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Trade in Intermediate Goods and International Supply Chains in CEFTA



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FOREWORD

The eight Parties¹ to the Central European Free Trade Agreement (CEFTA) 2006 are aspiring to achieve a series of ambitious goals. These are: to expand trade in goods and services; foster investment, eliminate trade barriers, protect intellectual property rights in accordance with international standards and harmonise provisions on key trade policy issues.

In addition to implementing traditional trade-related liberalisation measures, CEFTA 2006 requires the Parties to undertake investment policy commitments. They include non-discriminatory treatment of investment underpinned by the principle of national treatment, and require the Parties to coordinate their investment policies and progressively open their government procurement markets.

To monitor the implementation of the investment-related clauses, the CEFTA Parties have mandated the CEFTA Secretariat to periodically review the status of compliance. The Organisation for Economic Co-operation and Development's Investment Compact for South-East Europe (OECD-IC) assists the CEFTA Secretariat in this effort, with financial support from the European Commission.

To enhance their competitiveness, CEFTA countries need to promote effective investment and trade policies that will help them move up the "global value chains". Today, the production of goods and services is increasingly taking place across the globe, with research and development, design, production of parts, assembly, and marketing, located across different countries. This trend, leading to greater investment and trade in intermediate goods, has implications for the development of adequate data and analysis in order to help governments design and implement well informed policies.

This report summarises the OECD-IC assessment of current trade in intermediate goods within the CEFTA region and the existing international supply chains of individual industries. It provides an overview of the region's trade patterns and identifies steps to support the Parties in further integrating global value chains and capturing more value from international linkages.

The key findings of this analysis were presented to the CEFTA Parties and various other stakeholders at the 3rd Budapest Roundtable (3-4 November 2011) during CEFTA Week 2011 (22-23 November 2011) and at the OECD workshop on Regional Trade Liberalisation, European Integration and Investment Flows in CEFTA (19-20 June 2012).

This report is part of a series of CEFTA Issues Papers, which is jointly produced by the OECD and the CEFTA 2006 Secretariat. These papers provide insights on a wide range of issues such as intellectual property rights, national treatment restrictions, the elimination of non-tariff barrier (NTBs),

¹ The signatories of CEFTA 2006 are: Albania, Bosnia and Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, the Republic of Moldova, Montenegro, Serbia, and Kosovo*.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

and trade in services liberalisation. They support the wider objective of the OECD-IC and the CEFTA bodies to enhance growth and employment in CEFTA economies through deeper regional, European and global economic integration.



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The views expressed in this publication are those of the OECD-IC and do not reflect the official position of CEFTA institutions or any of the CEFTA Parties.

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EXECUTIVE SUMMARY

Economic globalisation, falling trade costs and technological progress have driven the international fragmentation of production and the development of international supply chains. As a consequence, trade in intermediate inputs, which connects the different production stages of international supply chains, plays a dominant role in world trade flows and allows countries around the world to enhance productivity, competition and innovation.

The eight CEFTA 2006 Parties (Albania, Bosnia and Herzegovina, Croatia, Kosovo*, the FYR Macedonia, Moldova, Montenegro and Serbia) have undertaken major efforts to liberalise trade of industrial products and implement investment policy commitments. This has led to deeper regional integration and stronger political and economic convergence towards the European Union (EU). These past achievements, along with current efforts to eliminate non-tariff barriers (NTBs) to trade and start negotiations on services trade liberalisation, can foster the development of regional supply chains and facilitate the integration into European supply chains.

This study examines the trade flows of intermediate and final goods to analyse the integration of CEFTA 2006 economies in international supply chains. In particular, it focuses on: the most important supply chains in CEFTA economies; the position of CEFTA economies in supply chains; and on the importance of intra-CEFTA versus extra-CEFTA supply chains.

Intermediate goods have been an important driver of overall export growth in CEFTA economies and accounted for 59% of manufacturing exports in 2010, compared to 55% in EU27 countries. Intermediate goods exports in medium-low technology industries are responsible for this high share, in particular, “Basic Metals” and “Fabricated Metal Products”, which are the most important supply chains for CEFTA economies.

The measure of revealed comparative advantage (RCA) shows that CEFTA economies are the most specialised and hence the most competitive in intermediate and final goods exports in low-technology industries, and in intermediate goods exports in medium-low technology industries. To identify a country’s position in supply chains, the export specialisation of an industry is linked to the import specialisation in intermediate goods of the industry’s most important supplying industry. This results in a supply chain matrix that indicates whether the country is integrated at the first, intermediate or final stage of a supply chain.

In line with their export competitiveness, CEFTA economies are most heavily integrated in the supply chains of the low technology industries “Food, Beverages and Tobacco” and “Textiles, Clothing” and in

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

the supply chains of the medium-low technology industries “Basic Metals” and “Fabricated Metal Products”. In particular, the different CEFTA economies cover the entire supply chain in the industries “Food, Beverages and Tobacco”, “Basic Metals” and “Fabricated Metal Products”. In the “Food, Beverages and Tobacco” chain, CEFTA economies are mostly integrated at the final stage, while in the supply chain related to the two metal industries, CEFTA economies are positioned mostly at intermediate stages.

CEFTA economies export more than 70% of their products to countries that are not part of their free trade agreement, indicating the overall importance of international supply chains for the region. However, depending on the industry, supply chains tend to be more regional, intra-CEFTA, or more international, extra-CEFTA. While the food supply chain has a significant regional aspect with 43% of intermediate goods being exported intra-CEFTA, the metals supply chains are more internationally organised as more than 70% of intermediate goods exports of CEFTA economies go to countries outside CEFTA 2006.

The increasing importance of supply chains and the results of this study identify three policy options for consideration by policy makers from CEFTA economies. First, policy makers could step up their efforts to identify and promote high value added activities in which CEFTA economies can be competitive on international markets. Building on this study, future analysis could address the value added content of particular activities by going into more detail for specific industries. Along the same lines, further work may assess whether and how foreign direct investment (FDI) can support the movement of CEFTA economies up the value chain. For instance, FDI can contribute to the learning and technological upgrading of domestic suppliers or can increase the demand for medium- and high-skilled workers. Second, CEFTA economies need to continue fostering closer regional integration and cooperation to reap the benefits of synergies and complementarities within supply chains. Finally, CEFTA Parties could enhance their efforts to coordinate the elimination of NTBs and the adoption of the EU acquis in order to minimise potential trade distortions within supply chains.

INTRODUCTION

1. International supply chains, often also referred to as global value chains or international production networks, play a dominant role in world trade and are a key factor for economic development.

2. Intermediate inputs represent 56% of goods trade and 73% of services trade in OECD countries (Miroudot et al., 2009) and imports of intermediate goods increasingly determine the export competitiveness of countries (Beltramello et al., 2012). For the majority of OECD countries more than half of the value of exports stems from products traded in the context of global value chains (De Backer and Miroudot, 2012). Timmer et al. (2012) show that vertical specialisation as measured by the share of imported intermediate inputs in manufacturing gross output has increased for almost all developed and emerging economies. In particular, East Asian economies are characterised by increasing two-way integration, i.e. trade in intermediate inputs increased in both directions between Japan, South Korea and Taiwan on the one hand and China on the other hand.

3. Emerging economies are increasingly able to capture income in international supply chains. Using the World Input Output Database³, Timmer et al. (2012) developed an indicator of global value chain income for countries, measuring the income of labour and capital from activities (agriculture, manufacturing, services, etc.) which were directly or indirectly used to produce final manufacturing goods. Between 2005 and 2009, emerging economies increased their share in world income arising from global value chains. In particular, while in the past years the income share of the EU has remained relatively stable, close to 30%, China has more than doubled its income share since 1995 reaching about 15% in 2009.

4. Supply chains can be characterised along various dimensions including geography, ownership, activities and linkages. A supply chain can be national or international when the production process is spread over more countries. If a supply chain is international, cross-border trade in intermediate inputs is a natural consequence linking the different production stages. In the context of international supply chains, the concept of offshoring, i.e. the relocation of production abroad, and its determinants and consequences are of great relevance to policy makers as domestic jobs are affected. Ownership is another feature: supply chains can consist of independent firms or of affiliated firms. If the entire or a part of a supply chain is constituted by affiliated firms, then intra-firm trade arises as a result. The decision of a firm on whether to source intermediate inputs from within or outside the firm's boundaries is referred to as decision between vertical integration and outsourcing.

5. Antràs and Helpman (2004) provide a North-South modelling framework that explains both offshoring and outsourcing of firms. In their model, the decision to offshore depends on the trade-off between lower labour costs abroad (South) compared to lower fixed costs at home (North). On the other hand, the decision to vertically integrate or to outsource depends on the trade off between the ownership advantage in the form of lower transaction costs and the better incentives for the supplier in the case of outsourcing.

6. Furthermore, supply chains can involve both intra-industry and/or inter-industry linkages. While inter-industry linkages are sometimes neglected in academic and policy debates, they are actually of major importance. For instance, services such as telecommunications, financial services or business services

3. The database is the output of a project involving several European Research Institutions and has been funded by the European Commission as part of the 7th Framework Programme. The database is publicly available at the following website: <http://www.wiod.org/>

constitute significant inputs in the production process of manufacturing industries. Besides industry linkages, supply chains can also be represented as business functions such as research and design, production, marketing, distribution and support to the final consumer (Gereffi and Fernandez-Stark, 2011) or as a set of different “tasks” carried out by workers. For instance, Lanz et al. (2011) show that most occupations consist of a bundle of both “offshorable” and “non-offshorable” tasks highlighting the benefits of multi-tasked workers and the limits of the international division of labour.

7. The increasing importance of international supply chains has several implications for policy makers going beyond trade policy and covering issues such as trade and employment, national competitiveness and growth, moving up the value chain and innovation and global systemic risks (De Backer and Miroudot, 2012). For policy makers of the eight CEFTA 2006 Parties Albania, Bosnia and Herzegovina, Croatia, the FYR Macedonia, Moldova, Montenegro, Serbia and Kosovo*⁴, the following issues are of particular relevance:

- **Regional integration:** CEFTA Parties are small economies, which generally tend to be more integrated in and reliant on international supply chains (De Backer and Miroudot, 2012). Due to their common history, (six out of eight CEFTA Parties formed the SFR Yugoslavia), CEFTA Parties have similar factor endowments and industrial structures which can allow them to develop and deepen regional supply chains by exploiting synergies and complementarities. Furthermore, regional integration and cooperation can make CEFTA Parties a more attractive investment location to lead firms of international supply chains.
- **Non-tariff barriers (NTBs) to trade:** CEFTA economies aim at eliminating NTBs between themselves to further trade integration and integration of regional supply chains. At the same time, CEFTA Parties are in the process of adapting the relevant EU acquis on their path towards accession. On this latter process, CEFTA Parties move to some extent in an uncoordinated fashion and at different speeds, which can lead to distortions in existing regional supply chains (OECD, 2012). Understanding the most relevant regional supply chains will allow policy makers to better coordinate the elimination of NTBs and the adoption of EU acquis, minimising potential trade distortions during their transition towards the EU.
- **Capturing high value added activities:** A crucial question for policy makers to consider in the context of international supply chains is how much value added the country contributes to the supply chain. For instance, CEFTA economies are well integrated into international supply chains in the textiles and clothing industry, importing intermediate products and exporting mainly final products. While exports are high, it is difficult to assess how much of the value of exports is actually due to domestic value added or due to foreign value added incorporated in the form of intermediate inputs. Hence, policy makers face the challenge of identifying high value added activities where CEFTA economies can be competitive on international markets, i.e. where do CEFTA economies have the potential to “move up the value chain”? Should CEFTA economies specialise in particular industries or rather try to move to different stages or specialise in different business functions in an existing value chain?

8. This study uses data on intermediate and final goods trade to analyse the integration of CEFTA 2006 economies in international supply chains. In particular, it uses the OECD STAN Bilateral Trade Database by Industry and End-use (BTDIxE) which provides bilateral trade flows of intermediate and final goods for industries based on the International Standard Industrial Classification, Revision 3 (ISIC Rev.3).

4. Kosovo* is not covered by this study as trade data are not available in the OECD BTDIxE database.

9. Input-output tables are another main source of information for analysing supply chains as they provide information on value added and on intra- and inter-industry linkages. Building on national input-output tables, recent projects⁵ have developed international input-output tables, which provide information on international industry linkages, allowing a better identification of which countries actually add most value in international supply chains. Unfortunately, with the exception of the FYR Macedonia no national input-output tables are available for CEFTA economies. Therefore, this study uses the EU27 input-output table to identify the most important supplying industry.

10. The rest of the paper is structured as follows. Section 2 describes the patterns and importance of international supply chains by assessing intermediate and final goods trade. Section 3 analyses the competitiveness of intermediate and final goods exports of CEFTA economies based on the measure of revealed comparative advantage (RCA). Section 4 combines RCA measures for imports of intermediate inputs and exports with information on industry linkages to indicate the position of countries in supply chains. Section 5 concludes the analysis and provides a set of recommendations for policy-makers.

5. The World Input-Output Database (WIOD) project (www.wiod.org) and the OECD inter-country input-output (ICIO) model as part of the OECD-WTO initiative to measure trade in value added.

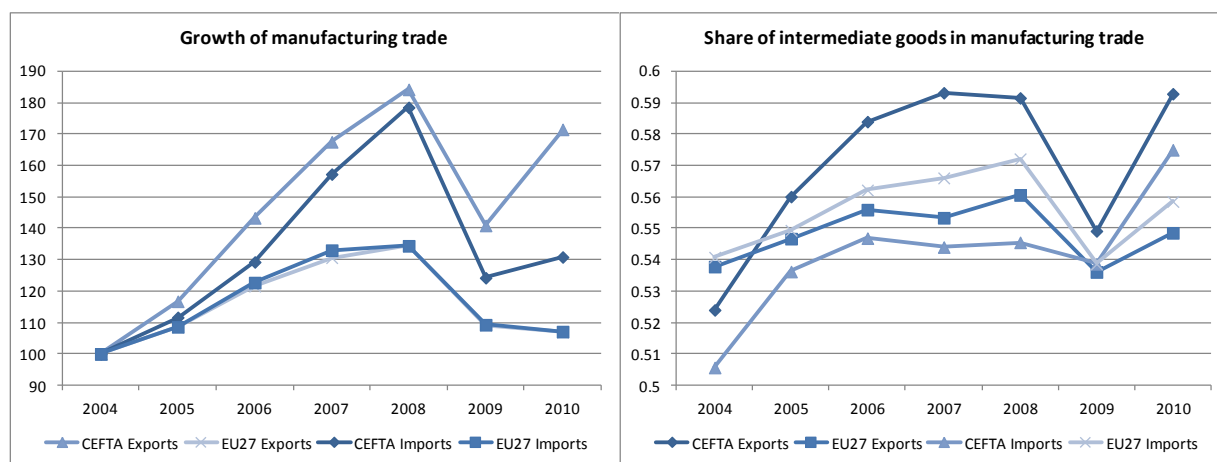
SUPPLY CHAIN PATTERNS – TRADE IN INTERMEDIATE AND FINAL GOODS

How important is trade in intermediate goods?

11. Figure 1 shows that CEFTA economies experienced a higher growth of both manufacturing exports and imports compared to EU27 economies between 2004 and 2008. Import growth in particular was high between 2006 and 2008 in CEFTA. However, CEFTA economies also experienced a more severe trade collapse during the economic crisis in 2009. While manufacturing trade continued to fall in EU27 economies in 2010, it recovered in CEFTA economies after its sharp decline in 2009.

12. Intermediates were an important driver of overall export growth in CEFTA economies, which can be seen by the increasing share of intermediate goods between 2004 and 2010. Furthermore, intermediate goods account for a higher share in manufacturing trade in CEFTA than in EU27. The difference is greatest for the case of exports, where in 2010, 59% of CEFTA exports were intermediate goods compared to 55% in the EU27.

Figure 1. Growth of manufacturing exports and imports and intermediate goods shares for CEFTA and EU27, 2004-2010



Source: OECD calculations based on data from the OECD BTDIxE Database; Note: Data have been estimated for Montenegro in 2004 and 2005 using its CEFTA trade shares of 2006, and for the FYR Macedonia in 2010 (using shares of 2009) and 2008 (for exports only; using the average share of 2007 and 2009).

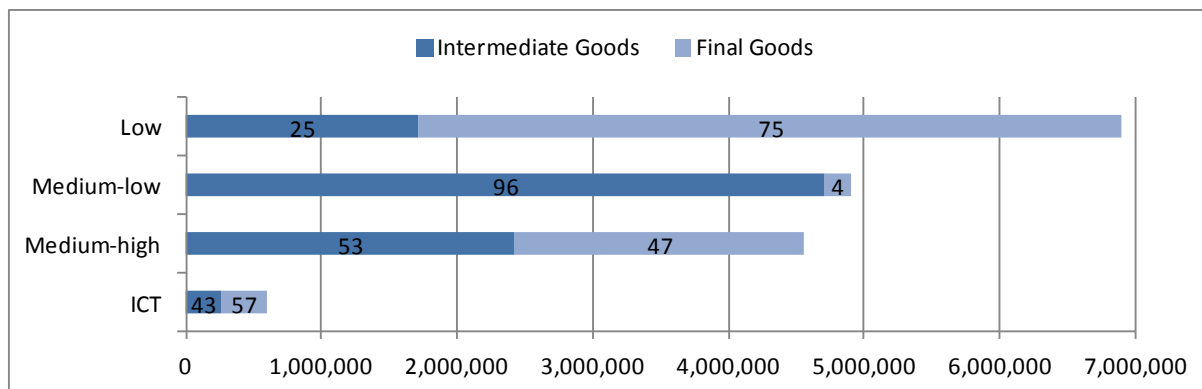
What are the most important supply chains in CEFTA economies?

13. Medium-low technology industries are the main exporters of intermediate goods.⁶ Figure 2 shows that in 2009 intermediate goods accounted for 96% or more than EUR 4.5 bn of medium-low technology exports. This high share of intermediate goods reflects to a large extent the nature of the medium-low technology industries. For instance, in the EU27, intermediate goods accounted for 91% of

6. See Table 1 in Section 4 for the technology classification of industries.

medium-low technology exports (Table 4 in Annex I). Medium-high technology industries are the second biggest exporters of intermediate goods followed by low technology industries, which overall export the most.

Figure 2. CEFTA exports in 2009 and their decomposition (%) into intermediate and final goods by industry technology group (EUR 1'000)

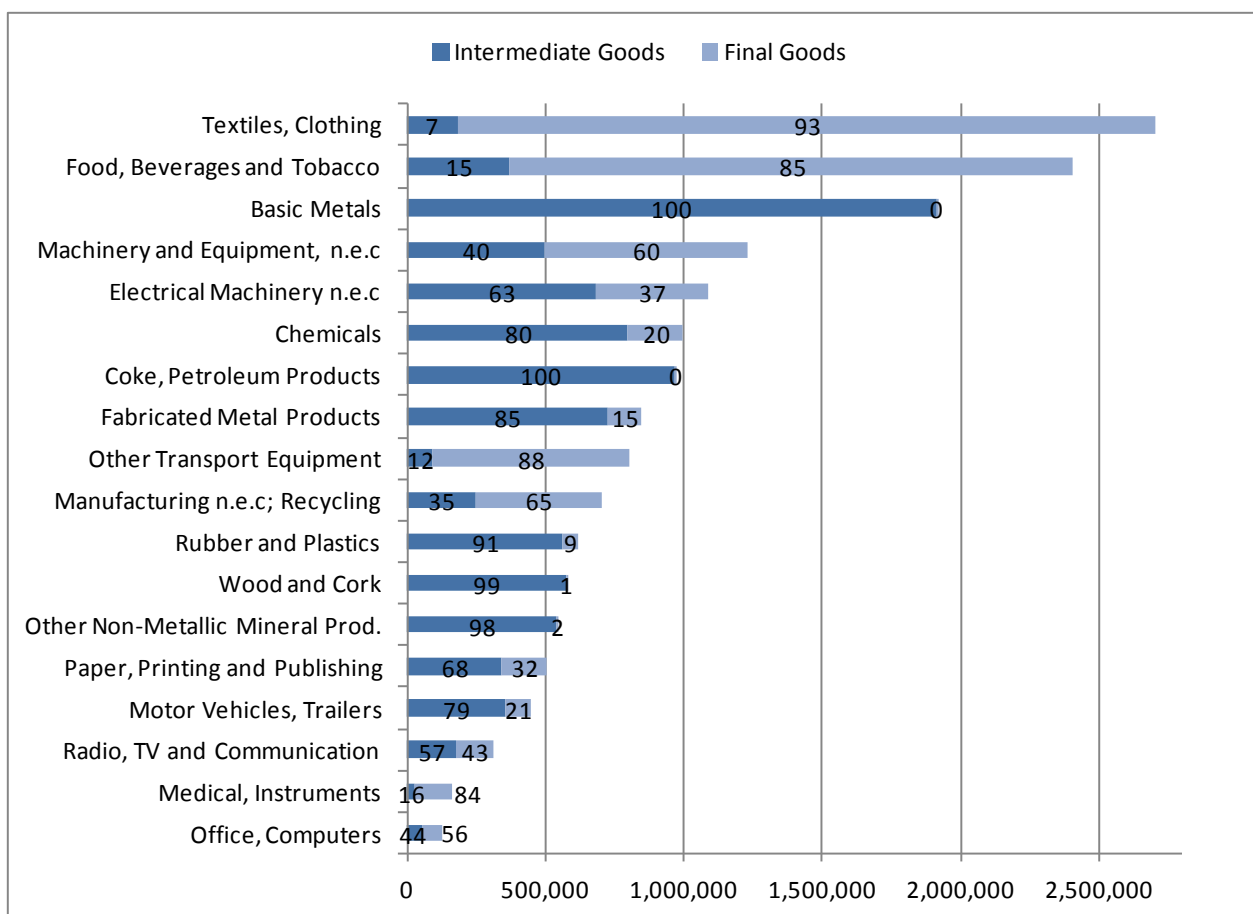


Source: OECD calculations based on data from the OECD BTDixE Database

14. Figure 3 shows that “Basic Metals” and “Fabricated Metal Products” are the medium-low tech industries exporting most intermediates. In particular, 100% or 1.5bn EUR of “Basic Metals” exports are intermediate goods. While most products of the “Basic Metals” industry are by nature intermediate goods, the high export value in “Basic Metals” indicates the industry specialisation of CEFTA economies. Intermediate goods exports are highest in “Chemicals” and in “Electrical machinery n.e.c” for medium-high technology industries, and in “Coke, Petroleum Products” for low technology industries.

15. Overall exports are by far the highest in “Textiles, Clothing” and “Food, Beverages and Tobacco”. However, for each of these two industries, final goods constitute more than 85% of exports reflecting the nature of the industry and the specialisation of CEFTA economies in final stages of the supply chain.

Figure 3. CEFTA exports in 2009 and their decomposition (%) into intermediate and final goods by industry (EUR 1'000)



Source: OECD calculations based on data from the OECD BTDixE Database

16. Tables 4 and 5 in Annex I provide more detail on exports and imports by industry and CEFTA economy. For both EU27 and CEFTA economies imports in medium-high technology industries are most important in value terms. However, while EU27 economies export the most in medium-high technology industries, CEFTA economies export the most in low technology industries.

17. Different shares of intermediate goods for the same industry indicate that countries differ in their product specialisation and their supply chain position respectively. For instance, 11% of Croatia’s exports in “Food, Beverages and Tobacco” are intermediates, while for Serbia the share of intermediate exports is 18%. In “Fabricated Metal Products”, intermediate goods account for 94% of exports in Bosnia and Herzegovina compared to 68% in Serbia.

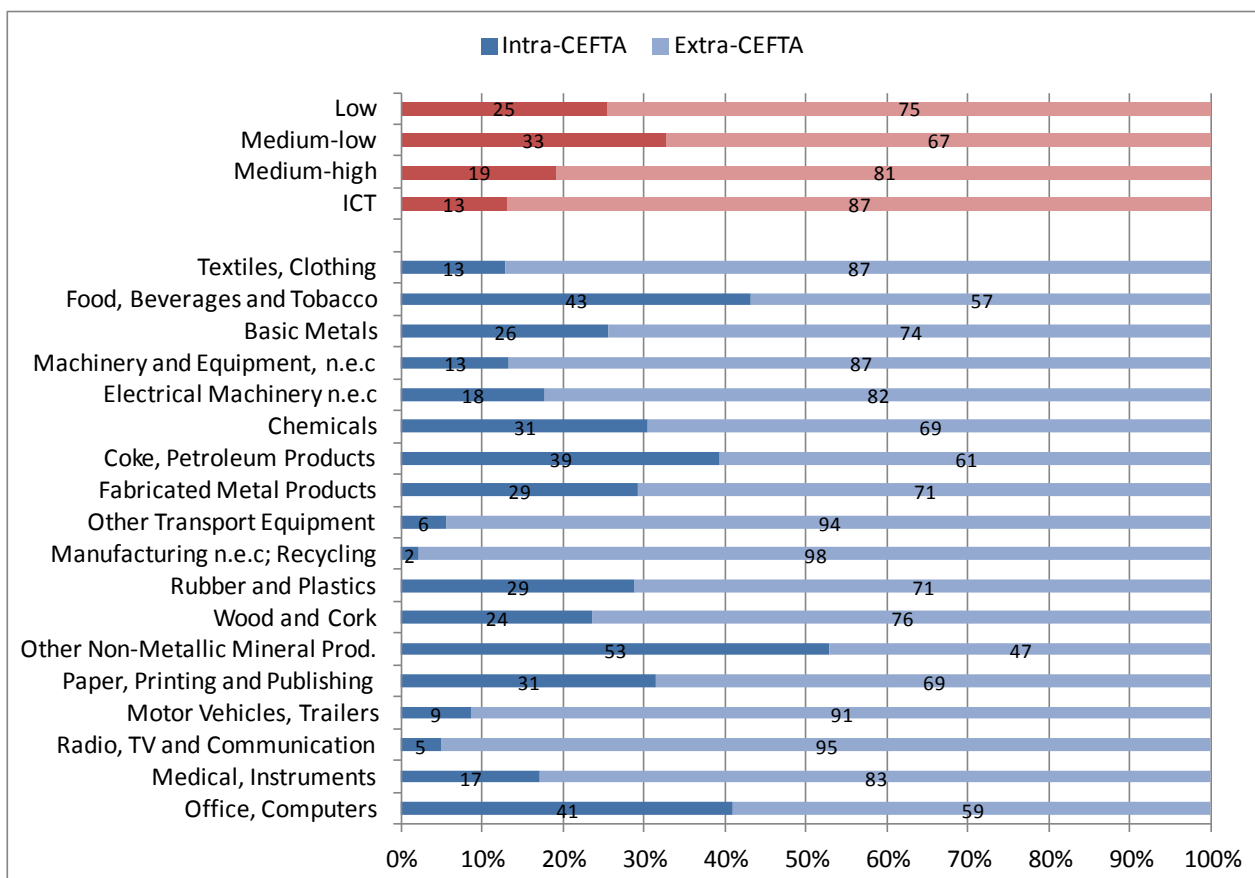
18. The comparison of exports and imports of intermediates already provides a good indication where CEFTA countries are positioned in supply chains. In the industry “Motor Vehicles, Trailers”, CEFTA economies import mostly final goods, e.g. finished cars, while exports are overall rather low and consist mainly of intermediate goods.

How important are intra-CEFTA versus extra-CEFTA supply chains?

19. CEFTA economies export more than 70% of their products to countries outside the free trade agreement, i.e. extra-CEFTA economies. Figure 4 provides the shares of intra- and extra-CEFTA exports of intermediate goods by technology grouping and by disaggregated industries. Figure 5 provides the respective shares for exports of final goods. With a share of 33%, intra-CEFTA exports of intermediates are most important for medium-low technology industries, which are at the same time the biggest exporters of intermediates. In particular, in the medium-low technology industry “Other Non-Metallic Mineral Products”, more than half of intermediate exports are accounted for by intra-CEFTA trade.

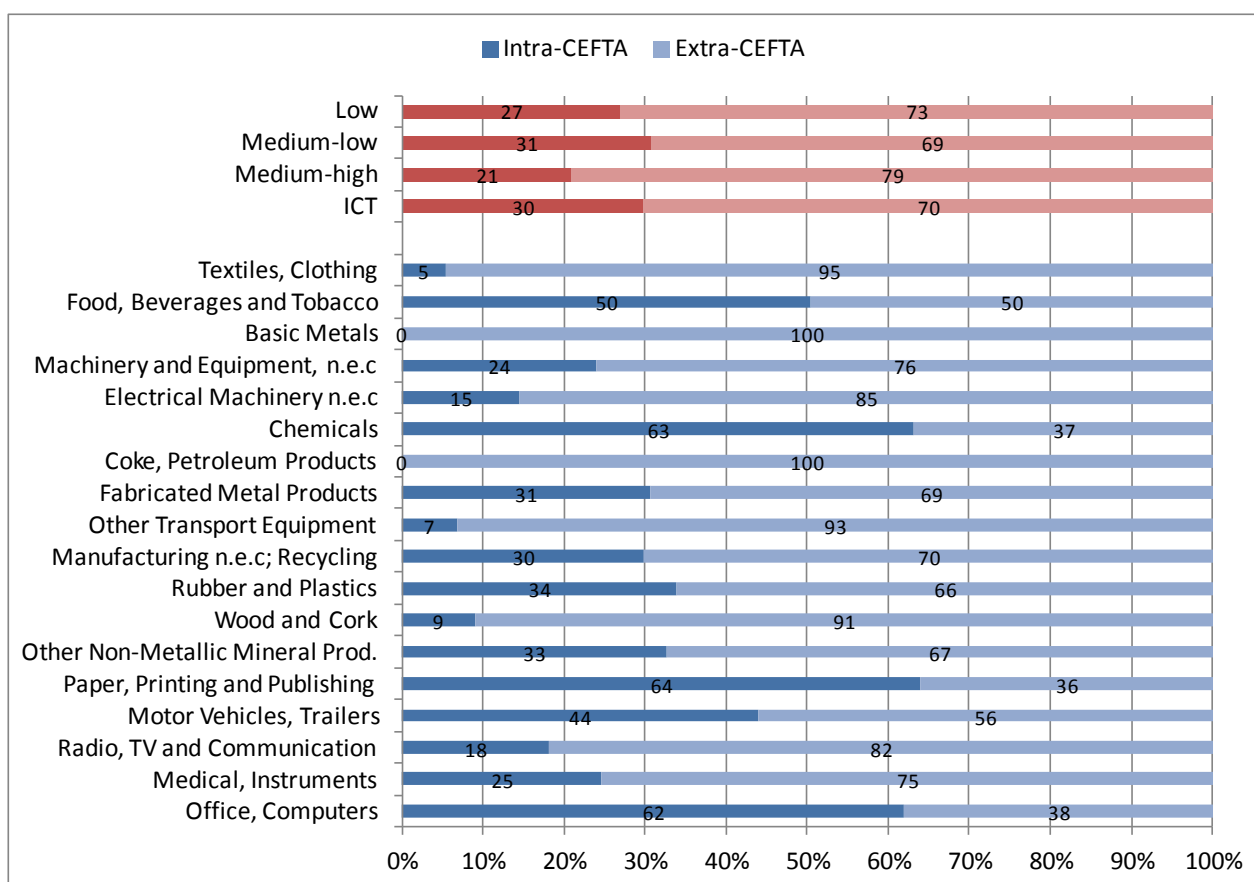
20. In the case of ICT goods, intra-CEFTA exports account for only 13% of intermediate goods exports (Figure 4) while they account for 30% of final goods exports (Figure 5). The difference is particularly striking for the two ICT industries “Radio, TV and Communication” and for “Office, Computers” for which intra-CEFTA trade accounts respectively for 5% and 41% in the case of intermediate goods but 18% and 62% in the case of final goods. This relatively low importance of intra-CEFTA trade in intermediate ICT goods indicates international supply chains are more predominant compared to regional supply chains at intermediate stages of the production process.

Figure 4. Intra- and extra-CEFTA exports (%) of intermediate goods in 2009 by technology grouping and by disaggregated industries



Source: OECD calculations based on data from the OECD BTDixE Database

Figure 5. Intra- and extra-CEFTA exports (%) of final goods by technology grouping and by disaggregated industries



Source: OECD calculations based on data from the OECD BTDIxE Database

21. More detail on intra- and extra-CEFTA exports and imports of single CEFTA economies are provided in Table 6 and Table 7 in Annex I. In particular, these tables show the values of final and intermediate goods trade and the respective shares of intra-CEFTA trade by industry and country. For instance, in “Food, Beverages and Tobacco”, exports of CEFTA economies to CEFTA partners account for 50% of EUR 2 bn final goods exports and for 43% of EUR 370 mn intermediate goods exports. Croatia is the largest exporter of final food products and Serbia is the largest exporter of intermediate food products. Furthermore, both countries export slightly more food products to CEFTA economies than to countries outside CEFTA.

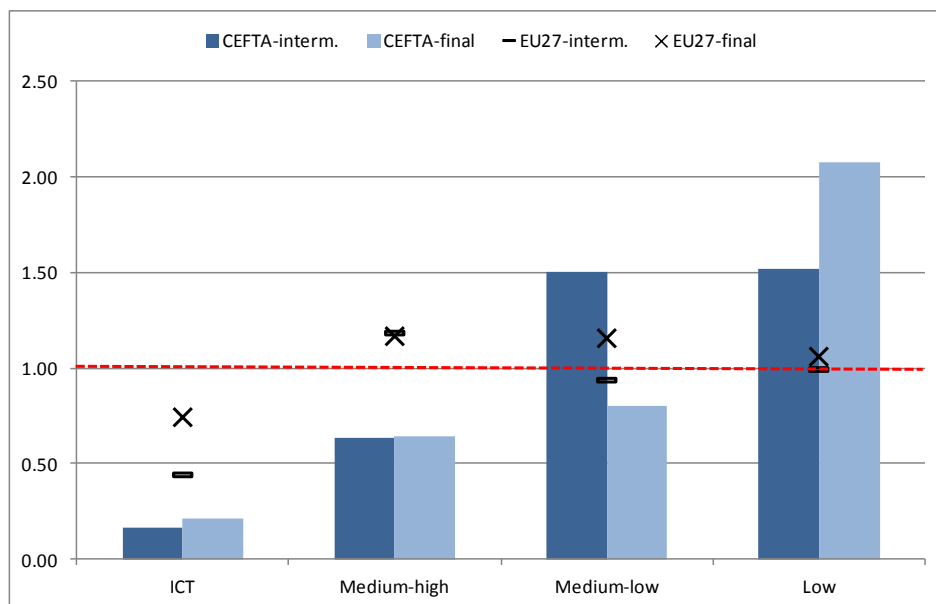
COMPETITIVENESS OF CEFTA ECONOMIES IN INTERMEDIATE AND FINAL GOODS EXPORT

22. To assess the competitiveness of CEFTA economies in exports of intermediate and final goods, the measure of revealed comparative advantage (RCA) is applied. RCA captures a country's relative export specialisation in a given industry by dividing the industry market share by the manufacturing market share for exports. Hence, a RCA index higher than one indicates that a country is specialised and hence competitive in exports of a particular industry relative to overall manufacturing. In particular, the RCA in intermediate (final) exports of country i in industry k is calculated as the ratio of the share of country i in world intermediate (final) exports of industry k relative to the share of country i in world exports of manufacturing:

$$RCA_{ik,intermediates} = \frac{\left(\frac{X_{ik,interm.}}{X_{World,k,interm.}}\right)}{\left(\frac{X_i}{X_{World}}\right)} \quad \text{and} \quad RCA_{ik,final} = \frac{\left(\frac{X_{ik,final.}}{X_{World,k,final.}}\right)}{\left(\frac{X_i}{X_{World}}\right)}$$

23. Figure 6 shows the RCA of CEFTA economies in exports of intermediate and final goods by technology grouping. CEFTA economies have a RCA in low technology industries for both intermediate and final goods exports and in medium-low technology industries for intermediate goods exports. Figure 6 also shows that EU27 economies are more specialised than CEFTA economies in higher technology industries.

Figure 6. Revealed comparative advantage of CEFTA and EU27 in intermediate and final goods exports by industry grouping in 2009

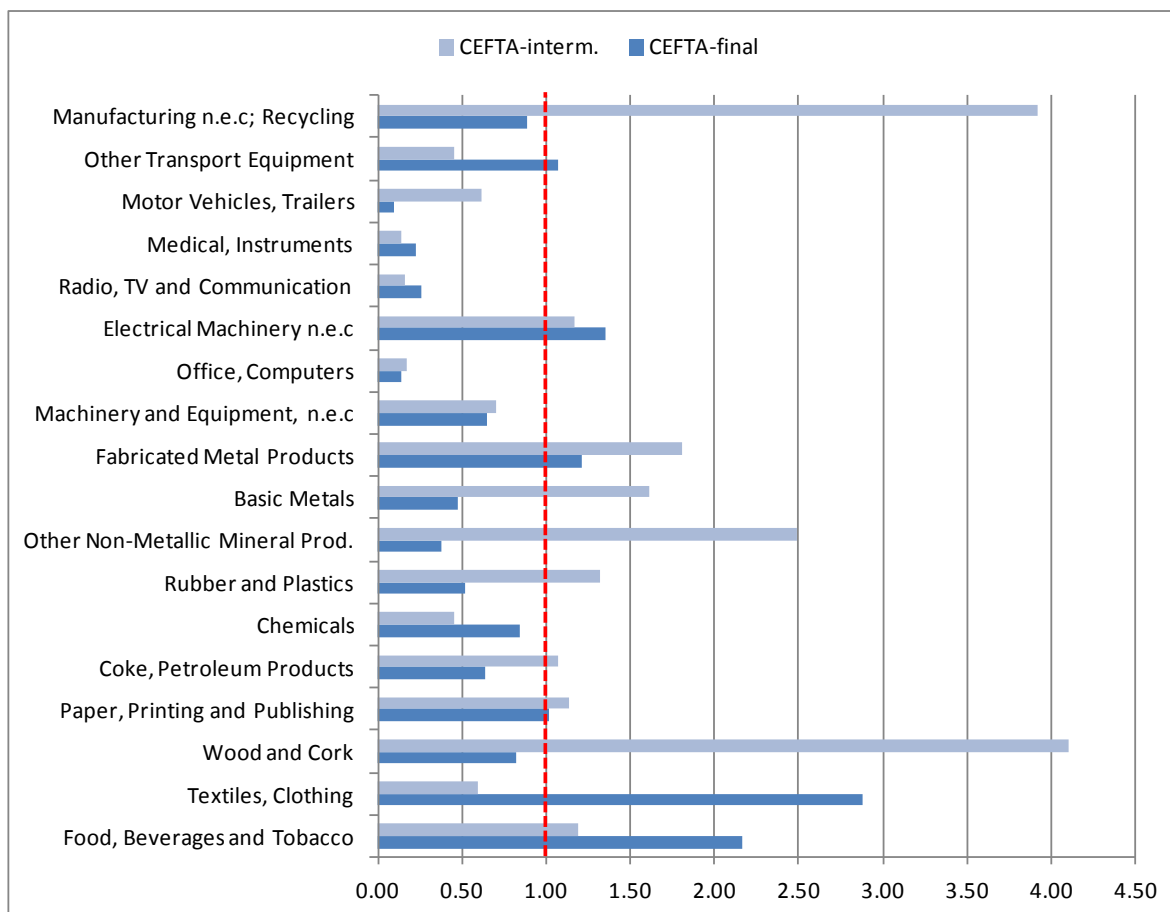


Source: OECD calculations based on data from the OECD BTDixE Database

24. Figure 7 provides more detail on the export competitiveness of industries in the CEFTA region. The competitiveness of CEFTA in low technology final goods exports is driven by the industries “Textiles, Clothing” and “Food, Beverages and Tobacco”. Table 8 in Annex I further shows that all countries except Albania are relatively specialised in these two industries. The high RCA of intermediate exports of “Other Non-Metallic Products” reflects the fact that all CEFTA economies except Montenegro are relatively specialised in this industry, i.e. have a RCA greater than one. Figure 7 furthermore shows that CEFTA economies are specialised in intermediate goods exports in the medium-low technology industries “Basic Metals” and “Fabricated Metal Products” with RCAs larger than 1.5.

25. While the CEFTA region has no RCA in overall ICT and medium-high technology exports, it has a RCA in the medium-high technology industries “Electrical Machinery n.e.c.” in both intermediate and final goods exports and in “Other Transport Equipment” in final goods export. Table 8 in Annex I shows that Croatia, Moldova and Serbia have a RCA in intermediate goods exports of “Electrical Machinery n.e.c.” and Croatia also in final goods exports. In addition, in the case of “Other Transport Equipment”, Croatia has a RCA in final goods exports thanks to its specialisation in shipbuilding.

Figure 7. Revealed comparative advantage index of the CEFTA region in intermediate and final goods exports by industry in 2009



Source: OECD calculations based on data from the OECD BTDiXE Database

SUPPLY CHAIN MATRIX: INTEGRATION OF CEFTA ECONOMIES IN INTERNATIONAL SUPPLY CHAINS

26. This section introduces the methodology used to identify international supply chains in each manufacturing industry of the CEFTA 2006 Parties. Building on measures of revealed comparative advantage (RCA) for both imports and exports, the supply chain matrix indicates whether an industry is integrated in an international supply chain and if yes, at which stage – first, intermediate or final. Depending on the industry characteristics, the position in supply chains can also provide an indication of whether CEFTA economies tend to be specialised in low or high value activities.

27. In the ideal situation, observing an industry’s position in an international supply chain would be a rather straightforward exercise if detailed input-output (IO) tables would be joined with equally specific trade data. One could then link imports of certain products to specific uses in the manufacturing process of another product and track whether this latter product is exported and if yes, whether as an intermediate or as a final good. In practice, especially for the CEFTA 2006 economies, input-output tables are far from complete and exact; in most cases they are non-existent (with the exception of the FYR Macedonia).

28. Thus, the matrix methodology developed in this paper is a proxy, but still based on the same logic of linking the supply and use of intermediates to the manufacturing of another intermediate or of a final product, which is then exported. Once this logic is established, the need for approximating the intensity of both imports and exports comes naturally: the RCA methodology is used to determine the competitiveness of each industry in exporting its outputs, but also assesses the economy’s specialisation in imports of intermediate goods that present the main inputs for the exporting industry under consideration. Given the lack of input-output tables for CEFTA 2006 economies, the EU27 input-output table is used to identify the main supplying industry of intermediate inputs, as detailed below in Table 1 alongside with the technological classification of each industry. With few exceptions industries, intra-industry linkages are most important, i.e. the main supplier of intermediate inputs is the industry itself.

Table 1. Top supplying industry and technological classification

Code	Using Industry	Top Supplying Industry	Technology Classification
15T16	Food products, Beverages and Tobacco	Food products, Beverages and Tobacco	Low Tech
17T19	Textiles, Leather and Footwear	Textiles, Leather and Footwear	Low Tech
20	Wood and Products of Wood and Cork	Wood and Products of Wood and Cork	Low Tech
21T22	Pulp, Paper, Printing and Publishing	Pulp, Paper, Printing and Publishing	Low Tech
23	Coke, Refined Petroleum Products	Chemicals and Chemical Products	Medium-Low Tech
24	Chemicals and Chemical Products	Chemicals and Chemical Products	Medium-High Tech
25	Rubber and Plastics Products	Rubber and Plastics Products	Medium-Low Tech
26	Other Non-Metallic Mineral Products	Other Non-Metallic Mineral Products	Medium-Low Tech
27	Basic Metals	Basic Metals	Medium-Low Tech
28	Fabricated Metal Products	Basic Metals	Medium-Low Tech
29	Machinery and Equipment, n.e.c	Basic Metals	Medium-High Tech
30	Office, Accounting and Computing	Office, Accounting and	ICT

	Machinery	Computing Machinery	
31	Electrical Machinery and Apparatus n.e.c	Electrical Machinery and Apparatus n.e.c	Medium-High Tech
32	Radio, TV and Communication Equipment	Rubber and Plastics Products	ICT
33	Medical, Precision and Optical Instruments	Electrical Machinery and Apparatus n.e.c	ICT
34	Motor Vehicles, Trailers and Semi-Trailers	Basic Metals	Medium-High Tech
35	Other Transport Equipment	Other Transport Equipment	Medium-High Tech
36T37	Manufacturing n.e.c; Recycling	Wood and Products of Wood and Cork	Low Tech

Source: OECD analysis based on EU27 input-output table

29. Furthermore, the RCA index for the imports of intermediates of the top supplying industry is calculated. The target industry's RCA indices for the exports of intermediates and final products are also calculated. With these values, each target industry has two pairs: [RCAimp(intermediates), RCAexp(intermediates)] and [RCAimp(intermediates), RCAexp(final)].

30. Going back to the base logic of this methodology, what does it imply to be at the final stage of an international supply chain? In simple terms, in this situation a country would display a high propensity to export final products combined by a high propensity to import the intermediates used by this target industry. In an equivalent manner, a first stage position is determined by low (or no) imports of intermediate inputs and high exports of the target industry's intermediates. In between, being at an intermediate stage of a supply chain is equivalent to a combination of a high proclivity to import intermediate inputs and a high proclivity to export the target industry's intermediates.

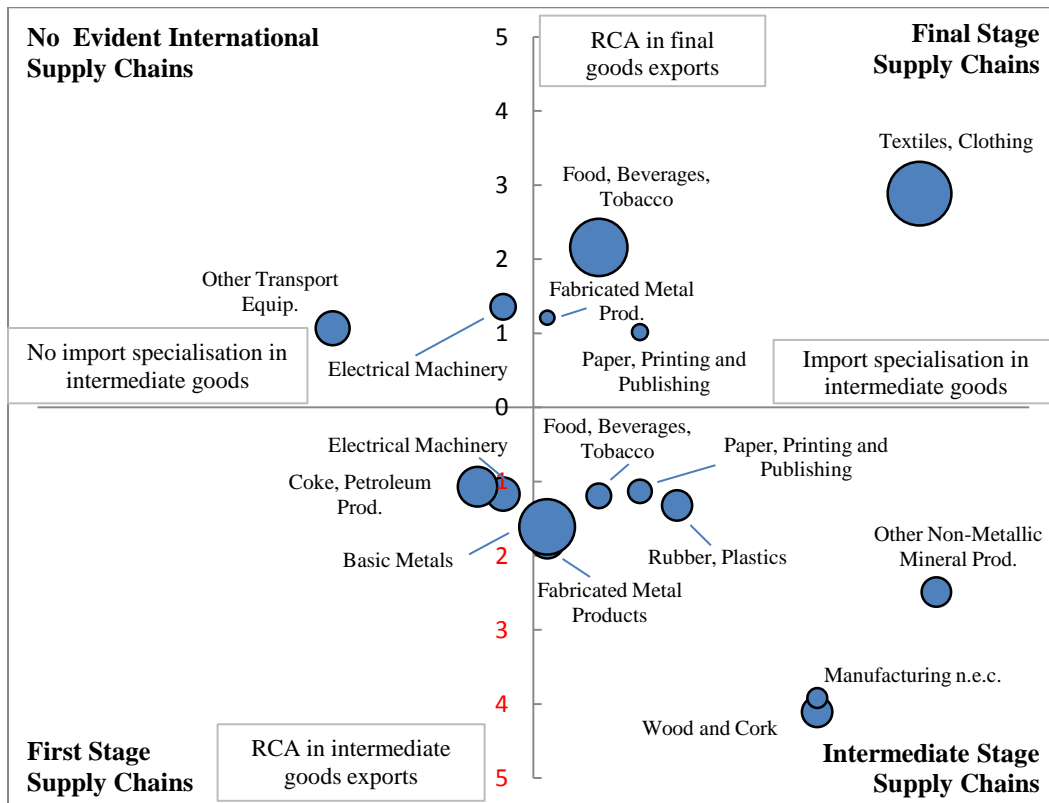
31. In the RCA terminology, the position of countries in international supply chains is then determined as shown in Table 2, with the size of the bubble representing the value of exports:

Table 2. Supply chain matrix framework

<p>No (evidence of) Supply Chains</p> <p>$RCA_{imp}(intermediates) < 1$</p> <p>$RCA_{exp}(final) > 1$</p>	<p>Final Stage in Supply Chains</p> <p>$RCA_{imp}(intermediates) > 1$</p> <p>$RCA_{exp}(final) > 1$</p>
<p>First Stage in Supply Chains</p> <p>$RCA_{imp}(intermediates) < 1$</p> <p>$RCA_{exp}(intermediates) > 1$</p>	<p>Intermediate Stage in Supply Chains</p> <p>$RCA_{imp}(intermediates) > 1$</p> <p>$RCA_{exp}(intermediates) > 1$</p>

32. Figure 8 shows the supply chain matrix for CEFTA 2006. At the level of the entire CEFTA 2006, many manufacturing industries are integrated at various stages in international supply chains. The two largest industries – “Textiles and Clothing” and “Food, Beverages and Tobacco” are integrated at the last stage of the supply chains. While CEFTA 2006 economies are specialised in these industries, given the industries' organisation it can signal that little value is captured at this final stage. On the other hand, several industries with smaller shares in CEFTA 2006's exports are at first or at intermediate stages of supply chains – examples include the industries of “Basic Metals”, “Fabricated Metal Products”, “Coke and Petroleum” and “Wood and Cork”.

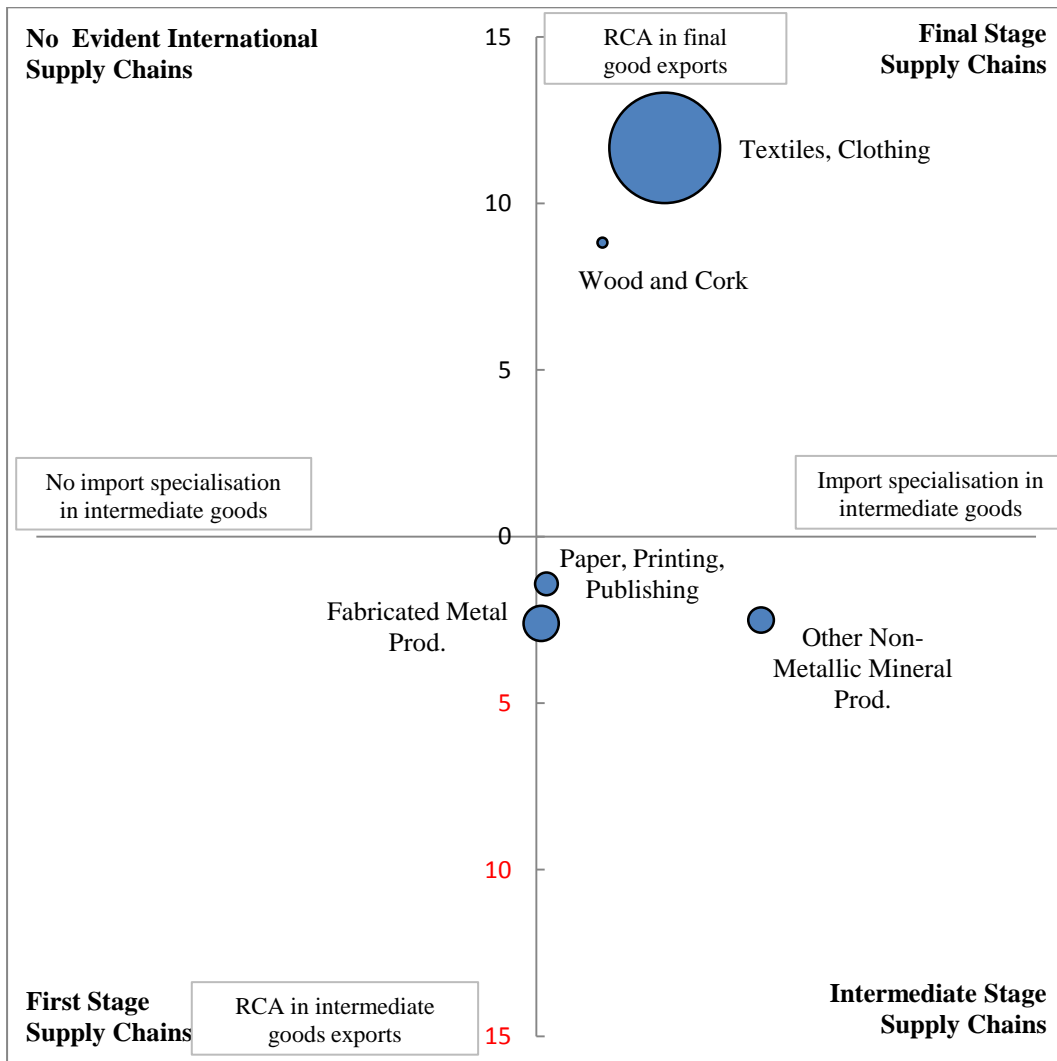
Figure 8. Export competitiveness and integration into supply chains: CEFTA 2006



Source: OECD calculations based on data from the OECD BTDiXE Database

33. Table 6 in Annex I shows that the industries highlighted by the supply chain matrix are integrated to different degrees in intra- and extra-CEFTA 2006 supply chains. While the exports of the “Food, Beverages and Tobacco” and other “Non-Metallic Mineral Products” are distributed equally in the region and outside the region, all other industries export about two-thirds of their intermediate or final goods outside the CEFTA 2006 economies. The most significant case is that of the “Textiles and Clothing” industry, for which only 5% of final goods exports are intra-CEFTA 2006.

Figure 9. Export competitiveness and integration into supply chains: Albania

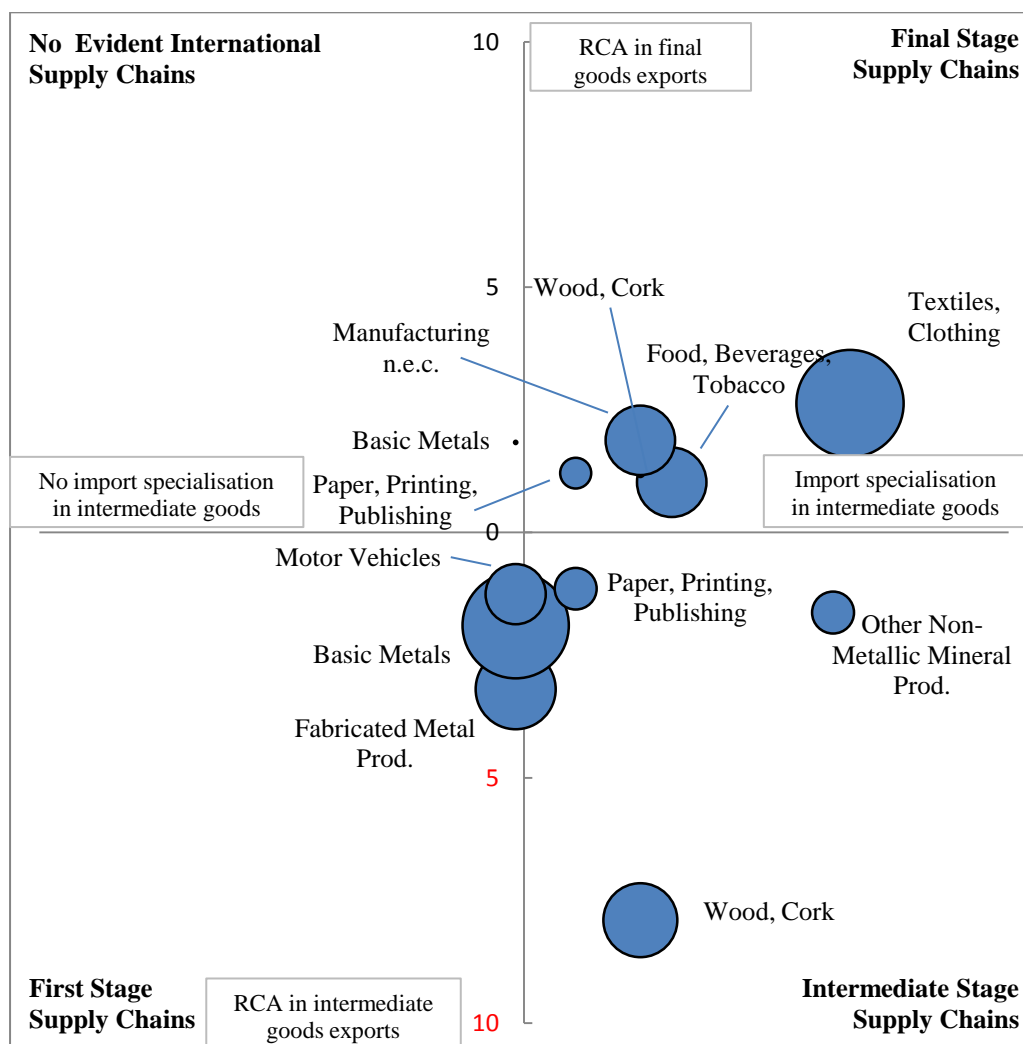


Source: OECD calculations based on data from the OECD BTDiXE Database

34. In the case of Albania (as seen in Figure 9), the analysis reveals the strong position of the “Textiles and Clothing” industry in the final stage of its supply chain. Being one of the least technology intensive manufacturing industries, integration in the final stage can imply that little value is generated in Albania, despite the significant size of this sector. Other competitive industries captured by the supply chain matrices are also of low technological intensity: the industries of “Other Non-Metallic Mineral Products” and “Fabricated Metal Products” display comparative advantages, while being low or medium-low technology intensive.

35. Table 6 in Annex I reveals that Albania’s integration in intra-CEFTA 2006 supply chains is limited: with the exception of the industry of “Other Non-Metallic Mineral Products” – with 68% intra-CEFTA 2006 exports – all other industries are integrated in extra-CEFTA supply chains, with very limited exports to other CEFTA 2006 economies. Even the largest industry – “Textiles and Clothing” – exports only 8% of its final goods to other CEFTA 2006 parties.

Figure 10. Export competitiveness and integration into supply chains: Bosnia and Herzegovina

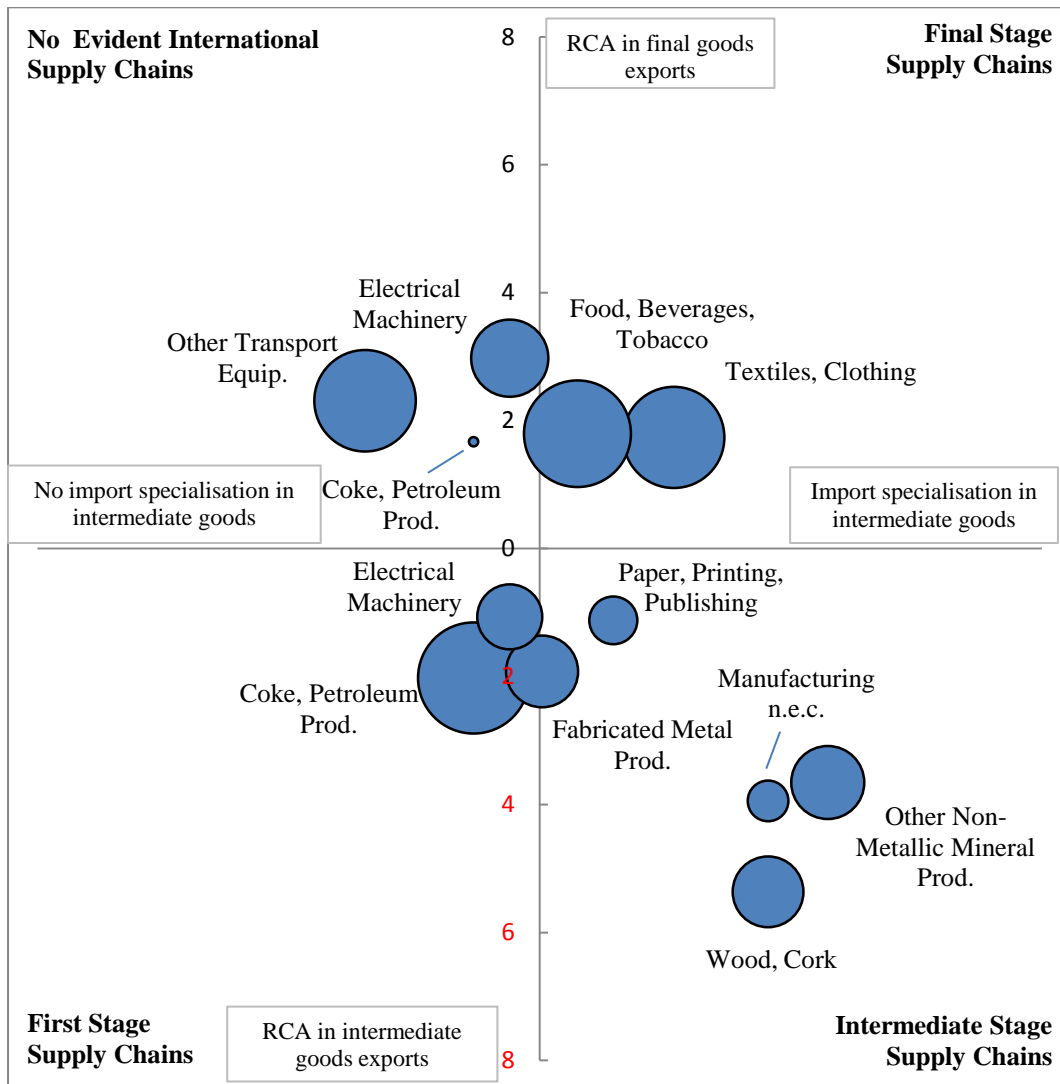


Source: OECD calculations based on data from the OECD BTDiXE Database

36. In Figure 10, Bosnia and Herzegovina, third largest economy of CEFTA 2006, presents a more complex picture: once again the “Textiles and Clothing” and the “Food, Beverages and Tobacco” industries are integrated at the final stage of their respective supply chains, but now alongside the inter-linked industries of “Wood and Cork” and “Paper, Printing and Publishing”. Bosnia and Herzegovina’s natural endowment of wood also results in the country’s position in intermediates stages of supply chains for “Wood and Cork” and “Paper, Printing and Publishing” industries. Borderline between first stage and intermediate stage, heavier industries like “Basic Metals”, “Fabricated Metals Products” and “Motor Vehicles” are found.

37. Table 6 in Annex I indicates that Bosnia and Herzegovina is mostly integrated in regional, intra-CEFTA 2006 supply chains. With the exception the “Textiles and Clothing” industry, all other industries export a significant share of their intermediate or final goods to CEFTA 2006 partners. 69% of the “Food, Beverages and Tobacco” final exports, 80% of the “Paper, Printing and Publishing” final exports, 48% of the “Basic Metals” intermediate exports and 44% of the “Wood and Cork” intermediate exports are traded within CEFTA 2006.

Figure 11. Export competitiveness and integration into supply chains: Croatia

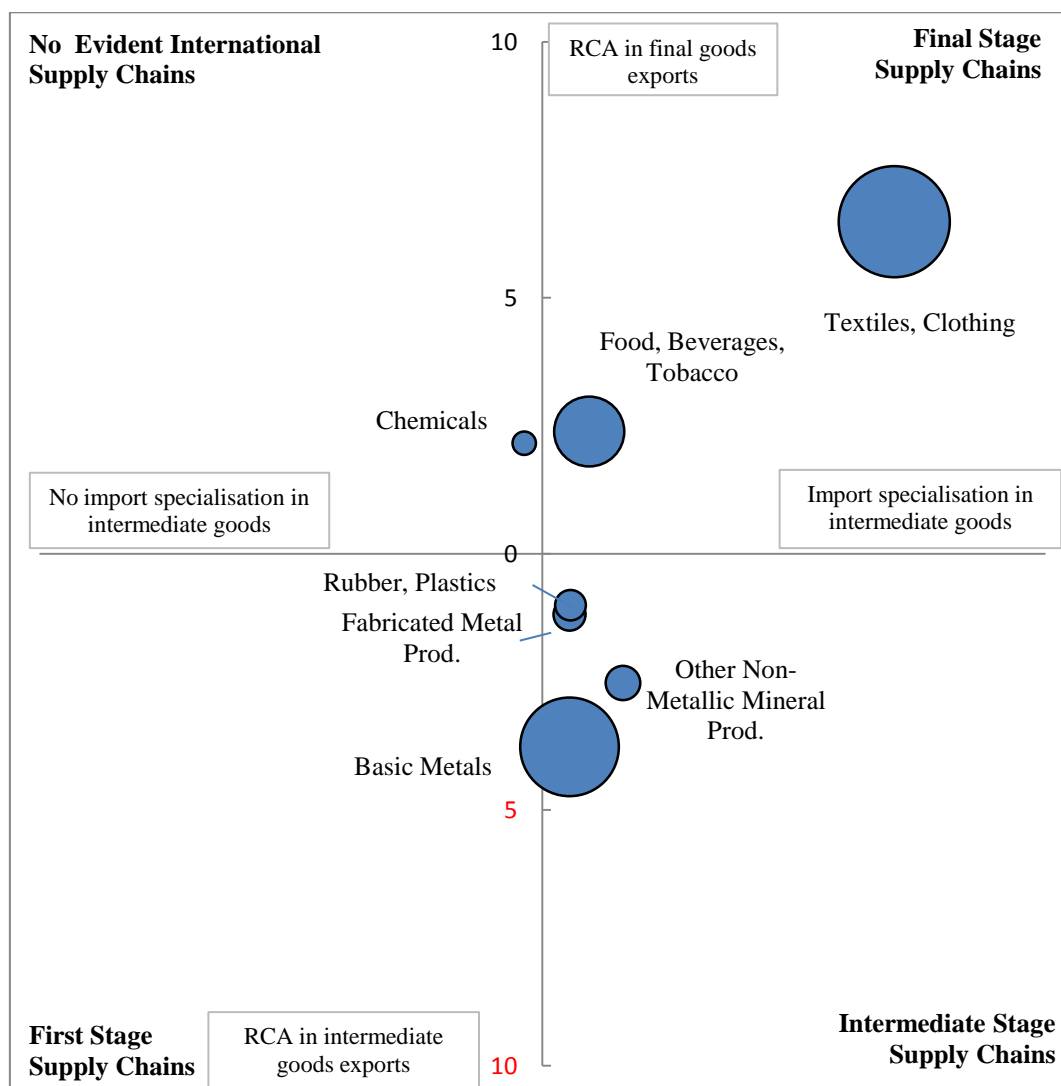


Source: OECD calculations based on data from the OECD BTDixE Database

38. As other CEFTA economies, Croatia is integrated into the final stages of the supply chains in “Food, Beverages and Tobacco” and in “Textiles and Clothing” (presented above in Figure 11). Nevertheless, the rest of the picture is more varied and more technologically sophisticated when compared with the other CEFTA 2006 economies. The more technology intensive industry of “Electrical Machinery” – with a clear revealed comparative advantage – is integrated at the first stages of international supply chains. “Wood and Cork”, “Other Non-Metallic Mineral Products”, “Paper, Printing and Publishing” and “Other Manufacturing” are clearly positioned in intermediate stages of supply chains, while the industry of “Coke and Refined Petroleum” is found at the first stages.

39. Croatia is arguably integrated in both regional and international supply chains. Table 6 in Annex I shows that some of its largest industries – “Food, Beverages and Tobacco”, “Other Non-Metallic Mineral Products”, “Coke and Petroleum Products” – export in equal volumes to both CEFTA 2006 and non-CEFTA 2006 partners. On the other hand, the rather large “Textiles and Clothing” industry is mostly integrated in international supply chains, with only 5% of exports of final goods reaching an intra-CEFTA 2006 destination.

Figure 12. Export competitiveness and integration into supply chains: FYR Macedonia

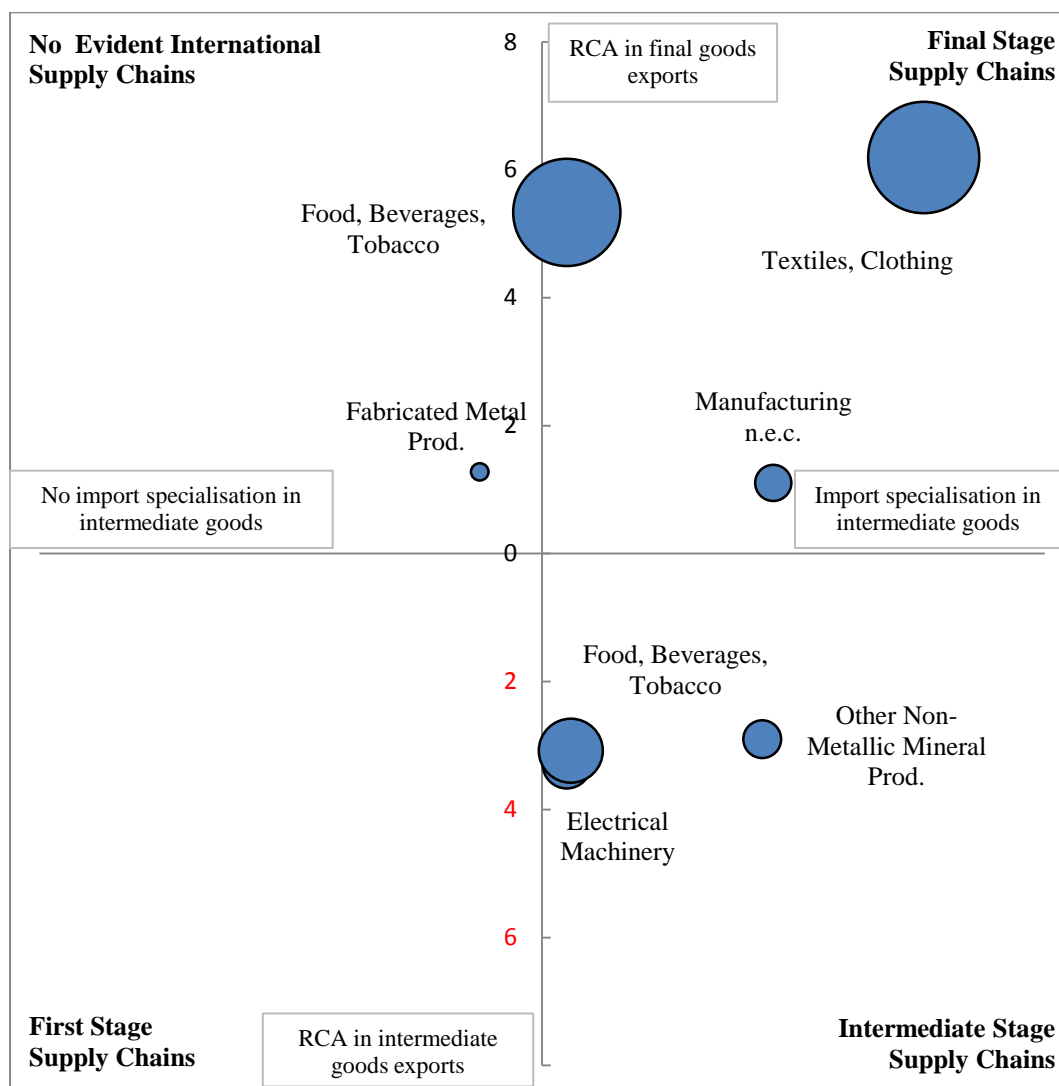


Source: OECD calculations based on data from the OECD BTDixE Database

40. Figure 12 shows that the FYR Macedonia does not depart from the regional picture, being positioned in the final stages of the “Textiles and Clothing” and “Food, Beverages and Tobacco” supply chains. The remaining export competitive industries identified by the analysis are found at intermediate stages of supply chains: “Other Non-Metallic Mineral Products”, “Basic Metals”, “Fabricated Metals Products” and “Rubber and Plastics”.

41. The FYR Macedonia presents arguably the highest level of integration in intra-CEFTA 2006 supply chains – jointly with Bosnia and Herzegovina. With the exception of the “Textiles and Clothing” industry, whose most of the exports are directed to non-CEFTA 2006 economies, all other industries are exporting to a large degree to destinations within CEFTA 2006. This applies to 83% of the “Food, Beverages and Tobacco” exports, 62% of the “Rubber and Plastics” exports and 57% of the exports of “Fabricated Metal Products”.

Figure 13. Export competitiveness and integration into supply chains: Moldova

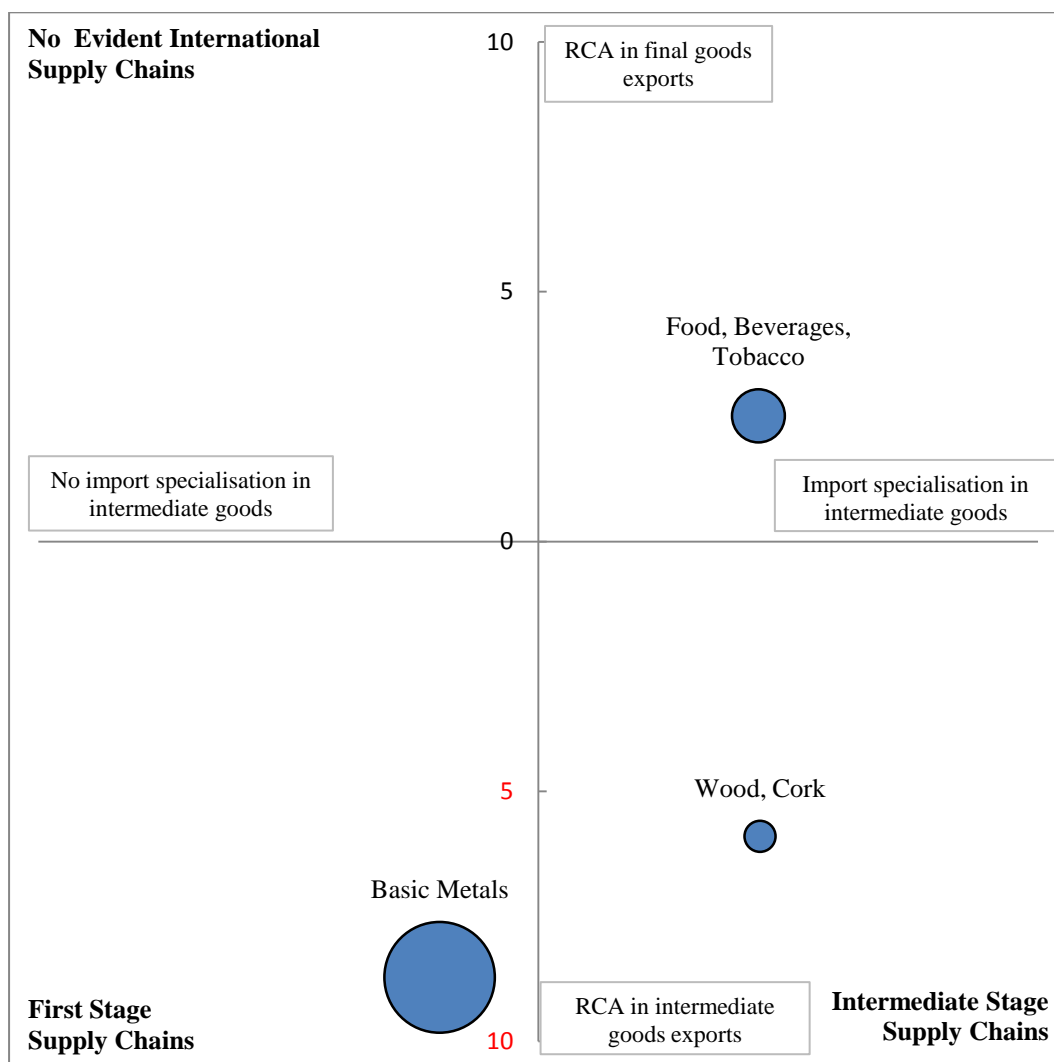


Source: OECD calculations based on data from the OECD BTDixE Database

42. As Figure 13 details, Moldova supports the pattern of integration in supply chains of CEFTA 2006: “Textiles and Clothing” and “Food, Beverages and Tobacco”, making use of imported intermediates to successfully export final goods, positioning these industries at the final stages of their respective supply chains. Moldova’s “Food, Beverages and Tobacco” industry is also positioned at intermediate stages in supply chains, alongside the industries of “Electrical Machinery” and “Other Non-Metallic Mineral Products”.

43. Distance plays a role in Moldova’s reduced volume of intra-CEFTA 2006 trade and also in its integration in supply chains with other CEFTA 2006 economies. Table 6 in Annex I shows that the exports of the industries identified in the supply chains matrix to CEFTA 2006 partners are virtually zero, even for Moldova’s two largest industries – “Food, Beverages and Tobacco” and “Textiles and Clothing”.

Figure 14. Export competitiveness and integration into supply chains: Montenegro

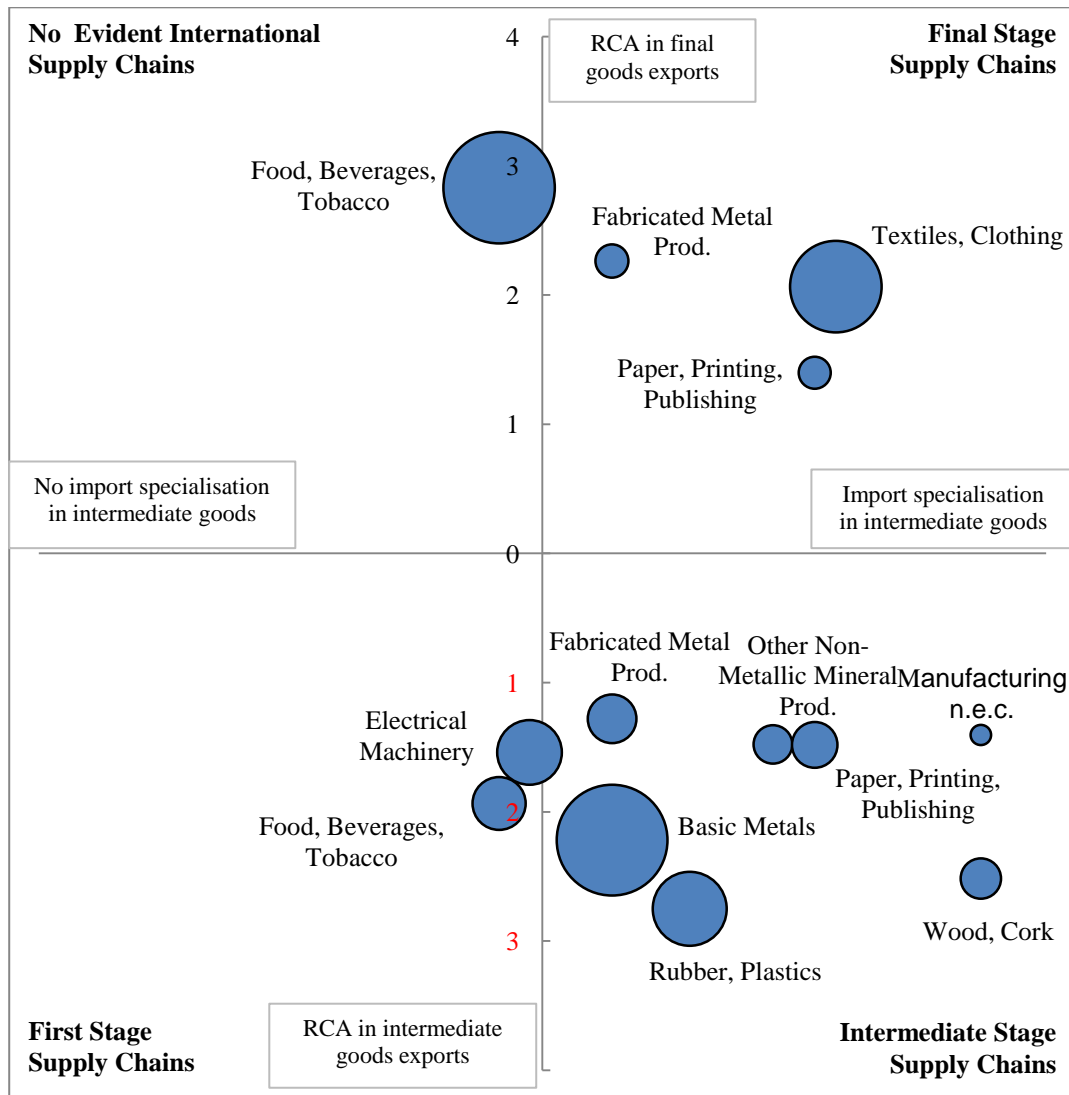


Source: OECD calculations based on data from the OECD BTDIxE Database

44. The small economy of Montenegro presents only three significant industries integrated in international supply chains (as detailed in Figure 14). As the rest of its peers, Montenegro is integrated in the final stage of the supply chain of the “Food, Beverages and Tobacco” industry. At the other extreme, the rather large “Basic Metals” industry makes use of domestic intermediates to produce further intermediates, in whose export it has a competitive advantage, positioning the industry in the first stages of its supply chain. With a limited scope, the industry of “Wood and Cork” is present at an intermediate stage in international supply chains.

45. Table 6 in Annex I reveals that Montenegro’s industries are mostly integrated in intra-CEFTA 2006 supply chains. 83% of the final goods exports of the “Food, Beverages and Tobacco” industry are directed to the other CEFTA 2006 partners; the same holds true for 75% of the intermediate good exports of the “Basic Metals” industry. Less integrated is the “Basic Metals” industry, whose only 31% exports reach an intra-CEFTA destination.

Figure 15. Export competitiveness and integration into supply chains: Serbia



Source: OECD calculations based on data from the OECD BTDIxE Database

46. Figure 15 shows that Serbia, CEFTA 2006’s largest country, also presents a more developed picture: while it is positioned similarly to other regional peers at the final stage of the supply chain in the low-technology industry “Textiles and Clothing”, the “Food, Beverages and Tobacco” industry presents no clear evidence of integration in supply chains, partially indicating a link between a strong domestic agriculture that turns its products directly into final goods that then compete successfully on international markets. This observation is further substantiated by the presence of the “Food, Beverages and Tobacco” industry at the first stage of the supply chain. At the intermediate stages of international supply chains, Serbia presents numerous industries - all low or medium-low technology – the largest being the heavy industries of “Basic Metals” and “Rubber and Plastics”.

47. Table 6 in Annex I shows that Serbia exhibits integration in both intra- and extra-CEFTA 2006 supply chains, with slightly more exports directed non-CEFTA 2006 partners. The “Food, Beverages and Tobacco” industry exports around 50% of both intermediate and final good to CEFTA 2006 economies. The “Basic Metals” industry is integrated less in intra-CEFTA 2006 supply chains, with only 14% of

exports of intermediates reaching CEFTA 2006 economies. The remaining industries fluctuate around the mid-point, supporting the argument of Serbia's balanced integration in international and regional supply chains.

Integration into supply chains by industry

48. To complement the country-wise assessment, the integration of CEFTA economies into supply chains is assessed from the industry perspective. Table 3 indicates by industry the respective supply chain position of CEFTA economies. For instance, it shows that in the industry "Food, Beverages and Tobacco", CEFTA economies cover the entire spectrum of the supply chain. Serbia is positioned at the first stage of the chain, Moldova at the intermediate stage and five countries, Bosnia and Herzegovina, Croatia, Moldova, the FYR Macedonia and Montenegro at the final stage. As mentioned in the analysis by country, the "Food, Beverages and Tobacco" supply chain has a rather strong regional component compared to other supply chains where international markets are more important.

49. "Basic Metals" are by nature almost exclusively intermediate goods and often used as an input for "Fabricated Metal Products". Hence, it makes sense to assess these two industries as one industry group. Table 3 shows that for such a combined "Metals" supply chain, CEFTA economies cover all stages. In "Basic Metals", Bosnia and Herzegovina and Montenegro are positioned at the first stage meaning that they are not specialised in importing basic metals but are specialised and competitive in exporting them. On the other hand, the FYR Macedonia and Serbia are located at the intermediate stage, being specialised in both intermediate imports and exports of basic metals at the same time. The same two countries plus Albania and Croatia are also positioned at intermediate stages for "Fabricated Metal Products". Finally, Serbia, is also competitive and well integrated at the final stage. Compared to the industry "Food, Beverages and Tobacco", the "Metals" supply chains is more oriented towards international markets as about a third of final and intermediate goods exports go to countries outside CEFTA 2006.

50. While CEFTA economies tend to be well integrated into low and medium-low technology supply chains, they have not yet achieved successful integration into most supply chains of medium-high and ICT industries, as summarised by Table 3. For instance, in the supply chains of the ICT industries "Office, Computers", "Radio, TV and Communication", "Medical Instruments" as well as in the medium-high technology industries "Other Transport Equipment" and "Chemicals" no CEFTA economy is well integrated as captured by the supply chain matrix.

Table 3. Position of countries in industry supply chains

Industry	First stage	Intermediate stages	Final stages
Food, Beverages and Tobacco	SRB	MDA	BIH, HRV, MKD, MDA, MNE
Textiles, Clothing			ALB, BIH, HRV, MKD, MDA, SRB
Wood and Cork		BIH, HRV, MNE, SRB	ALB, BIH
Paper, Printing and Publishing		ALB, BIH, HRV, SRB	BIH, SRB
Coke, Petroleum Products	HRV		
Chemicals			
Rubber and Plastics		MKD, SRB	
Other Non-Metallic Mineral Prod.		ALB, BIH, HRV, MKD, MDA, SRB	
Basic Metals	BIH, MNE	MKD, SRB	
Fabricated Metal Products	BIH	ALB, HRV, MKD, SRB	SRB
Machinery and Equipment, n.e.c			
Office, Computers			
Electrical Machinery n.e.c	HRV, SRB	MDA	
Radio, TV and Communication			
Medical, Instruments			
Motor Vehicles, Trailers	BIH		
Other Transport Equipment			
Manufacturing n.e.c; Recycling		HRV, SRB	BIH, MDA

51. As already mentioned, while revealed comparative advantage and the supply chain matrix provide some indication on the position of CEFTA economies in international supply chains, the methodology does not give insight into how much value is actually created domestically at the different stages of the supply chain. From a perspective on domestic value added, it will depend on the industry characteristics whether more value is created at initial, intermediate or final stages. For instance, in many ICT products such as smartphones, most value is incorporated in intermediate inputs such as the display, the processor or design and engineering services as well as in marketing and retail margins while the pure assembly of the smartphone and its consequent does not add much value.

CONCLUSIONS

52. This study analysed the integration of CEFTA 2006 economies in international supply chains based on trade flows of intermediate goods and final goods. Intermediate goods have been an important driver of overall export growth in CEFTA economies and accounted for 59% of manufacturing exports in 2010, even more compared to 55% in EU27 countries.

53. Total CEFTA exports are highest in the low technology industries “Textiles, Clothing” and in “Food, Beverages and Tobacco” consisting however mostly of final goods. On the other hand, intermediate goods exports are highest in the medium-low technology industries “Basic Metals” and “Fabricated Metal Products”. CEFTA economies export more than 70% of their products to countries outside their free trade agreement. However, there is a large variation in the share of intra-CEFTA exports between industries, between countries and also between final and intermediate goods therein.

54. CEFTA economies are most specialised and hence most competitive in intermediate and final goods exports in low-technology industries and in intermediate goods exports in medium-low technology industries. Not surprisingly, the more advanced EU27 countries tend to be specialised in intermediate and final goods exports in medium-high technology industries.

55. The measure of revealed comparative advantage and input-output linkages are used to indicate the export competitiveness and the integration of a country’s industry in international supply chains. In particular, the export specialisation of an industry is linked to the import specialisation in intermediate goods of the industry’s most important supplying industry. The resulting supply chain matrix provides an indication on whether a country is integrated at the first stage, intermediate stage or final stage of a supply chain.

56. In line with their export competitiveness, CEFTA economies are most heavily integrated in the supply chains of the low technology industries “Food, Beverages and Tobacco” and “Textiles, Clothing” and in the supply chains of the medium-low technology industries “Basic Metals” and “Fabricated Metal Products”. In particular, the different CEFTA economies cover the entire supply chain in the industries “Food, Beverages and Tobacco”, “Basic Metals” and “Fabricated Metal Products”. In the “Food, Beverages and Tobacco” chain, CEFTA economies are mostly integrated at the final stage, while in the supply chain related to the two metal industries, CEFTA economies are positioned mostly at intermediate stages.

57. The integration of CEFTA economies at various stages of the supply chains highlights interdependence of countries and complementarities in production. While CEFTA economies are of course in many instances competitors on export markets, policy makers should be aware and take advantage of the fact that domestic companies can improve their productivity by relying on imported intermediates and that intermediate goods produced in different CEFTA economies can be complements in supply chains.

58. Depending on the industry, supply chains tend to be regional, i.e. intra-CEFTA or international, i.e. extra-CEFTA. The supply chain in the industry “Food, Beverages and Tobacco” has a significant regional aspect as 43% of intermediate goods exports are intra-CEFTA. On the other hand, the “Basic Metals” supply chains are more internationally organised as more than 70% of intermediate goods exports of CEFTA economies go to countries outside CEFTA 2006.

59. While the methodology used in this paper allows indicating the position of countries in international supply chains, it does not allow indicating the extent to which countries add value at their stage of the chain. For instance, CEFTA countries are successfully integrated at the final stage of the “Textiles, Clothing” chain exporting high values of final products to consumers outside CEFTA. However, in the “Textiles, Clothing” industry most value is typically created at intermediate stages related to the design of the product and at the final stages related to wholesale and retail distribution. Hence, it can be questioned whether CEFTA economies actually capture much value added in the “Textiles, Clothing” chain.

60. While this study indicates the position of countries in supply chains in various industries, future analysis could go into more detail for specific industries and assess the value added content of the activities carried out. More detailed analysis of this kind can help policy makers identify the possibilities of businesses to move up the value chain. For instance, do businesses have the capacities to move into more lucrative segments of the value chain or should policy rather support the integration into currently under-developed supply chains such as high-technology industries where supposedly more value is created? A related issue for policy makers to consider is whether and how foreign direct investment can support the movement of CEFTA economies towards higher value added activities.

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ANNEX I - TABLES

Table 4. Industry exports (in 1000 EUR) and share of intermediate goods by economy in 2009

Industry	EU27		CEFTA		Albania		BIH		Croatia		Moldova		FYR Macedonia		Montenegro		Serbia	
	exports	% int.	exports	% int.	exports	% int.	exports	% int.	exports	% int.	exports	% int.	exports	% int.	exports	% int.	exports	% int.
Food, Beverages and Tobacco	239,087,539	18	2,409,055	15	36,066	21	177,576	21	718,935	11	237,229	17	219,833	11	36,983	9	982,433	18
Textiles, Clothing	149,637,837	24	2,706,418	7	370,332	1	358,635	7	648,930	11	221,068	4	514,113	4	1,943	3	591,398	8
Wood and Cork	27,726,694	98	579,186	99	6,993	59	161,375	99	284,639	99	1,829	100	6,559	95	11,648	100	106,143	99
Paper, Printing and Publishing	98,564,874	65	503,176	68	16,499	94	77,913	65	185,999	69	5,161	59	12,647	68	4,200	54	200,757	67
Coke, Petroleum Products	115,970,368	98	972,236	100	8,935	100	122,438	100	698,727	99	3,900	100	15,759	100	5,399	100	117,078	100
Chemicals	377,204,892	87	996,164	80	4,451	94	114,407	90	474,108	85	11,679	60	79,862	45	2,617	60	309,039	79
Rubber and Plastics	100,702,560	82	619,113	91	6,973	81	56,228	89	126,886	82	17,205	83	38,931	96	617	88	372,273	95
Other Non-Metallic Mineral Prod.	47,257,961	89	549,630	98	20,355	95	52,189	98	306,305	98	24,584	100	47,546	100	864	97	97,786	98
Basic Metals	157,197,274	100	1,912,097	100	39,562	100	326,634	100	217,762	100	2,456	100	388,303	100	146,694	100	790,687	100
Fabricated Metal Products	96,874,894	79	848,867	85	37,647	99	197,196	94	326,228	89	14,678	64	43,297	95	5,324	91	224,497	68
Machinery and Equipment, n.e.c	355,072,831	39	1,229,991	40	6,962	17	163,456	55	596,388	44	23,978	35	48,169	40	21,376	28	369,661	29
Office, Computers	75,354,640	42	123,524	44	2,886	83	2,832	47	48,144	36	867	33	3,297	17	472	29	65,025	50
Electrical Machinery n.e.c	140,208,044	69	1,084,699	63	19,685	61	71,485	90	570,279	41	71,704	98	36,660	80	915	77	313,970	86
Radio, TV and Communication	115,463,685	49	311,319	57	3,986	12	3,591	55	201,266	76	3,879	81	3,794	73	981	21	93,821	15
Medical, Instruments	112,275,259	21	163,681	16	1,152	28	11,917	7	83,327	11	7,907	23	10,645	64	280	24	48,453	14
Motor Vehicles, Trailers	338,019,566	36	448,000	79	2,357	25	114,388	92	157,406	81	6,507	13	13,069	86	2,646	12	151,627	71
Other Transport Equipment	138,576,174	32	800,169	12	502	85	25,167	16	643,694	10	4,380	43	6,244	69	2,824	37	117,358	14
Manufacturing n.e.c; Recycling	90,946,655	11	703,856	35	16,102	9	261,385	46	246,881	38	24,137	7	20,023	8	1,102	1	134,225	20
ICT	303,093,584	37	598,524	43	8,024	40	18,341	23	332,737	54	12,653	41	17,736	57	1,733	24	207,300	26
Medium-high	1,349,081,508	54	4,559,022	53	33,957	54	488,903	75	2,441,874	45	118,250	75	184,004	55	30,378	32	1,261,655	59
Medium-low	518,003,056	91	4,901,943	96	113,472	98	754,684	97	1,675,907	96	62,824	87	533,835	99	158,899	100	1,602,321	94
Low	605,963,599	30	6,901,691	25	445,993	8	1,036,883	38	2,085,385	31	489,423	11	773,175	8	55,875	31	2,014,956	25

Source: OECD BTDiXE Database

Table 5. Industry imports (in 1000 EUR) and share of intermediate goods by economy in 2009

Industry	EU27		CEFTA		Albania		BIH		Croatia		Moldova		FYR Macedonia		Montenegro		Serbia	
	imports	% int.	imports	% int.	imports	% int.	imports	% int.	imports	% int.	imports	% int.	imports	% int.	imports	% int.	imports	% int.
Food, Beverages and Tobacco	232,617,356	22	3,928,802	20	404,409	13	877,493	20	1,180,447	22	288,831	15	403,878	23	320,655	16	453,089	25
Textiles, Clothing	195,778,315	16	3,163,039	41	339,480	42	499,279	44	1,039,291	27	198,740	58	376,984	76	84,959	5	624,306	38
Wood and Cork	25,872,327	94	594,257	98	51,626	98	69,546	98	195,226	97	43,736	99	47,163	99	23,321	98	163,639	99
Paper, Printing and Publishing	86,154,317	65	1,363,423	63	92,124	65	192,117	60	485,220	58	65,187	63	99,215	69	47,329	37	382,230	71
Coke, Petroleum Products	119,298,630	99	2,007,798	100	244,124	100	365,771	100	500,672	100	281,904	100	70,063	100	136,674	100	408,591	100
Chemicals	341,894,520	88	3,744,327	75	189,672	64	485,975	69	1,282,973	76	182,246	58	290,493	77	104,263	61	1,208,705	82
Rubber and Plastics	93,569,743	80	1,511,836	87	92,435	84	235,971	87	565,946	85	117,671	90	117,823	88	58,925	85	323,066	88
Other Non-Metallic Mineral Prod.	39,221,662	86	1,147,172	93	183,857	96	183,501	95	348,183	92	69,595	91	85,273	95	92,716	96	184,047	92
Basic Metals	153,794,297	100	2,473,063	100	217,485	100	323,793	100	865,098	100	66,360	100	289,844	100	62,981	100	647,502	100
Fabricated Metal Products	81,712,054	77	1,519,793	79	151,652	85	227,886	75	624,306	80	69,501	66	82,616	76	72,313	84	291,521	79
Machinery and Equipment, n.e.c	240,762,879	41	3,840,005	24	258,650	26	523,731	29	1,673,628	24	146,265	16	275,326	21	124,467	25	837,938	21
Office, Computers	104,124,034	38	733,483	28	58,730	24	71,720	25	286,608	29	15,463	17	70,022	19	21,459	20	209,481	33
Electrical Machinery n.e.c	115,564,376	70	1,331,000	73	116,013	77	165,049	72	496,019	72	88,774	86	79,951	71	64,081	75	321,112	71
Radio, TV and Communication	148,007,048	51	1,052,795	35	85,809	38	92,958	27	441,880	44	69,938	40	100,418	29	31,893	39	229,900	19
Medical, Instruments	101,716,817	23	782,511	15	40,720	14	92,463	17	298,947	16	41,838	12	65,814	10	30,043	10	212,687	16
Motor Vehicles, Trailers	285,659,545	38	2,373,006	15	198,415	8	364,829	19	895,234	16	100,933	18	204,327	8	83,105	10	526,163	18
Other Transport Equipment	121,809,881	38	663,341	15	11,345	31	28,941	15	420,486	14	7,505	45	53,747	5	30,689	7	110,628	22
Manufacturing n.e.c; Recycling	98,674,795	10	1,053,552	10	63,923	11	120,507	13	439,087	8	63,370	13	151,264	11	58,340	3	157,063	10
ICT	353,847,898	39	2,568,789	27	185,258	28	257,142	23	1,027,435	32	127,238	28	236,253	21	83,395	24	652,068	23
Medium-high	1,105,691,201	58	11,951,679	43	774,095	38	1,568,525	43	4,768,340	41	525,723	43	903,844	40	406,605	38	3,004,547	51
Medium-low	487,596,386	91	8,659,663	93	889,553	95	1,336,921	93	2,904,205	92	605,031	93	645,618	94	423,609	94	1,854,726	94
Low	639,097,111	27	10,103,072	36	951,562	33	1,758,942	34	3,339,272	32	659,863	38	1,078,504	48	534,603	18	1,780,327	45

Source: OECD calculations based on the OECD BTDIxE Database

Table 6. Exports of intermediate and final goods (in 1000 EUR) and share of intra-CEFTA exports by CEFTA economy in 2009

	End-use	CEFTA		Albania		BIH		Croatia		Moldova		FYR Macedonia		Montenegro		Serbia	
		exports	% intra	exports	% intra	exports	% intra	exports	% intra	exports	% intra	exports	% intra	exports	% intra	exports	% intra
Food, Beverages and Tobacco	final	2,016,013	50	28,453	5	138,987	69	641,007	52	196,903	1	194,764	70	33,594	83	782,305	54
Food, Beverages and Tobacco	interm.	371,641	43	7,613	8	37,658	33	77,209	54	40,248	4	24,467	34	3,375	97	181,072	51
Textiles, Clothing	final	2,513,168	5	363,644	0	332,957	5	574,374	5	209,052	0	489,468	3	1,880	55	541,794	14
Textiles, Clothing	interm.	176,234	13	5,476	3	24,856	6	72,074	7	8,763	0	21,110	21	63	95	43,893	27
Wood and Cork	final	7,316	9	2,838	0	1,523	17	1,626	10	2	1	338	2	8	72	981	22
Wood and Cork	interm.	564,646	24	4,156	2	158,509	44	278,211	11	1,750	0	6,220	18	11,640	75	104,161	21
Paper, Printing and Publishing	final	159,423	64	1,059	18	27,532	80	57,017	52	2,132	0	4,001	65	1,932	93	65,751	69
Paper, Printing and Publishing	interm.	344,435	31	16,766	1	50,372	40	128,702	30	3,028	0	8,639	67	2,267	98	134,661	31
Coke, Petroleum Products	final	4,712	0	0	0	0	0	4,712	0	0	0	0	0	0	0	0	0
Coke, Petroleum Products	interm.	967,229	39	8,927	47	122,261	63	693,908	38	3,900	0	15,759	87	5,399	2	117,076	22
Chemicals	final	196,228	63	268	23	10,978	42	69,726	61	4,630	0	43,560	81	1,060	100	66,005	62
Chemicals	interm.	796,925	31	4,149	23	103,065	27	403,066	23	7,030	0	36,321	58	1,557	96	241,737	40
Rubber and Plastics	final	54,313	34	1,309	20	6,353	36	22,560	20	2,865	0	1,708	59	72	98	19,447	53
Rubber and Plastics	interm.	559,263	29	5,663	9	46,848	50	104,399	34	14,383	0	37,062	62	544	83	350,363	22
Other Non-Metallic Mineral Prod.	final	10,353	33	974	2	898	62	6,601	21	8	0	153	77	24	98	1,695	74
Other Non-Metallic Mineral Prod.	interm.	540,148	53	19,381	68	51,236	95	300,648	47	24,589	1	47,365	53	840	69	96,089	58
Basic Metals	final	525	0	0	0	293	0	232	0	0	0	0	0	0	0	0	0
Basic Metals	interm.	1,860,610	26	39,490	20	325,804	48	213,937	12	2,304	1	355,638	36	146,694	31	776,743	14
Fabricated Metal Products	final	125,061	31	412	12	11,702	26	35,242	37	5,196	0	2,147	45	473	57	69,889	30
Fabricated Metal Products	interm.	717,689	29	37,235	1	182,459	38	291,838	15	8,746	0	41,129	57	4,845	58	151,437	45
Machinery and Equipment, n.e.c	final	719,068	24	5,731	6	73,516	22	320,142	14	15,610	3	28,347	34	15,359	33	260,361	37
Machinery and Equipment, n.e.c	interm.	492,096	13	1,187	16	89,615	7	264,205	8	8,338	2	19,226	41	6,049	19	103,477	27
Office, Computers	final	69,330	62	484	45	1,510	31	30,987	60	577	0	2,730	54	333	78	32,709	68
Office, Computers	interm.	47,088	41	2,380	39	1,322	37	17,056	56	288	0	573	38	139	38	25,331	32
Electrical Machinery n.e.c	final	402,020	15	7,678	3	7,201	27	334,517	12	992	0	7,218	68	207	60	44,207	28
Electrical Machinery n.e.c	interm.	679,892	18	11,828	5	63,971	29	234,567	18	70,371	0	29,436	46	708	93	269,010	16
Radio, TV and Communication	final	130,124	18	3,490	6	1,604	37	46,955	18	744	0	1,032	41	776	10	75,523	18
Radio, TV and Communication	interm.	176,250	5	494	12	1,987	19	153,743	4	3,133	0	2,733	9	197	14	13,962	17
Medical, Instruments	final	137,164	25	826	5	11,028	12	73,759	12	6,084	0	3,830	34	211	69	41,425	54
Medical, Instruments	interm.	26,219	17	325	0	855	22	9,350	14	1,823	0	6,816	1	67	18	6,984	41
Motor Vehicles, Trailers	final	94,228	44	1,607	16	9,120	39	29,838	33	5,577	0	1,819	42	2,321	91	43,946	57
Motor Vehicles, Trailers	interm.	362,870	9	366	7	117,709	2	125,123	3	873	0	11,225	24	318	75	107,257	20
Other Transport Equipment	final	706,699	7	74	0	21,110	3	579,359	7	2,081	0	1,910	13	1,785	23	100,380	5
Other Transport Equipment	interm.	92,147	6	415	0	4,050	44	64,216	1	1,131	0	4,308	10	1,038	2	16,989	13
Manufacturing n.e.c.; Recycling	final	450,492	30	14,607	15	138,161	28	149,876	18	22,376	0	18,250	53	1,091	89	106,132	54
Manufacturing n.e.c.; Recycling	interm.	242,723	2	1,494	1	117,932	1	93,428	2	1,750	0	1,698	11	10	79	26,411	10
ICT	final	336,618	30	4,800	10	14,142	17	151,702	24	7,405	0	7,591	42	1,320	37	149,658	39
ICT	interm.	249,557	13	3,199	31	4,164	25	180,149	9	5,244	0	10,121	5	402	23	46,277	29
Medium-high	final	2,118,243	21	15,358	6	121,926	22	1,333,582	13	28,889	2	82,855	61	20,733	43	514,899	35
Medium-high	interm.	2,423,931	19	17,944	10	378,410	15	1,091,177	15	87,742	0	100,518	45	9,669	37	738,470	26
Medium-low	final	194,965	31	2,694	12	19,245	31	69,348	28	8,068	0	4,008	52	570	64	91,032	35
Medium-low	interm.	4,644,939	33	110,696	24	728,607	52	1,604,730	32	53,922	1	496,954	43	158,322	31	1,491,708	23
Low	final	5,146,413	27	410,600	1	639,160	27	1,423,899	29	430,465	0	706,821	23	38,505	82	1,496,963	40
Low	interm.	1,699,679	25	35,505	3	389,327	27	649,623	18	55,539	3	62,133	32	17,355	82	490,197	35

Table 7. Imports of intermediate and final goods (in 1000 EUR) and share of intra-CEFTA exports by CEFTA economy in 2009

	End-use	CEFTA		Albania		BIH		Croatia		Moldova		FYR Macedonia		Montenegro		Serbia	
		imports	% intra	imports	% intra	imports	% intra	imports	% intra	imports	% intra	imports	% intra	imports	% intra	imports	% intra
Food, Beverages and Tobacco	final	3,111,755	30	350,953	7	700,479	59	901,245	12	245,911	0	308,740	33	267,701	66	336,725	32
Food, Beverages and Tobacco	interm.	783,978	19	52,492	15	174,339	32	259,331	6	41,886	0	94,116	26	52,131	62	109,683	13
Textiles, Clothing	final	1,857,371	6	196,220	0	274,924	16	752,027	3	83,971	1	88,327	7	80,663	26	381,239	3
Textiles, Clothing	interm.	1,285,843	1	142,875	0	221,405	4	281,049	2	114,353	0	286,885	1	4,078	23	235,197	2
Wood and Cork	final	11,724	4	823	1	1,458	6	5,938	4	364	0	405	7	520	13	2,217	3
Wood and Cork	interm.	577,940	20	50,672	11	67,015	30	187,954	14	43,019	0	46,195	17	22,722	52	160,362	29
Paper, Printing and Publishing	final	509,246	18	31,803	5	77,092	42	203,146	9	23,939	1	30,797	27	30,159	61	112,311	10
Paper, Printing and Publishing	interm.	851,677	12	60,268	7	114,050	28	281,885	5	41,139	1	68,612	17	17,271	41	268,451	12
Coke, Petroleum Products	final	894	0	0	0	0	0	894	0	0	0	0	0	0	0	0	0
Coke, Petroleum Products	interm.	1,992,534	17	243,744	3	364,432	58	493,082	2	281,650	0	68,698	19	135,677	19	405,252	19
Chemicals	final	911,110	8	67,677	5	148,597	23	299,682	1	76,861	1	65,552	21	40,506	22	212,234	4
Chemicals	interm.	2,754,536	7	120,340	6	330,160	23	955,277	2	101,893	0	220,163	10	63,259	37	963,444	5
Rubber and Plastics	final	201,151	7	14,727	3	30,460	16	84,293	3	11,246	0	13,836	11	8,723	42	37,866	3
Rubber and Plastics	interm.	1,298,524	10	77,442	10	204,320	22	476,959	5	104,715	1	103,961	15	49,957	45	281,170	6
Other Non-Metallic Mineral Prod.	final	73,874	2	7,855	1	10,013	7	27,201	1	6,356	0	4,579	5	3,469	7	14,401	2
Other Non-Metallic Mineral Prod.	interm.	1,065,371	25	175,744	6	172,379	54	317,380	13	63,083	1	80,448	35	89,196	62	167,140	24
Basic Metals	final	2,642	0	0	0	190	0	2,440	0	0	0	0	0	0	0	12	0
Basic Metals	interm.	2,467,070	19	217,485	6	323,753	21	859,676	20	65,999	0	290,478	18	63,099	60	646,581	19
Fabricated Metal Products	final	318,531	10	22,773	6	55,975	25	124,919	5	23,434	0	19,935	12	11,667	40	59,828	8
Fabricated Metal Products	interm.	1,195,747	15	128,846	5	170,620	23	497,014	13	46,031	0	62,744	15	60,827	60	229,666	10
Machinery and Equipment, n.e.c	final	2,874,151	4	190,446	2	370,144	12	1,229,682	2	122,351	0	216,378	8	92,574	13	652,576	3
Machinery and Equipment, n.e.c	interm.	891,062	5	66,466	2	151,551	12	382,118	2	23,767	0	58,048	11	30,896	18	178,216	4
Office, Computers	final	534,627	2	44,719	1	53,391	18	206,953	0	12,898	0	60,025	2	17,447	3	139,195	0
Office, Computers	interm.	209,725	1	13,970	1	18,128	9	86,845	0	2,675	0	14,035	1	4,291	2	69,781	0
Electrical Machinery n.e.c	final	346,680	10	26,817	1	45,008	31	131,426	1	12,055	0	23,648	10	15,894	25	91,832	13
Electrical Machinery n.e.c	interm.	965,275	9	88,696	4	118,202	26	351,287	4	77,105	0	56,150	17	47,811	37	226,025	7
Radio, TV and Communication	final	692,924	1	53,127	0	67,434	4	252,228	0	42,472	0	72,774	0	19,566	0	185,322	0
Radio, TV and Communication	interm.	381,962	1	32,527	0	24,104	11	210,589	0	28,992	0	29,466	0	12,772	1	43,513	1
Medical, Instruments	final	669,684	2	35,176	1	76,642	8	255,677	0	37,022	0	59,357	3	27,122	7	178,687	0
Medical, Instruments	interm.	115,222	1	5,462	0	15,495	6	46,566	1	4,904	0	6,641	2	2,969	7	33,185	0
Motor Vehicles, Trailers	final	1,982,640	1	181,189	0	293,162	2	737,971	0	81,786	0	186,039	0	74,474	4	428,019	0
Motor Vehicles, Trailers	interm.	362,567	6	15,528	1	68,597	12	142,522	6	18,487	0	15,281	6	8,575	8	93,578	4
Other Transport Equipment	final	537,091	9	7,789	1	24,524	22	366,147	10	4,211	0	20,083	1	28,684	2	85,653	2
Other Transport Equipment	interm.	97,830	5	3,543	0	4,431	34	57,470	1	2,999	0	2,489	16	2,017	26	24,881	6
Manufacturing n.e.c; Recycling	final	950,219	12	56,635	4	104,123	24	403,652	9	54,864	0	134,543	8	56,586	43	139,815	13
Manufacturing n.e.c; Recycling	interm.	101,187	4	7,225	0	15,880	11	35,447	2	8,482	0	16,363	3	1,719	31	16,070	6
ICT	final	1,897,234	2	133,022	1	197,467	9	714,858	0	92,392	0	192,157	2	64,135	4	503,203	0
ICT	interm.	706,909	1	51,959	0	57,727	9	344,000	0	36,571	0	50,142	1	20,031	2	146,479	0
Medium-high	final	6,651,672	4	473,918	2	881,435	12	2,764,909	2	297,263	0	511,700	7	252,133	11	1,470,314	3
Medium-high	interm.	5,071,270	7	294,572	4	672,941	20	1,888,673	3	224,252	0	352,130	11	152,557	32	1,486,144	5
Medium-low	final	597,092	8	45,355	4	96,637	20	239,747	4	41,036	0	38,350	11	23,860	36	112,108	6
Medium-low	interm.	8,019,247	17	843,261	5	1,235,505	37	2,644,111	12	561,478	0	606,328	19	398,756	45	1,729,809	16
Low	final	6,440,315	19	636,434	4	1,158,075	44	2,266,009	8	409,050	0	562,812	22	435,629	55	972,306	15
Low	interm.	3,600,624	11	313,531	6	592,689	20	1,045,667	6	248,879	0	512,172	9	97,922	54	789,765	12

