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IS THERE A STRUCTURAL IMPROVEMENT IN THE MERCHANDISE EXPORTS OF THE BALKAN COUNTRIES IN THE PERIOD 2000-2012?

ABSTRACT: *The value of indicators of the similarity of Balkan countries' exportand import structuresto those of developed countries grew only mildly, which indicates that the unfavourable structure of exports has been retained. While similarity coefficients increased in the period until and including 2012, they failed to reach a critical turning point as in advanced European countries in transition. In practically all Balkan economies, since 2000 the technological intensity and the factor intensity of foreign trade have changed toward an increased share of highly-processed products, but the share of skill-intensive manufactures remained almost two times smaller than in developed economies. An aggravating factor was the continual strong double-digit growth of exports in most Balkan countries, which 'forced' exports based on the existing inappropriate structure and prevented a change in export structure.*
Balkan countries would have to attract FDI in export sectors that are capital- or skilled-labour-intensive. A targeted industrial policy and sector- and firm-level strategies are necessary to give momentum to a shift towards technology-intensive activities, associated with higher spillover effects. It is realistic to expect that the evolution of the economic system through restructuring would additionally improve the still unfavourable structural characteristics of Balkan countries' exports.

KEY WORDS: *Balkan countries, similarity coefficients, skill-intensive manufactures, exports, imports, structure, 2000-2012, EU, U.S.*

JEL CLASSIFICATION: F 14, C 42

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1. INTRODUCTION

The Balkans, along with parts of the former Soviet Union, is economically the least developed region of Europe, and is significantly differentiated within itself by level of economic development. The level of exports and quality of the export structure of Balkan countries are both a cause and a consequence of this condition. Given the importance of exports for the performance of virtually every economy, an analysis of trends and structural changes in exports can provide useful insights into the state of a given economy and can also be a touchstone for the assessment of future economic developments. Therefore, a qualitative analysis of exports in the period 2000-2012 can significantly contribute to the understanding of economic trends in the countries of the Balkan region.

In this paper we analyse how well the export profile of Balkan countries matches the import profile of developed countries, especially the EU and U.S. Typically, home country exports should match the imports of its major trading partners. We started from the assumption that the export structure of Balkan countries is becoming more compatible with the EU's (or U.S.'s) import structure, which implies higher export competitiveness for the Balkans. It should be noted that countries at a similar level of development typically have similar trade structures, and that similarity of export and import structures is a factor that stimulates trade. In addition, the growing similarity of trade structures is correlated with an increase in bilateral trade (excluding other factors that may have an impact).

The first aim of this paper is to compare the absolute level and trend of the similarity coefficients of the export structures of nine Balkan countries (Turkey, Greece, Bulgaria, Slovenia, Romania, Croatia, Serbia, Bosnia-Herzegovina, and Montenegro) with the import structure of developed economies (the EU and U.S.) to examine if there is convergence, and the level of that convergence since 2000. Potential increases in similarity ('overlap'), i.e., a better match with the merchandise (commodity) import structures of the EU and U.S., would indirectly indicate the potential for further growth and qualitative improvement of merchandise exports from the observed transitional countries, and the opportunity for these economies to make best use of their comparative advantages.

The second objective of this paper is to analyse and compare the absolute level and trend of the share of skill-intensive manufactures in total commodity exports of nine Balkan countries (Turkey, Bulgaria, Greece, Slovenia, Romania, Croatia, Serbia, Bosnia-Herzegovina, and Montenegro), which is a good indicator of the quality of export structure. The level and potential increase of such shares would

indirectly indicate a qualitative improvement of merchandise exports. The share of skill-intensive manufacturers in exports and the increasing trend of such a share would indirectly indicate an opportunity for these economies to make progress in the level of competitiveness.

The results of this research will help clarify trends in the structural change of the nine Balkan countries' exports and the quality level of exports achieved in each of the observed countries. The aim is to identify the deficiencies in exports from the observed Balkan countries, as the development of economic and export structures is an essential prerequisite for competitiveness, particularly within the EU market. Insight into the achieved level (and trend) of similarity indicators and into the tendency of skill-intensive manufactures' share in total exports (which is also a reflection of the state of the overall economy) can facilitate our work on the conceptualization of measures needed to promote Balkan countries' exports.

What prevents a satisfactory assessment of the scientific correlation between the growth of similarity coefficients (or share of skill-intensive manufactures) and the increase in export values, besides short series, is that both variables depend on time. In addition, for countries that are in the process of transition and seeking EU membership, it is to be expected that their initially low-quality export structures improve and adjust to the import demand of their main trading partners, while the trend of export growth is to a significant extent the result of starting from a low base. Therefore additional research is needed that would, by isolating these factors, confirm the thesis of a positive significant correlation between growth of similarity coefficients and increase in the value of exports.

2. TWO HYPOTHESES

The first hypothesis of this paper is that since 2000 the structure of merchandise exports from Balkan countries has become better adjusted to the commodity import structures of the developed economies (which we use as a reference point). Bearing in mind that the majority of these countries have accelerated reforms (including more active integration in the international political and economic system), it is logical to expect such a result.

In order to eventually prove that hypothesis (i.e., in order to avoid its rejection), we used four indicators of similarity. We used Cosines and the Finger-Kreinin similarity (difference) measurement method for the structure of exports and imports, to compare the similarity of the commodity structure of exports of the

observed transitional countries and the commodity import demand structure of the EU and the U.S. over the period 2000-2012. In addition we used the Bray-Curtis index and Integrated Similarity Index to measure similarity (we used the inverse form of the Integrated Similarity Index for comparability with other indices).

Coefficients indicate the probability, i.e., intensity of expected total bilateral trade. It should be emphasized that an eventual lessening of the similarity of Balkan countries' export structure to the EU's or U.S.'s import demand does not speak only of a divergence between Balkan countries' exports and the demands of the market, but also about a general 'distancing' of Balkan countries' exports from the imports of developed countries' markets, which are characterized by a more technologically advanced trade structure. Among other things, in an economic (and monetary) union such as the Eurozone (the European Monetary Union - EMU), which the observed countries aim to enter, the similarity of trade structures is important because a higher level of similarity may require smaller industrial relocation, makes monetary policy coordination and the definition of other common policies easier, increases resistance to asymmetric shocks, accelerates the convergence of factor prices, and reduces the pressure of migration flows to the EU (Crespo & Fontoura, 2005, pp. 611-632). In their other study Crespo & Fontoura (2007, p. 4) point out that joining the euro area may result in further convergence of export structures in the region. Greece and Slovenia are members of EU and EMU, Romania and Bulgaria are EU members but not in the EMU, while others Balkan countries are not in EU.

Bearing in mind that one of the goals of the majority of European countries, including some EU members, is to become part of the euro-zone, it is important to emphasize that sustainability of monetary union depends on the degree to which the common economic policy is in accord with that of the individual members, and this requires the similarity of economic indicators in these countries, including, among others, export structures. Suppose that one country has a significant balance of payments deficit, and the other a surplus. If these two countries have the option of keeping an autonomous monetary policy, they will depreciate or appreciate their currency, change price levels, or encourage the inflow or outflow of capital (or other factors of production) from the country. In the case of monetary union there is no autonomous monetary policy, there are no significant fiscal transfers between countries, no significant labour mobility among EU (or euro area) member states, and 'asymmetric' economic shocks are a significant challenge. For example, they can be caused by changing demand in the world market, which affects the exports of EU (or euro area) countries; but if

the export structures of the EU (or euro area) are similar, the change will similarly affect all members, and economic policy measures may be unique. Alternatively, if changes in export demand were to occur in one country, leading to the growth of a deficit while another had a surplus, the 'burden' in the common market would be unevenly deployed. The aim of changes in economic and export structures is, therefore, training for competition in the common EU market, especially in the euro area (the diversity of production and trade structures causes asymmetric shocks in the monetary union).

In this sense Kalcheva's study (2006, pp. 5-9) is indicative, since it shows the high correlation between euro-zone members' external shocks. In addition, there was little or no correlation between supply shocks in any of the ten former EU candidate countries (now EU members) and the EMU member states until 2002. There is, therefore, much smaller supply-shock correlation than among the EMU member states. Thus, the two groups of countries have had repeated exposure to supply-asymmetric shocks.

A structure, favourable or otherwise, is derived from empirical analysis, which shows that most developed countries have a structure of exports (and imports) which is predominantly based on products of high stages of finalisation (with much higher added value). In this study the EU, the dominant trading partner of the observed Balkan countries, together with the structure of U.S. imports, serves as the reference system on which we will base our analysis of the qualitative changes in the export structure of the observed Balkan economies. The advantage of the EU (and U.S.) trade structures for the purpose of comparison stems from the high stability of the structure of imports (and exports) of this integration. The advantage of comparison with the EU and U.S. import structures is that they are not static but continually improve, while other indicators (if they are not viewed in comparison to other countries) may be influenced by progress that may be typical for worldwide trade.

Which number of EU members is considered is primarily a theoretical construction. We chose EU27 because it is the most appropriate basis for comparison. The alternative EU15, without the twelve members that entered in 2004 and 2007, is less adequate for comparison. It is important to note that the extra import structure of the EU27 is foremost an indicator of advanced import structure. Bearing in mind the very small share of Balkan exports in EU imports, it is clear that comparing the mentioned structures is meaningful primarily as an indicator of the achieved improvement in exports.

The structure of trade is an indirect indicator of achieved economic development. Once a country where a resource or primary product dominates exports achieves a certain level of development, it needs to diversify its exports to include products of greater sophistication, or economic growth will slow. Hypothetically, if a more significant growth in Balkan countries' exports were accompanied by a growth of the similarity index (and growth in the share of skill-intensive manufactures) one could then talk about a desirable, i.e., quality, export growth. In the second case, if growth in exports was to be accompanied by a fall in the similarity coefficient, along with a concomitant fall in the share of goods of a higher phase of finalization in Balkan countries' exports, then it is clear that this would be a matter of growth driven by primary and resource-intensive products, i.e., non-quality growth.

Due to a high share of exports to the EU in Balkan countries' total exports, it is to be expected that to a large extent the EU's import demand itself shapes the Balkan countries' total export structure. This would imply that changes that take place in the structure of Balkan merchandise exports are to a great extent a consequence of the domestic economy's adjustments to the import demands of its main trade partners, above all the EU countries.

In addition, as a kind of control analysis, we introduced a complementary hypothesis. We assumed that in the period observed, after 2000, the factor intensity and technological structure of Balkan countries' exports shifted towards an increased share of products with higher processing (as has been the case in the advanced transition economies since the mid-nineties). We test the hypothesis about the possible structural improvement of foreign trade of nine Balkan countries by classifying the total exports into the categories of skill-intensive manufactures and all other products. We analyse changes in the share of skill-intensive manufactures in total merchandise exports of the observed Balkan countries during 2000-2012. A growing share of these products in total exports would suggest a qualitative improvement of the exports of Balkan countries, given the two-times higher share of skill-intensive manufactures in the imports of developed countries. A possible qualitative improvement of Balkan countries' exports (i.e., an increased share of skill-intensive manufactures in total exports) would gain further importance if it turned out that there was an increase in demand for the same group of products in EU and U.S. imports.

3. USED DATA AND METHODOLOGICAL FRAMEWORK

In this paper we use the structure of exports and imports by SITC (Standard International Trade Classification) to a two- (a three-) digit level for Turkey, Bulgaria, Greece, Slovenia, Romania, Croatia, Serbia, Bosnia-Herzegovina, Montenegro, extra EU27[1] and U.S. (data for Macedonia and Albania, unfortunately, we were unable to obtain). We have observed the period from 2000 to 2012.[2]

Primarily EUROSTAT and national statistical offices' databases are used. The share of merchandise divisions (SITC, two-digit level) is sourced from national statistics and publications of EUROSTAT. The share of SITC merchandise groups 785, 786, and 792 is indirectly sourced from the International Trade Center (http://www.intracen.org).[3] Conversion from HS (four-digit) classification by Trade Map (International Trade Center) to SITC (three-digit) is made according to the correspondence table between the basic headings of SITC (Revision 4) and the subheadings of the Harmonized Commodity Description and Coding System, fourth edition (2007)[4].

The Finger and Kreinin *(FKISij)* index endeavours to estimate export similarity by calculating the relative importance of various commodities in the export structure of pairs of countries, and then using a filtering technique. The method is non-parametric; therefore it is not based on any assumptions about the distribution of variables (Finger and Kreinin, 1979, pp. 906-907).

$$FKIS_{ij} = \sum_{k=1} (E_{ik}, M_{jk}) \qquad \text{(Formula: 3.1.)}$$

k - item in SITC;
k = 1 ... 63 (for two-digit classification);
Ei - the exporting country;
Mj - the importing country.

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1   Extra EU 27 is referring to external export and import of EU 27, i.e. export and import of EU not including inter-members merchandise trade.

2   For the coefficients for 2012, the structure of the EU's external imports from 2011 was taken. For the coefficients for 2001, the structure of the EU's external imports from 2000 was taken. This approach can be justified by an absence of data for 2012 and 2001. Due to the high correlation (0.99), along with high significance (0.000), in comparing the external import structures of the EU27 for successive years, this approach skews the true value of the similarity coefficients of the two structures to a very small extent (see Nikolić, 2010, p. 79. & Nikolić, 2011, p. 402.).

3   http://www.trademap.org/countrymap/Product_SelCountry_TS.aspxcalculated

4   http://unstats.un.org/unsd/trade/sitcrev4.htm

The Finger and Kreinin index provides information on how well the export profile of one country matches the import profile of another country (typically one wishes to match home country exports against its major or new trading partners' imports). The value of the index ranges between 0 and 1, with 0 implying complete lack of similarity and 1 reflecting the countries having identical export compositions. It takes value 0 when there is no product that is exported from one country and imported by the other. The index takes value 1 when trade flows match perfectly, that is, when the export structure of one country is just the same as the import structure of the other country. By calculating the index over time, one can observe whether trade profiles between trade partners are becoming more or less compatible. More compatible presumes higher competitiveness.

The Cosines method (COS.ij) is used to determine the similarities (differences) between the two structures that are classified in the same way (e.g., the 63 elements). The case takes a vector of E, which represents the structure of exports to specific countries (i). The vector is defined by a number of elements in n-dimensional space that have the same dimensions as the vector E elements. The analogue vector to E, M takes a vector that represents the structure of imports (or exports) of a particular country (j). The vector is defined by a number of elements in n-dimensional space, which have the same dimensions as the vector E elements. Provided that the participation of all elements of total exports or imports is identical (absolute amounts are not important), the two radius vectors will have identical positions in multidimensional space because they have the same coordinates, the angle between them will be 0, and the value of the cosines will be 1 (a complete identity of commodity structure). The cosines method allows us to take a more detailed look at the difference between export and import structures (the divisions, in this case), and we can detect divisions where there is most potential for increasing exports; given, of course, real economic opportunities.

$$\cos._{ij} = \frac{\vec{E}_j \star \vec{M}_j}{/\,\vec{E}_j\,/\star\,/\,\vec{M}_j\,/} \qquad\qquad \text{(Formula: 3.2.)}$$

or:

$$\cos._{ij} = \frac{\sum_{k=1} E_{ik} \star M_{jk}}{\sqrt{(\sum_{k=1} E_{ik}{}^2)\star(\sum_{k=1} M_{jk}{}^2)}} \qquad\qquad \text{(Formula: 3.2.a.)}$$

Taking into account certain deficiencies of these indices, primarily the fact that they do not incorporate weights, i.e., the relative weights of the observed sectors,

we shall use alternative measures of similarity. This can be done using a so-called similarity matrix. We used normalised Manhattan distance with the Bray-Curtis formula (B-C jk), broadly used in geo-statistics and in biometrics (Michie, 1982, pp. 661-667). The value of this indicator ranges from 0 to 1, and if the value of this index is closer to 0 the two structures are closer together.[5]

$$B - C_{jk} = \frac{\sum_i \left| x_{ij} - x_{ik} \right|}{\sum_i \left(x_{ij} + x_{ik} \right)}$$ (Formula: 3.3.)

x_{ij} = part of the section of the country j (in total exports or imports) in the observed year;
x_{ik} = part of the section of the country k (in total exports or imports) in the observed year;
j, k = observed country (or country in different periods).

Kovacs (2004. p. 12) explores whether there is a Europe-wide convergence in trade structures and what the Integrated Similarity Indices show. Bearing in mind that countries at a similar level of development are supposed to have similar trade structures, there is the question of whether there is an assimilation of trade structures among member states parallel to real economic convergence within the EU. Kovach used Integrated Similarity Indices, which are widely used in international trade analyses. If the index value is equal to 1 the two structures are different. The maximum value is 0 if the two structures are identical. In this paper we use the inverse (modified) value of this indicator (mISI).

$$mISI = 1 - \frac{\sum_{i=1}^{n} (Xij - Xik)^2}{\sum_{i=1}^{n} X^2 ij + \sum_{j=1}^{n} X^2 ik}$$ (Formula: 3.4.)

i_n = part of the section of the country j (in total exports or imports) in the observed year;
x_{ik} = part of the section of the country k (in total exports or imports) in the observed year;
j, k = observed country (or country in different periods).

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5 According to Tajoli and Benedictis (2008, pp. 177-178) there are a number of advantages to the Bray-Curtis index with respect to other alternatives. This index does not require a normal distribution of observations (it is appropriate in the presence of skewed distributions; unlike correlation), change of weight of sectors is taken into account (it capture changes due to specific sectors). In addition, this particular index is immune to the double-zero paradox.

When it comes to complementary hypotheses about possible structural improvement of foreign trade, the following methodological procedure is simpler. Mayer (2001) divides merchandise exports into two broad categories: manufactured and primary. The definition of manufactures is the one used by trade statisticians, namely categories 5,6,7,8 without 68 (non-ferrous metals) of the Standard International Trade Classification (SITC).[6] This definition is somewhat narrower than that used by production and employment statisticians, who also count as manufactures natural resource-based products made in factories, such as canned food. After that, narrow manufactured exports are sub-divided into labour-intensive items and skill-intensive items, which is based on a review of earlier studies that ranked individual manufacturing industries by their skilled/unskilled labour ratios or other measures of skill intensity (e.g., the study reviewed in Wood, 1994, p. 24. Chapter 3). According to Mayer and Wood (2001, pp. 9-10), textiles, clothing, footwear, leather, and wood products are classified as labour intensive, and chemicals, machinery, cars, aircraft, and instruments as skill-intensive. A limitation of any classification of manufactured exports by skill intensity is the internal heterogeneity of statistically-defined industries. Each industry contains many goods (final and intermediate) and many activities (or stages of production) of widely varying skill intensity, which are increasingly diverse among countries.[7]

It is important for this study that the SITC two (three, or five) digit categories, which are sorted as skill-intensive manufactures, are: Chemicals (5 less 522.24, 522.56, 524), Cut diamonds (667.29), Non-electrical machinery (71, 72, 73, 74), Computers and office equipment (75), Communication equipment (76), Electrical machinery (77), Motor vehicles (781, 782, 783, 784), Aircraft (792), Professional, Scientific, Controlling Material (87), Photographic Apparatus, Optical Goods, Clocks (88). In our calculation, because of incomplete availability of data, we take into account all two-digit SITC categories and only three three-digit SITC categories (785-Motorcycles/cycles/etc; 786-Trailers/caravans/etc; 792-Aircraft/

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6   Beside this, the SITC 5, 61-67, 69, 7, 8 categories allocated to primary rather than manufactured exports are phosphorus pent-oxide and phosphoric acids (522.24), aluminium hydroxide (522.56), radioactive material (524), pearls and precious stones, except cut diamonds (667 except 667.29).

7   For example, in the electrical machinery sector skill-intensive components are made in developed countries and labour-intensive assembly is undertaken in developing countries. Thus the same `good', in a statistical sense, may vary widely in skill intensity, depending on the country from which it is exported. There is no simple solution to this problem with existing export data, but it is vital to be aware of it in interpreting the results of statistical analysis.

spacecraft/etc), having in mind the somewhat balancing, and in any case rather miniscule share of other categories of SITC (Revision 4).[8]

4. METHODOLOGICAL PROBLEMS

The imperfection of all the said indicators lies in the fact that the coefficients themselves, due to structure configurations, may occasionally indicate totally inexplicable values in the economic sense. Thus it should be born in mind that above all we are dealing here with structural analysis, and that it can to a large extent overlook the true state of affairs. It is possible that more competitive economic structures could show a lower coefficient (lower similarity) with the reference structure. This may happen if one of the countries has a very high specialisation in certain technology-intensive industries; while in other countries technology-intensive industries have a low specialisation (and share of that division of SITC). For example, a more competitive country with much higher shares of high-tech, technology, and capital-intensive products in its trade may seem an outsider in the group (it is those countries which are more competitive than the EU average and are reshuffling their trade structures more rapidly). There are other specific cases, e.g., the improvement of similarity coefficients that were partially affected by the more difficult placement of Serbian primary products in the common market in the first half of the 1980s (Nikolić, 2004, pp. 199-201).

It is often impossible to detect qualitative improvements in products from the same merchandise group or even customs nomenclature (except indirectly, e.g., by way of the unit value of exports). Still, it may be assumed with great certainty that, in recent years, with the entry of foreign companies into the Balkan countries' markets, the quality of merchandise has substantially improved, especially that intended for foreign markets (wherever foreign corporations have arrived they have brought knowhow, knowledge 'spill-over', new technologies, and captured markets). The tendency of the share of skill-intensive manufactures, as well as the similarity indicators, often cannot point to these improvements.

The deficiency of the EU's external import structure (compared to total EU imports, which also include internal imports) is based on the high share of imports of energy products and relatively low share of SITC division 78 (Road

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[8]   See SITC (Revision 4) detailed clasification: UN Publication, ''Standard International Trade Classification (Revision 4)'', Department of Economic and Social Affairs, Statistics Division, UN, Statistical Papers Series M No. 34/Rev. 4, 2006. pp. X-XIII, 2-178. Retrieved from: http://unstats.un.org/unsd/trade/sitc%20rev%204%20final.pdf.

vehicles), which is basically an object of intra-trade. This is why the structure of EU external imports has a lower 'quality' in comparison to other developed countries. It is therefore important to introduce the analysis of the structure of U.S. imports.

In connection to this there is a problem, in the sense that when lower-developed economies reach a certain level of quality of economic and foreign trade structure (e.g., in our case Slovenia or Romania), the coefficients of similarity of their exports to imports of advanced structures became inadequate. A growing or constantly high share of export division 77 (Electrical machinery and apparatus), and especially 78 (Road vehicles), is the reason for an increasing incongruity of structures. In addition, a potentially high share of Petroleum, petroleum products, and related materials (Division 33) in exports, an indication of deterioration in the quality of exports, can cause a strong growth in the values of similarity indicators, taking into account that developed countries have a high share of the same product group in imports.

When it comes to Serbia, it should be noted that until 2005 the data does not include figures for 'exports' to Montenegro. However, the significant disparity between the size of foreign trade of Serbia and Montenegro means that this limitation has a negligible influence and the structure of Serbian exports without exports to Montenegro is very similar to the structure of total exports from Serbia.

5. INSIGHT INTO PAPERS WHERE THE SAME METHODOLOGY IS APPLIED

The literature dealing with virtually the same methodology was listed in a study by Linnemann and Van Beers (1988, pp. 447-449), which used the similarity of export and import structures. They used two similarity coefficients: Cosines and Finger and Kreinin. Their study also used two-digit SITC (for manufactured products, sections 5-9) and data on foreign trade for 13 developed and 34 developing countries in 1980. The aim was to test the Linder hypothesis (Linder, 1961, pp. 29-32). The conclusions of the study do not support the thesis of Linder about the relatively more intensive trade in processed industrial goods (manufactures) between countries with similar levels of income per capita, i.e., that the intensity of trade generally increases continuously with the increasing per capita income of a country's trading partners.

Finger and Kreinin (1979, pp. 906-907) used the coefficient (since named after them) to compare the structure of selected countries' exports in certain markets (U.S, six EU countries, Japan, the rest of Western Europe) in the period from the beginning of 1960s to the mid 1970s. The main objective of their study was the detection of "Trade Creation" and "Trade Diversion".

Wai-Heng (2009) analysed the similarity of export structures in North East and South East Asian economies, also using the Finger-Kreinin index. The study covers a time series analysis from 1990 to 2008. It was considered important to know whether these countries were becoming more or less similar in trade structures over time. The analysis provides an indication of whether these economies are competitors or complementary in their trade. Their study also used data at two- and single-digit levels of SITC.

The study by Plummer and Naya (2006, pp. 240-242) used the Finger-Kreinin index to compare commodity exports of the countries of Southeast Asia (Indonesia, Thailand, Malaysia, Philippines, Singapore) to the U.S. market, at a five-digit SITC level, for the years 1995 to 1999. Since trade negotiations between the U.S. and these countries were being pursued bilaterally and not with the ASEAN as a whole, there was a possibility of negative effects posed by export diversion for those countries that were excluded from a *Free Trade Area* (FTA). The degree to which such countries were affected depended critically on how much overlap there was between their exports and those of countries that succeeded in obtaining preferential treatment through an FTA. The authors determined the extent to which exports of these countries to the U.S. were similar to each other using the Finger and Kreinin index. It was shown that a decision to conclude a FTA with the U.S. was no longer a matter of weighing the costs and benefits of the FTA itself in terms of greater margins of preference in the U.S. market, as might have been the case if the FTA were an 'exception' (as in the past), but rather a question of preserving Most-Favoured Nation Status.

Tajoli and Benedictis (2004, 2008, pp. 177-178) analysed the similarity of the export structures of Central and Eastern European Countries with the structure of EU exports, this time using the Bray-Curtis index. The study focused on countries' specialisation as suppliers to the EU market, and the authors assessed whether similar export patterns would foster a 'catch-up' process in the Central and Eastern European Countries. The main finding was that similarity in export composition has a positive, significant, and non-linear impact on 'catch-up'.

The study by Tang & Wang (2006) used the Finger-Kreinin index (or Export Similarity index) to measure the similarity of the exports of China and other countries to target markets (ASEAN in this case). The indices are computed from 1993 to 2003. In that period the export similarity index between China and ASEAN was growing very fast (from 0,542 to 0,738). In spite of China experiencing fierce competition in the ASEAN market, merchandise exports to ASEAN have strongly increased.

Kovach (2004, pp. 4-11) used a complex set of different factors to help explain why taking part in European integration and accession per se does not evoke an increase in intra-EU trade shares, and why a high level and increasing share of intra-EU trade does not seem to be a prerequisite for good overall trade performance. Kovach used Integrated Similarity Indices.[9] According to Kovach there is no solid foundation for expecting a definite convergence in EU countries' export structures, even in intra-European trade. Neither the experience of the former member countries nor the trends in the newcomers support this kind of expectation. Furthermore, neither economic growth nor export performance appear to be strongly connected to convergence of trade structures.

An analysis of the share of skill-intensive manufactures in total exports (and imports) is given in a study by Mayer and Wood (2001, pp. 9-10). Worldwide cross-country regressions are used to examine South Asia's export structure through the lens of the Heckscher-Ohlin trade theory. Export structure, based on labour-intensive manufactures, is shown to be the result mainly of South Asia's distinctive combination of resources (it has a low level of education and few natural resources, relative to its supply of labour). The limited integration of South Asia with the world economy is in sharp contrast to the successful export-oriented industrialization of East Asia, which has a significantly higher share of skill-intensive manufactured goods in total exports. The paper seeks to shed light on this contrast, and to contribute to trade and development strategy in South Asia, by examining and explaining the structure of the exports of both Asian regions in a worldwide comparative context. The central hypothesis of the paper is that differences between countries in the broad features of their export structures are the result mainly of differences in supplies of human and natural resources; differences which, moreover, change only slowly over time.

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9   Calculation is based on EU trade statistics as issued on Eurostat (Comext) CDROM in CN(HS) two-digit level of aggregation (it is comprised of 97 product groups from HS01 to HS99), but the method is the same as for SITC.

6. RESULTS

By comparing the commodity export structures of the Balkan countries (Turkey, Bulgaria, Greece, Romania, Croatia, Slovenia, Serbia, Bosnia-Herzegovina, and Montenegro) with the commodity import structures of the EU and the U.S. in the period 2000-2012 (at the two-digit level of SITC, Revision 4), we obtained the similarity coefficients presented in Graph 1, and Tables 1 and 2 in the Annex. The absolute level and trend of the share of skill-intensive manufactured goods in total-merchandise export data concerning eight Balkan countries are also demonstrated in Graph 2, and Table 3 in the Annex.

Graph 1: Tendency of Indicators of Similarity for selected Balkan countries' exports with extra EU Imports (Finger-Kreinin)
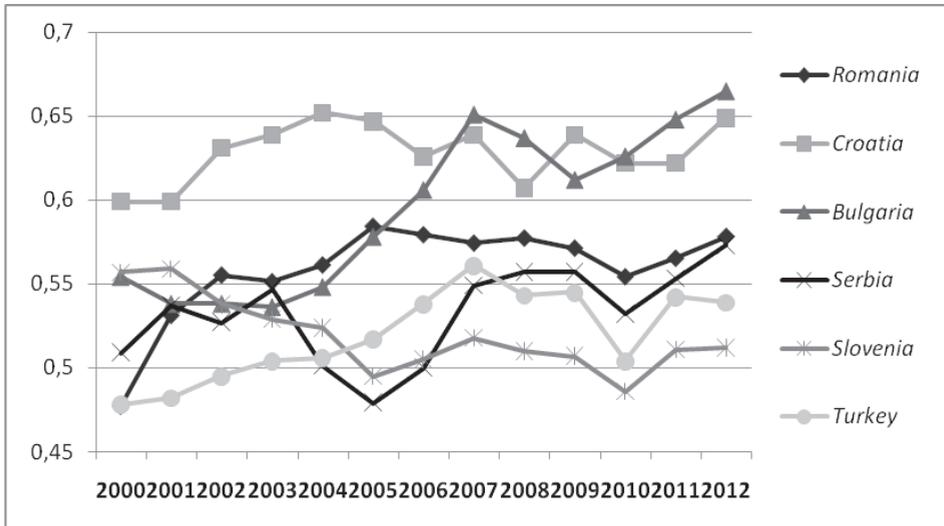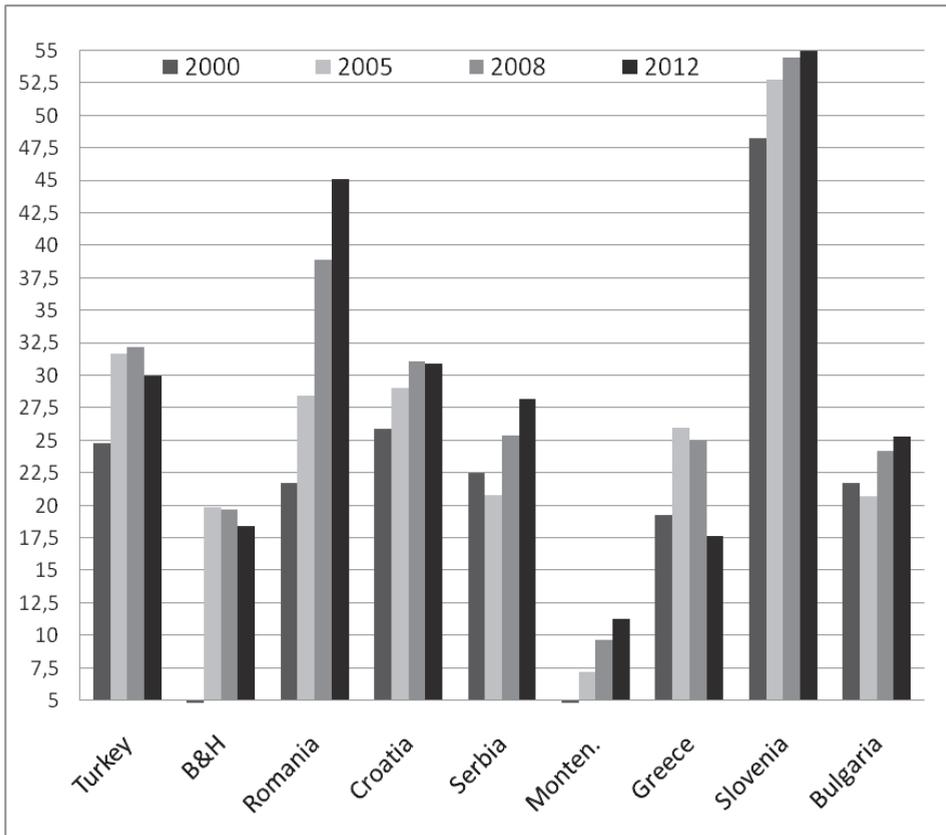

Source: See Annex.

According to Graph 1 and Tables 1 and 2 in the Annex, it can be seen that, for the selected period, there has been an increase in the similarity of export structures with the import structures of developed economies (EU, U.S.) in the majority of the observed Balkan countries. The absolute level of the similarity coefficient is mostly higher than at the beginning of the period. The global economic crisis, among other factors, manifested itself through a significant fall in merchandise exports from the end of 2008 and especially in 2009, as well as through a rapid reduction of export-oriented industrial production. Moreover, there was a strong decline in the prices of base metals (and the demand for them), as well as a

decline in the prices of food on the global market, i.e., products that constituted a large part of the Balkan countries' exports. The declines in exports of primary and resource-intensive products (which have a smaller share in the imports of developed countries) nearly annulled the negative effects of other factors in regard to the similarity indicators.

Graph 2: Share of skill-intensive manufactures in total merchandise exports: Tendency in period 2000-2012 for nine Balkan countries

Source: See Annex.

According to Graph 2 and Table 3 in the Annex, from 2000 to 2012 the majority of the observed Balkan countries had an increase of skill-intensive manufactures

in total merchandise exports.[10] Romania performed with the best results, while certain countries like Bosnia-Herzegovina have a stagnant export structure (Montenegro is a specific case, due to a large share of non-ferrous metals in total exports). Looking at the absolute level, as expected, the U.S. has the best results. Skill-intensive manufactures accounted for half of total exports in 2012, while in previous years the proportion was generally higher.[11]

The U.S. and EU have the most similar trade patterns among the surveyed countries, as expected. The similarity of the U.S. export structure and EU27 external import structure is relatively high, although the value slightly decreased after 2000. The similarity coefficients of these two structures have a high value because they come from the two economies with very sophisticated trade. This could also be seen through the share of skill-intensive manufactured goods in total exports and imports of the U.S. and EU[12]. For example, the share of skill-intensive manufactures in total U.S. imports stands at 48% in 2012, after 54% in 2000.

The situation is, as expected, less favourable in the Balkan countries. However, positive changes are visible. In Turkey there has been an increase in the similarity coefficient since 2000. In 2007 the country reached a maximum value of similarity in comparison to the reference import structures. In the following year Turkey recorded a certain fall, and after that values remained largely unchanged (certain growth during 2012 may be incidental). The share of skill-intensive manufactures in total merchandise exports, after practically continual growth from 2000, achieved a record value in 2007. During the next five years that share decreased slightly.

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10 Skill-intensive manufactures, according to SITC (Revision 4), are: Chemicals (5 less 522.24, 522.56, 524), Cut diamonds (667.29), Non-electrical machinery (71, 72, 73, 74), Computers and office equipment (75), Communication equipment (76), Electrical machinery (77), Motor vehicles (781, 782, 783, 784), Aircraft (792), Professional, Scientific, Controlling Material (87), Photographic Apparatus, Optical Goods, Clocks (88).

11 Among other factors, a sharp drop in exports of aircraft and spacecraft (792) reduced the share of skill-intensive manufactures (in 2011 the share of aircraft and spacecraft was only 0.5% of total exports, which is 13 times less than in 2007, before the outbreak of the global economic crisis).

12 For example, skill-intensive manufactures accounted for three-fifths of EU27 external merchandise exports in 2000, 63.5% in 2003, and 60.8% in 2010. The quality of U.S. exports declines after 2008 due to the effects of the global economic crisis (a significantly decreased share of skill-intensive manufactures).

In Croatia the growth of the similarity index from 2000 was interrupted in the period 2006-2008, when similarities with EU import demand declined slightly (and similarly with the import structure of the U.S.). Since 2009 the values of coefficients have generally slightly increased. From 2000 to 2012 the share of skill-intensive manufactures in total merchandise exports increased slightly also (from 26% to 31%).

Bulgaria recorded a continual increase in similarity index, which was briefly interrupted in 2009. It should be noted that Bulgaria has a large share (about 11%) of petroleum products (SITC Division 33) in total merchandise exports (this affects the level of similarity with EU merchandise imports). At the same time, a high share of petroleum products decelerated growth of the share of skill-intensive manufactures in total merchandise exports (during 2012 that share decreased slightly, after moderate growth in the previous five years).

The best case in the study is Romania. From 2000 there was an increase of the similarity coefficient, although these processes were briefly interrupted (e.g., in 2007). The increasing and relatively high share of skill-intensive manufactures (whose share in total exports doubled) is an impartial indicator of the Romanian economic achievement, despite the fact that similarity coefficients are not going in the linear (increasing) direction. The share of Road Vehicles exports (division 78) doubled in 2012 compared to 2006, increasing more than ten-fold in 2000-2012. This great success of the Romanian economy affected the indicators of similarity. Another positive economic result occurred as a consequence of the export growth of Electrical machinery and apparatus (division 77), which increased three-fold in the same period (to about a ninth of exports in recent years).

In 2001 there was a slight increase in the similarity index in Serbia, followed by a decline the next year. In 2007 there was a moderate growth in the coefficients of similarity. For the next four years (from 2007 to 2011) there was a mild increase and decrease in the coefficients of similarity. During 2012 the growth of exports of electrical equipment and cars positively affected the coefficients of similarity and share of skill-intensive manufactures in merchandise exports (accounting for 28.2% of total exports, which is eight percentage points higher than a decade before).

Since 2005 the export structure of Bosnia-Herzegovina recorded moderate growth of similarities in most years with the reference import structures. Bosnia-Herzegovina strongly increased its share of petroleum products (SITC 33 divisions) in total merchandise exports from 2008 to 2012 (eleven times),

which was a factor of increasing similarity with reference structures (even so, the comparative value of similarity coefficients is very low). At the same time the share of skill-intensive manufactures in total merchandise exports slightly decreased. Generally speaking, the share of skill-intensive manufactures in merchandise exports was very low and stagnant.

The values of similarity indicators for Greece in the given period are comparatively high. However, this is not a result of sophisticated (advanced) exports, but rather Greece has a very high share of SITC division 33 (Petroleum, petroleum products, and related materials) in its exports, which, taking into account that developed countries also have a high share of the same product group in imports, causes a strong growth of similarity indicator values. Imperfection of similarity indicators is particularly pronounced in the case of Greece (this possibility was discussed in the section Methodological Problems). A relatively low share in skill-intensive manufactures in total exports is a much better indicator of the qualitative structure of Greek exports. A fall of skill-intensive manufactures in 2012 (and 2011) is essentially attributable to a very strong export growth of Division 33 (which accounted for 35% of merchandise exports compared to 2010 or 2000, when it made up 11% and 13% respectively).

Montenegro has the most non-competitive export sector in the region because of a large share (about two fifths) of SITC division Non-ferrous metals (68) in total merchandise exports. Since 2005-2010 the export structure of Montenegro recorded mild growth of similarities with the reference import structures (but similarity coefficients remained very low). From 2007 the share of skill-intensive manufactures in Montenegrin merchandise exports only increased from 7.6% to 11.3%.

Slovenia is a special case. From 2000 this country recorded a fall in similarity indicators, which was interrupted several times (2006, 2011). Generally speaking, the values of the coefficients are low, bearing in mind the level of GDP or export competitiveness (the absolute values of the coefficients are even lower than their values in 2000). However this can be attributed to the imperfection of the indicator of similarity. The imperfection of the similarity indicators may be seen in situations when developing countries reach a certain level of quality of foreign trade and economic structure (e.g., Slovenia in our study). In that case the coefficients of similarity of their exports to imports of advanced structures are not adequate. A growing or permanent high share of export division 77 (Electrical machinery and apparatus), and especially 78 (Road vehicles), are reasons for increasing incongruity of structures. For example, in Slovenia the share of division 78 was

consistently high, three times higher than in EU external imports (about one-eighth of total merchandise exports, and the same in Romania, while the share of division 77 was close to that amount), which resulted in a relatively low level of similarity with the reference structure. The EU's external import structure has a relatively low share of SITC division 78, which is basically an object of intra-trade. A higher level of similarity of exports to U.S. import demand is therefore quite expected. A growing and relatively high share of skill-intensive manufactures are better indicators of Slovenian export quality. It is clear that through the 1990s Slovenia had already achieved a high quality level of export structure, like other advanced transition countries (e.g., the Czech Republic).

7. ANALYSIS OF THE TENDENCIES OF SIMILARITY INDICES AND SHARE OF SKILL-INTENSIVE MANUFACTURES

The hypothesis of the increasing similarity of the observed Balkan countries' exports structures and developed countries' import demand can easily be verified from the data in the previous graphs and tables in Annex.

In the period up until and including 2012 the similarity coefficients increased in value, not, however, reaching a critical turning point. Already in 2000, after considerable index growth during the 1990s, advanced countries in transition had a significantly greater congruence of export structure with EU (and U.S.) import demand than the observed Balkan countries in 2012. These countries (Poland, Czech Republic, Hungary, Slovenia, and Slovakia) showed the way that Balkan economies should follow.

In practically all the Balkan countries since 2000 there has been a change in the technological structure and factor intensity of foreign trade, in the direction of increased higher-processing products (the case was the same in the advanced transition countries in the 1990s). In spite of this the share of skill-intensive manufactures equalled about 30% of total exports in Balkan countries (2012), which is still significantly lower than the share of the identical group of products in developed (or advanced transitional) countries. Generally speaking, the share of skill-intensive manufactures in Balkan countries, excluding Slovenia and Romania, is almost two times less than in developed countries (while Montenegro has a very low share of skill-intensive manufactures) (see: Nikolić,

2010, p. 130.).[13] The Balkan countries' small share of skill-intensive manufactures indicates a poorly developed technological base and outdated production technology. The same problem was present at earlier transition periods in now more advanced countries (Czech Republic, Poland, Slovenia, Hungary, Slovakia), which currently have high-value exports (total and per capita) and have reached a high qualitative level of exports. The most important factors in their success were foreign investment inflow, development of the technological base mostly through importing modern technology (and later developing it), innovation, development of small and medium businesses, foreign competition, development of a market economy, and macroeconomic stability. Of course, fulfilling these circumstances is a relatively slow and demanding process. It primarily demands attracting strategic foreign partners to invest in medium- and high-technology intensive industries (it should be noted that the merchandise exports come almost entirely from the manufacturing industry).

Previous analysis has shown that the strong absolute growth in Balkan countries' exports is occurring along with a moderate increase of similarity coefficients and mild increase in the share of skill-intensive manufactures in exports. The process of European integration, which made it easier to access high technology and know-how from the EU, was a crucial factor which contributed to the partial improvement of the quality of exports. Looking at the structure of total merchandise exports after 2000, it is easily noticeable that the share of labour- and resource-intensive products, although declining, is still high (this indicates that the increase of merchandise exports is still largely based on products of a lower phase of finalization). To some extent we can talk about an extensive growth in exports in some Balkan countries.

8. INSIGHT INTO EMPIRICAL REFERENCES

There are a significant number of studies on the structural change of Balkan economies' merchandise exports during the two previous decades. Extensive literature on structural changes in Central and Eastern European Countries' (CEEC) exports tends to claim that structural upgrade of exports has positively contributed to export performance (Djankov & Hoekman 1996, pp. 471-481; Kaminski & Ng 2001, pp. 377-390). However, some evidence of a 'low-quality

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13   For example, in the U.S. that number was 50.1% in 2012, while in 2000 it was 68.6%. In the Czech Republic the share of skill-intensive manufactures in total merchandise exports has been almost three-fifths on average during the last decade.

trap' can be found for Romania, Bulgaria, and Croatia (Dulleck, 2004, pp. 66, 73-74.).

Damijan, Rojec & Ferjančič (2011, pp. 485-509) show that since the beginning of the transition process the export structure of the transition economies has undergone significant structural changes in terms of an increasing share of medium- and high-skill and technology-intensive manufactures. In 1995-2004 the share of medium- and high-skill and technology-intensive manufactures in CEEC-8[14] exports increased from only 36% to 56.1%. The authors show that improvement in foreign market access (particularly in the EU15) made a crucial contribution to strong export growth in the same period. In addition, FDI fosters manufacturing restructuring and creates the economic potential for future export growth, directly via the superior export performance of foreign subsidiaries, and indirectly via knowledge spillovers from foreign subsidiaries to indigenous firms.

Tajoli & Benedictis (2003. p. 20) show that, in terms of similarity to the EU, we have a somewhat parallel behaviour for Poland and Hungary, moving away from the initial specialization toward the EU (while Bulgaria, moving leftward, displays a clear divergence in the second part of the 1990s). Romania started to converge toward the EU only in the last few years of that period and to a very small extent. However, as shown by subsequent studies as well as this one, an accelerated improvement of Romania's export structure took place during the 2000s.

A study by Ivashko and College (2012, pp. 47-106) explored the impact that entry to the EU had on the trade structures of Eastern European countries, particularly the Czech Republic and Romania. Using the period 1999 to 2009, the authors investigated the economic transformation of both countries during their pre-accession and accession periods to the EU. It appears that both nations show the same shift in general economic behaviour during their accession to the EU. Each country's measurements of RCA (Revealed Comparative Advantage) expressed a rise in industrial competitiveness followed by overall trade growth. In the case of Romania, while apparel maintained competitive status despite its huge drop in RCA, the country saw growth in electrical machinery and vehicles. Analysis of the Romanian trade structure showed a more immediate shift from apparel manufacturing, in which, until recently, it had experienced competitive advantage, towards the industrial sectors. The Czech Republic grew primarily

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[14]   CEEC 8 - Central and Eastern European Countries which became members of the EU in 2004.

in the industrial sectors in which it held comparative advantage prior to 1999 (electrical machinery and vehicles). Romania, which entered its pre-accession period with a 'developing trade structure', experienced a much more drastic change in trade structure than the Czech Republic.

Analysis by *Doing Business.ro* (2012) shows that Romania, using a deliberate export policy, has developed as a 'spoke', providing industrial goods for a 'hub' mainly originating in Western economies. Almost three-quarters of total exports are generated by FDI-based companies. This may well imply that additional FDI is needed to bolster the country's exports. Unquestionably, Romania has made significant progress in exports, managing to boost its capital goods production - thanks to sizable FDI until 2008. Although important changes have been seen in the export structure in Romania (its share of capital goods exports is about 40%; among the transitional countries it is first after Hungary, the Czech Republic, and Slovakia), low innovation is still commonplace among the local export products. It will take some time before Romania manages to shift from price competitiveness to quality competitiveness.[15]

Zhelev and Tzanov (2012, p. 113) find that the structural divergence of Bulgaria's exports from intra-EU imports is pronounced in comparison with Romania, and especially in comparison with more advanced countries in transition from the 2004 EU enlargement. It is evident that most of the top performers in Bulgaria's exports come from the metallurgy, apparel, textile, and footwear industries. All these commodities share a common feature: low level of processing, low technological sophistication, high intensity of unskilled relatively low-paid labour. Having a high concentration in such low-value-added commodity groups and relying on them to drive the economic growth of the country is a tough situation for the catching-up process[16]. Bulgaria's industrial exports are the key factor in the recovery of the economy, but its structure is a matter of concern because of the relative absence of products with high added value (60% of exports are based on raw materials and energy resources). The only tangible increase in export of goods with higher added value is in the production of car parts after the launch of two new factories.

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15 DoingBusiness.ro (2012), Romania: Top 10 challenges in 2012 (Exports – turning to quality, key to improving marketability). Retrieved from: http://rbd.doingbusiness.ro/ro/1/articole-recente/1/751/romania-top-10-challenges-in-2012

16 According to some experts' evaluations, the export structure of some of the CEEC is 15-20 years ahead of Bulgaria's export structure, while those of the 15 most advanced EU countries are 40-50 years ahead.

A study by the OECD (2012, pp. 24-25) shows that the share of medium-to-high tech sectors in Turkey's total manufacturing exports strongly increased between 2002 and 2008. Medium-to-high tech firms increasingly invest in R&D activities. These structural changes have been accelerated by FDI inflows. Medium-to-high tech sectors in Turkey compete with more advanced OECD countries that are better equipped than Turkey in these areas. Promoting further structural change therefore requires additional efforts to strengthen the human capital base, to align key regulations with international best practice, and to develop better physical infrastructure.

Athanasoglou, Backinezos & Georgiou (2010, pp. 8, 18-21) find that the pattern of comparative advantage and the technological intensity of Greek exports improved from 1996 to 2006, but exports remain concentrated in low- and medium-technology sectors. The participation of medium- and high-technology products in exports improved significantly, although their share in total exports is still rather low. From 1996 to 2006 the share of low-technology products in total exports fell from 85% to 67%, while the share of high-technology products in exports increased (from 6% to 11%). The global crisis negatively influenced Greek exports, while in the last two years they have revived. Because a relatively low part of Greece's GDP is derived from manufacturing, while a significant part of the labour force is employed in agriculture, for Greek merchandise exports to rise a more resources have to be channeled into the trade sector.

Gaulier, Taglioni & Vicard (2012, pp. 1-4) present evidence that rising unit labour costs in the European periphery, including Greece, were not a cause but rather a symptom of the local demand shocks triggered by large capital inflows in the 2000s, and they were not associated with a decline in export competitiveness. They show that Southern Eurozone countries' current account deficits reflected an excessive increase in imports (the inflow of capital boosted domestic demand and imports), while exports were largely unaffected by the shock in domestic demand because they respond primarily to foreign demand. In the run-up to the crisis exporters from these countries could perform well in international markets, despite the rise in their countries' adjusted wage costs. Countries with high unit labour costs, such as Greece or Spain, had a growth in export of goods and services comparable to countries with low unit labour costs, such as Germany. Digging deeper into the data confirms the relatively good performance of exporters from Eurozone crisis countries over the first ten years of the monetary union. Analysis suggests that existing exporters from Greece, Spain, and Portugal are competitive enough to respond positively to foreign demand increases. Accordingly, demand for ''tradable'' (goods) should be a key policy concern.

9. CONCLUSION

Based on the present analysis several conclusions can be drawn with respect to the export competitiveness of Balkan countries. The growth of the similarity coefficients and the reached absolute values of the observed Balkan countries are relatively modest. The value of the indicators of the similarity of Balkan countries' exports to the referent import structures grew only mildly, which shows that the Balkan's export structure has not changed in a meaningful way, i.e., that its unfavourable structure has been retained.

Generally speaking, relatively small changes in the similarity coefficients were the result of slow changes in export structure, because more time is required for substantial economic change in the real sector, particularly exports. It should be noted that change of economic structure is the basis for resolving the problem of foreign trade deficit.

The comparatively poor performance of Balkan countries' export structures can also be followed in the relatively low share of skill-intensive manufactures, which are a good indicator of the sum quality of exports. In spite of a moderate increase in the share of skill-intensive manufactures in total exports in most of the Balkan economies, which indicates a slight improvement in their export sectors, that share, except for in Slovenia and Romania, is still almost twice as small as in developed countries.

A complicating factor when it comes to the qualitative improvement of exports was the continual strong double digit growth of exports in most countries surveyed, which 'forced' exports based on the existing inappropriate structure and therefore made export structure change difficult. In 2000-2012 almost all of the Balkan countries recorded a high average growth rate of exports, especially in the period before the onset of the global economic crisis in late 2008. This is the consequence of a relatively low base in most of the surveyed countries, especially B&H and Serbia. Despite the steady increase in the value of exports before the global economic crisis they were exceeded by imports, thus leading to a chronic trade deficit: a significant sign of inadequate export competitiveness.

The convergence of the Balkan countries' export structure with EU and U.S. import demand is one of the smallest among countries in transition. According to our research, Balkan countries trail Hungary, the Czech Republic, Poland, and Slovakia. Central European transition countries have experienced growth of their similarity coefficients since they signed European Agreements at the beginning of

the 1990s (and even a bit earlier, with the first EU preferences) and, today, having experienced a rise of those indices, enjoy a significantly greater convergence of their export structures with EU import demands. Central European countries in transition are showing the path that Balkan countries should take, and it is clear that their experiences in trade and overall economic policy should be studied and applied as much as possible.

Generally speaking, Slovenia has the best performance in the Balkans. Slovenia does not actually have high similarity indicators, but that is a consequence of the imperfection of the indices themselves, since the share of skill-intensive manufactures in exports, as well as other indicators, show that this country has a high-quality export structure. Romania experienced a significant change in export structure towards the industrial sectors, especially electrical machinery and vehicles. Some export improvement can be seen in Turkey, Bulgaria, and Serbia (only for the past few years), while Croatia is sustaining it's previously achieved quality level, which is better than in the majority of Balkan economies. Greece has a comparatively low share of skill-intensive manufactures in total exports, while the values of similarity indicators were high; but this is not a result of sophisticated exports but of methodology imperfections. Greece is specific in that it has a very high value of service exports (56% of total exports), which alleviates a huge trade deficit. The situation is the worst in B&H and Montenegro, but the former has strong export of services.

There are a number of challenges for Balkan economies. It is difficult for exporters from these countries to withstand global competitive pressure from foreign producers, coming mostly from developing countries possessing ampler and cheaper labour forces and raw materials. The factors of competitiveness such as highly educated human capital and new technologies are not yet manifested in Balkan countries' trade performance. Due to increasing globalization Balkan economies' current export specializations may not be sustainable in the mid-term.

In order to achieve better foreign trade results Balkan countries would have to attract FDI in export sectors that are capital- or skilled-labour-intensive. Thus it is clear that without a more serious restructuring of the economy to supply foreign markets with more sophisticated products compatible with the import demand of developed countries, it is not possible to achieve good export results. Important factors for Balkan economic recovery and the upgrading of Balkan export structures are an improved international economic environment and the

growth of the European economy. Recent projections are not favourable for the Eurozone: recession is expected in 2013 with only a mild growth in 2014.[17]

A targeted industrial policy and sector and firm level strategies are necessary to give momentum to a shift towards knowledge- and technology-intensive activities, associated with higher spill-over effects. This would require institutional infrastructure, intensified transfer of technology, investment in R&D, and highly qualified human capital.

Economic reforms in countries in transition (Poland, Czech Republic, Hungary, Slovenia, and Slovakia) since the 1990s moved them increasingly toward technologically intensive products, so it is realistic to expect that the evolution of the economic system through restructuring would improve the structural characteristics of Balkan economies. The key issue for this turnaround is foreign capital inflows, especially in technology-intensive sectors like electronics and the automotive industry. But this is a very hard and often elusive task, considering that it is the goal of almost every country in the world.

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17   EU Business (2012), ECB sees euro zone economy shrinking in 2012, 2013. *EU Business,* Dec. 6. 2012. Retrieved from: http://www.eubusiness.com/news-eu/finance-public-debt.l86.

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ANNEX

Table 1: Indices of Similarity between the Export Structure of Balkan Countries and the Import Structure of the U.S.

	Finger-Kr.	Cosines	Bray-Curtis	ISI	Finger-Kr.	Cosines	Bray-Curtis	ISI
	Turkey				*Romania*			
2000	0,464	**0,478**	0,464	0,463	0,451	**0,431**	0,451	0,425
2001	0,500	**0,550**	0,504	0,534	0,523	**0,526**	0,527	0,509
2002	0,532	**0,583**	0,532	0,565	0,543	**0,543**	0,543	0,529
2003	0,551	**0,608**	0,551	0,593	0,527	**0,545**	0,527	0,533
2004	0,573	**0,631**	0,573	0,620	0,535	**0,580**	0,536	0,574
2005	0,577	**0,630**	0,577	0,626	0,576	**0,678**	0,576	0,676
2006	0,591	**0,662**	0,596	0,661	0,584	**0,721**	0,589	0,701
2007	0,591	**0,670**	0,593	0,669	0,583	**0,712**	0,583	0,711
2008	0,582	**0,613**	0,583	0,612	0,600	**0,730**	0,601	0,719
2009	0,584	**0,626**	0,584	0,625	0,601	**0,734**	0,605	0,733
2010	0,587	**0,617**	0,587	0,616	0,622	**0,734**	0,623	0,733
2011	0,591	**0,616**	0,591	0,613	0,613	**0,709**	0,613	0,703
2012	0,614	**0,650**	0,614	0,647	0,628	**0,733**	0,629	0,729
	Croatia				*Bulgaria*			
2000	0,558	**0,555**	0,558	0,555	0,504	**0,525**	0,505	0,525
2001	0,580	**0,568**	0,584	0,567	0,520	**0,523**	0,524	0,521
2002	0,586	**0,588**	0,586	0,586	0,520	**0,498**	0,519	0,497
2003	0,597	**0,613**	0,598	0,611	0,518	**0,501**	0,518	0,498
2004	0,612	**0,627**	0,613	0,627	0,534	**0,533**	0,535	0,531
2005	0,618	**0,679**	0,618	0,673	0,557	**0,598**	0,557	0,597
2006	0,599	**0,662**	0,603	0,653	0,568	**0,617**	0,573	0,615
2007	0,610	**0,685**	0,611	0,675	0,612	**0,665**	0,613	0,664
2008	0,579	**0,637**	0,580	0,623	0,612	**0,704**	0,615	0,699
2009	0,593	**0,685**	0,592	0,675	0,604	**0,689**	0,606	0,687
2010	0,587	**0,617**	0,587	0,616	0,612	**0,694**	0,614	0,687
2011	0,591	**0,681**	0,591	0,666	0,615	**0,682**	0,615	0,676
2012	0,621	**0,779**	0,622	0,754	0,634	**0,726**	0,636	0,724
	Serbia				*Slovenia*			
2000	0,485	**0,464**	0,484	0,457	0,639	**0,747**	0,639	0,746
2001	0,517	**0,525**	0,522	0,521	0,627	**0,753**	0,632	0,753
2002	0,514	**0,491**	0,514	0,483	0,623	**0,751**	0,752	0,623
2003	0,508	**0,445**	0,507	0,441	0,604	**0,710**	0,604	0,710
2004	0,505	**0,432**	0,506	0,430	0,612	**0,688**	0,612	0,688
2005	0,491	**0,417**	0,492	0,415	0,588	**0,649**	0,588	0,649
2006	0,482	**0,413**	0,488	0,410	0,588	**0,628**	0,593	0,627
2007	0,510	**0,429**	0,512	0,422	0,573	**0,624**	0,574	0,640
2008	0,535	**0,434**	0,536	0,417	0,564	**0,558**	0,565	0,552
2009	0,539	**0,535**	0,539	0,526	0,563	**0,606**	0,563	0,606
2010	0,524	**0,492**	0,526	0,476	0,571	**0,623**	0,572	0,623
2011	0,525	**0,484**	0,526	0,462	0,569	**0,610**	0,569	0,605
2012	0,559	**0,540**	0,560	0,514	0,594	**0,649**	0,594	0,637

	B&H				Greece			
2000	-	-	-	-	0,526	**0,587**	0,526	0,587
2001	-	-	-	-	0,523	**0,562**	0,527	0,561
2002	-	-	-	-	0,520	**0,538**	0,520	0,537
2003	0,409	**0,374**	0,410	0,371	0,508	**0,545**	0,508	0,544
2004	0,396	**0,319**	0,392	0,319	0,525	**0,589**	0,525	0,587
2005	0,384	**0,319**	0,384	0,319	0,530	**0,635**	0,529	0,630
2006	0,380	**0,329**	0,384	0,329	0,576	**0,719**	0,581	0,715
2007	0,394	**0,339**	0,396	0,338	0,607	**0,760**	0,608	0,758
2008	0,412	**0,306**	0,414	0,299	0,566	**0,727**	0,567	0,705
2009	0,449	**0,407**	0,449	0,390	0,552	**0,687**	0,552	0,677
2010	0,425	**0,426**	0,425	0,421	0,560	**0,702**	0,559	0,687
2011	0,443	**0,495**	0,443	0,486	0,608	**0,834**	0,608	0,815
2012	0,454	**0,499**	0,454	0,491	0,564	**0,802**	0,564	0,745
	Montenegro							
2010	0,283	**0,206**	0,283	0,180	**2005**	0,213	**0,126(0,092)**	0,213
2011	0,256	**0,177**	0,256	0,156	**2008**	0,236	**0,180(0,151)**	0,237
2012	0,269	**0,181**	0,269	0,161	**2009**	0,283	**0,177(0,148)**	0,283

Table 2: Indices of Similarity between the Export Structure of Balkan Countries and the Extra-Import Structure of the EU27

	Finger-Kr.	Cosines	Bray-Curtis	ISI	Finger-Kr.	Cosines	Bray-Curtis	ISI
	Turkey				Romania			
2000	0,478	**0,438**	0,477	0,415	0,477	**0,424**	0,475	0,358
2001	0,482	**0,460**	0,480	0,442	0,531	**0,516**	0,530	0,515
2002	0,495	**0,504**	0,495	0,472	0,555	**0,577**	0,555	0,577
2003	0,504	**0,519**	0,504	0,493	0,551	**0,571**	0,551	0,545
2004	0,506	**0,520**	0,506	0,502	0,561	**0,602**	0,562	0,588
2005	0,517	**0,506**	0,520	0,502	0,584	**0,681**	0,587	0,678
2006	0,538	**0,528**	0,541	0,527	0,579	**0,701**	0,583	0,701
2007	0,561	**0,574**	0,563	0,572	0,574	**0,684**	0,576	0,685
2008	0,543	**0,541**	0,547	0,541	0,577	**0,696**	0,582	0,694
2009	0,545	**0,573**	0,547	0,572	0,571	**0,654**	0,571	0,654
2010	0,504	**0,464**	0,511	0,464	0,554	**0,565**	0,553	0,564
2011	0,542	**0,530**	0,543	0,527	0,565	**0,591**	0,567	0,587
2012	0,539	**0,534**	0,540	0,531	0,578	**0,591**	0,580	0,586
	Croatia				Bulgaria			
2000	0,599	**0,699**	0,597	0,698	0,554	**0,625**	0,552	0,621
2001	0,599	**0,771**	0,646	0,769	0,538	**0,584**	0,536	0,579
2002	0,631	**0,744**	0,632	0,743	0,538	**0,573**	0,538	0,566
2003	0,639	**0,756**	0,639	0,755	0,536	**0,565**	0,536	0,555
2004	0,652	**0,760**	0,653	0,759	0,548	**0,602**	0,548	0,595
2005	0,647	**0,763**	0,648	0,757	0,578	**0,667**	0,581	0,666
2006	0,626	**0,732**	0,630	0,724	0,606	**0,705**	0,609	0,702
2007	0,639	**0,742**	0,642	0,737	0,651	**0,758**	0,653	0,756
2008	0,607	**0,681**	0,611	0,672	0,637	**0,752**	0,644	0,750
2009	0,639	**0,777**	0,640	0,767	0,612	**0,725**	0,622	0,724
2010	0,622	**0,751**	0,631	0,746	0,626	**0,732**	0,637	0,730

2011	*0,622*	***0,740***	*0,624*	*0,724*	*0,648*	***0,726***	*0,649*	*0,721*
2012	*0,649*	***0,818***	*0,649*	*0,790*	*0,665*	***0,792***	*0,668*	*0,790*
	Serbia				***Slovenia***			
2000	*0,509*	***0,466***	*0,507*	*0,465*	*0,557*	***0,567***	*0,555*	*0,567*
2001	*0,537*	***0,531***	*0,536*	*0,521*	*0,559*	***0,571***	*0,557*	*0,571*
2002	*0,527*	***0,526***	*0,527*	*0,525*	*0,538*	***0,569***	*0,538*	*0,572*
2003	*0,547*	***0,542***	*0,546*	*0,543*	*0,529*	***0,564***	*0,528*	*0,562*
2004	*0,501*	***0,453***	*0,503*	*0,452*	*0,524*	***0,544***	*0,524*	*0,542*
2005	*0,479*	***0,423***	*0,483*	*0,422*	*0,495*	***0,448***	*0,497*	*0,448*
2006	*0,500*	***0,427***	*0,505*	*0,427*	*0,505*	***0,444***	*0,508*	*0,443*
2007	*0,549*	***0,468***	*0,553*	*0,464*	*0,518*	***0,468***	*0,520*	*0,467*
2008	*0,557*	***0,441***	*0,561*	*0,429*	*0,510*	***0,444***	*0,513*	*0,442*
2009	*0,557*	***0,530***	*0,558*	*0,515*	*0,507*	***0,483***	*0,507*	*0,483*
2010	*0,532*	***0,486***	*0,541*	*0,474*	*0,486*	***0,409***	*0,493*	*0,409*
2011	*0,553*	***0,478***	*0,555*	*0,458*	*0,511*	***0,482***	*0,512*	*0,479*
2012	*0,573*	***0,491***	*0,576*	*0,466*	*0,512*	***0,472***	*0,513*	*0,469*

	B&H				***Greece***			
2003	*0,413*	***0,347***	*0,414(0,339)*	**2000**	*0,609*	***0,720***	*0,607*	*0,717*
2004	*0,405*	***0,335***	*0,402(0,332)*	**2001**	*0,565*	***0,654***	*0,563*	*0,653*
2005	*0,394*	***0,326***	*0,397(0,326)*	**2002**	*0,567*	***0,662***	*0,567*	*0,660*
2006	*0,397*	***0,332***	*0,401(0,332)*	**2003**	*0,548*	***0,635***	*0,548*	*0,635*
2007	*0,431*	***0,373***	*0,434(0,373)*	**2004**	*0,565*	***0,666***	*0,565*	*0,666*
2008	*0,442*	***0,325***	*0,448(0,320)*	**2005**	*0,566*	***0,705***	*0,569*	*0,702*
2009	*0,466*	***0,414***	*0,466(0,411)*	**2006**	*0,608*	***0,791***	*0,611*	*0,787*
2010	*0,427*	***0,433***	*0,434(0,430)*	**2007**	*0,650*	***0,841***	*0,652*	*0,840*
2011	*0,467*	***0,519***	*0,469(0,501)*	**2008**	*0,608*	***0,769***	*0,612*	*0,735*
2012	*0,481*	***0,505***	*0,482(0,496)*	**2009**	*0,600*	***0,732***	*0,601*	*0,728*
	U.S.			**2010**	*0,589*	***0,744***	*0593*	*0,736*
2000	*0,738*	***0,774***	*0,736(0,773)*	**2011**	*0,643*	***0,902***	*0,644*	*0,881*
2008	*0,646*	***0,641***	*0,651(0,620)*	**2012**	*0,628*	***0,901***	*0,628*	*0,841*
2009	*0,676*	***0,694***	*0,676(0,685)*		***Montenegro***			
2010	*0,652*	***0,669***	*0,661(0,653)*	**2005**	*0,224*	***0,139***	*0,225*	*0,101*
2011	*0,680*	***0,721***	*0,683(0,693)*	**2008**	*0,273*	***0,212***	*0,275*	*0,174*
2012	*0,669*	***0,713***	*0,671(0,690)*	**2012**	*0,308*	***0,224***	*0,309*	*0,200*

Table 3: Share of skill-intensive manufactures in total merchandise exports and imports 2000-12

	2012	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*	*2003*	*2002*	*2001*	*2000*
	Exports												
Turkey	30,0	32,8	33,0	31,6	32,2	34,6	33,9	31,7	31,9	29,3	27,3	26,2	24,8
Croatia	30,9	30,5	31,5	32,4	31,1	29,8	27,2	29,1	29,0	27,7	27,3	25,5	25,9
Romania	45,1	45,9	46,1	44,1	38,9	36,3	32,7	28,5	26,6	23,6	23,0	22,4	21,8
B&H	18,4	17,7	17,1	19,2	19,7	18,6	18,0	19,9	17,6	20,3	-	-	-
Serbia	28,2	24,3	24,0	24,0	25,4	23,8	20,8	20,8	21,5	20,2	19,9	20,8	22,5
Montenegro	11,3	11,1	13,8	16,4	9,7	7,6	8,5	7,2	-	-	-	-	-
Bulgaria	25,3	25,7	25,4	25,4	24,2	23,3	19,5	20,7	20,2	22,3	21,8	22,2	21,8
Slovenia	55,0	53,8	56,5	57,4	54,5	54,4	52,2	52,8	51,6	51,0	50,2	48,4	48,3
Greece	17,7	19,5	25,0	25,5	25,1	25,1	26,2	26,0	26,4	24,5	23,3	21,0	19,3
U.S.	50,1	51,5	53,9	54,0	58,9	-	-	-	-	64,9	-	-	68,6

Imports													
Extra EU27	-	33,4	35,5	32,7	35,3	35,9	37,2	39,1	39,4	40,2	42,1	-	42,1
U.S.	48,0	46,8	48,1	47,6	44,0	47,0	45,9	47,8	49,5	50,7	52,0	52,3	54,1

NOTE: Data for 2012 are for the first ten months (Serbia, Croatia, Bosnia-Herzegovina, Turkey), the first nine months (Montenegro, Bulgaria, U.S.), the first eight months (Slovenia), and the first seven months in the case of Romania (data for external EU 27 Imports 2011: first nine months). Data for ISI for B&H, U.S., and Montenegro in Table 1 and 2 are in parentheses.

SOURCE (Tables 1, 2, & 3):

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