

The Competitiveness of Croatian Export to EU Markets

*Goran Buturac**

*Jasmina Gržinić***

Abstract: This paper explores the competitiveness of Croatian export to EU market. At the very beginning of the paper, by analyzing the results of regression model the basic differences among the value of Croatian exports in EU countries are to be explained. The differences in the size of Croatian export among EU countries could be well explained by the geographical distance between Croatia and individual EU countries, as well as, by the GDP of the EU countries. Croatia has positive trade balance with EU at low value added products. Although, the total export competitiveness to EU market remains unchanged during the observed period, the competitiveness of the economic sectors was really changeable. Compared to other economic sectors agricultural sector showed the most favorable position on the EU markets. Relatively good position in the competitiveness of the transport equipment could be explained by the significant value in the export of the shipbuilding industry. While the competitiveness of the chemicals was stagnating, the competitiveness of the textiles and clothing were falling.

Keywords: export, competitiveness, EU markets, Croatia

JEL Classification: F14, F15

Introduction

Accelerating global economic integration is driven by growing trade, falling transportation costs, and the ongoing progress of information and communications technology. This is creating opportunities for growth and development on an unprecedented scale. In the same time it is also putting new pressures on global resources and creating new competition for resource oriented industries and global regions. As the process of economic change and liberalization in Central and Eastern Europe evolves, export competitiveness can be expected to change as well (Landesmann, Stehrer, 2003; Barrios, Holger, Strobl, 2005).

* Goran Buturac is at the Institute of Economics, Zagreb, Croatia.

** Jasmina Gržinić is at Juraj Dobrila University of Pula, Pula, Croatia.

In addition to transition, when Croatia gained independence at the beginning of the 1990s Croatian economy was faced with the loss of previously established links with trading partners. Thereby the export performance severely declined at the initial phases of transition and remained at low levels even during the recovery period, resulting in country's weak external position. The greatest part of Croatian export is oriented towards EU countries.¹

The main purpose of this paper is to analyze the competitiveness of Croatian export to EU markets. In order to achieve that, we pose three questions. The first question is 'what are the determinants of size of Croatian export to EU markets?'. We try to answer that question by using multivariate regression model complemented with correlation analyses. The second question posed in the paper is 'which domestic economic sectors have comparative advantages in trade with EU?'. Revealed Comparative Advantages (RCA) indicator is used for the analysis of comparative advantages. Finally, the third question is: 'which Croatian economic sectors are competitive in EU markets?'. As an indicator of competitiveness, the share of Croatian export for individual product groups on EU market in total EU imports for that product groups is used.

Methodology

In order to test the most important determinants of size of Croatian export to EU markets, multivariate regression model is used. Dependent variable in the model is the value of Croatian export in individual EU country and independent variables are GDP of some EU country and distance between Croatia and EU country. The data were sourced from Croatian Central Bureau for Statistics. Observed year is 2005.

The empirical analysis of comparative advantages and competitiveness in EU market includes the following indicators: 'Revealed Comparative Advantages' (RCA indicator) and 'Indicator of Competitiveness'.

RCA indicator is used for the analyses of comparative advantages. The methodology for calculating the RCA indicator was originally developed by Bela Balassa (1965). Later on numerous derivations originated from this indicator. The RCA indicator is useful for the purpose of comparing comparative advantages for individual product groups². The RCA indicator is calculated by the formula:

$$RCA = \ln \left[\frac{X_i}{M_i} \right] \times \left(\frac{\sum_{i=1}^n X_i}{\sum_{i=1}^n M_i} \right) \times 100$$

X is defined as the value of exports, while M is the value of imports. Index i is the product group classified according to SITC. A positive value indicates that the country has comparative advantages in the corresponding product group. Conversely, a negative sign for the RCA indicator implies that there are no comparative advantages.³ An alternative for RCA indicators is the Lafay's RCA index. Compared to Balassa's RCA indicator, Lafay's index takes in regard the flows of trade inside each sector of the economy, GDP as well as exports and imports for each group of products.⁴

As an indicator of competitiveness, the share of Croatian export for individual product groups on EU market in total EU imports for that product groups is used.

Determinants of Croatian Export to EU Markets

With the share of trade in goods and services in GDP at over 100 percent, Croatia's trade developments are of great significance for its own economy as well as for the patterns of regional integration. Developments in foreign trade can be traced back to 1992, which was the first year when trade with other former Yugoslav republics was included in the foreign trade statistics.⁵ Total exports of goods and services have been growing steadily over the 1993-2006 period. However, growth can be ascribed almost exclusively to tourism revenues; service exports more than doubled during the period. Croatia traditionally had a significant surplus in trade in services, the major part of which is tourism, a feature that differentiates Croatia from most other transition countries. Merchandise exports instead have stagnated, resulting in a significantly lower share in world trade; the share of Croatia in EU12's imports declined from 0.34 percent in 1993 to 0.19 percent in 2000 whereas the share of CEECs almost doubled. Import performance has been far more volatile; after doubling over 1993-97 leading to an unsustainable current account deficit in 1997 they declined modestly and stabilized at around US\$8.5 billion thereafter. The significant increase of services exports in recent years (surpassing the exports in goods in 2001) brought the current account deficit closer to a sustainable level of around 3 percent of GDP.

Croatia has the greatest trade with EU countries. Merchandise export performance has been improving, although improvement might be perceived as slow one. Real export growth averaged 10.9 percent annually during 2002-06. Croatian trade with EU is displayed in the table 1. Croatian total trade with EU was significantly increasing from 2002 to 2006. Import growth was faster compared to export growth. The consequence was a deterioration of trade balance with EU.

Table 1: Croatian trade with EU from 2002 to 2006 (Mio euro)

Year	Imports	Yearly % change	EU Share of total imports	Exports	Yearly % change	EU Share of total exports	Balance	Imports + Exports
2002	7.750		70.29	3.276		64.10	-4.474	11.026
2003	8.748	12.9	70.99	3.581	9.3	66.93	-5.166	12.329
2004	9.016	3.1	68.71	4.085	14.1	64.67	-4.931	13.101
2005	9.532	5.7	64.94	4.366	6.9	61.37	-5.167	13.898
2006	11.645	22.2	67.38	4.961	13.6	62.22	-6.684	16.605
Average annual growth		10.7			10.9			10.8

Source: IMF (Dots)

During the transition, significant changes in the product composition of Croatian exports have accompanied the geographical re-orientation. Exports of manufacturing goods to former Yugoslav countries have declined sharply, but export to EU has grown. The following significant question is the determinants of the structure of Croatian exports concerning individual EU country. Why is Croatian export greater in some EU country compared to others? In turn, the task is to determine export demand equation through applying multivariate regression model.⁶

By analyzing the results of regression model in the paper the basic differences among the value of Croatian exports in EU countries are to be explained. The theory suggests that income of importing countries as well as relative prices should appear as basic explanatory variables in the export demand equation. In this model GDP in current prices of the individual EU country is used as an explanatory variable for the income. The relative prices are omitted from the model primarily because of the equality and the stability of the prices all over the EU countries (Furstenberg, 2003; Cihak, Holub, 2005). Instead of the relative prices, the distance between Croatia and EU countries is included in the model. The main reason lies in the fact that the distance is one of the key factors of the value of transport costs which in the end determine prices of exports and consequently the export demand. Trade equations are estimated using data for 2005.

The regression model can be stated as follows:

$$\ln EXP_{ij} = \alpha + \beta_1 \ln DIS_{ij} + \beta_2 \ln GDP_j + \varepsilon_i$$

Variables that are appearing, after logarithmic transformation, in the estimated export equation are:

EXP_{ij} is export from Croatia to EU country j ;

DIS_{ij} is distance between Croatia and EU country j ;

GDP_j is gross domestic product of EU country j .

Table 2: The results of the regression analyses

Variable	Coefficient	Std. Error	T-Statistic	p-level
C	14.573454	2.668422	5.46145	0.000011
DIS	- 0.584697	0.310707	-4.71835	0.000077
GDP	0.498400	0.129319	4.02196	0.000468
R-squared	0.616899			
Adjusted R-squared	0.586251			
F-statistic	20.12852			
p-level	0.00001			

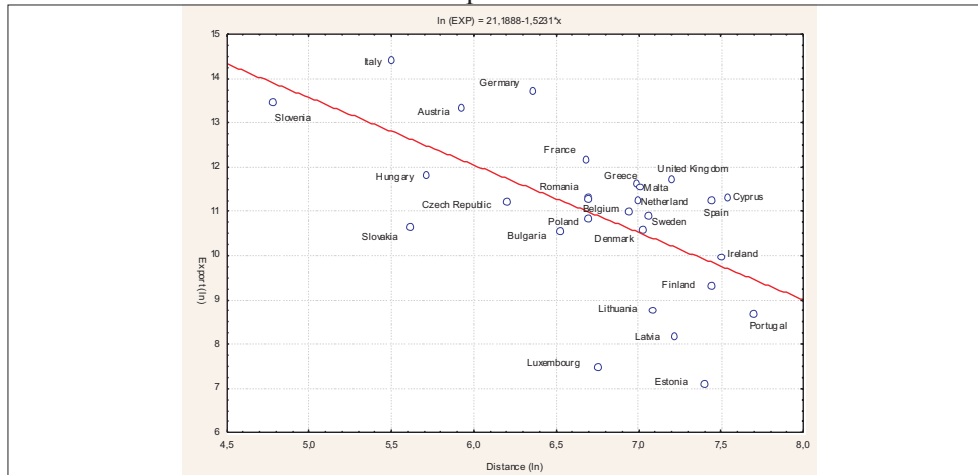
Source: own calculations.

As expected, the value of export (EXP) is higher the lower is the distance between the economies (DIS) and the greater the size of the import economy (GDP) is. Both variables are statistically significant at the 5 percent level (table 2). The computed F-value is significant, while the explanatory variables accounts for 61 percent of the variation in the dependent variable.

The correlation between the distance among Croatia and the individual EU countries and the value of export is displayed in figure 1.

A disposition of the points on the graph revealed the negative correlation between the two variables. Croatia tends to export more to the closely located EU countries. The best example is Slovenia where 13 percent of the total Croatian merchandise export is directed. The highest value of the export is in Italy, Germany, Austria and Slovenia. Their share in total Croatian export is 75.4 percent, implying Croatian export is highly concentrated and strongly dependant on developments on those markets. The lowest share of export goes to Estonia and Luxembourg. As expected, among Croatian trading partners, those countries are the most distant ones in geographical terms. In the same time, Estonia and Luxembourg experienced lower level of GDP.

Figure 1: The correlation between the geographical distance between Croatia and EU countries and the value of export

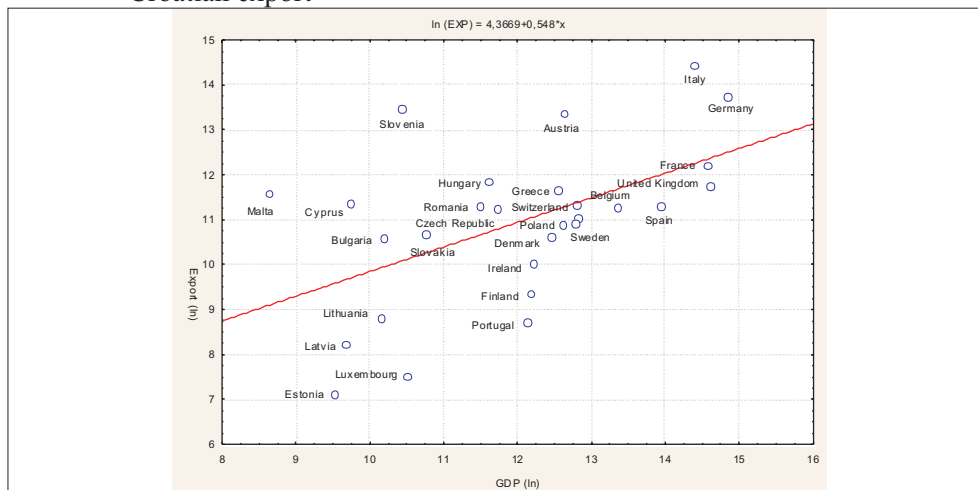


Source: own calculations.

The correlation between GDP of observed EU countries and the value of Croatian export is displayed in figure 2.

Croatian export is higher in the EU economies that have higher level of GDP. It points to positive correlation.

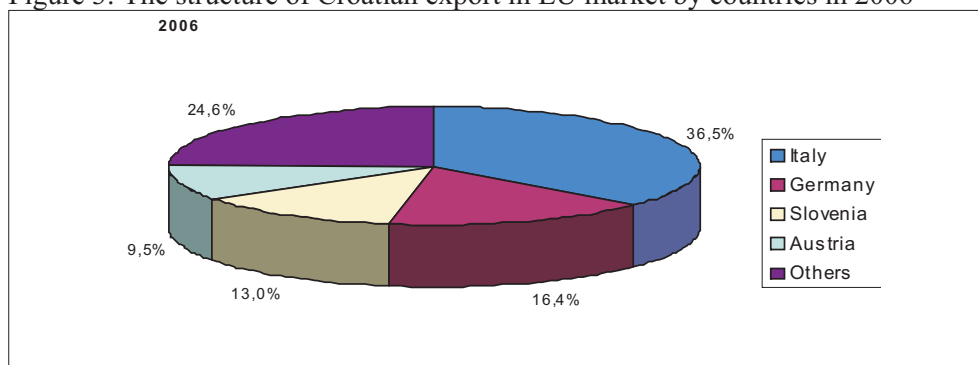
Figure 2: The correlation between the GDP of the EU countries and the value of Croatian export



Source: own calculations.

The structure of Croatian export in EU market by countries is displayed in figure 3.

Figure 3: The structure of Croatian export in EU market by countries in 2006



Source: Croatian Central Bureau of Statistics.

The Analyses of the Competitiveness

Croatia's merchandise export performance has been disappointing during the transition. While the break-up of Yugoslavia, the war and peace process that followed may partly account for that, it appears that Croatia's own structural weaknesses have played at least an equally important role. Croatia has an opportunity to join the single most prosperous free-trade economic area in the world. Can it meet the challenge of fierce competition on the EU market? This is the key issues addressed in this part.

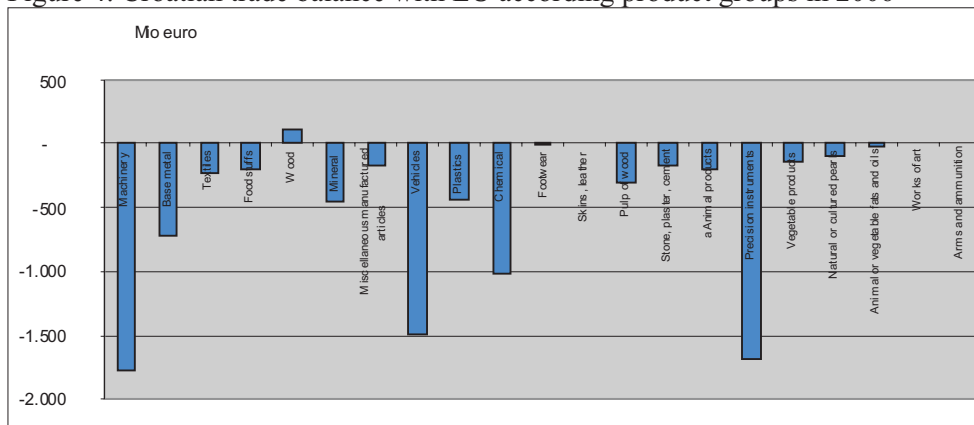
The main component of Croatia's considerable current account deficit is the merchandise trade deficit. It is a result of stagnating exports and increasing imports over the last years. Compared to other transition economies, Croatia did not fully succeed in adjusting its export structure to new demand, whilst strong imports were necessary to satisfy the domestic demand for consumption and, recently, investment.

Croatian trade balance according product groups in 2006 is displayed in figure 4.

In most product groups Croatia has negative trade balance with EU. The greatest negative sign is at machinery, vehicles, precision instruments and chemicals. These are high value added, capital intensive and research oriented goods.

Positive trade balance is reached when trading with wood and leather. Unfortunately, these are low value added products.

Figure 4: Croatian trade balance with EU according product groups in 2006



Source: EUROSTAT (Comext, Statistical regime 4)

In turn, the structure of Croatian export to EU market and its comparative advantages are analyzed. The changes in Croatian export structure were determined by processes of the globalization and the liberalization of the foreign trade. Croatia has gone a long way in liberalizing its trade having already signed 35 free trade agreements (FTAs) including the SAA (Stabilization and Association Agreement).⁸ Yet, bilateral trade liberalization alone will deliver the full benefits that could be obtained from a broader liberalization of trade. In addition, the timing and sequencing of liberalization is an important trade policy issue as well. This is mainly because the SAA envisages asymmetric trade liberalization (with the EU eliminating most tariffs upfront and the SEECS taking up to six years to do so) and other bilateral FTAs contain different phasing-in periods for different groups of products. Much of the dynamism exhibited by trade flows will in any case hinge on the performance of FDI and investment. The investment climate and overall business conditions will thus be more important determinants of future trade flows. The greatest impact of the SAAs will be provided by the requirement to align policies, legislation and institutions with those of the EU. The economic success formula of EU accession countries has indeed been the resulting adoption of progressive (market-based) institutions and policies in a consensus-based environment which simultaneously can preserve idiosyncratic features. The CEECS also have benefited from participation in the Pan-European Cumulation of Origin (PCO) system since 1993. This allows participants to export goods (under preferential terms to the EU) which employ inputs with content produced in any other country under the PCO System.

The export structure by the SITC categories shows that machinery and transport equipment had the highest share of Croatia's exports (25 percent of total exports, mainly the shipbuilding industry). Follow base metal, with 10.3 percent of the total,

while products classified as textiles have a 9.2 percent share, foodstuffs 7.9 percent, and wood 6.1 percent of the total exports. The main change in the composition of exports in the transition period is the recovery of shipbuilding industry exports from 1998 onwards which increased the share of machinery and transport equipment in total exports. This was at the expense of a lower share in total exports of miscellaneous manufactured articles (clothing, footwear and furniture) and chemical products. Based on the more detailed NCEA classification, apart from shipbuilding, only tobacco, telecom equipment and pharmaceuticals were product groups that significantly gained export competitiveness.

The structure of Croatian export and indicator of comparative advantages is displayed in the table 2.

Table 2: Croatian export in EU and RCA indicator

Sections	Export (Mio euro)	%	Share of total EU imports	RCA indicator
Machinery	928	19.49	0.35	-0.4221
Base metal	492	10.33	0.30	-0.3554
Textiles	441	9.26	0.51	-0.1675
Foodstuffs	377	7.92	0.54	-0.1653
Wood	291	6.11	1.40	0.1810
002919 Mineral	284	5.96	2.32	-0.3787
Miscellaneous manufactured articles	258	5.42	0.08	-0.2063
Vehicles	239	5.02	0.81	-0.7833
Plastics	230	4.83	0.25	-0.4175
Chemical	208	4.37	0.67	-0.7028
Footwear	143	3.00	0.21	-0.0109
Skins, leather	119	2.50	0.93	0.0033
Pulp of wood	116	2.44	1.05	-0.5015
Stone, plaster, cement	94	1.97	0.81	-0.4182
Animal products	53	1.11	1.02	-0.6110
Precision instruments	45	0.94	0.28	-1.4428

Vegetable products	43	0.90	0.09	-0.5741
Natural or cultured pearls	26	0.55	0.15	-0.6386
Animal or vegetable fats and oils	6	0.13	0.08	-0.5307
Works of art	1	0.02	0.12	-
Arms and ammunition	0	0	0.02	-

Source: EUROSTAT (Comext, Statistical regime 4); own calculations.

Croatian products that have the greatest share on EU markets relative to others Croatian products are: mineral, wood, pulp of wood and animal products. Observing RCA indicator, there are comparative advantages in the trade with wood, skins and leather. The main reason for the existence of comparative advantages lies in the fact that Croatia has high quality of raw base in those products. They are directly exported to EU markets as raw materials. One can conclude that Croatian export structure to EU markets is unfavorable as Croatia has comparative advantages just in three low value added product groups.

Table 3: Indicator of the competitiveness of Croatian export on EU market

	2002	2004	2006
I. PRIMARY PRODUCTS	0.27	0.26	0.24
Agricultural products	0.53	0.50	0.76
Energy	0.09	0.09	0.05
II. MANUFACTURED PRODUCTS	0.35	0.45	0.39
Machinery	0.20	0.29	0.29
Transport equipment	0.12	0.50	0.28
Chemicals	0.37	0.42	0.36
Textiles and clothing	0.86	0.77	0.56
TOTAL	0.33	0.38	0.35

Source: own calculations.

Moreover, the export product structure could be linked with the destination of exports as some patterns can be identified. For example, exports to the EU are still mainly 'traditional', i.e., composed of textiles, clothing, footwear, wood, paper and

furniture. In turn, indicator of competitiveness of Croatian export on EU market is displayed in the table 3.

Compared to exports to EU markets, the leading product groups in the exports to Bosnia and Herzegovina are minerals, fuels and food products. It is interesting to note that exports to Russia are largely composed of pharmaceutical products and telecom equipment. Ships are mostly sold to the rest of the world, while the buyers are generally registered at 'flag of convenience' countries like Panama and Liberia.

Although, the total export competitiveness to EU market remains unchanged during the observed period, the competitiveness of the economic sectors was really changeable. The competitiveness of the agricultural products, the machinery and transport equipment was increasing. The growth in the competitiveness of the agricultural products is encouraging primarily because of natural advantages and the existence of the considerable opportunities for the future growth in the competitiveness of the foodstuffs industry. The growth in the competitiveness of the machinery and transport equipment could be explained by the increase in the value of export of shipbuilding industry. While the competitiveness of the chemicals was stagnating, the competitiveness of the textiles and clothing were falling. There are several reasons for fall in competitiveness of traditional Croatian export industries like textiles and clothing. One of the explanations that can be offered is that most Croatian textile and clothing companies failed to develop their own brands on EU market. That is why Croatia has lost on the qualitative competitiveness. Also, EU markets are becoming more competitive especially due to strong growth in the competitiveness of the textile and clothing industries in China and cheaper access to the human and the other resources in transition economies.

Conclusion

Croatian economy has become highly integrated into the global economy through the international trade. In a relatively short period of time, trade integration of Croatia approached levels that would be expected given their proximity to the EU markets. The differences in the patterns of trade integration are closely related to differences in their recovery and growth. Transition economies that have reformed and restructured faster have significantly improved their technological structure of exports compared to laggards. The differences in the size of Croatian export among EU countries could be well explained by the geographical distance between Croatia and individual EU countries, as well as, by the GDP of the EU countries. The highest value of the export is in Italy, Germany, Austria and Slovenia. The results show the high level of the concentration of Croatian export and strong dependence on the movements and competition on those markets. Croatia has comparative advantages in low value

added products. Similar situation is with the competitiveness. Textile and clothing industry have recorded significant fall in the level of the competitiveness. Finally, level of competitiveness had the consequences on the level of production and employment in those sectors. Compared to other economic sectors agricultural sector showed the most favorable position on the EU markets. Relatively good position in the competitiveness of the transport equipment could be explained by the significant value in the export of the shipbuilding industry. EU markets present a challenge for the development of the domestic economy. However, it seems that Croatian companies did not take advantage of opportunities in the observed period.

NOTES

¹ The EU accounts for over 62 percent of Croatian export in 2002 (Croatian Central Bureau of Statistics, 2007)

² See more details about the use of RCA indicator in Balassa (1965), Lafay (1992), and for transition economies Kaminski and Ng (2001), Yilmaz (2005).

³ In analyzing the trade structure in transition countries using RCA indicators, see for example in Djankov and Hoekman (1997), Kaminski and Ng (2001), Yilmaz (2005).

⁴ See more details about the use of Lafay's index in Lafay (1992).

⁵ Any comparison with the data on previous years would be misleading because trade within Yugoslavia was the important part of overall trade in most of the sectors.

⁶ See more details about the export demand function in (Mervar, 1994), (Aydin, Ciplak, Yücel, 2004), (Funke, Ruhwedel, 2005)

⁷ The distance was determined using the distance between capitals

⁸ Croatia's membership in CEFTA became effective in March 2003. Nine FTAs with CEFTA members were subsequently replaced by the CEFTA Agreement

REFERENCES

- Aydin, F., Ugur C. and M.Y. Eray (2004), "Export Supply and Import Demand Models for the Turkish Economy", The Central Bank of the Republic of Turkey: Reserach Department Working Paper No: 04/09.
- Balassa, B., (1965), "Trade Liberalization and Revealed Comparative Advantage", The Manchester School of Economic and Social Studies, 33 (2), pp. 99-123.
- Barrios, S., Görg H. and E. Strobl, (2005), "Foreign Direct Investment, Competition and Industrial Development in the Host Country", *European Economic Review*, 49 (7), pp. 1761-1784.

- Bernard, A. and S. Redding, (2007), "Comparative Advantage and Heterogeneous Firms", *Review of Economic Studies*, 74 (1), pp. 31-66.
- Croatian Central Bureau of Statistics, (2007), www.dzs.hr.
- Čihak, M. and T. Holub, (2005), "Price Convergence in EU-Accession Countries: Evidence from the International Comparison", *Economic Internationale*, 102, pp. 59-82.
- Djankov, S. and H. Bernard, (1997), "Determinants of the Export Structure of Countries in Central and Eastern Europe", *The World Bank Economic Review*, 11 (3), pp. 471-487.
- Eaton, J. and S. Kortum, (2002), "Technology, Geography and Trade", *Econometrica*, 70 (5), pp. 1741-1780.
- EUROSTAT, (2007), (Comext, Statistical regime 4), <http://europa.eu.int/comm/eurostat>.
- Fidrmuc, J. and J. Fidrmuc, 2003, "Disintegration and Trade", *Review of International Economics*, 11 (3), pp. 811-829.
- Funke, M. and R. Ruhwedel, (2005), "Export variety and economic growth in East European transition economies", *Economics of Transition*, 13 (1), pp.25-50.
- Furstenberg, M. Von George, (2003), "Price Insurance Aspects of Monetary Union", *Journal of Common Market Studies*, 41(3), pp. 519-539.
- Hummels, D. and P. Klenow, (2005), "The Variety and Quality of a Nation's Trade", *American Economic Review*, 95 (3), pp. 704-723.
- IMF, (2007), <http://www.imf.org/external/index.htm>.
- Kaminski, B. and N. Francis, (2001), "Trade and Production Fragmentation: Central European Economies in EU Networks of Production and Marketing", Working Paper, DECRG-Trade, Worldbank, No: 2611.
- Krugman, P., (1994), "Competitiveness: A Dangerous Obsession", *Foreign Affairs*, 73 (2), pp. 28-44.
- Lafay, G., (1992), "The Measurement of Revealed Comparative Advantages" in M.G. Dagenais and P.A. Muet (eds), *International Trade Modelling*, London: Chapman & Hall, pp. 209-234.
- Landesmann, M. and R. Stehrer, (2003), "Evolving competitiveness of CEECs in an enlarged Europe", *Rivista di Politica Economica*, XCII, No. I-II, pp. 23-87.
- Mervar, A., (1994), "Estimates of the Traditional Export and Import Demand Functions in the Case of Croatia", *Croatian Economic Survey* 1993, 1(1), pp. 79-93.
- Mikulic, D. et al., (2007), "The Comparison of Competitiveness Indicators of the Croatian Economy – Objective Statistical Indicators vs Subjective Perception of Competitiveness", *Institute of Economics, Zagreb*, 196 p.
- Yilmaz, B., (2005), "The Foreign Trade Pattern and Foreign Trade Specialization in the European Union", *Eastern European Economics*, 43 (5), pp.77-103.