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Value Chain Integration of the Western Balkan Countries and Policy Options for the Post-COVID-19 Period

Oliver Reiter and Robert Stehrer

The Vienna Institute for International Economic Studies
Wiener Institut für Internationale Wirtschaftsvergleiche

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OLIVER REITER
ROBERT STEHRER

Oliver Reiter is Economist at the Vienna Institute for International Economic Studies (wiiw). Robert Stehrer is Scientific Director at wiiw.

Abstract

In this policy brief, we study the development of trade integration, specifically the participation in global value chains, of the Western Balkan countries. Using a multi-country input-output Database, called the 'wiiw MC IOD', we first analyse in a descriptive way the trends in economic integration by looking at forward and backward linkages. Second, we apply a gravity model to accurately pin down the effects of trade integration. The results show that potential EU membership and the earlier Stabilisation and Association Agreements (SAAs) boost trade flows between the new trading partners. These agreements affect particularly the forward linkages and thus support economies to sell their products both directly and indirectly on global markets. This suggests that the Western Balkans should focus their efforts on achieving the maximum possible level of economic integration with the EU even before full accession, including greater access to the EU budget, joining the EU Customs Union and expanding the existing SAAs. Also, EU support for the Western Balkans amid the COVID-19 crisis should be stepped up in order to keep the countries on track for EU integration. More investment in regional infrastructure has the potential to make near-shoring from, for example, Germany and Austria more likely in a post-COVID-19 world.

Keywords: Western Balkans, input-output, global value chain integration

JEL classification: F15, R15, D57

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1. INTRODUCTION

EU enlargement in the Western Balkans is back on the agenda, at least judged by EU officials' declarations (or lip service). In 2017 the then European Commission president, Jean-Claude Juncker, stated that the EU 'must also maintain a credible enlargement perspective for the Western Balkans'.[1] This point has been reiterated by the new Commission headed by Ursula von der Leyen, which published a new strategy for the EU accession process in February 2020[2] and increased the economic assistance provided for the accession countries in October 2020, amid the COVID-19 pandemic.[3]

Clearly, the target date of EU accession in 2025 is unrealistic even for the two most promising candidates –Montenegro and Serbia (Grieveson et al., 2018). A recent study by the Bertelsmann Stiftung and wiiw (Weiss et al., 2020) finds that the efforts to strengthen regional co-operation in the Western Balkans have been unsatisfactory and warns that there are still crucial obstacles (such as territorial disputes) that severely hinder regional co-operation and EU accession. The potential economic benefits of joining the EU are undisputed and are documented, for example, in Altenberg et al. (2019). Reiter and Stehrer (2018) show that the Stabilisation and Association Agreements signed during the accession process have already positively affected trade between the EU and the potential accession countries.

In this policy brief, we use our update of the World Input-Output Database (WIOD), which in addition includes the Western Balkan countries, to investigate their degree of integration into global value chains. The advantages of using a multi-country input-output database for this analysis are as follows: 1) trade flows between countries have been reconciled; 2) for econometric purposes, intra-national trade flows are readily available and do not have to be estimated; 3) it allows separate analysis of intermediate goods exports and final goods exports; and, 4) trade integration measures such as forward and backward linkages can be computed.

1 State of the Union 2017 speech, see https://ec.europa.eu/commission/priorities/state-union-speeches/state-union-2017_en

2 See COM(2020) 57 final, available at https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/enlargement-methodology_en.pdf

3 See COM(2020) 660 final, at https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20201006-communication-on-eu-enlargement-policy_en.pdf

2. THE WIIW MULTI-COUNTRY INPUT-OUTPUT DATABASE INCLUDING WESTERN BALKANS

The data for this report was taken from a not yet publicly released multi-country Input-Output Database compiled at the Vienna Institute for International Economic Studies (referred to as 'wiiw MC IOD'). This database comprises international trade flows of intermediates and final goods of 50 countries and 38 industries and covers the period 2005-2018. This database is an update and extension of the 2016 release of the WIOD.[4]

At this stage, the wiiw MC IOD includes all EU28 countries, together with the non-EU European countries of Iceland, Norway and Switzerland, the six Western Balkan countries (Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Montenegro, and Serbia), and Russia, Turkey and Ukraine.[5] Also included are the biggest non-European economies, such as Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, South Korea, Taiwan and the United States of America. Furthermore, the database includes an estimate of the Rest of the World region.

This wiiw MC IOD was constructed in a similar way to the approach used for the World Input-Output Database as documented in Timmer et al. (2015) and the update undertaken by Timmer et al. (2016). For most European countries, a full set of supply and use tables has been available for at least one year according to ESA 2010 (SNA 2008) methodology. Most countries now also provide use tables in basic prices as well as import use tables. For the EU28 countries, import use tables were missing for Germany, Latvia and Luxembourg, while for Greece, the Netherlands and Spain no valuation matrices were available (i.e. the use tables are only provided in purchaser's prices) and therefore also no import use matrices are reported. In these cases, import use tables were constructed according to WIOD methodology. For the European non-EU member states, good-quality data was available for Norway and Switzerland. Iceland's supply and use tables are benchmarked on the tables for Norway and the United Kingdom. Data for Albania, North Macedonia, Serbia and Ukraine was collected from the national statistical institutes; missing import use tables were imputed using the WIOD methodology. For Bosnia and Herzegovina, the tables of Croatia and Serbia were used as a benchmark. Similarly, we approximated the supply and use tables for Montenegro with the tables of Croatia and North Macedonia, and used the tables of Serbia and North Macedonia as a benchmark for Kosovo. Supply and use tables for the remaining non-European countries were taken from the WIOD 2016 release.

To arrive at a proper time series, the supply and use tables were benchmarked to official national accounts data, which was generally available for all countries (although slight adjustments had to be made at the industry level in some cases). However, data availability forced us to aggregate to 38 industries, as more detailed data on services industries was missing for several European non-EU countries.

These supply and use tables were then combined with international trade data to arrive at international supply and use tables. Finally, the international supply and use tables were transformed to global input-output tables by assuming a fixed product sales structure (called 'Model D').[6]

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4 See Timmer et al. (2015) and Timmer et al. (2016) for documentation of this previous WIOD release.

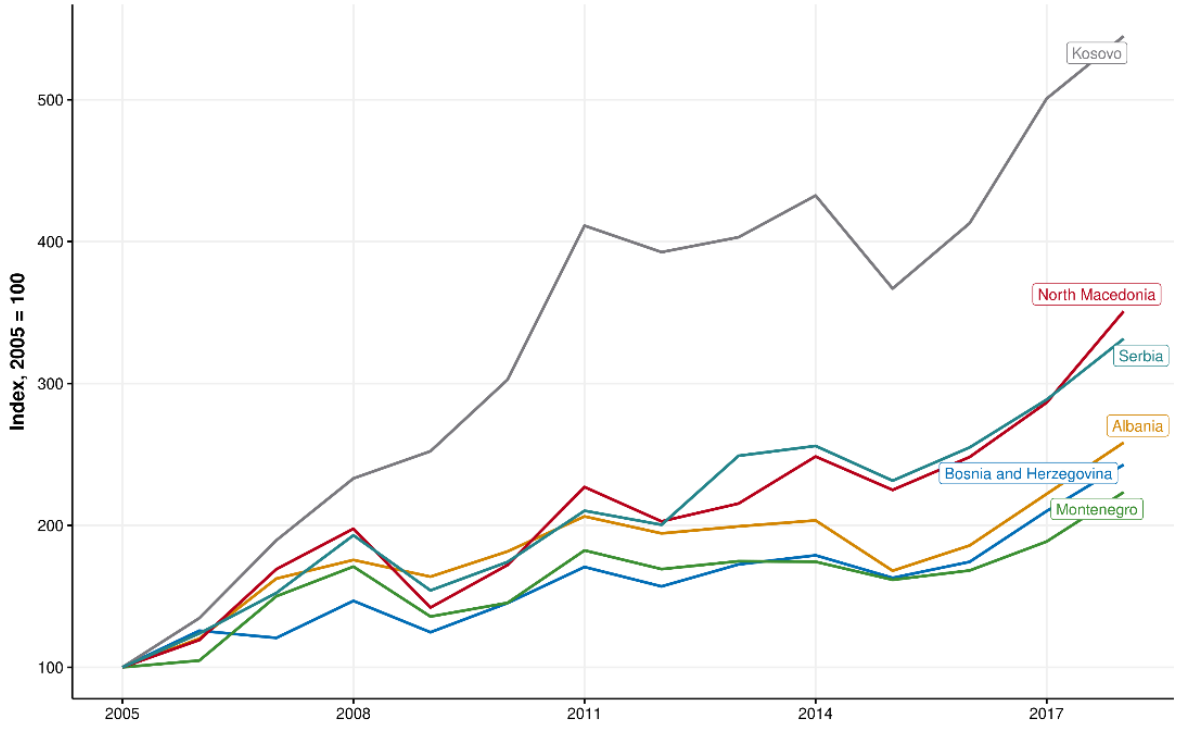
5 Belarus and Moldova are still missing from the full coverage of all European countries, owing to severe data constraints.

6 In the WIOD release, Model D is applied to all countries in the database; then in a second step the IOT of the Rest of the World region is calibrated. See Eurostat (2008) for a detailed explanation of how in 'Model D' the supply and use tables are transformed to a symmetric input-output table.

3. PATTERNS AND TRENDS OF VALUE CHAIN INTEGRATION

Input-output tables are invaluable for the analysis of global value chain (GVC) integration, as they allow the tracking of the amount of value added that is embodied in the gross exports of goods and services to other countries. As the WIOD release at hand includes the Western Balkan countries, we are able for the first time to investigate in great detail how the trade relationships of these countries have developed, especially with respect to the EU.

Figure 1 / Gross exports development for the Western Balkans, index 2005=100, 2005-2018

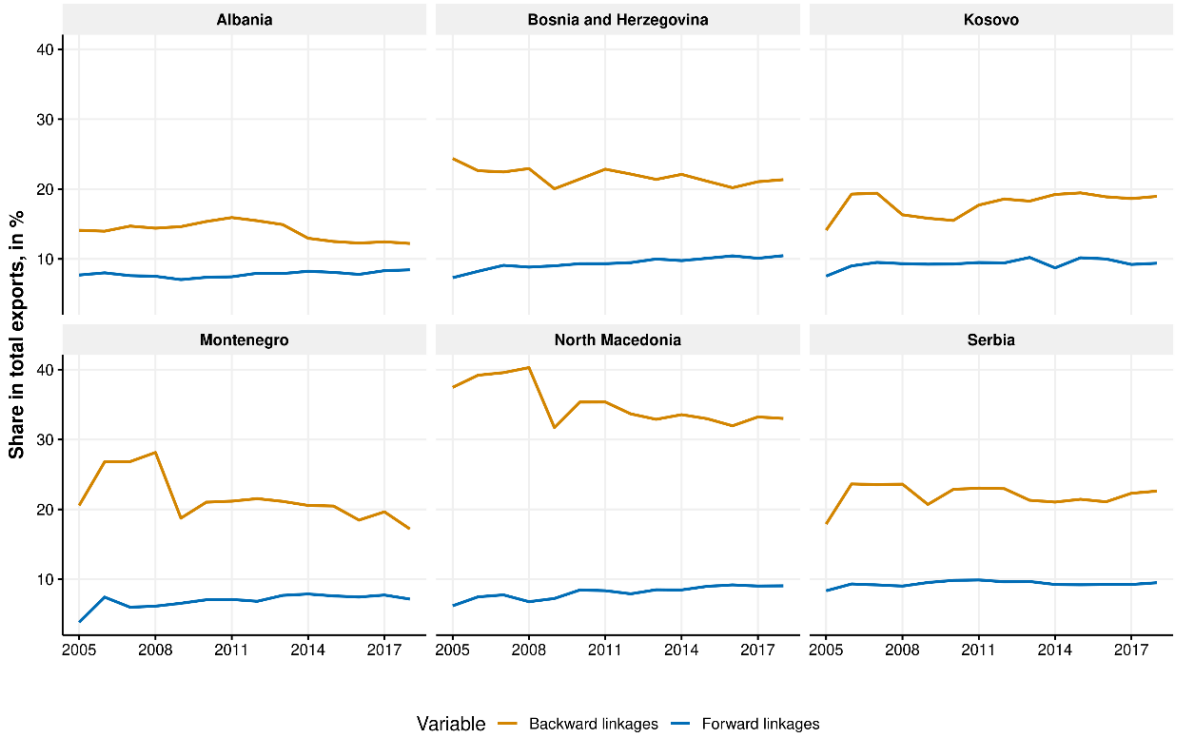


Source: wiiw MC IOD (preliminary version, 2020).

In Figure 1, we first provide the development of gross exports of goods and services of the six Western Balkan countries over time. All substantially increased their exports; even Montenegro more than doubled its exports from 2005 to 2018. Exports from Kosovo rose by a factor of five over the observed time span.

To quantify GVC integration, we use the standard forward and backward linkage indicators developed by Koopman et al. (2014) for this report. Forward linkages include all *domestic value added that is contained in the exports of another country*. For example, Austrian value added that is contained in the exports of Germany, Belgium, Japan and so on. The better integrated a country or industry, the higher will be the forward linkage, as its exports are more widely used in the production process in other countries. Backward linkages of a country are the *sum of the foreign value added that is contained in the exports of the respective country*. For example, German value added that is contained in Austrian exports increases the Austrian backward linkage indicator. Thus, the backward linkage indicator measures the tendency of countries to use foreign value added in their own production processes. To allow for a cross-country comparison, we measure both forward and backward linkages as a share of gross exports. Both forward and backward linkages are measured as a share of gross exports.

Figure 2 / Western Balkans forward and backward linkages; in % of gross exports, 2015-2018

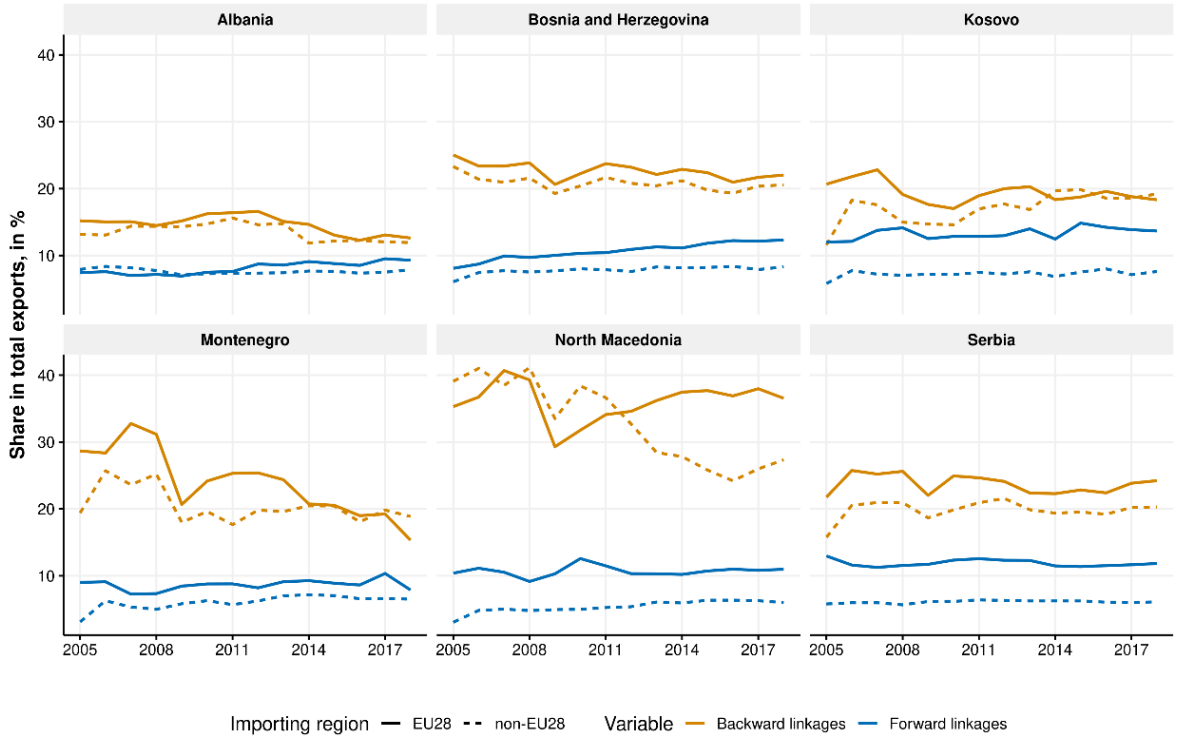


Source: wiiw MC IOD (preliminary version, 2020).

Figure 2 displays the backward and forward linkages of the six Western Balkan countries. We see small increases in forward linkages for Bosnia and Herzegovina, North Macedonia, and Montenegro. The level of forward linkages for all countries is below 10%. As a comparison, for Austria the forward and backward linkage values take values above 10% and above 20% respectively. By contrast, the level of backward linkages differs widely across countries: Albania has the lowest percentage of backward linkages, at 12.2% in 2018, while North Macedonia relies significantly more on foreign value added, with 33%. Over time, backward linkages as a share of gross exports show a tendency to decline in Albania, Bosnia and Herzegovina, North Macedonia and Montenegro. For Kosovo and Serbia, backward linkages are stable or slightly increasing.

In Figure 3, we separate the two types of linkages by whether or not the partner country belongs to the EU28. We can see that the linkages behave similarly for EU28 and non-EU28 over time, but as expected, the linkages with the EU28 countries are typically stronger in all six Western Balkan states. Marked differences in the dynamics between EU28 and non-EU28 countries are visible only for North Macedonia, where the linkages with non-EU28 countries fell significantly after 2010.

Figure 3 / Western Balkans forward and backward linkages by importing region



Source: wiiw MC IOD (preliminary version, 2020).

The wiiw MC IOD also allows us to study the linkages more in depth at the industry level. There are two important questions:

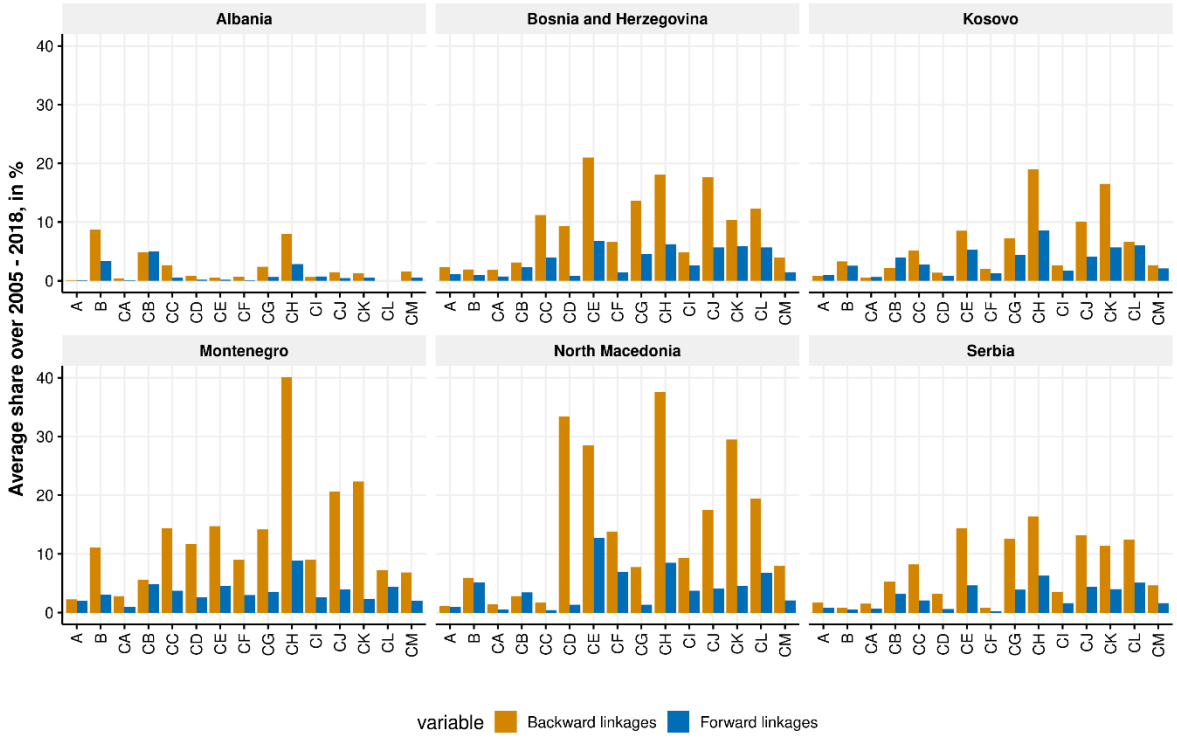
› which industries are already integrated most strongly in European and global value chains?; and

› which industries' linkages have been increasing the most?

Figure 4 answers the first question, specifically for the manufacturing industries. As most value chain integration happens in the manufacturing industries,[7] these are the important sectors to study. Figure 4 shows that the backward linkages are also generally higher than the forward linkages for the manufacturing industries (this is already seen at the total economy level, as shown in Figure 3). Furthermore, we observe that sectors in which backward linkages are relatively high tend to have relatively high forward linkages as well. This means that industries either tend to be integrated into value chains in both upstream and downstream activities (i.e. importing foreign value added for production processes and exporting their own value added via third countries) or not extensively integrated at all.

[7] See e.g. Stehrer and Stöllinger (2015, p. 6ff.) for a discussion of the importance of the manufacturing sectors with respect to global value chain participation. A figure depicting the service industries can be found in the Appendix.

Figure 4 / Average share of Western Balkans forward and backward linkages, by industry, in %



Note: A table of the used industry codes and descriptions can be found in the appendix.
Source: wiiw MC IOD (preliminary version, 2020).

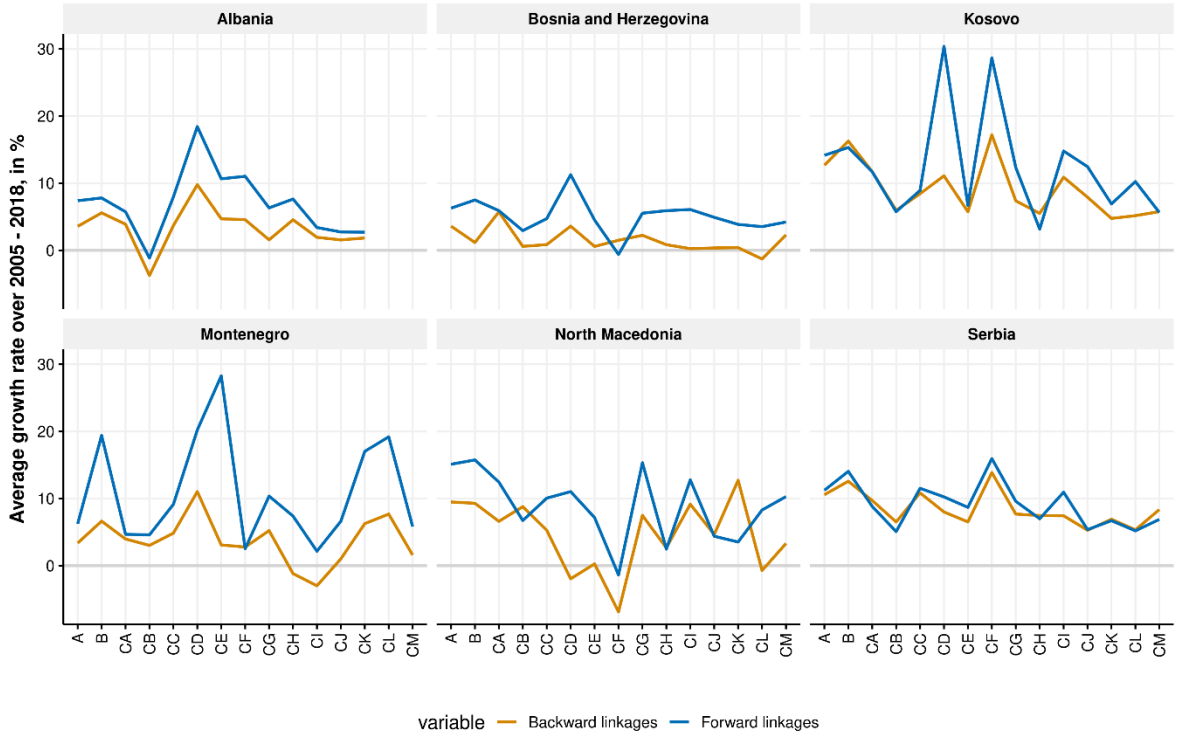
As expected, neither the agricultural sector (A) nor the mining sector (B) show strong linkages. The manufacture of basic metals (CH) is a sector that displays consistently high values for backward linkages, which is expected as this industry depends on mining products as inputs. Another sector that shows high values for backward linkages is manufacture of chemicals (CE). Furthermore, the operations of two other sectors – manufacture of electrical equipment (CJ) and manufacture of machinery and equipment (CK) – depend on foreign inputs and thus have elevated backward linkages.

There are also country characteristics that are worth mentioning: Albania's manufacturing industries exhibit very low forward and backward linkages, pointing to a lack of integration into GVCs and being a more closed economy in this respect. By contrast, North Macedonia and Montenegro show higher levels of (especially backward) linkages, which means that they are open to incorporating imports (and the foreign value embodied in them) into their production processes.

The average growth rates of the linkages[8] for agriculture, mining and the manufacturing industries for the six Western Balkan countries are depicted in Figure 5. Note that we see higher growth rates for forward linkages than for backward linkages. For some countries, the average growth rates of backward linkages of the manufacturing industries were negative. As above, we see that the growth pattern across industries is usually similar for both forward and backward linkages.

[8] Note that as the linkages are measured as a share of gross exports, these are the average growth rates of the shares.

Figure 5 / Average growth rates of Western Balkans forward and backward linkages, by industry, in %



Source: wiiw MC IOD (preliminary version, 2020).

We can go into even more detail. Figure 6[9] shows the backward linkages, measured again as a percentage of gross exports,[10] differentiated by the partner region and manufacturing sector. The higher the bar, the higher the backward linkage and the higher the 'backward' GVC integration for the given partner region.

We can see that orange bars for the backward linkages with the EU28 tend to be bigger than the backward linkages with the other two regions. This is hardly surprising, as the EU28 is a big and close trading partner.

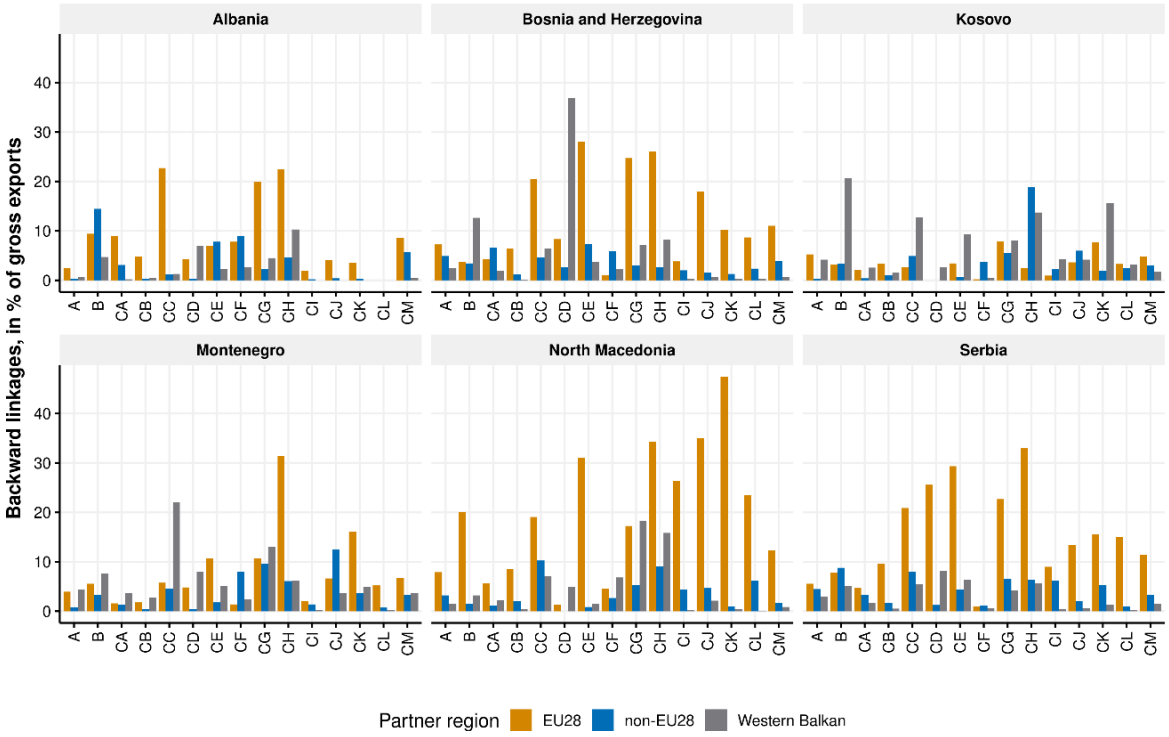
For some country-industry combinations, backward linkages within the Western Balkans are especially strong, such as in the manufacture of coke and refined petroleum products (CD) in Bosnia and Herzegovina (where the foreign value added from Serbia is especially high). The manufacture of wood and paper products (CC) in Montenegro is another example: it sources inputs from Albania, Kosovo and Serbia. In Kosovo, integration with the other Western Balkan countries in six out of 15 industries is stronger than for EU28 or non-EU28 countries. Kosovo's mining sector (B) reports large imports from Montenegro, while inputs for manufacture of wood and paper products (CC) and manufacture of machinery and equipment (CK) are predominantly sourced from Albania and Macedonia.

9 Figure 6 only depicts manufacturing sectors; a corresponding figure for the service industries can be found in the Appendix.

10 The backward linkages are measured as a percentage of gross exports by the given exporter and industry.

The main non-EU28 trading partners that are responsible for large backward linkages – such as mining (B) in Albania, manufacture of basic metals (CH) in Kosovo and manufacture of electrical equipment (CJ) in Montenegro – are China and India.

Figure 6 / Western Balkans backward linkages for 2018, by industry and partner region



Source: wiiw MC IOD (preliminary version, 2020).

4. POTENTIAL EFFECTS OF EU INTEGRATION

Based on this data, we can now analyse the effect of EU integration in the Western Balkans. For the six Western Balkan countries, EU integration occurs through the Stabilisation and Association Process (SAP). The goal of this process is to harmonise the economic and juridical foundations to prepare the countries for EU membership. The analysis of trade integration is a common research topic in economics, and it is typically done by using a gravity model. The gravity model was originally presented by Jan Tinbergen in 1962 and has received increased attention with the seminal work of Anderson and Wincoop (2003).

Yotov et al. (2016) provide a list of state-of-the-art empirical strategies to follow when estimating gravity models. One recommendation is to use three-way fixed effects (exporter-time, importer-time and exporter-importer fixed effects) to guarantee a bias-free estimation. The bilateral exporter-importer fixed effects were already recommended by Baier and Bergstrand (2007), who show that the fixed effects control for the possible endogeneity of signing free-trade agreements.[11] Furthermore, Yotov et al. (2016)

[11] Countries do not sign trade agreements with random trading partners; trade agreements are signed between countries that are trading partners to begin with. This presents problems when estimating the effect of a free-trade agreement. Baier and Bergstrand (2007) argue that the bilateral fixed effects can take care of this possible endogeneity.

argue that the inclusion of intra-national trade flows is an important condition in order to achieve unbiased gravity estimates. Fortunately, these could be extracted from the intra- and international trade flows of both the gross exports and the value-added exports at sectoral level from the wiiw MC IOD. The intra-national value-added flow is simply the total produced value added minus the sum of all value-added exports. Finally, Yotov et al. (2016) reiterates the point made by Santos Silva and Tenreyro (2006) that a Pseudo Poisson Maximum Likelihood (PPML) estimation should be used to deal with the heteroscedasticity usually observed in trade data.

Data on intermediate exports and final goods exports are extracted from our wiiw MC IOD; forward and backward linkages are calculated as explained above and measured as a percentage of gross exports. We use the database of free-trade agreements provided by Egger and Larch (2008). As we are interested in the effect of the integration of the Western Balkan countries with the EU, we specifically identify the following agreements:

› Stabilisation and Association Agreement, Initial Agreement (abbreviated as SAA/IA): The initial agreement is an interim agreement on trade-related issues between the EU and the applying country. SAA/IAs are coded as free-trade agreements by Egger and Larch (2008).

› Stabilisation and Association Agreement (abbreviated as SAA): SAAs are concluded by the EU and possible EU member states. They typically include provisions on political, economic and juridical issues that the countries have to implement. The countries are usually given tariff-free access to the EU domestic market in exchange for undertaking these reforms. SAAs are coded as free-trade agreements plus economic integration agreements by Egger and Larch (2008).

› EU Membership: Bulgaria and Romania in 2007 and Croatia in 2013 were the last countries to join the European Union. With the WIOD covering the years from 2005 to 2018, we can use the gravity model to estimate the effect of the EU membership on the trade flows.[12]

› The other types of trade agreements that are identified in the database of Egger and Larch (2008) are the following: customs unions (CUs), free-trade agreements (FTAs), economic integration agreements (EIAs), partial scope agreements (PSAs). The first three types are defined according to whether an agreement fulfils certain paragraphs in the General Agreement on Tariffs and Trade (GATT) or the General Agreement on Trade in Services (GATS),[13] while a PSA is an agreement that only covers certain products. As agreements can cover both goods and services, there are also agreements classified as CU & EIA, FTA & EIA and PSA & EIA.[14]

We do not separately include tariffs in the estimation, as we have a country sample of mostly developed and emerging economies where tariffs are already low. Furthermore, as we include data on FTAs, the free-trade dummy variables account for both the effects of tariff reductions and of trade facilitation that usually occur in the course of their implementation.

[12] We are not the first to estimate the effects of EU membership, see e.g. Altenberg et al. (2019) for a thorough analysis.

[13] A customs union is defined in Paragraph 8(a) of Article XXIV of GATT 1994, a free-trade agreement in Paragraph 8(b) of Article XXIV of GATT 1994 and an economic integration agreement in Article V of GATS.

[14] There are no instances of a CU & EIA in our country and year sample, thus it is omitted.

Table 1 shows the results of a gravity regression, using total exports and total exports separated into intermediate exports and final goods exports as dependent variables, respectively.

Table 1 / Gravity estimation for gross exports (intermediate and final goods)

	Total exports	Intermediate exports	Final goods exports
EU membership	0.65 (0.04)***	0.51 (0.04)***	0.80 (0.04)***
SAA/IA	0.05 (0.03)	0.06 (0.03)*	0.04 (0.03)
SAA	0.21 (0.03)***	0.20 (0.03)***	0.23 (0.04)***
CU	0.07 (0.09)	-0.05 (0.11)	0.28 (0.09)**
FTA	0.01 (0.05)	-0.05 (0.06)	0.12 (0.04)**
PSA	-0.03 (0.07)	0.04 (0.07)	-0.14 (0.09)
EIA	0.03 (0.07)	-0.22 (0.09)*	0.28 (0.08)***
FTA & EIA	0.03 (0.02)	0.04 (0.02)*	0.03 (0.02)
PSA & EIA	-0.12 (0.07)	-0.09 (0.07)	-0.12 (0.09)
Deviance	3191685.48	2264944.41	1724049.65
Num. obs.	35000	35000	35000
Num. groups: Exporter-time fixed effects	700	700	700
Num. groups: Importer-time fixed effects	700	700	700
Num. groups: Bilateral fixed effects	2500	2500	2500

Note: ***p < 0.001; **p < 0.01; *p < 0.05
Sources: wiiw MC IOD (preliminary version, 2020); own calculations.

We see the (expected) positive coefficients for EU membership. A coefficient of 0.65 means that trade flows increased by 92%[15] in Bulgaria, Romania and Croatia when they joined the EU. The coefficient for final goods exports, at 0.80 (122%), is considerably higher than the coefficient for intermediate exports, at 0.51 (66%).

The coefficients for SAA are also positive and significant, but not as high as for EU membership. SAAs seem to affect intermediate exports and final goods exports in a more equal way than EU membership, which predominantly increased final goods exports. SAA/IAs show positive, although insignificant coefficients.

The CU dummy variable shows a positive coefficient in the final goods export column. The only CU that was established in the given time span and country sample is the accession of Bulgaria, Romania and Croatia into the CU of the EU with Turkey. Similarly, the FTA dummy shows a positive significant coefficient for final goods trade, but not for intermediate exports. The FTA dummy contains the Central European Free Trade Agreement (CEFTA) agreement as well as several other FTAs, such as the agreement between Serbia and Russia (which entered into force in 2006). For both CUs and FTAs, the effect on gross trade is positive but not significant.

For agreements that fall into the FTA & EIA category, such as the EU-South Korea agreement, we find that these only affect intermediate export flows, but not final goods trade flows or gross exports. Neither a PSA nor a PSA & EIA seems to affect trade flows significantly. For a more detailed structural gravity model analysis of bilateral gross trade and foreign direct investment with a focus on the Western

[15] The computation is: (exp(0.65) * 100) – 100 = 91.5%

Balkans, see Grieveson et al. (2020 and 2021), a background study to the recent joint Bertelsmann Stiftung and the wiiw report of Weiss et al. (2020).

In Table 2 we use the forward and backward linkages as dependent variables: we do not consider the trade flow between country A and country B, but rather (in the case of forward linkages) the value added of country A that is contained in the (gross) exports of country B, and equivalently for the backward linkages.[16]

Table 2 / Gravity estimation for forward and backward linkages

	Forward linkages	Backward linkages
EU membership	0.08 (0.02)***	-0.05 (0.02)*
SAA/IA	0.05 (0.02)**	-0.01 (0.01)
SAA	0.05 (0.01)***	-0.02 (0.01)
CU	0.02 (0.04)	-0.08 (0.04)*
FTA	-0.00 (0.02)	-0.02 (0.02)
PSA	-0.01 (0.03)	0.01 (0.03)
EIA	0.04 (0.05)	-0.05 (0.03)
FTA & EIA	-0.02 (0.01)*	0.04 (0.01)***
PSA & EIA	0.03 (0.03)	-0.06 (0.03)
Deviance	7114.90	14409.54
Num. obs.	34300	34300
Num. groups: Exporter-time fixed effects	700	700
Num. groups: Importer-time fixed effects	700	700
Num. groups: Bilateral fixed effects	2450	2450

Note: ***p < 0.001; **p < 0.01; *p < 0.05
Sources: wiiw MC IOD (preliminary version, 2020); own calculations.

These results suggest that trade integration in the form of EU membership, SAA/IAs and SAAs has potentially positive effects on forward linkages, but less so on backward linkages. EU membership even shows a negative effect on backward linkages, although the effect is only significant at the 5% level. A coefficient of 0.08 (for EU membership in forward linkages) increases the forward linkages by 8%[17] (note, however, that both forward and backward linkages are measured as percentages of gross exports).

Backward linkages show mostly negative, although insignificant or hardly significant coefficients. The only coefficient that is strongly significant and positive is that for FTA & EIAs. Thus, these results suggest that EU integration potentially supports countries to enter European and global value chains by forward integration, i.e. selling their products directly and indirectly to larger markets.

[16] Because we cannot compute forward and backward linkages for intra-national flows, there are 700 fewer observations than in the previous regression table.

[17] As above: (exp(0.08) * 100) – 100 = 8.3%

5. SUMMARY AND POLICY RECOMMENDATIONS

This Policy Note uses an updated version of the WIOD, called the 'wiiw MC IOD', to study the effects of trade integration in the Western Balkans. Our findings and policy recommendations are summarised below.

› The results indicate that the trade integration studied here, specifically EU membership and SAAs, tend to increase exports (final goods exports more than intermediate exports) and forward linkages (which means that the increased intermediate exports are used for production which is again exported). This shows that these forms of FTAs do, in fact, increase GVC integration and have done so for the Western Balkan countries in the recent past.

› The results largely confirm earlier related research (Grieveson et al., 2020), which also underscored the importance of European integration regarding investment in addition to trade flows. Given that we can show that EU integration potentially supports countries in entering European and global value chains by forward integration in selling their products directly and indirectly to world markets, this is an additional piece of evidence that suggests that it should be a priority to focus efforts on the maximum level of economic integration possible with the EU (Weiss et al., 2020). Additional steps for consideration could include greater access to the EU budget, joining the EU Customs Union and expanding the existing SAAs. However, full EU accession should remain the final goal.

› Also, Weiss et al. (2020) find that the institutional, political and economic prerequisites for regional co-operation have not been present in the Western Balkans during the last 20 years, and that regional co-operation and economic integration in the future is dependent on a few, politically delicate, issues such as territorial disputes. Thus, further political assistance by the EU in the accession process, as well as in finding solutions of intra-regional conflicts, is needed.

› The Western Balkan countries have suffered from the sudden drop in trade flows resulting from the COVID-19 pandemic. The additional assistance promised by the EU in the new accession process should thus be processed as quickly as possible to compensate for the losses incurred and in order to keep the economies of the region determined to take further steps towards EU integration.

› To make the Western Balkans more attractive to foreign direct investment, better infrastructure (among other things) is needed. Holzner and Schwarzhappel (2018) argue for a co-ordinated 'big push' in infrastructure investment in the region. Apart from making large-scale investment in general more likely, this could also make the Western Balkan countries targets for post-COVID-19-related near-shoring from, for example, Germany (Gaber, 2020) and Austria (Bykova and Grübler, 2020).

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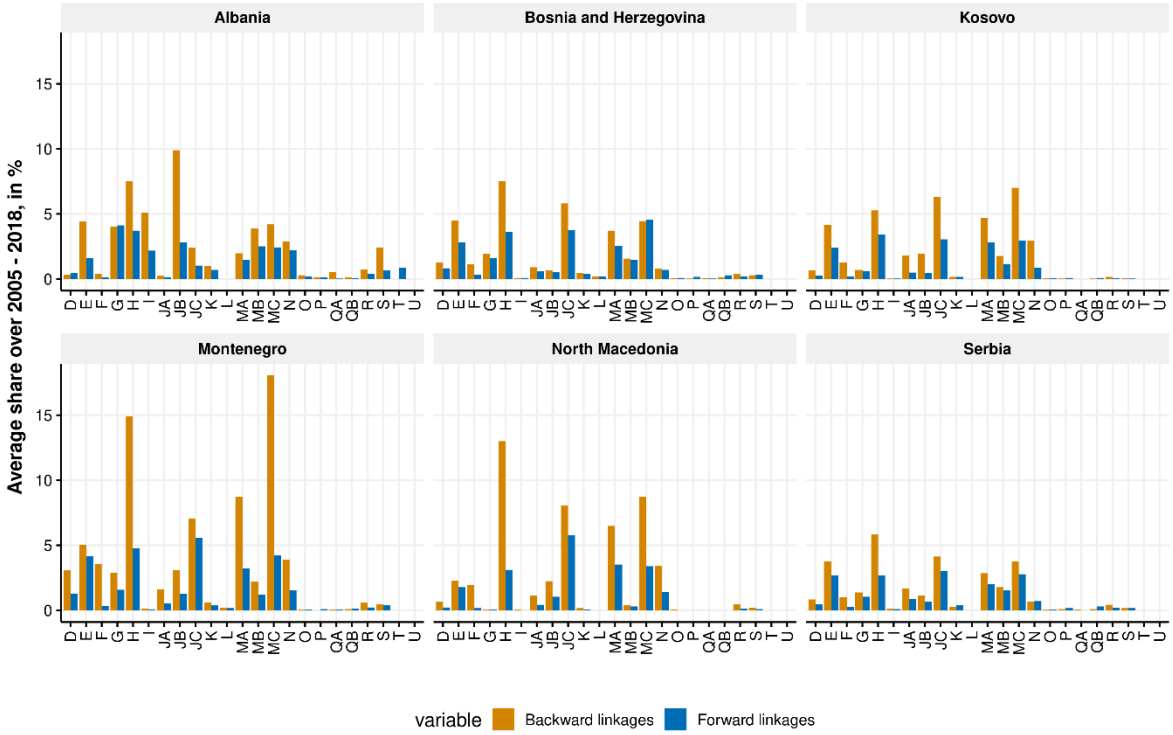
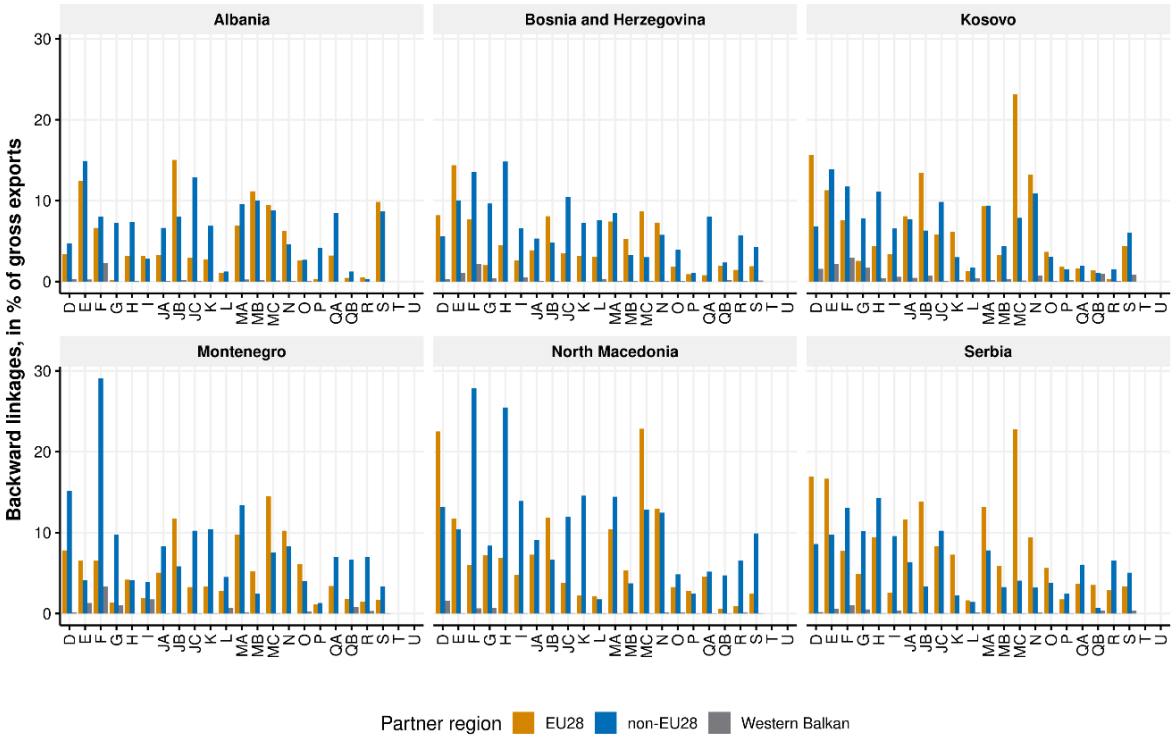
7. APPENDIX

Figure 7 / Average share of Western Balkans forward and backward linkages, by service industry, in %



Source: wiiw MC IOD (preliminary version, 2020).

Figure 8 / Western Balkans backward linkages for 2018, by service industry and partner region



Source: wiiw MC IOD (preliminary version, 2020)

Table 3 / Table of industry names

Industry code	Industry description
A	Agriculture, forestry and fishing
B	Mining and quarrying
CA	Manufacturing of food products, beverages, and tobacco products
CB	Manufacturing of textiles, apparel, leather and related products
CC	Manufacturing of wood and paper products, and printing
CD	Manufacturing of coke and refined petroleum products
CE	Manufacturing of chemicals and chemical products
CF	Manufacturing of basic pharmaceutical products and pharmaceutical preparations
CG	Manufacturing of rubber and plastic products, and other non-metallic mineral products
CH	Manufacturing of basic metals
CI	Manufacturing of computer, electronic and optical products
CJ	Manufacturing of electrical equipment
CK	Manufacturing of machinery and equipment not elsewhere classified
CL	Manufacturing of motor vehicles, trailers and semi-trailers
CM	Manufacturing of furniture; repair and installation of machinery and equipment
D	Electricity, gas, steam and air conditioning supply
E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and storage
I	Accommodation and food service activities
JA	Publishing, audiovisual and broadcasting activities
JB	Telecommunications
JC	IT and other information services
K	Financial and insurance activities
L	Real estate activities
MA	Legal, accounting, management, architecture, engineering, technical testing, and analysis activities
MB	Scientific research and development
MC	Other professional, scientific and technical activities
N	Administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
QA	Human health services
QB	Residential care and social work activities
R	Arts, entertainment and recreation
S	Other service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Activities of extraterritorial organisations and bodies

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