

# The Evolution of Foreign Trade and Comparative Advantage in Transition Economies

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*Articolul prezintă în prima parte evoluția relațiilor comerciale ale țărilor din Europa Centrală și de Est în timpul tranziției spre economia de piață, folosind date cu privire la comerțul exterior cu bunuri materiale și gradul de deschidere internațională a acestor țări în perioada situată între 1990 și 2003. A doua parte a lucrării reprezintă o analiză a predicțiilor realizate cu ajutorul unui model CGE1 referitor la schimbarea avantajului comparativ în exporturile acestor țări, comparând predicțiile cu date recente. În acest context, se pune analizează posibile răspunsuri la întrebarea: în ce măsură se reflectă succesul reformelor economice din țările Europei Centrale și de Est în structura prezentă a avantajului lor comparativ.*

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JEL Classification: R12 and F14

The trade collapse story

The transition from planned to market economy in the former communist countries of the Central and Eastern Europe has seen one of the most dramatic declines in output as well as trade collapses in the history. While still a controversial issue among economists, the explanation of this deterioration of foreign trade seems to rely strongly on the dissolution of the Council for Mutual Economic Assistance (CMEA) which had previously organized the clearing exchange system inside the communist block. More importantly, the CMEA dissolution was followed by the disintegration of the Soviet Union, the main trading partner in the CMEA network.

Data shows that the trade collapse did not arise at the same time in the transition countries and did not have a comparable magnitude (Table 1).

Table 1. Trade collapse in the transition economies

| Country  | The size of the collapse | Timing |
|----------|--------------------------|--------|
| Bulgaria | 70%                      | 1990   |
| Hungary  | 87%                      | 1993   |
| Poland   | 97%                      | 1992   |

<sup>1</sup> Forslid et al., 2002

|                            |     |      |
|----------------------------|-----|------|
| Romania                    | 36% | 1991 |
| Estonia                    | 30% | 1993 |
| Latvia                     | 16% | 1994 |
| Lithuania                  | 21% | 1994 |
| Moldova                    | 25% | 1994 |
| Russia                     | 37% | 1994 |
| Ukraine                    | 28% | 1994 |
| Source: Kierzkowski, 20001 |     |      |

According to Table 1 data, it seems that the reform speed, either gradual or big-bang style was not a very relevant factor in influencing the size of the trade collapse. Production and trade dropped severely irrespective of the macroeconomic policies put into operation. The disintegration of the planned trading system was more profound than initially expected and it has also reflected a structural and institutional chaos. Consequently, it appears that an increasing dependence of a given country on the CMEA system was an important determinant of the severity of the trade collapse.

## 1.2 The opening up to international freer trade

The consequence of the severe breakdown in the former intra-CMEA trade was the quite quick shift of reformers' trade flows towards the European Union, the geographically close and "natural trade partner" (Kierzkowski, 2000). The decision to open up the transition economies to the capitalist world did not face any resistance as most of the partners of the clearing system were dealing with serious supply shortages. Once the planned structure abandoned, the intra-CMEA trade saw a one-off contraction given transition countries rejection of one another's products and prices. There was a new opportunity to sell the old products for the right price, hopefully a better one, and for hard currency only<sup>2</sup>.

Simultaneously, this process was accompanied by an important change in the domestic demand structure towards more sophisticated and higher quality western goods previously unavailable.

The domestic supply side, faced with overcapacity and increasingly inconvenient reliance on bureaucratic instructions for input sourcing and product disposal, tended to react by extending the productive capacity down the supply chain to secure against the more and more common interruptions to component deliveries and payments in the chain. This kind of agglomeration on the production side proved to be exactly contrary to a more desirable adjustment of the supply to meet the suddenly released demand. Arrears accumulated together with inventories which made trade come to an almost standstill. It follows that countries with higher production capacities have suffered more.

<sup>1</sup> quoting Brenton and Gross, 1997

<sup>2</sup> Blanchard et al., 1994

Viewing the problem from this angle, the frontrunners of transition could not have done differently but to reorient away from the troubled economy of the former Soviet Union towards the higher and more steady Western European revenues. Nevertheless, the low quality of the goods produced by the transition economies and the lack of marketing experience acted against this reorientation and resulted initially in a drastic reduction of most of the exports originated in the ex-communist countries. Here again, countries like Poland, Hungary, The Czech Republic and Slovakia (Czechoslovakia then) benefited from gains in terms of experience from the earlier trade relations with the west (please see Table 2).

Perhaps just as strong as the economic argument, there was the case of a great political commitment away from the old communist structures and towards the European Union. While some saw this rapprochement as an anchor to the desired market economy system, it is clear that it was also the result of the democratic vote of the peoples residing in the Eastern half of an unnaturally divided European continent during the Cold War.

As we have already seen, European Unions answer was positive, initially taking the form of the Europe Agreements, bilateral commercial arrangements meant to guide a gradual opening up of the former planned economies to EU products and vice versa. The final step of this process was the largest European Union enlargement in the history with the accession of most of the East and Central European transition economies.

### 1.3 Trade diversification and reorientation in the transition economies

Unlike in the trade collapse case, the diversification and reorientation of the trading relations of the transition economies did depend significantly on the timing of the reforms and their degree of accomplishment. Indeed, the trade reorientation started earlier and is more noticeable for the advanced reformers. Geographical proximity, as well as reduced regional interdependence on the former Soviet Union were additional conducive factors to improved export performance in the EU-15 market as discussed earlier. Central Eastern European transition economies generally had a more diversified pattern of trade across partners as they began to loosen ties with the USSR before 1990. The share of exports with the USSR in 1990 was already as low as 20% for Hungary and 15% for Poland. For the rest of the successfully reforming countries, there was a remarkable shift in the share of exports destined to the former USSR from an average of 80% to less than 50% in most of the cases.

The shift from the former trading partners towards the EU-15 was also reflected in significant changes of comparative advantage as molded by demand and terms of trade effects. This can be illustrated by comparing revealed comparative advantage indices from the early 1990's with the most recent trade structure. Technically Balassa type indices (Revealed Comparative Advantage indices; eq (1)) have been calculated to build up Spearman correlation coefficients (1993 compared to 2003). These correlation coefficients give a country-specific measure of the change in comparative advantage over the proposed time span.

Table 2. The restructuring of trade relationships in the transition economies in the Central and Eastern Europe

| Share (%) of exports to the former trading partners in the ex-communist block | 1990 | 1992 | 1994 | 1996  | Share (%) of exports to the EU in 1996 |
|---|------|------|------|-------|--|
| Advanced reformers- averages  | 21.8 | 10.9 | 8.1  | 9.0   | 57                                     |
| Czech Republic  | 25.9 | 10.6 | 5.7  | 5.5   | 58                                     |
| Hungary   | 20.2 | 13.1 | 10.2 | 9.4   | 63                                     |
| Poland  | 15.3 | 9.2  | 9.3  | 13.9  | 66                                     |
| Slovakia  | 25.9 | 10.6 | 7.0  | 7.3   | 41                                     |
| High intermediate reformers   | 70.7 | 28.6 | 34.2 | 33.7  | 44.8                                   |
| Bulgaria  | 47.1 | 23.2 | 11.8 | 20.1  | 40                                     |
| Estonia   | 94.3 | ...  | 44.0 | 39.0  | 51                                     |
| Latvia  | 95.5 | 48.8 | 50.8 | 47.5  | 44                                     |
| Lithuania   | 91.4 | ...  | 57.7 | 56.8  | 33                                     |
| Romania   | 25.2 | 13.9 | 6.6  | 5.3   | 56                                     |
| Low intermediate reformers  | 78.5 | 70.8 | 48.7 | 48.65 | 21.5                                   |
| Russia  | 64.4 | ...  | 24.3 | 22.9  | 33                                     |
| Moldova   | 92.5 | 66.6 | 73.1 | 74.4  | 10                                     |
| Late reformers  | 85.4 | 61.2 | 50.6 | 59    | 10                                     |
| Ukraine   | 81.8 | 53.1 | 38.4 | 43.1  | 10                                     |
| Belarus   | 88.9 | 69.4 | 62.8 | 74.7  | 10                                     |

Source: Havrylyshyn and Al-Atrash, 1998

The Spearman rank ordered correlation coefficient is a non-parametric statistic often used to test for the independence between two random variables. It is ranged between (-1 ; +1). A value close to +1 indicates strong positive rank correlation, while a value of zero indicates a lack of rank correlation. In the case of the present analysis, a high rank correlation will be taken as evidence of little change in the country's comparative advantage across the 48 industrial sectors considered. Conversely, a low coefficient will indicate that the ranking has changed considerably, suggesting a radical structural change.

$$BALASSA = \frac{\frac{X_{sector}^{country}}{X_{all}^{country}}}{\frac{X_{sector}^{group}}{X_{all}^{group}}} \quad 1 \quad (1)$$

<sup>1</sup> The Balassa index relates positively to a country's specialization in a particular sector as compared to the reference group performance. Here the reference group includes all the 33 countries mentioned in the table. The export data is taken from the COMTRADE database ISIC Rev.3 classification at 2 digits for 48 sectors.

The results of the Spearman correlation coefficient are shown in Table 3, with countries grouped according to the criteria of being or not EU-15 countries and sorted in increasing order of the stability in their industrial specialization structures.

Table 3. Spearman rank correlation coefficients (1993 to 2003)

| Transition countries   | Spearman coefficient (1993 compared to 2003) | EU 15 members       | Spearman coefficient (1993 compared to 2003) | Other European countries | Spearman coefficient (1993 compared to 2003) |
|------------------------|--|---------------------|--|--------------------------|--|
| Latvia                 | 0.327508                                     | Portugal            | 0.736648                                     | Iceland                  | 0.881676                                     |
| Bulgaria               | 0.511941                                     | Spain               | 0.741967                                     | Switzerland              | 0.9302                                       |
| Hungary                | 0.537668                                     | Austria             | 0.757382                                     | Norway                   | 0.947677                                     |
| Czech Republic         | 0.544616                                     | Belgium+ Luxembourg | 0.766175                                     |                          |  |
| Croatia                | 0.584672                                     | Netherlands         | 0.861594                                     |                          |  |
| Bosnia and Herzegovina | 0.607143                                     | Greece              | 0.872775                                     |                          |  |
| Poland                 | 0.639383                                     | Finland             | 0.889492                                     |                          |  |
| Ukraine                | 0.658815                                     | Denmark             | 0.894811                                     |                          |  |
| Cyprus                 | 0.667607                                     | United Kingdom      | 0.899696                                     |                          |  |
| Lithuania              | 0.681937                                     | Italy               | 0.907729                                     |                          |  |
| Estonia                | 0.68617                                      | Germany             | 0.927269                                     |                          |  |
| Serbia and Montenegro  | 0.6967                                       | Ireland             | 0.935736                                     |                          |  |
| Romania                | 0.748697                                     | Sweden              | 0.944095                                     |                          |  |
| Slovakia               | 0.75825                                      | France              | 0.949088                                     |                          |  |
| Slovenia               | 0.831198                                     |                     |  |                          |  |
| Malta                  | 0.879505                                     |                     |  |                          |  |

Source: COMTRADE database and own calculations

This kind of analysis relies heavily on the type of classification of the industrial activities. While it would be predictable that more efficient reformers register lower

Spearman coefficients, indicative of a more profound change of their product-wise export structure, this might not always be the case as changes have certainly occurred horizontally, within the same sectoral aggregations and not only vertically, between the groupings.

Notwithstanding the above mentioned caveat, it is apparent from the Spearman calculations that the ex-communist countries have went through significantly higher changes in their export product structure than their more developed European counterparts.

Ultimately, in the ex-communist countries case, the Spearman coefficients shown above are a measure of the inefficiency of the 1993 comparative advantage structure, given a country's willingness to reform its production pattern. Therefore, transition countries with very low coefficients either had a very inefficient trade structure to start with or went through very radical reforms during the transition period.

In the case of the other two groups of developed European countries, the Spearman coefficients reveal the extent to which Western trade was affected by the transition and EU enlargement processes, given again the political flexibility to change. As such, developed countries with very high coefficients were either not directly affected by the trade unraveling from their Eastern counterparts or, by means of protectionist policies, resisted the required changes in their export pattern.

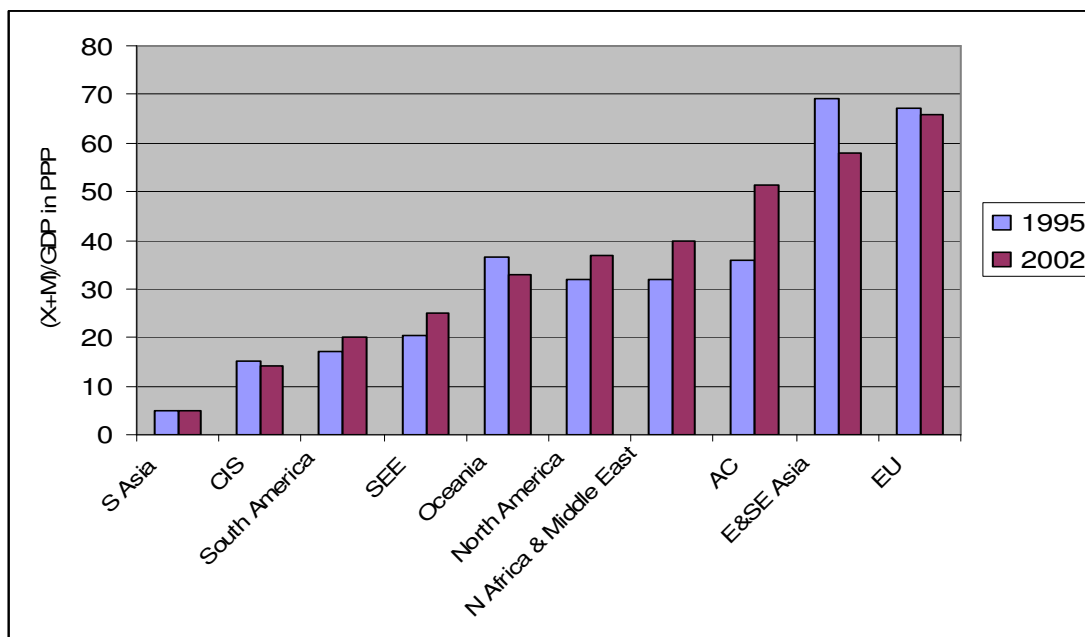
#### 1.4 The particular case of the Commonwealth of Independent States and their influence upon the trading system

At the same time with the reorientation of the accession countries foreign trade towards the EU-15 market, the data also shows a sharp reduction in the ex-communist vis-à-vis the former Soviet Union relations with a smooth and constant intensification in the EU-15 - former Soviet Union trade. As in most cases presented in this paper, the justification was twofold: economic and political.

First, the decline in output and the economic crisis facing the Soviet Union were far more significant than in the rest of the ex-communist world. One could argue that the disintegration of the system conducted not only to a foreign trade collapse but also to a domestic trade collapse. The newly emerged Russian Federation recovery was even slower than that of its neighboring countries and was additionally interrupted by the financial crisis of August 1998 and the debt default of their government. The consequences of this relative inelasticity of the Russian economy to the new challenges of the international market resulted in a much slower pace of restructuring of the industry, slower improvement of resource allocation and less investment and employment opportunities.

A World Bank analysis (Raiser et al., 2003) of the degree of integration of different groups of transition countries concludes that the countries not having joined the European Union and particularly the Russian Federation trade far less with the world than it would be predicted by their potential as can be seen in Chart 1.

Chart 1. Openness in different regions of the world



Source: Raiser et al., 2003 (notation: AC stands for accession countries to the EU membership and includes the 10 new EU candidates plus Romania and Bulgaria, while the EU refers to the EU-15)

The indicator utilized to measure the degree of openness of the transition economies is the ratio of the sum of its exports and imports to the GDP measured in terms of Purchasing Power Parity exchange rates. The PPP rates are judged to be more reliable than the exchange rates themselves because of the large initial devaluation of currencies in the transition economies.

These results suggest that the Russian Federation and the rest of the ex-communist countries not having joined the EU are less successful in their efforts of integrating into the world economy and may lead us to ask the question whether if they are not likely to be isolated from the benefits of the globalization process.

When explaining these outcomes, the less controversial factors responsible are perhaps the geographical distance as well as the landlocked nature of some of these states. Eastern Europe and the former Soviet Union include a big number of landlocked countries. Of the 31 landlocked countries mentioned in the UNCTAD classification (UNCTAD, 2005), 8 are transition economies either in South-East Europe or the former Soviet Union. Estimates for a typical landlocked country indicate that the transportation costs facing their foreign trade can be up to 75% higher than in the case they had open access to yearlong available seaports<sup>1</sup>. Moreover gravity equation trade empirics show that overland transport costs increase with distance and with the ratio of volume to value of goods shipped. In view of the fact that the former Soviet Union states tended to specialize in bulky commodities such as cotton, minerals and processed

<sup>1</sup> Raballand, 2003

metal, then the geographical remoteness from the destination markets significantly reduced their export competitiveness.

In addition to this geographical disadvantage, the transportation costs facing trade in this area were further augmented by an inadequate, obsolete and damaged transport infrastructure and, in some cases by a high level of uncertainty induced by the memory of political instability and violent events such as the break-up of the former Yugoslavia or the separatist attacks.

The border price effect is also a highly significant factor in accounting for increasing the trade costs in the region and thus afflicting export competitiveness. One cannot close the eyes to the numerous new borders that have materialized on the territory of the ex-communist block, particularly with the disintegration of the former Soviet Union and Yugoslavia. The impact of these new borders might account for an important part of the trade collapse in the region. The data show that between 1994 and 1997, trade among adjacent regions in Russia and neighboring former Soviet Union republics fell considerably<sup>1</sup>. More than just reducing trade between neighboring countries, borders also discourage the transit from one country to a third destination market. According to Djankov and Freund (2002) the disintegration of the former Soviet Union resulted in a fall in the transit traffic by 70 to 90%, which is much more than the fall in GDP across the region. The system of burdensome customs procedures, corruption and non-harmonized transit regulations as well as the delay in adopting and enforcing international conventions were the decisive coup to the intra-CIS trade.

More recent investigation adds up to the bill of transportation costs, which were augmented by non-coordinated trade policies and occasionally, poor quality of the governance, echoed by the low quality of institutions.

World Bank (2003) recommendations pointed primarily at institutional reforms as the turning key for a better integration of CIS countries in the world economy. Moreover, institutional reforms were heavily relying on the first step of the opening up of this region: the regional cooperation. The World Bank maintained that closer regional integration between the Commonwealth of Independent States countries – not least to overcome the significant trade barriers to transit trade referred to above – could be a highly desirable complement to integration with the world economy rather than a substitute. The reduction in the intra-CIS trade and transit barriers had the potential of truly opening the huge markets of the former Soviet Union.

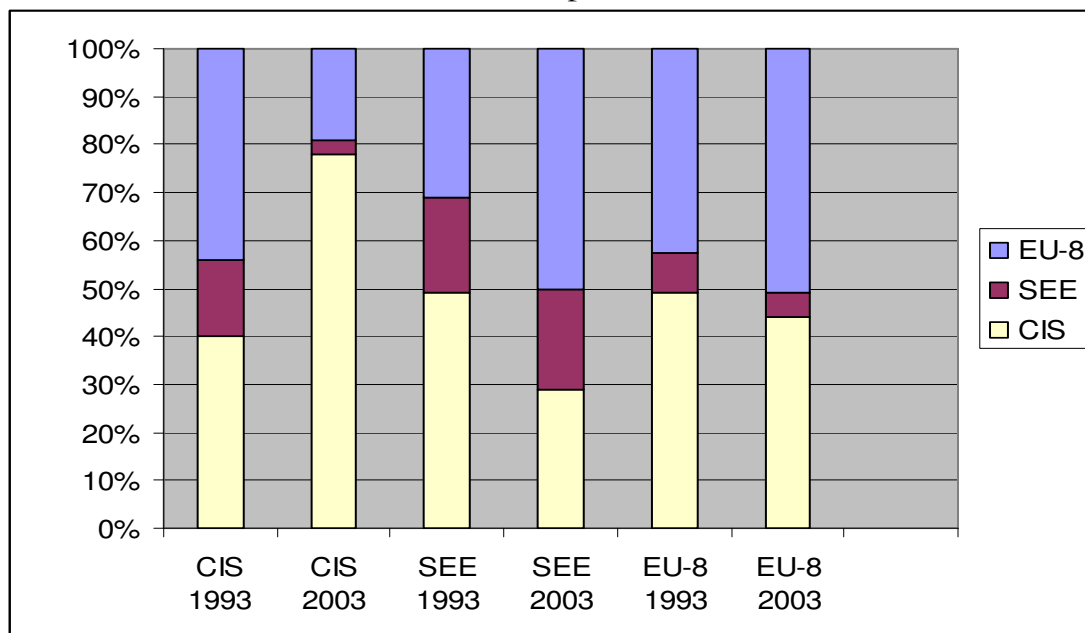
However, as it comes out of the last World Bank report on Eastern Europe and the Former Soviet Union international trade (Broadman, 2006), the world trade is witnessing the emergence of two separate trading blocs on the European continent: CIS and the rest of Europe. The main argument in favor of this trend is the substantive increase in the intra-CIS trade (please see Chart 2).

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<sup>1</sup> Djankov and Freund, 2000



Chart 2. Shares of intra-regional merchandise exports in Eastern and Central Europe and the Former Soviet Union



Source: Broadman (2006) using IMF DOT Statistics

Moreover, the recent Russian policy of becoming a member of the World Trade Organization has the prospect of further increasing Russia’s trade with its political satellites, since some of these had already become WTO members but could not reap the benefits from it sooner.

Last but not least, European Union's trade policy with respect to the ex-communist block tends to be further driving a wedge between the CIS and the accession & associated countries. The Europe Agreements, in particular, through their preferential nature generate trade creation inside the trade agreement borders and strong trade diversion away from the former partners of the CMEA. This is an additional factor responsible for the trade reorientation of Eastern Europe towards the EU and away from Russia.

Given all the above reasons and the political factor, accession countries trade with the CIS is unlikely to exhibit new patterns in the near future.

## 2. Scenarios for the long-run economic geography of Europe

This part of the paper will compare the predictions of the Forslid et al. (2002) CGE model for the future economic geography of Europe with findings from the actual data up to 2004.

The principal interest of the Forslid et al. (2002) model was to forecast the trade effects of a successful economic transition of the Central and Eastern European countries (seven countries in total). For that purpose, the model proposed to measure the degree of completion in the transition process by three exogenous variables: increases in the overall productivity level, improvements in the country risk profile as shown in international ratings and last but not least, in the level of trade liberalization (the level zero was taken to be the EU level given the accession commitments of the transition countries with the EU enlargement). Therefore if one compares the predicted trade and production patterns with the actual patterns, and provided that the model is correct, one should be able to observe some noteworthy differences in the export structures across the reformers.

## 2.1 The main characteristics of the Forslid et al. (2002) model and the theoretical background

The model used in Forslid et al. (2002) is calibrated on actual, region specific input-output matrices. Therefore the result is more an analysis of the stylized regional trade patterns rather than an exact prediction of the magnitude of the effects brought about by changes in the exogenous variables. However, one cannot deny the analyst the practical use of the derived results. The model takes into consideration the following 10 regions of the world:

- Central Europe (Europe C): Austria, Denmark, Germany, Switzerland
- Northern Europe (Europe N): Finland, Iceland, Norway, Sweden
- Southern Europe (Europe S): Greece, Italy, Portugal, Spain
- Western Europe (Europe W): BeNeLux, Ireland, France, UK
- Eastern Europe (Europe E): Bulgaria, Hungary, Czech Republic, Poland, Romania, Slovakia, Slovenia
- Former Soviet Union (Form Sov): Former Soviet Republics including Estonia, Lithuania, Latvia
- China and South Asia (CSA): China, India, Bangladesh, Bhutan, Maldives, Nepal, Pakistan, Sri Lanka
- South East Asia (SEA): including Japan
- USA and Canada (USACAN)
- Rest of the world (ROW)

On the production side, fourteen sectors are modeled differently: energy, agriculture, public services, private services and ten manufacturing sectors (textiles, leather, wood, metals, minerals, chemicals, food, transport equipment, machinery, other). Trade costs are also allowed to differ according to existing tariffs, subsidy equivalents and other protectionist measures tariff equivalents.

Given this choice of productive sectors the model is bound to capture both comparative advantage mechanisms as well as intra-industry trade and 'new economic geography' agglomeration forces. The energy and agriculture sectors are modeled as natural resources intensive and therefore production and trade in these sectors should be mainly driven by the natural and relatively fixed endowments. In this setting the agglomeration economies can theoretically originate from the following sources: the endogeneity of capital stocks, from the lowering of trade costs in the manufacturing sector and from the increasing returns to scale production functions. Therefore agglomeration economies are expected to arise in one of the following ways.

First, given that trade costs are reflected in different import prices, it pays to relocate production in a region with a high concentration of input firms, the higher the reliance on intermediate inputs from these firms and the higher the returns to scale. This is often referred to in the literature as the forward or supply linkage (Baldwin et al., 2003).

Following a similar logic, the supplier of intermediate goods would like to locate in the market housing the most significant bunch of buyers for his products. Again, the higher the trade costs, the higher the returns to scale and the higher dependence on buyers from the same industry, the stronger will be the backward or demand linkage.

A third agglomeration force relies on the endogeneity of capital stocks. When a region receives a little more capital than its counterparts, it will have a higher incentive to innovate. In the absence of pure profits on the market, the manufactures prices will decline thereby attracting a higher demand. Also a larger variety of products will constitute a larger pool of "better fit tools" for the input users and as such, a more attractive location for producers.

The energy and agriculture sectors have the role of moderating the agglomeration forces in the setting of the model. They do not generate agglomeration economies since the natural resources are fairly fixed in the short run.

## 2.2 Data analysis and the predictions of the model by Forslid et al. (2002)

To start with, in 1992, Eastern Europe as defined in the analyzed model, accounted for less than 1% of the world GDP, had a higher than proportional share in world manufacturing trade and also a relatively higher share in the production of energy and agriculture (please see Table 4).

Table 4. Key output and trade indicators for the stylized regions in the Forslid et al. (2002) model

| The region's share (measured in percent) of: |           |                     |         |                     |             |
|--|-----------|---------------------|---------|---------------------|-------------|
|  | World GDP | World manufacturing |         | World production of |             |
|  |           | exports             | imports | energy              | agriculture |
| Western Europe                               | 12.09     | 17.65               | 17.7    | 12.52               | 8.71        |
| Central Europe                               | 11.75     | 18.5                | 17.88   | 7.09                | 3.54        |

|                   |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|
| Southern Europe   | 8.27  | 8.84  | 8.8   | 7.34  | 6.05  |
| Northern Europe   | 1.96  | 3.51  | 3.45  | 2.16  | 1.69  |
| Eastern Europe    | 0.89  | 2.06  | 2.78  | 1.53  | 2.57  |
| Former Soviet     | 2.21  | 0.78  | 0.78  | 3.79  | 2.11  |
| CS Asia           | 3.17  | 4.39  | 4.37  | 3.12  | 17.07 |
| SE Asia           | 20.27 | 20.8  | 20.8  | 12.94 | 18.31 |
| USA&Canada        | 27.71 | 15.74 | 15.75 | 20.46 | 16.07 |
| Rest of the world | 11.67 | 7.73  | 7.69  | 29.05 | 23.87 |

Source: Forslid et al. (2002)

Without running any sophisticated trade model, it becomes clear from the numbers that the successful reform of a group of countries accounting for less than 1 % of the world GDP will only have marginal effects and mostly on the closest trade partners. These are shown in Table 5.

Table 5. Bilateral East European merchandise exports by destination shares in 1992

| Sales to            | West E | Central E | South E | North E | East E | Former Soviet | CS Asia | SE Asia | USA & Can | Rest of the world |
|---------------------|--------|-----------|---------|---------|--------|---------------|---------|---------|-----------|-------------------|
| From Eastern Europe | 3.6    | 10.5      | 3.6     | 1.0     | 74.8   | 1.2           | 0.6     | 0.9     | 0.8       | 3.1               |

Source: Forslid et al. (2002)

The relevance of geographical proximity is confirmed in finding that Central Europe was the main trading partner with Eastern Europe in 1992. Expected changes were therefore bound to be generated only at a regional level.

Provided the transition was successful, Forslid et al. (2002) were predicting important real income gains for the transition economies themselves and only a minor negative real impact on the Central European area. In other words, Eastern Europe's trade partners were bound to be under the rising influence of two market forces: increased competition on one hand and rising demand on the other. The model was essentially predicting that while the former, damaging component was likely to suffer from delays given difficulties of supply to meet demand, the later, boosting component was likely to act fast. Therefore, the Central European production side was to be affected only

marginally, while Central European consumers would enjoy lower prices. The main negative income effects, though mild in relative terms, were predicted for China and South Asia and were mainly due to a pure “terms of trade” loss.

At a more disaggregate level, a closer integration with developed Europe was predicted to engender significant changes in the comparative advantage of Eastern Europe. The textiles and transport equipment sectors were the most promising in terms of growth, with leather and machines in a secondary position. Due to the heavy reliance on the intra-industry inputs and the forthcoming strong liberalization in the sector, the textiles were very likely to witness strong relocation effects away from Central Europe and into Eastern Europe. The textile and leather sectors share the characteristics of being intensive in unskilled-labour, have relatively low returns to scale, but also high initial East-to-Center trade costs. Specialization in these sectors would rely on the lower Eastern wages for unskilled workforce. To the contrary, the transport equipment and the machines specialization would point to a potential Eastern Europe comparative advantage in skilled-labour-intensive industries further characterized by strong returns to scale.

While the first two mentioned unskilled-labour-intensive sectors already had a leading position in Eastern countries comparative advantage indices list of 1992 (please see Table 6), the last two skilled-labour-intensive sectors would represent a change in the production and trade structure of these countries. The specialization in skilled-labour-intensive industries would be undoubtedly reflected in higher income gains for the Eastern European countries.

Table 6. The regional specialization in the manufacturing sector

| Goods                                 | Eastern Europe | Central Europe |
|---------------------------------------|----------------|----------------|
| Textiles (unsk.-intensive)            | 1.59           | 0.58           |
| Leather (unsk.-intensive)             | 2.75           | 0.56           |
| Wood                                  | 1.03           | 0.91           |
| Metals                                | 1.16           | 1.05           |
| Minerals (K-intensive)                | 1.57           | 0.7            |
| Chemical (skill-intensive)            | 0.89           | 0.98           |
| Food (K-intensive)                    | 1.31           | 0.81           |
| Transport equipment (skill-intensive) | 0.47           | 1.32           |
| Machines (skill-intensive)            | 0.6            | 1.18           |
| Other manufactures                    | 0.91           | 1.48           |

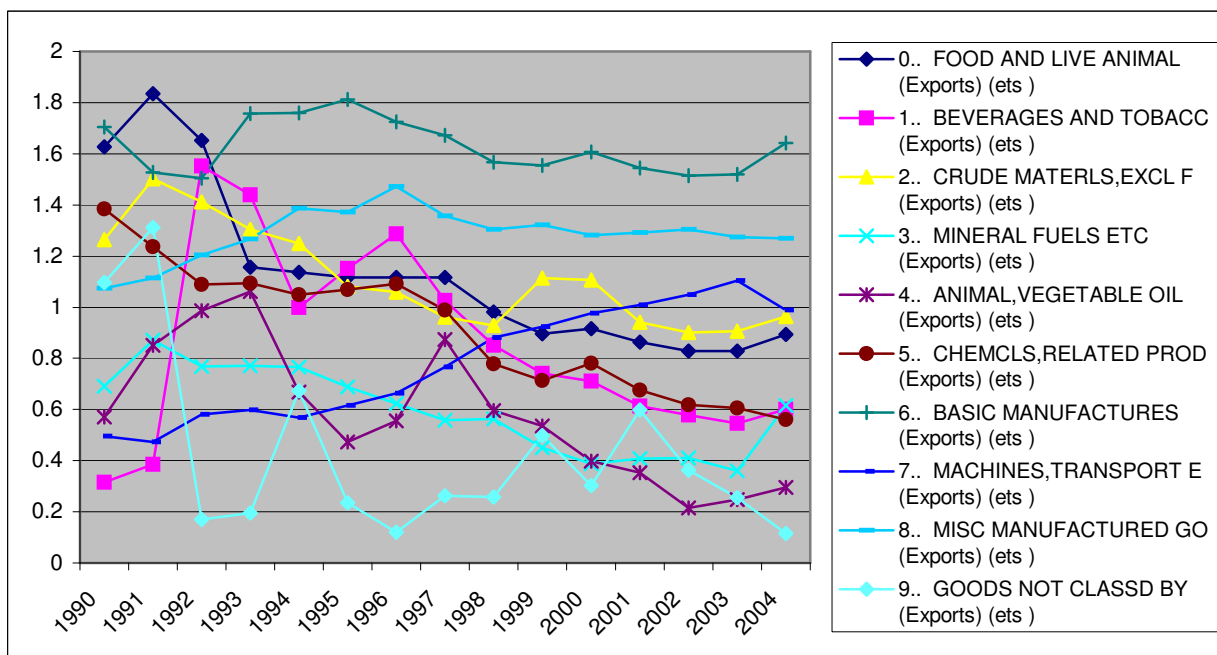
Source: Forslid et al 2002

### 2.3 Comparing 2003 data with the model predictions

Using data from the COMTRADE database for ten main industrial sectors in the Central and Eastern Europe regions as defined above one can check the trends in the revealed comparative advantage indices.

For Eastern Europe as an aggregate there is only one clear long term increase in the revealed comparative advantage indices: in the machines and transport equipment sector (please see Chart 3). The region also holds a strong comparative advantage in basic manufactures and miscellaneous manufactured goods as reflected in high value corresponding RCA indices. This has however been a constant feature of the aggregate region over the past ten years. The most significant RCA drops were registered in Chemicals and Food and animal products. Food and animal products and Beverages and tobacco were the sectors with the highest standard deviation in RCAs over the analyzed period reflecting high oscillations in the relative Eastern exports of these products. These oscillations could indicate that Eastern European countries do not have a natural comparative advantage in the food, beverages and tobacco industries but probably had to go through the process of first developing these sectors in order to generate the income necessary for the acquisition of other more complex goods.

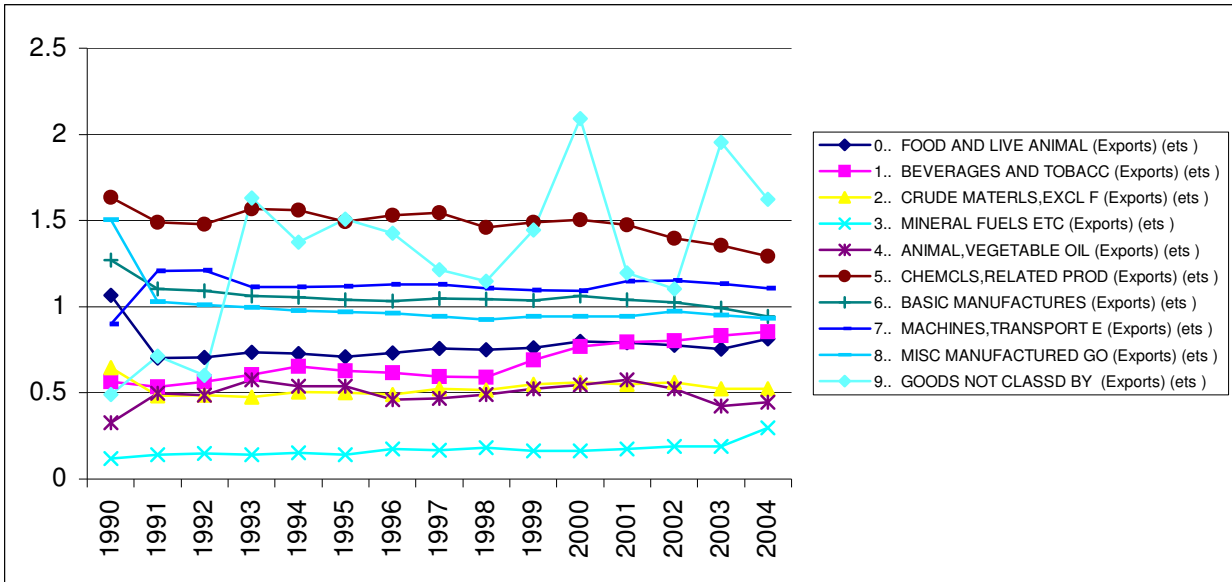
Chart 3. Revealed Comparative Advantage indices for seven Eastern European countries



Contrasting with the similar Central European figures, it is easily noticeable that the RCA changes of the latter group were minimal (please see chart 4). There is even a slight

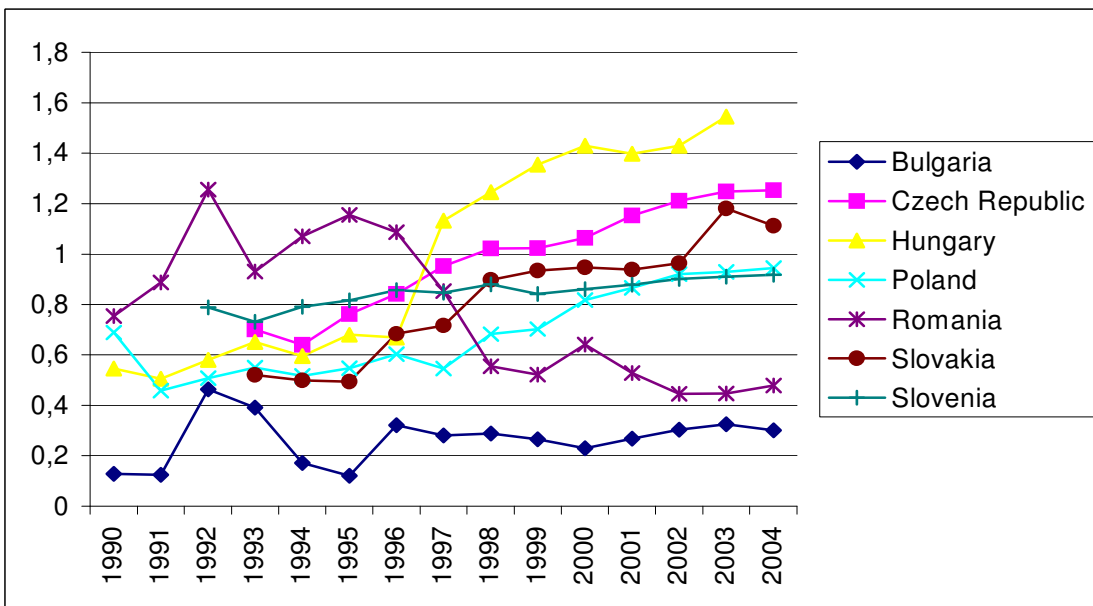
increase in the machines and transport equipment comparative advantage of this region (and therefore a high potential for intra-industry trade in this field).

Chart 4. Revealed Comparative Advantage indices for four central European countries



For a comparison between the Eastern reformers one could take a closer look at the individual country RCA indices inside the group (please see Chart 5) for the machines and transport equipment sector.

Chart 5. RCA trends for the machines and transport equipment exports of seven Eastern European countries



While it cannot be said that the transition was less successful in Romania and Bulgaria because these countries have failed to specialize in machines and transport equipment, it

is nevertheless salient from Chart 5 that these two countries have followed somewhat different export specialization patterns. A closer analysis into their data indicates in both cases a steady increase in the relative weight on the miscellaneous manufactured goods sector.

Without running the risk of being imprecise, one could point to the fact that The Czech Republic, The Slovak Republic and Hungary have developed very high shares of intra-industry trade over a relatively short period of time (please see table 7), which is less the case for many other transition economies. High intra-industry shares are likely to be associated with high trade volumes. In fact this is one of the main results of the new trade theory which predicts countries with similar endowments and similar increasing returns to scale industries to trade much more than those following the traditional comparative advantage Heckscher-Ohlin type of trade specialization.

Table 7. Manufacturing intra-industry trade  
(as a percentage of total manufacturing trade during the transition process)

|  | 1998-1991 | 1992-1995 | 1996-2000 | Percentage Change |
|--|-----------|-----------|-----------|-------------------|
| High and increasing intra-industry trade         |           |           |           |                   |
| Czech Republic                                   | ...       | 66.3      | 77.4      | 11.1              |
| Slovak Republic                                  | ...       | 69.8      | 76        | 6.2               |
| Hungary  | 54.9      | 64.3      | 72.1      | 17.2              |
| Germany  | 67.1      | 72        | 72        | 5                 |
| Poland   | 56.4      | 61.7      | 62.6      | 6.2               |
| Portugal   | 52.4      | 56.3      | 61.3      | 8.9               |
| High and stable intra-industry trade             |           |           |           |                   |
| France   | 75.9      | 77.6      | 77.5      | 1.6               |
| Austria  | 71.8      | 74.3      | 74.2      | 2.4               |
| Italy  | 61.6      | 64        | 64.7      | 3.1               |
| Low and stable intra-industry trade              |           |           |           |                   |
| Norway   | 40        | 37.5      | 37.1      | -2.9              |
| Greece   | 42.8      | 39.5      | 36.9      | -5.9              |
| Iceland  | 19        | 19.1      | 20.1      | 1.1               |
| Source: OECD International Trade Statistics 2002 |           |           |           |                   |

Over the long run, European countries will find it hard to keep up with the growth pace of Europe unless their trade volume is to match more closely the EU values. And that would only be the case if intra-industry or services trade are involved in the equation. Exploiting regional temporary advantages like lower wages of the unskilled workforce will prove to be an inadequate strategy for those who choose to follow it.



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