“The effects of Europe Agreement on EU-CEEC trade: an analysis by main sectors”,

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In this paper, we investigate the effects of different provisions of the European Agreements on EU-CEECs trade in three sectors: non-sensitive industrial products, sensitive industrial products and food and beverages. We use a gravity model to evaluate the degree of trade integration reached in these sectors and to assess whether the CEECs have been positively affected. We find that an integrated area has been created for non-sensitive and to a lesser extent on non-sensitive industrial products; on the contrary, in agriculture the EU market has remained protected due to limited reductions in trade barriers.

Keywords: gravity models; EU enlargement; trade integration; EU-CEEC trade
JEL code: F13, F15, F17

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1. Introduction

The eastern enlargement[1] has been a crucial issue faced by the EU at the end of the millennium. Its relevance has been confirmed since the fall of the Berlin Wall by a high number of scientific studies and political debates about the effects of integration between the EU and the CEECs. Trade has been one of the most prominent areas of investigation, because the future creation of an important market with 400 millions consumers will strongly affect the economies of both Western and Eastern countries.

In this context, we undertake an evaluation of the Europe Agreements in terms of their capacity to increase or hinder trade flows in order to assess the effectiveness of the EU trade strategy as preparatory to the enlargement. We analyse three fundamental sectors: machinery, manufactures, and food and beverages. There are some institutional reasons for choosing them. The first sector is by far the most important category in EU-CEECs trade of industrial goods and the Agreements provided for its quick and complete liberalisation. For many products included in the second one (the so called "sensitive" products, mainly textiles and clothing and iron and steel) the process of market opening was much slower. As regards the last sector, only a gradual reduction in barriers, but not a free trade area, was established. One could thus expect different rules to have different impacts on considered sectors.

In order to evaluate it, we estimate a gravity model of bilateral sectoral trade among the EU, the CEECs and other OECD countries in the second half of the Nineties. We choose this approach because it allows us to identify the pattern of interrelationships among countries or regions, as determined by economic, geographical and institutional variables. In particular, we will be able to assess if the Europe Agreements have really been able to generate a preferential trade regime towards the CEECs. The structure of the article is as follows. Section 2 presents the main provisions of the Europe Agreements and the evolution of EU-CEECs trade during the Nineties. Section 3 applies the gravity model to each of the three sectors concerned and describes the findings. Section 4 concludes.

2. The Europe Agreements and EU-CEECs trade in the Nineties

The Europe Association Agreements were initiated by the EU with each CEEC separately and represent the most far-reaching agreements ever concluded with third countries. The first of these

[1] In this paper, we consider the following Central and Eastern European countries (CEECs): Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

were with Poland, Hungary and Czechoslovakia in December 1991. Following the split of this country into Czech Republic and Slovakia at the beginning of 1993, the EU renegotiated two agreements with these new countries. These came into force on 1st February 1995, with those of Bulgaria and Romania. Three years later, Agreements with the three Baltic States came into force followed by the that with Slovenia on 1st February 1999.

They cover not only trade matters, but also political dialogue and cultural and economic cooperation between the partners, and provide a basic outline for the gradual integration of the CEECs in the EU. The Agreements thus provide a transition period lasting for a maximum of ten years for Poland, Hungary, Czech Republic, Slovakia, Bulgaria and Romania, six years for Slovenia and Lithuania and four for Latvia; there is no transition period for Estonia (see table 1).

Table 1: Europe and Interim (or Free Trade) Agreements between the EU and the CEECs

	Europe Agreements		**Interim Agreements** (1)	**Max transition periods** (2)	
	Signed	Come into force	Come into force	global	agriculture
Poland	16.12.91	01.02.94	01.03.92	10 years	5 years
Hungary	16.12.91	01.02.94	01.03.92	10 years	5 years
Czech Rep.	04.10.93	01.02.95	01.03.92	10 years	5 years
Slovakia	04.10.93	01.02.95	01.03.92	10 years	5 years
Romania	01.02.93	01.02.95	01.05.93	10 years	5 years
Bulgaria	08.03.93	01.02.95	31.12.93	10 years	5 years
Slovenia	10.06.95	01.02.99	01.01.97	6 years	6 years
			Free Trade Agreements (1)		
Estonia	12.06.95	01.02.98	01.01.95	0	6 years
Latvia	12.06.95	01.02.98	01.01.95	4 years	6 years
Lithuania	12.06.95	01.02.98	01.01.95	6 years	6 years

(1) Expired upon entry into force of the Europe Agreements.
(2) For trade provisions, the reference date is the entry into force of the Interim Agreements; for Baltic countries, it is the entry into force of the Free Trade Agreements.
Sources: INEA (1998); European Commission (1999)

While waiting for ratification, the Interim Agreements provided for an anticipated and temporary application of trade provisions (see Brenton et al., 1997 for more details). Their aim is to establish a free trade area for industrial goods for no more than ten years on a reciprocal, even if on

an asymmetric, basis. This means that the EU is to remove its trade barriers more quickly than the CEECs.[2]

Duties applied to EU imports of manufactured goods from the CEECs have been progressively dismantled since the entry into force of the Interim Agreements, while tariffs on CEECs imports from the EU have been applied only to a short list of products. This led to the total removal of all tariff barriers on industrial products from the EU on 1st January 2000.

For some sensitive industrial sectors a special discipline was created, in particular for textiles, iron and steel, car industry (only for Poland).

A much more gradual liberalisation was applied to agricultural goods and fisheries. We must realise that the establishment of a free trade area is not foreseen and all concessions were subjected to renegotiation after a five-year transition period[3].

Quantitative restrictions were also abolished with application of the Interim Agreements, except for a certain number of products. In any case the signatory parties can take emergency measures (higher tariffs or quantitative restrictions) in the terms established by the WTO under exceptional circumstances (safeguard clauses).

Table 2: EU-CEECs trade

	Exports to the CEECs in % total export			Imports from the CEECs in % total import		
	1990	1995	2000	1990	1995	2000
EU15	5.2	9.3	12.3	3.0	8.1	9.6
	Exports to the EU in % total export			Imports from the EU in % total import		
	1990	1995	2000	1990	1995	2000
Bulgaria	5.6	37.3	51.2	11.5	38.1	44.1
Czech Rep.	38.4	55.2	68.6	40.5	56.4	61.9
Estonia	3.7	54.1	76.5	6.7	66.0	62.6
Hungary	42.1	62.7	75.1	43.1	61.6	58.4
Latvia	n.d.	44.0	64.6	n.d.	49.9	52.4
Lithuania	5.1	36.4	47.9	9.8	37.1	43.3
Poland	52.7	70.7	69.9	51.1	64.6	61.2
Romania	33.9	53.2	63.8	21.8	49.6	56.6
Slovakia	30.8	37.4	59.1	32.4	34.7	48.9
Slovenia	64.8	67.2	63.8	69.0	68.9	67.8

Source: Eurostat

[2] These Agreements came into force on 1st March 1992 for Poland, Hungary and Czechoslovakia, the following year for Romania and Bulgaria and on 1st January 1997 for Slovenia. For Estonia, Latvia and Lithuania there was an intermediate step represented by the Free Trade Agreements, which came into force on 1st January 1995 and included some specific trade provisions for each country. They were then incorporated in the Europe Agreements.

[3] Conclusions of the Uruguay Round on agricultural trade were taken into account in that revision.

These were the main characteristics of the Europe Agreements. The first way to assess their impact on trade is to analyse the actual evolution of EU-CEECs trade flows during the last decade.

The increase in the exchanges takes place very quickly, with the strongest growth during the period 1990-1995. It is easy to expect an asymmetry in the weight of bilateral trade on the global one; in fact, it looks still small for the EU, even if it rose considerably during the Nineties. In 1990 only 5.2% of exports and 3.5% of imports entered or left the CEECs, while in 2000 these percentages rose to 12.3% and 9.6% respectively (table 2). For the CEECs, in contrast, the EU is the main trading partner. In 2000, all (except for Lithuania) countries destined more than 50% of their exports to Western Europe markets, with peaks of 76% for Estonia and 75% for Hungary. The situation is quite similar for imports, which vary from 43% for Lithuania and 68% for Slovenia (table 2). We observe a very strong increase in the first half of the 1990s and a more limited one in the following years (or a slight decrease, as for Poland). The reorientation of CEEC trade away from the Soviet Union to Western Europe therefore took place rapidly (Maurel, 1998; Fidrmuc, 2000).

The intra-CEECs trade also fell at the beginning of the decade and remained on quite low levels afterwards. This phenomenon can be explained by factors like the disappearance of exchange mechanisms provided in the Comecon and the growing demand for consumer goods and investment in technologically advanced sectors. In this scenario, the tendency was to view all forms of intra-CEEC integration as less than ideal solutions compared with the opportunities of the Europe Agreements and the perspective of the EU membership (European Commission, 1999)

Table 3: Shares in EU total exports to Poland and Czech Rep. (in %)

	POLAND		CZECH REPUBLIC	
	1993	1999	1993	1999
Food & bev. (1)	10.91	4.56	6.64	3.96
Text. & cloth. (2)	12.05	6.38	1.77	4.61
Iron and steel (3)	3.11	2.69	1.86	3.71
(1) + (2) + (3)	26.07	13.63	10.27	12.28
Machinery	42.17	41.91	45.85	45.48

Source: authors' calculations

Table 4: Shares in Polish and Czech total exports to the EU (in %)

	POLAND		CZECH REPUBLIC	
	1993	1999	1993	1999
Food & bev. (1)	9.85	6.00	6.06	1.82
Text. & cloth. (2)	1.93	2.84	4.96	4.01
Iron and steel (3)	3.24	2.62	7.86	3.38
(1) + (2) + (3)	15.02	11.46	18.88	9.21
Machinery	19.36	32.20	22.19	46.99

Source: authors' calculations

The general trend of the trade shares between the two areas shows an overall increase though the trade flow behaviour is different for "sensitive" products, especially for agricultural goods, textiles, iron and steel. In any case, it is not easy to identify a common trend for these kinds of products among different countries. It is clear if we examine their evolution for Poland and Czech Republic, the EU's most important trading partners. For imports, the share of sensitive products from the EU shows divergent trends for these two countries: a decrease of 12%, from 26% to 14%, for Poland, an increase from 10% to 12% for Czech Republic (table 3). For this case, therefore, it is hard to say that the Europe Agreements have discriminated sensitive products negatively. On the contrary, exports trends are quite similar, with a clear diminution in the shares of sensitive goods and a strong growth in machinery (table 4). As a result, one can expect that the Europe Agreements played a significant role in the evolution, but it is necessary to remember that in the last decade these countries undertook profound transformation and modernization of their production structure (Brenton and Di Mauro, 1998), not necessarily linked to these trade agreements.

These findings show the need to study the effect of the Europe Agreements more in detail; we will do that by using a gravity model.

3. The gravity model

Gravity models have often been used to evaluate trade flows between the EU and the CEECs in the last decade. Most studies concentrated on total trade: in the first years of transition they found a strong growth potential (for example, Baldwin, 1994; Wang and Winters, 1994; Festoc, 1995), whereas more recently it seems that a good level of integration has already been reached (Gros and Gonciarz, 1996; Brenton and Gros, 1997; Fontagné et al., 1999; Nilsson, 2000). On the contrary,

only few analyses of sectorial trade have been done. These often give contrasting results: Brenton and Di Mauro (1998) maintain that flows of sensitive products are not significantly depressed relative to total trade, while Schumacher and Trubswetter (2000) still find a considerable room for growth.

By applying a gravity model to three relevant sectors, our analysis aims at assessing whether the EU trade policy (represented by the Europe Agreements) has been successful in integrating the CEECs. As described in the introduction, the three sectors are machinery, manufacturing and food and beverages. Our model studies bilateral trade flows between EU countries (14, because Belgium and Luxembourg are treated as a single country) and 31 partners: the EU members themselves (excepted the reporting country, of course), the CEECs and other OECD industrialized countries (see the appendix for the complete list).

The detailed definition of variables is given in the appendix. Here we shall underline that: a) data represent the mean of the period 1995-1998, in order to avoid the risk of bias linked to the effects of the economic cycle on the values of a specific year; b) we used real data expressed at 1995 constant prices (millions of US $); c) about 434 observations (14 x 31) were available, but we used only flows with values higher than 100000 US$, therefore the number of observations is slightly lower; d) we used GDP at current exchange rates because GDP at purchasing power parity would lead to an overestimation of the CEECs potential trade flows; in fact, according to Brenton and Gros (1997), the latter reflects internal purchasing power, while the former represents a measure of external purchasing power, which is the relevant indicator in international trade relationships; e) distance is very difficult to estimate in economic terms (Wang and Winters, 1994; Baldwin 1994); hence, we used the most common approach, consisting in the straight-line distance between economic centres (generally, capital cities) of countries. This is a simple and transparent measure.

Five dummy variables are used: EU membership for both partners, CEECs membership for one partner, NAFTA membership for one partner, a common border and a common official language.

The first tries to capture the effect of more intensive trade relations determined by the existence of the Single Market, while the second permits the evaluation of the impact of the Europe Agreements; the third aims at investigating possible (negative or positive) discriminations towards the USA-Canada area (the biggest Europe trade partner). A statistically significant and positive value for these variables implies an exchange volume higher than the one we could expect according to population, per capita income and distance between countries (which we define as "normal").

The last two dummies indicate the presence of particular historical and economic ties. All the other factors held constant (above all, distance), a common border can have a positive impact on bilateral trade, while a common language can make relations easier; hence, coefficients for these variables should be positive.

Finally, according to Wang and Winters (1994), we did not introduce any price variables in our model.

We estimated the following equation:

$$ln\ X_{ij} = a + ß_1\ lnN_i + ß_2\ ln(Y/N)_i + ß_3\ lnN_j + ß_4\ ln(Y/N)_j + ß_5\ lnD_{ij} + ß_6\ ADJ + ß_7\ LANG +$$

$$+ ß_8\ EU15 + ß_9\ EUPECO + ß_{10}\ EUNAFTA \qquad i = 1, ..., 14 \qquad j = 1, ..., 31 \qquad (1)$$

where

X_{ij} = the imports (exports) flow of country *i* from (to) country *j*;

N_i, N_j = populations of *i* and *j*;

$(Y/N)_i$, $(Y/N)_j$ = per capita incomes of *i* and *j*;

D_{ij} = distance between the economic centres of *i* and *j*;

ADJ indicates a common border between *i* and *j*;

LANG indicates a common official language between *i* and *j*;

EU15 indicates membership of *i* and *j* to the EU;

EUPECO indicates membership of *i* to the EU and *j* to the CEECs

EUNAFTA indicates membership of *i* to the EU and *j* to NAFTA.

Total income variables(Y_i and Y_j) were not used because they would have created problems of multicollinearity due to the strong correlation between absolute GDP and per capita GDP and absolute GDP and population. By applying this specification, we expect coefficients of population variables to be positive, as they include the effects usually attributed to absolute GDP variables.

We estimated two separate equations for imports and exports of the EU, in order to determine possible differences between the two flows, remembering asymmetries provided by the Europe Agreements. The methodology used is OLS with White heteroskedasticity-consistent t-values.

The first application of the model was on machinery trade (SITC 7). This sector is the most important for EU-CEEC trade. Ever since the entry into force of the Europe Agreements a free trade area was established; that should have favoured bilateral trade.

Our findings completely confirm this hypothesis (table 5). EUPECO dummy has a positive value (1.180) and is statistically significant for imports, therefore indicating that East-West flow of machinery is above "normal" values. EU15 is positive and significant too, but shows a much smaller value (0.378), whereas EUNAFTA is insignificant, meaning that imports from North

America seem to be in line with the model forecasts. On the contrary, none of these variables is significant for exports.

We then applied our model to manufacturing flows (SITC 6). This wide category includes textiles, iron and steel, the main "sensitive" products, subject to a special regulation in the Europe Agreements (table 6).

Concerning EU imports, EUPECO dummy is completely insignificant, while it is negative (-0.729) and significant for EU exports. EU imports have reached "normal" values, but its exports can still exhibit a wide margin of growth. In this case, we suppose that asymmetry really favoured the CEECs. The findings do not reveal any discrimination towards the NAFTA by the Fifteen. EU15 dummy is always positive, but significant only for imports.

In estimating the effects for the agricultural sector (SITC 0+1), we modified the model specification in order to improve its explanatory power. In fact, previous studies obtained a quite low R^2 (between 0.4 and 0.6) by applying a gravity model to this sector (Bergstrand, 1989; Brenton and Di Mauro, 1998; Schumacher and Trubswetter, 2000); probably it happens because of the use of per capita income as the only proxy of the exporting country's factor endowment, in a labour intensive sector characterized by a strong dependence on raw materials. Thus we tried to substitute per capita income of exporting country (Yj/Nj) with per worker value added in agriculture (VAj/Lj), which represents a more precise measure of productivity in such sector, thus a more useful proxy of capital/labour ratio.

The model, without changing any other variables, looks more satisfying, with an R^2 equal to 0.73 for imports and 0.77 for exports (table 7). However, it is still lower than the other sectors, probably because the world market of agricultural goods is subject to complex regulations and heavy restrictions and thus appears to be much less free than the ones for industrial products.

Our findings confirm the uniqueness of this sector. EU membership still exerts a strong positive impact (especially for imports), while trade with the CEECs seem to be clearly penalized; on the contrary, trade with North America is in line with the "normal" one for EU exports, but much higher for EU imports.

Table 5: Machinery (SITC 7)

	IMPORTS	**EXPORTS**
	Value (t-value)	Value (t-value)
Constant	-19.504* (-9.136)	-24.587* (-12.774)
ln (Ni)	0.887* (19.429)	0.956* (25.841)
ln (Y/N)i	0.947* (6.987)	2.370* (14.068)
ln (Nj)	1.224* (31.950)	0.787* (21.155)
ln (Y/N)j	1.645* (16.691)	0.720* (7.928)
ln (D)	-0.881* (-11.836)	-0.691* (-9.333)
ADJ	0.042 (0.255)	0.333* (2.097)
LANG	0.413* (2.052)	0.425* (1.969)
EU15	0.378* (2.289)	0.237 (1.504)
EUPECO	1.180* (4.023)	-0.158 (-0.580)
EUNAFTA	-0.332 (-1.517)	-0.220 (-1.059)
R^2 adjusted	0.88	0.87
F	249.76	190.26
N observations	427	432

* indicates significance at 5% level

Source: authors' calculations

Table 6: Manufacturing (SITC 6)

	IMPORTS	**EXPORTS**
	Value (t-value)	Value (t-value)
Constant	-4.597* (-2.625)	-13.276* (-5.941)
ln (Ni)	0.948* (26.838)	0.896* (21.709)
ln (Y/N)i	0.589* (5.104)	1.526* (11.530)
ln (Nj)	0.815* (23.102)	0.764* (20.058)
ln (Y/N)j	0.714* (9.782)	0.462* (4.412)
ln (D)	-1.108* (-17.132)	-0.787* (-10.485)
ADJ	0.225 (1.608)	0.785* (4.913)
LANG	0.215 (1.253)	0.090 (0.578)
EU15	0.459* (3.453)	0.198 (1.250)
EUPECO	0.035 (0.164)	-0.729* (-2.350)
EUNAFTA	0.102 (0.657)	-0.053 (-0.273)
R^2 adjusted	0.88	0.85
F	270.76	192.69
N observations	432	433

* indicates significance at 5% level
Source: authors' calculations

Table 7: Food and beverages (SITC 0+1)

	IMPORTS	**EXPORTS**
	Value (t-value)	Value (t-value)
Constant	-2.478 (-0.839)	-2.720 (-1.393)
ln (Ni)	0.954* (14.845)	0.806* (15.942)
ln (Y/N)i	0.364* (1.827)	
ln (Y/N)j		0.208* (1.790)
ln (Nj)	0.575* (8.380)	0.730* (15.060)
ln (VA/L)i		0.690* (6.615)
ln (VA/L)j	0.326* (2.470)	
ln (D)	-0.684* (-6.137)	-0.837* (-9.915)
ADJ	0.826* (3.951)	0.661* (2.991)
LANG	0.726* (2.419)	0.443* (2.144)
EU15	1.267* (5.381)	0.474* (2.508)
EUPECO	-1.136* (-3.015)	-0.966* (-2.818)
EUNAFTA	0.966* (3.194)	0.112 (0.446)
R^2 adjusted	0.73	0.77
F	66.46	103.23
N observations	428	431

* indicates significance at 5% level

Source: authors' calculations

The Europe Agreements did not provide for the creation of a free trade area between the EU and the CEECs for these products, but they contained many provisions designed to improve the access on the respective markets. Therefore they may have not completely reached their goal. We can identify some main reasons for such failure (INEA, 1998):

1) deficiency of internal production in the CEECs, which does not allow the exports of surplus production to European markets;

2) lack of experience in the management of bilateral arrangements in these countries;

3) difficulty in conforming to health and quality standards applied by the EU;

4) problems in the assignment of licences to EU importers.

The CEECs appear therefore marginal for EU agricultural trade. EU exports privilege more attractive markets, namely other OECD industrialized countries, while for imports, the permanence of barriers (even after the Uruguay Round concessions) towards the USA and Canada does not seem to have a discriminatory effect: these two countries are "necessary" EU suppliers, in particular of cereals, fruits and feedstuff.

To study these issues more in detail, we shall analyze the evolution of the share of food and beverages in EU-CEECs total trade (tables 8 and 9).

Table 8: Shares of food and beverages in CEECs total exports to the EU (in %)

	1995-96	1998-99	Change
Bulgaria	10.72%	8.80%	-17.91%
Hungary	10.08%	5.77%	-42.74%
Poland	7.28%	6.43%	-11.60%
Lithuania	5.20%	5.28%	+1.61%
Romania	3.26%	2.37%	-27.28%
Estonia	2.90%	3.27%	+12.60%
Czech Republic	2.64%	1.62%	-38.78%
Slovakia	1.56%	1.05%	-32.44%
Latria	1.42%	2.13%	+49.84%
Slovenia	1.37%	1.31%	-4.17%
WORLD	7.85%	6.73%	-14.29%

Source: authors' calculations

Table 9: Shares of food and beverages in EU total exports to the CEECs (in %)

	1995-96	1998-99	Change
Latvia	18.50%	10.06%	-45.64%
Lithuania	13.69%	10.36%	-24.36%
Estonia	12.25%	8.86%	-27.67%
Bulgaria	9.82%	7.08%	-27.94%
Romania	6.96%	4.36%	-37.33%
Poland	6.69%	4.72%	-29.49%
Slovenia	6.46%	5.35%	-17.26%
Czech Republic	5.90%	4.51%	-23.66%
Slovakia	5.58%	3.91%	-29.87%
Hungary	3.80%	2.14%	-43.66%
WORLD	6.65%	5.86%	-11.86%

Source: authors' calculations

It decreased significantly during the estimation period. Considering East-West flows, it fell by more than 40% for Hungary, the biggest exporter of the region, and rose only for the three Baltic States. For West-East flows, the reduction is common to all the CEECs and varies from 17% for Slovenia to 46% for Latvia.

If we compare these figures with total exports of the two zones, we notice that the decrease of the share of food and beverages in EU-CEECs trade is included in a global trend (-14.29% for CEECs exports and –11.68% for the Fifteen's ones), but with an even stronger contraction. One can therefore suppose that, if agricultural products represent an increasingly shrinking share in world trade it is because of the many reasons linked to the rapid economic transformation. The Europe Agreements have negatively discriminated against agriculture, since many barriers still remain compared to industry, where a free trade area was created.

4. Conclusion

Our analysis shows that the Europe Agreements worked well on the whole, contributing to the dramatic increase in EU-CEEC trade flows during the 1990s. This is especially true for non-sensitive industrial goods (represented by machinery in our model): the quick and asymmetrical dismantlement of barriers actually favoured the CEECs and has already created an integrated trade area. Special provisions for sensitive industrial products were successful in slowing the pace of liberalisation during the period we examined, but now a free trade area for industrial good is definitely in place. As regards agriculture, the only limited reduction of barriers kept the EU market quite protected and the degree of integration is consequently very low.

Generally speaking, the Europe Agreements "did what they were supposed to do": they affected trade in different sectors according to their purposes and the principle of asymmetry gave some advantages to the CEECs. For agriculture, however, it seems that trade opportunities are not completely exploited, but this problem needs to be considered in the broader context of the management of the EU Common Agricultural Policy in the next few years. Its necessary reform will probably overlap to the enlargement process, which will bring into the EU some countries with a high share of labour force employed in agriculture. Many contrasts could arise among old and new members about the allocation of funds; moreover, the CEECs will have to adapt their production to EU health and quality standards and to its complex market regulation if they want to be competitive on an international scale. About this point, our analysis suggests that at present they are very far from having integrated fully into the EU system. If we remember that the CAP still accounts for roughly 45% of the EU budget, we can easily understand that its application to the present candidate countries will be one of the fundamental challenges of the enlargement.

Appendix: data for estimation of the gravity model

Reporting countries are the current EU members (14, because Belgium and Luxembourg are treated as a single State). Partner countries are 32: the 14 EU members, the 10 CEECs (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia), Switzerland, Norway, the USA, Canada, Japan, South Korea, Australia, New Zealand.

Data on GDP and population were taken from the OECD Statistical Compendium 2001-1 (CD-ROM) and World Bank (World Development Indicators). Where available, we took data already expressed at 1995 constant prices (millions of US$); otherwise, we calculated them from data on GDP at current prices in local currency, which were deflated and converted into 1995 dollars by using price indexes and exchange rates from the OECD Statistical Compendium 2001-1.

Per capita income was calculated by dividing absolute GDP by population.

Per worker value added in agricultural sector was obtained by dividing total value added of that sector by the number of workers; these data came from FAO and World Bank.

Bilateral trade flows (imports c.i.f and exports f.o.b classed according to SITC nomenclature) were taken from the OECD *ITCS International Trade by Commodities* database, deflated by applying the same indexes as for GDP and expressed in 1995 constant prices (millions of US$).

We computed the regressions on the basis of the arithmetic mean of the annual values for the period 1995-1998

Straight-line distances between economic centres of the countries were from the US Geological Survey. Economic centres correspond to capitals, except for Germany (Frankfurt), Canada (Montreal), Australia (Sydney), whose capitals are prevalently administrative centres, and the USA, where Kansas City can be an acceptable geographic compromise between the cities of the East and the West Coasts (as suggested by Schumacher e Trubswetter, 2000).

Dummy variable ADJ takes a value of 1 if both countries share a common border, 0 otherwise

Dummy variable LANG takes a value of 1 if both countries speak a common official language, 0 otherwise. Therefore we took into account two or more languages for some countries: French and Netherlandish for Belgium; German, French and Italian for Switzerland; English and French for Canada.

Dummy variable EU15 takes a value of 1 if both countries i and j are EU members, 0 otherwise.

Dummy variable EUPECO takes a value of 1 if country j is a CEEC, 0 otherwise.

Dummy variable EUNAFTA takes a value of 1 if country j is represented by the USA or Canada, 0 otherwise.

References

Baldwin R. (1994). 'Towards an integrated Europe', London: CEPR

Bergstrand J.H. (1989). 'The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade', Review of economics and statistics, 23, pp.143-153

Brenton P., Di Mauro F. (1998). 'Is there any potential in trade in sensitive industrial products between the CEECs and the EU?', The World Economy, 21, pp. 285-304

Brenton P., Gros D. (1997). 'Trade reorientation and recovery in transition economies', Oxford review of economic policy, 13(2), pp. 65-76

European Commission (1999). 'Towards greater economic integration. Central and eastern Europe: trade, investment and assistance of the European Union', Brussels

Festoc F. (1997). 'Le potentiel de croissance du commerce des pays d'Europe centrale et orientale avec la France et ses principaux partenaires', Economie et prévision, 128, pp.161-181

Fidrmuc Jan, Fidrmuc Jarko (2000). 'Disintegration and trade', CEPR discussion paper 2641, London

Fontagné L., Freudenberg M., Pajot M. (1999). 'Le potentiel d'échanges entre l'Union européenne et les PECO: un réexamen', Revue économique, 50, pp. 1139-1168

Gros D., Gonciarz A. (1996). 'A note on the trade potential of Central and Eastern Europe', European Journal of Political Economy, 12, pp. 709-721

INEA (1998). 'PECO e allargamento dell'UE. Agricoltura, commercio e politiche', Rome

Maurel M. (1998). 'Régionalisme et désintégration en Europe centrale et orientale', Paris: CNRS Editions

Nilsson L. (2000). 'Trade integration and the EU economic membership criteria', European Journal Of Political Economy, 16, pp. 807-827

Schumacher D., Trubswetter P. (2000). 'Volume and comparative advantage in East-West trade', DIW discussion paper 223, Berlin

Wang Z.K., Winters A. (1994). 'Eastern Europe international trade', Manchester: Manchester University Press