THE POSSIBLE EFFECTS OF THE EASTERN EU-ENLARGEMENT ON CROATIA – A TRADE ANALYSIS[1]

Dražen Derado, Ph.D.
Faculty of Economics, University of Split
Matice hrvatske 31, 21000 Split, CROATIA
Phone: ++ 385 21 430 681; Fax: ++ 385 21 430 701 (attn:)
E-mail:dderado@efst.hr

Abstract:

Economic integration in Europe will have significant effects not only on participating countries, but also on countries remaining outside of the EU-structures. Starting from the theory of custom union and the trade creation and trade diversion effects, this paper tries to apply the theoretical inferences relating to the countries participating in economic integration to those countries which do not take part in it. The ex ante-analysis focuses mainly on long-term dynamic effects which follow from increasing export possibilities and advantages from economies of scale. Taking into account the foreseen dynamics of trade barriers elimination as well as the effects of trade liberalization so far, the paper estimates the expected effects of further trade liberalization and the adjustment costs arising from increased competition and changing pattern of specialization. In doing so, it makes use of the export similarity index and the methodology of intra-industry trade measurement.

Key words: *customs union, economies of scale, intra-industry trade, EU, Croatia*

INTRODUCTION

The importance of international economic integration grows steadily with increasing international financial and trade flows. Regional economic integration experienced, at the end of the 20th century, a strong development both on the level of integration and on the number of participating countries. The greatest part of empirical research carried out on the issue of economic integration have analyzed the effects of customs union creation (or enlargement), while less studies focused on the effects of economic integration on the third countries. With regarding to the findings according to which

[1] This paper is result of a research within the scientific project (number: 0055010) financed by the Ministry for Science, Education and Sports of the Republic of Croatia.

economic integration proves to have not only positive but also negative effects, the main purpose of the paper is to find out what the integration effects would be for a country which remains outside of the integration process.

The aim is to find out the effects of the eastern EU-enlargement (2004) on Croatia as a third party, which, at the same time, creates a free trade area with the European Union. While doing so, special attention will be given to the realized level of trade liberalization of Croatia both with the EU and some of its new member countries.

The first part of the paper deals with the theory of customs union and points out, apart from the static effects of trade creation and trade diversion, also some dynamic aspects of economic integration, among which, economies of scale and increasing export possibilities. In the second part the dynamics of Croatian trade liberalization with the EU is presented. The third part contains analysis of the effects of trade liberalization carried out by means of export similarity and intra-industry trade analysis. The final part gives concluding remarks.

1. THE EFFECTS OF TRADE INTEGRATION

In its essence economic integration represents the elimination of tariffs and non-tariff barriers in trade with goods or services between two or more countries. Thanks to elimination of trade barriers economic integration is viewed by the classical theory as a step towards free trade with, undoubtedly, positive welfare effects for the participating countries as well as for the world as a whole. However, if understood as a kind of limited trade liberalization, in terms of the preferences enjoyed by the participating countries the formation of trade blocks has also some features of trade protection (regarding the relations between the integration and third countries). Therefore, the net-effects of economic integration cannot *à priori* be defined as positive (Viner, 1950, pp. 44f.).

1.1. The short term effects of customs union formation

According to Viner the formation of the customs union has two main (static) effects – trade creation and trade diversion – which are realized when two countries form the

customs union, while the third country remains outside[2]. The main feature of the customs union is the elimination of trade barriers between the member countries and creation of a common external tariff[3].

Trade creation occurs, following the elimination of tariff barriers and creation of a customs union, when one product which had previously been produced in each of the countries is now produced in the country which realizes the highest efficiency. Trade creation effect has influence on the allocation efficiency in each of the member countries and encourages specialization according to comparative advantage. According to the factor proportion theory the advantages of such specialization are mutual – both for the low-cost producer and for the importing country[4]. Trade diversion is a result of tariff discrimination of the countries which do not take part in the integration process by the member countries of the union. This effect results from redirection of imports from the third, non-member country, (which has lower production costs, but also faces import tariffs of the customs union) to the member countries whose 'competitiveness' results only from the 0% tariff rather than from better allocation efficiency. Due to the allocation of resources which does not fully comply with the principle of comparative advantage, trade diversion effect is negative for both the importing and the producing country[5].

The net-effect of the customs union creation depends largely upon the sources of increased trade flows and its influence on the allocation efficiency (and the specialization pattern). Therefore, in order to find out the net-effect of economic integration it is necessary to find out which of the described effects dominate. This contributes to the increasing importance of empirical studies which should make it

[2] Although the Vinerian analysis originally included two products, the general equilibrium analysis has been replaced by the partial equilibrium model which included three countries and one poduct.
[3] Such analysis is also aplicable in the case of a free trade area (FTA) in which the participaing countries are free to determine their own external tarrif. In order to avoid trade deflection effect the rule of origin is introduced to make sure that only the commodities produced in one of the member countires can enjoy the preferential treatment within the FTA.
[4] Countires which remain out of the custom union can also enjoy advantages from such specialization through efficient exchange of commodities.
[5] Regarding the effects of the customs union creation, Hine effectly pointed: "*Trade creation involves a shift in domestic consumption from a high-cost domestic source to a lower cost partner source, as a result of the abolition of tariffs on intra-union trade. Trade diversion involves a shift in domestic consumption from a low-cost world source to a higher-cost partner source, as a result of the elimination of tariffs on imports from the partner."* (Hine, 1994, pp. 236).

possible to find out the net-effect of crating a common trading area by taking into account the conditions of a specific economic integration.

1.2. The long-term effects of economic integration

However, despite the possibility that economic integration brings negative net-effects (trade diversion greater than trade creation), and contrary to the theoretical viewpoint on free trade advantages for a small economy[6], the interest of small economies for economic integration grew strongly in the second half of the 20th century. Furthermore, in the case of transition economies (mostly small economies) the integration is viewed as a strategic objective in achieving a successful participation in the international division of labour and in improving their international competitiveness. The main reason for that are the long-term effects which result from the possibility of a preferential access to larger market of the union and increasing export possibilities. Market enlargement and stronger competition force producers to reduce production costs and offer them at the same time the opportunity to enjoy the advantages economies of scale. Thanks to the economies of scale and lower unit costs trade suppression effect occurs. By improving the competitiveness of producers within the union this effect contributes to further reduction in trade with the countries remaining outside the integration[7] (Viner, 1950, pp. 45).

Except for the economies of scale, economic integration can contribute to significant changes in the structure of international trade flows through increased competition and changes in the specialization pattern. Progressive specialization (encouraged through versatility in consumer preferences and technical development) enabled the increasing

[6] Economic theory claims that the optimal trade policy for small economies is free trade because of the perfect elasticity of (foreign) demand for their products. By introducing a tariff or any other kind of trade barrier, small economy suffers from decreasing trade volume and unchanged terms of trade; this makes the net-effect of such a trade policy negative.

[7] Considering economic integration as an opportunity for small economies to increase their scale of production, Viner points out that it is not easy for the companies comming from rather small markets to increase their scale. He states limitation in the supply of the factors of production as the main problem. As a possible solution in achieving an increasing scale of production (without increasing the prices of the factors of production), Viner suggests integration of the factors of production markets (Viner, 1950, pp. 46f.). Similarly, Corden considers that dynamic effects will occur neither easily nor quickly and claims: "*...industries do not just 'take over' the whole market in another country or 'close down' as neatly as comparative-static model might suggest."* (Corden, 1972, pp. 474).

product differentiation and contributed to various forms of imperfect competition (eg. monopolistic competition). Together they represent the theoretical basis for the analysis of trade flows in which different types of the same product dominate. The resulting intra-industry trade nowadays is largest between the high-income countries (North-North trade) and is understood as an indicator of convergence of their economic structures, growth rates and development possibilities. Product differentiation (if possible along the vertical of the technological process) contributes further to the long term technological development and a stable and growing share in the world market.

Considering the inferences above, it is possible to differentiate between inter-industry and intra-industry trade creation (Hine, 1989). The differentiation is important because of their effects on specialization which is an important long-term effect of economic integration. Inter-industry trade creation emerges as a result of specialization between different industries of two or more countries and leads to the situation in which the concerned industry in one country stagnates, while in another it expands. Intra-industry trade creation implies much narrower specialization in certain segments of the same production and makes it possible for the same industry to expand in both countries.

Differences between the two types of trade creation are important and mainly concern the structural adjustment costs. Structural adjustment realized through allocation of resources within the same industry (intra-industry trade creation) requires lower costs and therefore has much better effect on the long-term economic growth. The specialization pattern resulting from the type of trade creation (inter- or intra-industry) can influence some important aspects which determine the dynamic effects of economic integration – investments, economies of scale, competitiveness[8], etc.
Such long-term effects of regional economic integration meet the expectations of transition countries to realize, after decades of economic isolation, specialization and allocation of resources along the principle of comparative advantage, while at the same time taking advantage from the economies of scale.

[8] About the effects of horizontal and vertical intra-industry specialization see: Hine, 1989, pp. 3f.

1.3. Conditions for realization of increasing advantages from economic integration

When the effects of customs union creation are known it is necessary to find out what determines their intensity in order to be able to predict more closely the net-effect of economic integration in each particular case.
Stronger competition (outcome of the similarity of economic structures) between the member countries before the creation of the union opens up greater possibilities for trade creation among them after the economic integration takes place. Due to differences in the production efficiency resulting from increasing competition within the union a more detailed division of labour will be realized encouraging specialization along the principle of comparative advantage (maximum efficiency). The resulting intra-union trade will be welfare improving in the long run not only for the union and its member countries, but also for the countries remaining outside the integration.

The higher the tariffs between countries prior to joining the union are, the greater the advantages (trade growth) from their elimination are. Lower common external tariff makes the prospects for trade diversion weaker. Generally, one can say that the chances for trade creation are higher, the lower the level of trade integration (measured either by the average tariff or the volume of trade) between the prospective candidates before the union creation are. Finally, in the larger customs union the possibilities of having trade creation beyond trade diversion effect through increased production, efficiency and economies of scale are much greater than in the case of smaller customs union. The precondition for having a customs union with the positive net-effect (trade creation) is well described by the following statement: *"...CUs* (customs unions) *should be formed among countries whose economies are currently competitive but potentially complementary."* (Hine, 1994, pp. 244).

Based on what was said above, it is impossible to give with strong certainty a general conclusion on the net-effect of economic integration. Estimations of the final effects differ from case to case and require a good knowledge of the conditions of economic integration. Although it is impossible to anticipate with great reliability the dynamic effects of economic integration, nonetheless certain inferences about the expected effects are possible based on the information on the size of the market, gross-

investments-to-output ration, average production costs and relative availability of production factors.

The bigger the market of one county before joining the union is, the lower the adjustment costs of relocation of production factors from one production to another according to the new specialization pattern[9] are. The higher the ratio of gross investments and output is, and the lower the unit labor costs in one country are, the economy is viewed to be more ready for economic integration with regard to the expected frictionless transfer of resources after embarking on the integration process.

2. TRADE LIBERALIZATION IN CROATIA

Croatia concluded free trade agreements with 33 countries[10] and realized in 2002 almost 80% of its exports and app. 75% of imports on the principle of free trade; it amounts to 76% (12 bill. USD) of trade volume. The greatest share in the Croatian volume of trade is realized by the EU[11] (54,1%) and CEFTA (14,9%) which together make up to 53% of Croatian exports and 57% of its imports (DZS – Statistički ljetopis Republike Hrvatske 2003.).

2.1. Trade liberalization with the EU

The relations between Croatia and the European Union have been institutionalized by the Stabilization and Association Agreement[12] signed in October 2001. The main

[9] Small economies which did not realize economies of scale before joining the union will be forced, due to stronger competition to realize a more detailed specialization and accordingly more intensive rellocation of ressources between the industries even though they might have already had a relatively high producion efficiency.

[10] EU, EFTA, CEFTA, Albania, Bosnia and Herzegovina, Lithuania, Macedonia, Moldavia, Serbia and Montenegro, Turkey (for details see: Ministarstvo gospodarstva, rada i poduzetništva Republike Hrvatske, www.mingo.hr).

[11] The most important trade partners within the EU are Italy and Germany with which Croatia realizes approximately two thirds of its total exports to the Community.

[12] Stabilization and Association Agreement (SAA) is the main instrument within the framework of the Stabilization and Association Process. The purpose of the Process is to offer the countries of South-East Europe (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro) the perspective of a long term economic growth and development while achieving political stability. The final aim is their full integration with the EU according the conclusions of the European Council from Santa Maria de Feira (2000) and Thessaloniki (2003) upon fullfillment of the Copenhagen criteria (1993). Except

objectives of the SAA are improvement of the political dialogue between the contractual parties, improvement of Croatian economic relations and legislation approximation (to that of the Community) and support in creating an effective market economy and fostering international co-operation in South-East Europe.

The Agreement deals with three important areas of cooperation:

- free movement of goods;
- movement of workers; the right to establish; supply of services; movement of capital;
- approximation of legislation (trade related regulations – competition policy, intellectual, industrial and commercial property, public contracts, standardization and consumer protection).

As far as the free movement of industrial products goes, the SAA foresees a gradual asymmetric elimination of customs duties, quantitative restrictions and measures having equivalent effect within the period of 6 years starting with 01. 01. 2002 when the Interim Agreement came into effect. The gradual trade liberalization is foreseen for Croatia, while the EU has removed most of the tariffs and non-tariff barriers for products originating from Croatia as to the 01. 01. 2002. This process should result in establishing a free trade area between Croatia and the EU until 2008.

Trade liberalization of industrial products should be realized in more stages. For less sensitive products (including textile) the foreseen period of liberalization is three years, while the period for the full removal of trade barriers for (more) sensitive industrial products (including those of textile and steel industry) is scheduled for a longer period (Table 1).

Croatia, it is only Macedonia among the countries from the Region which concluded the SAA with the EU (October 2000).

TABLE 1: The dynamics of Croatian market liberalization for the EU-industrial products, 2002-2007

YEAR	INDUSTRIAL PRODUCTS		TEXTILE PRODUCTS		STEEL PRODUCTS
	less sensitive	sensitive	less sensitive	sensitive	
2002	60%*	70%*	60%*	65%*	65%*
2003	30%	50%	30%	50%	50%
2004	0%	40%	0%	35%	35%
2005	-	30%	-	20%	20%
2006	-	15%	-	0%	0%
2007	-	0%	-	-	-

***Percentage of the basic customs duty.**
Source: Commission of the European Communities – Stabilization and Association Agreement, 2001

Sensitive industrial products for which a longer period of liberalization is foreseen are:

- organic minerals (cement) and mineral products (articles of cement, concrete or artificial stone, prefabricated structural components for building, glass and glassware);
- organic chemicals (acids) and chemical products (mineral or chemical fertilizers, pigments, insecticides, fungicides, Ethilene or Vynil chloride products – tubes, pipes, plates, etc.);
- petroleum oils (light, medium, heavy and gas oils);
- rubber (tires) and wood products;
- paper and paperboard;
- footwear;
- metal products (railway tracks, tubes, pipes and hollow profiles, tanks and other containers) and aluminium products (bars, profiles, plates, sheets);
- machinery (boilers, turbines, pumps, cranes, lifting machinery, machine tools);
- electric motors and generators, transmission apparatus, electrical apparatus;
- transport equipment (tractors);
- measuring equipment;
- furniture (wood, plastic, metal).

Sensitive textile products which are in 2004 still protected by 35% of the basic customs duty are women's and men's clothing, while in the group of steel products bars, rods and wires of iron an non-alloy steel enjoy the import protection until 2006.

2.2. Trade liberalization with the CEFTA

In December 2002 Croatia signed the Agreement on Accession to the Central European Free Trade Area (CEFTA[13]) and accepted a symmetrical elimination of trade barriers. The only exception is trade with Romania for which a gradual trade liberalization is foreseen in the following phases: 2003 60%, 2004 30% and 2005 0% of the most favored nation tariff. The products for which this regulation applies concerning Romanian imports are: medicaments, construction ceramic products, glassware, iron tubes, pipes and hollow profiles and aluminium foil. A gradual opening of Croatian market is scheduled for the following industrial products originating in Romania: mineral and chemical fertilizers, men's clothing, iron tubes, pipes and hollow profiles, tractors and furniture.

3. TRADE EFFECTS OF THE EASTERN EU-ENLARGEMENT – AN *EX ANTE* ANALYSIS

3.1. Export similarity of Croatia and the new member countries of the EU

Many analyses have dealt with the effects of economic integration on the countries which take part in it (Aitken, 1973; Yannopoulos, 1987; Fels, 1988; Plummer, 1991). However, there are a few studies which focused on the expected effects of economic integration for the countries remaining out of the integration process. The forthcoming analysis will, therefore, try to find out the *ex ante* effects of the eastern EU enlargement on Croatian trade flows. To that purpose, the export shares of individual industries in overall exports of each country will be compared across countries in order to find out the extent to which their export structures overlap. The more similar the export

[13] Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovenia and the Slovak Republic.

structures of the analyzed countries are, the more exposed their industries will be to mutual competitive pressure on the markets of the third countries (in this case the EU).

The Finger-Kreinin export similarity index satisfies the needs of the analysis:

$$S(a,b;c) = \left\{ \sum_i \min.\left[X_i(a;c), X_i(b;c) \right] \right\} \cdot 100 \qquad \text{i} = 1, \ldots, \text{n} \qquad (1)$$

in which *a* and *b* stand for exporting countries which compete for the market of the country (or group of countries) *c*, while X_i denotes the share of the commodity *i* in total exports of the respective country to the country (or group of countries) *c*. The export similarity index can take value within the range $0 \le S \le 100$; value 0 means that there is no commodity overlap between the two competing countries in their exports, while 100 denotes the existence of the full similarity of commodities in their export flows. The importance of the Finger-Kreinin index for the countries which remain out of the customs union follows from the fact that greater similarity of their export structures indicates the expected negative net-effects (trade diversion) as a result of customs union creation. Lower value of the index points to less export similarity between the analyzed countries and therefore their exports will be less competitive on the third markets (for details see: Finger/Kreinin, 1979, pp. 905).

Some analyses (eg. Pomfret, 1981, Hine 1989) have confirmed the relevance of the depicted methodology in estimating the effects of a customs union creation on the countries which do not take part in it. Apart from that, statistical significance of the Finger-Kreinin index as a measure of similarity in export structures has been proven. The index shows strong stability over time while its changes reflect only the changes in comparative advantage[14]; therefore it can also be used as an indicator of comparative advantage. Although the Finger-Kreinin index is sensitive to the chosen level of data aggregation (its value systematically increases with the higher level of aggregation and *vice versa*), it has been found out that this methodology enables optimal use on the three-digit level of the SITC (Kellman/Schroder, 1979, pp. 196ff.) which makes it

[14] "*Export composition tend to reflect basic forces of comparative advantage – ressource availabilities, underlying technologies, levels of education and on-the-job xperience, and taste patterns – which tend to change but slowly over time.*" (Kellman/Schroder, 1983, pp. 193).

compatible with the Grubel-Lloyd methodology of intra-industry trade analysis (Grubel/Lloyd, 1975, Greenaway/Milner, 1983).

The forthcoming analysis is based on the data series on total exports of Croatia and new member countries of the EU[15] for the years 1995, 2001 and 2002 (UNCTAD – statistical data base). The data are classified according to the SITC, and the analysis has been carried out at the third-digit level of aggregation for manufacturing (5-8 SITC) which experienced the strongest trade liberalization during the 90s. In doing so, special attention has been dedicated to the countries of CEEC 5 (the Czech Republic, Hungary, Poland, the Slovak Republic, Slovenia) with which Croatia realizes almost 15% of its trade volume. Although the data series refer to the overall trade (with all the countries), a large share of the EU in Croatian and CEECs' exports[16] makes it possible to make reliable conclusions on their competition at the European market.

The data in table 2 show that, concerning the export pattern, a certain divergence has occurred between Croatia and other countries. During the second half of the 90s the degree of Croatian export similarity has fallen, mostly in relation to Hungary (by app. 15 percentage points), while significant reduction of the Finger-Kreinin index can be observed with Slovenia, Poland and the Czech Republic. A slight increase in the index value can be noticed in 2002, but it is still too early to make inferences on the possible reasons for such developments.

[15] The Czech Republic, Cyprus, Estonia, Hungary Latvia, Lithania, Malta, Poland, the Slovak Republic, Slovenia.
[16] In 2001 the share of the EU in exports amounted to: Croatia 54,3%, the Czech Republic 68,2%, Hungary 74,4%, Poland: 69,3%, The Slovak Republic 59,9%, Slovenia 63,6% (UNCTAD – statistical dana base).

TABLE 1: Export similarity between Croatia and the new member countries of the EU (0-9 SITC), (%)

COUNTRY	1995	2001	2002
Poland	54,3	49,4	52,3
The Czech Republic	46,6	42,7	44,2
The Slovak Republic	52,8	51,6	52,1
Slovenia	49,1	43,9	45,4
Hungary	56,2	41,8	43,0
Estonia	49,9	47,0	49,6
Latvia	40,6	43,8	45,1
Lithuania	52,0	51,9	-
Cyprus	34,7	38,6	39,5
Malta	23,6	18,6	-

Source: UNCTAD – statistical data base (www.unctad.org)

Concerning the results for 2002, one can infer that Croatia and the new member countries achieve a relatively high degree of export similarity which in some cases exceeds 50% (Poland, the Slovak Republic, Lithuania), while the average value of the Finger-Kreinin index, when calculated for transition countries only is almost the same and amounts to 48%. Although the elimination of trade barriers between the CEEC 5 and the EU has been gradually realized during the 90s and, as far as the manufactures are concerned, until 2004 almost fully completed, with the joining of new member countries the EU-common market will open up new business opportunities for them and make possible the realization of the dynamic effects of economic integration. In case of Croatia this might result in a significant trade diversion effect.

The data from table 3 show that the greatest similarity in export pattern between Croatia and CEEC 5 has been realized in manufacturing which experienced, in the second half of the 90s an increase in the commodity classes 6 (manufactured goods classified by material) and 7 (machinery and transport equipment). At the same time divergence occurred in classes 5 (chemical products) and 8 (miscellaneous manufactured articles) which leads to the conclusion on trade diversion effects resulting from gradual trade liberalization during the 90s.

TABLE 3: Export similarity between Croatia and the new member countries of the EU (5-8 SITC), (%)

	1995	2001	2002
POLAND			
5 – chemicals and related products	5,1	3,8	3,9
6 – manufactured goods classified by material	11,4	10,3	10,8
7 – machinery and transport equipment	11,8	16,4	18,9
8 – miscellaneous manufactured articles	16,8	11,4	11,3
THE CZECH REPUBLIC			
5 – chemicals and related products	6,1	4,4	3,9
6 – manufactured goods classified by material	13,4	10,6	10,6
7 – machinery and transport equipment	9,5	12,7	14,8
8 – miscellaneous manufactured articles	8,9	8,5	8,7
THE SLOVAK REPUBLIC			
5 – chemicals and related products	9,1	5,3	5,0
6 – manufactured goods classified by material	13,3	12,0	12,2
7 – machinery and transport equipment	8,7	11,7	12,5
8 – miscellaneous manufactured articles	9,2	11,0	11,8
SLOVENIA			
5 – chemicals and related products	5,7	6,1	6,3
6 – manufactured goods classified by material	13,3	11,5	11,6
7 – machinery and transport equipment	8,3	10,5	12,2
8 – miscellaneous manufactured articles	16,3	11,0	10,4
HUNGARY			
5 – chemicals and related products	9,4	4,9	4,7
6 – manufactured goods classified by material	10,9	8,4	8,4
7 – machinery and transport equipment	9,7	11,7	13,8
8 – miscellaneous manufactured articles	14,1	10,3	9,6

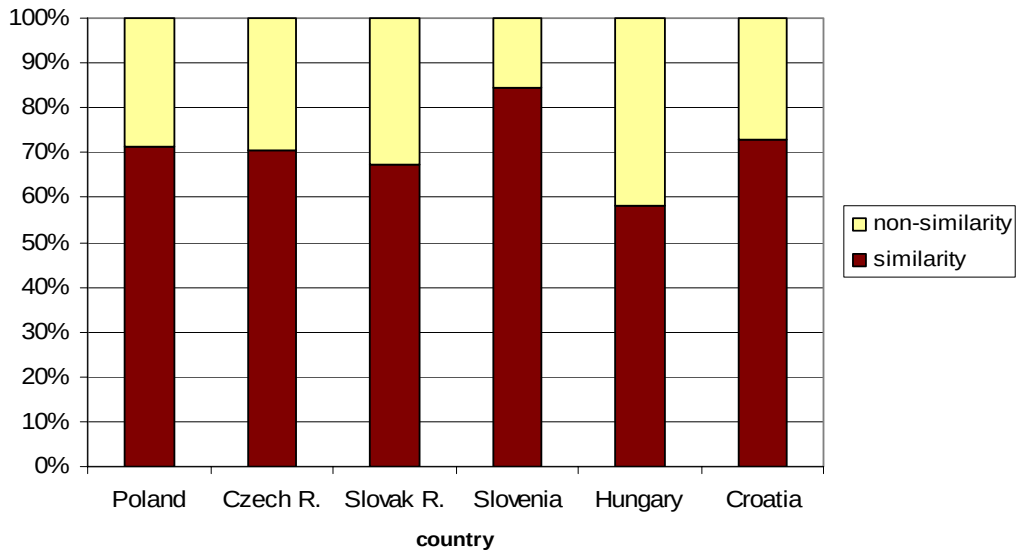
Source: UNCTAD – statistical data base (www.unctad.org)

When used in export structure analysis of one country in two different time periods, the Finger-Kreinin methodology of export similarity can help in getting an insight into the degree to which the country has restructured its export flows reflecting that way the changes in its economic structure. Formula which can be used in this case:

$$F = \left\{ \sum_i \min \left[(X_i)_{t-1}, (X_i)_t \right] \right\} \cdot 100 \qquad \text{i} = 1, \ldots, \text{n} \qquad (2)$$

has the same meaning as the Finger-Kreinin index[17]. The data which include the overall exports (0-9 SITC) show that the greatest inter-temporal similarity of export structure (1995-2002) is realized by Slovenia, while Hungary with only 58% similarity of its trade flows in 2002 compared to the mid-90s proves to have gone through the strongest transformation of its export pattern among the analyzed countries (figure 1).

FIGURE 1: Inter-temporal similarity of export flows (%), 1995-2002



Source: UNCTAD – statistical data base (www.unctad.org)

However, in order to find out the more specific sector effects of the EU-enlargement on Croatia, it is necessary to know to which extent the Croatian exports resemble those of the new member countries at the level of each single industry (three-digit SITC). This problem can be solved by the following formula:

[17] On the application of the F-index in measuring the structural change in export flows as a consequence of trade liberalization see: Éltetö/Inotai/Meisel, 2000.

$$D = \left\{ \frac{\min.\left[X_i(a;c), X_i(b;c)\right]}{\max.\left[X_i(a;c), X_i(b;c)\right]} \right\} \cdot 100 \qquad \text{i} = 1, \ldots, \text{n} \qquad (3)$$

where X_i represents exports of a certain commodity (industry) from the country *a* or *b* to the country (or group of countries) *c*. It can take values within the range $0 \le D \le 100$. If the value is 0, than there is no similarity in export flows of the two countries, i.e. one country does not export the analyzed commodity at all. The value 100 means that the shares of the analyzed commodity in total export flows between the countries are completely the same which further points to potentially strong competition between the countries in their endeavors to increase their shares on the third market.

Taking into consideration the Croatian non-participation in the eastern EU-enlargement (2004) and despite the ongoing trade liberalization (which is, indeed aimed at creating a free trade area) one can infer that some Croatian industries, mostly chemical and textile industry, will be exposed to strong competitive pressure coming from the new member states (table A1 in the Annex). A high degree of export structure similarity (between Croatia and the CEEC 5) is also realized in the metal industry and machine and transport equipment industry. In the last commodity class the competitive pressure is expected to be very strong in agriculture, civil engineering, printing and bookbinding, metal working and other machinery. The CEECs' pose a strong competition for Croatian producers of different kinds of engines, motors and other power generating machinery, mechanical building equipment, electric equipment and transport vehicles.

3.2. Intra-industry trade as an indicator of potential trade integration with the EU

Although Croatia presently remains outside of the European integration, it is still very interested in improving its share on the European market. Therefore, it is necessary to find out what kind of structural adjustments will the integration process in Europe cause for Croatian economy and what are the chances for Croatia to increase its exports of goods despite the described circumstances.

Table 4 shows the level of Croatian intra-industry trade realized both with individual countries and groups of countries. The analysis of 'trade overlap' has been carried out on the basis of time series on Croatian exports and imports in 2001; the data are available up to the seven-digit level of SITC and differentiated by countries (DZS – Statistika vanjske trgovine, 2001). When calculating intra-industry trade the problem of biased measurement of the overlapping trade flows (especially categorical aggregation) has been taken into account[18] and therefore in order to determine intra-industry trade at the level of each commodity class (one-digit SITC) the adjusted Grubel-Lloyd index of intra-industry trade (Grubel/Lloyd, 1975, pp. 23) has been used:

$$C_j = \left[1 - \frac{\sum_i \left| X_{ij} - M_{ij} \right|}{\sum_i \left(X_{ij} + M_{ij} \right)} \right] \cdot 100 \qquad \text{i, j = 1, …, n} \qquad (4)$$

This index calculates the share of intra-industry trade in total trade flows at the analyzed level of aggregation *j* by using the data on exports (X) and imports (M) from the immediately lower level of aggregation (*i*=*j*-1). Intra-industry trade with all the countries (either 0-9 or 5-8 SITC) is calculated as a weighted average of the intra-industry trade indices from the one-digit level of aggregation with the share of each commodity class in the total volume of trade as a weight.

[18] For details see: Greenaway/Milner, 1983.

TABLE 4: The share of Croatian intra-industry trade with different countries and country groups (%), 2001

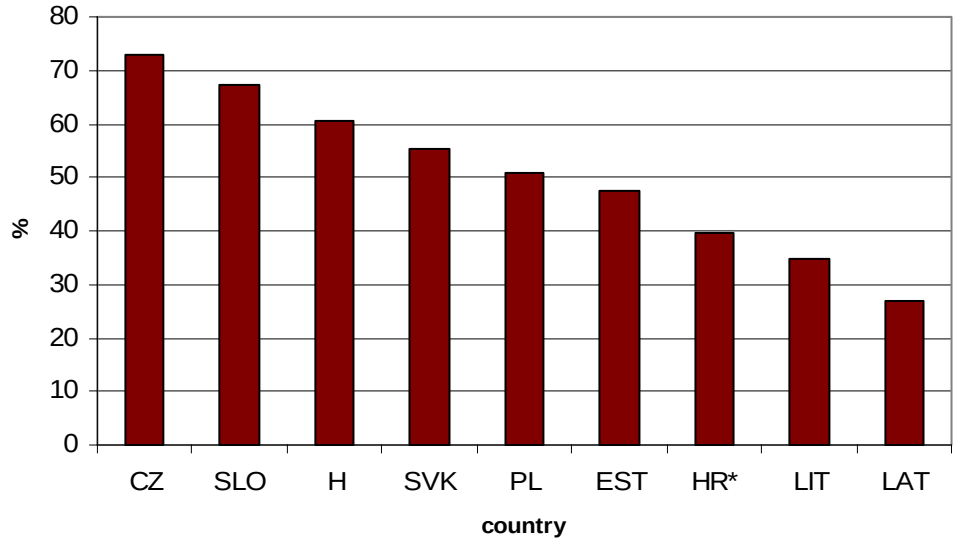
ALL COUNTRIES		IIT (%)	THE CZECH REPUBLIC		IIT (%)
	Total (0-9 SITC)	**44,09**		**Total (0-9 SITC)**	**9,16**
	Total (5-8 SITC)	**46,56**		**Total (5-8 SITC)**	**9,07**
5	chemicals and related products	47,4	**5**	chemicals and related products	7,85
6	manufactured goods classif. by material	48,82	**6**	manufactured goods classif. by material	13,04
7	machinery and transport equipment	37,29	**7**	machinery and transport equipment	3,84
8	miscellaneous manufactured articles	63,39	**8**	miscellaneous manufactured articles	21,35
EU 15		**IIT (%)**	**THE SLOVAK REPUBLIC**		**IIT (%)**
	Total (0-9 SITC)	**39,57**		**Total (0-9 SITC)**	**9,73**
	Total (5-8 SITC)	**39,97**		**Total (5-8 SITC)**	**7,68**
5	chemicals and related products	28,45	**5**	chemicals and related products	8,71
6	manufactured goods classif. by material	43,56	**6**	manufactured goods classif. by material	8,78
7	machinery and transport equipment	33,83	**7**	machinery and transport equipment	4,05
8	miscellaneous manufactured articles	54,62	**8**	miscellaneous manufactured articles	4,28
CEEC 5		**IIT (%)**	**SLOVENIA**		**IIT (%)**
	Total (0-9 SITC)	**35,57**		**Total (0-9 SITC)**	**40,08**
	Total (5-8 SITC)	**34,2**		**Total (5-8 SITC)**	**39,91**
5	chemicals and related products	40,01	**5**	chemicals and related products	35,2
6	manufactured goods classif. by material	35,56	**6**	manufactured goods classif. by material	44,49
7	machinery and transport equipment	24,11	**7**	machinery and transport equipment	32,54
8	miscellaneous manufactured articles	41,26	**8**	miscellaneous manufactured articles	45,29
POLAND		**IIT (%)**	**HUNGARY**		**IIT (%)**
	Total (0-9 SITC)	**4,27**		**Total (0-9 SITC)**	**19,96**
	Total (5-8 SITC)	**3,69**		**Total (5-8 SITC)**	**26,94**
5	chemicals and related products	2,79	**5**	chemicals and related products	16,81
6	manufactured goods classif. by material	6,91	**6**	manufactured goods classif. by material	35,92
7	machinery and transport equipment	1,68	**7**	machinery and transport equipment	18,02
8	miscellaneous manufactured articles	7,31	**8**	miscellaneous manufactured articles	20,94

Source: DZS – Statistika vanjske trgovine, 2001

Croatia realizes a relatively low level of intra-industry trade – both with all the countries and individual countries or country groups. 'Trade overlap' with the EU 15 and the CEEC 5 is very similar and accounts for 35-40% of total trade flows and is lower than the share realized in trade with all the world (44,09%). In trade with the selected transition countries there is a strong domination of inter-industry trade realized according to the factor proportions theory; the only exception in that respect is Slovenia which, with app. 40% of 'trade overlap', absorbs the greatest part of Croatian 'two-way trade' with the CEEC 5. An exception, indeed to a lesser extent, is also Hungary. The share of intra-industry trade increases when only manufacturing (5-8 SITC) is taken into consideration – in this case Croatia realizes almost 47% of its total trade flows by exchanging commodities within industries. Concerning 'trade overlap' with the products of manufacturing industry an exception is again Hungary with a noticeably higher share of intra-industry trade than in the case of all the commodities (0-9 SITC).

Regarding the share of intra-industry trade with the EU Croatia lags behind the majority of transition countries (figure 2) and achieves a stronger trade integration of this kind with EU 15 only when compared to two Baltic countries, Bulgaria (40,1%) and Romania (37,1).

FIGURE 2: The share of intra-industry trade with the EU 15 (0-9 SITC), (%), 1999



*** 2001**
Source: Havlik/Landesman/Stehrer, 2001, pp. 9
DZS – Statistika vanjske trgovine, 2001 (own calculations)

A high share of inter-industry trade with the EU 15 and CEEC 5, as well as a high degree of similarity in exports structure between the new member countries and Croatia leads to the conclusion on possible high structural adjustment costs for Croatia resulting from the EU-enlargement. In that case the costs would occur as a consequence of further specialization according to the principle of comparative advantage and increasing allocation of resources between sectors. The resulting specialization pattern could not guarantee a sound competitive position on the EU-market and might, therefore, lead to wakening of market positions for Croatian exporters. Furthermore, apart from the expected adjustment costs and their structural implications, neither economic indicators support Croatian ability to increase significantly trade integration

with the EU in the medium run. The expected slowdown of economic growth in 2003 to 4,3%[19] caused by the twin deficits (current account balance: -7,2% GDP, general government balance: -4,6% GDP) will not contribute to the desired growth of exports (EBRD, 2003).

TABLE 5: Various indicators of potential export growth of Croatia and the CEEC 5

COUNTRY	**PL**	**CZ**	**SVK**	**SLO**	**H**	**HR**
GENERAL (2002)						
population (mill.)	38,3	10,3	5,4	2,0	10,0	4,4
GDP/*capita* (USD)	4.924	6.742	4.403	11.026	6.581	5.035
estimated GDP-growth in 2003 (%)	2,9	2,5	3,8	2,8	3,0	4,3
investment rate (% of GDP)	19,2	34,0	-	-	26,8	23,8*****
INDICATORS OF COMPETITIVENESS (1998-2002)						
manufacturing gross output (%)	23,5	19,4	30,7	27,2	63,1	15,5
productivity in manufacturing (%)	34,0	24,1	38,0	32,1	34,0	35,2
real wage in manufacturing (PPI-based)	35,1	30,2	17,3	21,3	24,1	-
unit labor costs index in manufacturing (€); 2002 **(1995=100)**	133,0	153,9	116,1	91,7	115,5	90,3
GLOBAL COMPETITIVENESS RANKING (2002)						
growth competitiveness index rank (out of 80 countries)	51	40	49	28	29	58
business competitiveness index rank (out of 80 countries)	46	34	42	27	28	52

*** 2001.**
Source: EBRD – Transition Report 2003
World Economic Forum – Global Competitiveness Report 2002-2003

The presented macroeconomic indicators do not really confirm the Croatian readiness to cope successfully with international competition; therefore, the Croatian 'delayed' integration into the EU-structures might have negative net-effects. Although gross fixed capital formation recorded a 17%-growth in 2003 and contributed further to a positive trend which began in 2001, Croatia still realizes a relatively low share of investments in GDP. Besides, the greatest part of the increased investments is realized through a few large projects in infrastructure (road construction being the most important one). Economic growth during the 90s was not enough to exceed the pre-transitional values of

[19] After a quarterly increase of GDP of 4,3%, 4,0%, 6,5% and 5,9% in 2002 in relation to the same periods of the previous year, the GDP-growth during the first three qarters of 2003 amounts to 4,9%, 5,0% and 3,9% in relation to 2002 (according to: DZS – Mjesečno statističko izvješće, 2004).

1989. In 2002, unlike the CEEC 5 Croatia realized only 86,5% of GDP, 63,6% of gross industrial production and 56,5% of manufacturing production from the period before the outset of the transition. Such a slow economic recovery could have not contributed either to a significant economic restructuring, or to technological (and efficiency) improvements in production. Although Croatia does not significantly lag behind the advanced transition countries concerning the labour productivity (in 2002 it is higher by almost 60% in relation to 1989) – thanks to which it managed to reduce the unit labor costs by app. 10 percentage points in comparison to the mid-90s – it still realizes high unit labour costs (almost three times higher than the average of the new member countries, excluding Slovenia) which threaten its competitiveness. Concerning growth and business competitiveness, Croatia is ranked in the group of less successful countries (World Economic Forum).

CONCLUDING REMARKS

The customs union theory offers valuable insights, not only into the analysis of economic integration effects on the participating countries, but also on the countries remaining out of the integration process. For an *ex ante* analysis of long-term effects dynamic aspects of economic integration seem to be the most appropriate. This is confirmed in the case of Croatia and the eastern EU-enlargement. A high level of export similarity between Croatia and the new members of the EU will expose Croatian producers to stronger competition on the European market, while relatively low level of trade integration with the EU and a dominance of trade with commodities of different factor intensities will make structural adjustments more difficult. According to the macroeconomic indicators the capacities of economic adjustment in Croatia will be weaker in the coming years and unfavourable for further trade liberalization and the expected economic restructuring. Therefore, the circumstances in which Croatia, despite the non-participation in the EU-enlargement, will try to improve its market share and enjoy the dynamic effects through, although slower integration with the EU, seem rather unfavorable.

References:

- **Aitken, N. D., (1973)**, *"The Effects of the EEC and EFTA on European Trade: A Temporal Cross-Section Analysis"*, The American Economic Review, Vol. 63, No. 5, pp. 881-892
- **Azhar, A. K. M., Elliott, R. J. R., (2003)**, *"On the Measurement of Trade-Induced Adjustment"*, Review of World Economics, Vol. 139, No. 3, pp. 419-439
- **Beladi, H., Samanta, S. K., (1990)**, *"Foreign Technology and Customs Union: Trade Creation and Trade Diversion"*, Journal of Economic Studies, Vol. 17, No. 6, pp. 27-35
- **Brülhart, M., Elliott, R. J. R., (1998)**, *"Adjustment to the European single market: inferences fom intra-industry trade patterns"*, Journal of Economic Studies, Vol. 25, No. 3, pp. 225-247
- **Commission of the European Communities**, Proposal for a Council decision concerning the signature of the Stabilization and Association Agreement between the European Communities and its Member States and the Republic of Croatia on behalf of the European Community, (Annex: Stabilization and Association Agreement between the European Communities and its Member States and the Republic of Croatia), COM (2001) 371 final, Brussels, 09. 07. 2001., (www.mei.hr)
- **Corden, W. M., (1972)**, *"Economies of Scale and Customs Union Theory"*, The Journal of Political Economy, Vol. 80, No. 3 (Part 1), pp. 465-475
- **Council of the European Union** – *"Presidency Conclusions: Brussels European Council 25/26 March 2004"*, (http://ue.eu.int)
- **Council of the European Union** – *"Thessaloniki European Council 19 and 20 June 2003 Presidency Conclusion"*, (http://ue.eu.int)
- **DZS (Državni zavod za statistiku – State Statistical Buerau)** – *"Mjesečno statističko izvješće"* (Monthly Statistical Report), No. 2, 2004
- **DZS (Državni zavod za statistiku – State Statistical Bureau)** – Statistika vanjske trgovine: Izvoz po proizvodima i zemljama namjene, 2001. (Foreign Trade Statistics: Exports by commodities and countries of destination, 2001)
- **DZS (Državni zavod za statistiku – State Statistical Bureau)** – Statistika vanjske trgovine: Uvoz po proizvodima i zemljama porijekla, 2001. (Foreign Trade Statistics: Imports by commodities and countries of origin, 2001)
- **DZS (Državni zavod za statistiku – State Statistical Buerau)** – *"Statistički ljetopis Republike Hrvatske 2003."* (Statistical Yearbook of the Republic of Croatia 2003)
- **EBRD (European Bank for Reconstruction and Development)** – *"Transition Report 2003"*, London, 2003
- **Éltetö, A., Inotai, A., Meisel, S., (2000)**, *"Hungarian Trade and Trade Policy Toward Integration into the European Union"*, Russian and East European Finance and Trade, Vol. 36, No. 2, pp. 42-62
- **European Council** – *"Presidency conclusions – Santa Maria de Feira European Council, 19 and 20 June 2000"*
- **European Parliament** – *"Conclusion of the Presidency – Copenhagen June 21-22 1993"*, (www.europarl.eu.int)

- **Fels, J., (1988)**, *"Trade Effects of Greece's Accession to the European Community"*, Journal of World Trade, Vol. 22, No. 1, pp. 97-108
- **Fidrmuc, J., (2000)**, *"Restructuring European Union Trade with Central and Eastern European Countries"*, Atlantic Economic Journal, Vol. 28, No. 1, pp. 83-92
- **Finger, J. M., Kreinin, M., (1979)**, *"A measure of 'export similarity' and its possible uses"*, The Economic Journal, Vol. 89 (December 1979), pp. 905-912
- **Frensch, R., (2000)**, *"Internal Liberalization as a Barrier To Export-led Recovery in Central European Countries Preparing For EU Accession"*, Vol. 42, No. 3, pp. 31-47
- **Gabrisch, H., Werner, K., (1998)**, *"Advantages and drawbacks of EU membership – the structural dimension"*, Comparative Economic Studies, Vol. 40, No. 3, pp. 79-103
- **Greenaway, D., Milner, C., (1983)**,**"***On the Measurement of Intra-Industry Trade"*, in: The Economic Journal, Vol. 93 (December 1983), pp. 900-908
- **Grubel, H. G., Lloyd, P. J., (1975)**, *"Intra-Industry Trade - The Theory and Measurement of International Trade in Differetiated Products"*, The Macmillan Press Ltd., London
- **Havlik, P., Landesmann, M., Stehrer, R., (2001)**, *"Competitiveness of CEE Industries: Evidence from Foreign Trade Specialization and Quality Indicators"*, The Vienna Institute for International Economic Studies, Research Reports No. 278
- **Helpman, E., Krugman, P. R., (1986)**, *"Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition and the International Economy"*, MIT Press, Cambridge
- **Hine, R. C., (1989)**, *"Customs Union Enlargement and Adjustment: Spain's Accession to the European Community"*, Journal of Common Market Studies, Vol. 28, No. 1, pp. 1-27
- **Hine, R. C., (1994)**, *"International Economic Integration"*, in: **Greenaway, D., Winters, L. A., (eds.), (1994)**, *"Surveys in International Trade"*, Blackwell, Oxford, Cambridge
- **Hrvatski sabor (Croatian Parliament)** – *"Zakon o potvrđivanju ugovora o pristupanju Republike Hrvatske srednjeeuropskom ugovoru o slobodnoj trgovini"* (Law on the ratification of the agreement on Croatia's accession to CEFTA), (www.nn.hr)
- **IMF (International Monetary Fund)** – International Financial Statistics, Vol. 57, March 2004
- **Kellman, M., Schroder, T., (1983)**, "*The export similarity index: some structural tests"*, The Economic Journal, Vol. 93 (March 1983), pp. 193-198
- **Kreinin, M. E., (1972)**, *"Effects of the EEC on imports of manufacures"*, The Economic Journal, Vol. 82, pp. 897-920
- **Krugman, P. R., (1994)**, *"Rethinking International Trade"*, MIT Press, Cambridge
- **Lloyd, P. J., (1982)**, *"3×3 theory of customs unions"*, Journal of International Economics, Vol. 12, pp. 41-63
- **Ministarstvo gospodarstva, rada i poduzetništva Republike Hrvatske – Ministry of economy, laour and entrepreneurship of the Republic of Croatia**, (www.mingo.hr)
- **Nakos, G. E., Brouthers, K., Moussetis, R., (2001)**, *"The experience of Portugal's Accession to the European Union: what countries wanting to join a customs union should expect"*, Competitiveness Review, Vol. 11, No. 1, pp. 12-24

- **Plummer, M. G., (1991)**, *"Efficiency Effects of the Accession of Spain and Portugal to the EC"*, Journal of Common Market Studies, Vol. 29, No. 3, pp. 317-325
- **Pomfret, R., (1981)**, "*The impact of EEC enlargement on non-member Mediterranean countries' exports to the EEC"*, The Economic Journal, Vol. 91 (September 1981), pp. 726-729
- **Pomfret, R., (1986)**, *"The Theory of Preferential Trading Agreements"*, Review of World Economics, Vol. 122, No. 3, pp. 439-465
- **Robson, P., (1998)**, *"The Economics of International Integration"*, Routledge, London, New York
- **Sawyer, C. W., (1984)**, *"The Effects of the Second Enlargement of the EC on U.S. Exports to Europe"*, Review of World Economics, Vol. 120, No. 3, pp. 572-579
- **Sawyer, W. C., Sprinkle, R. L., (1988)**, *"EC Enlargement and U.S. Exports: An Analysis of the Trade Effects"*, Journal of World Trade, Vol. 22, No. 1, pp. 89-96
- **Togan, S., (2000)**, *"Effects of a Turkey-European Union Customs Union and Prospects for the Future"*, Russian and East European Finance and Trade, Vol. 36, No. 4, pp. 5-25
- **UNCTAD** – statistical data base (www.unctad.org)
- **Vidovic, H., Gligorov, V., (2004)**, *"Croatia's Delayed Transition: Competitiveness and Economic Policy Challenges"*, The Vienna Institute for International Economic Studies, Research Reports No. 304
- **Viner, J. (1950)**, *"The customs union issue"*, Carnegie Endowment for International Peace, New York, London
- **World Economic Forum** – *"Global Competitiveness Report 2002-2003"*, (www.weforum.org)
- **Yannopoulos, G. N., (1987)**, *"Trade effects from the extension of customs union on third countries: a case study of the Spanish accession to the EEC"*, Applied Economics, Vol. 19, pp. 39-50

ANNEX

TABLE A1: Export similarity between Croatia and the CEEC 5 (5-8 SITC), (%), 2002

INDUSTRY	HR:PL*	HR:CZ*	HR:SVK*	HR:SLO*	HR:H*
511 Hydrocarbons nes, derivtives	**36,8**	70,0	62,4	**0,8**	**11,9**
512 Alcohols, phenols, etc	8,2	31,3	6,8	12,7	**98,5**
513 Carboxylic acids, etc	5,7	3,2	25,1	5,6	4,9
514 Nitrogen-function compounds	42,0	22,4	13,0	**12,6**	10,1
515 Organo-inorgan compounds, etc	**91,4**	**75,3**	67,2	**67,3**	75,0
516 Other organic chemicals	6,1	19,5	2,8	**74,0**	26,3
522 Inorg chem elmnt, oxides, etc	**89,2**	**92,9**	**79,5**	**90,3**	88,8
523 Other inorganic chemicals	4,2	12,3	11,6	5,3	30,2
524 Radioactive etc materials	3,6	0,1	**0,0**	**0,0**	1,4
531 Synth dye, natrl indigo, lakes	58,5	4,9	45,7	48,0	10,8
532 Dyes nes, tanning products	53,9	53,9	**100,0**	1,0	77,8
533 Pigments, paints, varnishes etc	90,6	**85,5**	**15,0**	20,4	**30,4**
541 Medicinal, pharmaceutical prdts	**12,9**	**17,7**	**22,3**	67,4	**31,0**
551 Essential oils, perfume, etc	**66,3**	**29,9**	**14,0**	16,5	**65,3**
553 Perfumery, cosmetics, etc	13,9	52,8	**56,0**	15,5	53,1
554 Soap, cleansing, etc preps	96,5	55,1	**72,2**	**62,5**	**80,6**
562 Fertilizers, manufactured	**30,9**	**7,9**	**30,7**	**0,6**	**4,1**
572 Explosives, pyrotechnic prdts	53,1	13,5	33,8	35,8	98,1
582 Prdts of condensation, etc	43,8	93,6	52,8	15,9	**18,5**
583 Polymerization, etc, prdts	**37,5**	**41,8**	**81,1**	**27,7**	**78,3**
584 Cellulose, derivatives, etc	46,4	12,5	21,7	**53,9**	17,3
585 Plastic materials nes	42,9	**66,7**	**33,3**	**0,0**	**0,0**
591 Pesticides, disinfectants	**59,2**	**46,6**	58,9	54,8	45,9
592 Starch, inulin, gluten, etc	18,7	69,4	43,1	49,8	49,1
598 Miscel chemical prdts nes	95,2	77,5	52,3	69,1	60,4
611 Leather	**38,7**	**7,0**	**51,1**	**66,9**	**12,7**
612 Leather, etc, manufactures	**37,1**	**20,6**	**51,7**	**36,7**	**42,5**
613 Fur skins tanned, dressed	76,3	**18,5**	**7,4**	**11,4**	**10,2**
621 Materials of rubber	11,4	4,3	7,2	5,7	10,8
625 Rubber tyres,tubes, etc	2,7	1,8	1,7	1,5	7,3
628 Rubber articles nes	17,3	21,8	17,5	23,6	31,2
633 Cork manufactures	14,3	20,0	60,0	33,3	37,5
634 Veneers, plywood, etc	**78,0**	**38,1**	**39,7**	**68,7**	**29,4**
635 Wood manufactures nes	28,5	44,7	69,3	23,5	76,9
641 Paper and paperboard	51,8	**81,3**	44,8	37,7	**62,5**
642 Paper and paperboard, cut	39,7	68,2	46,4	52,8	**94,6**
651 Textile yarn	95,9	61,2	30,8	39,9	**60,7**
652 Cotton fabrics, woven	**24,0**	23,3	98,0	22,3	86,6
653 Woven man-made fib fabric	43,6	17,6	26,5	20,2	35,4
654 Other woven textile fabric	**31,3**	58,5	**87,4**	**43,0**	**20,9**
655 Knitted, etc, fabric	64,1	53,2	**78,0**	87,0	**69,0**
656 Lace, ribbon, tulle, etc	76,6	20,6	**58,1**	29,7	46,3
657 Spec textile fabrics, products	99,0	51,8	**45,4**	43,2	**79,0**
658 Textile articles nes	41,9	54,0	**75,5**	**86,0**	**51,9**
659 Floor coverings, etc	10,2	12,5	81,6	**98,5**	34,6
661 Lime, cement and building prdts	**8,8**	**13,1**	**40,9**	**12,5**	**5,6**

(continued: TABLE A1)

INDUSTRY	HR:PL*	HR:CZ*	HR:SVK*	HR:SLO*	HR:H*
662 Clay, refractory building prdts	**19,8**	**37,3**	**52,8**	**18,7**	**15,7**
663 Mineral manufactures nes	69,9	53,0	86,2	26,2	**73,7**
664 Glass	24,4	14,2	44,0	47,2	40,5
665 Glassware	**82,6**	54,0	**70,9**	**68,3**	**22,8**
666 Pottery	53,9	43,6	**12,0**	**24,4**	**78,3**
667 Pearl, prec, semi-prec stones	0,0	0,0	0,0	0,0	**100,0**
671 Pig iron, etc	8,7	5,9	0,8	1,7	**15,7**
672 Iron, steel primary forms	2,3	3,6	0,5	7,0	3,9
673 Iron, steel shapes, etc	6,7	4,6	31,5	9,1	44,3
674 Iron, steel univ, plate, sheet	31,7	21,2	3,7	13,8	32,6
676 Railway rails etc, iron, steel	17,0	10,7	**11,4**	**11,9**	**3,5**
677 Iron, steel wire, exc w rod	9,5	1,6	3,8	18,1	30,3
678 Iron, steel tubes, pipes, etc	**57,5**	78,2	68,5	**73,2**	**30,5**
679 Iron, steel castings unworked	21,6	13,4	48,5	74,1	**58,7**
681 Silver, platinum, etc	3,0	15,4	50,0	**28,5**	**14,6**
682 Copper	2,2	44,2	17,1	28,2	25,0
683 Nickel	**37,5**	13,6	12,7	0,9	88,9
684 Aluminium	**47,6**	**42,1**	72,0	48,2	**91,7**
685 Lead	2,0	8,1	24,2	3,9	**75,0**
686 Zinc	3,2	**100,0**	**28,6**	4,6	**3,6**
687 Tin	69,2	69,2	34,6	**55,6**	60,0
689 Non-fer base metals nes	**0,0**	0,3	1,7	0,6	75,0
691 Structures and parts nes	42,3	62,1	**95,4**	90,2	**67,7**
692 Metal tanks, boxes, etc	33,5	35,4	49,5	67,8	82,8
693 Wire products, non-electric	38,1	40,6	34,0	46,8	64,1
694 Stell, copper nails, nuts, etc	63,4	52,4	64,7	69,4	**53,1**
695 Tools	**95,0**	46,4	**90,5**	25,8	**68,8**
696 Cutlery	6,0	12,3	52,8	**87,0**	**48,0**
697 Base metal household equip	**99,8**	97,9	87,5	69,0	**93,4**
699 Base metal manufactures nes	65,2	50,7	88,7	62,7	**70,1**
711 Steam boilers and auxil parts	**58,4**	92,6	65,1	**5,0**	**16,1**
712 Steam engines, turbines	58,1	35,8	**20,9**	39,8	**56,3**
713 Intern combust piston engines	8,9	41,5	**82,9**	86,9	4,5
714 Engines and motors nes	**66,1**	90,3	**69,6**	**12,6**	27,2
716 Rotating electric plant	99,7	35,9	42,9	23,8	49,5
718 Oth power generating machin.	85,0	17,0	17,1	10,5	**75,3**
721 Agricult machinry exc tractor	53,5	62,6	**91,1**	67,4	28,2
722 Tractors non-road	37,4	21,3	93,5	56,2	**26,3**
723 Civil engineering equip, etc	**73,2**	**85,1**	**86,3**	**38,3**	**56,4**
724 Textile, leather machinery	**79,2**	18,7	95,6	90,3	**79,2**
725 Paper etc mill machinery	64,6	40,7	62,1	60,9	**56,8**
726 Print and bookbind machy, parts	**27,8**	**78,1**	**27,7**	**20,6**	**13,2**
727 Food machinery, non-demestic	54,6	35,0	79,8	76,3	**91,2**
728 Oth machy for spec industries	**77,6**	69,7	**83,8**	**87,6**	**70,1**
736 Metal working machy, tools	**67,8**	45,1	70,2	**93,6**	**36,9**
737 Metal working machinery nes	**71,4**	50,0	46,5	27,6	**73,7**
741 Heating, cooling equipment	44,5	18,9	62,9	51,4	39,2
742 Pumps for liquids, etc	99,9	10,3	**83,9**	53,5	31,4
743 Pumps nes, centrifuges, etc	74,4	40,2	37,7	15,3	76,5
744 Mechanical handling equipment	79,2	57,5	79,3	46,0	**97,9**

(continued: TABLE A1)

INDUSTRY	HR:PL*	HR:CZ*	HR:SVK*	HR:SLO*	HR:H*
745 Non-electr machy, tools nes	**86,8**	50,0	99,9	56,1	98,9
749 Non-electr machy parts, acces	43,3	32,6	22,8	39,4	55,2
751 Office machines	**86,5**	85,6	**96,1**	**36,8**	**45,5**
752 Automatic data process. equip	**47,7**	6,8	**52,0**	**42,5**	6,0
759 Office, adp machy parts, acces	**67,2**	8,8	23,9	93,2	7,3
761 Television receivers	0,8	1,9	2,7	4,6	1,5
762 Radio-broadcast receivers	**50,0**	4,8	72,7	**40,6**	0,4
763 Sound recorders, phonographs	**51,6**	21,4	3,7	**65,9**	0,7
764 Telecom equip, parts, acces	**52,7**	**89,4**	**31,5**	**65,7**	17,2
771 Electric power machinery nes	**41,6**	**33,6**	**61,1**	**36,7**	**34,6**
772 Switchgear etc, parts nes	72,8	33,0	**80,3**	55,8	31,9
773 Electricity distributing equip	51,3	53,3	35,7	**41,6**	43,7
774 Electro-medical, xray equip	**80,4**	68,9	88,5	**59,6**	14,4
775 Household type equip nes	47,1	**80,9**	50,4	8,1	39,8
776 Transistors, valves, etc	**78,8**	81,3	**86,3**	**4,7**	**84,3**
778 Electrical machinery nes	99,9	49,9	**35,6**	56,0	48,4
781 Passengr motor vehicl, exc bus	1,0	0,4	0,2	0,4	0,8
782 Lorries, spec motor vehicl nes	15,8	74,5	**93,7**	53,9	**27,3**
783 Road motor vehicles nes	4,9	6,5	**86,1**	12,4	8,5
784 Motor vehicl parts, acces nes	28,1	15,2	23,5	40,9	29,6
785 Cycles, etc, motorized or not	27,9	27,6	49,2	16,7	87,4
786 Trailers, non-motor vehicl nes	56,1	78,9	53,0	32,8	41,1
791 Railway vehicles	12,5	9,7	8,6	15,7	24,6
792 Aircraft, etc	16,6	24,1	79,7	84,3	88,4
793 Ships, boats, etc	**46,7**	**0,2**	**1,8**	**2,4**	**0,1**
812 Plumbg, heatg, lightg equip	38,1	35,0	30,5	38,7	46,7
821 Furniture and parts thereof	41,5	**96,0**	86,9	42,6	**66,5**
831 Travel goods, handbags, etc	**33,1**	85,6	89,4	95,8	88,4
842 Men's outwear non-knit	**45,7**	**18,6**	**60,8**	**29,7**	**29,5**
843 Women's outwear non-knit	**79,2**	**13,9**	**37,1**	**46,6**	**43,7**
844 Under garments non-knit	**75,8**	**41,4**	80,0	**16,8**	**35,0**
845 Outer garments knit nonelastic	**22,1**	**5,8**	**25,0**	**12,3**	**24,3**
846 Under garments knitted	**30,7**	**17,1**	**34,8**	**31,5**	**48,5**
847 Textile clothing accessoris nes	**39,5**	**70,2**	74,2	86,6	**46,6**
848 Headgear, non-textile clothing	**35,0**	**52,3**	**9,9**	**35,6**	**69,8**
851 Footwear	**25,4**	**10,5**	**74,5**	**30,8**	**35,3**
871 Optical instruments	76,4	4,4	51,1	42,9	9,9
872 Medical instruments nes	20,2	17,7	13,2	12,8	18,4
873 Meters and counters nes	16,0	7,3	2,9	0,6	9,3
874 Measuring, controlg instruments	**34,0**	**68,2**	**38,5**	**80,6**	89,9
881 Photogr apparatus, equip nes	**26,5**	44,9	**36,6**	16,2	8,5
882 Photogr and cinema supplies	**22,3**	**77,9**	**14,0**	60,0	**63,6**
883 Developed cinema film	**2,9**	**3,8**	**0,2**	**0,0**	**0,0**
884 Optical goods nes	**12,1**	18,8	**38,2**	7,9	46,5
885 Watches and clocks	**60,3**	**58,6**	**25,1**	**84,3**	**26,0**
892 Printed matter	**61,5**	63,3	78,2	**85,0**	**22,9**
893 Articles of plastic nes	63,8	60,6	**85,2**	71,2	**86,5**
894 Toys, sporting goods, etc	45,3	25,1	56,8	29,7	9,0
895 Office supplies nes	**49,7**	47,9	**15,2**	39,2	**89,2**
896 Works of art, etc	**100,0**	98,8	96,0	**11,9**	**99,4**

(continued: TABLE A1)

INDUSTRY	HR:PL*	HR:CZ*	HR:SVK*	HR:SLO*	HR:H*
897 Gold, silver ware, jewellery	**47,9**	**64,6**	**10,9**	**10,0**	**2,3**
898 Musical instruments and parts	88,9	41,5	**56,5**	**94,0**	**75,5**
899 Other manufactured goods	73,8	**90,7**	**27,0**	**50,7**	**53,4**

*** The bolded values denote items in which Croatia achieves positive balance.**
Source: UNCTAD – statistical data base (www.unctad.org)