Trade Similarity between Eastern and Southern Europe: Mutual Opportunities or Competition?[1]

(draft – please do not quote)

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Abstract

This paper analyses revealed comparative advantages (RCAs) and specialisations with the objective of identifying the 3-digit SITC sectors in which trade liberalisation with Eastern applicants may represent opportunities or competition between them and EU South. This is done by using transition period data only. The main findings are as follows. First, during the transition period potential competition occurs in labour-intensive sectors. Over one third of Eastern and EU South exports tends to overlap both in the labour-intensive factor content and in the destination market (EU North). Second, the clothing and footwear export unit values of Visegrad countries are very close to those of EU South, indicating similar quality levels. Third, the greatest potential opportunities for the East lie in R&D-intensive sectors. Finally, the benefits for the South of trade liberalisation with the East, if any, lie in obtaining cheaper imports rather than in exporting to the Eastern market.

Keywords: trade, EU enlargement, transition, Eastern Europe, Southern Europe
JEL: F0, F1, F4, L6, N6, O5, P2, R3

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1 Introduction

The Eastern enlargement will constitute a profound qualitative change in the composition of EU as the accession of transition economies will bring a whole new set of economic, financial and political problems. In 1993 membership was offered to those CEECs[2] that fulfilled certain political and economic criteria defined at the Copenhagen summit.[3] The countries that were offered membership in accordance to the "Copenhagen criteria" and with which accession negotiations started in March 1998 – Czech Republic, Estonia, Hungary, Poland and Slovenia – constitute the "first wave" group. Those that started negotiations in December 1999 – Bulgaria, Latvia, Lithuania, Romania and Slovakia – form the "second wave" group.[4]

Even before membership each of the CEECs already benefits from a bilateral free trade area in industrial products with the EU under the so-called "Europe Agreements".[5] The first Europe Agreements were signed in 1991 with Poland, Hungary and Czechoslovakia. Others followed: Bulgaria and Romania in 1993, the Baltic States in 1995 and Slovenia in 1996.[6] These free trade agreements provided the CEECs with the status of EU associates, guaranteeing them access to free trade in manufactures, with exception of quotas imposed by the EU on the so-called "sensitive sectors" (textiles, clothing, leather and footwear, chemicals, coal, iron and steel, motor vehicles, furniture).[7] [8]

For the EU as a whole, the Eastern enlargement represents an opportunity for trade expansion. However, the gains and losses from trade expansion with the East are unequally distributed both among and within EU members. Even if the EU as a whole would benefit from enlargement, individual members might experience small gains or even net losses. Moreover, even for net gainers, losses would tend to be concentrated in their less developed regions and/or problem sectors (Nuti 1996).

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[2] Heretofore we refer to CEECs (Central and East European Countries) as the group formed by Bulgaria, Czech Republic, Slovakia, Hungary, Poland, Romania, Baltic States and Slovenia.

[3] The first of these is the stability of institutions guaranteeing democracy, the rule of law, human rights and respect for minorities. The second refers to the existence of a functioning market economy and the ability to cope with competitive pressure and market forces. The third is the ability to take on the obligations of membership, including adherence to the aims of political, economic and monetary union.

[4] Ricoeur-Nicolai et al. (1999) validate the pertinence of the "first wave"/"second wave" distinction using quantitative criteria. They show that such distinction was based, not on the present, but on the potential capacity of integration. However, they also argue that the discrimination imposed by the EU may become self-fulfilling for the CEECs: "first wave" countries find financing more easily, while "second wave" may face restrictions in access to funds and thus suffer a widening gap relatively to the "first wave" group. The "first wave" countries are in fact the ones with a more developed market economy and higher capacity to face competition and market forces (first two Copenhagen criteria). Slovakia has a "first wave" performance in these economic criteria, but fails in the political area (respect for democracy and human rights). The remaining "second wave" countries have a poor performance in the three criteria.

[5] In addition to the Europe Agreements with the EU, there is a net of free trade agreements, most of them bilateral, between CEECs themselves. These are listed in Table 1.

[6] The enforcement of the Europe Agreements happened with a lag of two to three years: 1994 for Poland and Hungary, 1995 for Bulgaria, Romania, the Czech and Slovak Republics, 1998 for the Baltic States and Slovenia.

[7] In 1998 the EU started the liberalisation of textiles and steel, the former in accordance with the Agreement on Textiles and Clothing.

[8] Agriculture is excluded from the Europe Agreements for a double reason: it is a sensitive sector and its trade is subject to the special regime imposed by CAP.

In this respect two visions have arisen in the literature. The first, a long run vision based on the stock of factors, concludes that the East has RCAs in human capital intensive sectors and thus is closer to EU North (CEPR 1990, Goldin 1996, Hamilton and Winters 1992). The second, a short run vision based on trade flows, concludes that the East has RCAs in capital and labour intensive sectors, and hence is closer to EU South[9] (Rollo and Smith 1993, Winters and Wang 1994, Baldwin 1994, 1995, Cadot et al. 1995, Neven 1995, Kaminski et al. 1996, Brown et al. 1997, Vittas and Mauro 1997). According to the first vision, in the long run the South has nothing to fear from the Eastern enlargement. However, in the short run the second vision provides evidence to support the Southern concern of an unfavourable distribution of the gains from the Eastern enlargement due to increased competition from the East.

These findings constitute the main motivation for this paper. The evidence provided by the "competition vision" points towards some degree of substitutability between Southern EU and CEECs' production and underlying comparative advantages. If such similarity allows for reallocation effects unfavourable to the South, the latter may have a reason to oppose the enlargement. Thus this paper tries to contribute to the clarification of whether and to which extent such fears are justified using a data set that refers exclusively to the transition period and includes all ten potential new members. In addition, an entropic indicator of specialisation is applied to East-West trade.

The paper is organised as follows. Section 2 provides a review of the literature on the impact of trade liberalisation with the CEECs. Section 3 lists the most important stylised facts of Eastern trade during the transition period. Section 4 compares Eastern and Southern sectoral trade patterns using both Neven's RCAs (corrected for intra-industry trade) and a sectoral version of Krugman's K index of country specialisation with a view to identifying the overlapping 3-digit SITC sectors in Eastern and Southern trade. Section 6 concludes.

2 Literature review

The enforcement of the Europe Agreements gave rise to a growing literature on the measurement of their effects. Several studies looked at the effects on individual EU members such as Portugal (Corado 1994), Spain (Martin and Gual 1994), Greece (Dimelis and Gatsios 1995), France (Cadot et al. 1995, Cadot and De Melo 1996), Germany (Schumacher 1997), Ireland (Brulhart and Kelly 1999), or on the CEECs

[9] EU South is here defined as Greece, Portugal and Spain. Ireland is not included in the group for two main reasons. First, it is not so poor anymore (its GDP per capita is now higher than that of the UK). Second, its growth has been based on FDI that exploits the existence of a skilled and cheap labour force, whereas the EU South countries are traditionally better endowed in unskilled labour.

themselves (Paas 2000). Though these studies do not quantify welfare changes, their general conclusion was that the effects of Europe Agreements on EU members would be smaller than that on the CEECs themselves. However, the studies on Greece, Portugal and Spain stress the tension between more trade with the East, on one hand, and more competition between South and East in the Northern markets. Within the Southern group, the Greeks are the most optimistic, as due to geographical proximity Greece would have the possibility of increasing both exports to and FDI in Bulgaria and Romania, though the chemicals, transport equipment and natural-resource-intensive sectors might lose. Spain has the advantage of a large domestic market, though it might lose some market share in exports and suffer some FDI diversion. In contrast, Portugal, not having Greece's geographical proximity to the East nor Spain's large domestic market, would be the biggest loser at both the trade and FDI levels.

Another group of studies focused on sensitive sectors using sectoral partial equilibrium models mostly based on the Smith and Venables (1988) model (Rollo and Smith 1993, Winters and Wang 1992, 1994), or on the partial equilibrium SMART model developed by the UNCTAD and the World Bank (Mastropasqua and Rolli 1994). Again the conclusion is reached that the EU as a whole has little to fear from enlargement, while gains for the East are substantial. Nevertheless, EU North shows net gains, whereas EU South shows net losses. This happens because the Eastern industries that benefit the most from the Europe Agreements are those in which EU South has the strongest comparative advantages and of which EU North is a net importer. A major drawback of these studies is the calibration for pre-transition data that does not take into account the important structural changes brought by transition.

General equilibrium models are more demanding in terms of construction and data. Hence their use in the study of the economic effects of EU's Eastern enlargement is relatively scarce. It is worthwhile to mention Brown et al. (1997), based on an extended version of the University of Michigan CGE trade model,[10] and Baldwin et al. (1997), who use a general equilibrium model drawn from Francois et al. (1995). The two studies differ in several respects. On one hand, Brown et al. (1997) examine a free trade area (simulated by a Stylised European Agreement Package), whereas Baldwin et al. (1997) consider a customs union that requires the East to adopt EU's common external tariff. On the other hand, Brown et al. (1997) divide the EU into North and South, whereas Baldwin et al. (1997) consider the EU as a single bloc, not distinguishing North and South.[11]

[10] The model is described in detail in Brown and Stern (1989) and Deardorff and Stern (1990).
[11] Nevertheless they are able to derive country effects through an ad-hoc process of imputing shares in total income change from each country's share in the affected sectors.

In spite of their methodological differences, both studies conclude that EU as a whole gains from enlargement, though the South gains much less than the North. In particular, Germany would gain the most, whereas Portugal would be the only country losing due to its heavy reliance on textiles, the sector most affected by enlargement. This reflects the fact that the EU South includes the poorest parts of the EU which are likely to compete most directly with the CEECs in the EU markets for especially labour-intensive goods. Even though Brown et al. (1997) distinguish between North and South EU, they lack an analysis of the sectoral adjustments in the South induced by enlargement. In addition, they controversially use Portuguese data as a proxy for Eastern data when the latter is not available.

More recently, a CGE strand of research integrating comparative advantage with new economic geography (NEG) features has started to be developed that performs a centre with multiple peripheries analysis (Forslid et al. 1999b, Forslid et al. 1999a, Baldwin et al. 2000, Midelfart-Knarvik et al. 2000b). The introduction of comparative advantage smoothes the so-called “catastrophic agglomeration” feature of NEG models and allows for the fact that countries (or regions) are asymmetric ex-ante. This analysis is based on input-output linkages with immobile labour (Krugman and Venables 1995, 1996), which is arguably more applicable to Europe than the labour migration approach (Krugman 1991b). The U-shaped relationship between integration (proxied by a reduction in trade costs) and concentration of economic activity that is typical of NEG models is obtained. When applied to the study of the post-Eastern enlargement location of production in Europe, the NEG analysis shows gains for the East and contradictory effects for the EU: everything is possible depending on the scenario considered. The richness of effects makes this strand of research a very promising one in the study of trade liberalisation with Eastern Europe.

In particular, the NEG research suggests that there is room in the EU for more Eastern imports but the export potential to the East has been reached. The most widely used empirical methodology for predicting potential trade flows has been based on the gravity model and develops in two steps. First, a bilateral gravity equation is estimated for a reference sample. Second, this equation is used to simulate trade between sample and non-sample countries. This method has been widely applied to EU-CEECs trade with contradictory results. On one hand, Havrylyshyn and Pritchett (1991), Hamilton and Winters (1992), Winters and Wang (1992, 1994), Baldwin (1994), Fidrmuc (1998), Buch and Piazolo (2000) found that actual EU-CEECs trade was still below potential. On the other hand, Gros and Gonciarz (1996), Schumacher (1997), Festoc (1997), Vittas and Mauro (1997), Maurel and Cheikbossian (1998), Fontagne et al. (1999), Nilsson (2000) found that actual EU-CEECs trade was already above potential, following an "overshooting" reaction to the Europe Agreements.

The divergence in empirical results is due to both the integration process and the method itself. Concerning the integration process, the EU market opened very fast, allowing for a rapid expansion of Eastern exports, but the low level of development of Eastern countries limited both their exporting capacity and their demand. With regard to the method itself, the main shortcoming is the general use of cross-section instead of panel data, since in bilateral gravity models only panel estimation produces unbiased results (Matyas 1997, 1998, Breuss and Egger 1999). When the latter process is used, there is the problem of choosing between fixed or random effects. On one hand, the fixed effects apply to the sample countries only, but in the second step of the method there is also out-of-sample data. On the other hand, in gravity equations fixed effects are generally superior to random effects (Egger 2000).

These econometric problems, together with the use of pre-transition data, render unreliable many of the widely cited earlier estimates, such as Hamilton and Winters (1992), Winters and Wang (1992, 1994), Baldwin (1994). Gros and Gonciarz (1996) and Nilsson (2000) update Baldwin's (1994) projections replacing pre-transition with post-transition income data. When post-transition GDP is used, actual trade comes very close to potential trade or even exceeds it. Clearly the studies that used pre-transition data overestimate the trade potential. The argument is that the East is already relatively open, so that trade expansion will be due mostly to income catching-up, that is, will depend mostly on the EU's capacity to provide the East with enough wealth to become a market for EU products. In addition, Nilsson (2000) is the only study, after Baldwin (1994), that computes potential trade with the East for each of the EU15 countries. All other studies look exclusively at East-North trade, concluding that the highest gains accrue to Germany. This happens because East-West trade patterns reflected basically geographical proximity, so that the South would not trade much with the East despite having a higher trade potential.

Several other studies improved the analysis in different directions, either by using only EU and CEEC data to compute the gravity parameters (Fidrmuc 1998, Buch and Piazolo 2000) or by modifying the gravity model in various ways. First, by assuming the form of Bergstrand's generalised gravity equation instead of the Linnemann model (Festoc 1997). Second, by incorporating Krugman's (1991b) assumption that proximity increases trade because it decreases transport costs (Maurel and Cheikbossian 1998). Third, by applying the gravity equation to vertically differentiated products (Fontagne et al. 1998). Finally, by incorporating both geographical and economic distances (Vittas and Mauro 1997, Fontagne et al. 1999). The former is a proxy for transport costs, whereas the latter is a proxy for intensity of comparative advantage,

given by the difference between partner countries' GDPs.[12] Both studies conclude that the main determinant of East-West trade is geographical distance.

3 Stylised facts of Eastern trade in transition

Eastern trade has suffered major modifications since the collapse of CMEA and the beginning of the process of trade liberalisation with the EU. After one decade of transition, it is possible to identify some stylised facts of Eastern trade during that period. First, the average CEEC is a small open economy. Even though the East is still subject to trade restrictions with the EU, it is already more open than EU South (Figure 1). The openness index[13] of the "first wave" group increased from about 50% in 1991 to about 80% in 1994, while that of the "second wave" group started from a value of about 60% in 1991, and reached a maximum of about 95% in 1993. The foreign trade of both groups stabilised at around 80% of GDP from 1994 onwards. In comparison, EU South's openness index registers values around 40% throughout the decade.

The second stylised fact concerns a very significant reorientation of Eastern trade from CMEA towards EU since the former collapsed in 1989 (Kaminski et al. 1996, Kaminski 2000). This phenomena was particularly noticeable in the case of the Czech and Slovak Republics (Hoekman and Djankov 1996). However, trade expanded faster with Western countries that are historically and geographically the CEECs natural trading partners, particularly Germany, which became the CEECs' most important trading partner (Figure 3). In addition, some regional partners assumed great importance, such as Austria for Czech Republic, Hungary and Slovakia, Sweden and Finland for the Baltic States and Italy for Bulgaria and Romania. EU North has exploited most of its trade potential with the East, while that of Southern countries has remained mostly unexploited (Baldwin 1995, Baldwin et al. 1997, Vittas and Mauro 1997). As a result, EU South and the East trade very little with each other but both sell 30-40% of their exports to the same core markets in EU North (Germany, Italy, UK, and to a lesser extent France).

[12] In countries with similar comparative advantage, intra-industry trade will predominate, but when comparative advantage differs between countries inter-industry trade is more important. Thus similar countries trade more in the presence of the intra-industry type (Linder hypothesis) but trade less when the inter-industry type predominates (Hechscher-Ohlin-Samuelson hypothesis). As a consequence, if economic distance decreases trade we are in the presence of the intra-industry type, whereas if it increases trade then the inter-industry type is predominant. In this sense, the impact of economic distance on trade is a test for intra versus inter-industry trade.

[13] The openness index is the ratio between the sum of exports and imports, and GDP $\left(\frac{X+M}{GDP} \right)$.

Third, each of the CEECs is running trade deficits towards the EU, with exports to the East increasing faster than imports from the East, particularly for "first wave" countries, who are more advanced in the liberalisation process (Figure 2). In 1991 the CEECs trade with EU was balanced, while EU South registered a deficit of about 4% of GDP. As liberalisation proceeded, the "first wave" group reached a deficit of almost 7% of GDP in 1997, whereas that value did not surpass 4% for the "second wave" group, as well as for EU South. The increasing deficits are due to a great extent to the fact that, though the Europe Agreements are based on the principle of asymmetry,[14] the EU granted concessions on products that are barely exported by the CEECs but kept barriers towards sensitive products, those in which the CEECs are supposed to have a comparative advantage. Within EU, only Portugal did not improve its trade balance with the East.

Fourth, 40 to 70% of the EU-CEECs trade is intra-industry. With EU North it is of the vertical type:[15] it happens mostly in products of different quality, the East selling low quality and the West selling high quality (Hoekman and Djankov 1996, Aturupane et al. 1997, Fontagne et al. 1998, Fidrmuc et al. 1999). With EU South it is of the horizontal type (Neven 1995). Since horizontal intra-industry trade is seen as an indicator of spatial concentration and similarity in factor endowments, this would seem to confirm that Eastern factor endowments are closer to EU South than to EU North.

Table 2 shows the Grubel-Lloyd and the marginal Grubel-Lloyd indices of intra-industry trade. The importance of the intra-industry type in EU-CEECs trade has been usually measured through the Grubel-Lloyd index (Cadot et al. 1995, Neven 1995, Hoekman and Djankov 1996, Aturupane et al. 1997, Fidrmuc et al. 1999, Fidrmuc 2000). This index is defined as follows:

$$\text{(GL) Grubel-Lloyd} = 1 - \frac{\sum_i |X_i - M_i|}{\sum_i X_i + M_i}.$$

with X and M exports and imports of sector i, respectively. The Grubel-Lloyd is kept here to facilitate the comparison with previous studies. In spite of being useful, it does not distinguish increases in inter-industry trade from intra-industry trade growth, that is, it does not account for trade imbalances. However, large trade

[14] The principle of asymmetry means that the most developed partner should reduce barriers faster than the least developed. In this case, the EU reduces barriers within five years, while the East does it in ten years.
[15] There are two types of intra-industry trade: horizontal (exchange of similar goods) and vertical (exchange of inputs for more processed outputs). Empirically, the two types are distinguished using the Greenaway et al. (1994) procedure based on the relative unit values of exports and imports.

imbalances are an important characteristic of Eastern trade. This problem is overcome by Brulhart's (1994) index of marginal intra-industry trade which is defined as follows:

$$\text{(MGL) marginal Grubel-Lloyd} = 1 - \frac{\sum_i |\Delta X_i - \Delta M_i|}{\sum_i |\Delta X_i| + |\Delta M_i|}.$$

This index was applied to EU North-CEECs trade by Hoekman and Djankov (1996), Aturupane et al. (1997), Fidrmuc (2000). It is identical to the Grubel-Lloyd, apart from the computation of exports and imports in differences instead of levels. Moreover, whenever there are trade imbalances, the Grubel-Lloyd value is higher than the marginal Grubel-Lloyd's. The difference is greater the greater is the trade imbalance. Accordingly, in this case the correction is greater for the "first wave" than for the "second wave" or the South, since the first registers the greatest trade imbalances.

Both indexes vary between 0 and 1 and give the share of intra-industry trade in total trade. Thus, a value of 0 means that there is no intra-industry trade and a value of 1 means that all trade is intra-industry. The share of intra-industry trade in the 1990s is 69% (48% corrected) in "first wave" East and 59% (41% corrected) in "second wave" East, the South being closer to the latter (56%, 39% corrected). Further, while the first Eastern group and the South have improved their intra-industry trade share as measured by the MGL from respectively 39% and 35% in 1990-92 to respectively 47% and 40% in 1996-98, in the second Eastern group it has decreased from 40% in 1990-92 to 35% in 1996-98. If intra-industry trade is seen as a sign of industrial development, then there has been a deepening of the disparity between the two Eastern groups.

Fifth, the 1990s redirection of Eastern trade was accompanied by a change in its product composition, namely a shift away from machinery and equipment towards labour-intensive goods (Figure 4). According to 1998 export shares, 30-40% of Eastern and Southern exports were concentrated in a few labour-intensive and sensitive sectors: textiles and clothing, furniture, non-metallic minerals, iron and steel, electric machinery, road vehicles.[16] While in the "first wave" group and in the South the importance of clothing declined during the 1990s, that of road vehicles rose. On the contrary, for the "second wave" group iron and steel continued to be an important sector and the share of clothing was still on the rise. In the three

[16] According to Kaminski (2000), in 1998 the export share of skilled labour and capital-intensive sectors was 50% for the "first wave" group and 30% for the "second wave" group. He argues that in the last years of the decade FDI has allowed some shift back to capital and high-tech intensive sectors away from labour intensive sectors. However, labour-intensive sectors still represent 50-70% of Eastern exports.

groups exports of clothing and road vehicles represent a large proportion of exports when compared with other sectors. The South has electric machinery in common with the “first wave” and textiles in common with the “second wave”. Inspection of historical trends prior to the socialist period shows strength in labour-intensive goods (CEPR 1990). Hence transition brought a return to the exploitation of an old comparative advantage rather than the creation of a new one.

Sixth, the CEECs followed a strategy of upgrading and differentiating "traditional" exports, relying on EU for inputs. This strategy was pursued in particular by the Czech Republic and Slovakia (Hoekman and Djankov 1996) and by Hungary (Kaminski 1999). It translates into an increase in the unit value of exports[17] of about 15% in the period 1990-96 (Figure 7). Even though the East started out from a very low quality level, there has been some catching-up with the South, as shown by the fact that the unit value of Southern exports has not on average increased in the 1990s (on the contrary, in 1996 it was about 5% below its 1990 level).

Data on resource endowments shows relative abundance of high quality human capital in the East due to the existence of a relatively highly educated workforce. This may tend to confer a comparative advantage in sophisticated high-tech industries rather than in more standardised labour-intensive production. Hence in the long run the relatively high endowment of human capital may result in an increased specialisation in human capital intensive products (CEPR 1990, Goldin 1996, Hamilton and Winters 1992). This observation, together with the fifth stylised fact, gives rise to a gap between the CEECs endowment in highly skilled labour and the labour-intensive factor content of their exports.

Two possible explanations can be suggested for that gap. One relates to the third stylised fact: if most trade is intra-industry then HOS does not apply and factor endowments do not matter anyway. Another is based on the observation that, even if human capital is relatively abundant, it is not market-oriented and thus it is economically useless. In fact, in the East there is an over-representation of research-skilled workers and a shortage of skilled production and commercial workers. Thus the Eastern comparative advantage will continue to lie in labour-intensive goods as long as the conversion of “rocket scientists" does not take place. [18] As a consequence, the Hamilton-Winters view that there are no strong grounds to fear that Southern producers of sensitive sectors such as clothing and footwear will lose from the Eastern enlargement may be questioned in favour of Neven’s competition argument. In the long run the degree of expansion of trade and

[17] The unit value of exports is the ratio between the value and the volume of exports. In the literature they constitute the usual proxy for quality, though obviously many factors influence their evolution, such as, for example, the exchange rates. As an illustration, in Figure 7 a slump is clear in 1992, with the ERM crisis and the consequent devaluation of both the peseta and the escudo. Eastern currencies were also affected, though to a lesser extent. Nevertheless, this would, if anything, understate the upward trend in Eastern unit values.
[18] On the issue of occupational change in transition economies see Campos and Dabusinskas (2001).

production that may take place in human capital intensive goods depends on the speed and success of the "marketisation" of the Eastern skilled labour force.

4 Sectoral issues[19]

The main drawbacks of the earlier studies on Eastern RCAs lie in the lack of a periphery versus periphery (East versus South) analysis and in the use of pre-transition data. Since the socialist period had led to a substantial misallocation of resources, the trade patterns of the late 1980s offered little guidance about the East's comparative advantage. By this time, the distortions introduced by the planning system had led the East to specialise in capital intensive goods. In the 1990s transition switched specialisation to labour intensive goods and created a gap between factor endowments and factor content of exports.

With respect to the latter, both the East and the South are exporting labour and raw material-intensive products, while the North exports mostly capital and human-capital-intensive products. Hence while the North would profit the most from trade liberalisation, the South would be expected to face increasing competition from the East thus having reasons to oppose the enlargement. On the contrary, if factor endowments provided a good indication to the patterns of trade, the East would export more human capital than the South. Hence Eastern RCAs in manufactures would lie higher up the ladder than those of the South. This implies that the South would have little to fear from the Eastern enlargement and that the growth of imports into the EU North would be less in the sensitive labour intensive goods (clothing, footwear) than in more sophisticated goods.

In this section we make explicit the East-South comparison and investigate to what extent the suggested similarity between Eastern and Southern specialisation and comparative advantage holds. The goal is to identify the product categories in which East and South are potential competitors or potential trading partners starting with a 2-digit SITC analysis and going up to 3-digit SITC. This is done by using both a sectoral version of Krugman's specialisation index (Hallet 2000, Midelfart-Knarvik et al. 2000a) and Balassa's (1965, 1977) revealed comparative advantage (RCA) index as corrected for intra-industry trade by Neven (1995). These indicators, as well as the data set used, are described next.

[19] The figures pertaining to this section's analysis represent group averages for the sake of simplicity and clarity of exposition. However, country data is available from the author upon request.

4.1 Data and indicators

The database used was extracted from the United Nations “Yearbook of International Trade Statistics”. The countries that make up the sample are divided into three blocs: Southern Europe (Greece, Portugal and Spain), “first wave” Eastern Europe (Czech Republic, Estonia, Hungary, Poland and Slovenia) and "second wave" Eastern Europe (Bulgaria, Latvia, Lithuania, Romania and Slovakia). The period covered is 1990-98, except for countries whose data is not available for the whole period.[20] The data used here possesses fewer distortions than that in most previous studies since it refers to the transition and trade liberalisation periods only. Some problems remain, however, since trade data does not control for inflation, exchange rate changes, relative price changes or for the trade barriers still remaining in EU-CEECs trade. In addition, only manufactured products (SITC 5-8) are considered, since agriculture is subject to the regime of CAP and was not included in the Europe Agreements. We start with a 2-digit analysis in chemicals (SITC 5), traditional manufactures (SITC 6+8), and transport equipment and machinery (SITC 7). We then proceed to a 3-digit analysis within these categories, giving special attention to the so-called "sensitive products": chemicals (SITC 5), textiles (SITC 65+84), iron and steel (SITC 67).

In order to identify the sectors that offer potential competition or opportunities in South-East trade we compute two indices. The first is the RCA index, initially introduced by Balassa (1965, 1977), and corrected for intra-industry trade by Neven (1995):

$$\text{Intra-industry corrected } RCA_i = \frac{\frac{X_i}{X} - \frac{M_i}{M}}{\frac{X_i}{X} + \frac{M_i}{M}}$$

where X_i and M_i are respectively exports and imports of sector i. Thus this index measures how much larger sector i’s export share is relative to its import share, that is, it measures how large the share of sector i in a country’s net exports is, weighted by the sum of the shares. The index varies between 1 and –1, the former indicating the maximum RCA and the latter meaning a maximum disadvantage. Values close to 0 are interpreted as a sign of predominance of intra-industry trade.

[20] Some of these countries came into existence after 1990 and thus their data set starts later: 1992 for Slovenia, 1993 for Czech Republic and Estonia, 1994 for Latvia, Lithuania and Slovakia.

The second index used in the analysis is a sectoral version of Krugman's (1991a) index of country specialisation given by:

$$K_i = s_i - \overline{s_i}$$

where s_i is the share of sector i in the total exports of a country and $\overline{s_i}$ is the average share of sector i in the total exports of all other countries in the sample. This means that the index is sample-dependent, that is, if the sample changes then the average share changes and as a consequence the index also changes. It must thus be seen as a measure of relative, not absolute, specialisation.

Krugman's index of specialisation is an entropic measure of concentration (or dispersion) around a mean and varies between 0 and 1. A value close to 0 indicates that a country is as specialised in sector i as the average country in the sample. A value close to 1 means that a country is a much stronger exporter of sector i than the average country in the sample, so that it differentiates itself from the others. In fact Krugman's index can be computed both from production or from trade data. Though the latter allows for greater disaggregation and is more easily available in a standardised way, specially for the East, care needs to be taken in interpreting its values, as trade flows are only an indirect measure of the underlying production structure. Obviously the same applies to RCAs.

4.2 2-digit analysis

As has been shown, during the transition period both East and South tended to be present in the same markets and in the same broad classes of products. An analysis of these products at the 2-digit level allows us to reinforce and withdraw several conclusions at both the geographical and the sectoral levels.

At the geographical level, transition and trade liberalisation created much more East-South competition in Northern markets than expanded South-East trade (or even East-East trade). This results in a Baldwin's (1994) style "hub-and-spoke" pattern, with the North as hub and South and East as competing spokes. In particular, Germany is a main trading partner of both South and East. Moreover, geographical distance is a major determinant of trade and neighbouring countries trade with each other independently of economic similarity. The German market is displaced from the top by markets adjacent to the exporting country, such as France in the case of Spain and Finland in the case of Estonia. The persistence of trade between the Baltic states and Russia, or between the Czech and Slovak Republics, are additional examples.

[21] Trade is also fostered by historical and linguistic ties, even when there is no common border. The importance of the Italian market for Romania provides a good illustration.

At the sectoral level, two possibilities could be found: (i) potential competition (sectors in which both South and East have RCA) and (ii) potential opportunities for the East (sectors in which the East has RCA but not the South). The opposite case, that is, sectors in which the South has an advantage but the East has a disadvantage, was not found. As a consequence, if opportunities exist for the South at the non-intra-industry trade level, they lie in obtaining cheaper Eastern imports and not in gaining the Eastern market. Types (i) and (ii) are listed in Table 3. Overall, the East is better positioned than the South in capital and technology intensive sectors, but both compete in the traditional manufactures. In addition, Eastern RCAs are on average higher in type (i) than in type (ii) sectors.

Export shares, RCAs and specialisations were computed both in levels (Top-5 in Figures 4-6) and in growth rates (not shown). The latter indicates the most dynamic sectors, those that may not yet have developed a significant importance or competitiveness, but that may develop it in the future. This aspect is particularly relevant in transition economies, where specialisation and competitiveness are still being build-up. The three measures overlap to some extent, placing traditional manufactures (textiles and clothing, wood and furniture), and transport equipment (road vehicles) in the top-5. These results are in accordance with previous studies, such as Hoekman and Djankov (1996), Aturupane et al. (1997) and Vittas and Mauro (1997), which found the greatest Eastern RCAs in traditional labour-intensive sectors. Moreover, the top-5 sectors are also among the most dynamic. The ranking of traditional manufactures (textiles and clothing, wood and furniture), and transport equipment (road vehicles) is fairly robust to the change of indicator. These sectors account for about 1/3 of total exports in both South and East. Further, the RCA analysis indicates that both groups are relative net exporters of clothing and footwear as well as wood and furniture.

However, the specialisation index shows a high share of clothing and road vehicles. There is really no contradiction here, since we are measuring two different aspects. The most competitive sectors may not necessarily be those in which a country is relatively more specialised. In this case, traditional manufactures are the most competitive, with an export share much higher than the import share. Yet, some countries (Portugal and Spain in the South, Slovenia and Slovakia in the East) show an export share in the automobile sector that is much above the average. Since the RCA index used here discounts intra-industry trade, it is fair to say that this type of trade accompanies the specialisation in the transport sector.

[21] The spectacular boost of Portugal-Spain trade following both countries accession to the former EC in 1986 is another example of the importance of sharing a border (see, for example, Silva Lopes 1996).

In sum, potential East-South competition presently lies mainly in traditional capital and labour-intensive manufactures (non-ferrous metals and clothing for Greece, clothing and footwear for Portugal, road vehicles for Spain). In the future to these may be added more R&D and technology intensive sectors, such as some chemicals (pharmaceuticals, perfume, cleaning and dying products), and telecommunications and sound equipment, which have registered high export growth but are still developing competitiveness. Potential opportunities for the East lie in capital and R&D-intensive sectors (precision instruments, photo and opticals, chemicals, industrial machinery). Potential opportunities for the South lie in obtaining cheaper imports from the East rather than in gaining the Eastern market.

Finally, the degree of progress in transition is on the whole proportional to the degree of foreign trade stability (Table 5). This result is due to the greater volatility shown by the "second wave" group in both RCAs and especially in markets. Two important explanatory factors of market volatility are the maintenance of a strong connection with Russia, in particular for the Baltic states and Bulgaria, and a higher macroeconomic instability, resulting in a higher real exchange rate volatility. In contrast, "first wave" countries, more advanced in transition, have well established markets. In addition, the smaller countries in the group, though showing a more volatile set of specialisations, are able to maintain a core of high RCA products.

Advances in transition reoriented Eastern trade to EU and changed the composition of exports from capital intensive (CEPR 1990) to labour intensive sectors.[22] These features gained permanence as transition proceeded and an overlap of Southern and Eastern trade arose in sensitive sectors (e.g., textiles and clothing, road vehicles, chemicals, iron and steel). Sensitive products constitute a significant fraction of economic activity in both the East and EU South and account for a very high proportion of Eastern exports. In the beginning of transition they were not among the East's most competitive sectors, not because of lack of underlying competitiveness, but due to high levels of EU protection (Rollo and Smith 1993). The progressive liberalisation of their trade was thus an important factor in the spurring of those specialisations. Thus it is not surprising that the "first wave" group, which has benefited from the liberalisation process for a longer period, has changed specialisations more and redirected them towards its competitive sectors.

[22] The South exhibits the opposite pattern, decreasing the labour intensity of its productions during the 1990s. Spain, the most advanced of the three, had developed a specialisation in transport equipment since the 1980s. Portugal followed the same path only recently, with clothing still the second most important export. Despite a GDP per capita higher than the Portuguese, Greece is less developed industrially, with exports based on clothing and textiles.

4.3 3-digit analysis

We have still been looking at more or less broad aggregates. However, to build up a more detailed picture of the relative potential for opportunities and competition between East and South, it is important to disaggregate the analysis further. On one hand, it is possible that within each 2-digit sector there are both competitive and non-competitive products. On the other hand, the degree of overlapping at 2-digits may well be decreased at a higher level of disaggregation. Though the initial goal was to reach the 4-digits SITC, 3-digits had to be used due to lack of consistently more detailed data for Eastern European countries, leading to a disaggregation-harmonisation trade-off. The sectors considered are all those listed in Table 3 plus chemical materials (SITC 59) and telecommunications and sound equipment (SITC 76). These two sectors, though not important in the present, have registered high growth rates in export share and RCA. Thus they may become part of a future Top-5.

The relevant 3-digit sectors are listed in Table 4. As expected, the RCAs shown at the 2-digit level are due to some 3-digit categories within the broader aggregates. Three possibilities arise in the 3-digit analysis: (i) potential competition (sectors in which both South and East show RCA); (ii) potential opportunities for the East (sectors in which only the East has RCA); (iii) potential opportunities for the South (sectors in which only the South has RCA). The last case did not occur at the 2-digit level, but can now be identified for a few products. These are textile floor coverings, engines and motors, headgear and non-textile clothing for Greece, miscellaneous chemical products and cut diamonds for Portugal, and TV receivers for Spain. Nevertheless, type (ii) sectors predominate relatively to type (iii). From this new group of sectors, “miscellaneous chemical products” and “TV receivers” arise from the introduction of the dynamic sectors; “floor coverings”, “diamonds” and “non-textile clothing” arise from the disaggregation at the 3-digit level of potentially competitive sectors in which the East lost the 2-digits RCA; “engines and motors” arises from the disaggregation of a 2-digit sector in which the South was overall non-competitive.

The East’s opportunities concentrate more strongly in the chemical sector, in some traditional manufactures (leather and furs, rubber, wood and paper products, knitted and woven man-made textiles, cement, glass and pottery) and in the most primary iron and steel products. At the 3-digit level there are also products that appear in group (ii) but that belonged to group (i) at the 2-digit level. The difference is due to the uncompetitiveness of the South in such 3-digit sub-sectors, even if it was competitive overall in the 2-digit sector. These 3-digit sub-sectors within the 2-digit sectors are the following:

- “perfume and cleaning” (perfumery and cosmetics);
- “leather and fur” (leather, leather manufactures, fur skins);
- “rubber” (materials and articles);
- “wood and cork” (veneers and plywood, wood manufactures);
- “paper and paperboard” (paper products);
- “textiles” (woven man-made fibers, other woven textile fabrics, knitted fabrics);
- “non-metallic minerals” (lime and cement, mineral manufactures, glassware, pottery);
- “iron and steel” (pig iron, primary forms);
- “metal manufactures” (tanks and boxes, nails and nuts);
- “metalworking machinery” (metalworking machinery);
- “electric machinery” (switchgear, transistors and valves, electrical machinery);
- “road vehicles” (motor vehicle parts, motorcycles, trailers and non-motor vehicles);
- “other transport equipment” (railway vehicles, ships and boats);
- “clothing” (non-knitted undergarments).

A significant number of products can be found in group (i), that of potentially competing products. Within these, the South is slightly ahead in RCA terms in knitted clothing (Greece), men’s outwear and electric machinery (Portugal) and cars and lorries (Spain). The East, though facing South’s potential competition, is better positioned in some chemical products (dying products and fertilisers), in some traditional manufactures (rubber tyres, paper and paperboard, textile yarn and cotton fabrics, refractory clay, more sophisticated iron and steel products, copper and aluminium, base metals, furniture, footwear and women’s outwear), and in metalworking machinery, household equipment and road vehicles.

According to the classification presented above, similar RCAs mean competition, whereas different RCAs allow for trading opportunities. However, this is not completely true in a world of differentiated products. Even if East and South export the same product varieties, they may not be competitors if their products are perceived as different, for example, through a different positioning in the quality ladder. This can be proxied by the unit value of exports: if two countries export to the same market the same product variety, but with significantly different unit values, then probably there are quality differences between their products. While in 1996 the unit value of Southern exports was 5% below its 1990 value, that of Eastern exports was 15% higher (Figure 7). Thus though the East started out from a lower quality level than the South, the “first wave” group is catching-up relative to the South.

In order to verify the extent to which the catching-up argument may hold we look at the export unit values of potentially competing products according to the RCA criterion (Table 6). The dispersion of a certain product's export unit value across countries, as given by the standard deviation, proxies for vertical differentiation among source countries.[23] The latter is especially relevant in consumer goods that are important for both groups, such as clothing and transport equipment. In this sense, the greatest possibilities of trade in vertically differentiated varieties of similar products arise in footwear and clothing. Within these, higher unit values proxy for higher quality. Accordingly, the "first wave" countries show higher export unit values, very close to those of the South, in clothing and footwear. The unit values of "second wave" countries are substantially lower. Hence there seems to be a case for competition for the Northern European market between South and at least "first wave" East in clothing and footwear. For other sectors (pigments and paints, tools, metalworking machinery, electric distributing equipment and aircraft), the disparity is also large, but with Eastern unit values falling far short of Southern ones.

5 Conclusions

The process of trade liberalisation with the CEECs has given rise to trade expansion for the EU as a whole. However, the effects of trade expansion with the East are unequally distributed both among and within EU members. It is a consensual conclusion of the studies on the Europe Agreements effects that higher gains accrue to central countries or regions, reflecting basically geographical proximity: neighbouring countries trade with each other independently of economic similarity. Accordingly, EU North is the main trading partner of both South and East. In turn, EU South includes the poorest parts of EU which are likely to compete most directly with the CEECs in the EU North markets for especially labour-intensive goods.

The degree of South-East competition thus depends on the overlapping of comparative advantages in labour-intensive sectors. In this respect two visions have arisen in the literature. The first, a long run vision based on factor endowments, concludes that the East has RCAs in human capital intensive sectors and thus is closer to EU North. The second, a short run vision based on trade flows, concludes that the East has RCAs in capital and labour intensive sectors, and hence is closer to EU South. According to the first vision, in the long run the South has nothing to fear from the Eastern enlargement. However, in the short run the

[23] This concept differs from the Armington (1969) assumption in that according to the latter products are different simply because they come from different countries, whereas here it is not the place of production per se that is important, but the fact that different countries may be producing the same product variety with differing quality standards. It is the quality level that matters.

second vision provides evidence to support the Southern concern of an unfavourable distribution of the gains from the Eastern enlargement due to increased competition from the East.

This paper tried to contribute to the clarification of whether and to which extent such fears are justified by conducting a tentative analysis of specialisation and comparative advantage that looks at both EU South and Eastern candidate countries as two spokes competing for the EU North hub, at least in the short run (Figure 8). Applying an intra-industry-corrected RCA index to 3-digit SITC sectors three possibilities arise: (i) potential competition (sectors in which both South and East show RCA); (ii) potential opportunities for the East (sectors in which only the East has RCA); (iii) potential opportunities for the South (sectors in which only the South has RCA).

The analysis carried out has led to a number of findings. First, the three measures used – export shares, Krugman's K and RCAs – show that East and South share similar competitiveness and specialisations in traditional manufactures (especially textiles, clothing and footwear, wood and furniture), and road vehicles. Specific sectors assume a particular importance for each Southern country, such as non-ferrous metals for Greece, footwear for Portugal and road vehicles for Spain. Overall Eastern RCAs in the competing sectors are higher both relative to the South and to those sectors in which only the East is competitive. The South is slightly ahead in RCA terms in knitted clothing (Greece), men's outwear and electric machinery (Portugal) and cars and lorries (Spain). The East, though facing South's potential competition, is better positioned in some chemical products (dying products and fertilisers), in some traditional manufactures (rubber tyres, paper and paperboard, textile yarn and cotton fabrics, refractory clay, more sophisticated iron and steel products, copper and aluminium, base metals, furniture, footwear and women's outwear), and in metalworking machinery, household equipment and road vehicles. Moreover, the most important sectors are also among the most dynamic, meaning that the present patterns are likely to hold in the future. A few R&D and technology intensive sectors, such as some chemicals (pharmaceuticals, perfume, cleaning and dying products), and telecommunications and sound equipment have registered high export growth but are still developing competitiveness.

Second, the East's opportunities concentrate more strongly in the chemical sector, in some traditional manufactures (leather and furs, rubber, wood and paper products, knitted and woven man-made textiles, cement, glass and pottery) and in the most primary iron and steel products. These sectors predominate relative to those in which the South has an advantage and the East has a disadvantage: textile floor coverings, engines and motors, headgear and non-textile clothing for Greece, miscellaneous chemical products and cut diamonds for Portugal, and TV receivers for Spain. This means that, if trade opportunities exist for the South, they lie in obtaining cheaper Eastern imports more than in gaining the Eastern market.

Third, among potentially competing sectors footwear and clothing register the highest dispersion of export unit values across countries, indicating significant quality differences among source countries, with higher unit values proxying for higher quality. Accordingly, the “first wave” countries show higher export unit values, very close to those of the South, in clothing and footwear. The unit values of “second wave” countries are substantially lower. Hence not only the South and “first wave” East are specialised and competitive in clothing and footwear, selling to the same markets in EU North, but also they achieve similar levels of quality as proxied by unit values. For pigments and paints, tools, metalworking machinery, electric distributing equipment and aircraft, the disparity in unit values is also large, but with Eastern unit values falling short of Southern ones.

Fourth, the degree of progress in transition is on the whole proportional to the degree of foreign trade stability. This result is due to the greater volatility shown by the “second wave” group in RCAs and especially in markets. Two important explanatory factors of market volatility are the maintenance of a strong connection with Russia, in particular for the Baltic states and Bulgaria, and greater macroeconomic instability, especially in real exchange rates. In contrast, “first wave” countries, more advanced in transition, have well established markets. In addition, the smaller countries in the group, though showing a more volatile set of specialisations, are able to maintain a core of high RCA products. The “first wave” group, which has benefited from the liberalisation process for a longer period, has changed specialisations more and redirected them towards its more competitive sectors.

The findings just presented seem to lend support to the competition vision, at least in the short run, but also leave the door opened to more opportunities in the longer run. This is possible because there is presently a gap between Eastern Europe’s factor endowments (relative abundance of human capital) and the factor content of its exports (relatively labour-intensive). Though in the short term the East may compete with South in labour-intensive sectors, due to low real wages and outdated capital, in the long run the abundance of human capital may allow specialisation in more sophisticated sectors as long as the transition is successful enough in providing both human capital with marketable characteristics and a renewal of the outdated physical capital stock. In the last respect the role of FDI will be crucial. Thus there is some potential for a significant impact of the Eastern enlargement by creating a tension between short term competition and long term opportunities for trade. Which of these forces will predominate depends greatly on the relative importance of comparative advantage, market size and trade costs as determinants of trade between the three blocs of Northern, Southern and Eastern Europe.

In this sense, a future direction of research will be the build-up of, and the derivation of empirical relationships from, a periphery versus periphery NEG model along the lines of Figure 8. This model will

incorporate some aspects missing in the present paper. First, it will allow a more complete analysis of the impact of the Eastern enlargement on Southern Europe at several levels: changes in sectoral production quantity and location, changes in aggregate industrial production and changes in welfare. Second, it will be able to accommodate FDI, which is now an important factor of change in Eastern specialisation and competitiveness, as it was for the Southern economies when these acceded to EU. Third, it will also show both the impact of the enlargement on the rest of the world and the impact of worldwide trade liberalisation on an enlarged EU. In this respect it is particularly relevant the modelling of WTO's Agreement on Textiles and Clothing (which replaced GATT's Multifiber Agreement in 1995). The implementation of this agreement in the 1995-2004 period will greatly influence the world trade of textiles and clothing, an important sector in the East-South relationship.

Finally, at the empirical level, attention will be paid to the estimation of the East-South trade potential through a gravity model. This procedure is important to determine whether the present low level of East-South trade is due to short run factors or if it is a long run tendency. Several improvements relative to previous studies will be introduced here: an East-South analysis, the use of transition data only, a more correct econometric formulation, and the use of both economic and geographic distances by means of a geographically weighted regression.

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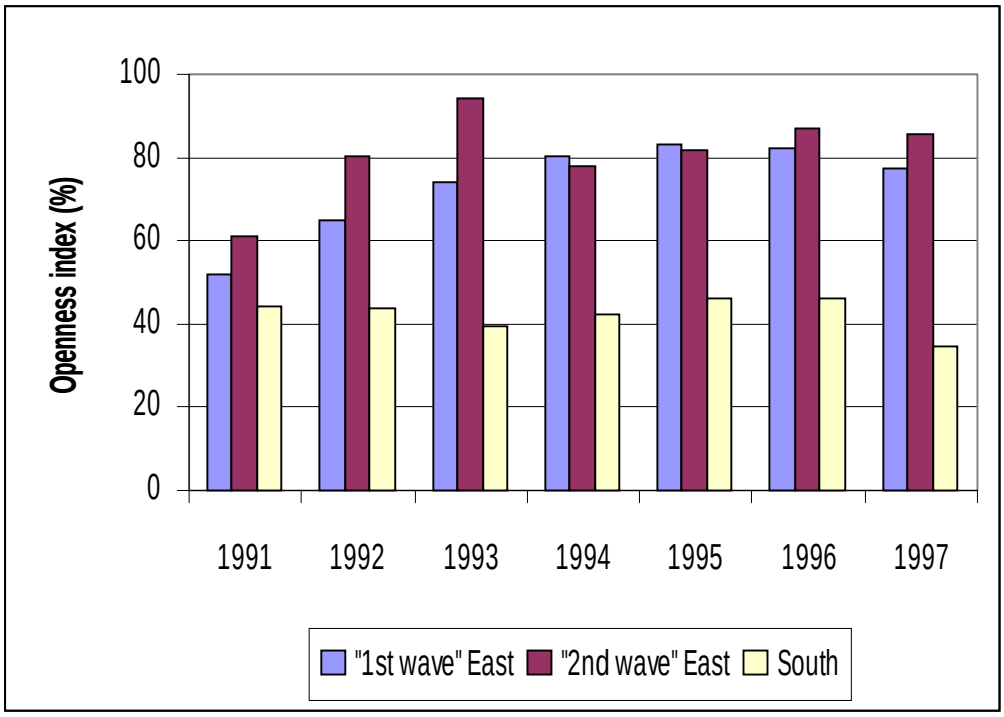
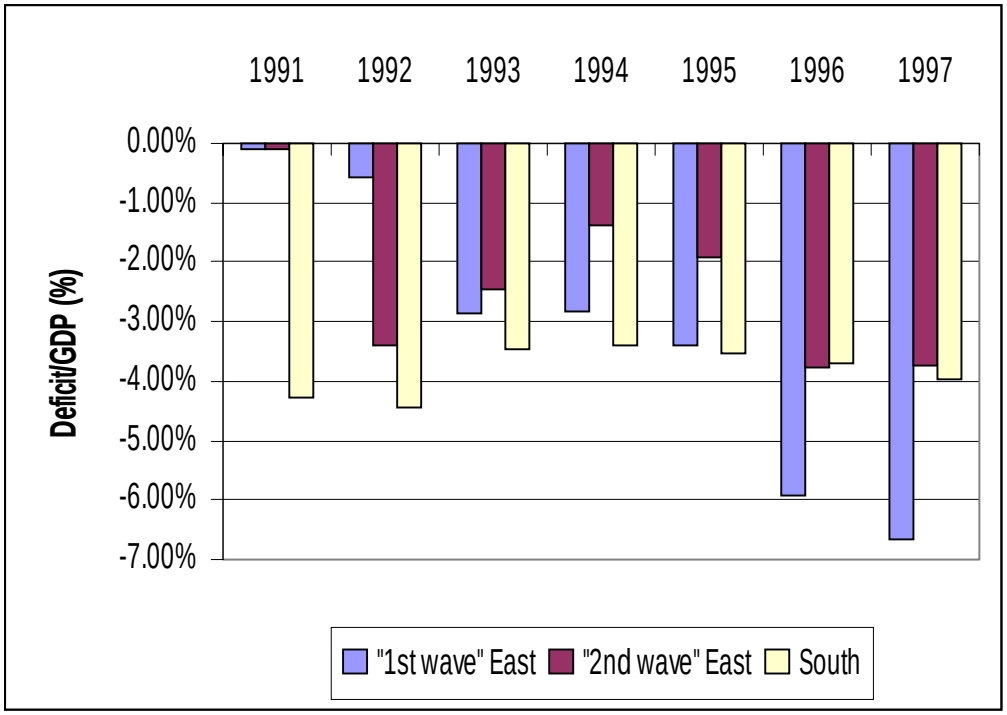
Figure 1: Openness index during the transition period (1991-97)



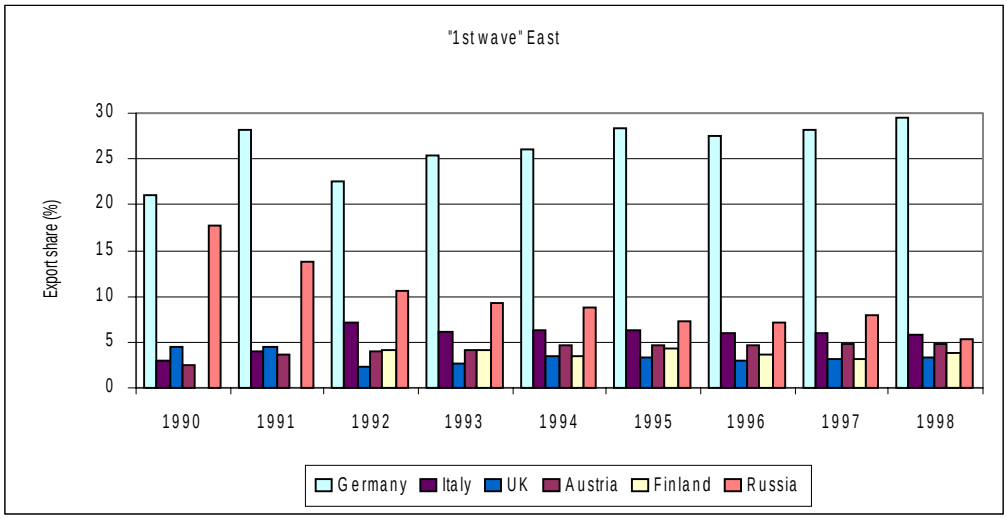
Note: Author's own calculations from the United Nations Yearbook of Trade Statistics, IMF International Financial Statistics Yearbook and EBRD Transition Report.

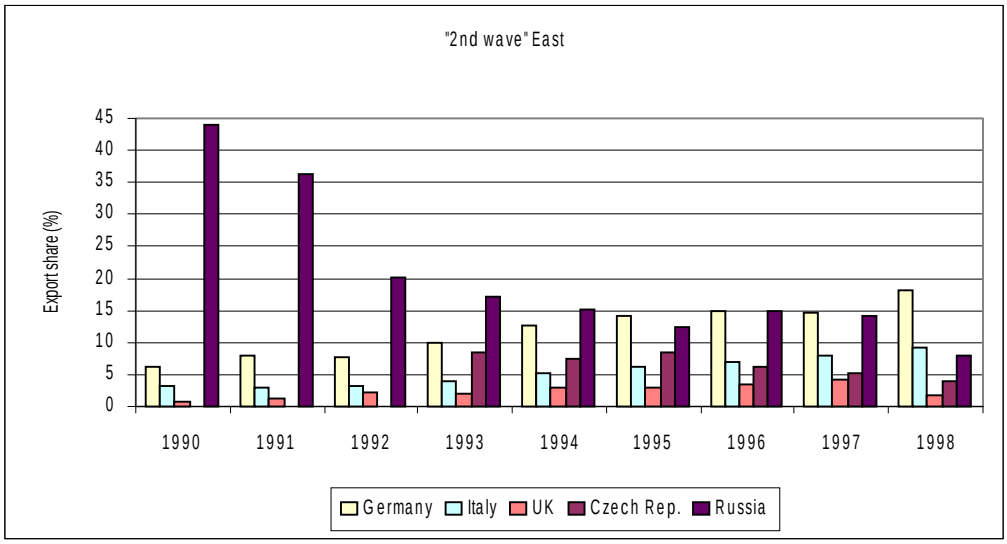
Figure 2: Trade balance with EU as percentage of GDP (1991-97)

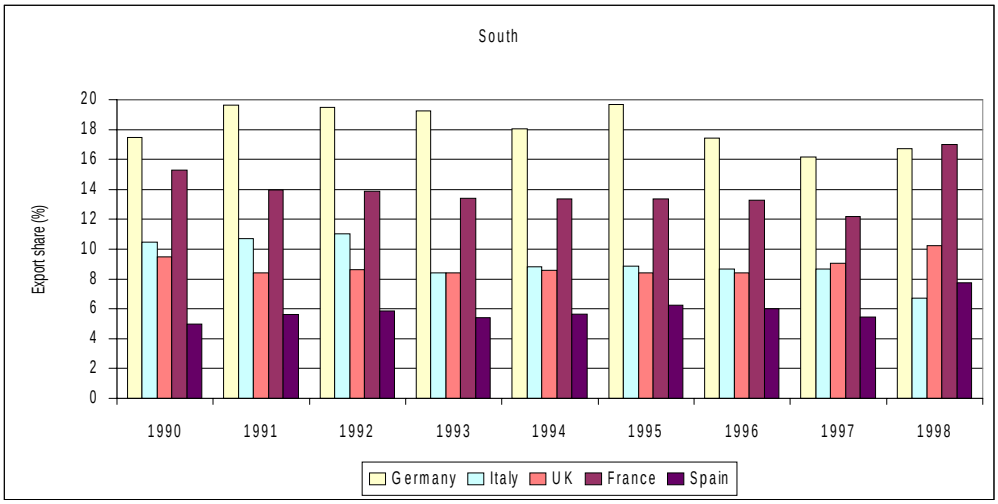


Note: Author's own calculations from the United Nations Yearbook of Trade Statistics, IMF International Financial Statistics Yearbook and EBRD Transition Report.

Figure 3: Trade reorientation in the transition period (1990-98)

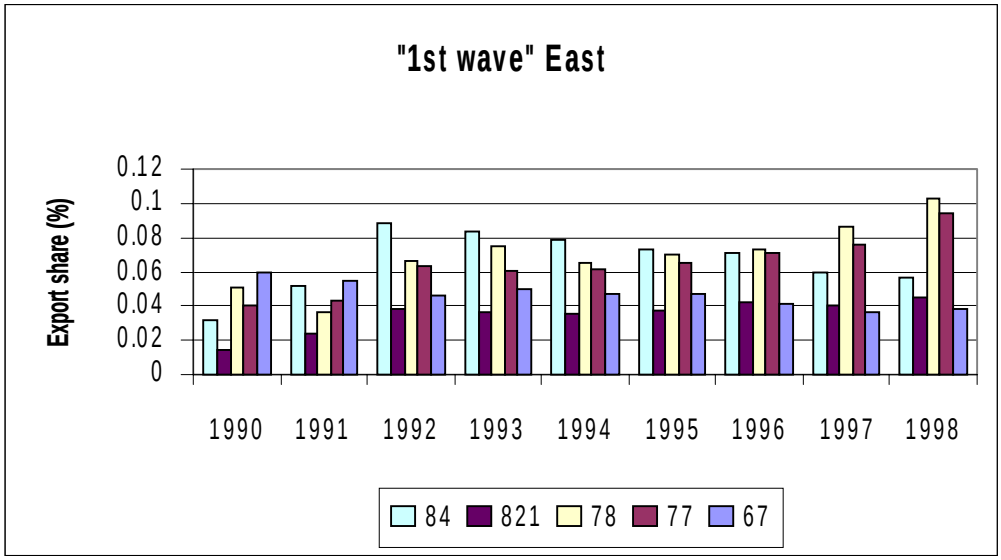


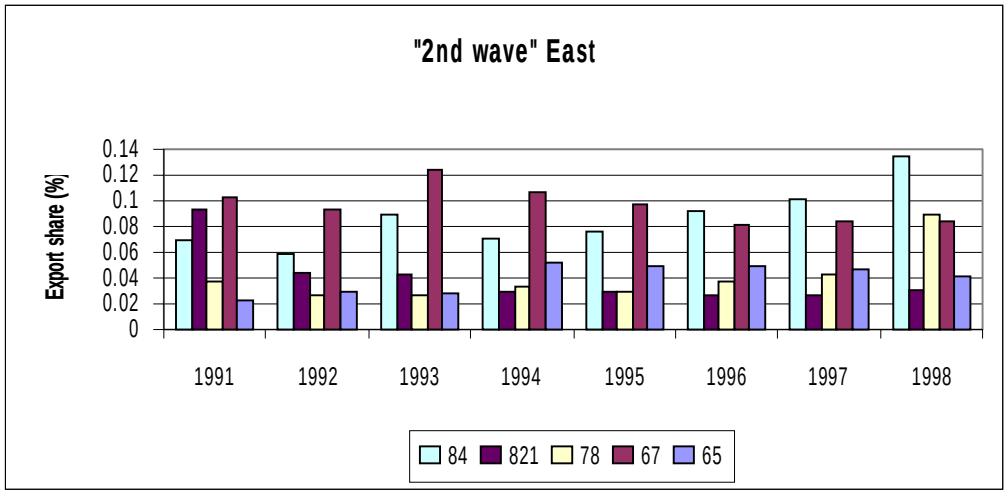


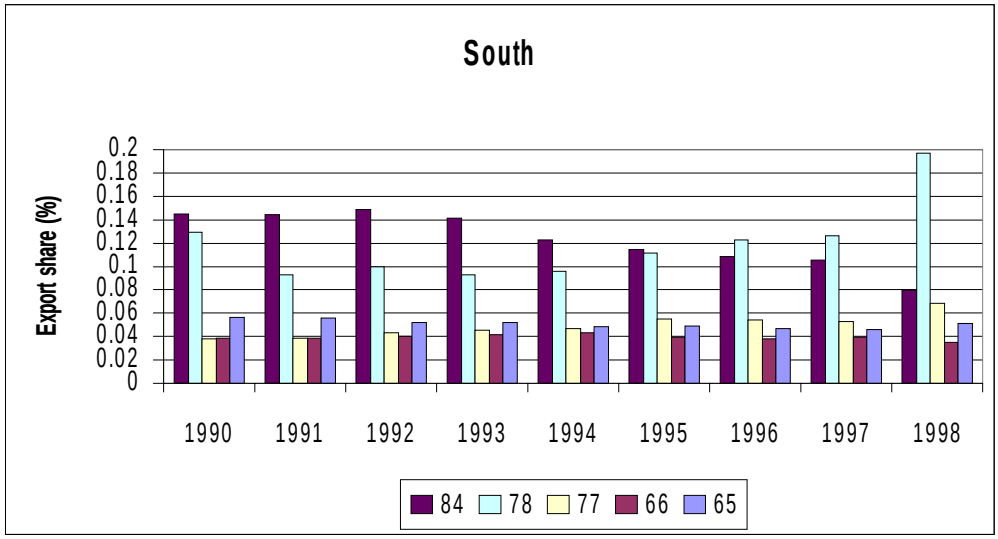


Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.

Figure 4: Trade composition in the transition period (1990-98)

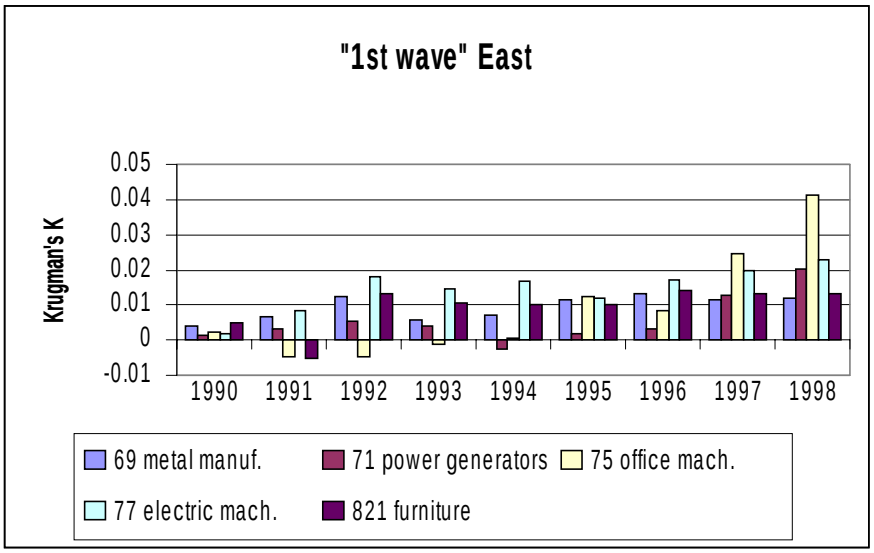


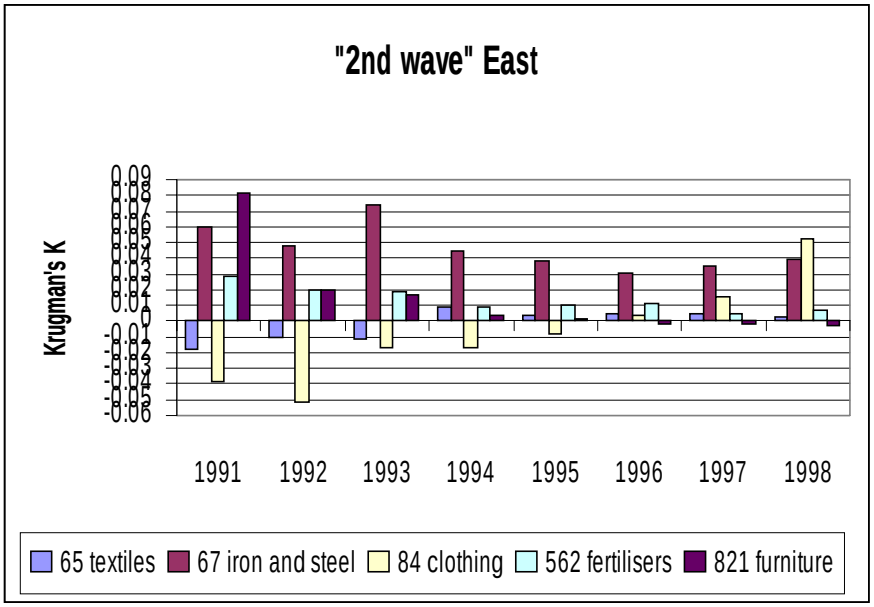


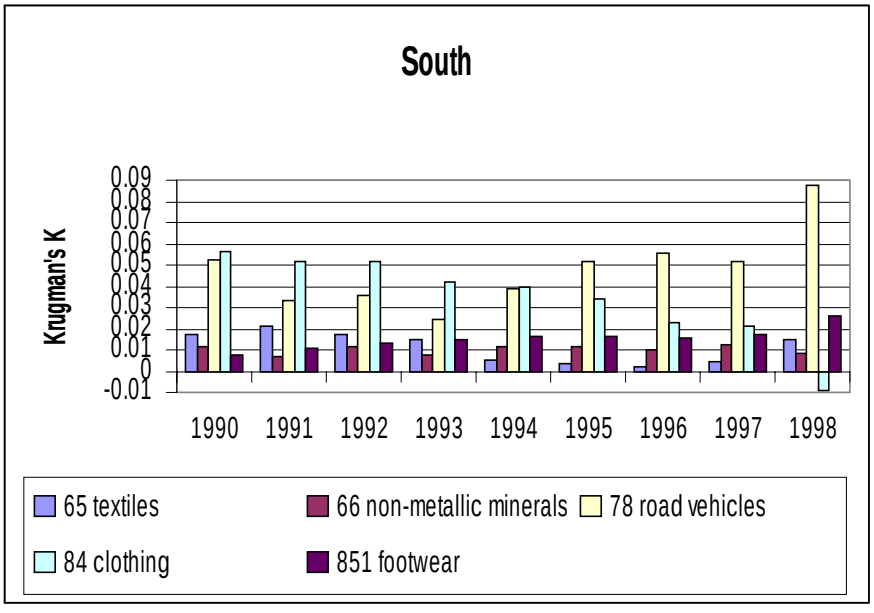


Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.

Figure 5: Evolution of specialisations in the transition period (1990-98)

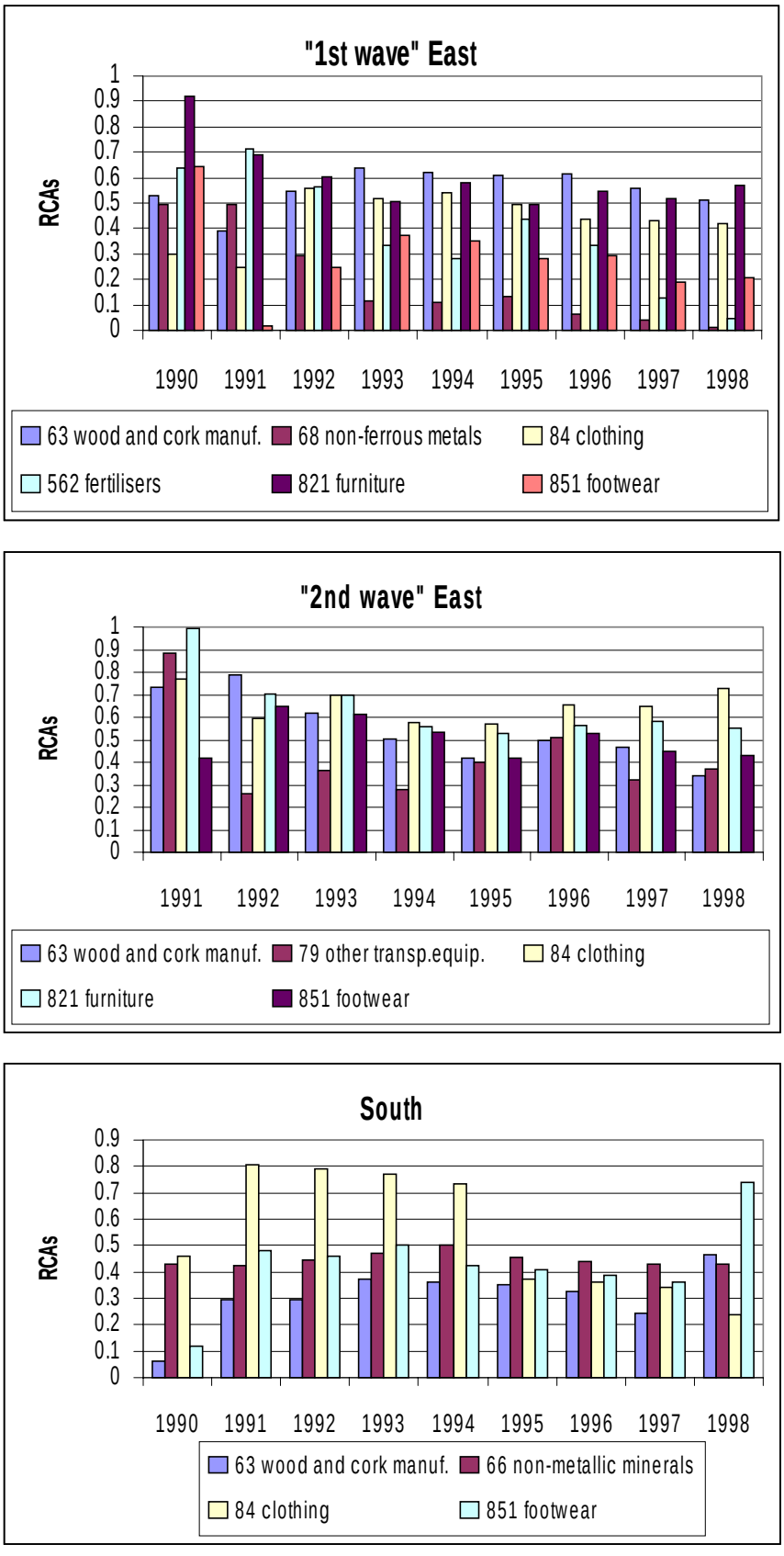






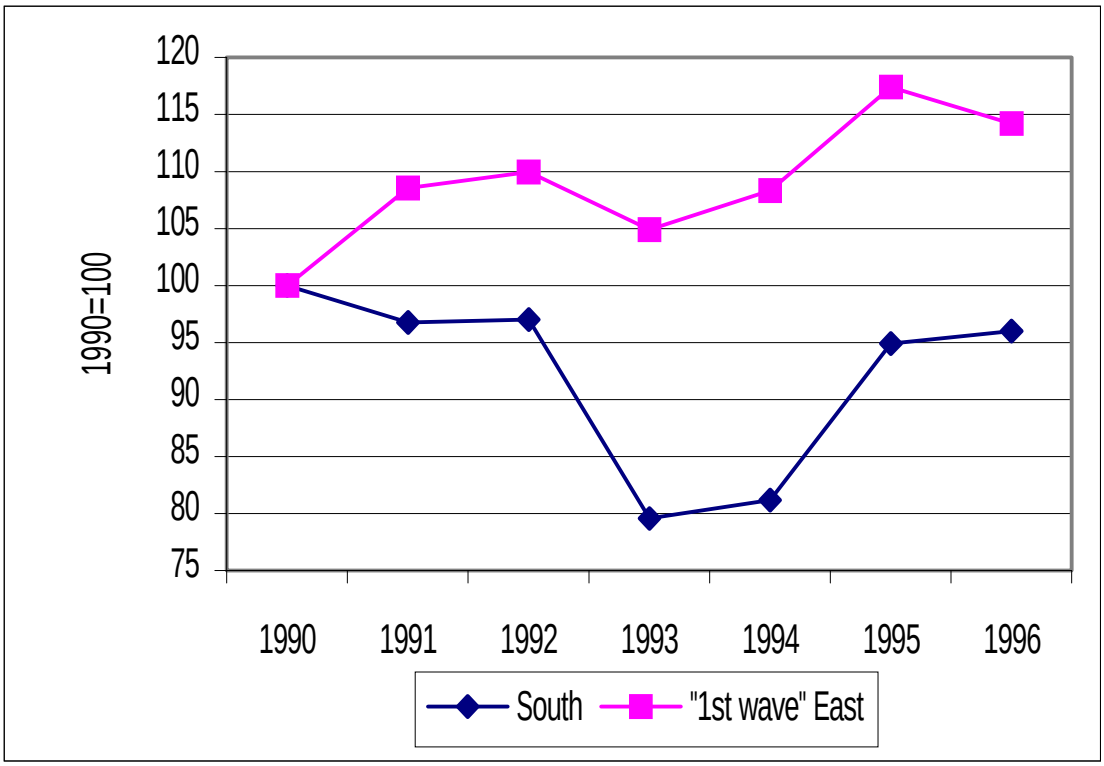
Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.

Figure 6: Evolution of RCAs in the transition period (1990-98)



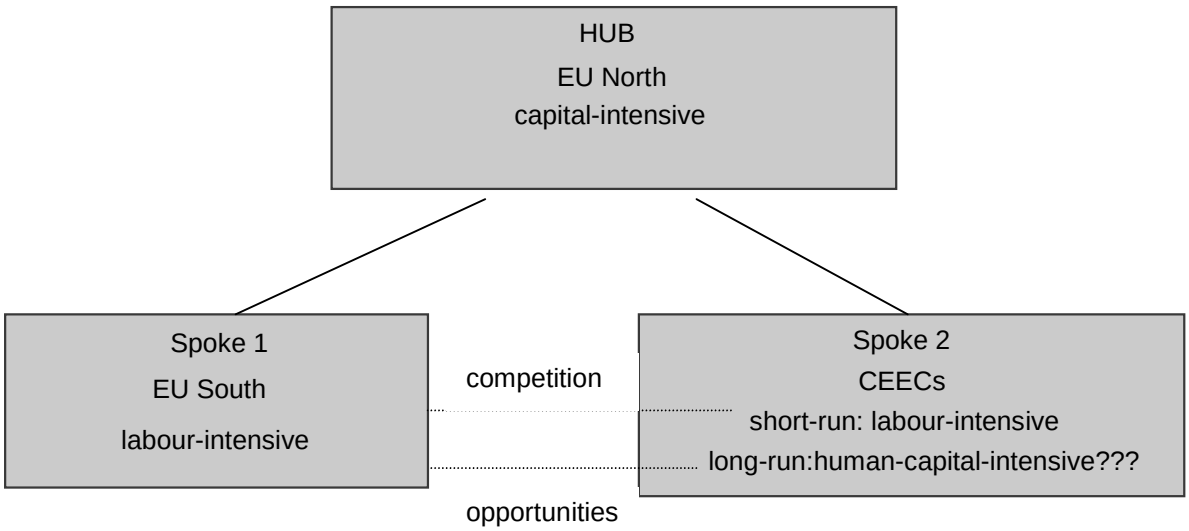
Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.

Figure 7: Export unit values in the transition period (1990-96)



Source: IMF International Financial Statistics Yearbook.

Figure 8: Hub and Spoke Pattern



Note: Author's own synthesis.

Table 1: Current free trade agreements among CEECs

Multilateral free trade areas	Bilateral free trade agreements
▪ CEFTA (Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Slovenia) ▪ Baltic FTA (Estonia, Latvia, Lithuania)	▪ Czech Republic/Estonia ▪ Czech Republic/Latvia ▪ Czech Republic/Lithuania ▪ Czech Republic/Slovak Republic ▪ Hungary/Latvia ▪ Hungary/Lithuania ▪ Poland/Latvia ▪ Poland/Lithuania ▪ Slovak Republic/Estonia ▪ Slovak Republic/Latvia ▪ Slovak Republic/Lithuania ▪ Slovenia/Estonia ▪ Slovenia/Latvia ▪ Slovenia/Lithuania

Source: Adapted from WTO Annual Report 2001, p.38.

Table 2: East-South intra-industry trade (period averages)

	"1st wave" East		"2nd wave" East		South	
	GL	**MGL**	**GL**	**MGL**	**GL**	**MGL**
1990-92	0.66	0.39	0.55	0.40	0.51	0.35
1993-95	0.66	0.52	0.60	0.47	0.56	0.41
1996-98	0.71	0.47	0.57	0.35	0.61	0.40
1990-98	0.69	0.48	0.59	0.41	0.56	0.39

Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.
The initials GL and MGL refer respectively to the indices Grubel-Lloyd and Marginal Grubel-Lloyd.

Table 3: 2-digit SITC sectors where at least one of the East and South groups is competitive according to RCAs (1990-98 average)

RCAs in both East and South	RCAs in East but not in South
53 dying products	51 organic chemicals
55 perfume and cleaning	52 inorganic chemicals
562 fertilisers	541 pharmaceuticals
61 leather and fur	58 plastic materials
62 rubber manuf.	71 power generators
63 wood and cork manuf.	74 general industrial mach.
64 paper and paperboard	87 precision instruments
65 textile yarn and fabrics	88 photo and opticals
66 non-metallic minerals	89 misc. manuf.
67 iron and steel	
68 non-ferrous metals	
69 metal manuf.	
73 metalworking machinery	
77 electric machinery	
78 road vehicles	
79 other transport equipment	
812 plumb./heat./light. equip.	
821 furniture	
84 clothing	
851 footwear	

Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.
All 3-digit sectors replace inexistent 2-digit ones.

Table 4: 3-digit SITC sectors where at least one of the East and South groups is competitive according to RCAs (1990-98 average)

RCAs in both East and South	RCAs in East but not in South	RCAs in South but not in East
533 pigments and paints	511 hydrocarbons	598 miscellaneous chemical products
562 fertilisers	512 alcohols and phenols	659 floor coverings
625 rubber tyres and tubes	514 nitrogen compounds	667 pearls/prec./semi-prec. stones
641 paper and paperboard	515 organic-inorg compounds	714 engines and motors
651 textile yarn	522 inorg elements/oxides	761 television receivers
652 cotton fabrics, woven	523 other inorg chemicals	848 headgear/nontextile clothing
657 special textile fabrics	541 pharmaceuticals	
658 textile articles	553 perfumery and cosmetics	
662 refractory clay	582 products of condensation	
664 glass	583 polymerisation products	
673 iron and steel shapes	592 starch/insulin/gluten	
674 iron and steel plates/sheets	611 leather	
678 iron and steel tubes/pipes	612 leather manufactures	
682 copper	613 fur skins tanned/dressed	
684 aluminium	621 materials of rubber	
691 metal structures and parts	628 rubber articles	
695 tools	634 veneers and plywood	
697 base metal househ. equip.	635 wood manufactures	
699 base metal	642 paper products	
736 metalworking mach.tools	653 woven man-made fibers	
771 electric power machines	654 other woven textile fabrics	
773 electric distributing equip.	655 knitted fabrics	
775 household type equip.	661 lime and cement	
781 pass.vehicles excl.buses	663 mineral manuf.	
782 lorries	665 glassware	
783 road vehicles	666 pottery	
792 aircraft	671 pig iron	
812 plumb./heat./light. equip.	672 iron/steel primary forms	
821 furniture	692 metal tanks and boxes	
842 men outwear not knit	694 nails and nuts	
843 women outwear not knit	716 rotating electric plant	
845 outwear knit non-elastic	718 other power generating machines	
846 under garments knitted	737 metalworking machinery	
851 footwear	744 mechanical handling equip.	
	764 telecom. equip.	
	772 switchgear	
	776 transistors and valves	
	778 electrical machinery	
	784 motor vehicle parts	
	785 motorcycles	
	786 trailers and non-motor vehicles	
	791 railway vehicles	
	793 ships and boats	
	844 under garments not knit	
	873 meters and counters	
	892 printed matter	
	894 toys and sporting goods	
	896 works of art	
	898 musical instruments	

Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.

Table 5: Volatility of market and product export shares, specialisations and RCAs

	1st wave	2nd wave	South
(1) Export share (%)	**5.4**	5.0	5.0
(2) Krugman's K	**7.6**	5.0	6.0
(3) RCAs	5.6	**6.0**	5.0
(4) = (1) + (2) + (3) Product volatility index	**17.0**	16.0	16.0
(5) Market volatility index	3.8	**5.8**	3.7
(6) = (4) + (5) Joint volatility index	20.8	**21.8**	19.7

Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.
The procedure of construction of the volatility indexes was based on the number of products and markets in the 1990-98 Top-3. For each year in the 1990-98 period and each country in the sample the three highest export shares, Krugman's Ks or RCAs were listed. The number of different products or markets in the list gave the index value for each country. Its group average is given in the table.

Table 6: Export unit values by 3-digit sector (1990-98 average)

	1st wave	2nd wave	South	Standard deviation
533 pigments and paints	2.22		10.03	3.91
652 cotton fabrics, woven	7.06	4.02	5.30	1.52
695 tools	7.43		13.91	3.24
697 base metal househ. equip.	1.88	2.07	4.83	1.65
699 base metal	2.09		3.74	0.83
736 metalworking mach.tools	5.09	2.62	10.29	3.62
771 electric power machines		13.69	10.31	1.69
773 electric distributing equip.	7.13	8.14	10.79	3.71
781 pass.vehicles excl.buses	7.57		8.85	0.64
782 lorries	3.91		7.20	1.65
792 aircraft	68.48		334.15	132.84
812 plumb./heat./light. equip.	2.91	2.10	3.68	1.31
821 furniture	2.83	1.60	4.63	1.35
842 men outwear not knit	33.02	11.10	30.46	11.44
843 women outwear not knit	29.71	12.77	35.63	11.01
845 outwear knit non-elastic	23.52	14.53	23.87	7.57
846 under garments knitted	23.34	13.88	24.00	7.58
851 footwear	15.87	8.76	21.69	6.31

Note: Author's own calculations from the United Nations Yearbook of Trade Statistics.