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**INVESTIGATING DISAGGREGATE EAST-WEST
TRADE DATA:
THE RESHAPING OF THE INTERNATIONAL
DIVISION OF LABOR**

Jarko Fidrmuc, Christian Helmenstein, Peter Huber

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Abstract

In this paper we analyze annual trade data for Austria and Central and Eastern Europe (CEE) on a disaggregate level. Permanent structural changes in East-West trade turn out to be an important feature in the transition process. The considerable contribution of intra-industry trade to overall trade growth indicates smaller adjustment needs in Western Europe than suggested by earlier literature. Our results support the hypothesis that the Southern European Union members will be most strongly affected by competition from CEE exporters. In turn, the Union's reluctance to admit further members is likely to differ considerably across CEE applicants.

Keywords

East-West trade, transformation in Eastern Europe, economic integration, structural change, intra-industry trade

JEL Classifications

F15, F14, P51

1. Introduction

A cross-country inspection of aggregate trade data reveals a spectacular growth of trade flows between Central and Eastern European (CEE) countries and Austria. While in 1989 a mere 9.7 % of Austria's exports flew to the CEE countries, up to 1994 their share rose to 13.4 %. Overall trade with Czechia, Slovakia, Hungary, and Poland grew at an annual rate of 19.3 % between 1989 and 1994. At the same time, due to the membership in the European Economic Area and, since 1995, in the European Union (EU), Austria faces an increasing degree of competition in goods categories such as agricultural products which were sheltered from import competition before.

There is reason to expect that these developments have long-lasting effects on the Austrian economy. While some sectors will benefit from the lifting of the iron curtain, others will suffer. Due to the high aggregation level of the data used, previous studies [BALDWIN (1993), HAVRYLYSHYN and PRITCHET (1991), and WANG and WINTERS (1991)], however, have hardly been capable of analyzing the changes in the commodity structure of trade. In order to overcome this shortcoming, in this paper we choose a disaggregated perspective by using SITC two-digit data for Austrian trade flows with Albania, Bulgaria, Czechoslovakia, Hungary, Poland, and Romania. In particular, we address three issues. First, we investigate the extent of the structural changes in Austrian trade flows from a cross-country perspective. Second, we study the implications of the changes in the trade structure for the Austrian economy. Which sectors are most strongly affected? What will be the future contours of the international division of labor between Austria and the Central and Eastern European (CEE) countries? Third, we assess which third-party exporters will face the strongest competition by CEE exporters on the Austrian market.

Previous research predominantly pursued three approaches to analyze the changes in trade with Central and Eastern Europe: On the basis of a gravity model, several authors estimated the potential effects of trade liberalization in Central and Eastern Europe. HOLZMANN, THIMANN and PETZ (1994) conclude that the increasing competition from trade may result in significant losses of employment because of restructuring needs. For Austria these losses are estimated to result in 5 to 6% of total employment until 2002. The gravity model, however, suffers from two major shortcomings. First, the results obtained from a gravity model are outstandingly susceptible to the selection of variables, and second, forecasts about the future structure of trade are not possible. In particular, the choice of income parameters (GDP, GDP per capita, GDP at purchasing power, or GDP at current exchange rates) and the trade patterns used for reference appear to be critical.¹

A different approach to analyze the effects of trade liberalization for selected commodities employs computational general equilibrium models (CGM) (WANG and WINTERS, 1993a, 1993b). The authors show that, at least for the two categories of goods under study, the benefits from liberalizing imports to the EU exceed the costs. By construction, this technique is diametrically different from the gravity model approach: Due to their analytical complexity, up to now CG models have only been used for forecasting the trade

¹ AIGINGER, PENEDER, and STANKOVSKY (1994) demonstrate that traditional trade theories such as the Heckscher-Ohlin model help explain major aggregate trade patterns observed in East-West trade.

dynamics of narrowly defined commodity groups but they have not been applied to the analysis of the entire commodity spectrum so far.

Recently, structural changes in the dynamics of trade flows have been in the focus of research. DIMELIS and GATSIOS (1994) as well as MARTIN and GUAL (1994) analyzed structural changes in the trade patterns between Greece and Spain, respectively, and the CEE countries. Despite the marked differences between the two countries, the stylized facts of trade developments are strikingly similar: A significantly rising trade volume on the aggregate level is accompanied by deep changes in the commodity structure, which is characterised by an increasing degree of intra-industry trade and rapid shifts in the leading intra-industry goods categories. In contrast to both Spain and Greece, Austria is differently and more strongly affected by the changes in East-West trade. Greek trade flows show a dominant affinity towards Bulgaria, Macedonia, and Albania, which we consider as being not representative for Central and Eastern Europe as a whole. Austrian trade relationships with CEE countries, by contrast, concentrate on the Visegrad countries which account for the largest share of East-West trade. Spain, in turn, is relatively distant from the CEE countries. Accordingly, by representing a share of less than 1% of overall trade volume, Spanish trade with CEE countries has never played a significant role for Spain. An investigation of the Austrian case therefore comes closest to a controlled experiment whether the stylized facts previously established bear some potential for generalization.

The paper is organized as follows. We document the extent of trade growth and the changes in the product structure in Austrian trade with CEE countries and elaborate the differences between the CEE countries themselves in part two. In part three we address the issue how these changes affect the division of labor between Austria and the CEE countries. We draw upon indicators that may allow forecasts about the future trade structure of CEE countries with Austria. We demonstrate that the concept of revealed comparative advantage (RCA), which has been widely employed in other studies, is not conclusive for several reasons. Moreover, we examine to what extent the growth in trade between the CEE countries and Austria is due to the reintegration of the CEE countries into the international division of labor. In part four we conduct a similarity analysis of the Austrian trade relationships with the CEE countries and compare the results to the Austrian trade structure with Western European countries. Section five concludes the paper.

2. A Comparative-Static Analysis of Austrian Trade Developments

2.1 *Changes in the Trade Volume*

We employ annual trade data at the SITC two-digit level² for the period 1988 until 1994. An analysis of the data has to take into account that the starting conditions in Central and Eastern Europe varied widely across countries. The four Visegrad countries (Poland, Slovakia, Czechia, and Hungary) and Slovenia, which are featured by a comparatively advanced stage of reforms, recently acquired a rank among the 20 most important Austrian trading partners. Exports to Hungary and Poland witnessed a large increase of over 20% each already in 1989 due to the early start of reforms, while exports to Czechoslovakia

² The data set is provided by the Austrian Statistical Office and reports all imports and exports according to SITC Rev. 3.

started to expand no earlier than during 1990. Since then a continuous growth of exports was registered only for the former Czechoslovakia and Hungary. Polish exports, by contrast, have been oscillating between significant increases and substantial falls. Traditionally, trade with Bulgaria, Romania, and Albania is much less important for Austria in terms of both imports and exports. Their share in total Austrian reaches only 0.6%.³

These considerations suggest that there may be considerable country-specific distinctions in the Austrian trade with CEE countries since 1988 which renders an analysis of data aggregated over the entire set of CEE countries inappropriate. In this paper we therefore either use country-specific data or analyze the following four subgroups of CEE countries: the CEE6 include all six countries under study; the CEE5 exclude Albania; the Visegrad group (V4, viz. the Czech and Slovak Republics, which for reasons of data consistency are aggregated into one country, Hungary, and Poland); and the SEE3 (Southeast European three) which consist of Albania, Bulgaria, and Romania. Table 1 shows that even within each of these groups there are persistent differences. To illustrate, Austrian exports to the SEE3 countries show a quite heterogeneous dynamics: While exports to Albania and Bulgaria have decreased by about 30 to 40%, exports to Romania experienced an increase of 154% over the period from 1989 to 1993. During the same period exports to the Visegrad countries increased between about 70% for Poland and almost 230% for the former Czechoslovakia.

Only incomplete data are available for Austrian trade with the Baltic Republics, Slovenia, Croatia, and the Commonwealth of Independent States (CIS). Table 1 displays available data for both the newly emerged countries as well as the respective former country aggregates so that it is possible to infer at least some tentative results about the regional variation of exports. Total exports to the area of the former Soviet Union (including the Baltic Republics) decreased during the entire time period from 1989 to 1993. Judging by the 1994 data, exports to and imports from the former USSR revived, though from a low level.

Table 1 demonstrates that the largest growth of exports was experienced in those countries in which the output decline during the transitional recession has been the lowest. Literature offers the following hypothesis to explain this observation: trade with Western Europe absorbed some of the excess savings in Eastern Europe which were accumulated due to the non-availability of many high-quality consumer goods during the socialist era. In some countries, in particular the SEE3, however, excess savings have been wiped out by inflation which may explain some regional variation of export growth. This hypothesis implies a large initial increase of exports to the countries with excess savings followed by a (partial) reversion back to the previous level. This kind of pattern, however, cannot be observed in any of the countries under study. Instead, the trade pattern generally resembles that of a permanent increase.

³ The extremely low volume of trade between Albania and Austria raises concerns about the usefulness of these data since single export contracts may lead to considerable fluctuations already on the two-digit level. The interpretation of our results for Austrian-Albanian trade is therefore subject to a caveat.

Table 1
Annual Growth Rates of Austrian Trade with Transition Countries

Exports	1989	1990	1991	1992	1993	1994	Share	Total Change
former CSFR	6.83	72.51	6.04	50.74	11.74	15.84	3.49	281.27
Czech Republic						18.08	2.62	
Slovakia						9.62	0.88	
Poland	40.74	-16.51	70.89	-5.55	-8.84	-6.74	1.17	61.23
Hungary	27.13	20.75	38.66	7.09	6.37	21.05	3.91	193.54
Albania	22.64	2.39	-27.59	-45.97	33.02	-8.42	0.01	-40.15
Bulgaria	-15.25	-32.31	0.09	-0.58	-1.90	-2.30	0.26	-45.28
Romania	0.24	98.65	4.41	12.67	8.20	15.14	0.29	191.87
f. Yugoslavia	18.16	34.95	-23.00	-2.54	11.63	28.65	2.61	71.84
Slovenia					20.69	17.40	1.56	
Croatia					47.9	47.69	0.82	
former USSR	4.09	-12.18	-7.35	-13.76	-5.14	20.37	1.80	-16.61
Russia					-9.58	20.12	1.46	
Estonia					0.89	185.04	0.02	
Latvia					83.00	71.41	0.02	
Lithuania					-2.43	66.82	0.02	
EE & f. USSR	14.05	14.73	8.42	7.26	4.87	17.21	13.55	87.04
Total Exports	12.03	8.56	2.78	1.78	-4.18	9.57	100.00	33.58

Imports	1989	1990	1991	1992	1993	1994	Share	Total Change
former CSFR	11.34	-4.86	16.06	48.96	10.80	25.69	2.45	155.03
Czech Republic						23.76	1.80	
Slovakia						31.29	0.66	
Poland	2.67	15.18	12.82	-11.37	-6.62	9.81	0.82	21.24
Hungary	23.11	11.44	31.41	4.17	-9.47	18.53	2.04	101.51
Albania	-52.58	61.26	-48.65	-68.59	-38.91	61.64	0.00	-87.82
Bulgaria	35.99	14.27	9.55	13.76	-16.20	21.71	0.11	97.50
Romania	6.74	-37.53	35.23	29.87	-13.20	57.56	0.21	60.16
f. Yugoslavia	28.19	7.15	-9.16	-12.12	-4.03	17.05	0.92	23.17
Slovenia					12.65	20.30	0.65	
Croatia					47.27	9.08	0.24	
former USSR	-1.28	20.18	-4.79	-11.30	1.28	35.08	1.88	37.07
Russia					2.33	32.84	1.62	
Estonia					24.34	74.10	0.01	
Latvia					37.40	-18.86	0.01	
Lithuania					48.45	24.29	0.01	
EE & f. USSR	11.36	9.07	9.23	4.62	-1.41	23.67	8.43	69.23
Total Exports	14.01	8.07	6.41	0.34	-4.89	11.42	100.00	39.42

Source: Institute for Advanced Studies, Austrian trade statistics, 1995.

The import side of Austrian trade relationships is characterized by similar regional differences. But this differentiation takes place at markedly lower growth rates exhibiting a much more stable trend: The hypothesis used to explain this development is that the dissolution of the COMECON and the subsequent reduction in trade among the CEE countries themselves is one of the driving forces behind the growing intensity of Austrian trade relationships with the CEE countries. A part of the exports which previously went to the Soviet Union was re-routed to bordering Western countries.

However, the explanation of this development appears to be incomplete since it would suggest that the export structure of Central and Eastern Europe with respect to the European Union should be similar to the structure found previously in trade within the COMECON - an implication which is in contrast to the observed data (see NEVEN (1994) for a general analysis). Therefore we conclude that, aside from pure trade redirection, the overall structure of exports of the CEE countries has changed.

2.2 *Structural Changes*

An essential feature of Austria's trade with Central and Eastern Europe are the significant changes in the structure of trade. Table 2 summarizes these structural changes at the SITC two-digit level by correlating the export and import structure of consecutive years to the export and import structure of 1988 using the Pearson correlation coefficient. For purposes of comparison we choose Italy as a country for which a priori we would not expect large changes in the trade structure.⁴

For Italy the Pearson correlation coefficient of the export structure in 1994 compared with the 1988 export structure is 0.98 which indicates a large degree of structural equivalence. For the CEE countries the correlation coefficients are much lower with a minimum of 0.04 for Albania⁵ and a maximum of 0.84 for the former CSFR. Note that the degree of structural change has its analogy in the total trade volume. In general, countries with slower export growth such as Albania and Bulgaria were simultaneously featured by larger structural adjustment needs.⁶ Countries with less need for structural change, by contrast, tend to have larger increases in total exports. This result points to the crucial role played by the starting conditions in explaining the trade patterns with Central and Eastern Europe and the close interaction of growth and structural change in this field. Austria has been able to substantially expand its exports to countries whose import structure was most closely to the one which would have resulted under "free market" conditions while in countries which faced the need of comprehensive structural adjustment import growth was much lower.

The structural changes on the import side hardly mirror the structural changes on the export side. While imports from Albania to Austria have changed significantly, those of Romania, Poland and Bulgaria have been undergoing much less change than the exports of Austria to those countries. Former Czechoslovakia and Hungary represent intermediate cases in which the structural change on the import side has been stronger than on the export side.

⁴ The choice of Italy as a "control country" is motivated by the fact that Italy is Austria's second largest single trading partner which, in contrast to most other important trading partners, has like the CEE countries undergone a series of devaluations in the period from 1988 to 1994. Therefore we expect that the trade structure with Italy is also subject to change as far as exchange rate fluctuations are concerned.

⁵ This very low correlation coefficient is in part due to the very small trade volume with Albania which means that a single contract will have a strong impact on the structure of trade. In part it is also due to the severer decline of industrial production in Albania than in any other CEE country after revolution. Subsequent grants of aid strongly affected both the import and export side of trade.

⁶ Using Kendall's tau statistic as a non-parametric measure of association for ordinal variables, we conduct a rank correlation analysis. The rank correlation between export growth and structural change is estimated to be 0.66 which is significant at the 10% level.

Table 2
Structural Changes in Austrian Trade with CEE countries

Exports	Italy	f. CSFR	Poland	Hungary	Romania	Bulgaria	Albania
1988	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.
1989	1.00 *	0.99 *	0.91 *	0.97 *	0.98 *	0.93 *	1.00 *
1990	0.99 *	0.90 *	0.60 *	0.88 *	0.76 *	0.88 *	0.72 *
1991	0.98 *	0.90 *	0.50 *	0.77 *	0.39 *	0.50 *	0.75 *
1992	0.98 *	0.84 *	0.49 *	0.74 *	0.19 *	0.48 *	0.62 *
1993	0.98 *	0.82 *	0.60 *	0.75 *	0.34 *	0.34 *	0.04
1994	0.98 *	0.75 *	0.55 *	0.73 *	0.34 *	0.50 *	0.06

Imports	Italy	f. CSFR	Poland	Hungary	Romania	Bulgaria	Albania
1988	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.	1.00 n.d.
1989	0.99 *	0.98 *	0.99 *	0.99 *	0.88 *	0.93 *	0.42 *
1990	0.99 *	0.94 *	0.99 *	0.91 *	0.83 *	0.97 *	0.48 *
1991	0.99 *	0.83 *	0.98 *	0.79 *	0.88 *	0.93 *	0.68 *
1992	0.99 *	0.65 *	0.98 *	0.66 *	0.73 *	0.86 *	0.18
1993	0.98 *	0.79 *	0.95 *	0.58 *	0.62 *	0.71 *	-0.03
1994	0.97 *	0.76 *	0.82 *	0.54 *	0.57 *	0.49 *	0.17

Note: Pearson's correlation coefficients for exports and imports (two-digit SITC categories, current year to 1988).

* significant at the 1 % significance level;

^b significant at the 5 % significance level.

Interestingly, import growth rates are not as closely correlated to structural change as export growth rates.⁷ Furthermore, except for Albania the variation between countries is much smaller, and no uniform division between the V4 and the SEE3 as on the export side emerges. This result suggests the following interpretation: In some countries, especially in Southeastern Europe, Austrian exports differed considerably from their comparative advantages because the CEE countries' foreign trade monopolies did not grant imports of goods which were most strongly demanded by the population but focused on the import of goods perceived as necessary by state institutions. Upon liberalization, Austria's export structure therefore changed dramatically. The change with respect to Austrian imports from the CEE countries, by contrast, is in line with a redefinition of the respective comparative advantages of the countries which takes more time to evolve.

Since correlation coefficients are extremely sensitive to outliers, Table A1 reports the results of a correlation analysis based on the same data set as Table 2 except for adjustments made for outliers, that is, some commodity groups were excluded from consideration. The picture conveyed by this data strongly differs from the aggregate picture. In particular, while the correlation coefficient of Austrian exports is not particularly sensitive to the exclusion of individual commodity groups, with respect to imports from Bulgaria and Romania it is very sensitive to the exclusion of agricultural products and miscellaneous finished goods. Excluding the trade in agricultural products (which represent a necessity) indicates that much deeper structural changes than expected according to investigations based on the overall trade structure have occurred. By contrast, the measure for structural change decreases if SITC category 8 is excluded. In general, Poland seems to be an exceptional case in which SITC 3 goods have prompted a high

⁷ With a value of 0.33 Kendall's tau is insignificant in this case.

degree of persistence in the trade structure. To a large extent this result is due to Austrian coal imports from Poland under long-term arrangements. Excluding these imports reduces the correlation coefficient to 0.60.

While Table 2 provides evidence of the size of structural changes in Austria's trade with Central and Eastern Europe and the role specific commodity groups have played therein, at the level of one digit SITC groups Table 3 offers some insights with respect to the direction of structural change. The prevailing pattern is that of extreme heterogeneity both across commodity groups as well as across countries. This renders forecasts on an aggregate level about the prospective effects of trade liberalization with Central and Eastern Europe difficult. Nevertheless the results reveal some regularities: Trade in the SITC category 8 both on the import and the export side strongly contributes to the overall growth of trade. To wit, the share of SITC 8 category in total Austrian exports rose from 6.7% in 1989 to 22.2% in 1994. We interpret these large-scale changes as evidence of the distortions of the export structure during the socialist era since the SITC 8 category is largely composed of consumer durables which were in notoriously short supply in most socialist countries.

As another general tendency, the focus of Austrian imports from Central and Eastern Europe shifts away from raw materials and foodstuff towards products with a higher value-added. This finding may indicate a change in the comparative advantage of Central and Eastern Europe.

Table 3
The Redirection of Trade by Commodities Between 1989 and 1994
(Growth Rates of Imports and Exports by SITC 1 Categories)

Import	Albania	Bulgaria	CSFR	Hungary	Poland	Romania	V4	SEE3	CEE5	CEE6
0	-98.37	-10.04	53.73	43.49	-28.56	14.67	17.41	-13.01	15.30	12.26
1	-100.00	-41.50	88.54	-76.08	-70.67	n.d	-12.34	-44.24	-26.68	-28.44
2	-7.37	93.75	58.99	-17.29	697.38	147.57	46.47	100.49	47.58	47.53
3	n.d	-82.34	37.35	7.12	1702.17	67.79	69.02	-36.28	67.63	67.63
4	n.d.	-100.00	-3.28	-58.25	-98.77	-95.33	-43.25	-95.34	-56.44	-56.44
5	-94.38	33.96	11.08	6.06	-53.89	-67.65	-7.23	-69.45	-10.58	-14.39
6	-37.65	978.20	627.22	59.60	-18.87	200.25	145.87	247.35	150.95	150.29
7	n.d.	322.15	578.36	1075.91	-53.67	230.83	277.29	255.54	276.31	276.32
8	-7.07	672.66	1053.24	744.58	271.99	145.95	672.21	198.71	551.41	546.95
Export	Albania	Bulgaria	CSFR	Hungary	Poland	Romania	V4	SEE3	CEE5	CEE6
0	218.38	611.24	708.56	313.80	-50.70	452.45	439.30	515.53	162.24	162.29
1	575.00	296.88	1604.76	504.83	499.47	4352.94	800.87	1121.18	826.79	824.99
2	1453.57	-82.82	221.19	-16.46	-77.75	384.09	24.20	-67.77	-34.32	-33.46
3	n.d	-58.52	1064.68	949.41	-93.28	1362.50	1010.98	-26.28	135.88	135.89
4	n.d.	606.67	4.34	132.30	-49.15	-67.88	59.04	-57.47	25.30	25.92
5	-93.25	-42.08	183.01	58.48	99.42	98.72	112.36	-8.87	95.07	93.28
6	-67.24	-62.67	486.78	165.16	348.23	12.26	256.39	-47.52	179.33	176.29
7	18.57	-51.01	184.03	238.34	796.02	579.01	212.96	2.38	202.93	202.28
8	408.42	24.48	375.52	394.36	488.42	498.56	385.01	111.06	365.32	365.35

Source: Institute for Advanced Studies, 1995.

3. The Prospective International Division of Labor

The preceding section demonstrated that Austrian trade with Central and Eastern Europe has undergone substantial changes not only in the volume of trade but also in its structure. On the basis of these developments, in this part we investigate the impact of these changes on the division of labor between Austria and the CEE countries.

Studies on the basis of aggregate trade data (HOLZMANN, THIMANN, and PETZ, 1994) have derived a substantial need for adjustment due to the high growth rates of Austrian trade with CEE countries. These studies, however, ignore the fact that the sources of such trade growth have important implications on the kind of adjustment needed. In this respect NEVEN (1994) points to the crucial role of trade growth due to intra-industry trade expansion versus inter-industry trade growth. As far as factors are more mobile within industries than across industries, an increase of intra-industry trade, which requires restructuring within industries, should be less costly from a social cost point of view than an increase in inter-industry trade. However, taking into consideration that small groups are easier to organize than large ones, a politico-economic perspective may suggest that intra-industry trade, by affecting smaller groups of manufacturers, may lead to stronger political pressure towards protectionism than inter-industry trade.

3.1 *Inter-Industry Trade*

Indices of revealed comparative advantage are widely used for the analysis of intra-industry trade. These indices measure the commodity-specific degree of comparative advantage by one country compared to other countries. A common formula used is

$$(1) \quad RCA_{it} = \frac{X_{it} - M_{it}}{X_{it} + M_{it}}$$

where RCA_{it} is the revealed comparative advantage in sector i at time t , X_{it} are Austrian exports of sector i at time t , and M_{it} are Austrian imports at time t in goods category i .

There are two kinds of patterns in the RCA index which may provide information related to the future Austrian trade structure. A constant value of the revealed comparative advantage/disadvantage index in a certain category over the whole time period suggests that the respective goods category as a whole was not affected by structural changes in trade. On an aggregate level the need for industrial adjustment may therefore be below the average. On the contrary, a trend in the RCA index may indicate major restructuring requirements across the particular industry. Jumps in and oscillations of the RCA, however, are difficult to interpret and provide no reliable information concerning the future development of trade.

The inspection of Table 4 renders the following results: While data on Romania and Albania are inconclusive, Austria has a strong and stable RCA in the SITC categories 5, 6, 7, and 8 with all other CEE countries. Similarly, in the SITC categories 2, 3, and 4 Austria seems to have a comparative disadvantage but trade in the SITC categories 3 and 4 is too thin to allow reliable conclusions. The SITC categories 0 and 1 are those with the

strongest dynamics: Austria's comparative disadvantage has changed towards a slight comparative advantage.

The concept of revealed comparative advantage is, however, subject to several caveats. First, theoretical considerations suggest that the impact of a structural change in trade flows, that is a shift from inter-industry trade to intra-industry trade or vice versa, on the total trade volume should be ambiguous. This outcome is due to the fact that products involved in intra-industry trade exhibit a greater substitutability in demand but also a greater conformity in the use of generic factors. While the first factor stimulates trade, the second one inhibits it. The net effect of these two factors is unclear a priori. A structural shift in favour of intra-industry trade, by contrast, decreases the RCA unambiguously and would therefore suggest a reduction in trade volume. Second, BALLANCE, FORSTNER, and MURRAY (1987) find a high degree of inconsistency among alternative RCA indices as a cardinal measure for the commodity-specific degree of comparative advantage. Thus, the results of empirical studies may be highly sensitive to the particular index chosen. Third, the resulting pattern of comparative advantage is sensitive to the disaggregation level. At high levels of aggregation the index is based on composite goods which represent a whole industry or sector rather than specific commodities. In light of the increasing importance of intra-industry trade relationships, a country may face a comparative disadvantage for a composite goods and yet have a comparative advantage for a particular niche within this composite good (VOLLRATH, 1991).

Since data at the one-digit SITC level is too highly aggregated to identify an industry, the results obtained above may be misleading when considering the changes in revealed comparative advantages. This is illustrated by the fact that the revealed comparative disadvantages and advantages are not uniformly retained at the SITC two-digit levels. For a more reliable analysis of the data we therefore define four different groups: industries with (1) stable comparative advantage, (2) stable comparative disadvantage, (3) a continuously falling RCA, and (4) a continuously rising RCA.

According to the results of this analysis, Austria is losing its RCA in more than one country in five SITC 2 digit categories (52, 66, 72, 74, 84) but fails to provide a clear picture for other than these five categories. We expect the manufacturers of these goods to get into the need of major restructuring. SITC categories with rising RCA, by contrast, differ across countries. This observation reflects an increasing degree of specialization between Austria and Central and Eastern Europe.

Table 4
The RCA of Austria vis-à-vis the CEE Countries

	0	1	2	3	4	5	6	7	8
Albania									
1988	-0.97	-0.67	-0.54	n.d.	n.d.	-0.59	0.65	1.00	0.73
1989	-0.91	1.00	-0.42	n.d.	n.d.	0.70	0.44	0.99	0.94
1990	-0.95	1.00	-0.95	n.d.	n.d.	0.46	0.33	1.00	0.87
1991	-0.70	-0.35	-0.87	n.d.	n.d.	0.09	0.59	0.99	0.66
1992	0.26	1.00	-0.27	1.00	1.00	0.17	0.24	1.00	0.60
1993	0.96	1.00	0.42	1.00	1.00	0.32	0.42	1.00	0.37
1994	0.44	1.00	0.66	1.00	1.00	-0.52	0.42	0.98	-0.07
Bulgaria									
1988	-0.72	1.00	0.65	0.02	-0.90	0.84	0.97	0.95	0.64
1989	-0.72	-0.28	0.07	0.71	-0.97	0.90	0.92	0.94	0.60
1990	-0.38	-0.68	0.01	-0.49	1.00	0.72	0.82	0.91	0.40
1991	-0.36	-0.22	-0.30	-0.19	0.92	0.73	0.61	0.90	0.20
1992	-0.22	0.30	-0.87	0.47	-0.84	0.74	0.48	0.84	0.20
1993	-0.15	0.64	-0.36	0.97	-0.29	0.65	0.33	0.78	0.34
1994	0.12	0.04	-0.41	0.42	1.00	0.67	0.46	0.66	-0.16
f. CSFR									
1988	-0.53	-0.15	-0.91	-0.92	-0.60	0.07	0.08	0.77	0.49
1989	-0.56	-0.11	-0.93	-0.92	-0.90	0.21	-0.07	0.70	0.45
1990	-0.20	-0.14	-0.91	-0.45	-0.88	0.17	0.09	0.71	0.50
1991	-0.21	0.73	-0.89	-0.83	-0.76	0.15	-0.06	0.63	0.35
1992	0.04	0.81	-0.79	-0.64	-0.75	0.36	-0.05	0.45	0.32
1993	0.03	1.00	-0.81	-0.37	-0.52	0.46	0.05	0.55	0.21
1994	0.23	0.74	-0.83	-0.45	-0.58	0.49	-0.02	0.52	0.10
Hungary									
1988	-0.59	0.27	-0.38	-0.92	-0.87	0.21	0.19	0.77	0.34
1989	-0.47	0.81	-0.45	-0.91	-0.78	0.15	0.15	0.76	0.34
1990	-0.50	0.34	-0.40	-0.90	-0.75	0.11	0.15	0.65	0.21
1991	-0.35	0.92	-0.50	-0.80	-0.91	0.31	0.29	0.44	0.15
1992	-0.31	0.92	-0.51	-0.74	-0.69	0.39	0.29	0.35	0.16
1993	-0.11	0.93	-0.43	-0.58	-0.59	0.44	0.45	0.40	0.10
1994	-0.15	0.96	-0.38	-0.43	-0.43	0.39	0.41	0.52	0.10
Poland									
1988	0.18	0.24	-0.80	-0.97	-0.77	0.09	0.48	0.62	0.27
1989	0.19	0.40	-0.66	-0.36	-0.38	0.07	0.49	0.69	0.28
1990	-0.03	0.91	-0.81	-0.71	-0.29	0.09	0.26	0.69	0.14
1991	0.28	1.00	-0.79	-0.77	0.93	0.34	0.48	0.82	0.40
1992	0.12	0.98	-0.61	-0.80	0.64	0.62	0.44	0.70	0.29
1993	0.77	0.84	-0.66	-0.94	0.63	0.55	0.44	0.72	0.20
1994	-0.35	0.85	-0.60	-0.96	0.99	0.56	0.32	0.63	-0.04
Romania									
1988	-0.67	1.00	-0.45	-0.92	-0.92	-0.13	0.37	0.17	-0.78
1989	-0.67	0.89	-0.32	-0.91	1.00	-0.03	-0.02	0.22	-0.86
1990	-0.46	1.00	-0.57	-0.95	-0.97	0.19	0.40	0.13	-0.89
1991	-0.08	0.99	0.74	-0.78	-0.95	0.41	0.50	-0.18	-0.38
1992	0.12	1.00	0.54	-0.78	-0.88	0.28	0.01	0.18	-0.48
1993	0.29	1.00	0.77	-0.59	-0.79	0.57	0.02	0.58	-0.59
1994	-0.03	1.00	-0.15	-0.36	-0.57	0.65	-0.10	0.49	-0.54

Source: Institute for Advanced Studies, 1995.

3.2 *Intra-industry Trade*

For most of the CEE countries data on the Austrian RCA suggest the emergence of a structural balance of trade deficit. This finding may be countervailed by an increase in intra-industry trade. While the inter-industry trade turns out to be unfavourable to Central and Eastern Europe in the long-run, product differentiation coupled with the active search for product niches on the side of the CEE countries may help develop new comparative advantages.

To address this issue we use the Grubel-Lloyd index (GRUBEL and LLOYD, 1971) of intra-industry trade which is defined by:

$$(2) \quad B_{it} = 1 - \frac{|X_{it} - M_{it}|}{X_{it} + M_{it}}$$

where B_{it} is the share of intra-industry trade in category i at time t and X_{it} and M_{it} are exports and imports in the same categories at time t . We conduct the analysis at the two-digit SITC level (that is, i represents a two-digit SITC group). For the sake of a clear presentation of the results, however, we report averages at the SITC one-digit level in Table 5. That is, the measure given in this table is

$$(3) \quad B_{jt} = \frac{1}{n_j} \sum_{i=1}^{n_j} B_{it}$$

with n_j as the number of SITC two-digit groups in a SITC one-digit category.

Table 5 displays the intra-industry trade indicator B_{jt} . In general, the indicator is low when compared with international standards. For instance, in BREUSS' (1983) calculations of the same indicator with countries from Western Europe, all countries have a higher share of intra-industry trade with Austria already in 1981 than the CEE countries in 1993. This result impressively underlines the fact that the integration of Central and Eastern Europe into the international division of labour was considerably less deep than that of most Western European countries. In addition, Table 5 hints at future changes in the trade structure. Across all CEE countries intra-industry trade has risen since 1989, and we expect this tendency to be persistent during the next years.

Table 5
Intra-industry Trade by Commodity Type and Country

	0	1	2	3	4	5	6	7	8	Total
Albania										
1988	2.41	1.61	18.61	n.d.	n.d.	4.57	21.76	0.00	16.38	7.26
1989	1.37	1.37	1.35	n.d.	n.d.	1.13	18.24	3.69	11.82	4.33
1990	0.00	0.00	2.41	n.d.	n.d.	5.01	13.08	0.00	6.57	3.01
1991	9.89	12.31	0.16	n.d.	n.d.	1.41	9.99	1.84	22.75	6.48
1992	7.57	30.27	0.11	0.00	0.00	0.00	18.58	0.00	1.35	6.43
1993	4.61	9.23	6.30	0.00	0.00	1.67	15.97	0.00	22.38	6.68
1994	26.67	0.00	17.14	0.00	0.00	1.34	23.09	1.01	24.19	10.38
Bulgaria										
1988	11.47	15.30	6.30	39.34	9.52	20.34	7.10	7.78	35.17	16.92
1989	18.56	34.50	24.56	13.89	2.76	20.55	7.95	7.54	36.01	18.48
1990	21.27	0.24	33.37	37.70	0.00	46.39	24.60	12.32	33.84	23.30
1991	15.50	23.72	18.61	42.06	46.15	48.15	28.25	16.59	33.16	30.24
1992	11.85	31.72	13.33	9.18	15.71	18.10	36.94	19.63	35.23	21.30
1993	18.33	37.34	15.27	37.74	28.06	31.55	29.13	27.10	46.50	30.11
1994	19.39	26.85	19.69	58.13	0.00	33.50	27.35	29.69	47.58	29.13
f. CSFR										
1988	32.24	37.20	27.00	3.75	13.86	39.19	36.86	32.67	47.76	30.06
1989	25.28	65.42	23.73	3.49	7.02	40.88	38.82	37.86	48.92	32.38
1990	22.30	68.63	32.57	33.42	11.38	38.91	47.30	42.08	42.98	37.73
1991	43.64	35.04	38.02	16.32	43.15	40.64	55.46	39.58	53.70	40.62
1992	45.92	10.54	39.07	24.07	11.88	42.12	65.80	28.55	59.76	36.41
1993	51.25	31.48	54.23	22.68	42.01	39.22	73.42	32.70	58.77	45.08
1994	49.80	15.35	49.39	45.56	19.01	51.23	70.98	48.32	56.75	45.16
Hungary										
1988	33.99	51.70	51.32	3.44	50.30	45.32	52.50	24.80	54.42	40.87
1989	37.34	33.61	36.72	8.53	27.35	45.97	49.99	30.40	63.96	37.10
1990	47.69	28.63	41.88	6.52	51.57	39.18	53.56	40.25	57.11	40.71
1991	49.16	51.24	41.85	7.62	27.90	38.88	55.39	52.22	54.71	42.11
1992	43.04	27.77	46.47	9.91	47.39	42.38	56.18	47.41	55.76	41.81
1993	45.04	5.24	47.68	11.84	51.32	41.89	53.85	37.74	52.32	38.55
1994	50.38	2.95	43.98	14.62	63.46	51.95	52.08	39.80	56.75	41.78
Poland										
1988	14.71	23.12	7.20	4.82	0.00	38.53	42.91	42.63	35.81	23.30
1989	5.47	12.80	17.74	14.58	4.78	40.79	51.64	30.19	47.99	25.11
1990	22.66	4.39	28.04	23.71	4.83	34.92	59.30	35.86	45.26	28.77
1991	37.21	0.09	21.20	33.30	8.12	43.47	55.71	19.72	50.63	29.94
1992	27.04	0.94	13.08	33.17	0.00	46.46	58.19	27.79	36.65	27.04
1993	18.28	5.73	21.78	24.00	30.30	41.21	53.91	35.73	33.24	29.35
1994	33.37	7.46	17.97	16.49	0.22	29.52	57.99	42.13	21.41	25.17
Romania										
1988	12.19	0.00	10.61	5.16	3.82	11.40	36.32	45.37	24.71	16.62
1989	19.79	5.48	4.55	6.31	0.00	6.69	32.56	37.97	22.19	15.06
1990	14.33	0.00	15.77	2.45	0.00	16.84	44.32	46.90	21.47	18.01
1991	19.67	0.35	21.46	11.35	0.00	18.16	27.62	31.95	28.83	17.71
1992	12.65	0.16	28.23	10.98	5.16	21.14	35.14	17.28	37.71	18.72
1993	23.25	0.10	21.85	20.73	32.12	22.18	35.22	38.24	25.30	24.33
1994	30.93	0.03	23.57	64.11	34.85	22.09	41.82	43.92	27.86	32.13

Source: Institute for Advanced Studies, 1995.

We proceed with an investigation to which extent the creation of trade has been due to an increased specialization in Central and Eastern Europe. To tackle this issue we decompose the overall trade growth into the components of intra-industry trade growth and of inter-industry trade growth. Rearranging the definitional equation of intra-industry trade, from equation (3) we have

$$(4) \quad B_{it}(X_{it} + M_{it}) + |X_{it} - M_{it}| = X_{it} + M_{it}$$

Subtracting the trade volume at time (t-1) and using Δ as difference operator, we obtain

$$(5) \quad \Delta(B_{it}(X_{it} + M_{it})) + \Delta|X_{it} - M_{it}| = \Delta(X_{it} + M_{it}).$$

Dividing by $(X_{it} + M_{it})$ gives

$$(6) \quad \frac{\Delta(B_{it}(X_{it} + M_{it}))}{X_{it} + M_{it}} + \frac{\Delta|X_{it} - M_{it}|}{X_{it} + M_{it}} = \frac{\Delta(X_{it} + M_{it})}{X_{it} + M_{it}}$$

Table 6
Growth of Inter-industry and Intra-industry Trade

	0	1	2	3	4	5	6	7	8
Albania									
Intra	-0.89	-1.61	54.27	n.d	n.d	-4.49	-12.99	1.21	19.81
Inter	-93.42	14.11	270.93	n.d	n.d	-89.65	-49.02	18.38	29.79
Total	-94.31	12.50	325.20	n.d	n.d	-94.14	-62.00	19.59	49.60
Bulgaria									
Intra	22.59	12.94	3.16	-22.02	-9.52	1.04	6.67	9.34	79.79
Inter	53.08	-7.77	-55.11	-48.18	-56.83	-37.22	-56.31	-51.68	61.83
Total	75.67	5.17	-51.95	-70.20	-66.35	-36.18	-49.64	-42.34	141.62
CSFR									
Intra	120.43	90.39	55.09	78.65	4.81	64.63	425.32	126.81	319.37
Inter	86.14	640.80	11.12	2.21	-6.58	38.03	125.82	103.24	227.56
Total	206.57	731.19	66.22	80.87	-1.77	102.66	551.14	230.04	546.92
Hungary									
Intra	66.22	-40.10	-14.83	17.61	-15.75	26.22	63.20	147.85	291.32
Inter	32.68	333.26	-2.20	26.35	-29.81	11.49	58.96	185.94	217.92
Total	98.90	293.16	-17.03	43.96	-45.56	37.70	122.17	333.78	509.24
Poland									
Intra	6.11	-4.86	10.89	45.15	0.10	-4.39	59.64	44.14	60.83
Inter	-43.72	149.62	-10.21	157.90	-54.91	20.04	17.20	61.81	290.55
Total	-37.62	144.76	0.68	203.06	-54.81	15.65	76.84	105.95	351.39
Romania									
Intra	45.51	1.34	63.07	145.03	-1.82	11.65	35.22	189.46	54.64
Inter	41.05	4352.78	149.54	-10.76	-92.45	-7.29	35.85	245.21	130.19
Total	86.56	4354.12	212.61	134.27	-94.27	4.37	71.07	434.67	184.83

"Inter" refers to the growth rate of inter-industry trade from 1988 to 1994, "Intra" to the growth rate of intra-industry trade, and "Total" to the overall growth of trade during the respective time period.

On the right side of equation (6) we then have the growth rate of trade while the left side is composed of two components. The first component measures the contribution of intra-industry trade to total trade growth, and the second one represents the contribution of inter-industry trade to overall trade growth.

Table 6 shows the results of this decomposition at the SITC two-digit level in an aggregated manner at the SITC one-digit level. A strong variation of this indicator over time and across countries becomes obvious. In the groups with the highest growth of trade, that is the SITC groups 1,6,7, and 8, intra-industry trade has contributed between about one quarter up to more than one half of total trade growth. Similarly, in the groups where trade has been decreasing, intra-industry trade as a rule has proven to be less affected than inter-industry trade.

These findings suggest that most of the trade growth between Central and Eastern Europe and Austria has to a large extent been due to increases in intra-industry trade. The table also indicates that, to the extent that small and politically well-organized groups of Austrian manufacturers may be able to influence trade policy, the pressure for protective measures in favor of particular industries will appear attractive.

4. A Cross-country Similarity Analysis

The considerable extent of structural change documented above suggests a strong impact on the international division of labor. Concern has been voiced that the competition by CEE countries will therefore necessitate changes in the Western European countries. Largely, this necessity will depend on the competition arising from the additional suppliers on the world market.

This section is dedicated to a multi-dimensional similarity analysis of import flows across various countries. Taking the exports to Austria as the common denominator, for a sample of CEE countries as well EU countries we compute a correlation matrix to measure the degree of association between trade flows for all possible pairs of countries. With Turkey, which is linked to the EU by an association agreement similar to the one signed by six CEE countries, we also include a country outside the common market.

A high correlation coefficient for a specific pair of countries is interpreted as a sign of potentially strong competition on the Austrian market while a low correlation coefficient implies only weak competition. Employing the resulting correlation matrix, it is therefore possible to identify the countries which are most strongly affected by the opening of Central and Eastern Europe. There may be, however, a major shortcoming associated with such an approach. Since Austria's exports do not only depend on the economic structure of the importing country but are likely to be influenced by Austria's product mix as well, the results may be biased. Taken the Austrian import side only, however, this reservation does apply since all exporters from Central and Eastern Europe and EU countries face the same structure of the (Austrian) economy.

The correlation matrix shows a remarkable degree of variation. While Polish and Czech exports are characterized by a high positive correlation (0.62), Czech and Hungarian

exports are almost uncorrelated (0.22). Croatian exports exhibit a correlation of as high as 0.48 with Slovak exports, and Romanian exports compared to Hungarian exports still reach 0.40. Hence, the degree of correlation in the export structure of two countries belonging to the V4 group of countries falls repeatedly short of that one found for several pairs of countries consisting of one country inside but the other one outside the Visegrad group.

Table 7
The Degree of Similarity Between the Eastern European Trade Flows in 1994

	PL	CZ	SK	HU	RO	BG	ALB	SLO	CRO	EST	LAT	LIT	RU
PL	1.00												
CZ	.62 ^a	1.00											
SK	.19	.46 ^a	1.00										
HU	.18	.22	.62 ^a	1.00									
RO	.38 ^a	.19	.32 ^b	.40 ^a	1.00								
BG	.38 ^a	.16	.27 ^b	.40 ^a	.77 ^a	1.00							
ALB	.12	.12	.19	.22	.48 ^a	.48 ^a	1.00						
SLO	.17	.37 ^a	.38 ^a	.27 ^b	.42 ^a	.34 ^a	.21	1.00					
CRO	.17	.44 ^a	.48 ^a	.44 ^a	.34 ^a	.29 ^b	.20	.42 ^a	1.00				
EST	.25 ^b	.13	.15	.21	.41 ^a	.54 ^a	.34 ^a	.20	.49 ^a	1.00			
LAT	.27 ^b	.31 ^b	.39 ^a	.32 ^a	.63 ^a	.59 ^a	.73 ^a	.36 ^a	.30 ^b	.36 ^a	1.00		
LIT	.31 ^b	.23	.28 ^b	.37 ^a	.69 ^a	.77 ^a	.63 ^a	.23	.38 ^a	.40 ^a	.78 ^a	1.00	
RU	.01	-.03	.17	.13	.03	.06	-.07	-.06	.00	.21	.32 ^a	.37	1.00

Note: Pearson's correlation coefficients computed on the basis of Austrian imports.
SITC two-digit groups: ^a significant at 1 %, ^b significant at 5 % (two-tailed test) under the null hypothesis of similarity.

Abbreviations: Poland (PL), Czech Republic (CZ), Slovakia (SK), Hungary (HU), Slovenia, (SLO), Croatia (CRO), Romania (RO), Bulgaria (BG), Albania (ALB), Russia (RU), Estonia (EST), Latvia (LAT), Lithuania (LIT).

Table 8
The Degree of Similarity between Eastern and Western European Trade Flows in 1994

	Sweden	Finland	UK	France	Switzerland	Italy	Spain	Greece	Turkey
Poland	.01	.01	-.02	.03	-.04	.25 ^b	.10	.30 ^b	.32 ^a
Czech R.	.21	.12	.09	.14	.13	.30 ^b	.03	.18	.16
Slovakia	.22	.17	.11	.15	.10	.44 ^a	.02	.30 ^b	.26 ^b
Hungary	.10	.09	.25 ^b	.14	.11	.40 ^a	.06	.40 ^a	.39 ^a
Slovenia	.53 ^a	.38 ^a	.40 ^a	.40 ^a	.57 ^a	.72 ^a	.12	.28 ^b	.23
Croatia	.08	.08	.09	.07	.16	.50 ^a	.01	.33 ^a	.28 ^b
Romania	.01	.01	.14	.17	.11	.66 ^a	.17	.75 ^a	.73 ^a
Bulgaria	.04	-.01	.13	.16	.06	.62 ^a	.29 ^b	.84 ^a	.86 ^a
Albania	-.09	-.05	.11	.15	.28 ^b	.46 ^a	.02	.64 ^a	.62 ^a
Estonia	-.02	-.01	-.03	.02	.04	.45 ^a	.27 ^b	.38 ^a	.48 ^a
Latvia	.08	.00	.16	.14	.27 ^b	.60 ^a	-.01	.77 ^a	.69 ^a
Lithuania	-.11	-.02	.07	.06	.03	.53 ^a	.02	.94 ^a	.85 ^a
Russia	-.10	-.05	-.07	-.06	-.10	-.08	-.06	-.01	-.05

Note: Pearson's correlation coefficients computed on the basis of Austrian imports.
SITC two-digit groups: ^a significant at 1 %, ^b significant at 5 % (two-tailed test).

The difference between Northern and Southern CEE countries appears to be smaller than often conjectured. We therefore conclude that, from the perspective of Austrian trade relationships, the conventional categorization of the CEE countries into four regional

groups - the Visegrad countries, the South Eastern European countries, the Baltic countries, and the CIS, is at least debatable. Merely the results for Russia unanimously justify a separate consideration. Note, however, that the correlation matrices suggest the inclusion neither of Slovenia nor of Croatia in the Balkan group. Furthermore, this example refutes the hypothesis that the factor "distance" plays a crucial role in the Austrian import structure since both Czechia and Hungary border to Austria while Poland does not.

The extension of the correlation analysis towards Western European countries reveals further insights. For all CEE countries except for Czechia and Russia we find very high correlation coefficients with Greece and Italy. These results suggest that exporters from these Southern EU member countries will face remarkably increasing competition on other EU markets due to the trade liberalization with Central and Eastern Europe. The same conclusion holds for Turkey. Slovenia turns out to be the only CEE country which is featured by a significant correlation with most of the other CEE countries. But at the same time there exists a similar degree of correlation between Slovenia and the Western and Northern European countries. Slovenia therefore holds an intermediate position which is close to both Western Europe and Central and Eastern European transition economies.

5. Conclusions

By using disaggregate trade data, we demonstrate that the analysis of aggregate trade data may obscure rather than illuminate the underlying structural changes in East-West trade relationships. The haphazard dynamics of the indices of revealed comparative advantage on a disaggregate level suggests that future trends in trade developments are much harder to gauge than implied by aggregate analysis. Permanent structural changes in trade turn out to be an important factor in explaining the trade relationships of Austria with Central and Eastern Europe. These structural changes emerge from a reshaping of the international division of labour across Europe that is characterized by the creation of competitive edges in specific product niches. The considerable contribution that the growth of intra-industry trade has made to overall trade growth indicates less significant adjustment needs in Western Europe than argued by much of the literature.

Our analysis supports the hypothesis that the Southern members of the EU will face increasing competition by CEE countries while Northern and Western EU members will be less affected. At the same time, competition between exporters from CEE countries on the CEE6 markets seems to be weaker compared to the competition on the EU markets. These findings have strong implications for the strategies available to Central and Eastern European countries regarding their integration into the European Union. All CEE6 countries aim at full EU-membership as quickly as possible. Their positions with respect to a co-ordination of their international policies, however, differ remarkably which gives rise to a discussion whether common or individual negotiations with the EU should be preferred. Poland initiated some activities which may have led to the formulation of a common European policy of the Visegrad group. This initiative was recently rejected mainly by the Czech Republic, and thus the V4 countries only agreed on the introduction of the Central European Free Trade Area (CEFTA). The views of Hungary and Slovakia are considered to lie between these two extreme points.

The relatively high degree of diversification in Polish and even more in Czech exports, according to our similarity analysis, reduces their impact on specific sectors and/or countries in the EU due to integration. In particular, this conclusion applies with respect to the Southern EU member countries. We therefore expect a comparatively low degree of political resistance by the Southern EU member states to an integration of the Czech Republic into the EU. Despite a similarly favorable trade structure, Polish attempts to join the EU may nevertheless meet considerably stronger resistance. Due to structural problems in specific industries and in agriculture, Poland would be entitled to tremendous EU subsidies, given the status quo of the common market policy by the EU.

Although it is difficult to assess whether common or individual entry of CEE countries to the EU will prevail, the high similarity among some CEE economies suggests that a harmonized policy should be opted for because a common entry will avoid repeated shocks to the trade flows due to EU integration. Furthermore, individual entry of CEE countries to the EU market is likely to result in considerable opposition of the early entrants to further eastward expansion.

The example of Turkey suggests that countries which are not members of the EU are likely to face higher competition on the EU market as the trade with Eastern Europe is liberalized. The current EU member countries are affected by trade liberalization and the future EU enlargement by enhanced competition on their domestic markets, and also on their export markets within the common market. The Southern EU member countries can be expected to be most strongly affected by East-West integration.

Appendix

Table A1
Sensitivity of the Correlation Matrices to the Exclusion of Individual SITC Categories

	Exports						Imports					
	1988	1989	1990	1991	1992	1993	1988	1989	1990	1991	1992	1993
Bulgaria												
Correlation	1.00	0.93	0.88	0.50	0.48	0.35	1.00	0.93	0.97	0.93	0.86	0.71
excl 8	1.00	0.93	0.88	0.49	0.49	0.42	1.00	0.93	0.97	0.94	0.89	0.79
excl 4&2	1.00	0.94	0.90	0.49	0.47	0.33	1.00	0.94	0.97	0.94	0.88	0.72
excl3	1.00	0.93	0.88	0.50	0.48	0.35	1.00	0.96	0.97	0.93	0.88	0.73
excl0+1	1.00	0.93	0.90	0.52	0.57	0.37	1.00	0.82	0.82	0.56	0.32	0.14
excl7	1.00	0.95	0.80	0.53	0.34	0.28	1.00	0.93	0.97	0.93	0.86	0.71
excl6	1.00	0.91	0.88	0.49	0.52	0.41	1.00	0.93	0.97	0.95	0.89	0.78
excl5	1.00	0.93	0.88	0.49	0.48	0.34	1.00	0.93	0.97	0.93	0.86	0.71
Romania												
Correlation	1.00	0.98	0.76	0.39	0.20	0.34	1.00	0.88	0.83	0.88	0.73	0.62
excl0+1	1.00	0.98	0.80	0.46	0.20	0.33	1.00	0.83	0.86	0.84	0.71	0.50
excl 8	1.00	0.98	0.76	0.38	0.18	0.33	1.00	0.84	0.83	0.85	0.69	0.75
excl 4&2	1.00	0.98	0.82	0.36	0.16	0.31	1.00	0.87	0.82	0.88	0.72	0.60
excl3	1.00	0.98	0.76	0.39	0.19	0.34	1.00	0.86	0.80	0.89	0.74	0.65
excl7	1.00	0.99	0.76	0.44	0.21	0.39	1.00	0.90	0.88	0.90	0.77	0.64
excl6	1.00	0.97	0.57	0.35	0.28	0.30	1.00	0.94	0.84	0.89	0.78	0.62
excl5	1.00	0.98	0.73	0.40	0.24	0.43	1.00	0.88	0.80	0.91	0.76	0.66
Poland												
Correlation	1.00	0.91	0.60	0.50	0.49	0.60	1.00	0.99	0.99	0.98	0.98	0.95
excl0+1	1.00	0.96	0.89	0.79	0.74	0.74	1.00	1.00	0.99	0.99	0.98	0.95
excl 8	1.00	0.98	0.57	0.49	0.50	0.64	1.00	0.99	0.99	0.99	0.98	0.97
excl 4&2	1.00	0.97	0.53	0.42	0.41	0.56	1.00	0.99	0.99	0.98	0.98	0.94
excl 3	1.00	0.98	0.57	0.46	0.45	0.59	1.00	0.90	0.92	0.86	0.81	0.66
excl7	1.00	0.99	0.34	0.23	0.23	0.48	1.00	0.99	0.99	0.98	0.97	0.94
excl6	1.00	0.98	0.55	0.44	0.43	0.59	1.00	0.99	0.99	0.98	0.97	0.94
excl5	1.00	0.98	0.57	0.47	0.49	0.60	1.00	0.99	0.99	0.98	0.97	0.94
Hungary												
Correlation	1.00	0.99	0.91	0.79	0.66	0.58	1.00	0.97	0.88	0.77	0.74	0.75
excl0+1	1.00	0.99	0.91	0.79	0.64	0.56	1.00	0.97	0.88	0.77	0.73	0.74
excl 8	1.00	0.99	0.94	0.84	0.71	0.64	1.00	0.97	0.90	0.80	0.76	0.77
excl 4&2	1.00	0.99	0.91	0.79	0.65	0.58	1.00	0.97	0.88	0.76	0.72	0.74
excl 3	1.00	0.97	0.79	0.43	0.33	0.23	1.00	0.97	0.88	0.77	0.73	0.75
excl7	1.00	0.99	0.92	0.87	0.80	0.76	1.00	0.96	0.88	0.75	0.73	0.75
excl6	1.00	0.99	0.95	0.82	0.68	0.60	1.00	0.96	0.86	0.74	0.70	0.71
excl5	1.00	0.99	0.91	0.80	0.66	0.58	1.00	0.97	0.90	0.80	0.77	0.78
CSFR												
Correlation	1.00	0.96	0.91	0.85	0.84	0.84	1.00	0.97	0.94	0.65	0.49	0.75
excl0&1	1	0.96	0.90	0.84	0.83	0.84	1.00	0.97	0.94	0.65	0.47	0.75
excl8	1.00	0.97	0.91	0.86	0.86	0.86	1.00	0.97	0.94	0.66	0.49	0.79
excl2&4	1.00	0.96	0.90	0.84	0.83	0.83	1.00	0.98	0.87	0.35	0.27	0.65
excl3	1.00	0.96	0.93	0.85	0.84	0.85	1.00	0.96	0.94	0.88	0.60	0.70
excl5	1.00	0.93	0.75	0.78	0.74	0.69	1.00	0.97	0.96	0.66	0.57	0.78
excl6	1.00	0.96	0.91	0.84	0.84	0.86	1.00	0.97	0.95	0.67	0.50	0.81
excl7	1.00	0.93	0.75	0.78	0.74	0.69	1.00	0.97	0.96	0.66	0.57	0.78

Table A2
Adjusted RCAs*

	0	1	2	3	4	5	6	7	8
Albania									
1988	-0.55	-0.30	-0.21	nd	nd	-0.24	0.72	1.00	0.79
1989	-1.34	1.00	-0.74	nd	nd	0.63	0.31	0.99	0.92
1990	-0.88	1.00	-0.88	nd	nd	0.48	0.36	1.00	0.87
1991	-0.97	-0.57	-1.17	nd	nd	-0.05	0.52	0.99	0.61
1992	-0.21	1.00	-1.09	1.00	1.00	-0.36	-0.25	1.00	0.34
1993	0.89	1.00	-0.79	1.00	1.00	-1.07	-0.78	1.00	-0.93
1994	-0.16	1.00	0.31	1.00	1.00	-2.12	-0.19	0.97	-1.20
Bulgaria									
1988	-6.07	1.00	-0.43	-3.02	-6.82	0.36	0.90	0.81	-0.48
1989	-3.55	-2.39	-1.46	0.24	-4.21	0.73	0.80	0.84	-0.06
1990	-1.43	-1.96	-0.75	-1.62	1.00	0.50	0.68	0.84	-0.05
1991	-1.23	-1.01	-1.13	-0.95	0.87	0.55	0.36	0.83	-0.32
1992	-0.86	-0.07	-1.85	0.19	-1.80	0.61	0.21	0.76	-0.21
1993	-0.90	0.41	-1.25	0.96	-1.12	0.42	-0.10	0.63	-0.08
1994	-0.36	-0.48	-1.18	0.10	1.00	0.50	0.17	0.47	-0.79
CSFR									
1988	-0.36	-0.02	-0.70	-0.70	-0.42	0.17	0.19	0.79	0.55
1989	-0.36	0.04	-0.68	-0.68	-0.65	0.31	0.06	0.74	0.52
1990	-0.41	-0.34	-1.24	-0.70	-1.21	0.03	-0.07	0.66	0.41
1991	-0.35	0.69	-1.11	-1.04	-0.96	0.05	-0.18	0.59	0.27
1992	-0.08	0.79	-1.01	-0.84	-0.97	0.28	-0.18	0.39	0.23
1993	-0.16	1.00	-1.17	-0.64	-0.82	0.35	-0.14	0.46	0.05
1994	0.20	0.73	-0.89	-0.51	-0.63	0.47	-0.06	0.50	0.07
Hungary									
1988	-1.57	0.19	-0.69	-12.61	-6.98	0.15	0.13	0.43	0.24
1989	-1.04	0.44	-0.93	-11.31	-3.95	0.09	0.10	0.42	0.23
1990	-1.27	0.21	-0.90	-10.84	-3.67	0.02	0.06	0.38	0.11
1991	-0.81	0.47	-1.41	-5.12	-13.06	0.17	0.15	0.25	0.04
1992	-0.74	0.47	-1.51	-3.77	-3.09	0.21	0.14	0.19	0.02
1993	-0.45	0.47	-1.42	-2.34	-2.44	0.20	0.21	0.17	-0.12
1994	-0.49	0.94	-0.79	-0.86	-0.86	0.21	0.24	0.20	-0.18
Poland									
1988	0.05	0.12	-1.09	-1.29	-1.06	-0.05	0.39	0.56	0.15
1989	-0.03	0.24	-1.11	-0.74	-0.76	-0.19	0.35	0.61	0.08
1990	-0.15	0.90	-1.02	-0.91	-0.44	-0.02	0.18	0.66	0.03
1991	-0.18	1.00	-1.92	-1.88	0.89	-0.07	0.15	0.71	0.02
1992	-0.37	0.97	-1.52	-1.82	0.43	0.41	0.13	0.53	-0.11
1993	0.69	0.85	-1.23	-1.61	0.50	0.39	0.24	0.62	-0.07
1994	-0.48	0.84	-0.76	-1.14	0.99	0.52	0.26	0.60	-0.14
Romania									
1988	-0.34	1.00	-0.17	-0.53	-0.55	0.09	0.50	0.33	-0.43
1989	-0.41	0.91	-0.12	-0.61	1.00	0.13	0.14	0.34	-0.57
1990	-0.63	1.00	-0.75	-1.17	-1.19	0.10	0.33	0.03	-1.10
1991	-0.41	0.99	0.67	-1.31	-1.53	0.23	0.35	-0.53	-0.79
1992	0.00	1.00	0.48	-1.04	-1.16	0.18	-0.14	0.06	-0.70
1993	-0.15	1.00	0.63	-1.55	-1.88	0.30	-0.57	0.33	-1.56
1994	-0.18	1.00	-0.32	-0.57	-0.81	0.60	-0.26	0.41	-0.77

* The RCAs have been corrected for effects due to trade deficits/surpluses by the following formula:

$$RCA_{it} = \frac{X_{it} - \alpha M_{it}}{X_{it} + \alpha M_{it}}, \quad \alpha = \frac{\sum_i X_{it}}{\sum_i M_{it}}$$

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