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The Political Economy of Restructuring
of East-West Trade:
Economic Winners and Losers
in the CEECs and EU

JARKO FIDRMUC

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ABSTRACT

This paper analyzes the development of the EU's trade with Central and Eastern Europe. Currently, CEECs participate in the European economy with trade shares of the EU and levels of intra-industry trade comparable to peripheral EU countries. This induced increased specialization in EU countries, which contrasts with the development in previous decades.

The growth of intra-industry trade, which is observed in intra-EU trade, also dominates the recent development of the East-West trade. This could lower the possible negative impact on the EU countries. Germany profits more than other EU countries from trade liberalization. The similarity of trade structures of CEECs is likely to result in significant trade diversion effects for countries omitted from the first wave of the enlargement including Turkey.

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INTRODUCTION

The opening up of Eastern Europe and the proposed full integration of the CEECs (Bulgaria, Hungary, Poland, Romania, Slovakia, Slovenia and the Czech Republic) into the EU imposes different effects on different EU countries. The current discussion of Eastern enlargement of the EU focuses on the question of budgetary and adjustment costs. Nevertheless, foreign trade remains an important channel for both the adjustment needs and growth potential in the course of East-West integration in Europe. This paper analyzes the impact of foreign trade on the EU by comparing it with previous developments in the EU's trade with the CEECs in the manufacturing sector that has been significantly liberalized by the Europe Agreements. The growth of intra-industry trade, which is observed in intra-EU trade, also dominates the recent development of the East-West trade. This could lower the possible negative impact on the EU countries.

On the one hand, the Southern European countries (especially Spain, but also Italy and Greece) are expected to face increasing competition from the CEECs together with the decline of financial flows to the low-income regions in the EU. Therefore, these countries could oppose the Eastern enlargement of the EU. On the other hand, the direct neighbors of the CEECs (Austria, Germany, and Italy) face the highest adjustment costs. These countries are likely to absorb the major part of long term gains of opening and integration of the CEECs (see Baldwin et al., 1997). This paper analyzes the political economy implications of the restructuring of EU's trade with CEECs.

I demonstrate that all CEECs were relatively successful in regional and structural changes of exports and imports. I argue that the restructuring of East-West trade provides a better indication of the convergence of CEECs to EU countries than any other economic development.

The Central and East European countries show significant differences in growth rates and reform progress. In particular, our understanding of the success in transition and reforms does not correlate with the growth rates. On the one hand, the Czech Republic and Hungary attracted a major part of foreign direct investment and reached significant progress in privatization and institutional changes. However, these countries faced slow growth rates and increasing problems in current account. On the other hand, Romania, Slovakia and to less extent Poland are considered to achieve comparably lower progress in economic reforms despite the relatively high growth rates. This paper will try to find out whether the different economic development and reform progress is reflected in the restructuring of their trade with the EU.

The rest of the paper is organized as follows. The next section discusses the political economy of trade liberalization from the point of view of Heckscher-Ohlin model and Dixit-Stiglitz model with differentiated products. Section 2 presents the development of EU's trade with CEECs in a comparison to the intra-EU trade and trade with selected third countries. In Section 3, the cases of the Czech Republic and Slovakia are discussed in more detail. Finally, conclusions will be presented in Section 4. Tables and figures are contained in Appendix.

1. POLITICAL ECONOMY OF TRADE LIBERALIZATION

1.1 Expectations of Effects of Trade Liberalization between the EU and CEECs

Since the opening of Eastern Europe in the late 1980s, the expectations of the impact of trade liberalization between the EU (and other OECD countries) and CEECs are driven by the arguments of the Heckscher-Ohlin model. CEECs are seen to be abundant in qualified and unqualified labor, some raw materials and energy. This pattern of factor endowments is similar to Southern European countries, while Northern member states of the European Union are abundant in capital and human capital. Therefore, the analysis of the impact of trade liberalization with CEECs focuses on (first) competition with Southern European countries and (second) factor price changes through liberalized trade (see for example Collins and Rodrik, 1991, Begg et al., 1990).¹ Neven (1995) provides an excellent formulation of these arguments including the political economy expectations concerning the support for and the opposition against the Eastern enlargement of the EU. I repeat his conclusions in this section.

Based on the trade structure in 1991 and 1992 (in the years when the Europe Agreements were just being implemented), Neven (1995, 626-7) finds that the Northern European countries seem to have comparative advantages relative to the CEECs in technology and human capital intensive products. Southern European countries have a comparative advantage in labor-intensive industries with low capital content. This means that CEECs may specialize in labor-intensive products with high capital content (Neven uses examples like motor cars, glassware, steel, transformation of metals, plastics, rubber, textile, wood transformation and printing) thus filling a niche in the European division of labor. However, CEECs are also likely to compete with Southern European

¹ These arguments follow the discussion related to the creation of NAFTA in the US (see Leamer, 1992).

countries in labor intensive products (metal construction, building, materials, clothing, furniture, leather and agricultural equipment) as well. Not surprisingly, the Europe Agreements limited trade liberalization of some products of the former group and nearly all products of the later group due to their sensitivity.

Under such conditions, trade liberalization should induce changes of factor prices. The price of the abundant factor should increase, while the price of the scarce factor should decline as a result of trade liberalization. Therefore, human capital (that is, qualified labor) is assumed to gain in Northern EU countries, while labor and to some extent also capital is likely to lose from the opening of Eastern Europe. The opposite pattern of the development is expected in CEECs.

Neven (1995, 628) makes the point that human capital is less well organized than labor and capital (represented by trade unions and chambers of commerce) in Northern European countries. Therefore, the representatives of labor and firms are likely to have more influence on domestic policy. The pressure for protection could further increase owing to regional differences.

In Southern European countries, labor could gain at the expense of the capital owners. The different interests of these two relatively well organized interest groups could make the protection pressures rather ineffective in Southern Europe.

These effects could be limited by the role of intra-industry trade. On the one hand, a high share of intra-industry trade suggests a lower role for comparative advantage and factor endowments for trade. Therefore, the distributional effects of trade liberalization and integration could be lower with respect to integration of countries with high shares of intra-industry trade.

The pattern of the participation of CEECs in the international division of labor has important economic consequences. The specialization of CEECs in labor, energy and raw-material intensive sectors would imply, on the one hand, a corresponding contraction of these sectors in the EU countries. On the other hand, capital intensive goods and R&D products would not face any additional competition in the EU and could expand to the newly emerged markets of CEECs. A fundamentally different development can be expected in the case of intra-industry trade. All sectors and often the same enterprises are facing similar competitive pressures and new market opportunities following the opening up of Eastern Europe and/or the EU Eastern enlargement. In fact, recent studies found increasing importance of intra-industry trade between the EU and CEECs

(see for example Hoekman and Djankov, 1997, Aturpane et al., 1997, and Fidrmuc et al., 1998 and 1999).

Behind the distributional issues, the budgetary costs of enlargement were identified as a major problem for a fast enlargement. This concerns mainly transfers under the Structural Funds and the Common Agricultural Policy (CAP). Baldwin et al. (1997, 157) compare various estimates of net budgetary cost of enlargement with their own estimate of ECU 19 billion (19 % of the EU budget prior to enlargement). The enlargement of the EU is – under the current scheme of the EU budget – likely to result in growth of necessary budget volume. On the one hand, this would imply higher net transfers to the EU budget from net payers (including mainly Northern member states).² On the other hand, the current recipient countries (including mainly Southern member states) are likely to face a reduction of budgetary transfers. Furthermore, the foreseen budgetary burden under the current budgetary rules of the Eastern enlargement demands an institutional reform of the EU that is likely to prolong the membership negotiations between the EU and CEECs.

1.2 Theoretical Background

The major political concerns in connection with the enlargement of the EU relate to the different factor endowments of the EU and CEECs. The fears of wage decline and/or increase of unemployment, the immigration from CEECs to the present member states and the replacement of the labor intensive industries in the EU by those in low-wage membership candidates are based on the comparatively low capital stock relative to abundant labor. Furthermore, the low capital to labor ratio is reflected in the low GDP per capita figures that are used as the main selection indicator for subsidies from Structural Funds. Similarly, the possible entitlements to CAP transfers are related to the abundant agricultural resources (agricultural land) in the CEECs.

The relative endowment of production factors in different countries determines the pattern of foreign trade. Foreign trade in manufacturing products between EU and CEECs is relatively liberalized. Therefore, the analysis of foreign trade can already provide important conclusions concerning the factor endowments of countries. Moreover, relatively good data on foreign trade is available, while the data on factor endowments is less reliable.

² However, these countries (especially Germany and the Netherlands) declared the interest to reform the budget of the European Union independently of Eastern enlargement of the Union. Furthermore, the sustainability of CAP in the globalized world economy would also be under question.

Initial expectations of the impact of the opening of Eastern Europe upon the EU were based on the arguments derived from the Heckscher-Ohlin model. However, this model does not provide an explanation for many features of the recent development of foreign trade between developed countries including the increasing appearance of intra-industry trade. This comment also plays an increasingly important role in the case of the East-West trade. Therefore, I present Dixit's and Norman's model with differentiated products and monopolistic competition in this section. Section 2 compares the major findings of the model with the development of EU's trade with CEECs. We will see that Dixit's and Norman's model provides a good theoretical explanation for the recent restructuring of EU's trade with the expected departures for horizontal and vertical product differentiation.

The model of trade with differentiated products follows Dixit and Stiglitz (1977). The presentation of the basic model is mainly due to Helpman and Krugman (1985, 131-58) and Dixit and Norman (1980, 281-93).

The basic properties of the model are as follows. There are two countries: domestic and foreign. The foreign country is denoted by a star. The countries are endowed with two factors of production called labor (L) and capital (K) that are immobile among the countries. We have two sectors (industry and the rest of the economy) each producing one type of good. The first product which is called numeraire (labeled by 0) embodies all non-industrial products. The industry produces differentiated products with the same and finite elasticity of substitution between any pair of the product varieties.

Each variety of the industrial product is produced under increasing returns to scale. The industry can accommodate many producers, each producing a different variety. This leads to monopolistic competition in this industry (Chamberlian monopolistic competition). Every firm chooses a variety and its pricing so as to maximize profits, taking as given the variety of choices and pricing strategies of the other producers. The varieties and corresponding variables are labeled by 1, ..., N , where N is the potentially infinite number of varieties in the world economy. The number of actually produced varieties is determined by the resources in both countries. Insofar as N is sufficiently large, the number of varieties can be taken as a continuous variable. As the total number of consumers in both countries is fixed, the world population can be indexed to 1. Then the total quantities equal per capita quantities.

The consumers in both countries have the same preferences represented by the Cobb-Douglas utility function given as

$$(1) \quad U(c_0, c_i) = \left(\sum_i c_i^\beta \right)^{\frac{1}{\beta}} c_0^{1-\alpha}.$$

This utility function is increasing and homothetic in its arguments. The assumption of concavity of the utility function requires $0 < \alpha < 1$. The first term, $\sum_i c_i^\beta$, is a scalar measure of consumption of differentiated products. The subutility function of the consumption of differentiated products, $u = (\sum_i c_i^\beta)^{1/\beta}$, is concave and symmetrical. These properties imply that the individuals will choose to consume equal quantities of all varieties if they are equally priced. The elasticity of substitution for the Cobb-Douglas utility function between the differentiated goods and the numeraire is unity. Therefore $0 < \beta < 1$, because otherwise the differentiated products among themselves would be worse substitutes than the both product types to each other.

We can solve the consumer's problem given his income, y , which can be written as: $\max \{U(c_0, c_i) \mid c_0 + \sum_i p_i c_i = y\}$. The demand for the numeraire in terms of consumption of differentiated products and income can be found from the budget condition, $c_0 = y - \sum_i p_i c_i$, which can be inserted into the utility function. This gives us the inverse demand functions for the differentiated good, $p_i = \alpha c_i^{\beta-1} y / \sum_i c_i^\beta$, and demand of the numeraire, $c_0 = y(1 - \alpha)$. Because the number of consumers was indexed to 1, y represents both consumer's and world income. The demand of the domestic or foreign country can be found by multiplying world demand by the share of country in world income.

The numeraire is produced under constant returns to scale and perfect competition. The price of the numeraire is indexed to unity, $p_0 = 1$. The numeraire has a unit cost function $b(\cdot)$ of factor prices, w and w^* . The perfect competition in this sector implies the zero profit condition, $b(w) = b(w^*) = 1$.

The production of each variety of differentiated products is undertaken by only one producer, because all new firms may produce a new variety and thus supply the whole market with a variety. The number of firms (varieties) is large enough and, therefore, the oligopolistic interactions are negligible. Each firm maximizes its profit given the inverse demand function, and treating the outputs and world income as given, $\max \{p(w)x(\cdot) - C(w, x(\cdot)) \mid i=1, 2, \dots, n\}$. The entries occur until the marginal firm is just breaking even. This implies zero profit condition, that is, the marginal revenues equals the marginal costs, $MR_i = MC_i$.

Following Dixit and Norman (1980, chapter 3), each variety of the differentiated products is assumed to have the same total cost function

$C(w, x(\cdot)) = f(w)h(x(\cdot))$, where f depends on factor prices and h on the output quantity with decreasing average costs, $h(x(\cdot))/x(\cdot)$. The marginal costs of a producer are then $MC_i = f(w)h'(x(\cdot))$.

The elasticity of inverse demand derived from the Cobb-Douglas utility function is approximated by $\varepsilon_{p,x} = \beta - 1$. Therefore, the marginal revenue for a producer of the variety i will be $MR_i = \beta p_i$. For profit maximization, this is equated to marginal costs, $\beta p_i = f(w)h'(x(\cdot))$. In the long run equilibrium, no producer has either an incentive to enter or leave the industry meaning that the average revenues, p_i equal average costs for all product varieties,

$$(2) \quad p_i = \frac{f(w)h(x(\cdot))}{x_i}$$

Dividing the no entry condition by equation (2), we get for all varieties

$$(3) \quad \beta = \frac{x_i h'(x(\cdot))}{h(x(\cdot))}$$

Provided that the right hand expression is a monotonic function of x_i , the coefficient β is uniquely defined and all firms produce the same output level of differentiated products. This allows us to find exports and imports of the home country which accounts for a fraction λ of world income. With homothetic preferences, consumers of the home country consume a corresponding share of the world's production of the numeraire, $c_0 = \lambda(x_0 + x_0^*)$, and each variety, $c_i = \lambda(x_i + x_i^*)$, of the $N = n + n^*$ differentiated products. Let home country be a net exporter of differentiated products. This assumption implies that the home country's share in the world production of the differentiated products is larger than its share in world income, $\sigma = n/N > \lambda$. The home country exports 1, 2, ..., n varieties in value $(1-\lambda)px$ each and imports n^* times λpx varieties and consumption surplus over the domestic production of the numeraire, $c_0 - x_0 = \lambda x_0^* - (1-\lambda)x_0$, from the foreign country such that the trade is balanced.

On the one hand, the inter-industry trade (that is, the net exchange of differentiated products for the numeraire) is given as $T_n = npx(1-\lambda) - n^*px\lambda = Npx(\sigma - \lambda)$. The home country has a positive balance of trade with the differentiated products if $(\sigma - \lambda) > 0$. Therefore, the inter-industry trade is explained by the differences in factor endowment (that is, by Heckscher-Ohlin model of comparative advantage).

On the other hand, we will see the predominant pattern of trade as one of intra-industry trade, $T_i = 2Npx\lambda(1 - \sigma)$, if both foreign and home countries have similar structure (that is, the share of the production of differentiated products) and are of similar size. As opposed to trade exchange between the industries, the location of production of the particular varieties is randomly distributed between the countries. I will refer these both conclusions on trade structure as the Dixit and Norman's proposition on trade pattern.

In the model with differentiated products, the share of the intra-industry trade represents a measure of the similarity of two economies. Indeed, Michaely (1962) originally introduced the Grubel-Lloyd index (Grubel and Lloyd, 1971) to compare the similarity of exports and imports. Similarly, Krugman (1989) showed in a model with two industries and two industry-specific factors of production that the index of intra-industry trade equals the index of similarity in factor proportions.

Dixit and Norman (1980) show that the factor price equalization will occur under similar conditions to the Heckscher-Ohlin model (that is, under no reversal of factor intensities). This is also true for vertically differentiated products (different factor proportions) for relatively similar economies. Therefore, the political economy implications of Heckscher-Ohlin model can be also applied to the model with differentiated products. However, Levy (1997) points out that the consumers with love of variety gain additional welfare from trade liberalization due to a higher number of available varieties that may compensate income losses due to factor price equalization. However, Krugman (1980) showed that the wages can differ among countries in a similar model with transport costs.

1.3 Selection of Descriptive Indicators

Following earlier studies on the restructuring of the foreign trade between the EU and CEECs (see for example Faini and Portes, 1995, Hoekman and Djankov, 1997, Fidrmuc et al., 1998 and 1999), I apply several indicators in order to measure the scale of convergence of Central and Eastern European trade to the trade structure of the member states of the EU. These include the share of intra-industry trade (Grubel-Lloyd index), marginal index of intra-industry trade, Herfindahl index and net exports. These analytical indicators were chosen from a variety of measures used in empirical trade literature because they have interesting economic and political economy interpretations.

The Grubel-Lloyd index of intra-industry trade has crucial importance for kind of restructuring of foreign trade between the EU and CEECs. The index

represents the share³ of absolute value of the intra-industry trade in trade turnover, that is $GLI_i = 1 - |X_i - M_i| / (X_i + M_i)$, where X_i and M_i denote exports and imports by commodity groups i , respectively. An index value of 0 shows that there is exclusively inter-industry trade, i.e. for each country, there is complete specialization in different products, while an index value of 1 shows the existence of total intra-industry trade.

In the model with differentiated products, the share of intra-industry trade represents a measure of the similarity of two economies. From the point of view of political economy, the index shows the possible utility gains from the increased number of varieties (see previous section). Trade liberalization and integration between economies with a high share of intra-industry trade both does not cause distributional variation and increases the utility of the consumers (which are voters at the same time) that compensate their possible income losses. Therefore, the median voter (see Levy, 1997) may support the trade liberalization and integration despite his reduction of income due to price equalization.

However, the Grubel-Lloyd indices may also increase due to technical reasons, for example in the case where the growth of the inter-industry trade reduces the trade imbalances in a particular sector. In such a case, the increase of the inter-industry trade could be interpreted as an increase of the intra-industry trade. Therefore, Brüllhart (1994) recommends the index of marginal intra-industry trade which is constructed similar to GLI but for growth of exports and imports (denoted by ΔX_i and ΔM_i , respectively), that is $MIIT_i = 1 - |\Delta X_i - \Delta M_i| / (|\Delta X_i| + |\Delta M_i|)$.

Similarly to the Grubel-Lloyd index, the values of the MIIT-index range between 0 (the change in the trade flows in the commodity group i can be completely attributed to the inter-industry trade) and 1 (the trade change is due to intra-industry trade).

Net exports (that is, inter-industry trade or sectoral trade balances) represent a counterweight to the intra-industry trade. The importance of intra-industry against the inter-industry trade as well as the pattern of the net exports is explained by the factor proportion theory (Heckscher-Ohlin model), i.e. by the different factor endowments of the trading economies.

³ I report all Grubel-Lloyd indices and indices of marginal intra-industry trade as percentages in the appendix.

Trade balances again play an important role in the political economy due to their overwhelming importance for the balance of payments and finally for the stability of exchange rates. Furthermore, the Maastricht criteria for the participation in the European Monetary Union increased the importance of the trade balances for member states of the EU. Growth of sectoral trade imbalances is assumed to have direct effects on employment. The unemployed from the contracting sectors often lose a significant part of their qualification that makes their reemployment difficult. Moreover, the contracting sectors are often likely to be regionally concentrated. This might give birth to effective political groups fighting against trade liberalization and integration. Furthermore, the sectoral and regional concentration of the adverse effects of trade liberalization and integration also increases the role of interest groups in the country's policy-making (for example due to possible election losses on regional levels - federal states).

In country-specific analysis and bilateral comparisons, the net exports are proportional to the indices of revealed comparative advantage (RCA), e.g. $RCA_i = (X_i - M_i)/(X_i + M_i)$. The correlation of the pattern of net exports in two years shows, hence, the persistence of the pattern of comparative advantage or respectively the adjustment capability.

The Herfindahl index points to the concentration of exports and imports in a few groups. In economic terms, its growth means an increased degree of specialization. From the point of view of political economy, its growth shows an increased vulnerability of the economy or is even the result of significant losses of market share.

2. EMPIRICAL RESULTS

In this section I compare the development of the EU's trade with seven Central and Eastern European countries and the EU's trade with ten member states of the EU (Austria, Germany, Finland, France, Ireland, Italy, the Netherlands, Spain, Sweden and the UK)⁴ between 1990 and 1996. The trade of the EU with two non-European countries (Israel and Turkey)⁵ provides another benchmark for my comparisons.

I use trade flows by three-digit SITC commodity groups in terms of current prices in US dollar as published by the UN. Trade flows between the EU and CEECs are according to the national sources of selected EU countries. These can differ significantly from trade flows as reported by the CEECs. Note that the investigated period was characterized by dramatic institutional changes apart from the opening up of Eastern Europe which is the focus of my analysis. Germany reunified in 1991. Slovenia became independent in 1991, while the former Czechoslovak federation was divided into the Czech Republic and Slovakia in 1993. Austria, Finland and Sweden joined the European Union in 1995. Moreover, the UN introduced a new scheme of trade statistics by detailed commodity groups (SITC Revision 3) starting this decade. All these events had significant impacts on the quality and availability of trade data in the investigated period.

2.1 Impact of Trade with CEECs on EU

2.1.1 Trade Growth

The trade of the EU with CEECs has been growing fast since the opening of Eastern Europe and trade liberalization between the EU and CEECs. In current prices converted to ECU⁶ (see Table A.1), the EU's imports of industrial products from CEECs rose by 23.1 % in annual average between 1991 and 1996. The highest growth was reached by countries that opened later, that is by

⁴ These member states were selected according to the availability of trade statistics. Belgium (reporting trade together with Luxembourg), Denmark, Greece and Portugal did not publish trade statistics for several years in the investigated period.

⁵ These countries were selected because they have, similarly to CEECs, intensive trade relations with the EU. Moreover, Turkey is striving a full membership in the EU together with the selected CEECs.

⁶ The exchange rates of US Dollar to European currencies fluctuated significantly between 1990 and 1996. Therefore, I converted trade flows in US Dollars to ECU for analysis of growth of EU's trade. Other indicators (intra-industry trade) are not directly influenced by the exchange rate fluctuations, although these could indirectly induce significant structural changes.

the former-Czechoslovakia (31.3 % in annual average) and Bulgaria (23.9 %). Nevertheless, imports from Hungary, Poland and Romania also grew by about 20 % annually. As a result, the share of imports from the CEECs (including Slovenia after 1991) increased from 2.0 % of intra-EU trade in 1990 to nearly its triple (5.8 %) in 1996.

The growth of exports from CEECs to the selected countries of the EU greatly exceeded the growth of intra-EU trade (3.3 % in average). In the EU, Spain (9.6 %), Ireland (9.1 %), the UK (5.8 %) and France (3.9 %) experienced the highest growth of their exports to the internal market. Surprisingly, the lowest growth of manufacturing exports to the EU can be found in Austria (1.5 % in average), Italy and Germany (both 1.9 %), while the exports of the other selected EU countries increased between 2 and 3 % in annual average between 1991 and 1996. The exports of both Turkey and Israel to the EU grew also comparably fast at 9.1 % in average.

This suggests that neither exports of Southern European countries nor exports of non-European countries to the EU were replaced with imports from CEECs. However, the bad export performance of the crescent countries (Austria, Germany, and Italy) could partially be explained by the stronger position of the CEECs in the EU's border regions leading to a decline of the trade between these countries. Nevertheless, this stagnation of trade between the later countries could be more than compensated by their increased exports to the CEECs.

We can see a similar development on the import side (see Table A.2). The average growth of Central and East European exports to the EU reached 25.9 % annually. Confirming our expectations, Italy shows the lowest growth of imports out of the EU countries (2.3 % annually), while Austrian imports (4.3 %) grew at about the EU's average (4.6 %) and the growth of German imports (6.2 %) was above this figure.

2.1.2 Trade Pattern

The growth of Central and Eastern European exports to the EU was associated with significant restructuring of trade. The redirection of goods that were traditionally exported to the CEECs and the FSU did not play an important role. Djankov and Hoekman (1996) find that the export growth concerned either products not exported to Eastern European countries or that such exports were substantially upgraded.

The growth of intra-industry trade is the most important feature in the development of the East-West trade (see Table A.3). In 1990, the share of intra-

industry trade in trade turnover as computed by Grubel-Lloyd indices for manufacturing products by SITC three digit commodity groups were between 25 % (24.9 % for Romania and 26.2 % for Bulgaria) and 50 % (43.0 % for former CSFR and 47.4 % for Hungary). These shares corresponded to the importance of intra-industry trade in EU's trade with Turkey (22.0 %) and Israel (46.3 %) or also Finland (49.0 %). These countries had relatively liberal trade regimes vis à vis the EU, as well as a peripheral location, a relatively less developed manufacturing sector, and specific resource bases. However, these shares of intra-industry trade were far below the levels of EU countries. These were between about 60 % (Ireland: 58.7 %, Italy: 62.1 % and Spain: 62.8 %) and 85 % (UK: 74.6 %, the Netherlands: 75.7 % and France: 81.0 %).

Between 1991 and 1996, all the CEECs experienced a significant growth of intra-industry trade. As a result, the levels of intra-industry trade in the EU's trade with the Czech Republic (62.8 %), Slovenia (60.5 %) and Hungary (57.7 %) were comparable to or even larger than those in the EU's trade with Spain (61.3 %), Italy (61.4 %) and Sweden (61.8 %) in 1996. In turn, Poland and Slovakia showed somewhat lower levels of intra-industry trade at 41.0 % and 50.9 % in 1996, respectively. These levels were comparable to Israel (44.4 %), but also to Finland (48.3 %) and Ireland (53.6 %). However, the share of intra-industry trade in EU's trade with Romania (29.4 %) and Bulgaria (32.8 %) remained still only slightly above the level of intra-industry trade with Turkey (25.5 %).

The growth of shares of intra-industry trade contrasts sharply with the stagnation or even relative reduction of the levels of intra-industry trade in the EU. Out of the selected ten EU countries, the share of intra-industry trade increased only in Germany and the UK, but its increase with respect to Germany seems to be largely driven by the reunification in 1991. The level of intra-industry trade in EU's trade with Germany stagnated in the following years. The largest declines of levels of intra-industry trade are observed in Ireland, Sweden, Austria, Spain and the Netherlands. Except for the Netherlands, these countries' shares of intra-industry trade were relatively low within the EU. Moreover, these countries were integrated into the union relatively late. They are located at the EU's peripheries, and some of them had to catch up to the level of the EU. All these factors are assumed to have a positive effect on the development of intra-industry trade. In contrast to the recent developments, these countries had shown fast convergence to EU levels of intra-industry trade in previous decades.

The nearly uniform downward development of Grubel-Lloyd indices in the EU cannot be explained by business cycles, although the slow down of EU

growth might also play a role at the beginning of 1990s. The extension of intra-industry cooperation to the CEECs can also explain only the performance of intra-industry trade in countries having intensive trade relations with the CEECs (Austria and Sweden), but not developments in Spain and Ireland. Rather, it seems that the opening of Eastern Europe and its stepwise integration (Europe Agreements) induced increased specialization in the EU.

This proposition finds further support from the calculation of Herfindahl indices (see Tables A.5 and A.6). Following the opening of Eastern Europe, we expected a lowering of the concentration of CEECs trade in few commodities due to trade liberalization, de-monopolization, privatization and introduction of new products. We did not have any a-priori assumptions on the product-specific concentration of trade in the EU, meaning that both the trends to a higher and lower Herfindahl indices could be observed in different countries simultaneously.

Surprisingly, I found decreasing degrees of specialization in EU's trade with CEECs only in some countries and only in the first years of economic transformation. In 1996, only Bulgaria, Romania (just on the export side) and former-Czechoslovakia showed a lower concentration of exports and imports than in 1990. Furthermore, we can see a nearly uniform development towards increased specialization of the EU countries with regard to both exports and imports. To summarize, it seems that both East and Western European countries increased their specialization despite a convergence of the CEECs to EU levels of intra-industry trade.

This shape of the restructuring of East-West trade helps us to understand the cautious approach to the trade liberalization with CEECs and the Eastward enlargement in those countries which are expected to gain from the enlargement including Germany and Austria. Although it is generally accepted both that these countries gained from the earlier trade liberalization and that they will benefit from the accession of their trade partners to the EU, their producers in all sectors face increased competition and seek for protection.

2.2 Similarity of Trade between Selected Countries

2.2.1 Net Exports

The pattern of net exports is determined by the different production pattern, while the pattern of intra-industry trade, that develops due to increasing returns to scale, is indeterminate. Therefore, we can compare the similarity of net exports of two countries by correlation coefficients. In a model of inter-industry and intra-industry trade with differentiated products, this indicator reflects only

the role of the production factors, while trade balances of differentiated products are randomly distributed and their correlation with trade balances of sectors driven by the comparative advantages should equal zero. The similarity of net exports measures the similarity of countries' factor endowments. However, this need not be true if intra-industry trade consists mainly of vertical intra-industry exchange.

A comparison of similarities reveals several valuable insights. First, the CEECs represent a relatively homogeneous group with the highest similarities of net exports in Europe (see Table A.7).⁷ Moreover, the trade structures of the CEECs seem to be becoming more similar. In 1996, the highest similarity is observed between the EU's net trade with Poland and between the EU's net trade the Czech Republic (0.71), Bulgaria and Romania (0.71), Slovakia and Romania (0.67) as well as Bulgaria (0.64), Hungary and Romania (0.61). The EU's net exports to Slovakia and the Czech Republic are relatively similar (0.58). However, Slovakia is more similar to Southern East European countries than to the Czech Republic.

Trade flows between EU countries show much lower similarities. High similarity reflects similar positions in the international division of labor. In 1996, the highest similarity can be found for the EU's net exports to Finland and to Sweden (0.88) and to Germany and Spain (0.68). While the former can be attributed to similarities in the geographical location, factor endowments and the earlier membership in the EFTA of Finland and Sweden, the later can be explained by the role of automobile sector. From this point of view, Germany and Spain have a comparative advantage in sectors exploiting the large domestic markets.

Second, net trade flows within the EU and between the EU and CEECs are much less similar. In 1996, the EU's net trade with Spain and Slovenia shows the largest similarity (0.40), followed by EU's net exports to Poland and the UK (0.37) and Austria and the Czech Republic (0.31) or Austria and Hungary in 1995 (0.35). The UK (0.28), Italy (0.26) and Austria (0.12) show the highest similarity of their net exports to CEECs. This trade pattern seems to have been already relatively stable during the last years. Therefore, these countries could face a stronger adjustment need than the other EU countries.

⁷ We cannot compare similarity of an aggregates with its main components such as former CSFR and Czech Republic and Slovakia, or total of CEECs with the individual CEECs. These aggregates are referred either in order to allow historical comparisons (the case of former Czechoslovakia) or general tendencies (for example the similarity of total trade of CEECs and trade of the selected EU countries).

Often, the net exports of the CEECs fit the import needs of EU countries relatively well. This is reflected by high negative correlation coefficients of EU's trade structure with Germany and Poland (-0.36), Austria and Slovenia (-0.36) and Germany and the Czech Republic (-0.34) in 1996. These countries are likely to profit in particular from further trade liberalization. In general, Germany, Sweden and Finland could draw advantage from further trade liberalization with the CEECs.

The pattern of CEECs net exports to the EU is relatively similar to Turkey's trade with the EU. Moreover, the EU's trade with the countries likely to participate in the first wave of the enlargement is slightly more similar to the EU's trade with Turkey (Poland: 0.53, Czech Republic: 0.47, and Hungary: 0.42) than the EU's trade with the other CEECs (Romania: 0.50, Bulgaria: 0.45, and Slovakia: 0.41). This helps to explain the Turkish fears of country's exclusion from European integration.

Table 1: Cross-Table of Similarities of Net Export and Intra-industry Trade

		Net Exports									
		EU's trade with two EUC		EU's trade with EUC and CEECs		EU's trade with two CEECs		EU's trade with EUC and NEC		EU's trade with CEECs and NEC	
Intra-industry trade	$\rho_{GL} > 0$	$\rho_{NX} > 0$	$\rho_{NX} < 0$	$\rho_{NX} > 0$	$\rho_{NX} < 0$	$\rho_{NX} > 0$	$\rho_{NX} < 0$	$\rho_{NX} > 0$	$\rho_{NX} < 0$	$\rho_{NX} > 0$	$\rho_{NX} < 0$
		$\rho_{GL} < 0$	12	23	19	25	26	0	6	7	9
	5	6	15	20	0	0	5	2	5	2	
	$\rho_{GL} > 0$	26.1%	50.0%	24.1%	31.6%	100.0%	0.0%	30.0%	35.0%	56.3%	0.0%
		$\rho_{GL} < 0$	10.9%	13.0%	19.0%	25.3%	0.0%	0.0%	25.0%	10.0%	31.3%

Note: The analyzed variables are similarities of net exports and intra-industry trade as measured by correlation coefficients (ρ_{NX} and ρ_{GL} , respectively) for EU's trade with a pair of EU countries (EUC), CEECs and Turkey or Israel (NEC). See text for details.

2.2.2 *Intra-industry Trade and Bias due to Vertical Product Differentiation*

According to Dixit and Norman (1980), intra-industry specialization is determined by factor endowments while the pattern of intra-industry trade is random. The industry-specific factors correspond mainly to the past investment and accumulated immobile physical and human capital or returns to scale (see Krugman, 1991). These factors should show no similarity to the classical factors of production.

However, we would expect a different picture if intra-industry trade consists of horizontally and vertically differentiated products which stands in the focus of the recent research.⁸ The vertical differentiation of trade with manufacturing products and sector-specific production factors may cause a deterministic pattern of (at least a part) of intra-industry trade. Under the assumption that high-quality product varieties are more capital intensive than low-quality products, as originally introduced by Falvey (1981) in a model with differentiated products, constant returns to scale and two factors of production, the labor abundant country will specialize in low-quality products, while the country rich on capital will specialize in high-quality varieties. Therefore, I compare the structure of intra-industry trade in selected countries by weighted correlation coefficients. Then I test the Dixit and Norman proposition whether the structure of net exports explains the pattern of intra-industry trade.

The models following Falvey (1981) together with the evidence on vertical trade in the EU represent a base for expectation of specialization of the CEECs in lower quality products in trade with the EU (see Aturupane, Djankov and Hoekman, 1997 and Burgstaller and Landesmann, 1997). In this case we can expect a positive correlation of net exports and intra-industry trade simultaneously, because the specialization patterns of both product groups are determined by the same factors.

With respect to the CEECs, the similarity matrix for intra-industry trade (see Table A.8) exhibits only surprisingly few differences from the similarities of net exports to the EU in 1996. The high similarity of EU's net exports to individual CEECs is associated with a high similarity of the EU's intra-industry trade with these countries.

⁸ According to Greenaway, Hine and Milner (1995), the vertical intra-industry trade is defined as intra-industry trade whose unit values of exports and unit values of imports falls outside a specified range. In turn, the unit values of imports and exports are within that interval. Thus, the total amount of intra-industry trade can be divided into the horizontal or the vertical intra-industry trade.

Table 1 presents a cross-tabulation of similarities of the EU's trade with EU countries, the CEECs and selected other countries. On the one hand, we can see that intra-industry trade is hardly related to the inter-industry trade in the trade between two EU member countries and in trade between the EU countries and the non-member countries. This observation confirms the Dixit and Norman proposition concerning trade patterns in a model with differentiated products. On the other hand, the EU's net exports and intra-industry trade with third countries show significant similarity. This indicates both similar factor endowments of third countries that are different from the EU and a high role of vertical intra-industry trade in the EU's trade with third countries.

Table 2: Determinants of Intra-industry Trade in CEECs

	1991-1996	1993-1996
Interest rate deflated by exchange rate index	-0.043	-0.097
	(-1.902)	(-1.676)
Growth rates of dollar wages	0.132	0.163
	(3.763)	(3.161)
GDP growth in EU15	2.974	2.985
	(2.486)	(2.501)
Number of available observations	32	26
Adjusted R2	0.7883	0.7174

Note: The dependent variable is the index of marginal intra-industry trade (*MIIT*) in trade of the European Union with Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia (see definition of *MIIT* in Section 2.3 and Table A.4) by SITC three-digit commodity groups in the manufacturing sector. Both models include country dummies. *T* values are in parentheses. The covariance matrices of the coefficients are corrected for possible heteroscedasticity.

2.3 Determinants of Trade Pattern in CEECs

In this section I estimate the relation between the share of intra-industry trade in the EU's trade growth with the CEECs, factor prices (interest rates and wages in US \$) and GDP growth in the EU.⁹ The dependent variable is the index of marginal intra-industry trade as defined in Section 1.3 (see Table A.4 for the development of MIIT-indices). The interest rate (discount rates of Central Banks) was deflated by the index of the US dollar exchange rate. This variable is a proxy for the development of export prices insofar the prices in foreign trade are more stable than in protected sectors. Moreover, this interest rate should equal the international interest rate (interest rate parity condition) corrected for country-specific uncertainty in an open economy.

In economies on the catching-up path, low interest rates should allow trade restructuring towards more processed and differentiated products. This implies a negative relationship between the real interest rates and the indices of marginal intra-industry trade. Similarly, the growth of dollar wages should necessitate the restructuring in Eastern Europe which is reflected by the positive sign. The growth of GDP in 15 member states of the EU accounts for the cyclical behavior of trade.

All variables have the expected signs and are significant in the period between 1991 and 1996 (see Table 2). Moreover, the comparison with the coefficients estimated for a sub-sample including only the advanced stage of the economic reforms (that is between 1993 and 1996) shows the robustness of the estimated relationship although the interest rate is no longer significant. These estimates show that the CEECs are on the catch-up path. Moreover, the model of trade with differentiated products, increasing returns to scale and monopolistic competition provides a good explanation for the restructuring of the European East-West trade flows.

⁹ Data on discount rates and dollar wages are according to Business Central Europe and are available in the internet (web-site: <http://www.bcemag.com>). GDP growth in EU is according to OECD (without former East Germany before 1991).

3. THE CASES OF THE CZECH REPUBLIC AND SLOVAKIA

The Czech Republic and Slovakia were created as independent states from the former-Czechoslovak federation in 1993. Generally, it was expected that independence would help to stabilize the general (political) situation in Slovakia at some costs to economic development (see Fidrmuc and Friedländer, 1993). In contrast to the Czech Republic, it was expected that the integration of an independent Slovakia into the European Union and the NATO would be more difficult than for Czechoslovakia, mainly due to its worse economic development.

On the one hand, Slovak economic performance was surprisingly good between 1993 and 1997. The growth rate of GDP of 6.9 % in 1997 was one of the highest in Europe, while inflation was stabilized at 6 % in 1996, which was the virtually lowest price increase of all the CEECs. However, current account development (deficit of about -10 % of GDP in 1996) and the state budget deficit are persistent problems of Slovak economic policy. This repeatedly created worry about the sustainability of the Slovak economic policy in the medium and long term (see Fidrmuc, 1998).

On the other hand, growing political tensions were increasingly criticized by the European Union and the USA. These worries were viewed as the major barrier to the integration of the Slovak Republic into West European and Atlantic structures despite the relatively good economic performance. In Summer 1997 at the Madrid summit, NATO decided not to invite the Slovak Republic to join. Moreover, the European Commission found in the opinion on Slovakia's Application for the membership in the European Union that:

"In the light of these considerations, the Commission concludes that Slovakia does not fulfill in a sufficient manner the political conditions set out by the European Council in Copenhagen because of the instability of Slovakia's institutions, their lack of rootedness in political life and the shortcomings in the functioning of its democracy. This situation is so much more regrettable since Slovakia would satisfy the economic criteria in the medium term and is firmly committed to take on the *acquis*, particularly concerning the internal market even if further progress is still required to ensure the effective application of the *acquis*." (European Commission, in the Summary of the Opinion on Slovakia's Application for Membership in the EU)¹⁰

¹⁰ The parliament elections in September 1998 created a sound base for Slovak participation in the first wave of the enlargement, although this could not yet change the position of the European Commission in its regular report on the progress towards accession published already at the beginning of November 1998.

The exclusion of Slovakia from the first wave of Eastern Enlargement shows that the European Union has not yet defined its policy towards countries that will not join the Union in the first round. This point is more important for Slovakia than for other Eastern European and non-European countries, because the Slovak economy is already now very intensively integrated into the broad European economic area as defined by all free trade agreements of the EU.¹¹ On the one hand, the share of Slovak exports to the EU15 is rather low in comparison to other European countries (58 % of total exports without the Czech Republic in 1995). On the other hand, the Slovak Republic reaches the second highest export share (85 % of total exports including the Czech Republic in 1995) into European countries including the EU, EFTA and all associated countries (see Figure 1). Therefore, Slovakia is likely to have the highest share of exports to the Single Market in Europe when Hungary, Poland and the Czech Republic join the European Union, but its economy will suffer from exclusion from the EU. Insofar the structure of Slovak exports is very similar to that of other CEECs (see Fidrmuc and Fidrmuc, 1997), the exclusion of the Slovak Republic from the first wave of Eastern Enlargement is likely to result in high trade diversion and welfare losses which might make the integration of Slovakia into the EU in future even more difficult.

¹¹ See Fidrmuc (1999) for simulation of trade effects on Slovakia under the exclusion of this country from the first wave of the enlargement.

4. CONCLUSIONS

As of 1996, the CEECs have already been successfully participating in the European division of labor. The European Union is the most important trade partner for all the CEECs. Moreover, their shares of trade with the EU are already higher than in comparable countries located at the peripheries of Europe. The regional re-orientation of Central and East European trade was associated with successful restructuring. The rise of intra-industry trade was the most important feature of the recent development of East-West trade in Europe. The most advanced CEECs (Hungary, Slovenia and the Czech Republic) already show shares of intra-industry trade comparable to Italy, Spain and Sweden. Poland and Slovakia reached somewhat lower levels of intra-industry trade. Nevertheless, these levels are comparable to those of Finland and Ireland. On the other hand, the share of intra-industry trade in the EU's trade with Romania and Bulgaria remained still only slightly above the level of intra-industry trade with Turkey.

Dixt and Norman's (1980) model of trade with differentiated products and increasing returns to scale provides a good explanation for the structure of EU's trade with the expected departures for horizontal and vertical product differentiation. The country-specific differences of the development of intra-industry trade can be explained by the development of factor prices (interest rates and wages). Intra-industry trade between the EU and the CEECs significantly depends on the business cycle in the EU.

The integration of the CEECs will be associated with significant adjustment needs in many countries. The implementation of the CEECs into the European trading system already induced increased specialization within the EU which contrasts with the development in previous decades.

Nevertheless, the effects on the EU countries are negligible. As opposed to the initial expectations, the adjustment pressure will probably be concentrated on countries which benefit overall from the trade liberalization (Germany, Italy and Austria). Germany seems to gain from trade with CEECs through Europe Agreements far more than other EU countries. Germany's comparative advantage is, unlike those of Austria and Italy, in these sectors where the CEECs do not have a comparative advantage and vice versa. Nevertheless, the concentration of the positive and negative effects on Germany and Austria may explain their ambiguous relation towards the Eastward enlargement of the EU in recent years. Trade effects on Spain could be lower than expected at the beginning of trade liberalization.

Central and Eastern Europe still consists of countries which are more similar to each other than to other countries in the EU. Moreover, the trade structures of these countries have converged to some extent (with the exception of Bulgaria) as a result of similar reform and trade policies. In a such environment, trade diversion is likely to present a significant burden for countries omitted from the first wave of the enlargement (such as Slovakia and Romania).

The pattern of the CEECs trade with the EU is very similar to that Turkey's with the EU. This explains the Turkish fears about not participating in European integration along with CEECs already in the first wave of enlargement. However, the Turkish trade structure is much more different from the intra-EU trade than those of the other membership candidates. In addition to difficult political relations between Turkey and the European Union, the unfavorable structure of the Turkish trade with the EU will represent a significant barrier for its integration into the Union.

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5. Appendix

Table A.1: Growth of Manufacturing Exports of Selected Countries to EU10, Current Prices Converged to ECU, %

	S										
	EU10 EUMMPBE	Austria EUMMPAT	Germany EUMMPDE	Spain EUMMPE	Finland EUMMPFI	France EUMMPFR	UK EUMMPGB	Ireland EUMMPIE	Italy EUMMPIT	Netherlands EUMMPNL	Sweden EUMMPSE
1990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1991	3.4	7.1	-2.5	13.5	-0.2	9.5	8.9	5.2	3.7	4.1	-3.6
1992	9.0	11.5	9.5	13.4	8.7	9.4	10.2	21.0	5.6	6.7	5.0
1993	-18.4	-9.2	-19.1	-14.8	-12.8	-19.4	-15.5	-10.7	-20.2	-27.2	-12.9
1994	18.5	14.5	15.3	27.3	24.6	19.4	18.9	23.3	17.1	22.5	20.3
1995	26.3	2.5	30.2	32.8	18.5	22.7	26.7	36.8	22.1	36.7	21.2
1996	3.1	0.1	0.9	9.2	-2.8	3.7	7.1	2.8	4.3	-0.1	6.1
Average	3.3	1.5	1.9	9.6	2.6	3.9	5.8	9.1	1.9	2.5	2.6

	S										
	CE EUMMPE	Bulgaria EUMMPBG	CSFR EUMMPCS	Czech R. EUMMPCZ	Hungary EUMMPHU	Poland EUMMPPL	Romania EUMMPRO	Slovakia EUMMPSK	Slovenia EUMMPSI	Israel EUMMPIL	Turkey EUMMPTR
1990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1991	31.1	25.0	62.1	NA	23.7	27.4	0.5	NA	NA	5.4	4.5
1992	36.4	51.4	54.0	NA	25.3	32.4	20.4	NA	NA	10.0	19.5
1993	3.1	-2.0	3.2	NA	-4.6	6.8	10.9	NA	61.3	2.2	-5.9
1994	37.1	43.0	43.8	36.6	32.7	28.2	53.8	71.2	23.9	14.2	13.3
1995	46.9	53.8	47.5	42.9	48.9	44.0	47.3	61.4	28.6	28.9	35.1
1996	9.1	3.7	9.1	9.4	19.9	3.1	8.0	8.4	1.1	12.6	9.4
Average	23.1	23.9	31.3	NA	20.1	19.7	18.8	NA	NA	9.1	9.1

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: UN World Trade Data Bank.

Table A.2: Growth of Manufacturing Imports from EU10, Current Prices Converged to ECU, %

EU10	Austria		Germany		Spain		Finland		France		UK		Ireland		Italy		Netherlands		Sweden	
	EUMPEU	EUMMPAT	EUMMPDE	EUMMPES	EUMMPFI	EUMMPFR	EUMMPGB	EUMMPIT	EUMMPPIE	EUMMPRO	EUMMPSE	EUMMPNL	EUMMPSE	EUMMPSE	EUMMPSE	EUMMPSE	EUMMPSE	EUMMPSE	EUMMPSE	EUMMPSE
1990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1991	3.4	7.1	-2.5	13.5	-0.2	9.5	8.9	5.2	3.7	4.1	-3.6									
1992	9.0	11.5	9.5	13.4	8.7	9.4	10.2	21.0	5.6	6.7	5.0									
1993	-18.4	-9.2	-19.1	-14.8	-12.8	-19.4	-15.5	-10.7	-20.2	-27.2	-12.9									
1994	18.5	14.5	15.3	27.3	24.6	19.4	18.9	23.3	17.1	22.5	20.3									
1995	26.3	2.5	30.2	32.8	18.5	22.7	26.7	36.8	22.1	36.7	21.2									
1996	3.1	0.1	0.9	9.2	-2.8	3.7	7.1	2.8	4.3	-0.1	6.1									
Average	3.3	1.5	1.9	9.6	2.6	3.9	5.8	9.1	1.9	2.5	2.6									

CE	Bulgaria		Czech R.		Hungary		Poland		Romania		Slovakia		Slovenia		Israel		Turkey		
	EUMMPCE	EUMMPBG	EUMMP CZ	EUMMPHU	EUMMPPL	EUMMPRO	EUMMP SK	EUMMP SI	EUMMPIL	EUMMPTR	EUMMPIL	EUMMPIL	EUMMPIL	EUMMPIL	EUMMPIL	EUMMPIL	EUMMPIL	EUMMPIL	
1990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1991	31.1	25.0	62.1	NA	23.7	27.4	0.5	NA	NA	NA	NA	NA	NA	NA	5.4	4.5	19.5		
1992	36.4	51.4	54.0	NA	25.3	32.4	20.4	NA	NA	NA	NA	NA	NA	NA	10.0	10.0	19.5		
1993	3.1	-2.0	3.2	NA	-4.6	6.8	10.9	NA	NA	NA	NA	NA	NA	NA	2.2	2.2	-5.9		
1994	37.1	43.0	43.8	36.6	32.7	28.2	53.8	71.2	23.9	14.2	13.3								
1995	46.9	53.8	47.5	42.9	48.9	44.0	47.3	61.4	28.6	28.9	35.1								
1996	9.1	3.7	9.1	9.4	19.9	3.1	8.0	8.4	1.1	12.6	9.4								
Average	23.1	23.9	31.3	NA	20.1	19.7	18.8	NA	NA	9.1	9.1								

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: UN World Trade Data Bank.

Table A.3: Intraindustry Trade in Manufacturing Sector of Selected Countries with EU10, %

	EU10		Austria		Germany		Spain		Finland		France		UK		Ireland		Italy		Netherlands		Sweden	
	GLIMPEU	GLIMPAT	GLIMPDE	GLIMPES	GLIMPEFI	GLIMPEFR	GLIMPGB	GLIMPIE	GLIMPSI	GLIMPSK	GLIMPSL	GLIMPSN	GLIMPSO	GLIMPSR	GLIMPSU	GLIMPSV	GLIMPSW	GLIMPSX	GLIMPSY	GLIMPZ	GLIMPAA	GLIMPBB
1990	ND	69.34	73.26	62.80	49.04	81.00	74.63	58.71	62.08	75.69	66.52											
1991	ND	70.24	78.25	59.22	53.05	82.33	78.42	59.27	61.56	76.45	65.79											
1992	ND	70.15	77.05	61.89	52.12	83.77	78.59	56.91	60.26	76.88	64.82											
1993	ND	69.13	78.04	60.05	49.91	80.55	76.81	56.46	60.83	73.51	61.72											
1994	ND	68.90	77.73	60.07	50.04	81.57	78.41	53.88	59.94	73.35	64.29											
1995	ND	67.37	78.59	60.92	48.33	80.56	80.01	51.77	61.57	73.53	60.68											
1996	ND	66.92	78.48	61.27	48.26	80.57	80.85	53.55	61.40	73.45	61.76											

	CE		Bulgaria		CSFR		Czech R.		Hungary		Poland		Romania		Slovakia		Slovenia		Israel		Turkey	
	GLIMPE	GLIMPBG	GLIMPCS	GLIMPCZ	GLIMPHU	GLIMPL	GLIMPRO	GLIMPSK	GLIMPSI	GLIMPSL	GLIMPSN	GLIMPSO	GLIMPSR	GLIMPSU	GLIMPSV	GLIMPSW	GLIMPSX	GLIMPSY	GLIMPZ	GLIMPAA	GLIMPBB	
1990	44.15	26.16	43.02	NA	47.39	36.20	24.88	NA	NA	46.31	22.02											
1991	46.00	27.20	47.13	NA	51.33	35.11	26.59	NA	NA	42.08	20.30											
1992	47.03	29.11	50.27	NA	52.47	38.04	23.62	NA	49.92	42.39	21.02											
1993	48.43	33.63	54.76	55.85	52.56	38.36	24.68	40.16	54.54	42.69	18.69											
1994	51.14	36.01	58.55	59.36	53.78	38.87	27.22	44.55	57.29	41.73	24.72											
1995	52.93	30.52	60.83	61.34	56.53	40.69	27.67	46.80	59.98	44.11	27.19											
1996	54.61	32.82	62.34	62.80	57.73	40.98	29.44	50.86	60.48	44.39	25.49											

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: *UN World Trade Data Bank*.

Table A.4: Marginal Intraindustry Trade in Manufacturing Sector of Selected Countries with EU10, %

	EU10		Austria		Germany		Spain		Finland		France		UK		Ireland		Italy		Netherlands		Sweden	
	MIIMPEU	MIIMPAT	MIIMPDE	MIIMPES	MIIMPF1	MIIMPF2	MIIMPF3	MIIMPF4	MIIMPF5	MIIMPF6	MIIMPF7	MIIMPF8	MIIMPF9	MIIMPF10	MIIMPF11	MIIMPF12	MIIMPF13	MIIMPF14	MIIMPF15	MIIMPF16	MIIMPF17	MIIMPF18
1990	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1991	ND	41.72	15.82	23.20	26.72	55.32	19.38	30.92	35.88	39.40	45.24	57.87	51.07	29.80	34.07	43.31	33.40	66.40	41.61	54.97	49.68	39.07
1992	ND	44.33	39.76	45.45	21.46	72.39	57.20	44.63	51.85	63.75	39.07	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57
1993	ND	53.06	51.76	49.58	36.72	61.74	58.61	38.72	47.54	37.39	59.52	47.74	47.74	47.74	47.74	47.74	47.74	47.74	47.74	47.74	47.74	47.74
1994	ND	50.29	57.76	49.16	44.41	70.36	69.05	37.39	59.52	35.86	43.22	43.22	43.22	43.22	43.22	43.22	43.22	43.22	43.22	43.22	43.22	43.22
1995	ND	40.83	75.11	56.65	22.59	50.26	47.74	19.59	35.86	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57
1996	ND	39.96	46.03	44.65	22.45	50.26	47.74	19.59	35.86	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57	43.57

	CE		Bulgaria		Czech R.		Hungary		Poland		Romania		Slovakia		Slovenia		Israel		Turkey		
	MIIMPEU	MIIMPBG	MIIMPCZ	MIIMPHU	MIIMPLL	MIIMPRO	MIIMPSK	MIIMPSL	MIIMISR	MIIMTRK											
1990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
1991	39.14	13.84	36.53	39.93	26.94	15.42	NA	NA	NA	19.97	12.02	17.92	17.92	17.92	17.92	17.92	17.92	17.92	17.92	17.92	
1992	40.90	20.33	43.87	42.54	20.51	13.50	NA	NA	NA	25.07	17.92	17.92	17.92	17.92	17.92	17.92	17.92	17.92	17.92	17.92	
1993	29.15	14.85	32.62	NA	25.55	14.23	NA	NA	NA	18.21	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	
1994	51.97	27.55	56.05	56.24	30.06	23.47	36.90	35.83	3.05	25.69	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05
1995	53.01	24.97	58.74	48.29	37.50	23.33	42.85	50.52	25.56	32.60	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56
1996	41.73	9.69	46.33	46.24	23.37	18.14	31.73	30.37	14.20	14.57	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: UN World Trade Data Bank.

Table A.5: Herfindahl Index of Concentration in Manufacturing Exports of Selected Countries to EU10

	EU10		Austria		Germany		Spain		Finland		France		UK		Ireland		Italy		Netherlands		Sweden	
	HIEUMMP	PEU	HIEUMMP	AT	HIEUMMP	DE	HIEUMMP	ES	HIEUMMP	FI	HIEUMMP	FR	HIEUMMP	GB	HIEUMMP	IE	HIEUMMP	IT	HIEUMMP	MPN	HIEUM	L
1990	0.017	0.017	0.017	0.023	0.060	0.136	0.026	0.017	0.049	0.017	0.014	0.017	0.014	0.044	0.017	0.017	0.017	0.017	0.014	0.014	0.014	0.044
1991	0.018	0.017	0.022	0.137	0.088	0.137	0.032	0.019	0.040	0.017	0.014	0.017	0.014	0.046	0.017	0.017	0.017	0.017	0.014	0.013	0.013	0.046
1992	0.019	0.017	0.027	0.090	0.090	0.121	0.030	0.020	0.046	0.016	0.013	0.016	0.013	0.046	0.016	0.016	0.016	0.016	0.013	0.013	0.013	0.046
1993	0.019	0.017	0.024	0.101	0.101	0.118	0.033	0.023	0.055	0.016	0.016	0.016	0.016	0.044	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.044
1994	0.019	0.019	0.023	0.101	0.104	0.104	0.029	0.022	0.062	0.016	0.016	0.016	0.016	0.042	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.042
1995	0.020	0.021	0.023	0.094	0.115	0.115	0.026	0.023	0.070	0.016	0.016	0.016	0.016	0.048	0.016	0.016	0.016	0.016	0.018	0.018	0.018	0.048
1996	0.021	0.022	0.026	0.091	0.115	0.115	0.029	0.025	0.063	0.016	0.016	0.016	0.016	0.044	0.016	0.016	0.016	0.016	0.020	0.020	0.020	0.044

	CE		Bulgaria		CSFR		Czech R.		Hungary		Poland		Romania		Slovakia		Slovenia		Israel		Turkey	
	HIEUMMP	CE	HIEUMMP	PBG	HIEUMMP	CS	HIEUMMP	CZ	HIEUMMP	HU	HIEUMMP	PL	HIEUMMP	PRO	HIEUMMP	SK	HIEUMMP	SI	HIEUMMP	MPL	HIEUM	MPTR
1990	0.022	0.053	0.020	0.020	NA	0.021	0.030	0.088	NA	NA	0.025	0.064	0.025	0.064	0.025	0.064	0.025	0.064	0.025	0.064	0.025	0.064
1991	0.022	0.044	0.016	0.016	NA	0.022	0.033	0.082	NA	NA	0.023	0.069	0.023	0.069	0.023	0.069	0.023	0.069	0.023	0.069	0.023	0.069
1992	0.023	0.043	0.017	0.017	NA	0.023	0.034	0.085	NA	NA	0.023	0.073	0.023	0.073	0.023	0.073	0.023	0.073	0.023	0.073	0.023	0.073
1993	0.025	0.045	0.016	0.016	0.015	0.025	0.040	0.094	0.029	0.028	0.023	0.079	0.023	0.079	0.023	0.079	0.023	0.079	0.023	0.079	0.023	0.079
1994	0.022	0.043	0.015	0.015	0.015	0.023	0.037	0.075	0.026	0.030	0.024	0.068	0.024	0.068	0.024	0.068	0.024	0.068	0.024	0.068	0.024	0.068
1995	0.021	0.055	0.016	0.016	0.016	0.025	0.034	0.064	0.028	0.032	0.024	0.061	0.024	0.061	0.024	0.061	0.024	0.061	0.024	0.061	0.024	0.061
1996	0.021	0.049	0.018	0.018	0.017	0.028	0.033	0.070	0.030	0.037	0.029	0.065	0.029	0.065	0.029	0.065	0.029	0.065	0.029	0.065	0.029	0.065

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: UN World Trade Data Bank.

Table A.6: Herfindahl Index of Concentration in Manufacturing Imports of Selected Countries from EU10

EU10 HIEUXMP	Austria		Germany		Spain		Finland		France		UK		Ireland		Italy		Netherlands		Sweden	
	EU	AT	DE	ES	FI	FR	GB	IE	IT	NL	SE									
1990	0.017	0.015	0.015	0.023	0.014	0.020	0.024	0.014	0.031	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
1991	0.018	0.016	0.017	0.023	0.014	0.024	0.021	0.015	0.035	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
1992	0.019	0.017	0.016	0.026	0.015	0.024	0.022	0.015	0.043	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
1993	0.018	0.016	0.015	0.024	0.014	0.022	0.024	0.017	0.030	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
1994	0.018	0.017	0.015	0.025	0.015	0.021	0.024	0.017	0.029	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
1995	0.018	0.018	0.017	0.023	0.018	0.020	0.024	0.018	0.028	0.019	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
1996	0.019	0.019	0.017	0.023	0.018	0.021	0.026	0.017	0.029	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020

CE HIEUXMP	Bulgaria		Czech R.		Hungary		Poland		Romania		Slovakia		Slovenia		Israel		Turkey	
	CE	PBG	CZ	CS	HU	PL	PRO	SK	SI	L	L	TR						
1990	0.013	0.018	0.018	0.018	0.013	0.015	0.019	NA	NA	NA	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
1991	0.014	0.019	0.016	0.016	0.013	0.018	0.018	NA	NA	NA	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
1992	0.014	0.026	0.015	0.015	0.015	0.015	0.026	NA	NA	0.018	0.016	0.021	0.021	0.021	0.021	0.021	0.021	0.021
1993	0.014	0.018	0.014	0.014	0.015	0.016	0.022	0.015	0.023	0.017	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
1994	0.014	0.017	0.013	0.013	0.015	0.015	0.023	0.015	0.020	0.019	0.015	0.020	0.020	0.020	0.020	0.020	0.020	0.020
1995	0.014	0.021	0.014	0.014	0.015	0.016	0.021	0.019	0.020	0.018	0.019	0.020	0.020	0.020	0.020	0.020	0.020	0.020
1996	0.015	0.016	0.016	0.015	0.016	0.018	0.020	0.020	0.020	0.019	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020

Note: EU10 includes Austria, Germany, Spain, Finland, France, the UK, Ireland, Italy, Sweden and the Netherlands; CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

Source: *UN World Trade Data Bank*.

Table A.7: Similarity of EU's Net Exports to Selected Countries*, 1996

	CE	HU	PL	CS	RO	BG	CZ	SK	SI	AT	DE	ES	FI	FR	GB	IE	IT	NL	SE	IL	TR	
CE	1.00																					
HU	0.75	1.00																				
PL	0.93	0.58	1.00																			
CS	0.85	0.54	0.74	1.00																		
RO	0.83	0.61	0.68	0.60	1.00																	
BG	0.73	0.50	0.61	0.57	0.71	1.00																
CZ	0.78	0.48	0.71	0.95	0.47	0.45	1.00															
SK	0.74	0.48	0.58	0.80	0.67	0.64	0.58	1.00														
SI	0.57	0.36	0.55	0.49	0.54	0.28	0.37	0.59	1.00													
AT	0.12	0.22	0.08	0.20	-0.09	0.09	0.31	-0.09	-0.36	1.00												
DE	-0.33	-0.27	-0.36	-0.25	-0.17	-0.18	-0.34	0.00	0.06	-0.46	1.00											
ES	0.03	-0.08	-0.01	0.17	0.05	-0.02	0.03	0.39	0.40	-0.59	0.68	1.00										
FI	-0.11	-0.19	-0.11	-0.05	-0.02	-0.07	-0.08	0.01	-0.05	0.32	-0.26	-0.25	1.00									
FR	-0.05	0.06	-0.17	0.08	-0.05	0.00	0.16	-0.11	-0.24	0.30	0.19	-0.08	-0.14	1.00								
GB	0.28	0.22	0.37	0.19	0.02	0.19	0.27	-0.02	-0.06	0.19	-0.46	-0.32	-0.45	-0.08	1.00							
IE	-0.07	0.06	-0.04	-0.17	-0.08	-0.07	-0.12	-0.21	-0.17	-0.07	-0.35	-0.35	-0.09	-0.14	0.31	1.00						
IT	0.26	0.21	0.24	0.18	0.25	0.14	0.27	-0.06	-0.01	0.33	-0.64	-0.52	0.01	-0.03	0.14	-0.01	1.00					
NL	0.16	0.05	0.21	0.22	-0.04	0.16	0.29	0.02	-0.27	0.54	-0.39	-0.42	-0.08	0.12	0.55	-0.04	0.15	1.00				
SE	-0.13	-0.23	-0.14	-0.05	-0.04	-0.11	-0.07	-0.01	-0.06	0.32	-0.14	-0.15	0.88	-0.02	-0.47	-0.27	0.07	-0.08	1.00			
IL	0.17	0.12	0.21	0.15	0.02	0.18	0.23	-0.05	-0.15	0.41	-0.50	-0.50	0.07	0.03	0.49	0.20	0.29	0.46	-0.02	1.00		
TR	0.58	0.42	0.53	0.50	0.50	0.45	0.47	0.41	0.34	0.06	-0.36	-0.02	-0.06	-0.06	0.28	-0.02	0.29	0.14	-0.08	0.25	1.00	

Note: * Correlation of net exports by countries. CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.

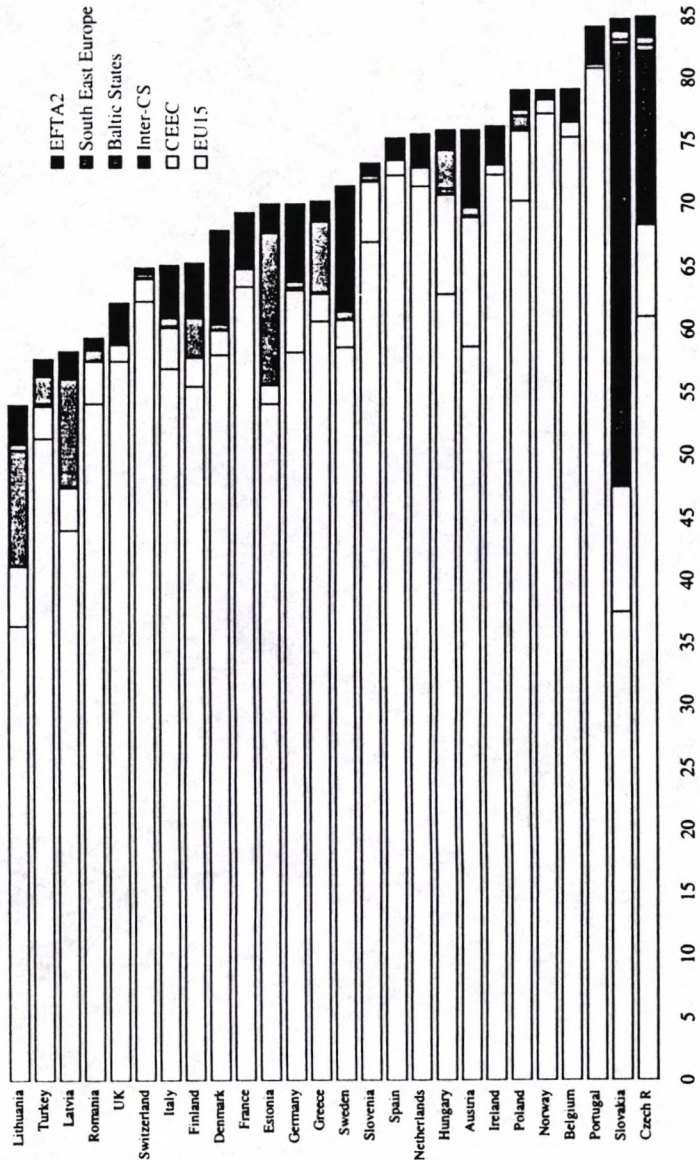
Source: UN World Trade Data Bank

Table A.8: Similarity of EU's Intraindustry Trade Pattern with Selected Countries*, 1996

	CE	HU	PL	CS	RO	BG	CZ	SK	SI	AT	DE	ES	FI	FR	GB	IE	IL	IT	NL	SE	TR
CE	1.00																				
HU	0.66	1.00																			
PL	0.77	0.34	1.00																		
CS	0.72	0.52	0.58	1.00																	
RO	0.56	0.40	0.38	0.49	1.00																
BG	0.48	0.40	0.37	0.49	0.33	1.00															
CZ	0.71	0.49	0.59	0.93	0.48	0.50	1.00														
SK	0.47	0.43	0.39	0.74	0.47	0.30	0.56	1.00													
SI	0.39	0.31	0.36	0.56	0.37	0.30	0.50	0.50	1.00												
AT	0.25	0.14	0.30	0.44	0.34	0.29	0.45	0.36	0.31	1.00											
DE	-0.01	0.02	-0.05	-0.15	0.03	-0.02	-0.13	-0.04	-0.17	0.19	1.00										
ES	0.19	0.13	0.09	0.22	0.40	0.11	0.21	0.22	0.19	0.17	0.14	1.00									
FI	0.03	0.11	-0.05	-0.16	0.06	0.06	-0.11	-0.05	-0.08	0.00	0.17	0.24	1.00								
FR	0.20	0.12	0.19	0.12	-0.05	0.12	0.05	0.08	0.00	0.03	0.22	-0.02	-0.15	1.00							
GB	0.13	0.15	0.03	-0.06	-0.13	0.06	-0.05	-0.10	-0.15	-0.20	0.13	-0.05	0.09	0.21	1.00						
IE	-0.07	0.15	-0.16	-0.08	0.14	0.04	0.02	-0.05	-0.02	0.23	0.28	0.20	0.15	-0.13	0.20	1.00					
IL	-0.04	-0.01	-0.12	-0.18	-0.03	0.08	-0.08	-0.25	-0.10	-0.09	0.11	-0.01	0.29	-0.09	0.32	0.38	1.00				
IT	0.03	-0.04	-0.03	-0.12	0.11	-0.10	-0.13	-0.10	0.01	0.04	0.32	0.02	0.09	0.15	0.25	0.13	0.08	1.00			
NL	-0.22	-0.16	-0.25	-0.26	-0.16	-0.09	-0.26	-0.20	-0.21	-0.03	0.15	-0.08	0.12	-0.02	0.28	0.23	0.43	0.30	1.00		
SE	0.14	0.23	0.07	0.22	0.14	0.07	0.21	0.25	0.04	0.25	0.25	0.27	0.28	0.11	0.10	0.16	-0.09	0.08	-0.10	1.00	
TR	0.33	0.30	0.25	0.34	0.32	0.28	0.37	0.26	0.21	0.20	0.05	0.47	0.08	0.02	-0.12	0.08	0.00	-0.23	-0.19	0.26	1.00

Note: * Weighted correlation coefficients of patterns of intraindustry trade (Grubel-Lloyd indices by three-digit SITC commodity groups) by countries; weighted by structure of the intra-EU trade in 1996. CE includes Bulgaria, former CSFR, Hungary, Poland and Romania.
Source: *UN World Trade Data Bank*.

Figure A.1: Regional Structure of Exports of European Countries in 1995, %



Source: UN World Trade Data Bank.



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