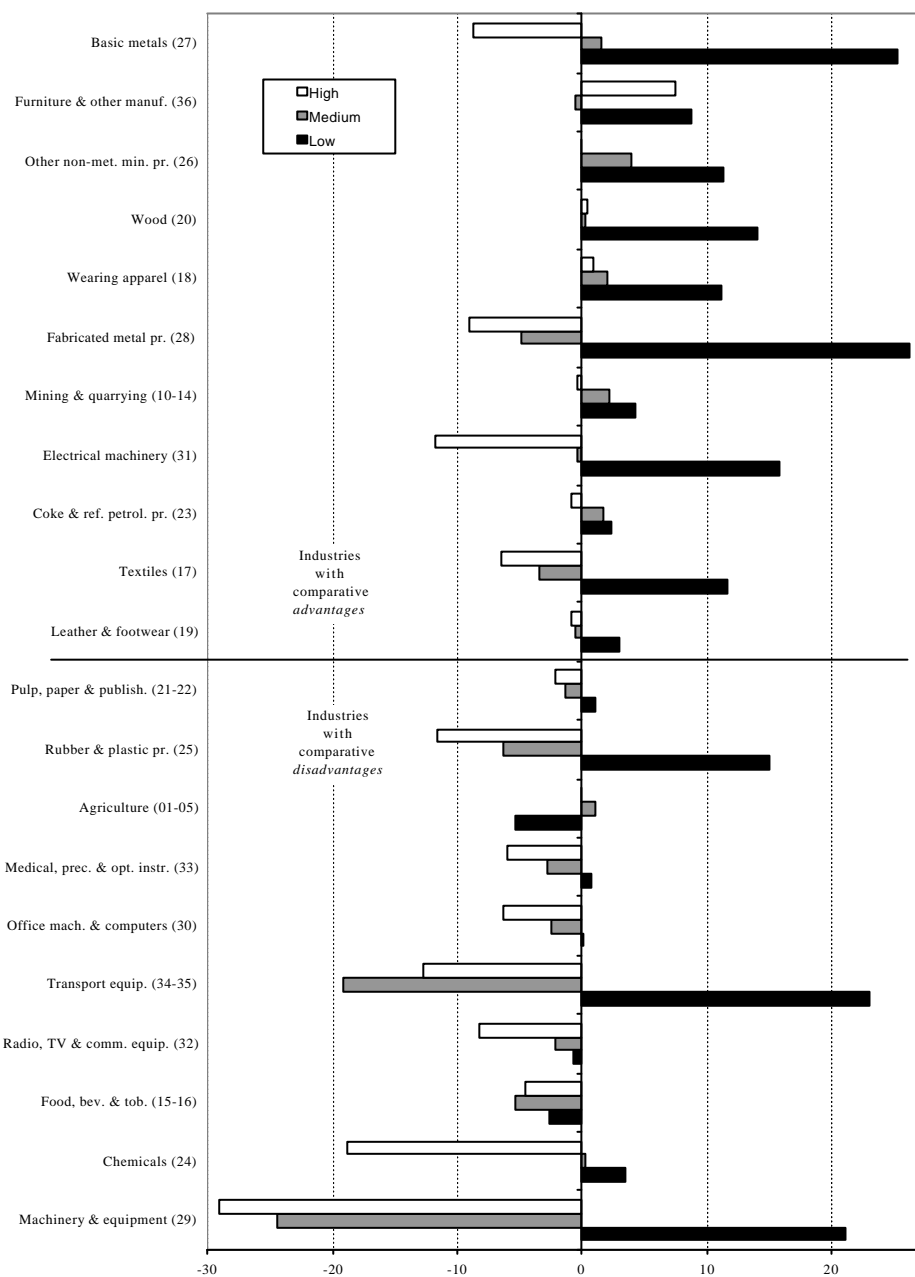
Industries are ranked by decreasing order of their contribution to the trade balance. The
numbers behind the industries refer to NACE Rev. 1 divisions.
Source: Eurostat-Comext. Authors' calculations.

Figure 15 - Slovakia: Contribution to the Trade Balance with EU-12
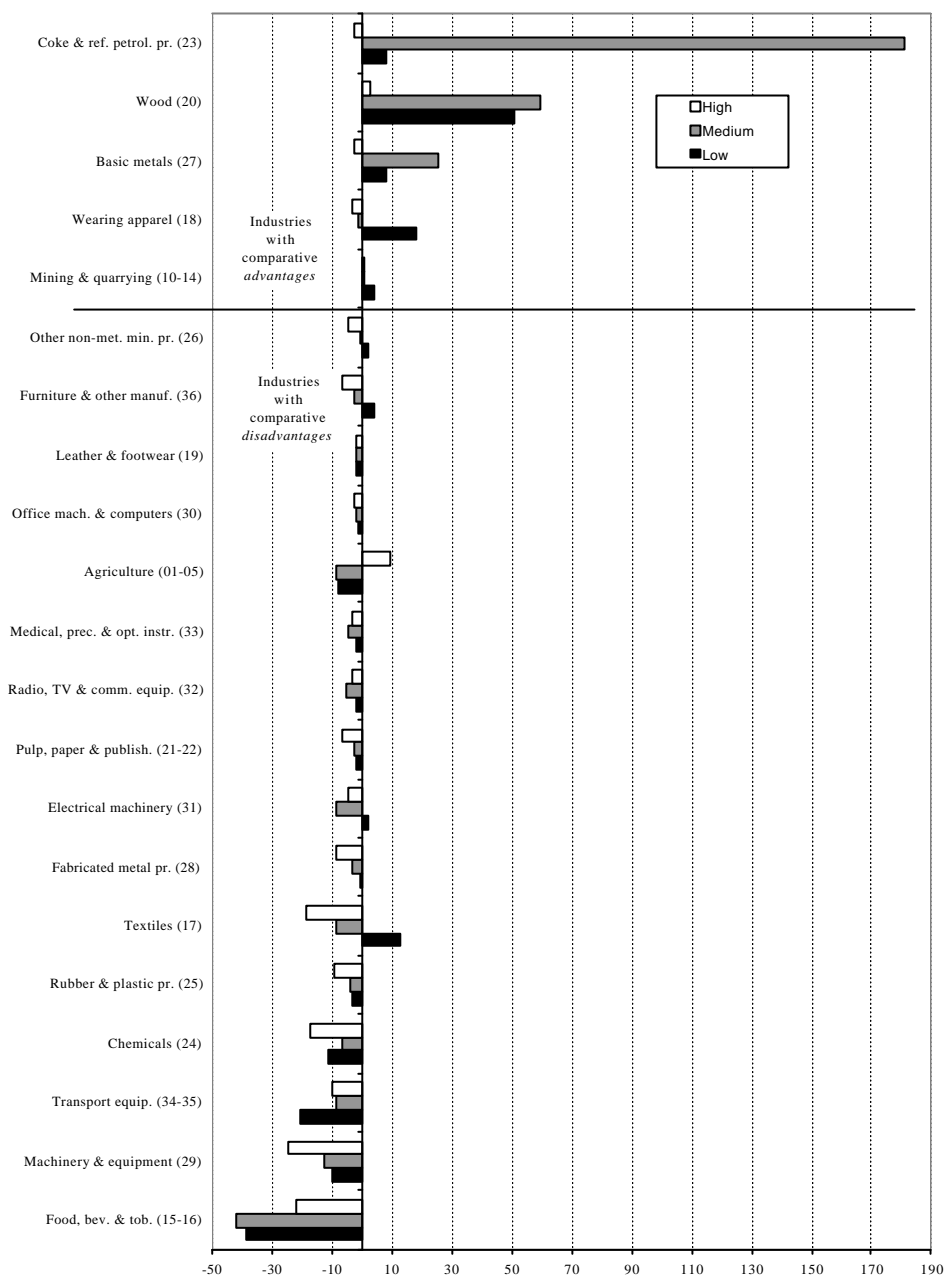**by Industry and Price/Quality Range, 1996**
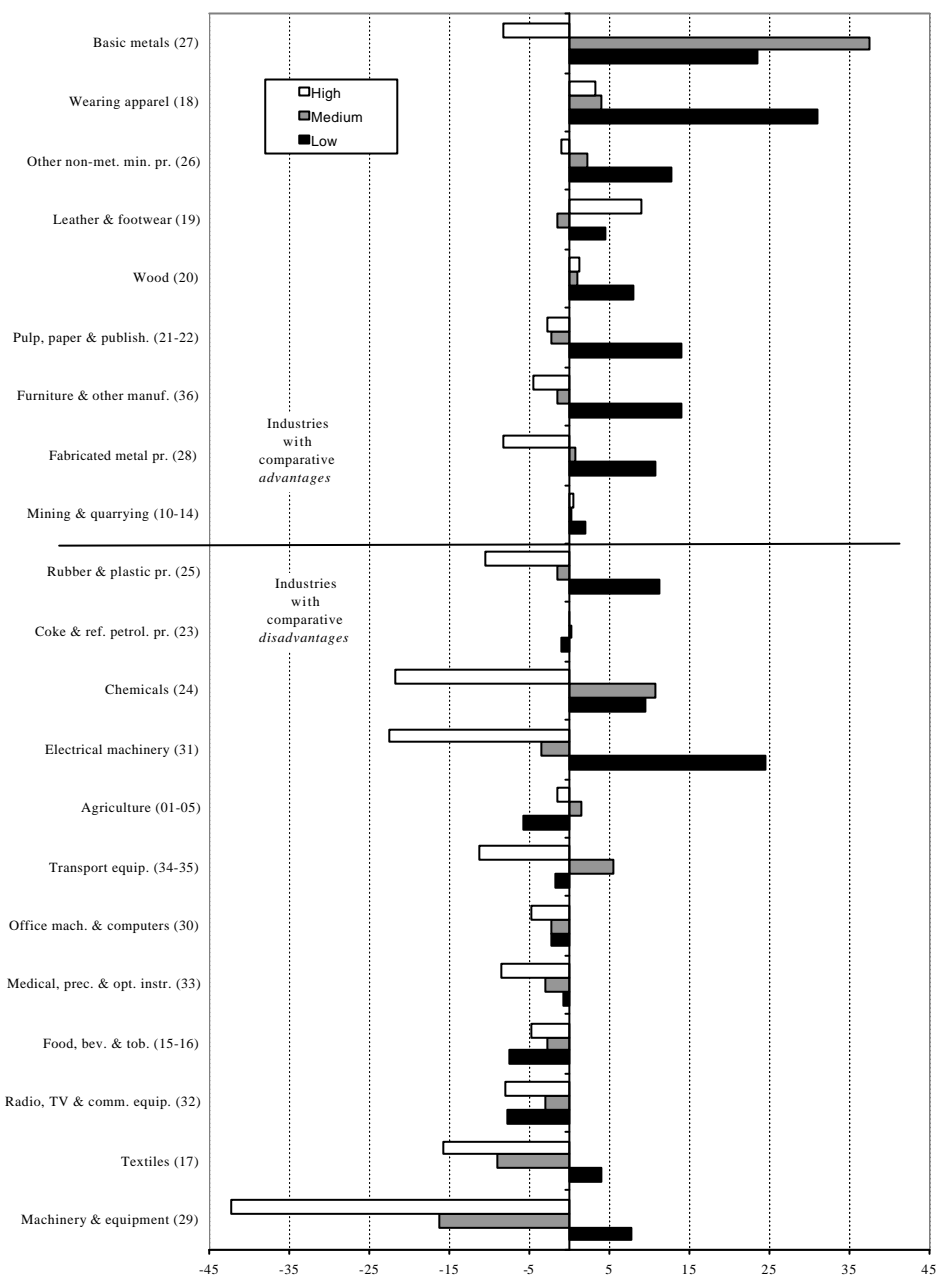
Industries are ranked by decreasing order of their contribution to the trade balance. The
numbers behind the industries refer to NACE Rev. 1 divisions.
Source: Eurostat-Comext. Authors' calculations.

**Figure 16 - Slovenia: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**
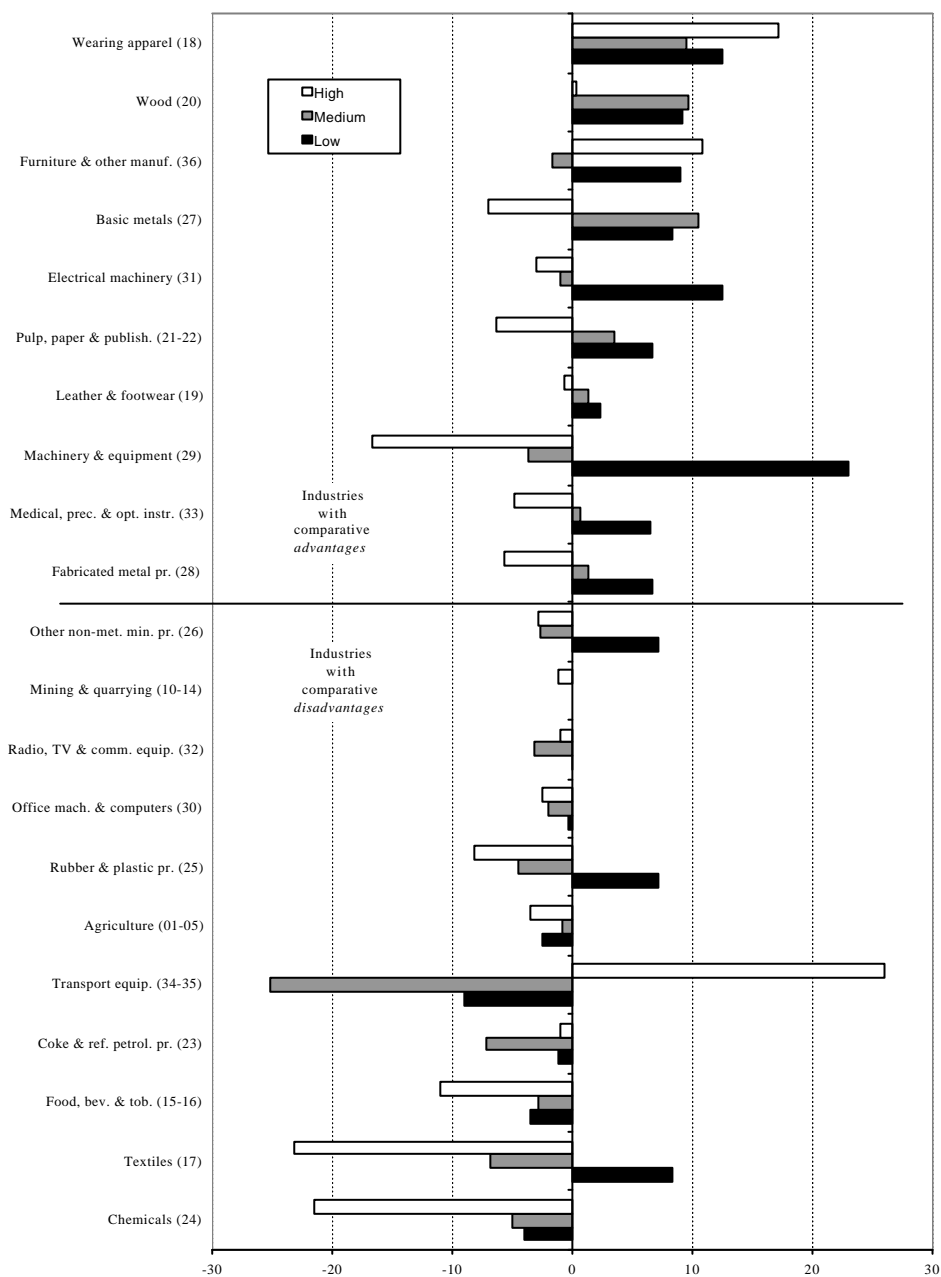
Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.
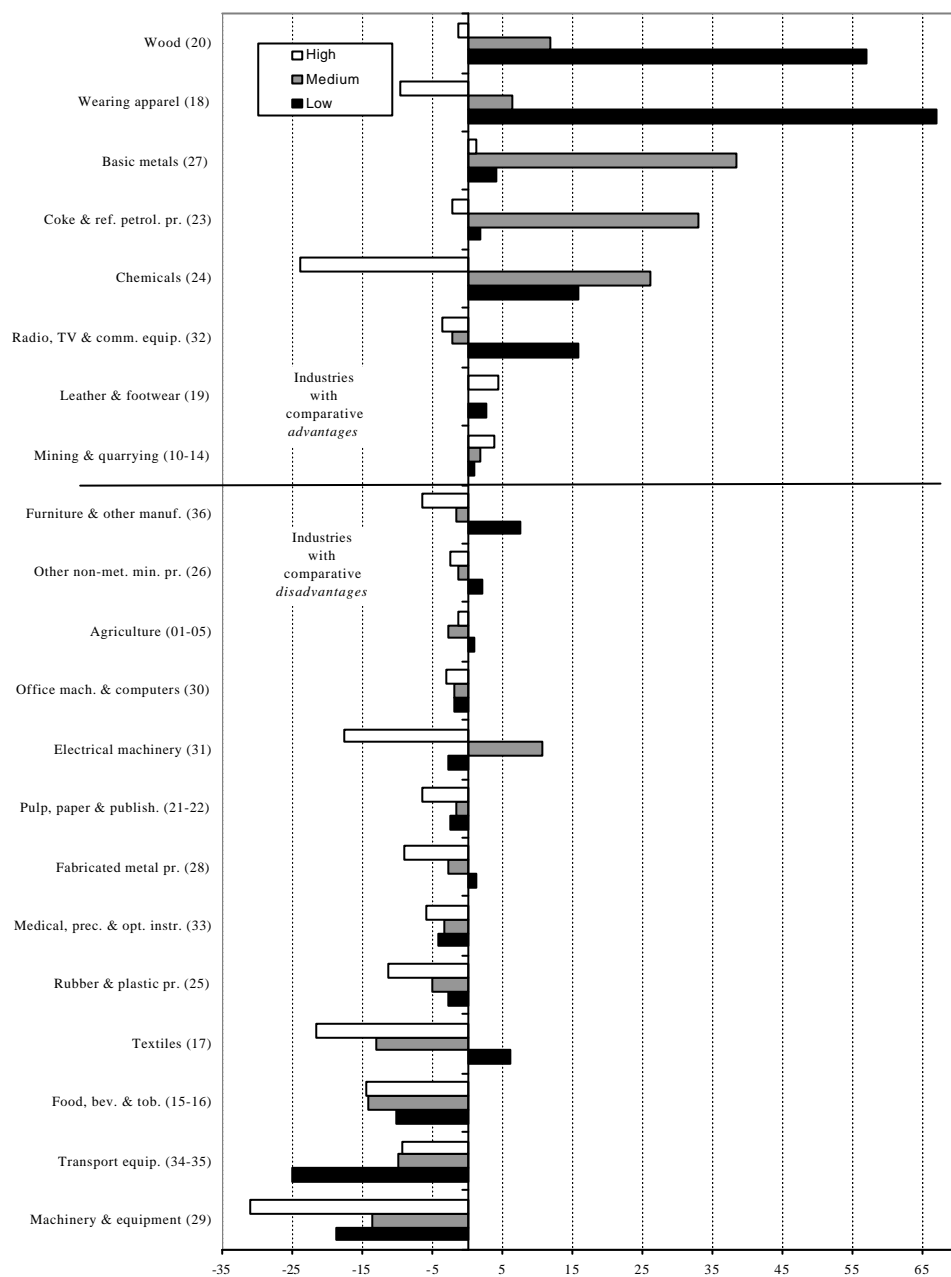
Source: Eurostat-Comext. Authors' calculations.

77

Figure 17 - Bulgaria: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996

Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.
Source: Eurostat-Comext. Authors' calculations.

**Figure 18 - Romania: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**

Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.

Source: Eurostat-Comext. Authors' calculations.

**Figure 19 - Estonia: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**

Industries are ranked by decreasing order of their contribution to the trade balance. The
numbers behind the industries refer to NACE Rev. 1 divisions.
Source: Eurostat-Comext. Authors' calculations.

**Figure 20 - Latvia: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**

Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.

Source: Eurostat-Comext. Authors' calculations.

**Figure 21 - Lithuania: Contribution to the Trade Balance with EU-12
by Industry and Price/Quality Range, 1996**

Industries are ranked by decreasing order of their contribution to the trade balance. The numbers behind the industries refer to NACE Rev. 1 divisions.

Source: Eurostat-Comext. Authors' calculations.

CONCLUSION

The different approaches used to analyse the CEEC-10 trade lead to the following conclusions concerning their position in the international division of labour in Europe:

CEEC industrial specialisations are still characterised by comparative advantage in labour-intensive industries as well as in resource-intensive sectors; and by comparative disadvantage in capital intensive sectors. However there are important and growing differences between Central European countries on the one hand and Balkan and Baltic states on the other hand:

- Balkan and Baltic countries' trade remains dominated by traditional industrial specialisations, based on sectoral complementarities;

- in most Central European countries there is a trend towards despecialisation (decrease in comparative advantage or disadvantage); moreover some countries have been relatively successful in building comparative advantages in new industries, where they have achieved high export performance. Accelerated export growth has been often linked to the strong presence of foreign capital. The most conspicuous case of a strong relation between export performance and foreign capital involvement is the motor vehicle industry, which is now completely dominated by multinational firms.

The structure of CEEC trade by stage of production reveals that intermediate products form the largest and the most dynamic part of trade flows, suggesting an increased participation of the region in the international division of production process.

On the import side, the increasing share of intermediate products means that their domestic production incorporates an increasing proportion of imported inputs. In the future this should be a source of comparative advantage for the downstream sectors based on imported inputs, as it should lead to a better adaptation to external demand and to an improved quality of the finished products. Already, the export performance of some industries appears to be linked with imports of intermediate goods.

On the export side, the importance of intermediate products in the industries which recorded the highest export performance, engineering industries, indicates a lack of competitiveness in capital goods. Although the diversification of Central European exports towards industries which incorporate more capital and technology than the traditional labour intensive sectors can be regarded as a positive move, this success is mitigated by the fact that the diversification of industrial exports was achieved more in intermediate goods rather than in capital goods.

Central European countries are still mainly involved in horizontal specialisation: they have a comparative advantage (or disadvantage) in all stages of the production process in most industries. However, they are integrated in a vertical division of labour in textile-clothing, and they have also recently developed such a vertical specialisation in other industries such as transport equipment and telecommunication equipment. Investment of Western firms which have relocated parts of their production process in Central Europe have thus created

new productive links across the two parts of Europe. In most cases Central European comparative advantages lay in downstream production.

The *nature of trade* confirms a still strong complementarity between CEECs and the EU: one-way trade accounts for the major part of EU trade with the ten candidates.

Nevertheless while trade of Balkan and Baltic countries is almost exclusively one-way trade, *Central* European countries show up a significant share of *two*-way trade. The Czech Republic, Hungary, Slovenia have already a higher share of two-way trade than several EU members. The nature of competition is thus different between the EU and the Central European countries.

Two-way trade increased for virtually all countries, this phenomenon being most pronounced for some countries in Central Europe. This suggests that their productive structures are progressively converging with that of Western Europe.

However a breakdown of two-way trade by product differentiation shows that two-way trade in vertically differentiated products (associated with a specialisation along quality ranges) is much more important and more dynamic than in horizontally differentiated goods (associated with a specialisation in varieties), and this for each country. Two-way trade in similar products is marginal for most countries, but represents almost 10% for the Czech Republic.

The positioning of CEEC trade on *price/quality range* indicates a "qualitatively division of labour" between Western and Eastern European countries. The CEECs are generally specialised in down-market and middle-market goods.

There are nevertheless exceptions as in some of the industries in which they have a revealed comparative advantage, they show up a structural surplus for *up*-market goods (this is the case in wearing apparel). Conversely, in some of the industries in which they have a comparative disadvantage they show up a structural surplus in down or middle-market goods.

Between 1993 and 1996, the contribution to the trade balance improved for all *Central* European countries in *up*-market products, strongly contrasting with the situation of Balkan and Baltic states.

In total these findings do not support the scenario of an integration of the first wave of Eastern enlargement to the EU based on a "residual" specialisation on down-market products, with its correlative adverse consequences for the catching-up, is not supported by the evidence at this stage:

The candidates for the first wave of Eastern enlargement are much poorer than the Southern European countries were when they entered the European Community. But they are already much more open and more oriented towards the EU than Greece, Portugal and Spain were in the mid-eighties. The Association Agreements has provided for trade between the EU and

the CEECs, to be progressively liberalised and it t has led to a rapid increase in trade between the two regions together with substantial FDI flows to some of the associated countries. Trade in industrial products is now virtually completely free from formal trade barriers (tariffs and quantitative restrictions) and most of the adjustment to this liberalisation has already taken place in the CEECs (*Brenton, 1998*). This adjustment has strengthened differences in the specialisation patterns among the candidates. Structural changes in Central European countries have been associated with the development of productive links with Western firms and have resulted in a relatively high and fast growing share of intra-industrial trade, a situation which is supposed to alleviate adjustment costs for the first wave of enlargement.

The question is whether the trends observed over the recent period, which suggest a convergence with Western Europe, will be sustained in the future. Industrial restructuring in the CEECs is far from complete even in the countries the most advanced in transition. Despite the evolution observed in the commodity trade pattern with the EU, changes in the production structures towards sectors with high value added is relatively slow *(Majcen, 1998; Marczewski, 1998)*. FDI has played a positive role in the adjustment of some sectors which thus seem to have the best growth prospects, but the restructuring of domestic firms still lag behind. Accession to the EU will intensify competition in the domestic markets (as the adoption of the Common External tariff will lower tariffs on industrial imports from third countries); furthermore the enforcement of the Single Market rules may aggravate the situation of sectors and firms already in trouble.

Sectoral trade patterns indicate that Southern EU members may face intensified competition from Eastern European countries as these will become more integrated into the EU. However, our findings indicate that they are still positioned in different quality segments. The potential competition for foreign direct investment also worries low income EU countries. But several studies *(Brenton, 1998; Buch, Heinrich and Piazolo, 1998)* underlined that Central European countries have benefited from high FDI flows since 1992 after they established attractive conditions, as Southern European countries did in the second half of the eighties. They suggest that FDI in Southern countries levelled off after it had reached its "normal" level and not as a result of Eastern competition and that FDI in Eastern Europe may have now reached its normal level.

The exchange rate policy has a crucial importance in this phase of transition. In most countries, the real exchange rates has tended to appreciate, which has a positive effect as far as this stimulates the reallocation of resources towards the most productive sectors and enterprises and favors the catching up with Western Europe. But the risk is that a too strong appreciation may lead to a currency overvaluation, which results in a loss of industrial competitiveness and a too large deterioration of the current account. Hungary in 1995, the Czech Republic in 1997 devalued their currencies under the pressure of external financial constraint. In 1998-1999, the widening of Polish trade balance suggests that the zloty may be overvalued. Despite their achievements in macro economic stabilisation, the candidates for the first wave of enlargement, appear to be far from adopting a fix nominal exchange rate and to enter the European Monetary Union. Nevertheless, given their strong

trade integration with the EU economies, they will have incentives to peg their currencies in real terms to the euro *(A. Benassy-Quéré and A. Lahrèche-Révil, 1998).*

REFERENCES

Abd-El-Rahman K.S. (1986a), "Réexamen de la définition et de la mesure des échanges croisés de produits similaires entre les nations," *Revue économique,* No. 1.

Abd-El-Rahman K.S. (1986b), "La 'différence' et la 'similitude' dans l'analyse de la composition du commerce international," *Revue économique,* No. 2.

Abd-El-Rahman K.S. (1987), "Hypothèses concernant le rôle des avantages comparatifs des pays et des avantages spécifiques des firmes dans l'explication des échanges croisés des produits similaires," *Revue d'économie politique*, No. 2.

Abd-El-Rahman K.S. (1991), "Firms' Competitive and National Comparative Advantages as Joint Determinants of Trade Composition," *Weltwirtschaftliches Archiv,* No. 1.

Aiginger K. (1996), "Unit Value to Signal the Quality Position of CEECs", in Wolfmayr and alii in Wolfmayr-Schnitzer Y. and alii, (1996), *The Competitiveness of Transition Countries*, WIFO and WIIW, Preliminary version, December 1996.

Aiginger K. (1996), *"Unit Values, Quality Ladders and Non price Competition"*, Paper prepared for the Conference on New Indicators for the Knowledge-Based Economy, OECD, 19-21 June.

Aiginger K. (1997), "The Use of Unit Values to Discriminate Between Price and Quality Competition", *Cambridge Journal of Economics*, 21, pp. 571-592.

Aturapane C., S. Djankov & B. Hoekman (1997), "Determinants of Intra-industry Trade Between East and West Europe," *CEPR Discussion Paper*, No. 1721, November.

Balassa B. & L. Bauwens (1987), "Intra-industry Specialization in a Multi-Country and Multilateral Framework," *The Economic Journal*, Vol. 97, pp. 923-939.

Baldwin R. E. (1994), "*Toward an Integrated Europe*", CEPR.

Benassy-Quéré A. & A. Lahrèche-Revil (1998), "Pegging the CEEC's Currencie to the Euro", *CEPII Working paper*, n° 1998-04.

Brander J.A. & P. Krugman (1983), "A Reciprocal Dumping Model of International Trade," *Journal of International Economics*, Vol. 15, November, pp. 313-321.

Brander J.A. (1981), "Intra-industry Trade in Identical Commodities," *Journal of International Economics,* Vol. 11, pp. 1-14.

Brenton P. & Gros D. (1995), "Trade between the European Union and Central Europe: An Economic Policy Analysis", *CEPS Working Document*, N°93, March, Brussels.

Brenton P. (1998), "Trade in Sensitive Industrial products Between the EU and the CEECs: A Potential yet to be fulfilled?", *World Economy*.

Buch M.C., R.P. Heinrich & D. Piazolo (1998) "Southern Enlargement of the European Union and Capital Account Liberalisation: Lessons for Central European Countries", *Kiel Working paper*, n° 871, July.

CEPII (1997), "Trade Patterns inside the Single Market", *The Single Market Review*, Subseries IV, Vol. 2, Kogan Page.

CEPR (1990), "Monitoring European Integration".

CEPR (1996), "European Economic Perspectives", n°7.

Coe D. & E. Helpman (1995) "International R&D spillovers," *European Economic Review*, 39(5), pp. 859-887.

Coe D., E. Helpman & A. Hoffmaister (1996), "North-South R&D Spillovers," *NBER Working Paper*, No. 5048.

Csaki G. & Foti G. editors (1996), *Foreign Direct Investment and Transition: The Case of the Visegrad Countries*, Institute for World Economics of the Hungarian Academy of Sciences, 1996, Budapest.

Deardorff A. (1979), "Weak Links in the Chain of Comparative Advantage, "*Journal of International Economics*, Vol. 9, N. 2, May, pp. 197-209.

Dixit A. & J. Stiglitz (1977), "Monopolistic Competition and Optimum Product Diversity," *American Economic Review,* Vol. 67, pp. 297-308, juin.

Dobrinski R. & Landesmann M. (1996), *Transforming Economies and European Integration,* Edwar Elgar.

Dobrinski R. (1995), "Economic transformation and the Changing Pattern of European east-West Trade", in Dobrinski and Landesmann.

Eaton J. & H. Kierzkowski (1984), "Oligopolistic Competition, Product Variety, and International Trade," in H. Kierzkowski (ed.), *Monopolistic Competition and International Trade,* Oxford University Press and Clarendon Press, Oxford, pp. 69-83.

EC (1994), European Commission, "The Economic Interpenetration Between the European Union and Eastern Europe," *European Economy*, Reports and Studies, n° 6, 1994.

ECE (1995), Economic Commission for Europe (UN): Economic Bulletin for Europe, vol 47.

ECE (1996), Economic Commission for Europe (UN): Economic Survey of Europe in 1995-1996.

Erkel-Rousse H. & F. Le Gallo (1998), "Quality and price Competition in International Trade: An Empirical Study Based on the Trade Between Twelve OECD Countries," paper presented at the European Economic Association Congress, Berlin, September.

Faini R. & Portes R. (editors) (1995), *European Trade with Eastern Europe: Adjustment and Opportunities*, CEPR, January.

Falvey R.E. & H. Kierzkowski (1987), "Product Quality, Intra-industry Trade and (im)perfect Competition," in H. Kierzkowski (ed.), *Protection and Competition in International Trade,* Basil Blackwell, Oxford & New York, pp. 143-161.

Falvey R.E. (1981), "Commercial Policy, and Intra-industry Trade," *Journal of International Economics*, (11), pp. 495-511.

Fontagné L. & Freudenberg M. (1997), "Intra-industry Trade: Methodological Issues Reconsidered", *document de travail CEPII*, No. 97-01, janvier.

Fontagné L. & Freudenberg M. (1997), "L'impact du Marché Unique sur le commerce européen", *La Lettre du CEPII,* N° 154, février.

Fontagné L. & M. Freudenberg (1997), "L'impact du Marché Unique sur le commerce européen," *La lettre du CEPII,* N° 154, février.

Fontagné L., Freudenberg M., Gordo E., Martin C. & Péridy N., *Trade patterns inside the Single Market*, Report for the EU Commission on the impact of the Single Market.

Fontagné L., Freudenberg M. & Ünal-Kesenci D. (1995), "Régionalisation et échanges de biens intermédiaires", *Document de travail CEPII*, No. 95-11, décembre.

Fontagné L., Freudenberg M., Pajot M. (1998), "Has the Trade Potential with Eastern Europe been Exhausted?", forthcoming.

Fontagné L., M. Freudenberg & D. Ünal-Kesenci (1996a), *Analyse statistique des échanges CE de produits intermédiaires*, Eurostat, Série 6 D, 1996.

Fontagné L., M. Freudenberg & D. Ünal-Kesenci (1996b), "Les échanges de biens intermédiaires de la Triade: mesure et enjeux," *Economie Internationale*, No. 65, 1e trimestre.

Fontagné L., M. Freudenberg & N. Péridy (1997), "Trade Patterns inside the Single Market," *CEPII Working Paper*, No. 97-07, avril.

Fontagné L., M. Freudenberg & N. Péridy (1998), "Intra-Industry Trade and the Single Market: Quality Matters", *CEPR Discussion Paper*, No. 1953.

Freudenberg M. & F. Lemoine (1998), "The pattern of comparative advantage and the nature of trade relations between Central European countries and the Eurpean Union," paper presented at the International seminar, L'intégration des pays d'Europe centrale dans l'Union européenne, Prague, septembre 1998. Freudenberg M. & F. Müller (1992), "France et Allemagne : quelles spécialisations commerciales ? ," *Economie prospective internationale*, No. 52, 4ème trimestre.

Freudenberg M. (1998), "Echanges intra-branche et nature des relations internationales des pays de la Communauté européenne," PhD. thesis in economics, University of Paris I (Panthéon-Sorbonne), May.

Gacs J. & Wincklers G., editors (1994), *International Trade and Restructuring in Eastern Europe*, IIASA, Physica-Verlag.

Gacs J. (1994), "The Economic Interpenetration Between the EC and Eastern Europe: Hungary", in *European Economy*, Reports and Studies, n° 6.

Greenaway D. & C. Milner (1986), *The Economics of Intra-industry Trade,* Oxford, Basil Blackwell.

Greenaway D. & J. Tortsensson (1997), "Back to the Future: Taking Stock on Intra-industry Trade," *Weltwirtschaftliches Archiv,* Vol. 133, No. 2, pp. 249-269.

Greenaway D. & P.K.M. Tharakan (1986) (eds.), *Imperfect Competition and International Trade,* Wheatsheaf Books, Sussex and Humanities Press, New Jersey.

Greenaway D., R.C. Hine & C. Milner (1994), "Country-Specific Factors and the Pattern of Horizontal and Vertical Intra-industry Trade in the UK," *Weltwirtschaftliches Archiv*, Vol. 130, No. 1, pp. 77-100.

Greenaway D., R.C. Hine & C. Milner (1995), "Vertical and Horizontal Intra-industry Trade: A Cross Industry Analysis for the United Kingdom," *The Economic Journal,* 105, November, pp. 1505-1518.

Grubel H.G. & P.J. Lloyd (1975), *Intra-industry Trade: The Theory and Measurement of International Trade in Differentiated Products*, London, McMillan.

Halpern L. (1995), "Comparative Advantage and Likely Trade Pattern of the CEECs", in R. Faini and R. Portes.

Hamar J. (1993), "Foreign Direct Investment and Joint-Ventures in Hungary, Kopintt-Datorg *Discussion Paper*, n°17-18, December.

Hamilton C. & Winters A. (1992), "Opening up international Trade with Eastern Europe," *Economic Policy*, April.

Helpman E. & P. Krugman (1985), *Market Structure and Foreign Trade,* MIT Press, Cambridge.

Helpman E. (1981), "International Trade in the Presence of Product Differentiation, Economies of Scale, and Monopolistic Competition: A Chamberlin-Heckscher-Ohlin Approach," *Journal of International Economics,* No. 11, August, pp. 305-340.

Hoekman B. & Djankov S. (1997), "Determinants of the Export Structure of Countries in Central and Eastern Europe", *The World Bank Economic Review*, 9/1997.

Hoekman B. & S. Djankov (1996), "Intra-Industry Trade, Foreign Direct Investment and the Reorientation of East European Exports," *CEPR Discussion Paper*, No. 1377, April.

Kierzkowski H. (1984a) (ed.), *Monopolistic Competition and International Trade,* Oxford University Press and Clarendon Press, Oxford.

Krugman P. (1979), "Increasing Returns, Monopolistic Competition, and International Trade," *Journal of International Economics*, Vol. 9, No. 4, November, pp. 469-479.

Krugman P. (1980), "Scale Economies, Product Differentiation, and the Pattern of Trade," *American Economic Review*, Vol. 70, pp. 950-959.

Krugman P. (1981), "Intraindustry Specialization and the Gains from Trade," *Journal of Political Economy*, Vol. 89, No. 5, pp. 959-974.

Kurz C. & Wittke V. (1997), "From 'Supply Base Driven' to 'Market Driven' Integration: Patterns of Integrating Central-East European Economies by Using they Industrial Capacities", Goettingen, April.

Lafay G. (1987), "La mesure des avantages comparatifs révélés", *Economie prospective internationale*, No. 41. Reprinted in "The Measurement of Revealed Comparative Advantages", in M.G. Dagenais & P.-A. Muet (eds.), *International Trade Modelling*, 1994, London, Chapman & Hall.

Lafay G. (1987), "La mesure des avantages comparatifs révélés," *Economie prospective internationale*, No. 41. Reprinted in "The Measurement of Revealed Comparative Advantages," in M.G. Dagenais & P.-A. Muet (eds.), *International Trade Modelling*, 1994, London, Chapman & Hall.

Lafay G., Herzog C., Stémitsiotis L. & Ünal D. (1989), "*Commerce international : la fin des avantages acquis*", Economica, Paris.

Lancaster K. (1980), "Intra-industry Trade under Perfect Monopolistic Competition," *Journal of International Economics*, Vol. 10, No. 2, May, pp. 151-175.

Landesmann M. & Szekely I. (1995), "Industrial Structural Changes in Central and Eastern European Economies", in *Industrial Restructuring and Trade Reorientation in Eastern Europe*, edited by Landesmann M. and Szekely I, Cambridge University Press.

Landesmann M. (1995), "The Pattern of East-West European Integration: Catching Up or Falling Behind," *WIIW Research Report* n°212, January.

Landesmann M. (1995), "The Pattern of East-West European Integration: Catching Up or Falling Behind," *WIIW (Wiener Institut für Internationale Wirtschaftsvergleiche) Research Report,* No.°212, January.

Landesmann M. (1996), "Emerging Patterns of European Specialization: Implications for Labour Market Dynamics in Eastern and Western Europe", WIIW, n°230, September.

Landesmann M. & Burgstaller J. (1997), "Vertical Product Differentiation in EU Markets: The Relative Position of East European Producers", *WIIW (Wiener Institut für Internationale Wirtschaftsvergleiche) Research Report*, No. 234a, February.

Landesmann M. & J. Burgstaller (1997), "Vertical Product Differentiation in EU Markets: The Relative Position of East European Producers," *WIIW (Wiener Institut für Internationale Wirtschaftsvergleiche) Research Report*, No. 234a, February.

Lassudrie-Duchêne B., J.C. Berthélemy & F. Bonnefoy (1986), *Importation et production nationale*, Paris, Economica.

Lassudrie-Duchêne B. & J.L. Mucchielli (1979), "Les échanges intra-branche et la hiérarchisation des avantages comparés dans le commerce international," *Revue économique*, No. 3, mai.

Lemoine F. (1994), "CEECs Exports to the EU: Country Differentiation and Commodity Diversification," *CEPII Working Paper* 94-15.

Lemoine F. (1996), "Croissance industrielle et dynamiques sectorielles," *Document de Travail du CEPII,* n°96-02, Décembre.

Lemoine F. (1998), "Integrating Central and Eastern Europe in the Regional Trade and production Network", in J. Zysman and A. Schwarz, editors, *Enlarging Europe: The Industrial Foundations of a New Political Reality*. University of California at Berkeley.

Majcen B. (1998), "Industrial Growth and Structural Changes in Associated Countries – The Case of Slovenia", report prepared for the ACE Project *"Trade Between the European Union and the Associated States: Prospects for the Future"*, P96-6148R.

Marczewski K. (1998), "Foreign Trade, Industrial Growth and Structural Changes in Poland", final report for the ACE Project *"Trade Between the European Union and the Associated States: Prospects for the Future"*, P96-6148R.

Motta M. (1990), "Recent Models of International Trade and Distribution Gains from Integration," *Revista Internazionale de Scienze Economiche e Commerciale*, Vol. 37, pp. 713-736.

Naujoks & Schmidt K.D. (1995), "Foreign Direct Investment and Trade in Tansition Countries: Tracing the Links", *Kiel Working Paper*, n°704, August.

Neven D. (1995), "Trade Liberalization with Eastern Nations: How Sensitive?" in R. Faini and R. Portes.

Oliveira Martins J. (1995), "*A Taxonomy of Market Structures*", OCDE Département des Affaires Economiques. Polycopié.

Rosati D. (1994), "The Economic Interpenetration Between the EC and Eastern Europe: Poland", in *European Economy*, Reports and Studies, n° 6, 1994

Shaked A. & J. Sutton (1982), "Relaxing Price Competition Through Product Differentiation," *Review of Economic Studies,* Vol. 49, No. 155, January, pp. 3-13.

Shaked A. & J. Sutton (1986), "Vertical Product Differentiation: Some Basic Themes," *American Economic Review,* pp. 393-398.

Stiglitz J.E. (1987), "The Causes and Consequences of the Dependence of Quality of Price," *The Journal of Economic Literature*, Vol. 25, pp. 1-48.

Tharakan P.K.M. & J. Kol (1989) (eds.), *Intra-industry Trade: Theory, Evidence and Extensions,* MacMillan, London.

Tulder R. van & Ruigrok W. (1998), "International Production Networks in the Auto Industry: Central and Eastern Europe as the Low End of the European Car Complex" in J. Zysman and A. Schwarz, editors, *Enlarging Europe: The Industrial Foundations of a New Political Reality,* University of California at Berkeley.

Viszt E. (1998), "The Role of Foreign Capital in the Hungarian Foreign Trade and Industry", report prepared for the ACE Project *"Trade Between the European Union and the Associated States: Prospects for the Future"*, P96-6148R.

Vona S. (1991), "On the Measurement of Intra-Industry Trade," *Weltwirtschaftliches Archiv,* Vol. 127, No. 4, pp. 678-700.

Winters A., editor, (1995), Foundations for an Open Economy. Trade Laws and Institutions for Eastern Europe, CEPR.

Winters L.A. & A. Venables (1991) (eds.), *European Integration: Trade and Industry*, Cambridge University Press, Cambridge.

Winters L.A. & Venables A. (1991) (eds.), *European Integration: Trade and Industry*, Cambridge University Press, Cambridge.

Wolfmayr-Schnitzer Y. (1996), *"Intra-Industry Trade of the CEECs"* in Wolfmayr-Schnitzer Y. and alii, (1996), in Wolfmayr-Schnitzer Y. and alii.

Wolfmayr-Schnitzer Y. (1996), *"Trade Performance of CEECs According to Technology Classes"*, in Wolfmayr-Schnitzer Y. and alii.

Wolfmayr-Schnitzer Y. and alii, (1996), "*The Competitiveness of Transition Countries*", WIFO and WIIW, Preliminary version, December.

Zemplinerova, A. (1998), "Industrial Growth and Structural Changes: Evidence from the Czech Manufacturing 1993-1997", final report for the ACE Project *"Trade Between the European Union and the Associated States: Prospects for the Future"*, P96-6148R.