Untapped Potential: Intra-Regional Trade in the Western Balkans

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EUROPEAN ECONOMY

European Commission

Economic and Financial Affairs

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Authorised for publication by Elena Flores, Director for International Economic and Financial Relations, Global Governance.

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Abstract

Strengthening regional economic integration has been set as a priority by the leaders in the Western Balkans. In this context, the paper examines merchandise trade patterns in the region and tries to identify the main drivers of and obstacles to intra-regional trade. Although intra-regional trade comes second in importance, after trade with the EU, it underperformed and was in a relative decline in the last decade. The structure of intra-regional trade has been rather stable and remained concentrated in goods with low value added. The trade of the region with Russia, China and Turkey is less pronounced and is systematically skewed towards imports from them. The results of a gravity model of trade show that intra-regional trade has been positively driven by the level of economic activity and to some degree by cultural factors, like language similarity, while non-tariff barriers significantly reduce trade exchanges between the countries in the region. Contrary to expectations, geographical proximity did not come out as a statistically significant factor impacting trade dynamics in the examined period. Nonetheless, the poor connectivity in the region, attested by a number of indicators and other studies, is a major obstacle to economic development. Therefore, recent initiatives to support regional economic development by reducing non-tariff barriers and improving regional transport corridors seem to be well-placed.

ABBREVIATIONS

CEFTA:	Central European Free Trade Agreement
FDI:	Foreign Direct Investment
IMF:	International Monetary Fund
NTBs:	Non-Tariff Barriers
OECD:	Organisation for Economic Co-operation and Development
SAAs:	Stabilisation and Association Agreements
SOK:	Statistical Office of Kosovo
UN COMTRADE:	United Nations International Trade Statistics Database
WITS:	World Integrated Trade Solution
WTO:	World Trade Organisation

CONTENTS

1. INTRODUCTION

The dissolution of Yugoslavia and the wars in the 1990s shattered economic structures in the Western Balkans. These traumatic events disrupted patterns of production and the movement of goods, capital, and labour which had been established over more than half a century while most of these countries had been part of a single state. After the boom years in early 2000s, the economies in the region went through a sharp adjustment in the wake of the global crisis, marked by reduced or stagnant growth and, as a result, a slowing pace of real convergence towards EU income levels. The growth slowdown triggered reflections about how economic development could be strengthened further in the region, in addition to already existing EU-driven instruments and processes.

This paper aims to shed some light on the merchandise trade links between the six economies in the Western Balkans[1] in the decade since 2007[2]. The motivation is twofold.

First, strengthening regional economic integration has been set as a priority by the leaders of the region, supported also by the EU, with the goal of boosting regional economic development. In the framework of the so-called Berlin process, the Prime Ministers from the Western Balkans have committed to strengthen economic links and foster the free movement of goods, services, capital and skilled workers in the region. This is hoped to consolidate the fragmented economic space in the Western Balkans and enlarge markets so as to generate more trade and make the economies more attractive to investors. Fostering regional economic integration is seen as supplementing these countries' efforts to join the EU[3], building upon previous initiatives, in particular the establishment of the Central European Free Trade Agreement (CEFTA)[4].

Second, while regional integration has become an important discussion topic in public debates about the Western Balkans, there has been relatively little economic research on the potential for enhanced regional trade integration. This stands in sharp contrast with their extensively studied relationship with the EU, which is to some extent understandable given that the EU is by far the number one destination of these countries' exports, a prime source of inward investment, and a place where large diasporas from the Western Balkans have settled through the years.

The paper is organised as follows. The next section examines how intra-regional merchandise trade patterns[5] have evolved between the Western Balkan economies as compared to these countries' overall trade and trade with selected third countries. On the basis of a gravity model of trade, the third section tries to establish which were the key factors influencing merchandise trade between Western Balkan countries in the period 2007-2016. The last section summarises the main findings.

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[1] Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Kosovo* (*this designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ opinion on the Kosovo declaration of independence), Montenegro, and Serbia.

[2] The reference period is chosen in order to capture the pre-crisis peak, to coincide with the entry into force of a major regional trade agreement – CEFTA, and due to data limitations.

[3] Albania, Serbia, Montenegro, and the former Yugoslav Republic of Macedonia are candidates for EU membership, while Kosovo and Bosnia and Herzegovina are potential candidates.

[4] The Central European Free Trade Agreement was amended in December 2006 to create CEFTA 2006. It was signed by Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Moldova, Montenegro, Serbia, and the United Nations Interim Administration Mission on behalf of Kosovo. The agreement entered into force in 2007.

[5] For reasons of data availability, the paper analyses only trade in goods. For Albania and Montenegro services exports play a prominent role and thus an analysis centred on merchandise trade unavoidably provides an incomplete picture.

2. TRADE PATTERNS IN THE WESTERN BALKANS

2.1. A GENERAL OVERVIEW

The economies in the region share some similarities. All Western Balkan economies are very small and still relatively underdeveloped, with average GDP per capita in PPS at approximately one third of the EU level. In addition, they have significant domestic and external imbalances. Importantly, the stock and quality of transport infrastructure – a major trade facilitation factor, in general, is relatively poor (see Graph 2.1)[6]. From some capitals it is actually faster to reach Vienna than another capital in the region[7].
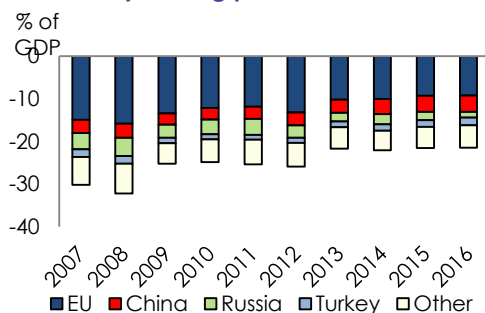
Graph 2.1. **Quality of transport infrastructure**
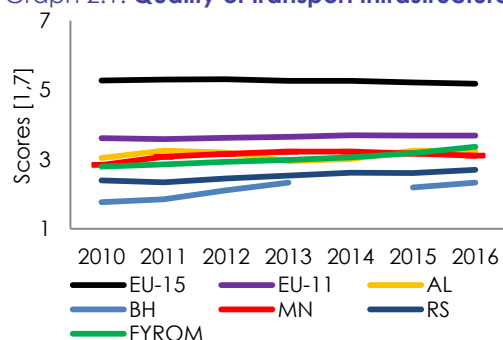
Source: World Economic Forum

In the decade since 2007, growth cycles in the region were highly correlated. This correlation seems to have been largely driven by the similarity in external conditions faced by these countries, which explains the common growth and adjustment pattern in the boom-bust period before and during the global financial crisis. At the same time, growth correlation has weakened in the second half of the decade (see table in Annex I). This decoupling from regional trends is pronounced, in particular, in Albania and Kosovo, which were the only ones to have maintained positive growth rates throughout the examined period. Growth rates in all countries in the region exhibit strong correlation with growth in the EU – their main trading partner. Serbia, which went through several supply driven recessions, Albania in the first half of the period, and Kosovo, which has very limited external economic exchanges, are exceptions to this pattern.

Graph 2.2. **Trade deficits in the Western Balkans, by trading partners**

Source: UN COMTRADE, IMF, SOK

Persistent current account deficits are another common characteristic of all Western Balkan economies. The main source of this vulnerability is large merchandise trade deficits (see Graph 2.2), ranging from around 12 % of GDP in Serbia to 46 % of GDP in Montenegro[8]. Thus, the region still depends, although to a lesser extent in comparison to the pre-crisis period[9], on foreign savings to finance domestic growth and investment. Trade deficits are mainly recorded in trade with the EU. However, with the exception of Kosovo and Montenegro, they have declined both in absolute and in relative terms across all countries over the last decade. The region also runs deficits in its trade with Russia, China and Turkey. However, while trade deficits with China and Turkey were in general on the rise and

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[6] See IMF, 2017, Article IV for Serbia, Annex III.

[7] For example, it is faster to go from Belgrade to Vienna than from Belgrade to Podgorica or to Tirana. On the basis of the data sample used in the model, the average speed of going by car between the capitals in the region is 64km/h. It ranges between 56 km/h for Bosnia and Herzegovina and 72 km/h for Serbia. For comparison, the average speed of going to Vienna from any of the capitals in the region is above 90km/h.

[8] Montenegro runs a significant surplus in services trade due to the outsized role of tourism exports, mitigating to some extent the exceptionally large merchandise trade deficit.

[9] On the pre-crisis growth pattern and the adjustment in the global crisis see European Commission, 2010, *The pre-accession economies in the global crisis: from exogenous to endogenous growth?*, Occasional Paper 62.

by the end of the period went above their pre crisis levels, they fell markedly in the trade with Russia.
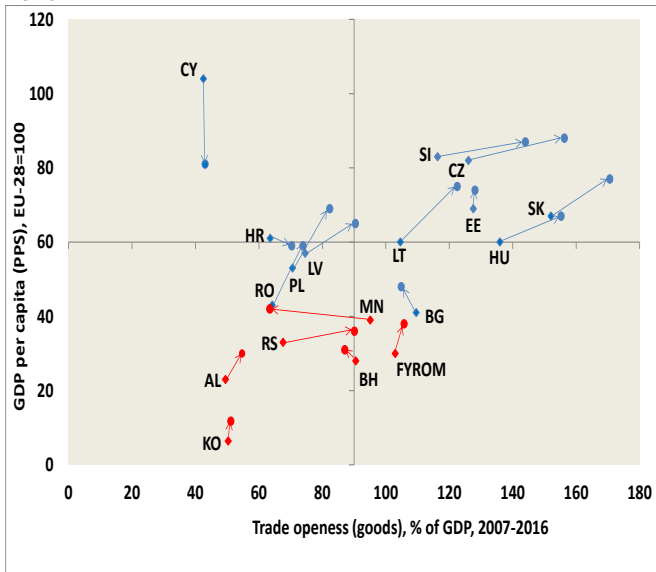
Trade openness in most of the countries is relatively low. Foreign trade expanded unevenly since 2007 (see Graphs 2.4 and 2.5). In the crisis, trade openness, measured as the sum of exports and imports of goods as a share in GDP, fell in all countries. After rebounding quickly afterwards close to its pre-crisis level, trade openness crawled up slightly or stagnated in Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Albania and Kosovo. However, while in the first two countries the level of trade had already been relatively high, Albania and Kosovo remained far less open economies in terms of merchandise trade. Montenegro's trade openness has not yet fully recovered after the crisis, mainly due to a slump in imports of goods triggered by a strong reduction of domestic demand. Serbia is the only country in the region that managed to increase markedly its trade integration because of a steady and robust expansion of merchandise exports which nearly doubled their share in GDP. With the exception of the former Yugoslav Republic of Macedonia, trade openness in the region is far below that of most new member states (see Graph 2.3). The gap between the two groups of countries has even increased over the last decade as trade grew faster in the new member states than in the Western Balkans. This is an indication that there is significant potential for expanding trade in the Western Balkans.
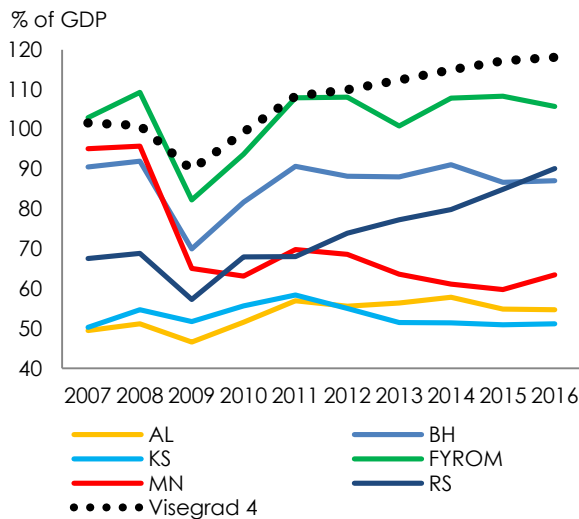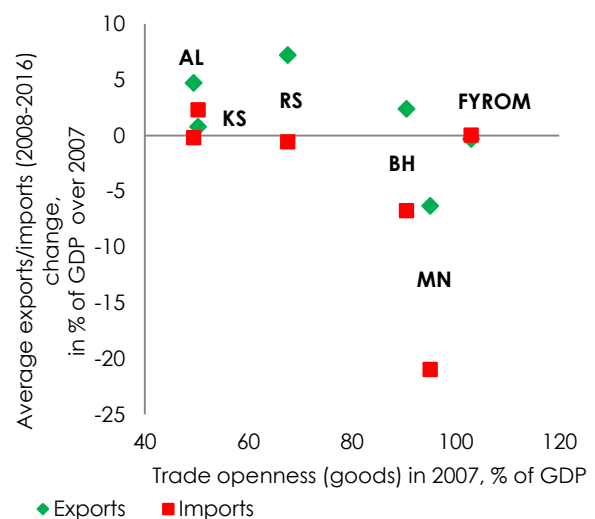
Quality of trade data is still not up to standards. There are still important gaps and discrepancies between the trade statistics of the countries in the region. For example, the UN Comtrade database, which has been used for this paper, does not systematically include data on Kosovo's trade. Therefore,

where data were missing we complemented the database with bilateral trade data provided by the Statistical Office of Kosovo. In addition, the UN Comtrade database reveals significant discrepancies between trade flows in the region. In theory the value of imports from country A to country B should be slightly higher than the exports from country B to country A due to cost, insurance and freight (cif). In practice, however, this is rarely the case due to a number of reasons, many of which may be acceptable, like differences in time of recording, exchange rates, etc. Although these deviations should be limited, the intra-regional trade data sample shows sometimes persistent and large deviations, in particular in trade with Serbia. Although beyond the scope of the current study, the scale of data discrepancies is such that it deserves further investigation.

Box 2.1. **FREE TRADE AGREEMENTS IN THE WESTERN BALKANS**

Trade liberalisation is a key determinant of external trade. Following the disintegration of Yugoslavia, the first steps towards regional economic integration in the Western Balkans date back to 2001. Within the framework of the Stability Pact for South East Europe, the countries from the region jointly with Bulgaria and Romania concluded a Memorandum of Understanding on Trade Liberalisation and Facilitation, which resulted in the establishment of a network of 32 bilateral Free Trade Agreements (FTAs).

The enforcement of these agreements, however, started some years later and was in general weak. The share of intra-regional trade remained marginal. In 2003, the European Commission indeed estimated that intra-regional trade represented only 6% of the region's overall trade ([1]). Thus, the patchwork of 32 bilateral agreements did not manage to give the expected boost to regional trade. As a result, efforts to strengthen multilateral trade were renewed and in 2006 the Western Balkan countries joined the Central European Free Trade Agreement (CEFTA) which replaced the existing FTAs.

The CEFTA was signed in Bucharest on 19 December 2006 and entered into force on 26 July 2007 for five signatories (Albania, the former Yugoslav Republic of Macedonia, Moldova, Montenegro and UNMIK/Kosovo), for Croatia on 22 August 2007 (trade with Croatia is subject to each country's Stabilisation and Association Agreement with the EU since Croatia joined the EU in 2013), for Serbia on 24 October 2007 and for Bosnia and Herzegovina on 22 November 2007. Amidst CEFTA, the Western Balkan 6 region constitutes a market of nearly 20 million customers, where economic exchange is encouraged.

CEFTA removed the existing quantitative restrictions and prohibited the introduction of new equivalent measures on imports and exports between the members. Moreover, all existing customs duties or charges having equivalent effect on exports amongst members were abolished. With regard to imports, CEFTA provided that existing custom duties shall not be increased and new duties or charges having equivalent effect of a fiscal nature shall not be introduced. In the framework of CEFTA, an Additional Protocol was signed, which allowed cutting most of the duties and quotas on agricultural products by 1 May 2011. Although there are no legal obligations, there are plans to liberalise trade not only in goods, but gradually and more extensively in services, investment and employment.

(*continued*)

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([1]) European Commission, 2003, *The Stabilisation and Association process for South East Europe – Second Annual Report.*

In addition to its membership in CEFTA, each Balkan country maintains privileged trade relations with the European Union, as part of the Stabilisation and Association Agreements (SAAs). SAAs replaced a number of interim agreements with the EU on trade and trade related issues and were progressively negotiated with all Western Balkan countries and entered into force in the period 2004-2016 ([2]). The SAAs envisage the facilitation and deepening of trade flows between the region and the EU, in conformity with GATT 1994 and WTO, through preferential trade regimes. However, not all Western Balkan countries are yet members of the WTO ([3]).

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([2]) The respective SAAs entered into force in the following years: Albania – 2009; Bosnia and Herzegovina – 2015; the former Yugoslav Republic of Macedonia – 2004; Kosovo – 2016; Montenegro – 2010; Serbia – 2013.

([3]) Albania joined the WTO on 8 September 2000, the former Yugoslav Republic of Macedonia on 4 April 2003, and Montenegro on 29 April 2012. Bosnia and Herzegovina, Kosovo and Serbia are not yet members of the organisation.
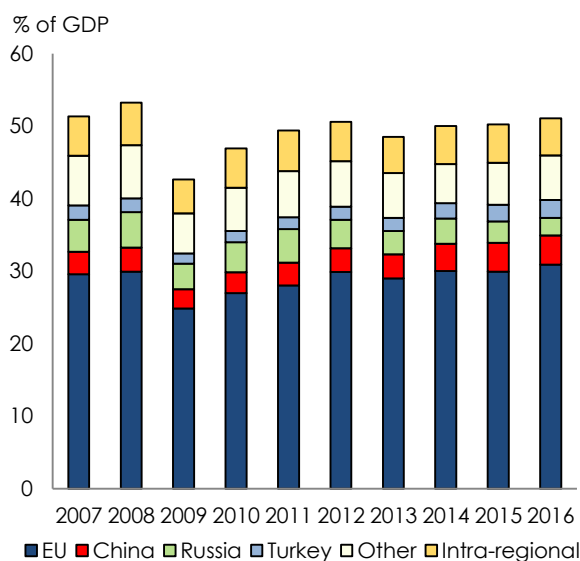
2.2. TRADE WITH THE EU

The EU is by far the main trading partner both on the import and export side for most of the countries in the Western Balkans. Merchandise trade with the EU clearly dwarfs trade with other trading partners – around 60% of the region's imports come from the EU and nearly 70% of its exports are absorbed by the EU market (see Graphs 2.6 and 2.7, and Annex III). The importance of the EU as a destination for Western Balkans exports has been on the rise since the 2009 crisis, and by 2016 surpassed its pre-crisis peak both as a share in total exports and in GDP. This, however, masks a diverse country experience. Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, and Serbia increased their merchandise exports to the EU as a share of GDP, while exports from Kosovo and Montenegro declined. On the import side, imports from the EU as a share of GDP remained broadly stable in Albania, fell in Bosnia and Herzegovina and Montenegro, and went up in the former Yugoslav Republic of Macedonia, Kosovo, and Serbia.

Trade with the EU is in general more diverse than with regional partners. Only in Montenegro and Kosovo, the countries with the least developed export base, are exports to the EU dominated by the same groups of goods which are also the most prevalent in their intra-regional trade – metals and minerals (see Graphs in Annex II). In all other countries exports to the EU are dominated by commodity groups which are different from what they usually trade with regional partners. In Albania, goods exports to the EU are primarily textiles and footwear, in Bosnia and Herzegovina – metals and machines, and in the biggest exporters – Serbia and the former Yugoslav Republic of Macedonia – exports to the EU are led by machines and transportation equipment and machines and chemicals, respectively.
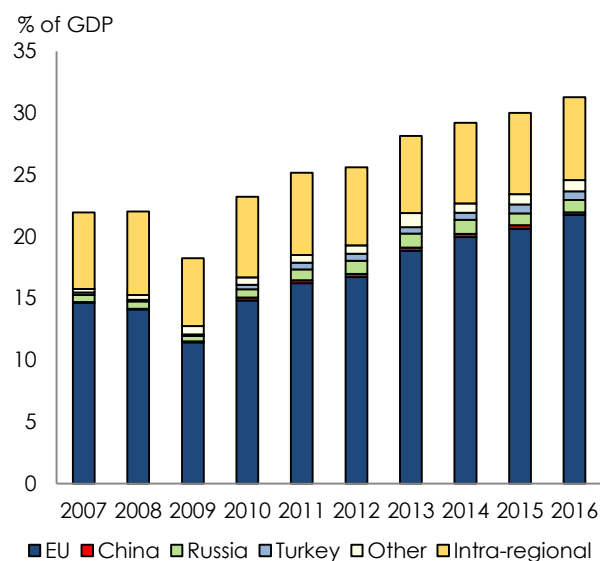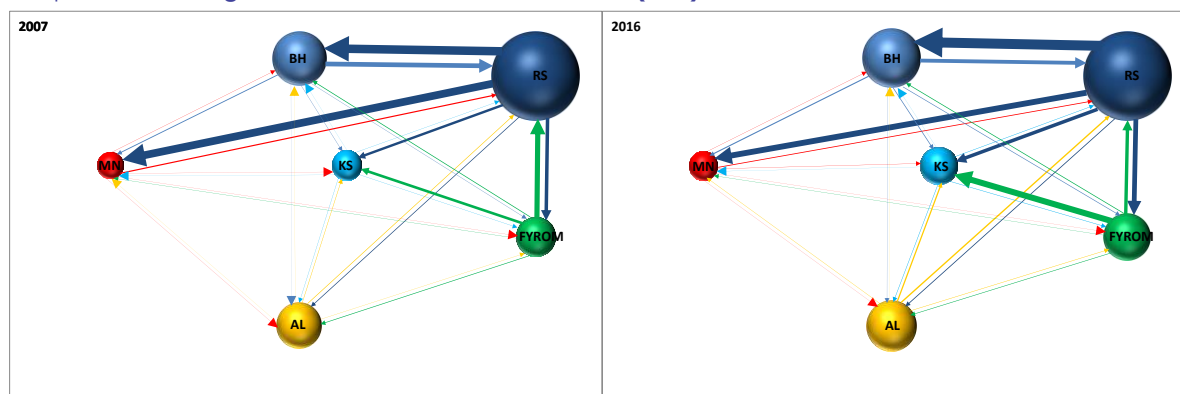
Source: UN COMTRADE, IMF, SOK

2.3.   INTRA-REGIONAL TRADE

After trade with the EU, intra-regional trade comes second in importance, representing a fifth of all exports and a tenth of imports. Only in Kosovo and Montenegro, the economies with the least developed export bases, have goods exports to the other Western Balkan countries higher value than those to the EU. In Montenegro this is due to a steep drop in the main export commodity – aluminium, which had its market in the EU, while in Kosovo the process was driven more by a notable expansion of regional exports. Despite its relative importance, however, overall intra-regional trade has been rather stagnant, both in terms of volume (see Graph 2.8) and structure, over the last decade.

Graph 2.8. **Intra-regional trade flows in 2007 and 2016 (USD)**

Note: Bubbles represent nominal GDP while arrows merchandise exports value in USD.

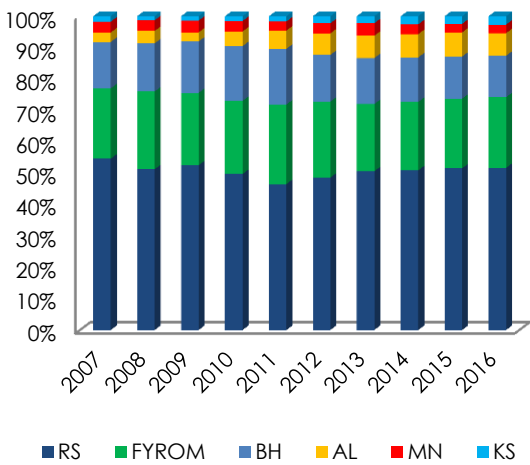Source: UN COMTRADE, IMF, SOK

For the most part, the Western Balkan economies underwent a sizeable domestic demand retrenchment in the crisis, which also curtailed demand for neighbouring countries' exports. Exports to the region have recovered since then but remained rather subdued due to a prolonged

adjustment of the local economies after the crisis and in particular the 'lost decade' in terms of economic growth for Serbia, which is the largest economy in the region. Stagnant trade within the region, coupled with the increase in total exports over the period, mainly to the EU market, has led to a steady decline in the ratio of intra-regional to total exports – by almost a third since 2007. Exports to the other countries in the region expanded in Albania, Kosovo, and Serbia, stagnated in Bosnia and Herzegovina, and fell in Montenegro and the former Yugoslav Republic of Macedonia. Intra-regional imports also fell in importance (relative to total imports) or remained broadly unchanged in most of the countries.
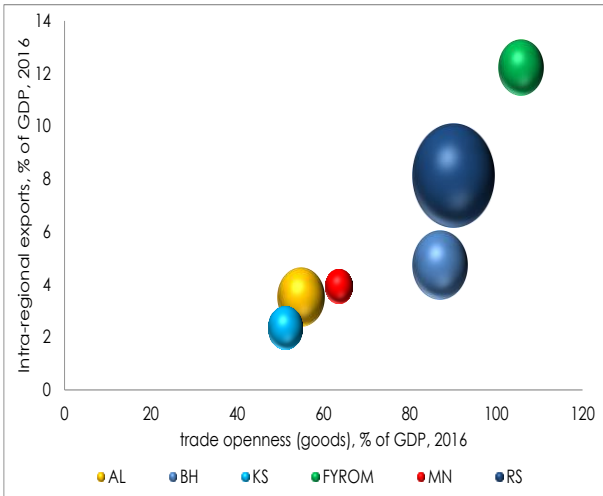
Intra-regional exports in the Western Balkans are geographically concentrated and most of them originate from Serbia. In 2016, around half of all merchandise intra-regional exports originated from Serbia, while slightly more than a fifth came from the former Yugoslav Republic of Macedonia. Both countries kept their share in total regional exports largely unchanged since 2007 (see Graph 2.9). Over the same period, Albania more than doubled its share of intra-regional exports. Kosovo also expanded its exports to the region, although from a very low base. Exports from Montenegro and Bosnia and Herzegovina did not keep up pace and lost market share in the region. Relative to the economic size of the exporting country, regional trade has the highest share in the most open economy in the region – the former Yugoslav Republic of Macedonia, where exports to the region top 12% of GDP (see Graph 2.10). It is followed by Serbia with around 8% of GDP and Bosnia and Herzegovina with close to 5% of GDP. Despite its rise, intra-regional exports have the lowest share in Kosovo at some 2% of GDP.

Intra-regional exports are absorbed mainly by Kosovo and Bosnia and Herzegovina. While most of the exports to the region originate from Serbia, Kosovo, which is the second smallest economy in the Western Balkans, actually absorbs the biggest portion of total intra-regional exports (see Graph 2.11). Since 2007, Kosovo's absorption share increased by 10 percentage points to reach nearly a quarter in 2016. This rise may be partially due to better control and recording of trade, in particular with Serbia, but also reflects Kosovo's landlocked position and growing economy. In terms of importance for regional exporters, Kosovo is followed closely by Bosnia and Herzegovina which has kept, however, its absorption share largely unchanged. Serbia's and Montenegro's shares as destinations of regional exports, on the other hand, declined noticeably. Relative to GDP, imports from the region are highest in Montenegro at more than 16%, followed by Kosovo with close to 13% (see Graph 2.12). Regional imports have the lowest share in GDP in the biggest economy – Serbia.

Graph 2.9. **Intra-regional exports by origin**

Graph 2.10. **Trade openness/exports to the region**

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Merchandise trade in the Western Balkans is concentrated in goods with low value added. The structure of intra-regional trade did not change a lot over the period 2007-2016 (see Graphs in Annex II). Albania's exports to the region are dominated by base metals, minerals, and vegetables, which comprised nearly three quarters of its regional exports in 2016 and were close to 70% of them in 2007. In 2016, two thirds of Montenegro's and Bosnia and Herzegovina's intra-regional exports were metals, minerals, wood, and foodstuffs – a share which has stayed broadly stable over the previous decade. The exports to the region of Serbia and the former Yugoslav Republic of Macedonia are relatively more diversified, although even in their case exports of minerals, metals, vegetables, and foodstuffs represent a sizeable share. In some years there were bigger variations in terms of bilateral export structures. However, they were largely a result of the very limited trade exchange between the respective countries. For example, animal hides exports from Albania to Bosnia and Herzegovina had a sweeping three quarters share in Albania's exports to this country in 2007 which came down to less than 20% in 2016. At the same time, the total value of these exports remained in the range of 1-3 million euro and was completely absent in certain years.

Graph 2.11. **Intra-regional exports by destination**   Graph 2.12. **Trade openness/imports from the region**
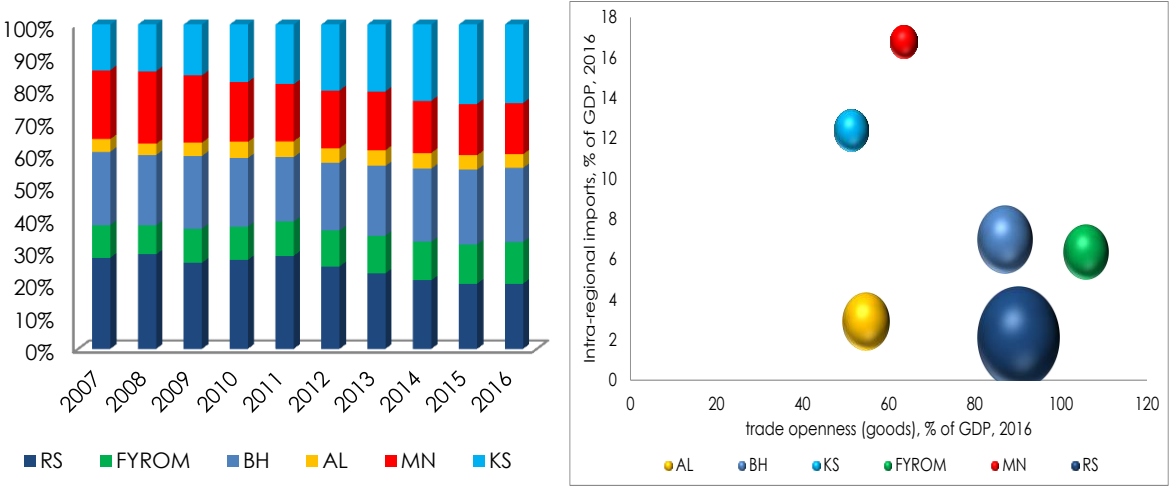
Box 2.2. **FDI STOCK IN THE WESTERN BALKANS**

Foreign direct investments are very important in creating economic and financial links between countries. They also serve to diffuse knowledge and increase commerce in general. The EU is by far the biggest investor in the Western Balkans, with a share in total FDI stocks in 2015 ranging from 34% in Kosovo to 62% or above in Bosnia and Herzegovina, Albania and Montenegro and equal to 79% or above in the former Yugoslav Republic of Macedonia and Serbia. In terms of GDP, the EU holds FDI stocks ranging from 19% of GDP in Kosovo to 27% or above in Bosnia and Herzegovina, Albania and the former Yugoslav Republic of Macedonia and equal to 65% or above in Serbia and Montenegro (see Annex IV).

FDI stocks owned by Turkey are on the rise in the former Yugoslav Republic of Macedonia, Albania and Kosovo, reaching 2.4%, 4%, and 6% of GDP, respectively in 2015. Even more, in Kosovo, Turkey is the single biggest investor. On the other hand, Turkish foreign direct investment in Montenegro stood at 0.8% of GDP, while it is extremely low in Serbia. In Bosnia and Herzegovina it has remained stable since the economic crisis period at around 1% of GDP.

(*Continued*)

In the post-crisis period Russia's ownership of FDI stocks in Serbia increased, while in Bosnia and Herzegovina it slightly decreased, to 4.7% and 3.4% of GDP, respectively in 2015. However, as seen from the trade data, these FDIs did not bring any new trade with Russia per se, as they went predominantly into already established brownfield projects, servicing domestic markets. Russia is the largest investor in Montenegro with FDI stocks amounting to 15% of GDP, mainly in real estate, whereas its investment activity is marginal in the former Yugoslav Republic of Macedonia and non existent in Albania and Kosovo.

China does not hold any FDI stocks in Bosnia and Herzegovina and Kosovo, while in all other Western Balkan countries they are marginal. The FDI statistics, however, underestimates Chinese involvement in the region as in many cases it is structured as debt financing of large infrastructure projects in the transport and energy sectors.

2.4.   WESTERN BALKANS TRADE WITH RUSSIA, CHINA, AND TURKEY

Trade with Russia, China and Turkey is less pronounced and is systematically skewed towards imports from them. Exports to Russia, China and Turkey increased over the last decade, although they remain marginal and their combined share in total Western Balkan exports is in the low single digits. Exports to China are volatile and stand at 0.2-0.3% of regional GDP. Exports to Turkey went up to 0.7% of GDP in 2016 – still a very low level, but they grew steadily in Serbia and Bosnia and Herzegovina. The Russian market remained largely insignificant as well, Serbia having the highest exposure of around 2% of GDP from all the countries in the region. On the other hand, the Western Balkans imports from Russia, China, and Turkey dwarfed exports to these countries, leading to trade deficits with all of them. Indeed, approximately a third of the region's merchandise trade deficit is registered in its trade with the three countries.

China and Turkey have gained market share in the region, while imports from Russia declined. China made some inroads into local markets, increasing its presence in all countries in the region. Turkey also gained market share across the region, with the exception of Bosnia and Herzegovina where, although on the rise, imports are still below pre-crisis levels. The value of imports from Russia, on the other hand, has seen a steep decline in all Western Balkan economies which intensified since 2015. As imports from Russia are heavily dominated by mineral fuels and oils, their decline was driven mainly by price dynamics but, in some cases like in Albania and Serbia, also by increased domestic production of oil, or diverting to importing from other countries as in Montenegro.

To conclude, ten years after joining a regional trade agreement, the Western Balkan economies remain weakly connected. In general, trade openness is low. The EU remains the main trading partner both on the import and export side. Intra-regional trade failed to expand and continues to be concentrated in goods with low value added. The next section will try to examine which are the factors influencing intra-regional merchandise trade performance in the Western Balkans in the period 2007-2016. For this purpose, we follow a well established approach by developing an augmented gravity model of trade.

3. DRIVERS OF INTRA-REGIONAL TRADE IN THE WESTERN BALKANS – A GRAVITY MODEL

3.1. THE MODEL

The gravity model of trade was presented for the first time by Jan Tinbergen in 1962. Although the model has been upgraded since then, its basic premises remain the same – trade flows between two countries depend on the size of their economies and/or their population (mass) and an estimate of the transport costs between them (distance). This approach has been used extensively to model international trade, including in the Central and South-eastern Europe.

Most studies estimate trade flows by equating the size of an economy with its GDP and/or population and using physical distance between the capitals or the most developed regions as a measure of the transport costs. The idea of distance has been further developed to differentiate between physical, economic, time-related, social, and political factors that also impact trade flows[10]. Anderson and van Wincoop (2004) pointed out the importance of the language spoken in the trading partners and of trade costs, including transportation costs, policy barriers, information costs, contract enforcement costs, legal and regulatory costs, local distribution costs, and costs due to the use of different currencies which have an impact on bilateral trade. Melitz and Toubal (2012) underlined the importance of ease of communication and of a common spoken language. Most recently, this approach was used by Trivić and Klimczak (2015) to model intra-regional trade in the Western Balkans for the period 1995-2012. They distinguish six types of barriers as a proxy of distance – physical, political, economic, cultural, communicational, and historical – and have found that language, religion, and history had a significant impact on trade in the region.

Building on their study, we use panel data to develop a gravity model of trade to test which are the key factors influencing merchandise trade in the Western Balkan in the period 2007-2016. Specifically, to what extent intra-regional trade depends on the size of the respective economies, physical distance or travelling time between the countries, non-tariff barriers to trade, exchange rates and culture similarities. For the latter, we test whether ethnic, religious and linguistic differences influence trade dynamics.

Our time horizon starts several years after the end of armed hostilities in the region and coincides with the beginning of the EU accession process for most of the Western Balkan countries. Furthermore we are able to include data for Kosovo and Montenegro, which has rarely, if ever, been done before.

3.2. METHODOLOGY

The original gravity model $X_{ijt} = a_0 M_1{}^{a_1} M_2{}^{a_2} R^{a_3}$ is taken in log-linear form so that the estimated coefficients can be interpreted as elasticities. Therefore all non-dummy variables enter in equation in their natural log form.

To provide robustness to our results we run the model on two dependent variables, exports of goods and total merchandise trade.

Exports model:

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[10] Zeliaś (1991) as quoted in Trivić and Klimczak (2015).

(1)
$$Y_{ijt} = \alpha_0 + A * X_{ijt} + B * Z_{ij}$$

Where Y_{ijt} are exports from country i to country j in year t, A is a 1x4 vector of time invariant coefficients for $X_{ijt} = \{gdp_{it}, gdp_{jt}, barriers_{ijt}, fx_{ijt}\}$, the vector of country pair specific time variant variables where: gdp_{it} and gdp_{jt} are GDP figures of countries i and j respectively, in year t, in logarithmic terms; $barriers_{ijt}$ is a measure of non-tariff export barriers barriers from country i to country j in year t; fx_{ijt} is an index of exchange rate of the currency of country i in terms of the currency of the country j in year t. B is a vector of coefficients for the vector of time invariant country pair specific variables $Z_{ij} = \{distance/time_{ij}, eth_{ij}, lang_{ij}, relig_{ij}, border_{ij}\}$ where: $distance/time_{ij}$ is a distance or time needed to drive between capitals of country i and j; $eth_{ij}, lang_{ij}, relig_{ij}$ are measures of ethnic, religious and linguistic similarities between country i and country j; $border_{ij}$ is a dummy variable highlighting whether the two countries share a common border.

Total trade model:

(2)
$$W_{ijt} = \beta_0 + \beta_1 * gdpmass_{ijt} + \beta_2 * barriers_{ijt} + \Gamma * Z_{ij}$$

Where W_{ijt} is total trade between country i and j in year t, $gdpmass_{ijt}$ is the sum of GDPs of countries i and j in year t, $barriers_{ijt}$ is a measure of non-tariff trade barriers between the two countries in year t, Γ is a vector of coefficients for the vector of time invariant country pair specific variables $Z_{ij} = \{distance/time_{ij}, eth_{ij}, lang_{ij}, relig_{ij}, border_{ij}\}$, same as in the exports model.

In both models α_0 and β_0 are constants, representing factors common to all countries in all years observed, not captured by the independent variables of the model, such as being members of CEFTA, candidates or potential candidates to join the EU, etc. To decrease the number of variables in equations we also specify a model using a variable $comb_{ij}$, a product of variables $eth_{ij}, lang_{ij}, relig_{ij}$ which should capture overall cultural similarities between countries.

3.3. DATA AND STATISTICAL METHODS

3.3.1. Data

We use data for the ten years between 2007 and 2016 for six Western Balkan economies (Albania, Bosnia and Herzegovina, former Yugoslav Republic of Macedonia, Kosovo, Montenegro and Serbia). That gives us in total 30 country pair cross-sections and 300 observations for the exports model and 15 country pair cross-sections and 150 observations for the total trade model.

We use the April 2017 IMF World Economic Outlook GDP data for all countries and UN Comtrade trade data for all countries except Kosovo, where we use the Kosovo Agency of Statistics data. We use the World Bank Doing Business trading across borders data[11] to construct a proxy of non-tariff barriers to exports or trade. In the exports model the $barriers_{ijt}$ variable is an index made of the number of required documentation and time needed to export from one country to the other (summing up the scores for export barriers of the exporting country and the scores for import barriers of the respective importing country), while in the total trade model is an index made of the number of required documentation and time needed for importing and exporting for each country pair. The

---

[11] The World Bank score per country reflects the ease of trading across borders of a country with its natural import or export partners.

exports model also looks at the exports exchange rate elasticity. Most of the countries in the region have opted for fixed exchange rate regimes or outright euroisation (Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Kosovo, and Montenegro), while Albania and Serbia have chosen monetary frameworks allowing sometimes significant exchange rate movements.

A set of time invariable variables is used to capture fixed characteristics of each country pair. To measure transport costs we use the physical distance between capital cities or time needed to reach by car from one capital city to another, using online maps and applications[12]. By including time as an explanatory variable we are trying to take into account the differences in terrain and quality of infrastructure[13]. Choosing to measure physical distance on the basis of road infrastructure has certain limitations in view of the fact that a significant portion of intra regional trade is in minerals and metals – bulky goods which normally are shipped, if possible, via water and rail transport. In addition, as we were only able to check information on time and distance in 2017, this also neglects infrastructure development over the period in question. In some instances, new infrastructure built during the examined period had a noticeable impact on both distance and time[14].

In constructing the variables on linguistic, ethnic and religious similarities, we follow the approach suggested by Trivic and Klimczak (2015)[15]. For modelling purposes (ease of communication), we consider all western Slavic languages (Serbian, Croatian, Bosnian and Montenegrin) as one, while we take Macedonian to be similar to them with a similarity coefficient of 0.75[16]. As Albanian language belongs to a completely different group of languages we assume that the similarity coefficient is 0 with all other languages in the region. [17]Language similarity captures ease of communication which reduces uncertainty in trade. A dummy variable specifying whether a country pair shares a border is included to account for potentially significant shuttle trade in border regions.

3.3.2. Estimation methods

To estimate our two panel data models we use three different estimation methods: 1) pooled data and Ordinary Least Squares (OLS), 2) two stage fixed effects method based on Cheng and Wall (2005), and 3) random effects estimation method. Using pooled data ignores country pair heterogeneity and

---

[12] Distance and time was checked on two different occasions (31 May and 19 September 2017) via Google maps and ViaMichelin and the shortest distance and time were selected for the study.

[13] A standard source of data on physical distance is www.cepii.org. This source has some advantages in terms of providing a consistent geodesic distance, also weighted by population, between key agglomerations. However, there are some limitations as well: the database does not include Kosovo, and distances which are based on latitudes and longitudes do not reflect the availability and condition of the existing roads network.

[14] An example is the highway built between Albania and Kosovo which cut significantly both the distance and the time of travel between Tirana and Pristina. Most of the works on the section in Albania were conducted in 2006-2010, while the Kosovo segment was constructed in 2010-2013.

[15] We use latest country Census data (2011 Census for Albania, Kosovo, Montenegro, and Serbia; 2002 Census for the former Yugoslav Republic of Macedonia; 2013 Census for Bosnia and Herzegovina).

The religion similarity index is calculated as $R_{ij} = 1 - \Sigma_{k=1-3} |R_{ik} - R_{jk}|/2$, where R_{ik} is the share of people in country i belonging to religion k and R_{jk} is the share of people in country j belonging to religion k; k=1-3 for the main religions practiced in the region (Islam, Orthodox, and Catholic).

[16] The language similarity index L_{ij} is calculated in the same manner as the religion similarity index $L_{ij} = 1 - \Sigma_{k=1-2} |L_{ik} - L_{jk}|/2$, where L_{ik} is the share of people in country i speaking language k and L_{jk} is the share of people in country j speaking language k.

[17] This language similarity index probably overestimates communication-related "costs" as in mixed regions people often have at least basic knowledge of their neighbours' language.

can sometimes lead to distorted estimates. A model based on the fixed effects estimation method is usually proven to be the most appropriate for this kind of analysis. However, time invariant variables cannot be directly included in the fixed effects equation as they are collinear with the country-pair effects. Therefore, we estimate the exports and total trade models using two stage fixed effects method proposed in Cheng and Wall (2005). In the first stage we estimate the equation using fixed effects regressors.

(3) $$Y_{ijt} = \alpha_0 + \alpha_{ij} + A * X_{ijt}$$

In the second stage, we use the estimated country pair fixed effects as a dependent variable and regress it on the set of time invariant variables. This way we can evaluate the impact of these variables on the fixed effects.

(4) $$\widehat{\alpha_{ij}} = \alpha_1 + B * Z_{ij}$$

Using redundant fixed effects, Hausman and Breusch-Pagan specification tests, we try to find the most appropriate method for estimation of both models. We conclude that for the exports model the two stage fixed effects model is more suitable for our data than the pooled data or random effects model. In the case of the total trade model, both fixed and random effects models are superior to the pooled specification. However, it is not possible to determine which of them is more appropriate so we report the results of both.

3.4.   RESULTS

3.4.1.   Exports model

Based on the two stage fixed effects model (see Table 3.4.1[18]), we find that the value of exports is positively influenced by the size of economic activity. A 1% increase in an importing country's GDP translates in a 1.5% increase in exports of the exporting country. Barriers to export exhibit a significant negative relation to exports. Burdensome import and export procedures could, therefore, be one of the explanations for a relatively low intra regional trade in the Western Balkans.

On the other hand, the impact of the exporting country's GDP and the exchange rate on the value of its exports are not statistically significant. The exchange rate variable is not significant most likely due to the fact that only Serbia and Albania have non-fixed exchange rate regimes. Regression of country specific fixed effects on a set of time invariant variables did not produce a statistically significant result as well. As expected, the language similarity variable has a positive coefficient but, ethnic and religious similarities seem to have a negative relationship with exports. None of these variables, however, is statistically significant. Distance or time and the border dummy variable also do not have a statistically significant impact on country pair coefficients. The model's overall fit is satisfactory as the R^2 value of the first stage regression is 0.96. However, the second stage regression fails to explain the heterogeneity of the country-pairs (R^2 is only around 0.24).

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[18] For a full set of results of all estimation methods, please see Annex V.

Table 3.4.1. **Exports model**

Estimation type	Two stage fixed effects		
Dependent variable / Explanatory variables	Exports		
	(1)	(2)	(3)
α_0	-4.917091		
GDP_1	0.131094		
GDP_2	1.490903***		
Barriers_to_export	-1.239805***		
FX	-0.291293		
α_1 (stage 2)	-1.246553	-0.734882	-1.227437
Distance	0.146881		0.310824
Time		0.074606	0.241135
Ethnicity	-0.171959	-0.190718	
Language	0.509884	0.519364	
Religion	-0.040261	-0.041790	
Comb			0.251865
Border	1.082380	1.044065	1.158047
R^2	0.957780		
R^2 (second stage)	0.245009	0.244059	0.216840
No Cross-sections	30		
No Observations	300		

***= Significant at the 1% level; **= Significant at the 5% level; *= Significant at the 10% level

3.4.2. Total trade model

The results are largely similar when looking at the overall trade (see Table 3.4.2). Both the two stage effects model and the random effects model confirm a significant positive relationship between trade and the 'mass' (GDP) of any two economies. A 1% increase in the combined GDP of a country pair leads to an overall increase in bilateral trade of between 1.1%-1.6% depending on the model specification. Furthermore, non-tariff trade barriers are significantly negatively related to value of trade (elasticity between -1.1 and -0.87). The language similarity variable is positive and significant, giving some ground to claim that culture similarities facilitate trade links in the Western Balkans. This is also weakly confirmed by the fact that the combined variable, merging language, ethnic and religious similarities, turned out positively significant in the random effects estimation model.

However, as in the exports model, if measured separately, the ethnic and religious similarities are not statistically significant. The border variable is also not significant. As in the exports model, distance between capitals and time also do not appear to be relevant for explaining trade dynamics. This result may be due to the fact that the model did not take into account changes in infrastructure impacting distance and travelling time over the examined period (see the example on the highway between Albania and Kosovo). The fixed effect model has a satisfactory fit as the R^2 value of the first stage regression is 0.96. Unlike in the exports model, the second stage regression explains a larger share of heterogeneity of the country-pairs in the trade model (R^2 is between 0.47 and 0.57). Random effects models have R^2 values ranging from 0.80 to 0.85.

Table 3.4.2 **Total trade model**

Estimation type	Two stage fixed effects			Random effects		
Dependent variable	Trade					
Explanatory variables	(1)	(2)	(3)	(1)	(2)	(3)
α_0	-1.463278			-5.869420*	-5.433534	-6.161229*
GDP mass	1.120034***			1.590316***	1.584084***	1.577867***
Barriers_to_trade	-1.074838***			-0.869555**	-0.872757**	-0.934143**
α_1 (stage 2)	-0.369871	-0.044370	-1.895586			
Distance	0.163102		0.339940	-0.176852		-0.062974
Time		0.102892			-0.237376	
Ethnicity	0.237972	0.213728		0.073039	0.070422	
Language	0.439859**	0.446272**		0.424332***	0.421057***	
Religion	-0.577722	-0.570487		-0.374293	-0.366752	
Comb			0.174286			0.184899**
Border			0.873436	0.198222	0.159760	0.645076
R^2	0.960491			0.845446	0.845485	0.796557
R^2 (second stage)	0.572122	0.568185	0.468001			
No Cross-sections	15			15		
No Observations	150			150		

***= Significant at the 1% level; **= Significant at the 5% level; *= Significant at the 10% level

Box 3.4. **NON-TARIFF TRADE BARRIERS BETWEEN THE WESTERN BALKAN COUNTRIES**

The results of the gravity model confirm that trade is negatively correlated with non-tariff barriers (NTBs) to trade in the Western Balkans. As a proxy for non-tariff trade barriers, the analysis uses an index constructed on the basis of the "trading across borders" indicator in the World Bank's annual "Doing Business" reports. Although for modelling purposes it provides a reasonable measure of the ease of trading across borders, this indicator probably underestimates the size of trade barriers between the Western Balkan countries which are likely to be broader than what is reflected by this indicator.

As mentioned in Box 2.1, there are no tariffs and quantitative restrictions on trade in manufactured products between the Western Balkan countries and substantial progress has been made on reducing tariffs on agricultural goods under CEFTA. However, as in other regional free trade areas, non-tariff barriers continue to act as an impediment to the free flow of goods across borders. They fall into three categories: i) technical barriers to trade; ii) sanitary and phytosanitary measures; and iii) administrative barriers to trade.

CEFTA has made considerable efforts to reduce NTBs over the years, but progress has been slow. The OECD has conducted a study[1] into the issue which found that the CEFTA countries had made progress in reducing technical and administrative barriers to trade, while advances in the field of sanitary and phytosanitary measures were comparatively lower. Eliminating NTBs is inherently complex at a multilateral level where decisions have to be made by consensus of all participating parties. In addition, the process is complicated by the convergence with EU norms in terms of procedures and regulations in the EU accession process. Eventually, when convergence with the EU acquis has been completed in all Western Balkan countries, a single market will have been created between them.

[1] OECD, 2012

4. CONCLUSIONS

The economies in the Western Balkans remain relatively underdeveloped and share some similarities, like a high dependency on foreign savings to finance investment and growth. Efforts are now under way to boost intra-regional economic integration as a means to promote these countries' development and catching up with the EU. Despite data limitations, a cursory look at trade dynamics in general and intra-regional trade links in particular reveals some interesting observations:

- With the exception of the former Yugoslav Republic of Macedonia and increasingly of Serbia, trade openness remains rather low.

- After trade with the EU, which clearly dwarfs all other trading partners, intra-regional trade comes second in importance, but only represents a fifth of all goods exports from the Western Balkans and a tenth of imports. Moreover, while total exports have been on the rise since the crisis in 2009, intra-regional exports underperformed and declined in importance.

- Trade with Russia, China and Turkey is less pronounced and is systematically skewed towards imports from them. Over the last decade China and Turkey have gained market share in the region, while imports from Russia declined both in absolute and relative terms.

- About half of total intra-regional exports originate from Serbia, while most of the intra-regional exports are absorbed by Kosovo and Bosnia and Herzegovina.

- The structure of intra-regional trade has not changed much over the last decade and remains concentrated in goods with low value added. Merchandise trade with regional partners is dominated by minerals, base metals, and foodstuffs, which represent a sizeable share even in the economies with the most diversified export base, like Serbia and the former Yugoslav Republic of Macedonia.

Our econometric estimates highlight other important features of regional trade. First, intra-regional trade seems to be primarily driven by the level of economic activity and to some degree by cultural factors, like language similarity. Second, non-tariff barriers to trade significantly reduce trade exchanges between the countries in the region. Therefore, higher intra-regional trade would follow from increased economic activity and would strongly benefit from reducing non-tariff barriers. Third, contrary to expectations, measures of geographical proximity did not come out as a statistically significant factor impacting trade dynamics in the examined period[19]. Nonetheless, a number of indicators and other studies[20] attest the poor connectivity within the region, highlighting it as a major obstacle to economic development, trade and investment. Therefore, recent initiatives to support regional economic development by reducing non-tariff barriers and improving regional transport corridors seem to be well-placed.

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[19] As previously explained, this could be due to the treatment of time and distance variables as fixed in time.
[20] See IMF (2018).

REFERENCES

Anderson, James E. and Wincoop, Eric van, 2004, *Trade Costs*, Working Paper 10480, National Bureau of Economic Research.

Babetskii, Ian, Babetskaia-Kukharchuk, Oxana and Raiser, Martin, 2003, *How deep is your trade? Transition and international integration in eastern Europe and the former Soviet Union*, Working Paper No. 83, European Bank for Reconstruction and Development.

Bartlett, Will, 2009, *Regional integration and free-trade agreements in the Balkans: opportunities, obstacles and policy issues*, Econ Change Restruct, 42, pp. 25–46.

Bussière, Matthieu, Fidrmuc, Jarko and Schnatz, Bernd, 2005, *Trade Integration of Central and Eastern European Countries. Lessons from a Gravity Model*, Working Paper Series, No. 545, European Central Bank.

Cheng, I-Hui and Wall, Howard J., 2005, *Controlling for Heterogeneity in Gravity Models of Trade and Integration*, Federal Reserve Bank of St. Louis Review, 87(1), pp. 49-63.

European Commission, 2010, *The pre-accession economies in the global crisis: from exogenous to endogenous growth?*, Occasional Paper 62, Directorate-General Economic and Financial Affairs.

Guerin, Selen Sarisoy, Handjiski, Borko, Lucas, Robert and Martin, Philip, 2010, *Enhancing Regional Trade Integration in Southeast Europe*, World Bank Working Paper No. 185, Washington, D.C.: The World Bank.

IMF, 2017, *Article IV for Serbia*, Annex III, Washington, D.C.: The International Monetary Fund.

IMF, 2018, *Public infrastructure in the Western Balkans, opportunities and challenges,* Washington, D.C.: The International Monetary Fund.

Kathuria, Sanjay et. all, 2008, *Western Balkan Integration and the EU. An Agenda for Trade and Growth*, Directions in Development, 44174, Washington, D.C.: The World Bank Group.

Klimczak, Łukasz and Trivić, Jelena, 2015, *The determinants of intra-regional trade in the Western Balkans*, Proceedings of Rijeka School of Economics, vol. 33, sv. 1, pp. 37-66.

Mélitz, Jacques and Toubal, Farid, 2012, *Native language, spoken language, translation and trade*, Discussion paper series, No. 8994, Centre for Economic Policy Research.

Montanari, Marco, 2005, *EU trade with the Balkans. Large Room for Growth?*, Eastern European Economics, vol. 43, no. 1, pp. 59–81.

OECD, 2012, *Elimination of Non-Tariff Barriers in CEFTA*, CEFTA Issues Paper 4.

Toševska-Trpčevska, Katerina and Tevdovski, Dragan, 2014, *Measuring the Effects of Customs and Administrative Procedures on Trade: Gravity Model for South-Eastern Europe*, Croatian Economic Survey, Vol. 16, No. 1, pp. 109-127.

World Bank, 2017, *Western Balkans: Regional Economic Integration Issues Notes*, Washington, D.C.: The World Bank Group.

ANNEX I

Growth correlation matrix 2007-2016, (2012-2016 data in parentheses)

	AL	BH	KS	FYROM	MN	RS	EU-28
AL	-	0.7 (0.5)	0.6 (0.3)	0.6 (0.3)	0.6 (0.3)	0.7 (0.3)	0.1 (0.8)
BH	0.7 (0.5)	-	0.7 (0.5)	0.9 (0.8)	0.9 (1.0)	0.9 (0.7)	0.5 (0.7)
KS	0.6 (0.3)	0.7 (0.5)	-	0.6 (0.0)	0.7 (0.3)	0.7 (0.8)	0.3 (0.1)
FYROM	0.6 (0.3)	0.9 (0.8)	0.6 (0.0)	-	0.9 (0.9)	0.8 (0.2)	0.7 (0.8)
MN	0.6 (0.3)	0.9 (1.0)	0.7 (0.3)	0.9 (0.9)	-	0.9 (0.6)	0.8 (0.6)
RS	0.7 (0.3)	0.9 (0.7)	0.7 (0.8)	0.8 (0.2)	0.9 (0.6)	-	0.6 (0.1)
EU-28	0.1 (0.8)	0.5 (0.7)	0.3 (0.1)	0.7 (0.8)	0.8 (0.6)	0.6 (0.1)	-

ANNEX II

Structure of Western Balkans Exports

Albanian Exports to WBs and the EU
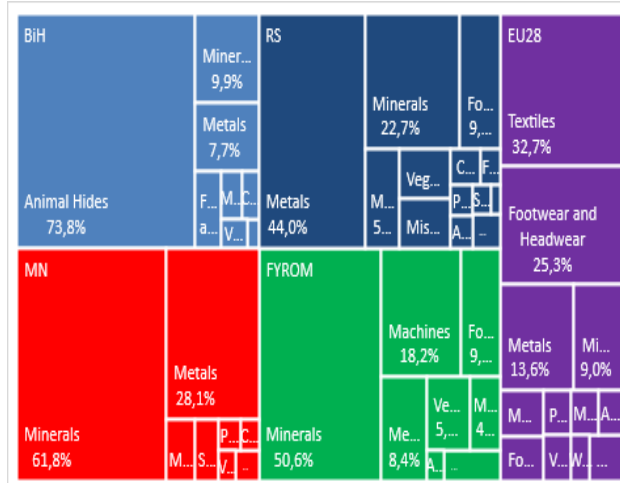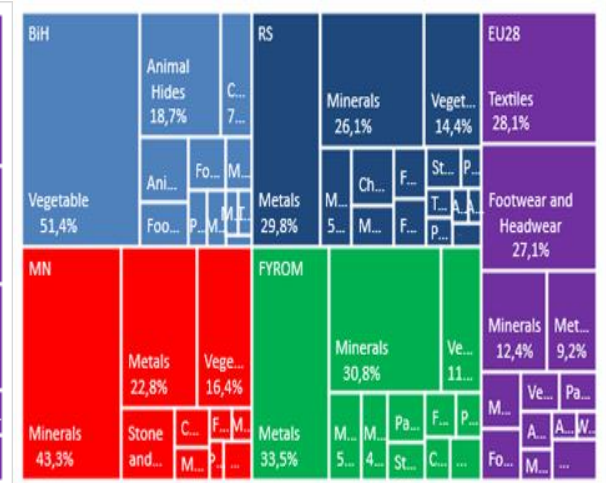
2007

2016

Bosnian Exports to WBs and the EU
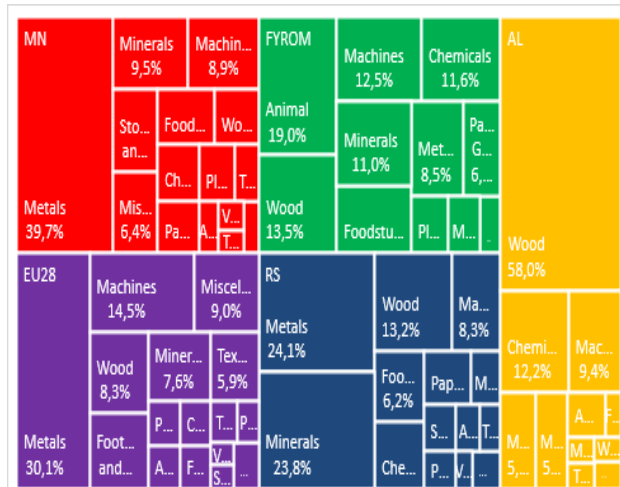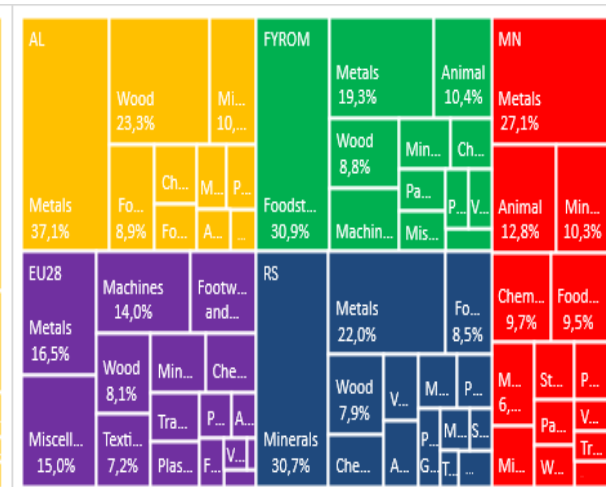
2007

2016

Serbian Exports to WBs and the EU
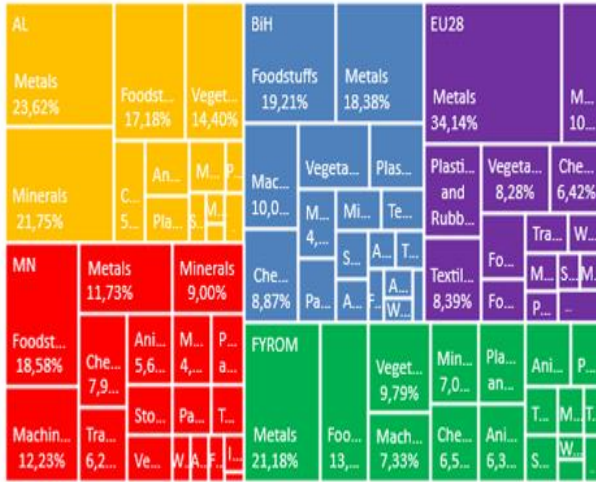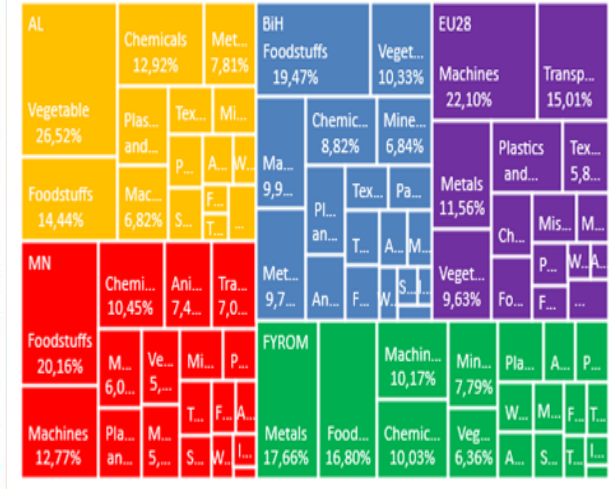
2007

2016

Montenegrian Exports to WBs and the EU
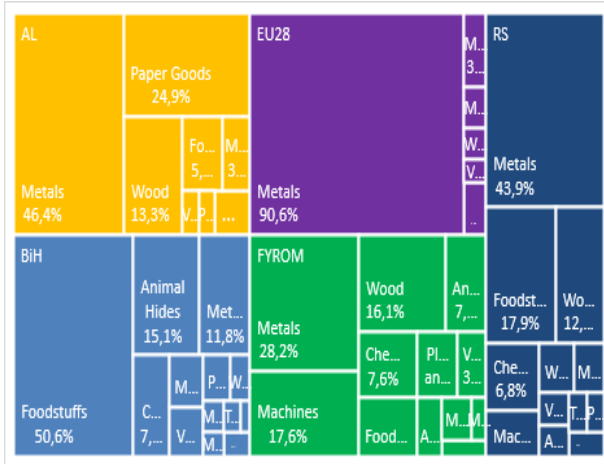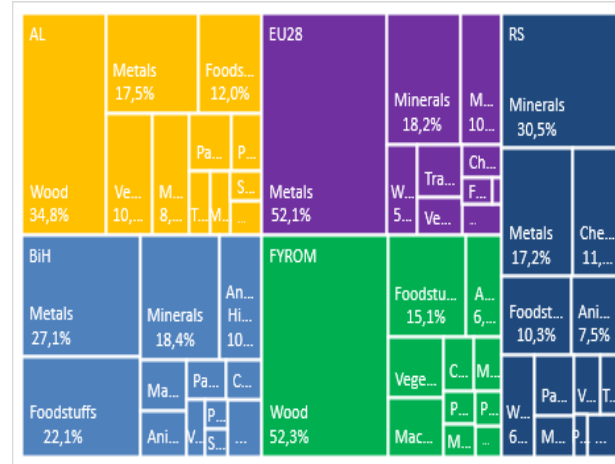
2007

2016

The former Yugoslav Republic of Macedonia Exports to WBs and the EU

2007
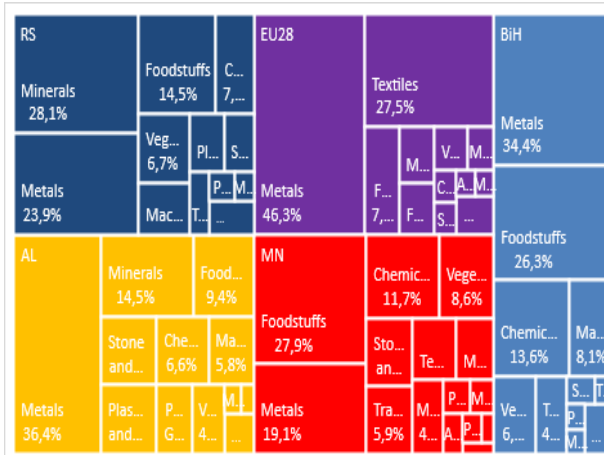
2016
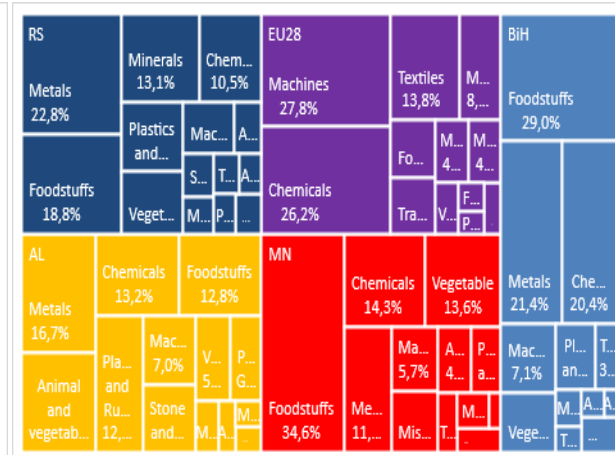
Kosovo's Exports [21] to WBs and the EU

2010
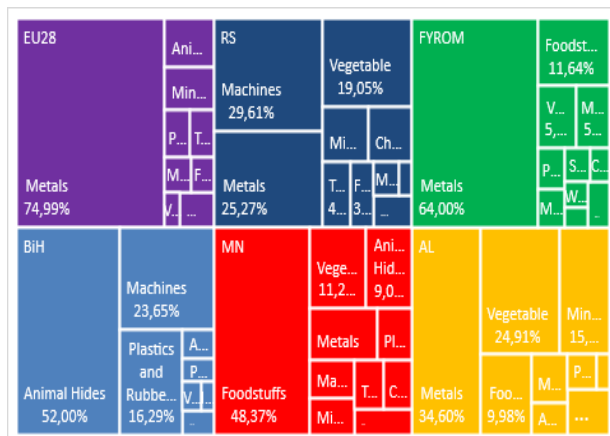
2015
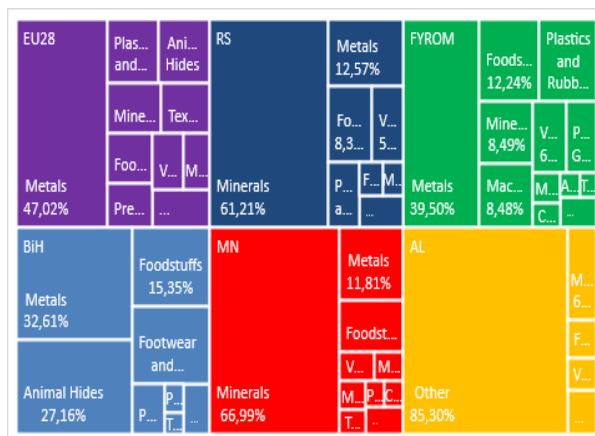
Source: UN COMTRADE, Statistical Office of Kosovo

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[21] No data available before 2010.

Western Balkans top 20 trading partners and trade intensities[22]

Albania, top 20 trading partners, 2015
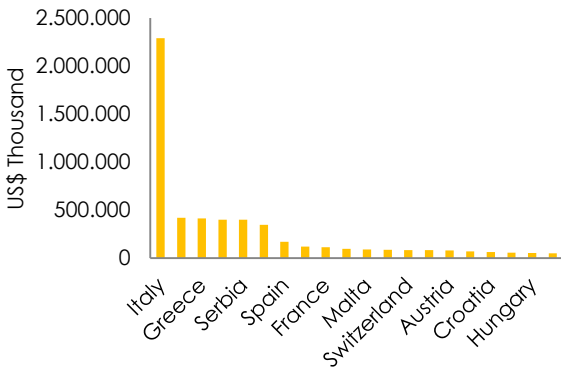
Albania, trade intensity index, top 20 trading partners, 2015
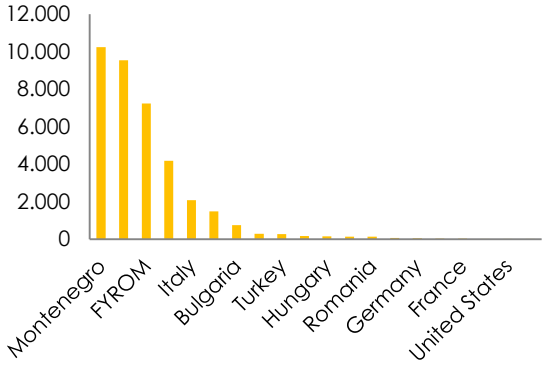
Bosnia & Herzegovina, top 20 trading partners, 2015
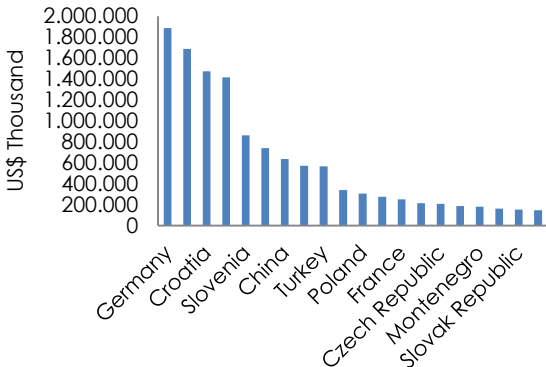
Bosnia & Herzegovina, trade intensity index, top 20 trading partners, 2015

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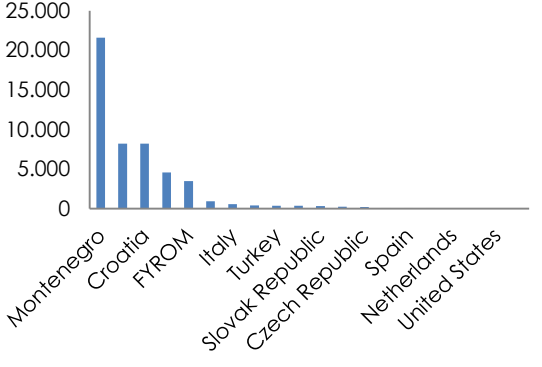
[22] The Trade Intensity Index compares trade with a respective country relative to how much the world as a whole trades with the same economy. An index of 1 indicates that the trading relationship with a given market is exactly in line with the world average, while a ratio larger than 1 indicates a relationship that is more "intense" than the global average. An important shortcoming of this measure is that the value of the index is influenced by the size of the partner country in world trade. The ranking is based on 2015 total trade in goods.

Serbia, top 20 trading partners, 2015
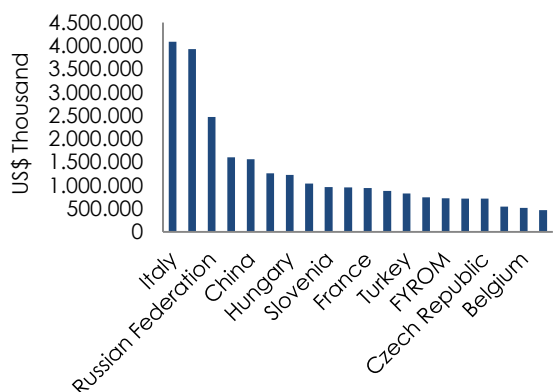
Serbia, trade intensity index, top 20 trading partners, 2015
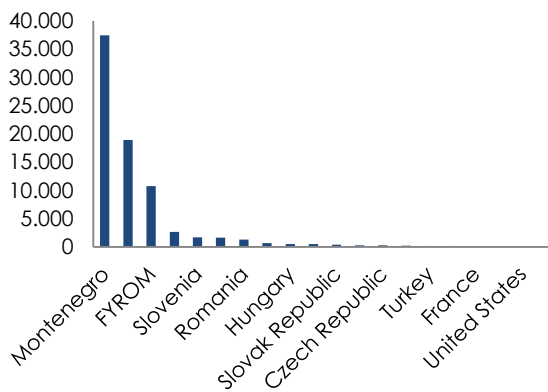
Montenegro, top 20 trading partners, 2015
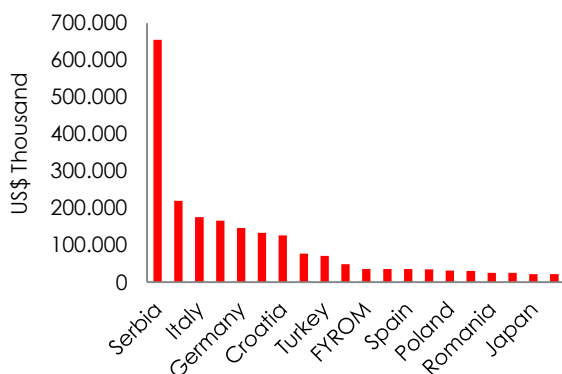
Montenegro, trade intensity index, top 20 trading partners, 2015
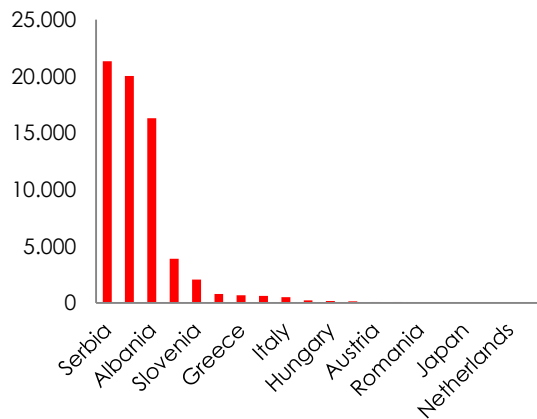
Former Yugoslav Republic of Macedonia, top 20 trading partners, 2015
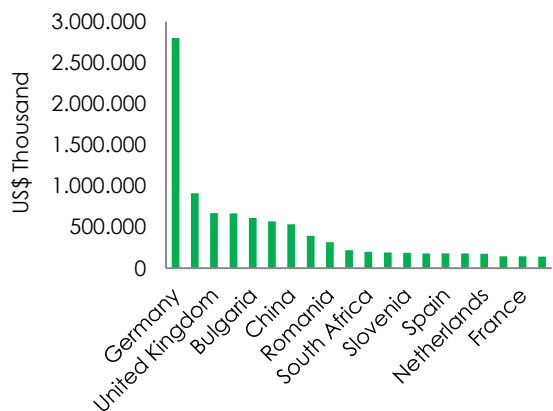
Former Yugoslav Republic of Macedonia, trade intensity index, top 20 trading partners, 2015
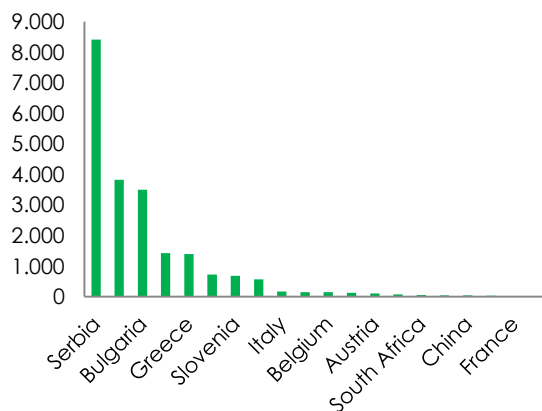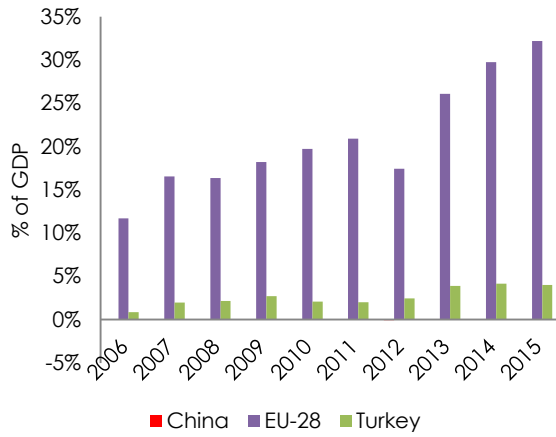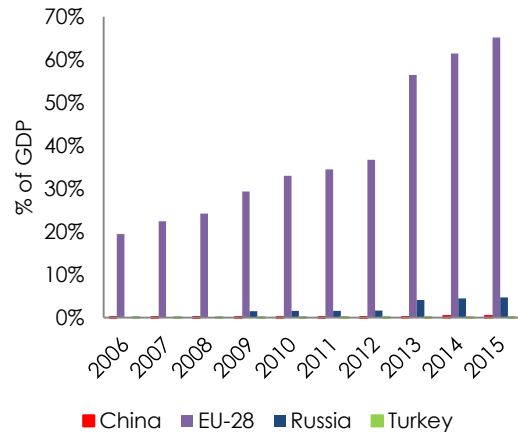

Source: UN COMTRADE, World Bank WITS
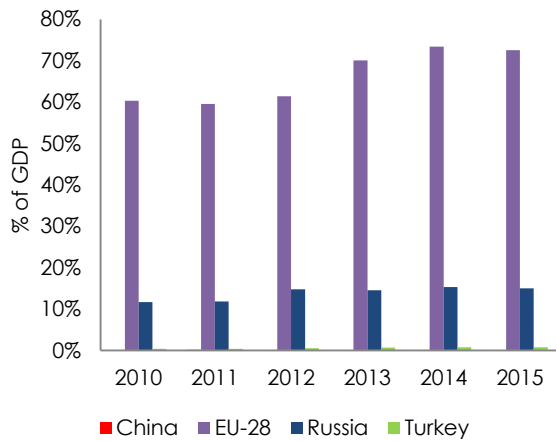
ANNEX IV

Sources of FDI stock in the Western Balkans
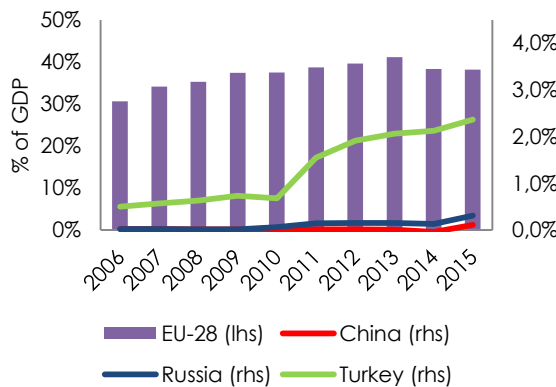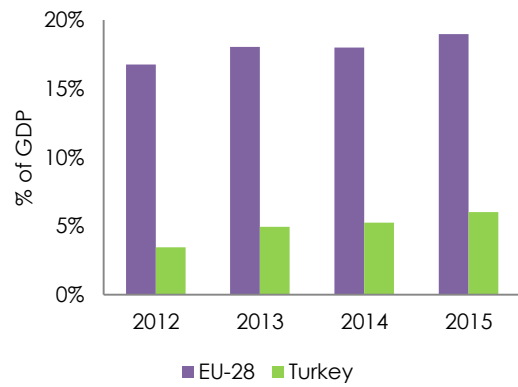
Albania

Serbia

Montenegro

Bosnia & Herzegovina
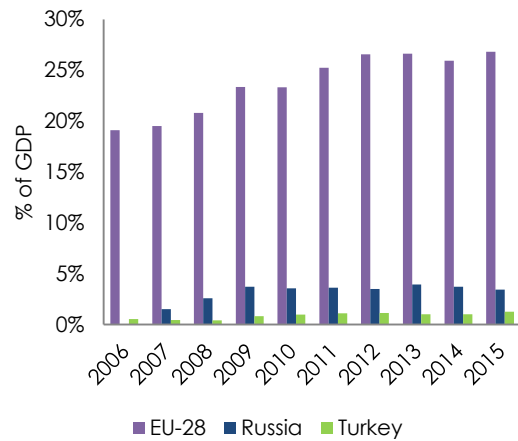
Former Yugoslav Republic of Macedonia

Kosovo

Source: The Vienna Institute for International Economic Studies, FDI Database

Gravity models results

Results of the exports model

Estimation type	Pooled cross section estimate			Two stage fixed effects			Random effects		
Dependent variable	Exports								
	(1)	(2)	(3)	(7)	(8)	(9)	(13)	(14)	(15)
a0	-3.913837	-3.470465	1.995522	-4.917091			-10.74703***	-10.54988***	-10.92198***
GDP_1	1.840131***	1.815067***	1.832400***	0.131094			1.325048***	1.321205***	1.327463***
GDP_2	0.562966***	0.550203***	0.559609***	1.490903***			0.627715***	0.628572***	0.610626***
GDP mass									
Barriers_to_exp	-1.380309**	-1.397688**	-2.727543***	-1.239805***			-1.056476***	-1.058266***	-1.127975***
Barriers_to_trade									
FX	-1.488386***	-1.466584***	-1.721373***	-0.291293			0.234571	0.234636	0.232235
a1 (stage 2)				-1.246553	-0.734882	-1.227437			
Distance	-0.418085***		-0.297580**	0.146881		0.310824	-0.100603		0.057205
Time		-0.437492**			0.074606	0.241135		-0.128025	
Ethnicity	-0.110072	-0.095377		-0.171959	-0.190718		-0.098744	-0.099150	
Language	0.481047***	0.467346***		0.509884	0.519364		0.491172***	0.488937***	
Religion	-0.032427	-0.023857		-0.040261	-0.041790		-0.086040	-0.081803	
Comb			0.232591***			0.251865			0.244315***
Border	0.828138***	0.793138***	0.932339***	1.082380	1.044065	1.158047	0.920536*	0.902105	1.098768***
R^2	0.779359	0.778008	0.76088	0.95778			0.746391	0.746045	0.721063
R^2 (second stage)				0.245009	0.244059	0.21684			
No Cross-sections	30			30			30		
No Observations	300			300			300		

Results of the total trade model

Estimation type	Pooled cross section estimate			Two stage fixed effects			Random effects		
Dependent variable	Trade								
	(4)	(5)	(6)	(10)	(11)	(12)	(16)	(17)	(18)
α_0	-11.13954***	-9.933683***	0.975589	-1.463278			-5.869420*	-5.433534	-6.161229*
GDP_1									
GDP_2									
GDP mass	2.165317***	2.107256***	2.223556***	1.120034***			1.590316***	1.584084***	1.577867***
Barriers_to_exp									
Barriers_to_trade	-0.315217	-0.361789	-3.238170***	1.074838***			-0.869555**	-0.872757**	-0.934143**
FX									
α (stage 2)				-0.369871	-0.04437	-1.895586			
Distance	-0.700803***		-0.770084***	0.163102		0.33994	-0.176852		-0.062974
Time		-0.768317***			0.102892			-0.237376	
Ethnicity	-0.024239	-0.009105		0.237972	0.213728		0.073039	0.070422	
Language	0.458840***	0.438585***		0.439859**	0.446272**		0.424332***	0.421057***	
Religion	-0.281389***	-0.264110***		-0.577722	-0.570487		-0.374293	-0.366752	
Comb			1.626692***			0.174286			0.184899**
Border	0.018361	-0.049967	0.350082**			0.873436	0.198222	0.15976	0.645076
R^2	0.876416	0.874248	0.807297	0.960491			0.845446	0.845485	0.796557
R^2 (second stage)				0.572122	0.568185	0.468001			
No Cross-sections	15			15			15		
No Observations	150			150			150		

***= Significant at the 1% level; **= Significant at the 5% level; *= Significant at the 10% level

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