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Unleashing the Transformation Potential for Growth in the Western Balkans

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Foreword

The Western Balkan economies have been implementing reforms to improve their competitiveness since the early 2000s. These reforms contributed to economic growth by removing barriers to trade and investment and facilitating the region's integration into global markets. This led to a doubling of the size of their economies and a six-fold increase of their export volumes.

Although the region has considerably reinforced its integration into global value chains, remaining non-tariff trade barriers and regulatory restrictions continue to hamper full access to foreign markets. Many industries in the Western Balkans remain fragile, their technology largely outdated and their products not sufficiently competitive outside the region. Their improved macroeconomic performance has only partially accelerated the structural transformation of domestic producers and their integration into global value chains. Limited business opportunities are a cause of high unemployment, pressing young and talented people to search for better opportunities abroad. At the same time, the Western Balkans face an issue common to all middle-income economies – pressure from countries with lower production costs. Therefore, a shift towards higher technological standards is needed to compete in international markets.

The prospects of accession to the European Union (EU) and the alignment with the EU *acquis* represent excellent opportunities for the Western Balkans to fully embed their economies in European value chains, benefitting from increased investment flows and an upgrade of their manufacturing infrastructure. Against this backdrop, the Berlin Process represents a unique occasion for EU Member States to support the Western Balkans in their ongoing reform efforts, and for the Western Balkan economies to intensify mutual co-operation and gain recognition for their endeavours.

The OECD is launching this new study on trade and investment in the Western Balkan economies on the occasion of the 2019 Poznań Summit of the Berlin Process, with the support of the Ministry of Foreign Affairs of Poland, to help the region target the most strategic sectors for inclusive and sustainable growth.

This publication was prepared within the OECD South East Europe regional programme, which supports governments in the region to foster sustainable growth, investment and employment through reforms promoting competitiveness and private sector development. This report represents a tangible contribution to the region's ongoing process of economic reform, which aims to foster inclusive and sustainable growth for the benefit of all the citizens of the Western Balkans.

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* This designation is without prejudice to positions on status, and is in line with United Nations Security Council Resolution 1244/99 and the Advisory Opinion of the International Court of Justice on Kosovo's declaration of independence. Hereafter referred to as Kosovo.

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Abbreviations and Acronyms

ALB	Albania
BIH	Bosnia and Herzegovina
BGR	Bulgaria
BSS	Business Support Services
CEB	Central Europe and the Baltics
CEE	Central and Eastern Europe
CEFTA	Central European Free Trade Agreement
CID	Center for International Development
CZE	Czech Republic
EBRD	European Bank for Reconstruction and Development
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross domestic product
GERD	Gross domestic expenditure of research and development
GCESC	German and Central European Supply Chain
HEI	Higher education institution
HRV	Croatia
HS	Harmonized Commodity Description and Coding Systems
HUN	Hungary
IMF	International Monetary Fund
IPA	Investment promotion agency
IT	Information technology
KOS	Kosovo
LPI	Logistics Performance Index
MKD	North Macedonia
MNE	Montenegro/multinational enterprise
MSME	Micro, small and medium-sized enterprise
NMS	New Member States

OECD	Organisation for Economic Co-operation and Development
OEM	Original equipment manufacturer
OG	Opportunity gain
OV	Opportunity value
POL	Poland
PS	Product Space
PSE	Producer Support Estimate
RCA	Revealed comparative advantage
ROM	Romania
R&D	Research and development
SAA	Stabilisation and Association Agreement
SEE	South East Europe
SFRY	Socialist Federal Republic of Yugoslavia
SME	Small and medium-sized enterprise
SRB	Serbia
SVK	Slovak Republic
SVN	Slovenia
TiVA	Trade in value added
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
VAT	Value-added tax
VET	Vocational education and training
WB	Western Balkans
wiiw	Vienna Institute for International Economic Studies
WTO	World Trade Organisation

Executive Summary

The Western Balkans (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia) have been transitioning towards market-based economies since the early 2000s, removing barriers to trade and impediments to foreign direct investment (FDI) (OECD, 2018[1]). These reforms have resulted in an increase in trade volumes and a significant influx of FDI. While this process was crucial for the region, there are doubts whether the upsurge in trade flows and general economic growth sufficiently accelerated the structural transformation of industrial output in the Western Balkans. These early liberalisation and economic reform efforts rarely targeted the desired productive structure of Western Balkan economies. A more focused reform agenda concentrating on improving the business environment in activities with the highest spillover effects in technology and know-how could fill this gap and bring the region closer to the European Union (EU). At the same time, this approach could enable domestic companies to better integrate into global supply chains and improve both job quality and labour market performance.

This publication maps the changes in the export structure of the Western Balkans and identifies specific products and sectors which could enable the transition of industrial production from basic to complex products, while providing policy options to support this process. The analysis is based on the Product Space methodology (Hidalgo et al., 2007[2]), which maps products and their relations in terms of shared productive requirements and presence in the export baskets of different countries, showing that the more a country's export basket resembles that of the most developed economies, the higher is its probability to climb the development ladder. By increasing a country's knowledge base and producing more complex goods, its productive structure can be diversified and upgraded, improving future growth potential. The aim is to detect the products that would most support the transformation of the manufacturing landscape in the Western Balkans, leading to industrial advancement, increased competitiveness and sustained economic growth for the betterment of the region's inhabitants.

The main findings

Exports in the Western Balkans are shifting from predominantly basic to medium-technology products. With the region's exports increasing from USD 8.0 billion in 2000 to USD 46.9 billion in 2016, the composition of export baskets in the Western Balkans has changed as well. The top three product categories exported by the region in 2006 were iron and steel, aluminium and textile products. A decade later, they were electrical equipment, machinery and transport vehicles, which are primarily FDI-driven products that require a greater degree of technology and advanced processing. This shift in production hints at the impact of FDI on the composition of trade.

Changes in export basket composition are uneven across the region. Albania, Kosovo and Montenegro have relatively less complex export baskets, with predominantly agro-food products, semi-processed materials and basic machinery components to sustain export

sophistication in the long run. Bosnia and Herzegovina, North Macedonia and Serbia have more advanced export baskets and include a wide range of complex automotive components, final machinery products and related equipment, which is likely to enable them to further upgrade their level of industrial technology in the future. These differences are both the result of different development and industrial policies over the past 50 years and, more recently, the different degrees to which these economies attracted foreign investors.

Resource-based products remain traded mainly within the Western Balkans. Basic commodities, such as agricultural products and processed food products, construction materials and metals, dominate the trade basket within the Western Balkans. Even though they constitute only a small component of international trade for the Western Balkans, they account for an important share of intra-regional trade and local employment. By applying modern technologies and increasing the quality and standards of domestic agro-food production, these economies can still enrich their know-how and increase value added.

Exports of advanced technology products are oriented mostly towards EU markets. Machinery and automotive components flow massively towards the EU, particularly to Italy, Germany and Central and Eastern Europe along FDI-driven supply chains.

High export diversification potential in four sectors: agro-food, metals, machinery, and automotive. Approximately 40 to 50 promising products have been identified for each economy that could both increase production know-how and open the path towards more advanced products in the region. Developing the production of agro-food and metal products would be a comparatively easier task, given that the Western Balkans have considerable know-how in these two sectors and the required knowledge is simpler. Efforts for developing the machinery and automotive sectors will be more demanding but would potentially have a higher impact on economic complexity and, thus, on the level of economic development in the region.

Key policy recommendations

- **Foreign direct investment** is a cornerstone for technological upgrading, enabling a higher value-added production base in the region. Therefore, specific priority sectors in each economy should be identified and investment opportunities in such sectors targeted and facilitated accordingly.
- Economic development requires a change in the domestic production structure. Hence, a **network** between foreign investors and domestic suppliers should be established to encourage local producers to modernise their production systems to meet international quality standards and enter global supply chains usually led by foreign technology champions.
- **Skilled labour** is required to match the labour demand for knowledge-intensive production in selected sectors and to fully profit from using advanced foreign-sourced technologies. This should be combined with a sound **innovation eco-system** as a long-term focus. Both are essential to improve productivity and sustainability across all economic sectors, as well as to develop new promising indigenous products.
- **Agro-food sector** policies should encourage innovation and technology diffusion for increased productivity. Production systems should comply with international food quality standards to lower export barriers and increase exports to EU markets.

- The **metal industry**, being an energy-intensive sector, relies heavily on state subsidies and thus potentially discourages investments in energy-efficient and modern technologies. Policies should therefore be targeted towards progressively aligning energy prices to the market and meeting higher environmental standards. This could encourage metal processing companies to implement energy management systems in order to improve the sector's energy efficiency.
- As entry into the **automotive supply chain** increasingly depends upon complying with international standards on quality assurance, policies should support domestic firms to attain them. Given that technological development is rapidly changing global demand, skilled labour and innovation efforts are required in order to meet the high technical and quality standards set by the industry.
- The **machinery sector** is a relatively highly knowledge-intensive sector, thus policies should prioritise advanced technical skills in educational curricula. Likewise, stronger support for research and development will be required to meet global demand, including strengthening linkages with higher education institutions, providing technology support services and supporting digital uptake in small and medium-sized enterprises.

Reader's Guide

Methodological framework: The Product Space analysis

International trade plays a significant role in boosting market competition and pushing manufacturers to increase their productivity. However, boosting competition solely by removing obstacles to trade does not guarantee that production structures will shift towards sectors with higher value added.

This report combines trade and sectoral policy analysis to assess what types of industries could contribute towards reducing the technological gap between the Western Balkans and more advanced economies. Ultimately, shifting production towards technologically advanced products will result in an increase of value added in the economy (OECD, 2009[3]).

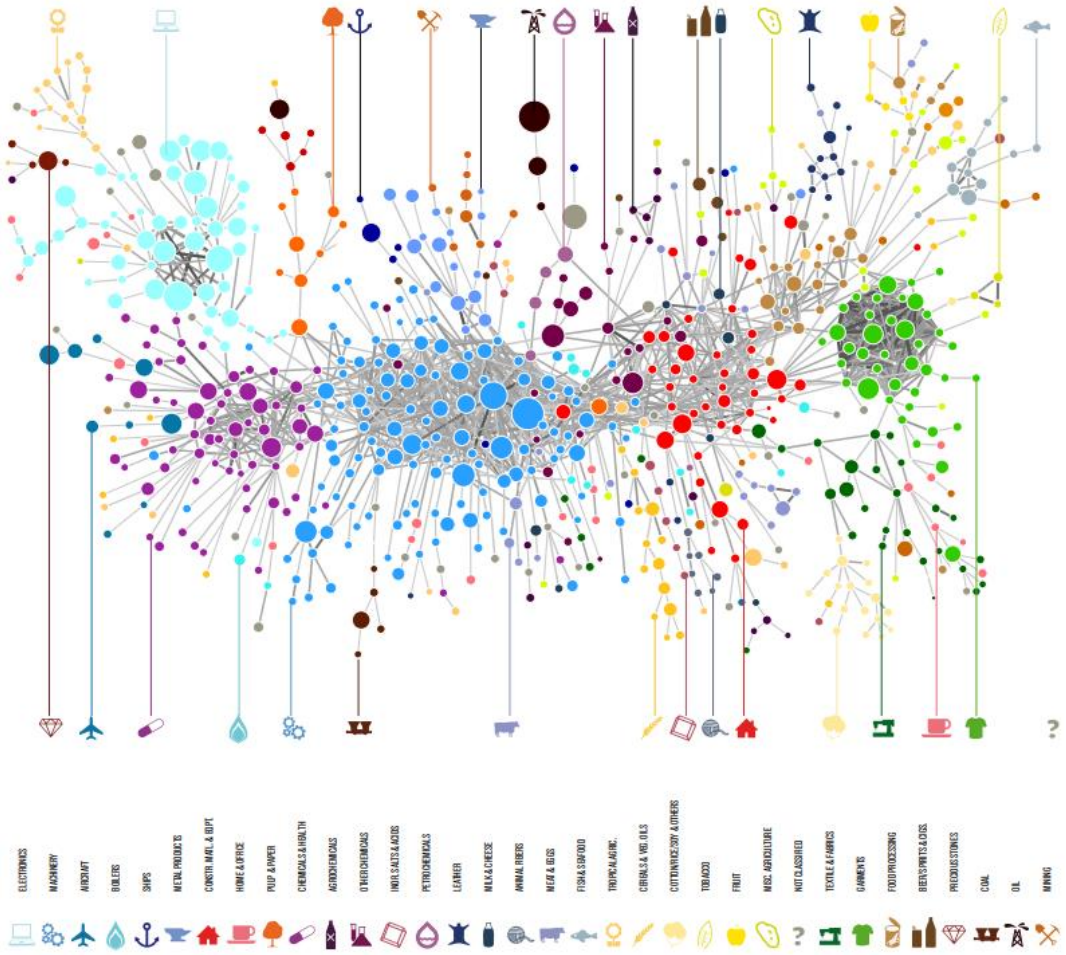
Sectors that could contribute towards economic development should have two basic characteristics:

1. **Production activity should already be in place**, even if modest, in order to build upon existing productive capacity rather than investing in entirely new fields. This is to avoid excessive risks, given the uncertainties of green field investment and capital constraints in the Western Balkans.
2. **Development of new export activities should not build primarily upon the exploitation of low labour costs, low taxation and/or subsidised energy prices**. This is because such comparative advantages are not sustainable in the long run. Moreover, this approach does not necessarily channel sectoral development towards complex product categories, which would best support technological upgrading.

It is therefore crucial to detect, on the basis of current capacity, which sectors would move the Western Balkans' production frontier towards increasingly complex products and thus trigger structural transformation and economic growth. A recent analytical framework, called Product Space (PS) can provide guidance in this sense.

The PS methodology is developed on the basis of international trade data and the observation that some products are more inter-related than others in terms of their likelihood to appear in a country's export basket (Hidalgo et al., 2007[2]). The PS network is irregular, consisting of unevenly distributed products (nodes) with a highly concentrated core, peripheral clusters and some isolated products on the margins (Figure 1).

Figure 1. Network representation of the Product Space



Source: Hausmann et al (2013[4]), *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, https://atlas.media.mit.edu/static/pdf/atlas/AtlasOfEconomicComplexity.pdf.

The lines connecting the nodes in the PS are a measure of the *proximity* between two products, which is given by the frequency with which they appear together in different export baskets. According to the authors of the PS methodology, a higher *proximity* is an expression of the common characteristics that the products share, i.e. their *capabilities*. *Capabilities* include, but are not limited to, production know-how (technical, professional and scientific knowledge), available patents, physical capital, spoken languages, geographical specificities (such as climate and natural endowments), societal characteristics and other enablers of transformation that characterise each economy.

It is possible to position single countries in the PS according to the products included in their export baskets. Economies with higher income levels tend to occupy the core of the PS and export a larger number of inter-connected products. By contrast, less developed economies most often display products in the periphery of the PS, where connections between products are sparser.

Countries are characterised by the number of different products that they export, i.e. the *diversity* of their export baskets. Products, on the other hand, are characterised on the basis of *ubiquity*: if a product is exported by a large (small) number of countries, it presents a

high (low) level of *ubiquity*. In general, non-ubiquitous (rare) and complex (requiring a wide range of *capabilities*) products are exported by diversified countries, while ubiquitous and less complex products are exported by non-diversified countries.

Based on these categorisations, it is possible to rank countries from most to least complex and diversified export baskets. The resulting index is called the *Economic Complexity Index* (ECI). Countries such as Japan, Switzerland and Germany hold the highest ECI (2.26, 2.18 and 1.99, respectively), while on the other, Chad, Iraq and Nigeria hold the lowest (-2.74, -2.50 and -2.26, respectively) and therefore have the least complex and diversified export baskets (Table 1).

Hausmann et al. (2013[4]) note that the ECI is strongly correlated with the income level of a country. They find that when a country shows an ECI higher than what would be predicted from its average level of income, its gross domestic product (GDP) is expected to increase substantially in the future. Therefore, the ECI can be a powerful predictor of economic development.

Table 1. Top 5 and bottom 5 countries according to the ECI

Top 5 countries		Bottom 5 countries	
Country	Economic Complexity Index	Country	Economic Complexity Index
Japan	2.26	Chad	-2.74
Switzerland	2.18	Iraq	-2.50
Germany	1.99	Nigeria	-2.26
Korea	1.79	Guinea	-2.16
Chinese Taipei	1.71	Cameroon	-1.89

Note: The ECI is normalised to zero mean and unit variance, hence positive and negative signs indicate merely the position with respect to the mean. Data refer to 2016.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

From this point, it is possible to build a *Product Complexity Index* (PCI) by matching the *ubiquity* of a single product with the average level of economic complexity of the country that includes it in its export basket. A product's complexity is thus defined both by the amount of *capabilities* required for its production and how frequently it is found among different export baskets. Products holding the highest PCI primarily belong to categories such as machinery, chemicals and precision instruments (the highest PCI is 6.53, Table 2). Products with the lowest PCI are in categories such as ore and oil, textiles and prepared foodstuff (the lowest PCI is -4.68, Table 3).

Table 2. Selection of products with the highest PCI

Product code (HS4)	Product name	Product community (HS2)	Product Complexity Index
7414	Endless copper wire bands	Base metals and articles of base metals	6.53
8456	Non-mechanical removal machinery	Machinery and mechanical appliances	5.58
8457	Metalworking transfer machines	Machinery and mechanical appliances	4.81
3705	Developed exposed photographic material	Products of the chemical and allied industries	4.64
3707	Photographic chemicals	Products of the chemical and allied industries	4.59
9203	Pipe organs	Precision instruments	4.54

Note: The PCI is normalised to zero mean and unit variance, hence positive and negative signs indicate merely the position with respect to the mean. Data refer to 2016.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table 3. Selection of products with the lowest PCI

Product code (HS4)	Product name	Product community (HS2)	Product Complexity Index
4001	Rubber	Prepared foodstuff	-4.68
5303	Jute and other textile fibres	Textiles and articles of textile	-4.26
2615	Niobium, tantalum, vanadium and zirconium ore	Mineral products	-4.06
1801	Cocoa beans	Prepared foodstuff	-3.99
2709	Crude petroleum	Mineral products	-3.86
714	Cassava	Vegetable products	-3.69

Note: The PCI is normalised to zero mean and unit variance, hence positive and negative signs indicate merely the position with respect to the mean. Data refer to 2016.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

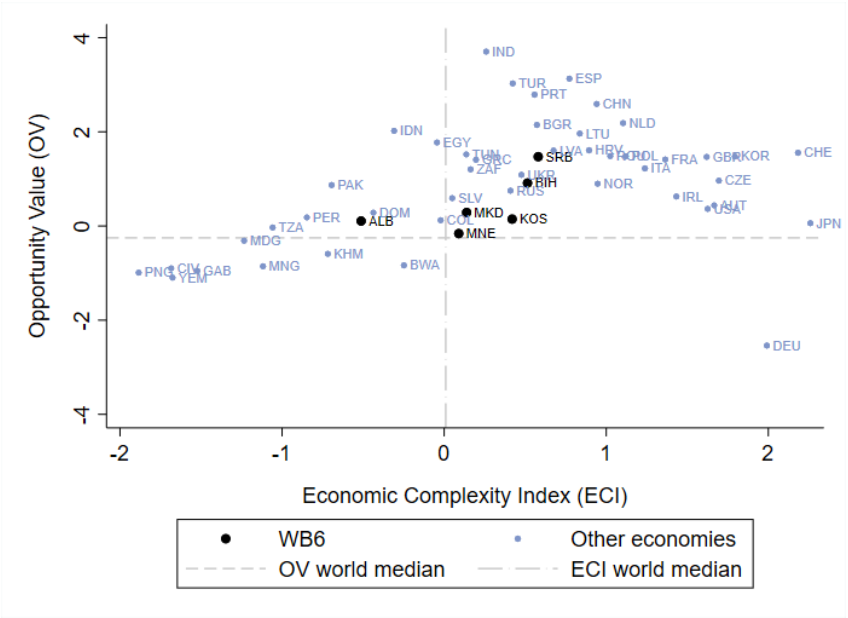
Still focusing on products, *proximity* reflects their level of similarity: the higher the number of common *capabilities* embedded in two products, the higher the *proximity*. At the country level, *distance* measures how far a single product is from the country's export basket, i.e. from the sum of *capabilities* that a country holds. The smaller the *distance*, the easier it is for the country, given its set of *capabilities*, to produce it. However, in order to increase its ECI, a country should seek to produce only those products that embed a higher-than-average PCI. The *opportunity value (*OV) is a measure that synthesises the complexity of the products that the country is not yet exporting, but that are linked to its export basket in the PS, and their average *distance*. With values ranging between -2.5 (Germany) and 3.7 (India), the OV is a measure of the unfulfilled potential to produce more complex products relying on the country's current set of *capabilities*. Plotting countries against their ECI and OV, and taking into consideration world median values for both, it is possible to define four groups of economies (see the four quadrants in Figure 2):

- those with both a low ECI and a low OV – the least developed economies with limited potential for future sophistication (e.g. Gabon, the Ivory Coast and Yemen)
- those that have a low ECI but an above-the-median OV – the least developed economies with more potential for future sophistication (e.g. Pakistan, Peru and Tanzania)

- those showing a higher ECI and an above-the-median OV – many of the developing and developed economies with potential for future sophistication (e.g. Bulgaria, France, India, Italy, Lithuania and Norway)
- those showing a high ECI and a low OV – highly developed economies with a narrow potential for future sophistication given the technological boundaries mapped in the PS (the PS cannot map potential technological disruption, which can occur in technologically advanced countries) (e.g. Germany)

The Western Balkan economies are positioned at an intermediate level of economic complexity, slightly above the ECI world median (with the exception of Albania). However, perhaps even more importantly, they all show an OV that is higher than the median. Thus, they fall into the third category of economies – those with a significant potential to upgrade their production.

Figure 2. Position of economies with respect to ECI and OV (2016)



Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Based on the OV, it is possible to measure the potential benefit for a country if it were to jump from its current set of products to more advanced ones that are better linked to the core of the PS. Every time a new product with a higher PCI enters the export basket of a country, it lifts up the ECI and expands the number of connections to gradually more complex products. The *opportunity gain* (OG) is an additional measure that assesses the potential new OV of a country if it were to embed a specific new product in its export basket. The OG is the difference between the current and the potential OV, and the higher it is, the more strategic the product is to raising the average PCI of the country's export basket. Thus, the OG confers a dynamic perspective to the PS analysis: while the OV indicates the present production potential of the economy, the OG signals the amount of future connections to more and more complex products once new *capabilities* are acquired through the development of the next complex products.

To summarise, Table 4 provides an overview of the key terms and definitions used in the PS analysis.

Table 4. Key definitions of the Product Space analysis

Key term	Definition
Capability	Basic unit of productive knowledge, which combined with others allows for the production of a specific product. The sum of all capabilities in the country represents the know-how of the economy.
Proximity	Measure of the similarity of two products: the closer the proximity, the higher the number of common capabilities embedded in the two products.
Diversity	Number of products exported by a single country.
Ubiquity	Number of countries that export a specific product.
Economic Complexity Index (ECI)	Rank of countries based on the level of diversity of their export baskets and the average complexity of the products contained in them, given by the amount of capabilities required to produce them.
Product Complexity Index (PCI)	Rank of products based on their ubiquity and the average level of economic complexity of the exporting countries.
Distance	The gap between the current know-how of a country and the complexity of a product which is not yet part of its export basket.
Opportunity value (OV)	The OV measures how close a country is to new products with a higher complexity.
Opportunity gain (OG)	The OG measures how much the OV of a country would increase if it were to develop the production of a new product.

Source: OECD adaptation based on Hausmann et al (2013[4]), *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, https://atlas.media.mit.edu/static/pdf/atlas/AtlasOfEconomicComplexity.pdf.

Identification of promising sectors in the Western Balkans through the Product Space analysis

This study applies the PS analysis to the six Western Balkan economies as the basis for determining which sectors have the highest potential to increase their economic complexity, raise income and support structural transformation in the region. This goal is achieved in three steps:

- First, the study identifies which products the Western Balkan economies are already exporting to a significant extent.
- Second, based on their current export specialisation, it suggests which products these economies should produce in order to raise their economic complexity.
- Third, based on the identified products, it analyses the crucial sectors for production sophistication along with the most appropriate policies which could trigger the structural transformation of the production capacity in the Western Balkans.

With regard to the first step, this report uses the *revealed comparative advantage* (RCA) index as a common measure to assess whether a country exports a product to a significant extent: when its export share for that product is higher than the world's average, it means that the country holds an RCA. Chapter 1 analyses trade patterns in the Western Balkans, including changes in the composition of the export baskets in the region. This analysis is based on RCA shifts between 2006 and 2016, grouped according to the technological level of exported products, adapted according to the definition Lall (2000[7]). A rigorous explanation of the concepts of RCA and RCA shifts are presented in Annex A.

After mapping the position of each of the six Western Balkan economies in the PS, Chapter 2 builds upon the products for which they already hold an RCA. This analysis looks at other linked products with a feasible *distance* from the current export basket and a still modest export value (no RCA), but with a higher-than-average PCI. Thus, it aims to shift production towards increasingly more complex products. To this end, the *distance* is deemed feasible if it is less than the median *distance* of products with no RCA from the current export basket.

It is important to mention that there is necessarily a trade-off between *distance* and *product complexity*. Given that the shorter *distance* of a new product from the current export basket implies the presence of already established *capabilities* required for its production, embedding this type of product will add little new *capabilities* to the economy. Moving across greater *distances* will allow for obtaining a wider set of new *capabilities*, but such leapfrogging is much harder to perform.

Keeping this concept in mind, the products identified as promising for the Western Balkan economies fall under one of two specific categories: *short gains* and *long bets*. *Short gains* are products that would moderately increase the economy's ECI, but whose *distance* is short enough and would not require a great effort to be realised. *Long bets* are products that would significantly increase the stock of knowledge in the economy, but because of that they require much more effort in order to be effectively developed on a large scale. Reaching the correct balance between *short gains* and *long bets* can guarantee tangible improvements in the short run and more relevant structural upgrades in the long run (Table 5).

Table 5. Key definitions in the selection of promising products

Key term	Definition
Revealed comparative advantage (RCA) index	Index comparing how much a country exports a certain product in relation to the world average. If its share of exports is higher than the world average, it is said to hold a revealed comparative advantage.
Short gain	A product that would positively but modestly contribute towards raising a country's economic complexity, located at a short distance from its current set of capabilities.
Long bet	A product that would significantly contribute towards raising a country's economic complexity, but with fewer capabilities in common with the current export basket, hence a greater distance to overcome and more difficult to specialise in.

Source: OECD adaptation based on Hausmann et al (2013[4]), *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, https://atlas.media.mit.edu/static/pdf/atlas/AtlasOfEconomicComplexity.pdf.

To give an example, targeting *short gains* in the agricultural sector could be simple for economies endowed with a favourable climate, abundant natural resources and an established food industry: further development could occur in this field in the short term without excessively deviating from current levels of know-how. On the other hand, products in complex machinery sectors can be seen as *long bets* and would substantially contribute towards raising the country's economic complexity. However, this will require significant capital investment and the establishment of new supply chains, which takes time.

It should be remembered that *short gains* and *long bets* are concepts that are relative to the current ECI of a country, reflecting its production infrastructure. Thus, a product that might appear relatively simple, such as canned food, could represent a *short gain* for an economy

with an established agro-food industry but could be a complex *long bet* for a developing economy without a solid manufacturing base that relies mostly on the export of raw agricultural commodities. Inversely, a complex automotive component could represent a *long bet* for a middle-income transition economy but a *short gain* for a developed country with a more advanced automotive production system and a more valuable position in global value chains.

The PS analysis conducted in Chapter 2 leads to the identification of a set of approximately 40 to 50 *short gains* and *long bets* for each of the Western Balkan economies. These products are selected at a high level of disaggregation and would contribute towards raising economic complexity in the Western Balkans.

Observing the larger product categories to which the promising products belong, the economic sectors that have the greatest potential to support structural transformation in the region are identified. This analysis is conducted in Chapter 3, which discusses sectoral patterns, key factors of competitiveness in the Western Balkans and policy recommendations for sectoral development.

Observations about the Product Space

A number of observations about the PS methodology should be kept in mind when interpreting its results:

- **The RCA index, upon which this PS analysis is based, is only a proxy for trade competitiveness**. Given that RCAs are built purely upon export data, they do not say from where the comparative advantage is derived. An RCA may come from pure market forces and competition, hinting to higher labour productivity and better technology. Alternately, the advantage may result from distortive forces such as export subsidies or tax incentives that could boost exports artificially and do not reflect strong production *capabilities*.

  Furthermore, an RCA does not typically account for re-exported goods that can be subject to processing abroad, which is a common occurrence in global value chains. In some cases, the value added in a specific exporting economy can be large if the imported products are raw or resource-based materials and most of the capital-intensive transformation is conducted domestically. On the contrary, when complex components are imported ready-made from abroad and only assembled in the domestic economy, signalling a comparative advantage in low labour costs rather than technological know-how, an established RCA can signal a comparative advantage in products where it does not really exist. The resulting discrepancy between RCAs based on gross export value and value added can sometimes be substantial (Brakman and Van Marrewijk, 2017[8]). However, it should also be acknowledged that the capacity to handle and process complex products requires certain *capabilities* in itself that should not be underestimated or taken for granted.

- **Being based on export data, the PS does not entirely match value added in the economy.** This is particularly true for countries whose comparative advantage lays in low labour costs rather than technological intensity (Ahmad et al., 2017[9]). However, there are currently no input-output tables nor value added data for the six Western Balkan economies at a sufficient level of disaggregation (such as the OECD Trade in Value-Added [TiVA] Database) to conduct this type of sectoral analysis. Trade data still represent the best proxy for domestic production at the product level in the Western Balkans, and they match the ability of the exporting

country to handle and process, at least to a certain extent, complex inputs. Furthermore, the trade angle from which this analysis is conducted, picking promising sectors on the basis of their export performance, reflects the necessity for the region to rely on an export-led growth model; this is even more crucial from the perspective of eventually joining the European Union (EU) and the need to increase their robustness for sustaining competitiveness in the Common Market.

- **The PS analysis does not account for tradable services**. This is the natural outcome of the fact that trade statistics based on the Harmonized Commodity Description and Coding System (HS) do not include services, even though for certain economies they can represent a significant source of exports (for example, tourism or information technology). However, it does implicitly reflect the services and related *capabilities* that are needed to produce and export products. Additionally, the development of new products indirectly strengthens the provision of new services, benefitting all sectors of the economy.
- **The PS analysis maps only the products that are currently traded internationally, not accounting for technological development or disruption**. Thus, when assessing what products an economy could reach, it takes into consideration only those that it is already capable of exporting. It does not account for products that could stem from new technology. Still, this limitation is primarily relevant for developed countries that are front innovators and less plausible for middle-income countries that would need to leapfrog to reach the global technological frontier and push it forward.
- **The PS analysis looks only at the supply side**. What a country exports depends not only on its production capacity, but also on the world demand for such products. In case of the absence of foreign demand, a product's potential for increasing economic sophistication might not emerge. Relevant factors that might negatively affect exports are different consumption habits, excessive market distances, high transportation costs and tariff and non-tariff barriers. These issues call for a complementary analysis before being able to define a product as a *short gain* or *long bet* with better certainty.

  The PS analysis does not differentiate among the same product category in different countries. Rather, it assumes that if different countries produce the same product, the product is identical across the board. This is hardly the case as emerging industries in developing economies will usually supply products of inferior quality and suffer from weaker reputability, branding, infrastructure, commercial ties and more.

Data sources

This report is mainly built upon time series trade data from 2006 to 2016, which was used to assess import and export trends for the entire Western Balkan region and its individual economies, whereas the PS analysis is built at the level of the individual economies in 2016. The analysis did not consider a longer dataset due to the historical context of the region: trade statistics between 1989 and 2000 for the Western Balkans are irregular and often unreliable. In some cases and for several years, central statistical offices were unable to produce figures on a national level (such as in the case of Bosnia and Herzegovina, with the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, or the former Federal Republic of Yugoslavia, composed of Serbia, Kosovo and Montenegro).

The study builds upon a different range of sources: trade flows in Chapter 1 are built on UN Comtrade data and the classification follows the HS at the 2-digit and 4-digit level. The PS analysis in Chapter 2 is based on CEPII's BACI world trade database, further processed by the Center for International Development (CID) at the Harvard Kennedy School to account for re-exports and inconsistent reporting practices. In the case of Kosovo, which is not covered by the BACI database, data were directly provided by the Kosovo Agency of Statistics at the HS 4-digit level.

Other data sources include Eurostat, International Labour Organization (ILO) Statistics, the International Monetary Fund (IMF) Economic Outlook, UNESCO Data for the Sustainable Development Goals, the UNIDO INDSTAT 2 Industrial Statistics Database, the Vienna Institute for International Economic Studies (wiiw) database, the World Bank's World Development Indicators (WDI), and national statistical offices.

Chapter 1. Trade Evolution in the Western Balkans

Chapter 1 provides an overview of trade flows in the Western Balkans. It first documents the process of trade liberalisation in the region (1990s to 2010s). It then analyses the composition of and changes to the regional export basket, taking into account shifts in regional revealed comparative advantages. It also identifies trade partners in the European Union and within the region and estimates the technological content of their import and export flows.

1.1. The path to trade liberalisation and economic growth in the Western Balkans

Economic transition in the Western Balkans was characterised by the liberalisation of trade and capital flows, which opened up domestic markets to foreign competition.

This transition began later in the Western Balkans than in Central Europe and the Baltics (CEB).[1] The delay occurred in the 1990s, when the breakup of the Socialist Federal Republic of Yugoslavia (SFRY) triggered prolonged and multi-focal armed conflicts, sharp declines in economic performance, the application of international sanctions and the insurgence of intra-regional physical and non-physical barriers to trade and economic co-operation.

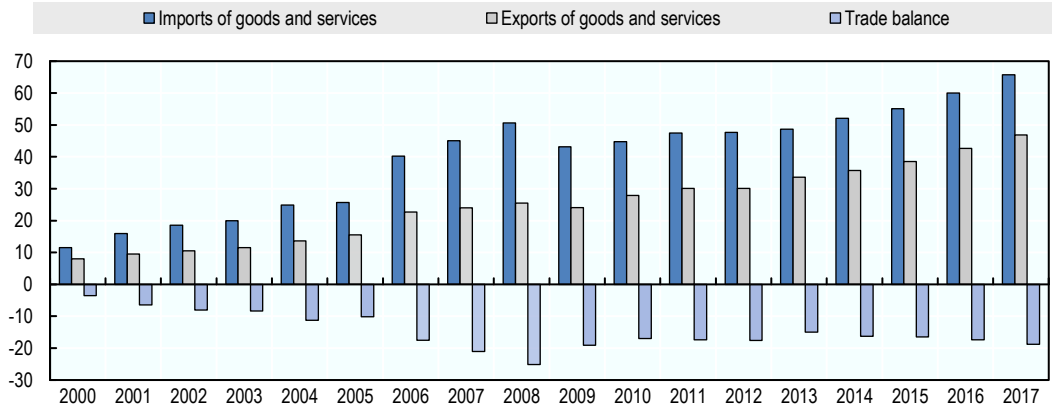
Thus, since the early 2000s, trade liberalisation in the Western Balkans marked not only an attempt to boost economic activity and growth, but also a political effort to mend relations across the region. This process was also driven by the European Union (EU), which saw the improvement of neighbouring relations as a pre-condition for commencing accession negotiations (Börzel and Risse, 2009[10]).

With regard to free trade agreements, Albania was the first economy in the region to join the World Trade Organization (WTO) in 2000 and was later followed by North Macedonia in 2003 and Montenegro in 2012. Bosnia and Herzegovina and Serbia are currently in the process of negotiating their accession to the WTO. Another significant milestone was the signing of the 2006 Central European Free Trade Agreement (CEFTA) for South East Europe (SEE), which harmonised the multitude of bilateral trade agreements through the establishment of a single, larger free trade area in the Western Balkans and Moldova. The aim was to boost competition in the region and access the path to EU accession. At the time, Western Balkan economies also signed Stabilisation and Association Agreements (SAA) with the EU (the first economy to sign was North Macedonia in 2001 and the last was Kosovo in 2015), which gradually established tariff-free access to EU markets.

The immediate effect of trade liberalisation was a significant rise of imports in the early 2000s (Figure 1.1). This was further facilitated by capital inflows as domestic financial markets opened up to foreign banks.

Figure 1.1. Trade flows in the WB

USD billion, constant 2010 prices

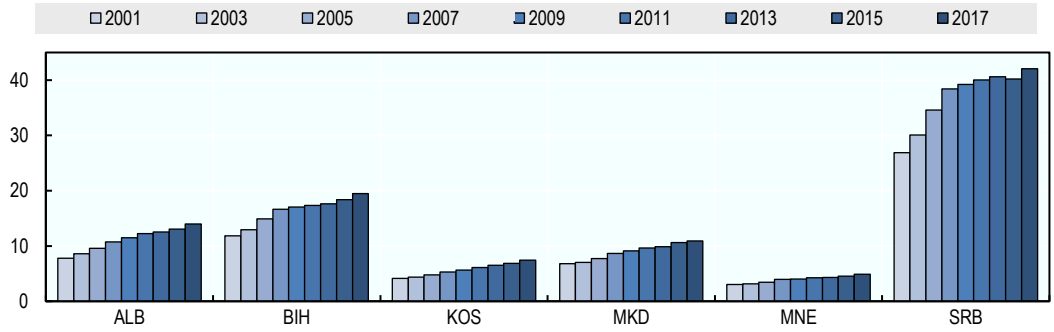


Note: Data between 2000 and 2005 do not include Bosnia and Herzegovina and Kosovo.
Source: OECD calculations based on World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

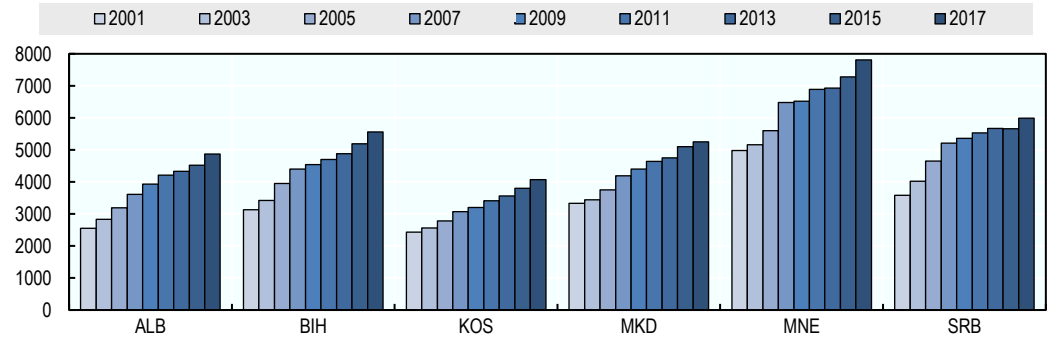
Despite the fact that increased access to credit boosted domestic consumption and growth of gross domestic product (GDP) (Figure 1.2), investments were mostly oriented towards retail and non-tradable services. Therefore, the impact on capital accumulation was modest (Figure 1.3) (Uvalic, 2013[12]).

Figure 1.2. GDP in the WB

GDP (USD billion, constant 2010 prices)



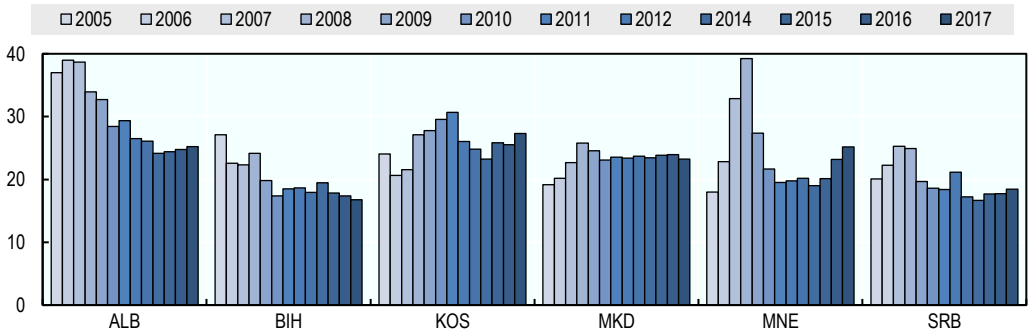
GDP per capita (USD, constant 2010 prices)



Source: OECD calculations based on World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Figure 1.3. Gross fixed capital formation in the WB

% of GDP

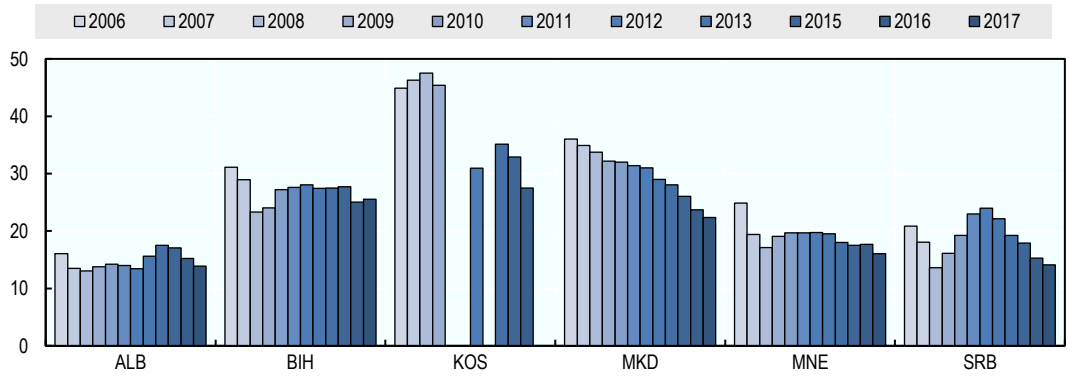


Source: OECD calculations based on World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

In addition, increased economic activity prompted a rise in wages that was not matched by an adequate increase in productivity levels. This led to rising production costs, while unemployment rates remained chronically high and unresponsive to economic growth (Figure 1.4). The high level of euroisation across the region prevented the devaluation of national currencies, which would have partially countered the negative drivers of competitiveness.

Figure 1.4. Unemployment rate in the WB

% of total labour force, modelled International Labour Organization (ILO) estimate

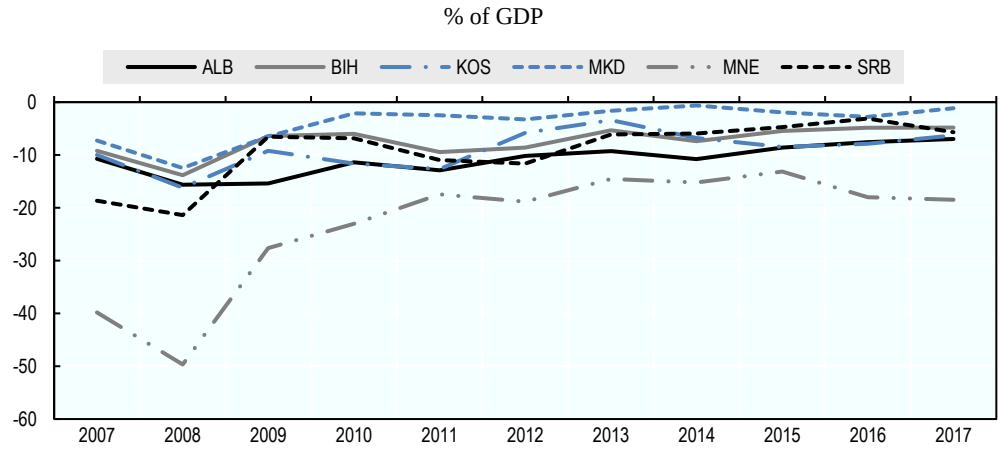


Note: Data for Kosovo are national estimates.
Source: OECD calculations based on ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm.

The combination of these factors widened the current account deficit and weakened the position of the Western Balkans at the outset of the global financial crisis in 2008 and, to a lesser extent, at the peak of the European sovereign debt crisis in 2012 (Figure 1.5). Bank credit was reduced due to tightening capital inflows, paired with falling foreign direct investment (FDI) inflows and decreasing migrant remittances, which, in turn, negatively impacted domestic consumption in the Western Balkans. Simultaneously, a drop in foreign demand slowed down Western Balkan exports (Uvalic and Cvijanovic, 2018[14]).

Figure 1.5. Current account balance in the WB

% of GDP



Source: OECD calculations based on World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Timely arrangements with the International Monetary Fund (IMF) and the establishment of the Vienna Initiative in 2009, which brought together the European Bank for Reconstruction and Development (EBRD), the IMF, the World Bank, the European Commission and major private banks active in the region, preserved the financial system in the Western Balkan economies. Despite these efforts, GDP growth rates did not recover to pre-crisis levels. Several factors contributed to this subdued level of growth, among which some of the most important are (Uvalic and Cvijanovic, 2018[14]):

- The progressive de-industrialisation of the Western Balkans. This trend began in the 1990s and was later coupled with insufficient FDI inflows in manufacturing and complex industries in the 2000s. This is in stark contrast to FDI inflows in CEB at the time.
- Prolonged political and constitutional problems in several economies (Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia), which obliged policy makers to address these issues rather than macroeconomic challenges.
- A model of economic transition before the financial crisis based on rapid credit expansion and financial openness, rather than capital consolidation and investment in productive sectors of the economy.
- Lack of adequate investment in human capital and significant brain drain.

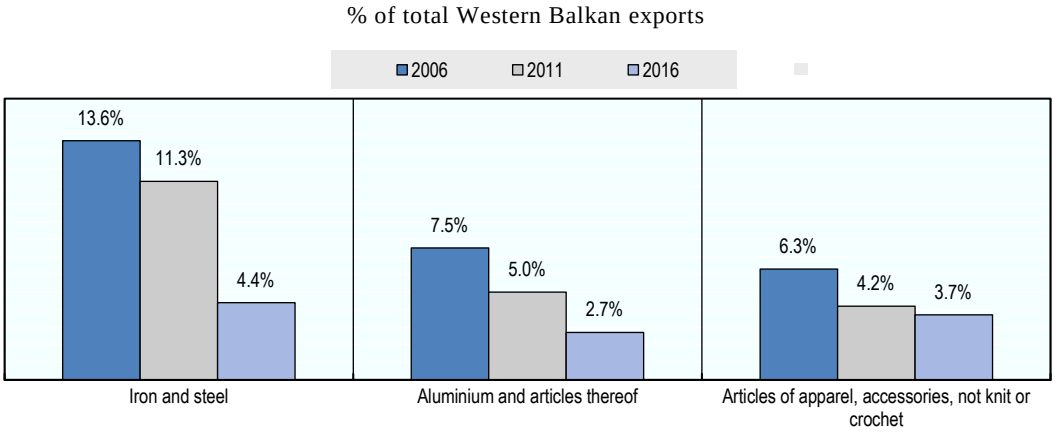
Renewed efforts to attract foreign investments came in the early 2010s, particularly in North Macedonia and Serbia. These included the creation and strengthening of investment promotion agencies, the removal of barriers to FDI and the constitution of special economic zones (OECD, 2018[1]). Such policies contributed to attracting new investment flows and reviving and expanding relevant sectors, such as the automotive and machinery industries. However, they are still part of horizontal strategies that do not target the development of complex industries. Rather, they provide incentives on the basis of investment and employment levels, which implicitly accommodates more labour-intensive industries (OECD, 2017[15]).

1.2. Changes in the composition of the Western Balkan export basket

The six Western Balkan economies share similar economic structures and face common challenges. They also follow similar trade patterns in partnering mainly with the EU and in following the array of free trade agreements that smoothed trade within the region and with Western partners.

An analysis of trade in the Western Balkans between 2006 and 2016 shows that the incidence, in terms of value, of primary and resource-based products in its export basket has considerably decreased in favour of medium-technology products. This supports the idea that an industrial transition is already in process, resulting not only in an increase of exports, but in a structural transformation of the region. As shown in Figure 1.6, the top three product categories exported by the Western Balkan economies in 2006 were iron and steel, aluminium and textile products. These were exported for a cumulative value of USD 3.7 billion. Ten years later, the same categories accounted for USD 2.9 billion of exports, shrinking both in absolute and relative terms, from 27% to 11% of total exports.

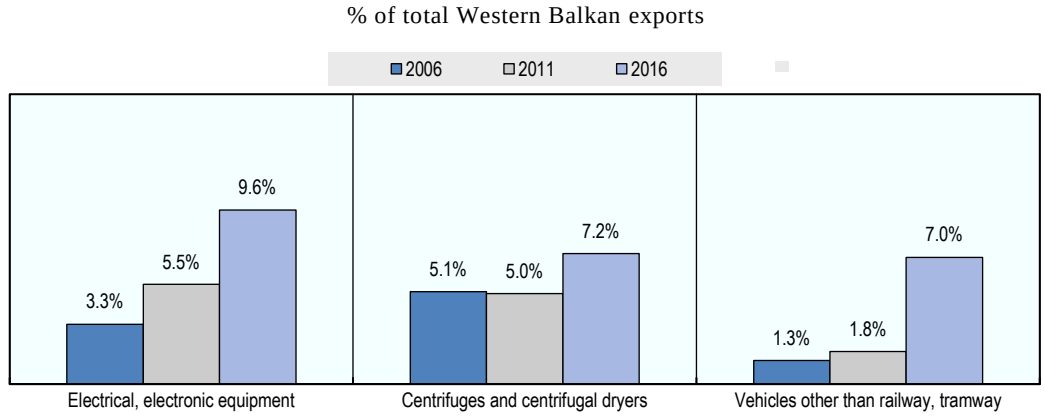
Figure 1.6. Export trends of top 3 export products in 2006



Source: OECD calculations based on UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

In 2016, the top three most exported product groups were electrical equipment, machinery and transport vehicles (Figure 1.7), totalling almost USD 6.5 billion worth of exports and a cumulative share of 24%, compared to USD 1.3 billion and 10% a decade earlier.

Figure 1.7. Export trends of top 3 export products in 2016



Source: OECD calculations based on UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

The change in trade specialisation of the Western Balkan economies can be assessed based on their revealed comparative advantage (RCA) indices, which compare a country's export share of a certain product to the world average.[2] RCA is commonly interpreted as a measure of a country's production specialisation and builds on the comparative advantage theory which posits that an economy will export more of a certain product if, other things being equal, it is able to produce it relatively more efficiently than other economies. There are, however, caveats associated with RCA indices, which have been discussed in the Reader's Guide: the RCA can be influenced by policy, whereas, as a theoretical concept, comparative advantage is specified absent policy intervention. Further, RCA is not based on value

added, but gross trade data. This limits the possibility to analyse to what extent export value embeds value added in the exporting economy.[3]

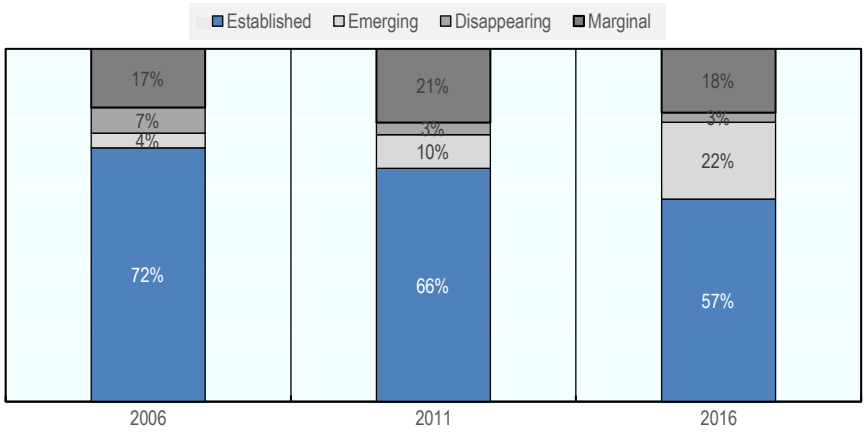
When calculating RCA indices for different years, it is possible to assess how specialisation shifts over time and to define four export categories:

- **Established products:** products characterised by a stable RCA over time.
- **Emerging products:** products that currently have an RCA but did not have one in the past.
- **Disappearing products:** products that previously had an RCA, but no longer have one.
- **Marginal products:** products with no RCA in the past or in the present.

In 2006, more than 70% of Western Balkan exports with established RCAs consisted of primary and basic products, such as raw tobacco, fruits and vegetables, textiles and footwear. By 2016, their absolute export value increased, but their incidence on exports with established RCAs fell to under 60% (Figure 1.8).

Emerging products that filled this void included automotive parts, electric components, chemicals and fertilisers. These totalled 22% of all exports with RCAs in 2016. Products with disappearing RCAs included basic manufactured goods such as iron shapes, ceramics and hand tools. All this suggests that the production and trade structure in the Western Balkan region is undergoing significant dynamic changes.

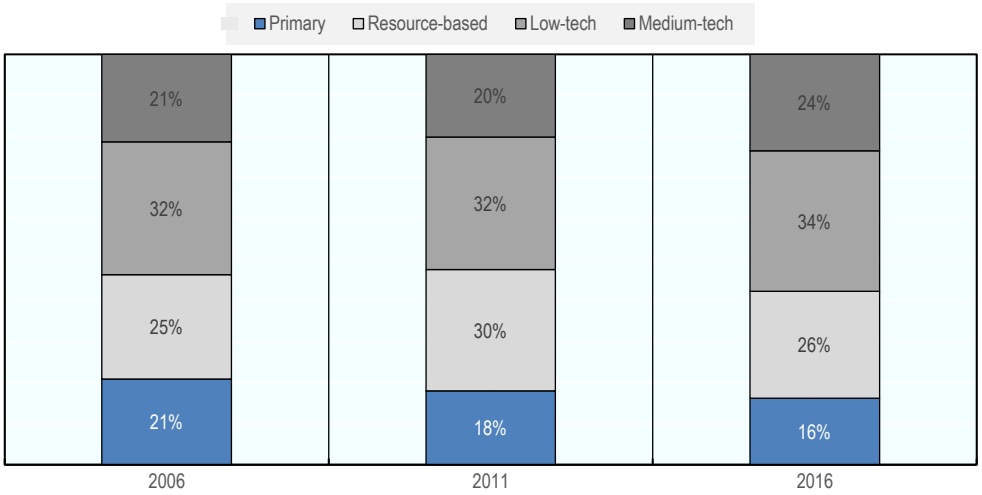
Figure 1.8. Exports by pattern of RCA shifts in the WB



Source: OECD calculations based on Lall (2000[7]), "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98", http://dx.doi.org/10.1080/713688318; UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

Among established products, primary and resource-based products account for more than 40% of exports and include categories that were relevant in the early 2000s, such as fresh and frozen fruits, raw tobacco, aluminium, ferroalloys, cigarettes and pneumatics, among others (Figure 1.9). Established medium-technology products, such as insulated wires and electric conductors (USD 1 billion in exports in 2016), were among the first automotive components to have already achieved an RCA by the middle 2000s. The incidence of these types of products has increased, from 21% to 24% of all established exports between 2006 and 2016.

Figure 1.9. Level of complexity in the export basket of established WB products



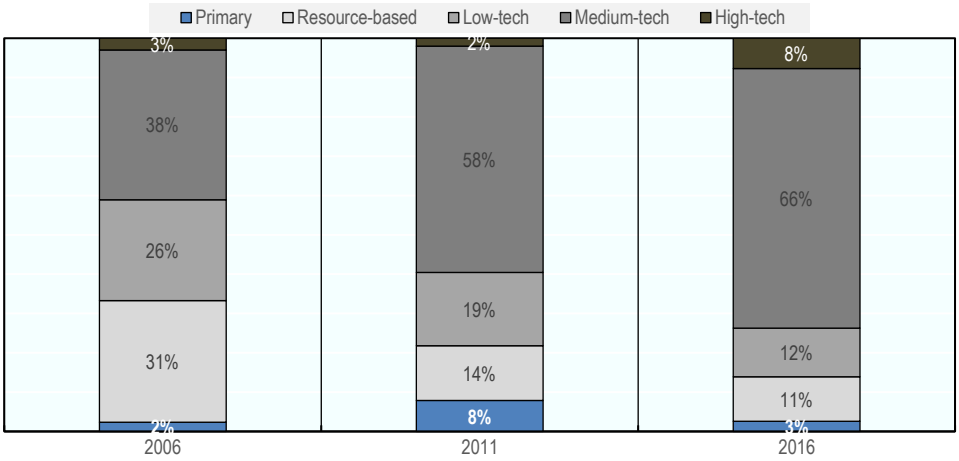
Source: OECD calculations based on Lall (2000[7]), "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98", http://dx.doi.org/10.1080/713688318; UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

The change in composition for emerging products is even more telling: by 2016, the share of primary and resource-based products dropped to 3% and 11%, respectively, whereas the share of medium-technology goods, which embed a higher degree of know-how required for their production, rose from 38% in 2006 to 66% of all emerging products in 2016 (Figure 1.10). The most significant category in this family is automotive, with motor cars and public transport vehicles accounting for USD 1.5 billion of exports in 2016. Other important products include reaction initiators and accelerators, engine parts, refrigerating equipment and electric heaters.

In addition to this, a small segment of high-technology products (electric motors and generators, worth USD 440 million in 2016) increased in relevance, rising from 3% of emerging products in 2006 to 8% in 2016. This is in part the outcome of successful investment promotion policies, which attracted a considerable number of foreign companies to the region, in particular to North Macedonia and Serbia (Continental, Dräxlmaier, Fiat Chrysler Automobiles, Johnson Controls, Schneider Electric, Siemens, Van Hool and more) (OECD, 2017[15]).

It should be noted, however, that precisely because of some of the largest investment projects in the Western Balkans, the exports of single economies can be widely affected from year to year by the performance of single large private exporters, which bear both opportunities in terms of production sophistication and risks in terms of important players exiting from the region.

Figure 1.10. Level of complexity in the export basket of emerging WB products



Source: OECD calculations based on Lall (2000[7]), "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98", http://dx.doi.org/10.1080/713688318; UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

Despite the lack of value added indicators, there are clear trends in the technological content of the exported products with established and emerging RCAs. This provides evidence that economies in the region are on the right path towards upgrading the complexity of their production base.

Box 1.1. Economic transition and industrial upgrading in Poland

At the end of the 1980s, Poland embarked on a democratic transition, which also triggered the introduction of reforms to restructure and modernise its economy, moving away from a centrally planned to a market-based system. Compared to other countries in CEB, Poland focused first on liberalising prices and opening its market to foreign competition, before dealing with the massive privatisation of state-owned enterprises. Important international actors, including the EU, promoted and supported Poland in this effort. The country signed the EU Association Agreement in 1992 and CEFTA in 1993.

Poland also liberalised its investment policy regime. This was in order to attract FDI as an essential component for upgrading and strengthening the country's depleted industrial technology and capacity. In particular, the automotive industry was at the forefront of the country's FDI-driven development. FDI inflows picked up quickly. In 1990, net FDI inflows stood at 0.14% of Polish GDP; by the year 2000, they reached 5.4% of GDP. The combination of low production costs, a decades-long industrial tradition (despite its evident shortcomings), a skilled labour force, investment incentives and the prospect of EU membership was very attractive to foreign firms, mostly from Western Europe. The inflow of FDI since the start of the Polish transition has contributed to job creation, export competitiveness and economic growth. Today, the Polish automotive sector (especially component manufacturing) is an integral part of the German automotive value chain. Poland was also one of the first Central and Eastern European economies to introduce special economic zones, where foreign investors profit from income and property tax

exemptions, the lifting of duties on imported and exported products, simplified procedures and other benefits in kind.

Between 1994 and 2004, the total value of Polish imports and exports more than quadrupled, increasing respectively from USD 21 billion and USD 17 billion to USD 88 billion and USD 73 billion. The composition of the export basket also changed as a consequence of massive foreign investments and FDI-driven exports. There was an increase in the export share of manufactured goods, from 20% in 1994 to 39% in 2004, at the expense of primary and resource-based products, which fell from 73% to 56% in the same period. By the early 2000s, the most valuable exports included vehicles, electrical equipment and machinery, accounting for almost one-third of the total value of Polish exports. Taken together, this indicates that from the start of the transition period up until EU accession, both the total value of Polish exports and the share of manufactured products (compared to primary and resource-based goods) in the export basket increased significantly. In 2004, Polish accession to the EU further boosted production, trade and, ultimately, economic development. FDI kept rising in the years to come, reaching its peak in 2006, at 6% of GDP.

Currently, Poland has a well-functioning infrastructure in place to access and absorb new technologies and thus generate important spillovers from FDI to domestic enterprises. The increased economic activity and industrial sophistication contributed to raise the country's contribution to value added in global gross exports from USD 31 billion in 1995 to USD 213 billion in 2011. However, most of the value-added activities related to foreign investment, such as research and development (R&D) and design, are still taking place in the FDI countries of origin, suggesting that there is room to improve domestic innovation performance. While the country has proved very successful in attracting FDI, domestic Polish companies have not yet achieved full innovation capacity to compete directly with the most advanced economies. The challenge is the ongoing nature of industrial transformation at a time where most medium-technology investments are being automatised. Poland's success in this endeavour will be crucial to defend its position as "Europe's growth champion".

Source: EBRD (1999[17]), *Transition Report 1999: Ten Years of Transition*, www.ebrd.com/downloads/research/transition/TR99.pdf; Nölke and Vliegenthart (2009[18]), "Enlarging the Varieties of Capitalism", https://doi.org/10.1017/S0043887109990098; Cieślik and Hagemejer (2011[19]), "The Effectiveness of Preferential Trade Liberalization in Central and Eastern Europe", http://dx.doi.org/10.1080/08853908.2011.604298; Ahlborn, Ahrens and Schweickert (2016[20]), , "Large-Scale Transition of Economic Systems", http://dx.doi.org/10.1057/s41294-016-0009-x; UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data; Veugelers and Schweiger (2016[21]), "Innovation Policy in Transition Countries", http://dx.doi.org/10.1007/s10644-015-9167-5; Olczyk and Kordalska (2017[22]), "Gross Exports Versus Value-Added Exports", http://dx.doi.org/10.1080/00128775.2016.1254564; Pavlinek et al. (2017[23]) "Foreign Direct Investment and the Development of the Automotive Industry in Central and Eastern Europe", http://dx.doi.org/10.2139/ssrn.3015163; European Economic Congress (2018[24]), *Ubiquitous zones: Poland becomes a single SEZ*, www.eecpoland.eu/2019/en/news/ubiquitous-zones-poland-becomes-a-single-sez,334657.html; OECD (2018[25]), *TiVA* (database), https://doi.org/10.1787/tiva-data-en; World Bank (2019[26]), *Foreign Direct Investment* (database), https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS?locations=PL .

1.3. Trade partners

1.3.1. Export share of the six Western Balkan economies and relevance of intra-regional trade

Serbia accounted for more than half of the region's exports in 2016, followed at a distance by Bosnia and Herzegovina and North Macedonia, with approximately 10% each. Similar figures emerge when looking at imports, with Serbia accounting for almost 43% of regional imports in 2016, followed by Bosnia and Herzegovina (20%) and North Macedonia (15%). These trends do not perfectly match economic size balances in the region: the incidence of Serbia and North Macedonia in regional trade is higher than their GDP share in the Western Balkans, Bosnia and Herzegovina is proportional and Albania, Kosovo and Montenegro fall short in trade with regard to their economic size. These differences can be partially explained by differences in the productive and structural endowments inherited from socialist times. Another reason lays in the rising importance of export-oriented investments over the past ten years.

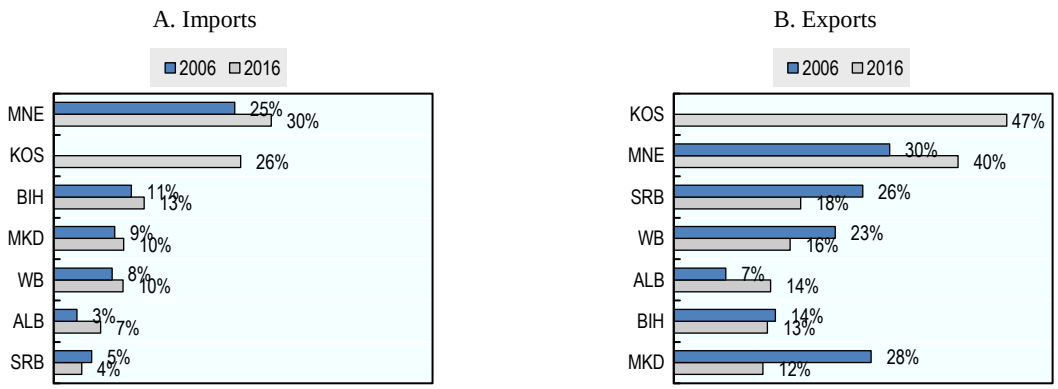
Intra-regional trade has expanded over time, in line with the increase of overall international trade for the Western Balkans, reaching USD 4.5 billion in 2016. The share of intra-regional trade out of total trade of the Western Balkans is close to 6%. The incidence of intra-regional trade on total trade is higher with respect to exports (16.3% in 2016) rather than imports (9.7% in 2016), indicating that the Western Balkans still represent a significant market destination for all economies in the region. However, it is worth noting that this export share dropped significantly – from 22.6% in 2006 – with substantial differences across economies. Overall, intra-regional trade still represents an important component of international trade for the Western Balkans, even though it is far from dominant, with the exception of the two smallest economies (Kosovo and Montenegro) (Figure 1.11). Albania and Serbia are much more oriented towards extra-regional trade, whereas Bosnia and Herzegovina and North Macedonia stand in between, with intra-regional exports and imports close to the regional average.

In 2018, Kosovo introduced a 100% import tariff on products from Bosnia and Herzegovina and Serbia. Naturally, this tariff has reduced Kosovo's imports from these two economies, which accounted for an important share of Kosovo's total imports. While it is not possible to predict how long these tariffs will remain in place, they may accelerate the re-orientation of trade towards outside the region.

In terms of its composition, intra-regional trade comprises mainly low-technology and resource-based products which are characterised by high transport costs and which have little structural variation between the six Western Balkan economies. These include mineral fuels, iron, steel, wood, as well as beverages and dairy products, whose regional consumption is facilitated by shared tastes and habits among citizens in the Western Balkan region.

Figure 1.11. Imports from/exports to the WB

% of total imports/exports



Note: Data for Kosovo in 2006 not available.
Source: OECD calculations based on UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/; wiiw (2019[27]), *wiiw Databases: Central, East and Southeast Europe* (database), https://data.wiiw.ac.at/.

1.3.2. Trade with the EU and other partners in medium-technology goods

While external trade in the Western Balkans has increased steadily over the last ten years, the region's key trading partners have generally remained the same: EU15 countries and new Member States (NMS),[4] as well as the Russian Federation, Turkey and the United States. However, their relative importance has evolved over time. The EU, specifically the EU15, constitutes the main trading bloc for the Western Balkans, accounting for 56% of total exports and 45% of total imports in 2016. Germany and Italy play a crucial role, accounting respectively for 22% and 18% of total Western Balkan exports and 13% each of total imports in 2016. The Western Balkans' trade with Germany includes mainly medium-technology goods, such as chemicals, machineries and parts of motors and vehicles (Table 1.1). This is explained by large German investments in the region in recent years that have been heavily concentrated in the automotive and machinery industry. It also marks an important evolution in trade composition compared to the early 2000s, when the Western Balkans supplied Germany primarily with garments and low-technology goods. This implies that the value added embedded in car components is higher than that embedded in garment products, a more common sector for economies that are in the early stage of industrial development.

Western Balkan exports to Italy are centred on low-technology products in the textile industry. Italy is a world leader in garment and textile production and has outsourced significant segments of labour-intensive production to other regions, including the Western Balkans (Table 1.2). In recent years, exports of medium-technology goods linked to the automotive sector have emerged, following the major investment by Fiat Chrysler Automobiles (and several satellite companies) in Serbia in 2012. This investment marks the single most relevant brownfield investment to-date that the region has received since the beginning of its economic transition.

Table 1.1. Top 5 products traded between the WB and Germany (2016)

Exports to Germany		*Imports from Germany*	
Product	***Technology classification***	***Product***	***Technology classification***
Reaction initiators, accelerators and catalysts	Med-tech	Motor vehicles for transport of persons	Med-tech
Liquid, gas centrifuges, filtering, purifying machines	Med-tech	Medicaments	High-tech
Insulated wire and cable, optical fibre cable	Med-tech	Parts and accessories for motor vehicles	Med-tech
Electric motors and generators	High-tech	Motor vehicles for the transport of goods	Med-tech
Seats	Low-tech	Tractors	Med-tech

Source: OECD elaboration based on Lall (2000[7]), "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98", http://dx.doi.org/10.1080/713688318; UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

While imports from Italy have grown in quantity over the last decade, they have not significantly changed in their composition. They revolve around medium-technology products linked to the automotive value chain (such as parts and accessories for motor vehicles), resourced-based goods (such as petroleum oils) and low-technology products (such as footwear).

Table 1.2. Top 5 products traded between the WB and Italy (2016)

Exports to Italy		*Imports from Italy*	
Product	***Technology classification***	***Product***	***Technology classification***
Motor vehicles for transport of persons	Med-tech	Parts and accessories for motor vehicles	Med-tech
Footwear	Low-tech	Oil petroleum	Resource-based
Parts of footwear	Low-tech	Bovine or equine leather	Low-tech
Suits, jackets, trousers	Low-tech	Parts of footwear	Low-tech
Panty hose, tights, hosiery	Low-tech	Medicaments	High-tech

Source: OECD elaboration based on Lall (2000[7]), "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98", http://dx.doi.org/10.1080/713688318; UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/.

NMS are also relevant, accounting for 27% of total exports and 22% of total imports in 2016 (Table 1.3).

Table 1.3. Share of Western Balkan trade outside the region

	2006				2011				2016			
	Imports		Exports		Imports		Exports		Imports		Exports	
	USD (bln)	Share	USD (bln)	Share	USD (bln)	Share	USD (bln)	Share	USD (bln)	Share	USD (bln)	Share
EU15	10.1	38%	6.1	58%	17	41%	10.1	52%	17.4	45%	12.9	56%
NMS	6.6	24%	3	29%	9.6	23%	5.8	30%	8.6	22%	6.1	27%
Non-EU	10.2	38%	1.3	13%	14.9	36%	3.4	18%	12.5	33%	3.9	17%
Total	26.9	100%	10.5	100%	41.5	100%	19.4	100%	38.5	100%	23	100%

Source: OECD calculations based on UN Comtrade, (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/.

The most important non-EU economies that have trade linkages with the Western Balkans are the Russian Federation, Turkey, the United States and the People's Republic of China

(hereafter "China"). Together, they account for about 10% of total Western Balkan exports. On the import side, the reliance of the Western Balkans on imports from the Russian Federation decreased from 2006, mainly due to decreasing inflows of oil and gas. Regional economies have since gone through a process of energy diversification, increasing the relevance of new partners. This process is expected to further accelerate in the near future, as the Western Balkans integrate into the EU energy market and new projects, such as the Trans Adriatic Pipeline, become operational. China and Turkey have also emerged as important suppliers. Specifically, imports from China have more than doubled, amounting to almost 10%, or USD 3.3 billion, of total regional imports in 2016. These imports are largely driven by technology products, including radios, television sets and computers.

1.4. Concluding remarks

After a decade of political instability and a severe recession in the 1990s, the economies of the Western Balkans embarked on a process of macroeconomic stabilisation and reform in the 2000s. Trade liberalisation was a key element of this process, along with accession to the WTO, CEFTA and the signing of Stabilisation and Association Agreements with the EU.

However, rising consumption demand and easy access to credit on one side, and the limited competitiveness of domestic firms on the other, rapidly translated into large trade deficits. The global financial crisis further exacerbated long-standing structural problems in the region. The need to upgrade manufacturing and increase exports in order to overcome macroeconomic imbalances led Western Balkan governments to implement overdue reforms. This resulted in a renewed focus on attracting FDI – the effects of which became more tangible in the 2010s.

Investments in manufacturing, primarily from EU countries and Germany and Italy in particular, started to embed the Western Balkan economies into international automotive, garment and footwear supply chains. FDI also brought about an increase in export value and changes in the product composition of the Western Balkan export basket, shifting gradually from raw and semi-processed products in the mid-2000s (agro-food, basic metals and garments) to medium-technology manufacturing products (mechanical, electrical and automotive components).

Conversely, trade within the Western Balkans maintained a traditional profile, focusing primarily on semi-processed and agro-food products. As a result, intra-regional trade has not contributed to a structural shift of exports and is decreasing in significance for some Western Balkan economies as compared to extra-regional trade. The upgrading of technological know-how in the Western Balkans will most likely stem from further co-operation with EU partners rather than an increase in regional trade volumes.

This chapter has focused on the exported products for which the Western Balkans show an RCA. The following chapter looks beyond this, in order to identify more complex products at the level of individual economies, which can be instrumental in raising the sophistication of the economies' export baskets, despite not presently representing a significant share of exports.

Notes

[1] For the purpose of this publication, Central Europe and the Baltic states comprise the following eight countries: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic and Slovenia. Slovenia was also part of the Socialist Federal Republic of Yugoslavia until 1991, but its economic development in the 1990s reflects more closely its Central European peers, rather than the Western Balkan economies.

[2] More details about the calculation of RCAs and RCA shifts can be found in Annex A.

[3] OECD-WTO Trade in Value Added Database (TiVA) provides the value added by each country in the production of goods and services that are consumed worldwide. Currently, it covers 63 economies and is disaggregated to 34 industrial sectors, but unfortunately the Western Balkan economies are not included yet. As marked in OECD (OECD, 2018[1]), their future inclusion in the database would represent an important step in order to gain a better picture of production structures in the region.

[4] New Member States (NMS) refers to countries that joined the EU since the early 2000s: Central Europe and Baltics (CEB) plus Croatia, Romania and Bulgaria.

Chapter 2. Opportunities for Export Sophistication in the Western Balkans

Chapter 2 analyses the Product Space (PS) for each Western Balkan economy, in order to uncover products with the best potential to increase their economic complexity. The chapter examines the economic state of play, presents the PS and identifies new production opportunities. These production opportunities are linked to products that the economies are already exporting and that have the potential to increase their level of economic sophistication. The analysis is complemented by highlighting the destination markets to which these promising products are currently exported, taking into consideration recent foreign demand trends.

2.1. Introduction

The Western Balkan economies, with the exception of Albania, have both an Economic Complexity Index (ECI) and opportunity value (OV) above the world median (Table 2.1). This means that while the ECI of the Western Balkan economies puts them in the group of medium-developed economies, their capabilities are well differentiated. Thus, they can expand production towards more complex products situated at the core of the PS, similar to more developed countries.

Table 2.1. Economic Complexity Index and opportunity value in the WB (2016)

Economic Complexity Index (ECI)				Opportunity value (OV)			
Economy	**ECI**	**World ranking**	**Distribution quintile**	**Economy**	**OV**	**World ranking**	**Distribution quintile**
World median	0.009	-	-	*World median*	-0.34	-	-
WB average	0.20	-	-	*WB average*	0.46	-	-
Albania	-0.51	73	0-20% (1st)	Montenegro	-0.16	133	40-60% (3rd)
Montenegro	0.09	122	40-60% (3rd)	Albania	0.11	151	60-80% (4th)
North Macedonia	0.14	125	40-60% (3rd)	Kosovo	0.15	154	60-80% (4th)
Kosovo	0.42	148	60-80% (4th)	North Macedonia	0.29	164	60-80% (4th)
Bosnia and Herzegovina	0.51	156	60-80% (4th)	Bosnia and Herzegovina	0.91	186	60-80% (4th)
Serbia	0.58	161	60-80% (4th)	Serbia	1.47	206	80-100% (5th)

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The promising products identified in this chapter display an opportunity gain (OG) that is above the respective average for each of the Western Balkan economies. The more these promising products can potentially contribute to increasing the complexity of the Western Balkan export baskets, the more distant they will be from their current stock of knowledge. The most strategic products are further categorised as either *short gains* or *long bets*.

Short gains are products that are closely linked to the economy's current set of capabilities, showing a shorter distance and a relatively less prominent OG. Long bets are products that are farther away from the economy's current knowledge boundaries, but because of the higher OG they have the potential to more drastically increase the complexity of the export basket.

An effective development strategy should strike a balance between the low-hanging fruit (products characterised by a shorter distance from current capabilities and a less marked OG) and more strategic products that are capable of elevating the current stock of knowledge in the economy, opening the door towards increasingly more complex products.

This process requires a difficult structural transformation of the economy, from basic to more advanced industries. This type of transformation requires, among others, strong institutions, technological evolution underpinned by skills upgrading, market reforms, infrastructural upgrading and entrepreneurial spirit, all of which are aspects that are not taken explicitly into consideration in the Product Space (PS) analysis. Nevertheless, by identifying promising products, it is possible to flag the sectors that have a greater-than-average potential to contribute towards this transformation in both the short and long run.

2.2. Economy-specific analysis: Albania

2.2.1. Economic state of play

Economic structure

Albania is a small, open economy, dominated by services, which accounted for 47% of gross domestic product (GDP) in 2016, followed by industry (21%) and agriculture (20% of GDP, while accounting for 40% of total employment). Manufacturing is limited to just 6% of GDP. Services have expanded rapidly in recent years, attracting large investments particularly in telecommunications and finance. Tourism is also an important and still underexploited asset of the Albanian economy, appealing to an increasing number of foreign visitors and contributing to overall GDP growth with two-digit growth rates.

Until 1990, Albania was an autarkic economy and suffered from highly centralised and inefficient economic policies (Muço, 1997[28]). By seeking complete self-sufficiency across all sectors, the state invested heavily in a considerable number of industries, without adequate technological knowledge and capacity. With the exception of mining activities, industry was little developed; the few notable industrial plants included a chemical centre in Laç, a cement production factory in Fushë-Krujë and textile and garment plants in Shijak. Export-oriented manufacturing accounted for 23% of total industrial output and 13% of total exports. Economic activity was based primarily on agriculture, with fully nationalised means of production directly in the hands of the government (29.4%) and collective farms (70.6%) (Rugg, 1994[29]). Albania's most relevant activities were concentrated in the northern mountains surrounding Bajram Curri (food processing) and the southern plains on the Adriatic coastline (fruit cultivation). Energy production (hydroelectric plants) and mining were at the core of the Albanian industrial sector. A lack of transport infrastructure meant that processing plants were built close to ore centres and energy distribution points in Shkodra and Kukës. Other extraction centres were located around Elbasan (iron) and Vlorë (coal). Today, the technology applied in the mining sector is mostly outdated and highly polluting. Large investments would be required to make it profitable.

Economic growth accelerated from the early 2000s, with GDP growth rising to 7.5% in 2008 before dropping to 1% by 2013 as a consequence of the global economic slowdown (Table 2.2). The 2008 financial crisis affected Albania indirectly, through reduced exports, because its major trading partners, Italy and Greece, reduced imports. Albania's current account deficit reached its peak prior to the economic crisis (15.6% of GDP in 2008). This was partially a result of remittances from the Albanian diaspora that translated into higher consumption. However, remittances fell in the early 2010s due to the crisis, and, consequently, consumption also fell. From 2015, GDP growth began to increase again, to 3.8% in 2017 and an estimated 4.2% in 2018, due to favourable hydrological conditions that boosted energy production, along with increased tourism, domestic consumption and public investment.

Despite the fall in non-performing loans following mandatory write-offs, access to finance currently represents a significant challenge for private businesses. Other constraints include persistent imbalances in the energy sector, unresolved land registration and property rights disputes, and the sustained incidence of the informal economy, which is estimated at about one-third of Albanian GDP.

Table 2.2. Albania: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, million	2.97	2.95	2.93	2.91	2.91	2.90	2.90	2.89	2.88	2.88	2.87
GDP	USD, billion	10.4	11.1	11.5	11.9	12.2	12.4	12.5	12.8	13	13.5	14
GDP per capita	USD	3 485	3 775	3 928	4 094	4 210	4 277	4 328	4 413	4 524	4 684	4 868
GDP growth	% year-on-year	6	7.5	3.3	3.7	2.6	1.4	1	1.8	2.2	3.4	3.8
Exports of goods and services	USD, billion	2.5	2.5	2.8	3.3	3.6	3.7	3.8	3.8	3.9	4.2	4.6
Imports of goods and services	USD, billion	5.2	5.6	5.7	5.8	6.5	6.4	6.4	6.8	6.5	7	7.6
Current account balance	% of GDP	-10.8	-15.6	-15.4	-11.4	-12.9	-10.2	-9.3	-10.8	-8.6	-7.6	-7.5
Net FDI inflows	% of GDP	6.1	9.7	11.2	9.1	8.1	7.5	9.8	8.7	8.7	8.8	7.8
Unemployment	% of total labour force	13	13.5	13	13.8	14.2	14	13.4	15.6	17.5	17.1	15.2

Note: Prices in USD are constant, base year: 2010.
Source: World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Foreign investments

The foreign direct investment (FDI) stock in Albania reached USD 7.4 billion in 2017, accounting for roughly 56.6% of Albanian GDP. In 2017 alone, Albania attracted around USD 1 billion of FDI inflows – 44% of which was in the energy sector, almost 20% in the mining and quarrying sector, and 13% in the financial services sector (wiiw, 2018[30]).

FDI in the energy sector peaked in 2016 because of the Trans Adriatic Pipeline and the Devoll Hydropower projects and contributed considerably to GDP growth in the same period. The total planned investment for these two projects combined was roughly USD 2.3 billion, which was almost fully invested by 2019 and will be exhausted by 2020. This brought the stock of FDI in energy to the forefront of sectoral FDI investment, followed by telecommunications and banking. Manufacturing, however, accounts for a small share of total FDI, reaching 10% in 2016 (wiiw, 2018[30]). The number of foreign-owned enterprises is increasing and currently represents 17.7% of all enterprises. At present, companies registered in European Union (EU) countries, in particular Greece and the Netherlands, contribute the majority of the FDI stock in Albania (66.7% of foreign and joint ventures), while enterprises from the Western Balkans account for another 11.8% (Albanian Institute of Statistics, 2018[31]).

International trade

Albanian exports more than doubled between 2006 and 2016, from approximately USD 800 million to USD 2 billion. Imports increased from USD 3 billion in 2006 to USD 4.5 billion in 2016.

Italy is by far Albania's leading trade partner, accounting for 46% of total exports (down from 68% in 2006) and 31% of imports in 2016. Historic ties, migration links and geographic proximity are some of the key factors behind this strong trade relationship. Italy has outsourced many of the labour-intensive steps of its garment production chain to Albania in order to take advantage of low labour costs. Today, Italian or Italo-Albanian

enterprises employ 49% of those in firms under foreign or shared ownership, though they account for only 22% of the value added (Albanian Institute of Statistics, 2017[32]).

Other important EU trading partners include Greece (despite a recent decrease in imports due to its severe economic recession), Spain, France and Germany (Table 2.3). Albania exports primarily garments and footwear (accounting for between one-third and one-half of total exports to Italy, France and Germany) and mineral products (Greece) to the EU.

Table 2.3. Top 10 Albanian export and import markets (2016)

Exports			Imports		
Destination	USD million	% of total exports	Origin	USD million	% of total imports
Italy	993	46%	Italy	1,403	31%
Serbia	144	7%	China	498	11%
Greece	126	6%	Germany	423	9%
United States	120	6%	Greece	419	9%
China	117	5%	Turkey	305	7%
Spain	84	4%	Serbia	167	4%
France	83	4%	Spain	112	2%
Germany	67	3%	Hungary	75	2%
Malta	54	3%	Russian Federation	69	1%
North Macedonia	45	2%	Romania	63	1%

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The Western Balkans do not represent a significant trade partner for Albania. The exception, however, is Serbia, accounting for 7% of Albanian exports and 4% of imports in 2016. More than half of Albanian exports to Serbia consist of mineral and base metals. Albania also trades with North Macedonia and Montenegro. These economies import primarily chemicals, stone, cement and agricultural products.

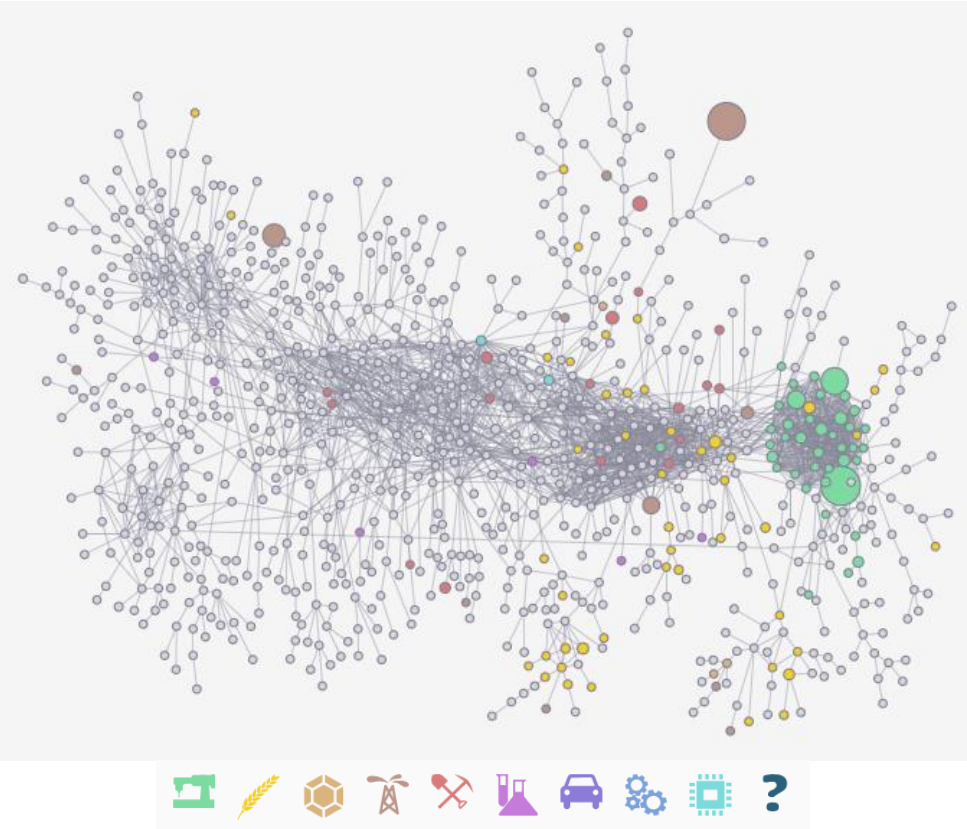
The United States and China are more distant export destinations, importing almost exclusively mineral products, and account for 6% and 5%, respectively, of total Albanian exports in 2016.

2.2.2. Product Space analysis and identification of export opportunities

Albanian exports are present primarily in the periphery of the PS (Figure 2.1). Albania has a sustained revealed comparative advantage (RCA) in garment and leather products. In 2016, leather footwear exports alone reached USD 261 million, or 10% of total Albanian exports.

Other segments where Albania has an RCA are minerals (mainly crude petroleum, which comprises 8% of the country's exports, but also chromium ore), agro-food products (vegetables, perfume plants and processed fish, among others) and metals (raw iron bars and ferroalloys). However, these are all categories with a low Product Complexity Index (PCI).

Figure 2.1. The Product Space of Albania (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Nevertheless, there is still room for Albania to diversify its export basket while expanding its capabilities. Albania exports 225 products without a current RCA but with a sustained opportunity gain (OG); hence, there is potential to raise the ECI of Albania (Table 2.4).

Table 2.4. Number of promising products by product category in Albania (2016)

Product category (HS1)	Number of products
Base metals and articles of base metal	37
Textiles and textile articles	28
Machinery, mechanical appliances and electrical equipment	28
Foodstuffs and tobacco	19
Chemical or allied industries	19
Stone, construction materials, glass and glassware	19
Wood, articles of wood and paper	18
Plastics, rubber and articles thereof	15
Vegetable products	11
Vehicles and transport equipment	9
Animals and animal products	8
Miscellaneous	8
Mineral products	4
Raw hides and skins, leather, furskins	1
Footwear and headgear	1

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Among these, priority was given to those products that have the shortest distance from the current capabilities embedded in the Albanian export basket (short gains) and those that have the highest OG (long bets).

Albania's short gains largely belong to primary and resource-based sectors, such as stone, wood, processed food and textiles. Other products which are more complex stem from foreign investment and include seats, insulated wire and plastic lids (Table 2.5).

While none of these products show a high level of product complexity (in some cases, the complexity level is lower than the average global PCI), given the country's current export basket, these products would nonetheless contribute to Albanian export sophistication. The most promising product among short gains, both according to export value and OG, is seats, which includes metal and wooden chairs as well as seats for motor vehicles. They accounted for USD 8 million worth of exports in 2016.

Table 2.5. Selected short gains in Albania, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Albania
9401	Seats	8 000	0.51	0.82	1.19	✔	✔	
8544	Insulated wire	7 177	0.16	0.78	-0.04	✔		✔
3923	Plastic lids	2 913	0.40	0.82	0.67	✔	✔	
4707	Recovered paper	1 142	0.37	0.81	0.33			
2202	Flavoured water	790	0.27	0.81	0.38		✔	
4820	Paper notebooks	315	0.09	0.81	-0.26			
7217	Iron wire	244	0.33	0.82	0.48			
7306	Other small iron pipes	193	0.29	0.81	0.42		✔	
1704	Confectionery sugar	180	0.12	0.81	0.09			✔
5807	Labels	88	0.26	0.82	-0.35			
2103	Sauces and seasonings	87	0.28	0.82	0.33		✔	
7010	Glass bottles	68	0.30	0.82	0.36		✔	
811	Frozen fruit and nuts	51	0.08	0.80	-0.12			✔
706	Root vegetables	50	0.15	0.82	-0.36			
2007	Jams	45	0.20	0.81	0.15		✔	
3105	Mixed mineral or chemical fertilizers	34	0.10	0.81	-0.28			
6113	Garments of impregnated fabric	25	0.24	0.81	-0.34			
2522	Quicklime	6	0.16	0.82	0.05			✔
5608	Netting	3	0.13	0.81	-0.09			
5508	Non-retail artificial staple fibres sewing thread	2	0.09	0.81	-0.50			

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Albania's long bets include a mixture of machinery and electrical products as well as resource-based and plastic components (Table 2.6). Albania's limited manufacturing base and lack of FDI in machinery and mechanical components reduces its potential to raise economic complexity.

The export value of long bets is fairly low, and only a few products surpassed USD 2 million in exports in 2016 (such as excavation machinery, plastic products and rubber products). Still, Albania's long bets have on average an OG almost five times higher than its short gains (1.03 compared to 0.23).

There are two main regional blocs importing the majority of Albania's short gains and long bets: the Western Balkans (particularly Serbia) and the EU (particularly Italy and Greece).

Table 2.6. Selected long bets in Albania, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Albania
8431	Excavation machinery	2 813	0.92	0.86	2.20	✔	✔	
3926	Other plastic products	2 655	0.95	0.86	2.29	✔		
4016	Other rubber products	2 165	1.04	0.86	2.50	✔	✔	
8537	Electrical control boards	1 461	0.98	0.86	2.32	✔		
7616	Other aluminium products	1 397	0.96	0.85	2.29		✔	
8538	Electrical power accessories	1 358	1.19	0.88	2.71	✔	✔	
8480	Metal moulds	1 155	1.17	0.88	2.83		✔	
8421	Filters for combustion engines	630	1.18	0.87	2.85	✔	✔	
7606	Aluminium plating	544	0.96	0.87	2.20			
7320	Iron springs	452	1.15	0.88	2.76	✔	✔	✔
8417	Industrial furnaces	377	0.93	0.85	2.12		✔	
7007	Safety glass	364	0.96	0.88	2.40	✔		
4008	Rubber sheets	313	1.05	0.87	2.56	✔	✔	✔
7322	Iron radiators	284	0.93	0.87	2.39	✔		✔
7608	Aluminium pipes	243	1.02	0.87	2.20	✔	✔	
8409	Engine parts	109	1.16	0.88	2.78		✔	
8425	Pulley systems	31	0.94	0.86	2.07			
4009	Rubber pipes	13	1.08	0.87	2.60		✔	✔
6806	Rock wool	7	1.12	0.88	2.83		✔	
8511	Electrical ignitions	4	1.00	0.88	2.37		✔	

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The Western Balkans

Short gains

The Western Balkan region is the primary importer of Albania's short gain products linked to the agro-food sector. These products include raw agricultural products, processed food and related chemical fertilisers.

Out of Albania's 20 short gain products, 8 are exported primarily to the Western Balkans. These products belong predominantly to the agro-food sector (i.e. carrots and turnips, sugar confectionery, jams and flavoured water). Other short gain products are used as inputs for agricultural production (i.e. mineral and chemical fertilisers and quicklime, which are exported entirely to Serbia). These products are also exported to some extent to the EU, with the exception of fertilisers and jams. This suggests that Albanian producers are capable of complying with the relevant EU quality standards and regulations. However, their supply capacity appears constrained, which results in low export values and highly concentrated destination markets.

With regard to demand for agro-food products, sectoral exports have remained stable. Still, the excessive reliance of Albania on a few key partners has led to persistent fluctuations in

export volumes over the past decade. Furthermore, Albania saw a sustained decline in exports of flavoured water products, decreasing from USD 8 million in 2008 to less than USD 1 million in 2016, despite stable world demand.

Long bets

The Western Balkans import a wide range of semi-processed and intermediate metal products from Albania; export values for single products remain below USD 1 million.

Metals are an important component of Albanian exports to the Western Balkan region, particularly to Serbia. However, limited processing capacity keeps the complexity of Albanian metal exports low and its export basket is confined to products such as aluminium plating, pulley systems and iron radiators.

Aluminium plating is a generic product used in a wide array of sectors, including construction. Exports fluctuate along the business cycle and are particularly affected by trends in Western Balkan real estate markets. The stronger diversification of its destination markets would reduce the impact of external shocks.

Pulleys are the basic systems used to raise and carry heavy materials. However, they are progressively being substituted by more advanced technologies or embedded in more advanced lifting systems. Sales are seasonal and volatile and are also influenced by developments in construction markets. Other aluminium products include a broad range of tools. Italy is the leading importer of these products; Serbia and Montenegro are also important buyers.

Iron radiators used for home heating have been important exports for a long time. Given their heavy weight and, consequently, the sustained transportation costs, they are exported primarily to the Western Balkans. However, exports of iron radiators have been experiencing a downward trend since the 2010s, being increasingly replaced in construction by other modern heating solutions.

The European Union

Short gains

Albania benefits from important cultural and economic ties with Italy and Greece. This has helped the country to integrate into Italian and Greek supply chains as well as to maintain strong import-export flows. The garment industry is important in connecting Italy to Albania; however, this is not reflected in FDI data.

Greece and Italy are the principal importers of Albanian short gain products among EU countries. However, fluctuations in domestic consumption levels can cause severe instabilities for Albanian exports, leaving its trade balance exposed to significant external shocks. Other EU countries such as France, Spain and Germany are marginal trade partners, with the exception of a few select products.

Until 2016, Italian direct investments in Albania amounted to USD 671 million. This is less than 11% of the FDI stock in the country (and half the amount of FDI coming from Greece) (Albanian Institute of Statistics, 2017[32]). This is because Italian FDI was directed primarily to the garment and footwear industries, which are labour intensive and do not require major capital investments. Additionally, Italian entrepreneurs relied on personal relationships with local entrepreneurs, often former employees of Italian companies that

had returned to their home country, to whom part of the production was outsourced or leased without the need to invest directly in Albania. This dynamic is particularly true for the garment industry, which is sensitive to the geographic proximity of the final market as well as low labour costs, and served as an alternate way for the Albanian economy to latch on to the Italian textile value chain (Corò and Volpe, 2006[33]; Anamali, Zisi and Shosha, 2015[34]). Today, garment products are among the most complex Albanian short gains, which proves that entering foreign value chains is beneficial for increasing production capacity and quality standards. Finally, Italy is also the main destination market for other short gain products, such as plastic lids, frozen fruits and nuts, small iron pipes and seats.

After Italy, Greece is the next largest EU destination for Albania's short gains. As with Italy, the ties between Albania and Greece are numerous and well-rooted: there is a large Albanian community in Greece and a historical Greek minority in southern Albania. Unlike Italy, Greece is an important investor in Albania. Of the EU Member States, Greece contributes the largest share of FDI in Albania, with rising trends despite its severe economic crisis. Short gain products exported to Greece include garments, iron wire and paper notebooks.

Although Germany is a marginal importer of short gain products, it imported half of Albania's insulated wire exports, worth USD 3.5 million in 2016. The other half was almost entirely exported to the Czech Republic – a country that is well embedded in the German automotive supply chain.

Long bets

Italy is the leading importer of Albanian long bets, and Albanian exports are driven by FDI dynamics. Products include construction materials, electrical equipment and plastics. Greece plays a smaller role in long bet products as compared to short gains. However, it is still a major importer of semi-processed iron and electrical components.

In addition to aluminium products, Italy imports primarily electrical components, such as electrical board panels, switches and connectors. Production of these components began as a consequence of the recently flourishing construction and real estate markets. As a result of the expertise acquired domestically, these products are being increasingly exported. Unlike with short gains, Italian FDI plays a direct role in the trade dynamics of these long bets, resulting in the large variety and higher complexity of exported goods.

Vulcanised rubber and plastic products can be another important asset for Albania, as plastic polymers are a relatively complex commodity that would have a significant impact on the industrial structure of Albania. Albanian enterprises already produce and export plastic components to Italy, and shifting from simply extracting crude oil to processing, polymerisation and product manufacturing would increase its economic complexity.

As for Greece, despite its relatively smaller role in Albanian long bets, there are a number of Greek subsidiaries in Albania producing semi-processed iron. Both Greece and Italy are important destination markets for Albanian electrical components.

Other Albanian long bets do not reach a significant export value. This is because exports are unstable over time, which makes it difficult to distinguish clear patterns emerging for other manufacturing sectors in the country. The most significant products in terms of export value are diesel engine parts, which are exported to destinations outside the EU, ranging from Switzerland to Senegal and Singapore.

2.2.3. Summary of Albanian export opportunities

Albania's short gains and long bets have highly concentrated destination markets. Most of its short gains are exported to the Western Balkans and include raw and semi-processed agricultural products and chemical fertilisers. Albania relies heavily on garment manufacturing, which is highly labour intensive. This heavy reliance is mainly due to the economic relationship with its major trading partner, Italy. Greece is another key player for Albanian trade and is present in the country with significant FDI. The most important short gain products exported to Greece are garments, iron wire and paper products.

Limited infrastructural connections with EU markets make it hard for Albania to expand its trade to other EU countries. Still, for some products, such as transmission cables, Albania is able to export a significant volume to Germany and the Czech Republic.

As for the long bets, the Western Balkans play an important role as importers of Albania's semi-processed and processed metal products, though their export value is not significant and is mostly driven by Serbia. As a result of Italian direct investments, Italy is once more a significant trading partner, particularly with regard to construction materials, electrical equipment and plastics. Greece is also a main importer of semi-processed iron and electrical components, which it exports to other Western Balkan destinations through its Albanian subsidiaries.

Albania must strongly diversify both its export basket and destination markets to achieve sufficient economies of scale to increase its economic complexity. Given the limited industrial capacity of the country, this will require either substantial domestic investment in sectors with higher technological content or the attraction of strategic FDI projects that would contribute towards this goal.

2.3. Economy-specific analysis: Bosnia and Herzegovina

2.3.1. Economic state of play

Economic structure

Bosnia and Herzegovina is a small, open economy, dominated by services, which accounted for 55% of gross domestic product (GDP) in 2016, with a moderately developed industrial and manufacturing sector (23% and 12%, respectively), and a limited agricultural base (about 6% of GDP).

The relative size of the industrial sector mirrors its historical relevance in the development of the Bosnian economy, despite the heavy losses endured during the conflicts in the 1990s. At the time of the Socialist Federal Republic of Yugoslavia (SFRY), Bosnia and Herzegovina was an important mineral processing centre and provided the other republics with basic mineral commodities in exchange for current consumption goods. While large amounts of public capital investments poured in during the 1970s, productivity levels remained low, often due to the limited capacity of public managers (World Bank, 1981[35]). Merging small firms into larger agglomerates was a common practice in the SFRY to preserve employment levels. As a result, four large conglomerates emerged in Bosnia and Herzegovina over time: Energoinvest (energy sector), Unis (automotive and defence industry, which partnered with Volkswagen in the early 1970s), Šipad (wood processing) and RMK Zenica (steel industry, later acquired by ArcelorMittal). Construction and defence were important industries of the Bosnian economy, despite their low efficiency and, ultimately, supply excess (Andjelic, 2004[36]). The defence industry was particularly

developed in the southern districts and around Mostar, which was also a relevant metallurgical centre (Aluminij Mostar). Machinery production was concentrated in the north, particularly around Banja Luka. The Tuzla district was renowned for its chemical industry. The automotive industry, which developed in the 1950s with the production of vehicle components, extended later on to passenger and commercial vehicles, with plants in Sarajevo, Mostar and Banja Luka. Agriculture was not highly developed, despite its importance for employment and the presence of the large Agrokomerc conglomerate at the border with Croatia.

The Bosnian economy suffered heavily from the war in the 1990s, with GDP (excluding services) reduced by 90% between 1990 and 1995. Today, most of the abovementioned companies have been privatised. The economy remains fragile, primarily consumption driven and vulnerable to external fluctuations. This was seen with the global economic crisis, which pushed Bosnia and Herzegovina into recession in 2009 and 2012 (with GDP growth of -3% and -0.8%, respectively) and severe floods in 2014, which caused damage of approximately 15% of GDP. Since 2015, annual GDP growth has increased to more than 3% (Table 2.7). Still, the country registered a current account deficit of 4.7% of GDP in 2017, decreasing from 5.3% in 2015, resulting from a reduction in its trade deficit, which nevertheless remains large (17.4% of GDP in 2017).

Table 2.7. Bosnia and Herzegovina: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, million	3.77	3.76	3.75	3.72	3.69	3.65	3.60	3.57	3.54	3.52	3.51
GDP	USD, billion	16.7	17.6	17.0	17.2	17.3	17.2	17.6	17.8	18.4	18.9	19.5
GDP per capita	USD	4 412	4 665	4 545	4 615	4 701	4 714	4 883	4 993	5 190	5 383	5 570
GDP growth	% year-on-year	5.9	5.4	-3.0	0.9	1.0	-0.8	2.3	1.1	3.1	3.1	3.2
Exports of goods and services	USD, billion	4.6	4.6	4.5	5.1	5.3	5.3	5.8	6.0	6.4	7.0	7.8
Imports of goods and services	USD, billion	9.1	10.0	8.6	8.8	9.1	9.1	9.1	9.8	9.9	10.6	11.2
Current account balance	% of GDP	-9.2	-13.8	-6.4	-6.0	-9.5	-8.6	-5.3	-7.4	-5.3	-4.7	-4.7
Net FDI inflows	% of GDP	11.7	5.3	0.8	2.6	2.5	2.3	1.7	2.9	2.4	1.7	2.6
Unemployment	% of total labour force	28.9	23.3	24.0	27.2	27.6	28.0	27.5	27.5	27.7	25.1	25.6

Note: Prices in USD are constant, base year: 2010.
Source: World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

The absence of a common economic space within the country, which is divided into separate administrative entities (the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District), hinders the activity of the private sector. Investments are discouraged by considerable barriers in the business environment, which include market fragmentation, excessive red tape and a large grey economy. Low economic activity coupled with a skills mismatch has resulted in structural unemployment, which stood at 25.6% in 2017, the second highest in the region after Kosovo, and significant brain drain.

Foreign investments

The foreign direct investment (FDI) stock in Bosnia and Herzegovina amounted to USD 7.3 billion in 2016 and 43.3% of GDP. FDI inflows reached USD 303 million in 2016 alone and were directed primarily to services (wholesale – 33% and financial activities – 26%) and manufacturing (22%) (wiiw, 2018[30]). In particular, tobacco manufacturing accounted for a considerable share of FDI due to the acquisition of Sarajevo Tobacco Factory (FDS) by Austrian CID Adriatic Investments with funds from British American Tobacco, for USD 24.6 million. The major countries investing in Bosnia and Herzegovina recently have been Croatia and Austria, followed by the Netherlands (Central Bank of Bosnia and Herzegovina, 2017[37]).

International trade

Between 2006 and 2016, Bosnian exports increased from USD 4.5 billion to USD 6 billion, while imports rose from USD 8.1 billion to USD 8.8 billion. The European Union (EU) represents the most important trading bloc for Bosnia and Herzegovina, absorbing 40% of total Bosnian exports in 2016 – twice the amount of 2006.

Looking at individual countries, Germany and Italy are the leading trade partners, covering altogether almost 30% of total exports and 24% of imports (Table 2.8). The most significant product categories exported to the EU15 are textiles and footwear (70% of all exported Bosnian textiles and footwear, largely directed to Italy and Germany) and automotive components (primarily exported to Belgium, Germany and Luxembourg).

Other relevant EU trade partners include Croatia, with which Bosnia and Herzegovina shares a 932-kilometre border, and Slovenia. The role of Croatia as a trade partner has, historically, been significant; however, its importance has been decreasing over time, with exports declining from 18% in 2006 to 11% in 2016 and imports dropping from 21% to 17%. The decline was particularly strong after 2013, suggesting that the entrance of Croatia into the EU has brought new barriers for Bosnian exports to the Common Market, while Croatia reoriented demand towards the EU. Among the main products imported to Croatia in 2016 were USD 220 million worth of Bosnian mineral products – 46% of its total mineral exports. Slovenia plays a relatively smaller role as a trade partner, accounting for 8% of total exports and 6% of total imports in 2016.

Table 2.8. Top 10 Bosnian export and import markets (2016)

Exports			Imports		
Destination	USD billion	% of total exports	Origin	USD billion	% of total imports
Germany	0.8	15%	Croatia	1.3	17%
Italy	0.8	14%	Serbia	1.1	14%
Croatia	0.6	11%	Germany	1.1	14%
Slovenia	0.5	8%	Italy	0.7	10%
Serbia	0.4	8%	Slovenia	0.5	6%
Austria	0.4	7%	Hungary	0.3	4%
Turkey	0.3	5%	Turkey	0.3	4%
France	0.1	2%	Austria	0.3	4%
Hungary	0.1	2%	Poland	0.2	3%
Montenegro	0.1	2%	Netherlands	0.2	2%

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

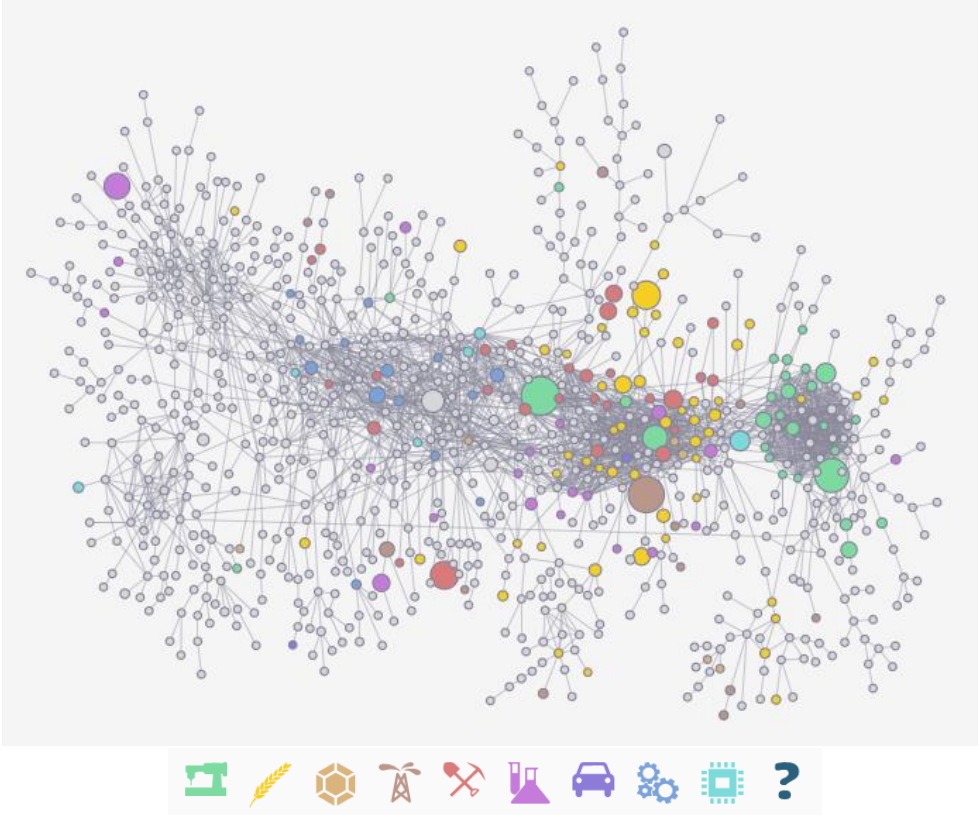
The Western Balkans are an important trade destination for Bosnia and Herzegovina, which exported USD 600 million (12% of total exports) to its neighbouring economies in 2016, two-thirds of which were to Serbia alone. Agro-food products (live animals, animal products and foodstuff) were the most significant categories exported to the Western Balkan region.

Trade relations with the rest of the world have been increasing for Bosnia and Herzegovina, reaching USD 1.7 billion or 30% of total exports in 2016. In particular, Turkey has become a significant trade partner, accounting for 5% and 4% of exports and imports, respectively.

2.3.2. Product Space analysis and identification of export opportunities

Bosnia and Herzegovina has a well-diversified export basket, scattered across the Product Space (PS) in various sectors, but mostly on the right side of the PS – namely, agro-food products, garments, furniture and minerals (Figure 2.2). Resource-based products, such as unprocessed aluminium and raw iron bars, comprise the largest share of Bosnia and Herzegovina's export basket. The country also exports products located in the centre of the PS, such as chemicals, machinery and vehicle components. Seats, including motor vehicle seats, represent a large node at the centre of the PS, with total exports surpassing USD 400 million in 2016.

Figure 2.2. The Product Space of Bosnia and Herzegovina (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

In terms of sectors displaying a sustained revealed comparative advantage (RCA), garments (particularly t-shirts), leather footwear and agro-food products (fresh and frozen vegetables) are the most prominent ones. Wood (sawn, fuel and shaped wood) and furniture are also significant export categories with established RCAs.

The PS analysis of Bosnia and Herzegovina uncovers more than 200 products that would contribute towards increasing the country's economic complexity. The three most significant product categories (machinery, mechanical appliances and electrical equipment; base metals; and chemicals) encompass almost half of the promising products identified (Table 2.9). In particular, machinery and electrical components have the highest opportunity gain (OG) in Bosnia and Herzegovina. The least significant categories include the mineral and garment industries – two clusters that have reached maturity and do not show significant space to increase Bosnian economic sophistication.

Table 2.9. Number of promising products by product category in Bosnia and Herzegovina (2016)

Product category (HS1)	Number of products
Machinery, mechanical appliances and electrical equipment	42
Base metals and articles of base metal	40
Chemical or allied industries	23
Textiles and textile articles	18
Stone, construction materials, glass and glassware	18
Wood, articles of wood and paper	17
Vehicles and transport equipment	16
Miscellaneous	12
Animals and animal products	11
Plastics, rubber and articles thereof	11
Vegetable products	10
Foodstuffs and tobacco	7
Mineral products	3
Raw hides and skins, leather, furskins	1

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

By listing the promising products based on those that show the shortest distance and those with the highest OG, 24 short gain and 25 long bet products are identified.

Short gains that could marginally raise the overall complexity of the Bosnian economy are agro-food, chemical, metal, and paper (Table 2.10). Demand for these products is chiefly driven by neighbouring economies in the Western Balkans and Croatia.

The export values of the individual short gain products are modest, with only seven of them surpassing USD 1 million in 2016 (e.g. raw plastic sheeting – USD 8.1 million and non-aqueous paints – USD 4.3 million). However, with the exception of refrigerators and non-aqueous paints, the short gains achieving higher export values are not those with the highest OG. Rubber products and felt are two of the country's more complex short gains, with felt representing a newer product in the Bosnian export basket. The export value of felt slowly but steadily increased from the early 2010s to USD 268 thousand in 2016.

Table 2.10. Selected short gains in Bosnia and Herzegovina, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Bosnia and Herzegovina
3920	Raw plastic sheeting	8 180	0.42	0.77	1.30	✔	✔	
3208	Non-aqueous paints	4 339	0.59	0.77	1.47	✔	✔	
8418	Refrigerators	2 724	0.56	0.77	1.92	✔		✔
3402	Cleaning products	2 714	0.40	0.76	1.05	✔	✔	
406	Cheese	2 555	0.29	0.76	0.75	✔	✔	
7216	Iron blocks	1 620	0.25	0.76	0.71		✔	✔
2309	Animal food	1 291	0.31	0.76	0.84		✔	
4016	Other rubber products	918	0.83	0.77	2.50	✔	✔	
2303	Starch residue	826	0.43	0.77	1.42			
2203	Beer	816	0.39	0.77	0.97	✔		✔
1205	Rape or colza seeds	806	0.34	0.76	1.00			
8432	Soil preparation machinery	475	0.55	0.76	1.75	✔		
3305	Hair products	461	0.32	0.75	1.21	✔	✔	
6807	Asphalt	385	0.50	0.77	1.50			
3209	Aqueous paints	368	0.55	0.77	1.66			
4410	Particle board	305	0.41	0.75	1.41		✔	✔
7215	Other iron bars	294	0.51	0.77	1.72		✔	✔
5602	Felt	268	0.66	0.77	1.83			✔
7612	Aluminium cans	104	0.34	0.75	1.18	✔	✔	✔
8309	Metal stoppers	67	0.53	0.77	1.55			
6809	Plaster articles	60	0.20	0.76	0.61	✔	✔	
6905	Roofing tiles	40	0.40	0.77	0.88	✔	✔	
4817	Envelopes, letter cards, paper	16	0.40	0.76	1.29		✔	✔
4822	Paper spools	5	0.47	0.77	1.52		✔	✔

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Bosnian long bets are largely concentrated in three sectors: automotive, machinery and metal processing. The 25 products listed in Table 2.11 are those that would contribute the most towards increasing Bosnia and Herzegovina's economic complexity in the long run.

In terms of value, automotive components are the most significant long bet products, having surpassed USD 130 million in 2016, followed at a distance by electrical power accessories and liquid pumps, at approximately USD 10 million each. However, taking into consideration the OG of the long bets, automotive components leave space for machinery products to contribute more towards upgrading the complexity of Bosnian industry. Machinery products include transmissions, liquid pumps, sound recording devices and soldering and welding machines.

Table 2.11. Selected long bets in Bosnia and Herzegovina, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Bosnia and Herzegovina
8708	Motor vehicle parts	131 253	1.02	0.80	3.01	✔	✔	✔
8538	Electrical power accessories	10 233	1.00	0.80	2.71		✔	
8413	Liquid pumps	9 934	1.25	0.82	3.45	✔		
8428	Lifting machinery	4 984	1.04	0.81	3.02		✔	
8419	Other heating machinery	4 506	1.01	0.82	2.60		✔	
7307	Iron pipe fittings	4 143	1.05	0.81	3.11		✔	✔
8483	Transmissions	3 143	1.26	0.82	3.65	✔	✔	✔
8512	Electrical lighting or signalling equipment	3 114	0.98	0.80	2.64	✔	✔	
8607	Locomotive parts	2 557	1.10	0.79	3.09		✔	
7320	Iron springs	782	0.94	0.79	2.76		✔	✔
8459	Drilling machinery	638	1.05	0.81	3.02		✔	✔
9032	Thermostats	589	0.98	0.81	2.96			✔
8442	Printing machinery	337	1.00	0.83	3.19		✔	
3506	Glues	240	0.94	0.82	2.57			
8416	Liquid fuel furnaces	227	1.00	0.80	3.00		✔	
7607	Aluminium foil	210	0.97	0.81	2.66		✔	✔
6806	Rock wool	197	0.94	0.78	2.83	✔	✔	
5911	Technical use textile	169	0.98	0.79	3.09		✔	
8547	Metal insulating fittings	156	1.00	0.80	2.95		✔	
6804	Milling stones	127	0.93	0.82	2.76			
7226	Flat-rolled iron	82	1.10	0.82	3.34		✔	✔
6805	Abrasive powder	79	1.06	0.80	3.16		✔	
8524	Sound recording devices	52	1.18	0.82	3.40		✔	
8468	Soldering and welding machines	30	1.15	0.82	3.21		✔	
8546	Electrical insulators	23	1.04	0.81	3.01		✔	

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

In terms of geographic destination, Bosnia and Herzegovina's short gains are largely exported to the Western Balkans and nearby EU destinations, notably Croatia, Austria and Italy. Long bets are almost exclusively exported to EU destinations and are integrated into Central European supply chains.

The Western Balkans

Short gains

The importance of the Western Balkans for Bosnia and Herzegovina's promising products is not as significant as for other economies in the region. Bosnian short gains are concentrated in agro-food, chemical and resource-based products, with Montenegro and Serbia being Bosnia and Herzegovina's major regional trade partners.

The Western Balkans are relevant importers of agro-food products from Bosnia and Herzegovina. In particular, 57% of Bosnian cheese exports, worth USD 2.5 million, are directed to the Western Balkans, with Montenegro and Serbia taking one-third and one-fifth of total exports, respectively. These two countries are also the main importers of animal food, accounting together for USD 0.9 million out of USD 1.3 million exports. Finally, Serbia is also a leading importer of beer (39% of total exports).

The Western Balkans also import miscellaneous chemical products from Bosnia and Herzegovina, namely cleaning products (38% of the exported USD 2.7 million is distributed between Montenegro, North Macedonia and Serbia), hair products (55% of product exports) and non-aqueous paints (28% of product exports). Additionally, Montenegro imports construction materials, including asphalt and iron bars.

The European Union

Short gains

Most of Bosnia and Herzegovina's exports to the EU are to nearby destinations, going first and foremost to Croatia and then to a lesser extent to Austria, Italy and Slovenia. A few products reach Germany and the Slovak Republic.

Croatia is a major trade partner for Bosnia and Herzegovina and is its main entrance point to the EU market. In 2016, Croatia imported USD 637 million worth of goods from Bosnia and Herzegovina, including raw aluminium, timber, seats and fabric. With a few exceptions, Croatia is the single major importer of Bosnian agro-food products, including cheese, malt beer and animal food. However, the balance has recently started to shift towards the Western Balkans because of the difficulties that Bosnia and Herzegovina faces in abiding by EU standards for alimentary products. FDI could be an important trigger for growth in this sector. The German group Meggle, which has produced dairy products at its facility in Bihać since 2002, is one example of a foreign investor that gradually expanded its production and technologies. Improving agricultural technology would also contribute to decreasing volatility in exports, which are still highly sensitive to weather conditions. This volatility makes domestic firms unreliable partners for large food conglomerates.

Croatia is the leading importer of Bosnian hair and cleaning products. Croatia also imports raw plastic sheeting and rubber products as well as one-third of Bosnia and Herzegovina's soil preparation machinery. The only agricultural product that is almost entirely exported to the EU is starch residue (90% to Greece), which is one of the most complex products among Bosnian agro-food short gains. Exports reached USD 826 thousand in 2016.

Italy is a major importer of Bosnia and Herzegovina's non-aqueous paints, which have seen a robust rise in recent years, and particle board, which has been on a constant decline since 2007. Germany and the Slovak Republic import aluminium cans and plastic articles, while Slovenia imports felt and Austria imports roof tiles and refrigerators.

Long bets

Bosnia and Herzegovina has attracted substantial FDI from the German automotive sector and has begun to latch on to European supply chains. This is still an emerging trend, but it could put Bosnia and Herzegovina on the right track towards integration in the European automotive supply chain.

Given its low production and labour costs, proximity to EU markets and long industrial tradition, Bosnia and Herzegovina may have the opportunity to become part of the German-Central European Supply Chain (GCESC). The GCESC was developed in the 1990s, fostered by large FDI flows from Germany to Visegrad Group countries (i.e. the Czech Republic, Hungary, Poland and the Slovak Republic), which created an integrated economic area focused on export-oriented manufacturing (IMF, 2013[38]). Twenty years later, with these four countries increasing labour costs and moving up the supply chain, part of their traditional manufacturing in the automotive sector has moved to less developed economies.

At this stage, Bosnia and Herzegovina is not yet firmly integrated into the GCESC. However, several large German automotive corporations have established plants in Bosnia and Herzegovina to produce automotive components. These plants include, among others, Mann+Hummel, Prevent and Jajce Alloy Wheels. The automotive components exported to Germany are also exported to a lesser extent to other countries in the GCESC. In total, the GCESC accounts for almost 75% of total long bet exports in the automotive sector. The remaining automotive components are exported to other EU markets, the Russian Federation and the United States. Select machinery components are also affiliated with the automotive industry, including electrical lighting and signalling equipment, transmissions and pumps. An important component producer serving the automotive industry is Bekto Precisa, which established a joint venture with the German company HELLA. Bekto Precisa exports not only to Germany, but also to Visegrad Group countries.

Croatia is a leading importer of Bosnia and Herzegovina's raw and semi-processed aluminium and has a 12% stake in Aluminij Mostar, a company with mixed private-public ownership (Bosnia and Herzegovina owns an additional 44%). Croatia is also the major importer of printing machinery and electrical insulators. While printing machinery exports have been increasing in recent years despite significant seasonal fluctuations, exports of electrical insulators have been consistently decreasing, reaching a low of USD 23 thousand in 2016, which was only 11% of their 2006 export value.

2.3.3. Summary of Bosnian export opportunities

When looking at Bosnian short gains and long bets, the importance of its neighbouring economies – both from the Western Balkans and the EU – is significant. Montenegro and Serbia are Bosnia and Herzegovina's major trade partners in the region, importing mostly agro-food products, some chemicals and fewer construction materials.

Croatia is a strong trade partner for a wide range of short gain products, such as plastics, chemicals, agro-food products and machinery. This is a natural outcome of the geographical position of Bosnia and Herzegovina, and despite the overall decrease of Bosnian exports to Croatia between 2006 and 2016, Croatia remains a remarkably strong trade partner for Bosnian short gains. Short gain products with a relatively more sustained export value and opportunity gain include rubber products and non-aqueous paints. The only machinery products listed among Bosnian short gains are refrigerators and soil preparation machinery.

Bosnia and Herzegovina's long bets reflect its industrial heritage and production specialisation and are concentrated in the automotive, machinery and metal processing sectors. This underscores the significant potential for Bosnian enterprises to further strengthen their capabilities in select established sectors. However, it would require substantial investments that are often difficult for domestic producers to achieve. FDI can both upgrade technology and support the inclusion of Bosnia and Herzegovina in global supply chains such as the GCESC. Furthermore, Bosnia and Herzegovina could increase its economic complexity by supplying parts to the German automotive sector and strengthen its position in international markets by accelerating exports to Germany and Central Europe.

2.4. Economy-specific analysis: Kosovo

2.4.1. Economic state of play

Economic structure

Kosovo is a small, open economy, dominated by services, which accounted for 46% of gross domestic product (GDP) in 2016, followed by industry and manufacturing (24% and 11%, respectively), and agriculture (10%).

Historically, Kosovo has suffered from limited infrastructure connections. The first investments to Kosovo came from other regions of the Socialist Federal Republic of Yugoslavia (SFRY) in the 1960s. These were primarily aimed at exploiting the natural resources of Kosovo in labour-intensive sectors such as mining (Trepça), metallurgy and energy production. Metal products, primarily utensils and packaging, were produced in Janjevë, Viti and Podujevë. A cement factory was established in Hani i Elezit. Gjakovë was an important industrial centre with textile and metal factories (Jatex and Metaliku), together with Pristina, Gjilan and Prizren. Kosovar garments and textiles were exported not only across the SFRY, but also to some extent to Western Europe and the United States. Additionally, the wood processing sector employed a substantial labour force. Plywood, parquet and furniture makers were located across Kosovo. However, despite sustained birth rates, the limited disposable income of the Kosovar population did not support the production and trade of consumption goods. Hence, employment opportunities predominantly remained linked to a few large industrial complexes (Baskin, 1983[39]).

During the 1990s, the economic and political crisis that followed the breakup of the SFRY resulted in the capital depletion and loss of competitiveness of the greater part of Kosovar industry. The few remaining active companies served as component suppliers and remained linked to larger Serbian firms. For example, in the automotive industry, seats produced by Ramiz Sadiku (Pejë) and small automobile parts produced by the Shock Absorber Factory (Pristina) were supplied to the Zastava car manufacturer in Kragujevac, Serbia. However, much of the remaining production capacity was lost during the 1999 war.

The opening of Kosovar markets in the 2000s exposed the surviving firms, which were active in mining and garment manufacturing, to foreign competition. While they remained largely uncompetitive, they are still crucial in providing employment for the local population.

Kosovo was not significantly exposed to the global recession, primarily because of its limited integration into international financial markets. However, it remains very dependent on remittances from its diaspora – located primarily in Germany, Switzerland and Scandinavian countries – whose remittances decreased during the crisis. This caused a fall

in consumption and investment in the private sector and a slowdown in GDP growth from 3.4% to 1.2% during 2013 to 2014. GDP growth has since recovered, with a rate above 4% each year (Table 2.12).

Still, Kosovo maintains the lowest GDP per capita in the region, at USD 4 thousand, which is approximately 73% of the average GDP of the Western Balkans. Sectors that are currently driving economic growth are banking and insurance, which grew by 30% in 2016 alone, manufacturing (7.4%) and wholesale and retail trade (5.7%). Despite a deceleration in the growth rate and increased government spending, Kosovo's public debt remains, in absolute terms, the lowest in the region, at an estimated level of 15.8% of GDP in 2017. The current account deficit stood at 6.2% of GDP in 2017, but the trade deficit remained substantial, totalling USD 2.4 billion, which is almost one-third of Kosovar GDP.

Several constraints are preventing Kosovo from improving its economic performance. These include a challenging business environment due to weak contract enforcement, uncertain rule of law and widespread economic informality, which remains high at 32% of GDP, while unemployment is again on the rise, reaching 30.5% in 2017. Kosovo's weak transport and energy infrastructure are further barriers to its development, causing severe constraints for trade and mobility. These infrastructure constraints are partly a consequence of the ongoing dispute with Serbia regarding the status of Kosovo.

Table 2.12. Kosovo: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, million	1.73	1.75	1.76	1.78	1.79	1.81	1.82	1.82	1.80	1.82	1.83
GDP	USD, billion	5.3	5.5	5.6	5.8	6.1	6.3	6.5	6.6	6.9	7.1	7.4
GDP per capita	USD	3 069	3 125	3 204	3 284	3 412	3 483	3 565	3 613	3 802	3 925	4 059
GDP growth	% year-on-year	7.3	2.6	3.3	3.3	4.8	2.9	3.4	1.2	4.1	4.1	4.2
Exports of goods and services	USD, billion	0.9	0.9	1.0	1.2	1.5	1.2	1.2	1.3	1.3	1.3	1.5
Imports of goods and services	USD, billion	2.6	2.8	3.0	3.2	3.3	3.1	3.1	3.3	3.5	3.7	3.9
Current account balance	% of GDP	-10.4	-16.2	-9.2	-11.6	-12.6	-5.8	-3.4	-6.8	-8.5	-7.9	-6.2
Net FDI inflows	% of GDP	13.0	9.4	7.1	8.4	8.0	4.5	5.3	2.7	5.3	3.6	4.5
Unemployment	% of total labour force	..	47.5	45.4	..	..	30.9	30.0	35.3	32.9	27.5	30.5

Note: Prices in USD are constant, base year: 2010.
Source: Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Foreign investments

The foreign direct investment (FDI) stock in Kosovo amounted to USD 3.9 billion in 2017, equivalent to 55.7% of its GDP. The primary economic activities that attracted FDI were real estate (32%), financial intermediation (13%) and construction (8%). FDI directed to manufacturing is limited to 5% of the total stock. Between 2016 and 2017, inflows increased by 33%, registering a value of USD 324.4 million (wiiw, 2018[30]). Most of the investments in the economy come from Turkey (12%), Germany (10%) and Switzerland (9%) (Central Bank of the Republic of Kosovo, 2017[40]). A large share of the FDI is attributed to the Kosovar diaspora in Albania and Switzerland.

International trade

In 2009, Kosovar exports and imports of goods amounted to only USD 229.8 million and USD 2.7 billion, respectively. In 2016, the same figures stood at USD 343.7 million and USD 3.1 billion, further widening Kosovo's trade deficit.

Four economies alone, three of which neighbour Kosovo (Albania, Serbia and North Macedonia), accounted for more than half of total exports in 2016. In comparison, exports to the European Union (EU) as a whole stood at 23%, reflecting the limited reach of Kosovar products to foreign markets, particularly in Western Europe (Table 2.13). Germany, Bulgaria, Austria, the Netherlands and Italy are the most significant EU destinations.

In terms of products, Kosovo exported primarily metal scraps, pipes and agricultural products (such as wheat and potatoes) to Albania. In addition to electrical energy, iron tubes, pipes and metal shapes were the most exported products to Serbia and accounted for the majority of exports to Kazakhstan and North Macedonia. EU countries imported plastics, vegetables, furniture and wood products (Germany) as well as hides and raw skins (Austria and Italy).

As for imports, Serbia was the most important trade partner, supplying largely primary products, including wheat, cane sugar, sunflower oil, bread, petroleum and corn, among others. Motor vehicles are primarily imported from Germany, while food preparations, coffee, ceramics, medicaments and machinery are largely imported from Italy. Garments, footwear and a wide array of consumer goods are imported from Turkey and China.

Table 2.13. Top 10 Kosovar export and import markets (2016)

Exports			Imports		
Destination	USD million	% of total exports	Origin	USD million	% of total imports
Albania	46.7	14%	Serbia	430.3	14%
Serbia	45.9	13%	Germany	380.6	12%
Kazakhstan	43.4	13%	Turkey	320.2	10%
North Macedonia	42.8	12%	China	286.9	9%
Switzerland	18.6	5%	Italy	225.1	7%
Montenegro	15.4	4%	North Macedonia	174.0	6%
Germany	15.3	4%	Greece	131.6	4%
Netherlands	13.2	4%	Albania	128.5	4%
China	13.0	4%	Bosnia and Herzegovina	87.8	3%
Bulgaria	12.5	4%	Poland	83.7	3%

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

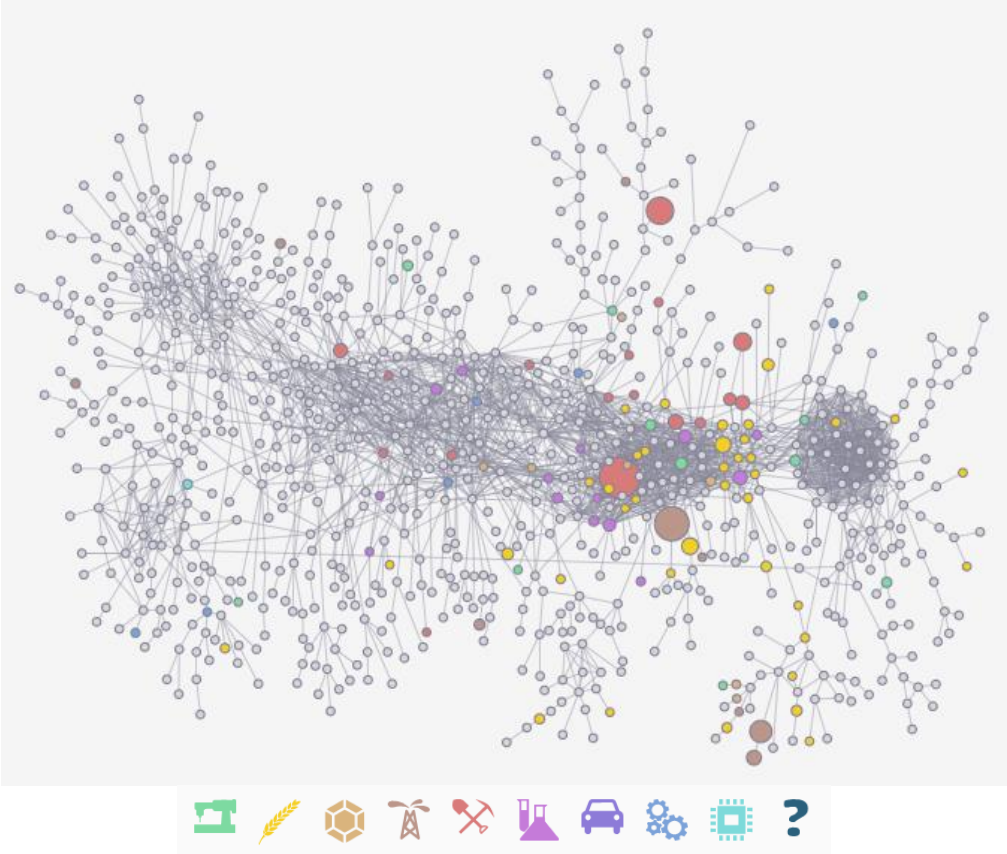
2.4.2. Product Space analysis and identification of export opportunities

Kosovo's exports are predominantly located in the periphery of the Product Space (PS). Despite the limited export value, Kosovo's Economic Complexity Index (ECI) is higher than the regional average (0.42 versus 0.20) and above Albania, Montenegro and North Macedonia.

Kosovar exports include primarily metals (aluminium structures and coated flattened iron, USD 120 million), minerals (lead and zinc ores, USD 70 million) and agro-food products (USD 48 million). In terms of relatively more complex products, Kosovo exported

chemicals totalling USD 4 million and select machinery and electrical components totalling USD 3 million (Figure 2.3).

Figure 2.3. The Product Space of Kosovo (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Kosovar promising products that should contribute towards diversifying and increasing economic complexity are strictly linked to the products that it already exports, including base metals, chemicals, and machinery and electrical equipment, with some space for agro-food products (Table 2.14).

Table 2.14. Number of promising products by product category in Kosovo (2016)

Product category (HS1)	Number of products
Base metals and articles of base metal	44
Machinery, mechanical appliances and electrical equipment	44
Chemical or allied industries	28
Wood, articles of wood and paper	22
Textiles and textile articles	16
Stone, construction materials, glass and glassware	14
Animals and animal products	13
Vegetable products	13
Vehicles and transport equipment	12
Miscellaneous	9
Foodstuffs and tobacco	8
Plastics, rubber and articles thereof	8
Mineral products	4
Raw hides and skins, leather, furskins	2

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Kosovo is the only analysed economy where the export value of short gains exceeds that of long bets. This is because exports of seats alone (USD 1.2 million in 2016) account for more than half of total short gain exports. The majority of the remaining products have an export value below USD 100 thousand. Kosovar short gains include a range of agro-food, wood, chemical and metal products (Table 2.15).

Table 2.15. Selected short gains in Kosovo, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Kosovo
9401	Seats	1 198.7	0.31	0.84	1.19	✔	✔	✔
3402	Cleaning products	243.2	0.42	0.84	1.05	✔	✔	✔
7604	Aluminium bars	180.2	0.41	0.84	1.44	✔	✔	✔
4818	Toilet paper	137.5	0.33	0.83	1.11		✔	
7310	Small iron containers	93.4	0.40	0.84	1.13	✔	✔	
1001	Wheat	80.4	0.27	0.85	0.95		✔	
3208	Non-aqueous paints	54.8	0.61	0.85	1.47	✔	✔	✔
4410	Particle board	52.9	0.43	0.84	1.41		✔	✔
2309	Animal food	35.7	0.32	0.85	0.84		✔	
406	Cheese	26.7	0.29	0.84	0.75		✔	
4805	Other uncoated paper	17.8	0.43	0.85	1.19	✔		
7309	Large iron containers	16.7	0.35	0.84	1.13		✔	
4902	Newspapers	14.3	0.78	0.85	2.30			
3814	Organic composite solvents	12.8	0.51	0.84	1.02			✔
4817	Letter stock	12.6	0.40	0.85	1.29		✔	
3305	Hair preparations	11.1	0.33	0.84	1.21		✔	
1602	Other prepared meat	10.2	0.29	0.84	0.90			
4413	Densified wood, in blocks, plates, strips or profile	8.5	0.40	0.85	0.88		✔	✔
6905	Roofing tiles	8.2	0.42	0.85	0.88	✔	✔	✔

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Concerning long bets, almost half of the selected products belong to the automotive and machinery sectors (Table 2.16). This might seem counterintuitive, given the limited capacity of Kosovo's machinery and automotive sectors. Indeed, the export values of these products are very modest, surpassing USD 300 thousand in only three cases. Still, this outcome hints to the fact that productive knowledge remains, latent in the economy, even when economic activity is reduced because of a number of circumstances. Thus, refurbishing and updating these sectors could support Kosovo's attempts to increase the complexity and diversity of its production, as well as to improve its ability to compete in international markets.

The opportunity gain (OG) of Kosovar long bets is considerably high, which reflects the notable benefits that it would acquire if it were to further strengthen its production.

Table 2.16. Selected long bets in Kosovo, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Kosovo
8708	Motor vehicle parts	389.3	1.09	0.88	3.01	✔	✔	✔
8421	Filters for combustion engines	364.3	1.04	0.86	2.85	✔	✔	✔
8409	Engine parts	358.8	1.04	0.88	2.79		✔	✔
8422	Washing and bottling machines	272.7	0.98	0.88	3.15		✔	✔
7307	Iron pipe fittings	169.9	1.12	0.89	3.11	✔	✔	
5911	Technical use textile	78.6	1.05	0.87	3.09		✔	✔
8480	Metal moulds	35.5	1.05	0.88	2.83		✔	
7212	Large coated flat-rolled iron	34.4	0.97	0.88	2.39		✔	
8428	Lifting machinery	33.5	1.08	0.88	3.02		✔	
8442	Printing machinery	33.2	1.06	0.89	3.19		✔	
8459	Drilling machinery	11.6	1.11	0.88	3.02		✔	
3816	Refractory cements, mortars, concretes other than graphite	9.7	0.98	0.88	2.54		✔	✔
8416	Liquid fuel furnaces	6.1	1.06	0.88	3.00		✔	
8538	Electrical power accessories	5.5	1.06	0.89	2.71			
7607	Aluminium foil	3.0	1.03	0.89	2.66		✔	
8208	Cutting blades	2.7	1.15	0.89	3.49		✔	
8707	Car bodies	2.2	0.98	0.89	2.86		✔	

Note: Product characterisation based on information collected by the authors.
Source OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

In terms of trade partners, Albania is the dominant importer for nearly half of Kosovo's short gains in agriculture, food, chemicals and processed wood, while Switzerland and Germany are the primary importers of construction, metal and furniture products. As for long bets, Albania, Italy, North Macedonia, the Netherlands and Switzerland are the most important partners.

The Western Balkans

Short gains

Among short gains, Albania is Kosovo's leading trade partner for agro-food, wood, and chemical products. North Macedonia is a major importer of particle board.

The historical, ethnic and cultural links that exist between Albania and Kosovo explain the predominant role of Albania in importing a large number of Kosovar short gains, including all agro-food products (cheese, wheat, prepared meat, soups and animal food). Chemical products are also largely exported to Albania, though their export value is marginal. The chemical industry in Kosovo is relatively new, with half of its active companies having been established after 2014; however, this industry is currently expanding in terms of

output and employment. Many of these companies are located around Pristina and about one-third are export oriented (Ministry of Trade and Industry of Kosovo, 2016[41]).

Concerning the wood processing industry, which represents a fairly important economic activity in Kosovo (as forests cover 45% of the total land) (Bajraktari et al., 2017[42]), relevant products include particle board, densified wood and multiple types of paper products. However, exports of wood-derived products are modest and largely oriented towards the Western Balkans: particle board is exported to North Macedonia and envelopes, labels and toilet paper are exported to Albania.

Long bets

Concerning long bets, Albania and North Macedonia are again the leading importers from the region.

Albania is the leading importer of Kosovar food processing machinery – one of the most valuable products across its long bets.

Exports to North Macedonia are modest; however, it is Kosovo's main trade partner for a large number of products, which are valued at between USD 10-35 thousand. These include lifting machinery, moulding boxes and refractory cements.

The European Union and Switzerland

Short gains

Germany is the only significant importer of Kosovar short gain products among EU countries (motor vehicle seats and metal products). Switzerland is also an important importer of several short gain products from Kosovo, including chemicals, wood and paper, construction materials and metal products.

Germany imports 36% of Kosovar motor vehicle seats – the leading short gain product in terms of value. Seat skeletons for passenger vehicles are produced by Kosovo Steel Group, formerly Ramiz Sadiku, which is an automotive component manufacturer that was active during the time of the SFRY and has since been privatised. Germany also imports two intermediate metal products – small iron containers (valued at USD 93 thousand in 2016) and aluminium bars (USD 180 thousand).

Swiss-Kosovar relations are strong and grounded in the large Kosovar community in Switzerland. Concerning short gain products, Switzerland is nearly the sole importer of organic composite solvents (87% of Kosovar exports for this product). The same is true for densified wood, newspapers, roofing tiles and large iron containers.

Long bets

Italy and the Netherlands are the only major importers of Kosovar long bets among EU countries. Italy primarily imports automotive products and the Netherlands imports textiles and iron. Switzerland is also an important investor and trade partner for Kosovo in relation to its long bets.

Italy imports engine and vehicle components as well as certain wood products. The Netherlands imports agricultural products, technical-use textiles and flat-rolled iron. Switzerland is a modest importer of iron pipe fittings and liquid fuel furnaces, but demand has not been constant over time.

2.4.3. Summary of Kosovar export opportunities

The high concentration of partners for Kosovar short gains and long bets hints to the difficulties that Kosovo faces in reaching foreign markets. There is also a heavy reliance on diaspora connections for establishing trade links, as in the cases of Albania, Germany and Switzerland.

Short gains are generally linked to agriculture and food, wood processing and the chemical and metal industries, all of which are exported primarily to Albania and which do not account for a significant export value. The important exception is motor vehicle seats, with an export value of USD 1.2 million in 2016. These are largely exported to Germany. Switzerland imports wood, paper, metals and chemicals.

Long bets are mostly linked to the automotive and machinery sectors, but exports are marginal. Italy, the Netherlands and Switzerland are the only countries that represent significant partners for Kosovar long bets.

2.5. Economy-specific analysis: Montenegro

2.5.1. Economic state of play

Economic structure

With a population of 622 thousand, Montenegro is the smallest of the Western Balkan economies. In 2016, services accounted for 60% of gross domestic product (GDP), with tourism alone comprising around 20% of GDP, industry (16%), a small manufacturing base (4%) and agriculture (7%).

As part of the former Socialist Federal Republic of Yugoslavia (SFRY), Montenegro's small size and limited population enabled investments coming from the other republics to quickly trigger economic development. By 1961, its social product per capita was larger than those of the federal republics of Macedonia and Bosnia and Herzegovina, and by 1989, it was at 80% of the income level of the most developed republics in the Federation, i.e. Croatia and Slovenia (Kukić, 2017[43]).

The zones on the Adriatic coast were traditionally agricultural, with grape terraces for wine production and beer breweries in Danilovgrad, Nikšić and Podgorica. Tourism began developing in the coastal region starting from the mid-1970s. Internally, Montenegro had an important mining sector, with coal being extracted in Berane and Pljevlja, bauxite in Nikšić and aluminium processing in Podgorica. Nikšić and Podgorica were also home to the few industrial machinery production plants. However, the limited size of Montenegro prevented sufficient economies of scale from taking place and affected its ability to compete outside of the SFRY. Today, the small size continues to represent an obstacle for many Montenegrin enterprises, partly explaining the inability of many of them to internationalise.

Over the past 20 years, Montenegro's strong orientation towards services attracted most of its investments to the financial and tourism (real estate) sectors. However, over time, a lack of additional investment and sufficient modernisation led to the foreclosure of many larger industries. This also affected the productivity of many small and medium enterprises.

Montenegro is characterised by sustained but fluctuating GDP growth rates. It registered two recessions – in 2009 and 2012 – following a drop in capital inflows due to the global financial crisis (Table 2.17). These were counterbalanced by continued private and public

expenditure, as well as the implementation of new investment projects in energy, tourism and construction. However, it came at a cost for Montenegrin public finances: the government balance was constantly in deficit – up to 6% of GDP in 2015 and 2016 – and public debt skyrocketed from 37% of GDP in 2006 to 66% of GDP in 2016. In recent years, large infrastructural projects posed an additional burden, questioning the sustainability of public finances in the medium run.

The current account balance is also heavily underwater due to Montenegro's limited export base and sustained domestic consumption levels. Employment is very seasonal, reflecting the cycles of tourism, and relies on a low skilled workforce. Unemployment remains chronically high at 16.1% (2017), having fallen slightly since its peak of 19.7% during 2010 to 2012.

Overall, challenges to the business environment include weak rule of law, overburdened public finances, lack of entrepreneurial spirit and difficulty in accessing finance for private firms.

Table 2.17. Montenegro: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, thousand	615	617	618	619	620	620	621	621	622	622	622
GDP	USD, billion	4.0	4.3	4.0	4.1	4.3	4.2	4.3	4.4	4.5	4.7	4.9
GDP per capita	USD	6 480	6 935	6 519	6 682	6 889	6 697	6 925	7 043	7 278	7 487	7 838
GDP growth	% year-on-year	6.8	7.2	-5.8	2.7	3.2	-2.7	3.5	1.8	3.4	2.9	4.7
Exports of goods and services	USD, billion	1.7	1.7	1.4	1.5	1.6	1.6	1.6	1.6	1.8	1.8	1.9
Imports of goods and services	USD, billion	3.3	3.8	2.7	2.6	2.7	2.7	2.6	2.7	2.9	3.3	3.6
Current account balance	% of GDP	-39.8	-49.7	-27.7	-20.6	-14.6	-15.6	-11.5	-12.4	-10.9	-16.2	-15.7
Net FDI inflows	% of GDP	25.5	21.5	37.2	18.3	12.3	15.1	10.0	10.8	17.3	5.2	11.6
Unemployment	% of total labour force	19.4	17.1	19.1	19.7	19.7	19.7	19.5	18.0	17.5	17.7	16.1

Note: Prices in USD are constant, base year: 2010.
Source: World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Foreign investments

Montenegro is the largest recipient of foreign direct investment (FDI) in proportion to size among the Western Balkan economies. The FDI stock stands at 114% of GDP, amounting to USD 5.8 billion in 2017. Recently, however, inflows have been fluctuating largely: after falling to a low of 5.2% in 2016, they increased to 11% of GDP (UNCTAD, 2018[44]). This trend is partially explained by foreign inflows to cover intercompany debts and investments in real estate. Indeed, the sectors attracting the most FDI are tourism, real estate, energy, telecommunications, banking and construction. The Russian Federation was the leading investor in the country until it was surpassed by Norway in 2017, due to the acquisition of the largest mobile operator in Montenegro by the Norwegian company Telenor Mobile. Other relevant investors in Montenegro are Italy, Hungary and Azerbaijan, notably in the services and energy sectors (Central Bank of Montenegro, 2018[45]).

International trade

Montenegro has suffered from a persistent trade deficit over time and has struggled to increase exports because of the falling demand from the European Union (EU), which has decreased by half over a decade. In 2016, exports to the EU15 stood at USD 150 million, which is the same amount as total exports to the Western Balkan region. Previously, Italy was the primary destination for Montenegrin products, importing aluminium in particular. However, Italy's share among export markets plummeted from 34% to 6% between 2006 and 2016. At the same time, other destinations increased in relevance, particularly Hungary, Belgium and Germany (Table 2.18). Products exported to the EU include vehicle components, garments and vegetables.

Table 2.18. Top 10 Montenegrin export and import markets (2016)

Exports			Imports		
Destination	USD million	% of total exports	Origin	USD million	% of total imports
Serbia	90.4	22%	Serbia	481.7	23%
Hungary	40.1	10%	Germany	225.2	11%
Bosnia and Herzegovina	29.4	7%	China	173.0	8%
Italy	25.4	6%	Croatia	155.7	7%
China	23.3	6%	Italy	147.7	7%
Belgium	20.5	5%	Greece	122.6	6%
Turkey	17.6	4%	Bosnia and Herzegovina	117.6	5%
Slovenia	16.7	4%	Turkey	57.0	3%
Albania	16.0	4%	Slovenia	48.7	2%
Germany	14.5	4%	Netherlands	43.4	2%

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Serbia was Montenegro's main trade partner from the Western Balkans in 2016, accounting for more than 20% of both total imports and exports. Bosnia and Herzegovina has also risen in importance as an export destination, increasing its imports from Montenegro from 4% to 7% between 2006 and 2016. Agro-food products (live animals, meat, skin leathers and furs) are predominantly exported to the Western Balkans. In return, Montenegro imports food, wood and base metals – again, chiefly from Serbia and Bosnia and Herzegovina.

China substantially increased its role as a trade partner, accounting respectively for 6% and 8%, respectively, of total exports and imports in 2016. From China, Montenegro sources raw hides, furs and textile products, valued in total at USD 22 million.

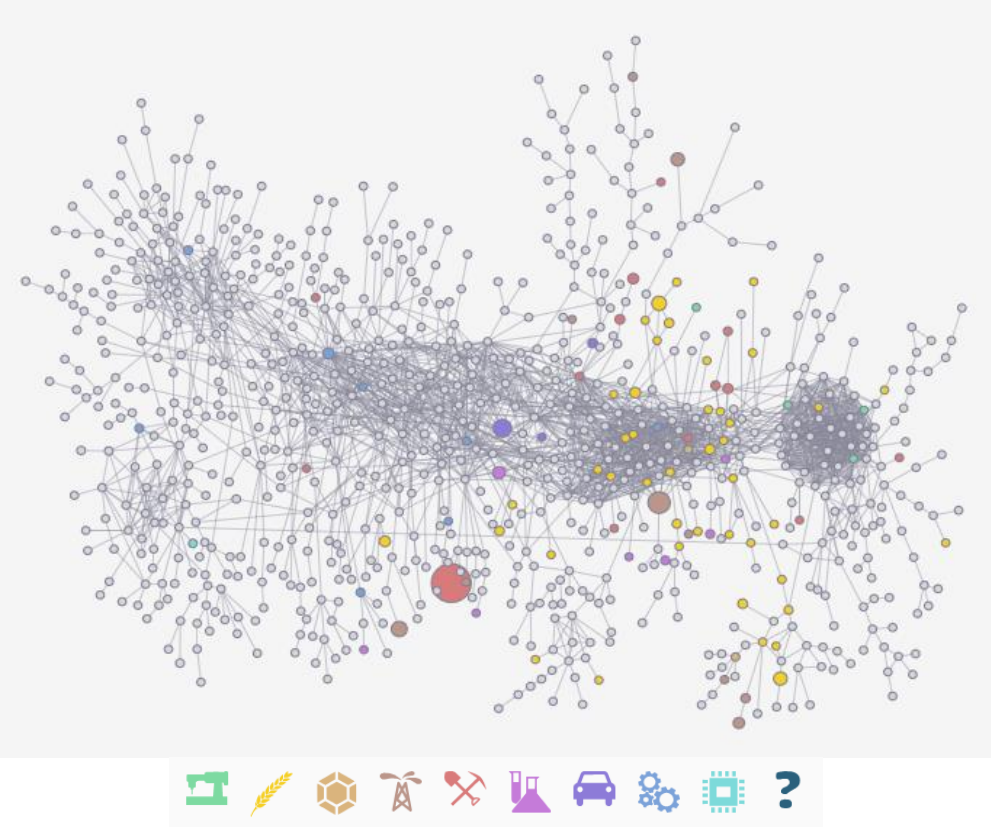
2.5.2. Product Space analysis and identification of export opportunities

Montenegrin exports are positioned in the periphery of the Product Space (PS) and have limited connections to more complex products (Figure 2.4). Agriculture and wood are the only two sectors with a large number of products (dried legumes; grapes; wine; nuts; pitted, dried and frozen fruits; sawn wood; fuel wood; plywood; and rough wood). However, the majority of Montenegrin exports are intangible, relating to tourism and services; hence, they cannot be tracked in the PS.

While manufacturing is very limited, exports are dependent on semi-processed commodities, with few nodes taking high export value shares. For example, raw aluminium

alone accounts for 21% of total Montenegrin exports. This exposes the country to significant shocks related to price fluctuations. Adding select other nodes, namely car transmissions, dried legumes, wine and bauxite (aluminium ore), these products account altogether for 50% of total exports.

Figure 2.4. The Product Space of Montenegro (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Montenegro has limited economic complexity, with an Economic Complexity Index (ECI) of 0.09, compared to the regional average of 0.2. Also, given the high concentration of its export basket and limited connections to other products in terms of production capabilities, it has the lowest opportunity value of the Western Balkan economies.

Looking at the PS, metals, machinery and chemical and allied industries appear promising for increasing Montenegro's economic complexity. Another important sector is wood; however, this sector presents a lower opportunity gain (OG) (Table 2.19).

Table 2.19. Number of promising products by product category in Montenegro (2016)

Product category (HS1)	Number of products
Base metals and articles of base metal	39
Machinery, mechanical appliances and electrical equipment	33
Chemical or allied industries	28
Wood, articles of wood and paper	26
Stone, construction materials, glass and glassware	19
Vegetable products	16
Plastics, rubber and articles thereof	16
Foodstuffs and tobacco	15
Animals and animal products	14
Vehicles and transport equipment	11
Textiles and textile articles	10
Miscellaneous	10
Mineral products	5
Raw hides and skins, leather, furskins	4

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

More than half of all Montenegrin short gains belong to the agro-food industry. The remaining short gains include chemicals, wood, construction products and metals (Table 2.20). The two most exported short gains in 2016 were iron structures and edible preparations from the food industry, worth USD 532 thousand and USD 464 thousand, respectively. The OG is generally modest across sectors, with metal and derived products (aluminium and iron structures, containers and cans) showing a similar OG to animal-derived products.

Table 2.20. Selected short gains in Montenegro, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Montenegro
7308	Iron Structures	532	0.47	0.88	1.66			✔
2106	Other Edible Preparations	464	0.19	0.87	0.80			
406	Cheese	215	0.35	0.87	0.75		✔	
7610	Aluminium Structures	180	0.48	0.88	1.60		✔	✔
2202	Flavoured Water	174	0.15	0.86	0.37		✔	
3917	Plastic Plates	159	0.43	0.87	1.12			
4418	Wood Carpentry	156	0.17	0.86	0.76		✔	✔
401	Milk	124	0.36	0.87	0.95		✔	
2105	Ice cream and other edible ice	51	0.36	0.87	0.99			
102	Bovine animals	48	0.19	0.86	0.46		✔	
2007	Jams	42	0.06	0.86	0.14	✔	✔	
4818	Toilet Paper	37	0.38	0.87	1.11		✔	✔
3402	Cleaning Products	36	0.46	0.88	1.05		✔	
7309	Large Iron Containers	27	0.41	0.87	1.13		✔	✔
7306	Other small Iron Pipes	16	0.14	0.87	0.42		✔	✔
1904	Prepared Cereals	16	0.22	0.87	0.51			
1206	Sunflower Seeds	6	0.20	0.88	0.31		✔	
2102	Yeast	6	0.11	0.87	0.16			
6809	Plaster Articles	5	0.27	0.88	0.61		✔	
1104	Processed Cereals	4	0.24	0.86	0.61		✔	
7612	Aluminium Cans	2	0.40	0.87	1.18		✔	✔
2103	Sauces and Seasonings	2	0.13	0.87	0.32		✔	
2104	Soups and Broths	2	0.25	0.87	0.45		✔	

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Long bets include automotive components and machine parts as well as chemicals and metals; however, export volumes have decreased considerably over time. The OG of Montenegrin long bets is pronounced and evenly distributed across segments (Table 2.21). Machinery and electrical components are among the products that could potentially contribute the most towards raising Montenegrin economic complexity, followed by automotive parts. Given the limited extent of manufacturing in Montenegro, any successful investment in one of these sectors would have a significant impact on the economy.

Table 2.21. Selected long bets in Montenegro, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Montenegro
8409	Engine parts	378.7	1.07	0.91	2.79	✔		
8708	Motor vehicle parts	321.6	1.12	0.91	3.01		✔	✔
8422	Washing and bottling machines	194.4	1.01	0.91	3.15		✔	
8607	Locomotive parts	154.6	1.20	0.90	3.09		✔	
8421	Filters for combustion engines	123.0	1.08	0.90	2.85	✔		
8524	Sound recordings	95.6	1.28	0.91	3.40		✔	
3304	Beauty products	63.9	0.94	0.91	2.41			
8438	Industrial food preparation machines	45.1	0.97	0.91	2.68		✔	
7212	Large coated flat-rolled iron	44.9	0.99	0.91	2.39			✔
8538	Electrical power accessories	34.6	1.09	0.91	2.71		✔	
6805	Abrasive powder	32.7	1.16	0.90	3.16			
4016	Other rubber products	30.5	0.92	0.90	2.50			
3823	Industrial fatty acids, oils and alcohols	30.1	0.95	0.90	2.27		✔	✔
9033	Opto-electric equipment parts	27.5	0.94	0.90	2.58		✔	
8707	Car bodies	23.3	1.01	0.91	2.86		✔	
8433	Harvesting machinery	13.8	0.94	0.90	2.36		✔	
5911	Technical-use textiles	11.4	1.08	0.91	3.09		✔	
4009	Other small rubber pipes	9.6	0.98	0.91	2.60		✔	
7320	Iron springs	9.1	1.04	0.91	2.76		✔	✔
6806	Rock wool	6.0	1.03	0.90	2.83		✔	✔
8535	High voltage protection equipment	5.2	0.99	0.91	2.43		✔	
8416	Liquid fuel furnaces	2.0	1.08	0.91	3.00			

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Regarding destination markets, most of Montenegro's short gains – especially agro-food products – are exported to Serbia. Other connections are sporadic and limited, with a few relatively stronger linkages to Croatia and France. As for long bets, there are no relevant trade patterns. The Western Balkans, the EU and other countries import a mixed range of products, but Montenegro fails to integrate into any specific international supply chain.

The Western Balkans

Short gains

Most of Montenegro's exports to the Western Balkans are imported by Serbia and consist of agro-food products.

Serbia and Montenegro maintain a strong trade relationship given their close ties, shared history and cultural proximity. Serbia is the largest importer of Montenegrin dairy products (cream and ice cream), though exports have declined over time. The development of the dairy sector in Montenegro is impeded by domestic production and logistic costs, underdeveloped retailing and a failure to fully implement EU requirements with respect to food safety, hygiene and animal welfare, which are necessary conditions to access EU consumer markets (European Training Foundation, 2013[46]).

Long bets

Montenegro exports modest amounts of machinery, chemicals and rubber products to Serbia.

As with short gains, Serbia is the leading importer of Montenegrin long bet products, although its incidence on total exports is lower than for short gains. Of the top four products imported by Serbia (harvesting machinery, liquid fuel furnaces, beauty products and rubber products), Serbia is the sole importer for three out of four of them.

Albania is a major importer of Montenegrin washing and bottling machinery; however, imports have been declining over time.

The European Union

Short gains

The EU is a marginal trade partner for Montenegro's short gains. Links can be traced to Croatia, Italy and France; however, the values of individual products are limited.

Croatia is the leading short gain importer among EU countries. It imported 22% (USD 39 thousand) of Montenegrin aluminium structures in 2016, which has the highest value among products exported to the EU and is one of most complex short gains.

France appears as a major importer of jams, accounting for approximately one-third of total exports in 2016. Despite falling demand from Italy, it remains a major trade partner of Montenegro and is present to some extent across most of the listed products.

Long bets

Montenegro primarily exports to Sweden and to a lesser extent to Italy and France. In general, despite placing several long bet products in the EU market, export volumes are modest and have declined over time.

Sweden is the largest importer of Montenegrin long bets. In 2016, it imported 80% of Montenegro's exported engine parts, which were sold by Daido Metal Kotor, a Japanese company that invested in Kotor in 2002 and supplies, among others, the Swedish car manufacturer Volvo.

Italy imports small locomotive parts, but its demand is low and unstable. France imports several products to a limited extent, including machinery components, iron springs and filters for combustion engines.

2.5.3. Summary of Montenegrin export opportunities

Overall, the export value of Montenegrin short gains and long bets is very modest. Short gains include products from the agro-food, wood and metal sectors, whereas long bets include certain types of machinery, automotive components, electrical products and chemical products. However, Montenegro struggles to achieve and maintain export volumes over time.

Serbia represents the key partner for Montenegrin exports, particularly short gains. The EU does not account for significant export values, even in relative terms.

Regarding long bets, Sweden is Montenegro's largest trade partner thanks to its sourcing of automotive components. Italy, France and the Netherlands import modest amounts of machinery and metals.

Montenegro suffers from a limited industrial capacity and the small size of its firms, which is largely a result of the small size of the country. Export trends for more complex products suggest that Montenegro is struggling to preserve shares in its established export markets. Capital inflows are strongly required in order to retain and expand its productive capacity, avoiding the risk of further de-industrialisation.

2.6. Economy-specific analysis: North Macedonia

2.6.1. Economic state of play

Economic structure

North Macedonia is a small, landlocked economy dominated by services, which accounted for 54% of gross domestic product (GDP) in 2016, with an important industrial sector (24% of GDP, 12% for manufacturing) and a smaller agricultural sector (9%).

The limited value added by agriculture to GDP diverges from the historical role of the Macedonian economy within the Socialist Federal Republic of Yugoslavia (SFRY). Given its mild climate and fertile soil, which was sustained by considerable investment in crop quality and irrigation in the second half of the 20th century, Macedonia supplied the other republics in the Federation with large amounts of agricultural products (Kukić, 2017[43]). A closely integrated light industry also developed in the 1970s, linking agricultural production to the food industry. Other emerging industrial sectors in the 1970s and 1980s were agricultural machinery, electrical appliances, textiles and heavy metals. Food and textile industries were widespread, with food factories in the southern provinces (Bitola, Prilep and Strumica) and textile centres in Tetovo, Ohrid and Štip. Chemical, pharmaceutical, steel, iron, metal and automotive (bus) production compounds clustered in Skopje, the capital.

Today, most of the industries from the time of the Socialist Republic of Macedonia have been privatised or gone bankrupt. A new wave of foreign investments came beginning in the early 2010s, following a decisive investment attraction campaign by the Macedonian government. In agriculture, 96% of registered companies are microenterprises with less than 9 employees – only 5 companies have more than 250 employees. In manufacturing,

the share of microenterprises is 80%, while small enterprises with up to 250 employees account for another 11% (State Statistical Office of the Republic of Macedonia, 2019[47]).

GDP growth in North Macedonia was sustained until the global financial crisis. The crisis hit the country indirectly through a reduction in foreign direct investment (FDI) inflows. Nevertheless, North Macedonia witnessed a growth rate of 2.2% between 2009 and 2016. This is above the regional average of 1.5% and was due to increased domestic consumption and exports. However, from 2015, growth began to decelerate, eventually slowing to 0.2% in 2017 (Table 2.22).

The Macedonian government has focused on creating a more receptive and business-friendly business environment, and North Macedonia was recently ranked 10th in the World Bank's *Doing Business 2019* index (World Bank, 2019[48]). However, a number of persistent barriers to economic development remain: low levels of domestic private investment, difficulties accessing credit, burdensome inspections and frequent legal changes which make the business environment uncertain. Furthermore, numerous subsidies are given to the private sector, including to foreign-owned enterprises. This is viewed as support for investment and employment; however, it can also cause distortions in the domestic market. Unemployment has fallen remarkably in the last decade, from 34.9% in 2007 to 22.4% in 2016. Nevertheless, it remains considerably high, particularly for women and young individuals, while the skills gap pushes the country to compete primarily on low labour costs rather than knowledge.

Table 2.22. North Macedonia: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, million	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.08
GDP	USD, billion	8.7	9.1	9.1	9.4	9.6	9.6	9.9	10.2	10.6	10.9	10.9
GDP per capita	USD	4 193	4 418	4 399	4 543	4 646	4 621	4 752	4 920	5 105	5 246	5 254
GDP growth	% year-on-year	6.5	5.5	-0.4	3.4	2.3	-0.5	2.9	3.6	3.9	2.8	0.2
Exports of goods and services	USD, billion	3.7	3.5	3.0	3.7	4.3	4.4	4.7	5.5	5.9	6.5	7.0
Imports of goods and services	USD, billion	5.4	5.6	5.0	5.5	5.9	6.4	6.5	7.4	8.2	9.1	9.7
Current account balance	% of GDP	-7.3	-12.5	-6.5	-2.1	-2.5	-3.3	-1.6	-0.6	-1.9	-2.9	-0.8
Net FDI inflows	% of GDP	8.8	6.2	2.8	3.2	4.8	3.5	3.7	0.5	2.9	5.1	3.4
Unemployment	% of total labour force	34.9	33.8	32.2	32.0	31.4	31.0	29.0	28.0	26.1	23.7	22.4

Note: Prices in USD are constant, base year: 2010.
Source: World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Foreign investments

The FDI stock reached USD 5.2 billion – 47.9% of Macedonian GDP – by 2016 and is concentrated primarily in manufacturing (35%), financial services (20%) and wholesale (14%). The three main countries investing in North Macedonia are Austria, the United Kingdom and Greece (responsible for 13.5%, 11.3% and 10% of the FDI stock, respectively) (National Bank of the Republic of North Macedonia, 2018[49]).

FDI inflows in 2016 amounted to USD 374.3 million, registering a 56% increase with respect to the previous year. Accounting for 58% of incoming FDI, manufacturing leads foreign investment – in particular, textile production, metals, machinery and equipment, followed by construction (24%) (wiiw, 2018[30]).

International trade

Between 2006 and 2016, Macedonian exports increased from USD 2.6 billion to USD 5.3 billion and imports from USD 3.8 billion to USD 6.9 billion.

In particular, exports to the EU15, from which most of the foreign investment to North Macedonia comes, have nearly tripled, increasing from USD 1.3 billion in 2006 to USD 3.3 billion in 2016. The EU15 accounts for 86% of total chemical exports, 78% of textiles and garments, 85% of footwear and 81% of machinery. Looking at individual trade partners, Germany is the leading export destination market, accounting for 43% of total exports in 2016 (USD 2.3 billion), up from 16% in 2006. Germany is the primary destination market for Macedonian base metals (USD 7.7 million in 2016), textiles (USD 3.5 million) and chemicals (USD 1 million). Total exports to Italy and Greece fell from 11% each in 2006 to around 4% and 5%, respectively, in 2016 (Table 2.23). In 2016, Italy imported USD 46 million worth of footwear. These patterns follow sectoral FDI coming from EU countries.

Imports from the EU15 are also significant, surpassing USD 3 billion in 2016. Nearly 80% of all stone and cement articles imported by North Macedonia originated from EU15 countries, in particular, from the United Kingdom (USD 800 million, most of which is platinum, which is used as a component in the automotive industry). More than half of imported mineral products originated from Europe, in particular from Greece (USD 370 million). Automotive components are a valuable import from EU15 countries, especially from Germany (USD 145 million in 2016), which feed back into the German automotive supply chain via Macedonian companies.

Table 2.23. Top 10 Macedonian export and import markets (2016)

Exports			Imports		
Destination	USD billion	% of total exports	Origin	USD billion	% of total imports
Germany	2.2	43%	United Kingdom	0.9	14%
Serbia	0.4	8%	Germany	0.8	12%
Bulgaria	0.3	5%	Greece	0.6	10%
Greece	0.2	5%	Serbia	0.5	8%
United States	0.2	4%	Bulgaria	0.4	7%
Belgium	0.2	4%	Turkey	0.4	6%
Italy	0.2	4%	Italy	0.3	4%
Romania	0.1	2%	Hungary	0.2	4%
Spain	0.1	2%	Romania	0.2	3%
Croatia	0.1	2%	Slovenia	0.1	2%

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

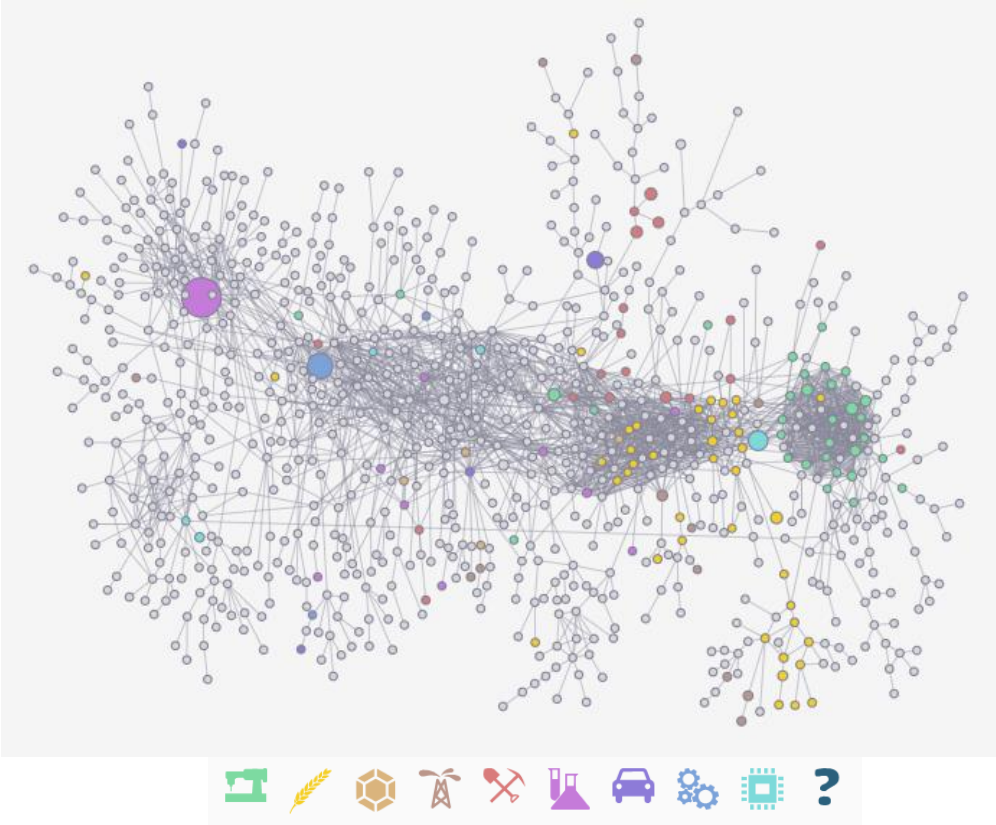
Macedonian exports to the Western Balkans peaked around 2011, before dropping back to their original level of around USD 600 million in 2016. Serbia is North Macedonia's main trade partner in the region both for exports and imports, despite its decreasing share of total trade. Half of the plastics exported by North Macedonia went to the Western Balkans,

primarily Serbia (USD 31 million). In terms of imports, North Macedonia primarily sourced foodstuff and base metals from Serbia (around USD 88 million for each category in 2016).

2.6.2. Product Space analysis and identification of export opportunities

Macedonian exports in the Product Space (PS) are largely clustered around textile, garment (leather and footwear) and agro-food (fruits and vegetables) products (Figure 2.5). A peculiarity of the Macedonian export basket is that there are a few complex products, located in the core and left-hand side of the PS, that account for a large share of total exports. Automotive exports, while significant, are limited to a few specific products, including catalysts, filters for combustion engines and buses. For example, emission control catalysts, which are chemicals used in the automotive industry, comprise one-fifth of all Macedonian exports. They are produced in Skopje by the British company Johnson Matthey, which invested USD 150 million in the country. Filters for combustion engines are another complex product with a large export share. They are alone worth more than the entire agro-food sector. In addition, North Macedonia also has a strong revealed comparative advantage in the mineral sector, exporting zinc, lead and copper to Bulgaria.

Figure 2.5. The Product Space of North Macedonia (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

This illustrates how Macedonian exports rely upon targeted FDI in certain sectors. North Macedonia is ranked fourth out of the six Western Balkan economies in the Economic Complexity Index (ECI) – roughly at the same level as Montenegro. However, its opportunity value is larger than that of Montenegro, Albania or Kosovo (Table 2.1). This is thanks to the production initiated by foreign investors in North Macedonia, which is crucial for upgrading towards more complex products – an outcome that some other Western Balkan economies have yet to achieve.

The PS analysis led to the identification of 230 products which are close to the economy's technology frontier and which could contribute towards further increasing Macedonian economic sophistication. More than 40% of these products belong to the following sectors: machinery, mechanical appliances and electrical equipment; metals; and chemicals (Table 2.24).

Table 2.24. Number of promising products by product category in North Macedonia (2016)

Product category (HS1)	Number of products
Machinery, mechanical appliances and electrical equipment	38
Base metals and articles of base metal	36
Chemical or allied industries	24
Wood, articles of wood and paper	22
Textiles and textile articles	19
Stone, construction materials, glass and glassware	17
Plastics, rubber and articles thereof	15
Animals and animal products	14
Vegetable products	13
Vehicles and transport equipment	10
Miscellaneous	9
Foodstuffs and tobacco	9
Mineral products	4
Raw hides and skins, leather, furskins	2

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Macedonian short gains include primary and resource-based products, such as agro-food and basic metal products, and are traded at the regional level. Select medium-technology products, such as machinery, processed metals and industrial components, are exported to the EU15. Based on 2016 export values, furniture (USD 13.5 million) and plastic lids (USD 10.7 million) are the most significant short gains, followed by paper containers (USD 4.7 million) and toilet paper (USD 3.1 million). However, looking at the opportunity gain (OG), metal products (aluminium and iron) and select chemicals (cleaning and hair products) are more valuable for raising the average product complexity of Macedonian exports (Table 2.25).

Table 2.25. Selected short gains in North Macedonia, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of North Macedonia
9403	Furniture	13 544	0.25	0.82	0.92	✔		✔
3923	Plastic lids	10 774	0.28	0.82	0.67		✔	
4819	Paper containers	4 716	0.20	0.81	0.17			✔
4818	Toilet paper	3 146	0.39	0.81	1.11		✔	
406	Cheese	2 344	0.35	0.83	0.75	✔	✔	✔
3402	Cleaning products	1 839	0.48	0.83	1.05		✔	✔
4418	Builders' joinery and carpentry of wood	1 691	0.16	0.82	0.76	✔	✔	
7604	Aluminium bars	1 572	0.49	0.82	1.44	✔	✔	
7610	Aluminium structures	1 487	0.48	0.83	1.60	✔	✔	✔
3305	Hair products	1 397	0.41	0.82	1.21		✔	✔
9406	Prefabricated buildings	1 229	0.47	0.83	1.45	✔		
4821	Labels	871	0.26	0.82	0.43		✔	
7310	Small iron containers	586	0.47	0.82	1.13	✔	✔	
7010	Glass bottles	576	0.17	0.81	0.36		✔	✔
1206	Sunflower seeds	500	0.20	0.82	0.31	✔	✔	✔
403	Fermented milk products	443	0.39	0.82	1.29	✔	✔	
7309	Large iron containers	392	0.42	0.82	1.13	✔	✔	
102	Bovine animals	329	0.19	0.82	0.46		✔	
2104	Soups and broths	191	0.28	0.81	0.45	✔	✔	✔
1104	Processed cereals	106	0.24	0.82	0.61	✔	✔	✔
4803	Facial tissue	92	0.20	0.82	0.37			
5505	Artificial fibres waste	20	0.28	0.82	0.40			
7612	Aluminium cans	14	0.41	0.83	1.18		✔	
2828	Hypochlorites	11	0.24	0.83	0.20			✔

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Long bets include a range of motor vehicle parts, different types of machinery, engine parts, electrical equipment and more. These products are linked to the current activities of major foreign investors in the country.

In terms of export value, motor vehicle parts are by far the most significant long bet, worth USD 85 million in 2016 alone, having grown at exponential rates between 2011 and 2016. The second most exported product, lifting machinery, is far behind at USD 3.5 million. In terms of OG, abrasive powders, used for polishing aluminium alloys, have the greatest potential for raising economic complexity in North Macedonia, followed by different kinds of machineries (Table 2.26).

Table 2.26. Selected long bets in North Macedonia, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of North Macedonia
8708	Motor vehicle parts	84 924	1.12	0.86	3.01	✔	✔	✔
8428	Lifting machinery	3 462	1.13	0.87	3.02	✔	✔	
8480	Metal moulds	1 997	1.08	0.87	2.83	✔	✔	✔
3823	Industrial fatty acids, oils and alcohols	1 965	0.94	0.87	2.27	✔	✔	✔
5603	Non-woven textiles	1 489	1.00	0.87	2.54	✔		✔
8438	Industrial food preparation machinery	547	0.97	0.87	2.68		✔	
8433	Harvesting machinery	506	0.93	0.86	2.36		✔	
8538	Electrical power accessories	481	1.09	0.87	2.71	✔	✔	
8422	Washing and bottling machines	399	1.01	0.87	3.15		✔	
8535	High voltage protection equipment	282	1.00	0.87	2.43	✔	✔	
7607	Aluminium foil	218	1.05	0.87	2.66	✔	✔	
4016	Other rubber products	217	0.92	0.85	2.50		✔	
8512	Electrical lighting and signalling equipment	200	1.06	0.87	2.64	✔	✔	✔
9033	Opto-electric instrument parts	118	0.93	0.87	2.58		✔	
7320	Iron springs	93	1.04	0.86	2.76		✔	✔
6806	Rock wool	91	1.02	0.85	2.83		✔	
4008	Rubber sheets	73	0.94	0.86	2.56		✔	
7608	Aluminium pipes	69	0.91	0.86	2.20	✔	✔	
5911	Technical-use textile	57	1.06	0.86	3.09		✔	
8409	Engine parts	22	1.07	0.86	2.79	✔	✔	
3909	Amino-resins	17	1.11	0.87	2.77		✔	✔
8463	Other non-metal removal machinery	17	1.06	0.87	2.83		✔	
8511	Electrical ignition	13	0.92	0.86	2.37	✔	✔	✔
7315	Iron chains	12	0.97	0.87	2.41			✔
6805	Abrasive powder	9	1.15	0.86	3.16		✔	

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Most Macedonian short gains are exported to the Western Balkan region, in particular, Serbia. Germany, Slovenia and Bulgaria are also relevant importers of select short gain products. Similarly, the demand for long bets is highly concentrated and driven by the Western Balkans, Germany and Central and Eastern Europe.

The Western Balkans

Short gains

Macedonian agro-food products, including bovine animals, fermented milk, cheese, processed cereals, sunflower seeds and soups and broths, are exported primarily to the Western Balkans, with Serbia being the major trade partner.

North Macedonia's exports of animal and dairy products are oriented exclusively towards Albania and Serbia, respectively; however, regional demand has been declining, which has been putting pressure on Macedonian producers to diversify their destination markets.

Wood and paper products (labels, tissues and paper containers) are exported to Serbia and the Western Balkans at large. These products fluctuate seasonally, but their adjusted trend is increasing. Approximately 25% of Macedonian furniture exports are directed to Serbia. The export destinations for furniture are relatively diversified when compared to the average market concentration of Macedonian exports.

Among short gains, chemical products are fairly diversified and include hair and cleaning products as well as processed plastics. Furthermore, the export values of North Macedonia's chemical products are substantial, ranging between USD 1-10 million in 2016, and are largely directed to Serbia. Despite the demand's seasonality, these products perform well in Western Balkan markets and exports have been increasing in recent years.

North Macedonia also exports metal products to the Western Balkans. Serbia, in particular, accounts for one-third of total Macedonian exports of iron and aluminium structures.

Long bets

Serbia is the leading partner for Macedonian long bets among Western Balkan economies, as they import a wide range of products. Bosnia and Herzegovina and Albania largely import food processing machinery.

Serbia is the leading importer of machinery products and accounts for half of Macedonian industrial fatty acids exports (USD 2 million in 2016). The product is used primarily in the production of soaps, cosmetics and detergents.

Bosnia and Herzegovina and Albania are major importers of food manufacturing machinery; however, demand has fluctuated largely over time.

The European Union

Short gains

With respect to the EU, North Macedonia largely exports to nearby countries, such as Bulgaria, Croatia, Slovenia and Hungary. Germany also plays an important role as a trade partner, particularly for complex metal goods, such as aluminium and iron products.

Bulgaria, Croatia and Slovenia import products similar to those of the Western Balkans: in 2016, Slovenia imported more than 80% of Macedonian soups and broths, while Bulgaria imported 50% of glass bottles, valued at nearly USD 300 thousand.

Germany is the leading EU15 trade partner for short gains, accounting for 38% of the toilet paper exported in 2016, a product that is experiencing equally increasing demand from the European Union as well as from the Western Balkans. Additionally, Germany imports

intermediate aluminium products from North Macedonia, including aluminium bars (53%) and cans (95%), which are integrated into its production processes. However, adjusting for its high seasonality, overall demand for these products has decreased over the past decade. Finally, Germany is also a major importer of prefabricated buildings, accounting for 88% of the USD 1.2 million worth of exports in 2016.

Long bets

North Macedonia is increasingly integrating into the German-Central European Supply Chain (GCESC), exporting mechanical components to the Czech Republic and electrical products to Germany. Greece, Sweden, Belgium and the Netherlands are other significant trade partners.

Many of North Macedonia's long bets flow directly to Germany. These are primarily electrical components and chemicals. Metal and mechanical components are exported to Visegrad Group countries, ultimately feeding into the German supply chain. However, the export volumes of these particular products are modest, as North Macedonia is still in the early stages of integration into the GCESC. Chemicals (reaction and catalytic products and vulcanised rubber) and electrical components (power accessories) are among the main products exported directly to Germany.

Concerning motor vehicle parts, most of the sectoral FDI to North Macedonia originated from Germany; however, the major export destination is the Czech Republic, which is an intermediate hub for automotive components before ultimately reaching the German market.

Greece has a long-established trade relationship with North Macedonia. It is the leading importer of harvesting machinery, which has shown stable demand over time. Greece also imports opto-electric instrument parts, which are used in information and communication technology. However, demand for this product has fluctuated largely over time.

Belgium recently became an important trade partner, following the investment in 2014 of USD 28 million from the Belgian company Van Hool to establish a bus manufacturing plant in Skopje which is responsible for producing spare parts and assembling buses. Among long bets, emerging products are electric ignitions, which are largely exported to Belgium.

Lifting machinery is exported to a wide range of EU destinations, in particular to Sweden. However, its importance has fallen over time as North Macedonia has strengthened its position in other international markets.

Finally, the Netherlands imports technical-use textiles and leather products, accounting for 66% of Macedonian exports in these categories.

2.6.3. Summary of Macedonian export opportunities

Macedonian short gains are predominantly exported to nearby destinations, including the Western Balkans, Croatia, Bulgaria and Slovenia, and belong to both low-technology (e.g. agro-food and basic metals) and medium-technology sectors (e.g. machinery, processed metals and industrial components).

Concerning long bets, North Macedonia has specialised in relatively complex and export-oriented medium-technology products, mostly thanks to substantial investment flows in the 2010s. These include motor vehicle parts and different types of machinery, such as lifting, food preparation, harvesting and bottling machines. While vehicle components are both

exported to Belgium and fed into the GCESC, machinery is exported to the Western Balkans, in particular Serbia and Albania.

Attracting foreign investment with the aim of latching on to European value chains has proven a correct strategy for North Macedonia to increase its level of economic complexity and penetrate EU markets. However, this trend must be continued, increasing the number of medium- to high-technology investors to diversify risk and bridge the gap between foreign and domestic enterprises.

2.7. Economy-specific analysis: Serbia

2.7.1. Economic state of play

Economic structure

Serbia is the largest economy in the Western Balkans, accounting for roughly 50% of the regional gross domestic product (GDP). It is dominated by services (50% of GDP in 2016), followed by industry (26% in 2016, and another 16% for manufacturing) and agriculture (contracting to 6% of GDP in 2016 from 9% in 2006).

At the time of the Socialist Federal Republic of Yugoslavia (SFRY), average income in Serbia was close to that of Croatia and Slovenia; however, there were considerable disparities between its autonomous provinces, Vojvodina and Kosovo (Kukić, 2017[43]). By the end of the 1980s, Serbia had developed light and heavy industries and a sizeable agricultural sector. Food, pharmaceutical, automotive and defence industries were clustered in Belgrade, the federal capital. Other significant automotive and defence clusters were established in Priboj, Kragujevac and Kruševac. Novi Sad, the capital of the autonomous province of Vojvodina, had active industries for food processing, vehicle production (Neobus) and oil processing (the Naftna Industrija Srbije refinery). Further north, Subotica was a centre for garments, furniture and dairy products. The automotive industry linked Serbia to Western manufacturers: Zastava Automobiles (Kragujevac) produced models licensed by Italian manufacturer Fiat, while Ikarbus (Belgrade) and FAP (Fabrika Automobila Priboj) manufactured buses licensed by German MAN and Swiss Saurer.

Following the breakup of the SFRY and the ensuing crisis of the 1990s, the country suffered from a strong deindustrialisation, a consequence of which was severe capital depreciation and loss of competitiveness from which Serbia has yet to fully recover. However, given the country's size and the number of foreign direct investment (FDI) projects that poured in during the 2010s – most notably the USD 1 billion investment by Fiat Chrysler Automobiles in 2012 – Serbia currently hosts the greatest number of large enterprises in the Western Balkan region.

With the opening of domestic financial markets to foreign capital and the easing of credit lines in the 2000s, GDP growth in Serbia was sustained up until the global financial crisis of 2008. The crisis affected Serbian banks via the foreign exchange exposure of domestic balance sheets. Negative consequences were amplified by a severe credit account deficit, which surpassed 21% in 2008, due to significant public and private expenditures during a period of decreasing exports (Table 2.27).

In the years following the crisis, Serbia experienced an upheaval, with the government struggling to introduce order into its balance sheets, unemployment peaking at over 20% and major flooding in 2014 causing damages valued at up to 5% of Serbian GDP. However,

macroeconomic conditions improved following the corrective measures introduced by the Serbian government in accordance with a three-year International Monetary Fund (IMF) programme that targeted fiscal adjustment, financial sector strengthening and broad-based economic reforms. Total unemployment has been falling since 2012 and stands today at 14% – one of the all-time lowest for Serbia. However, Serbia's level of public debt is sustained – at 72% of GDP – despite recent efforts to reduce it.

The main economic challenges facing Serbia today include restructuring less efficient state-owned enterprises, which still employ a large share of the labour force, reducing the informal sector and lessening the burden of excessive red tape. These challenges limit the competitiveness of legitimate private enterprises. As a consequence of Serbia's long-term unemployment, the share of the inactive population is large. This is made worse by the lack of necessary skills for knowledge-intensive employment in complex sectors of the economy.

Table 2.27. Serbia: Main macroeconomic indicators

Indicator	Unit of measurement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Population	Total, million	7.38	7.35	7.32	7.29	7.23	7.20	7.16	7.13	7.10	7.06	7.02
GDP	USD, billion	38.4	40.5	39.2	39.5	40.0	39.6	40.6	39.9	40.2	41.3	42.1
GDP per capita	USD	5 206	5 509	5 359	5 412	5 531	5 502	5 671	5 593	5 663	5 852	5 993
GDP growth	% year-on-year	5.9	5.4	-3.1	0.6	1.4	-1.0	2.6	-1.8	0.8	2.8	1.9
Exports of goods and services	USD, billion	11.1	12.1	11.3	13.0	13.6	13.8	16.7	17.6	19.4	21.8	23.9
Imports of goods and services	USD, billion	20.1	22.5	18.1	18.9	20.4	20.7	21.7	22.9	25.1	27.3	30.3
Current account balance	% of GDP	-18.7	-21.4	-6.6	-6.8	-10.9	-11.6	-6.1	-6.0	-4.7	-3.1	-5.7
Net FDI inflows	% of GDP	11.0	8.2	6.9	4.3	10.6	3.1	4.5	4.5	6.3	6.1	6.9
Unemployment	% of total labour force	18.1	13.6	16.1	19.2	23.0	24.0	22.1	19.2	17.9	15.3	14.1

Note: Prices in USD are constant, base year: 2010.
Source: World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Foreign investments

The FDI stock in Serbia reached USD 37.6 billion in 2017, almost equal to the size of its economy (UNCTAD, 2018[44]). FDI inflows peaked in 2017 and accounted for 6.9% of GDP and a total value of USD 2.8 billion. This is an increase of 25% with respect to 2016 (wiiw, 2018[30]). These positive trends are likely the result of an improved business climate.

FDI is relatively diversified across sectors, with 25% going to manufacturing, in particular transport and base metals, 20% to the financial sector, 14% to construction activities and 12% to wholesale (wiiw, 2018[30]). Serbia's top investors include Austria and Italy; however, the economy is increasingly attracting resources from other partners such as the Russian Federation, China, and the Gulf countries (National Bank of Serbia, 2018[50]). A feature specific to Serbia is the strong export orientation of FDI, which has contributed to the reduction of the trade deficit. Serbia is in fact well integrated in value chains and is a significant importer and processor of semi-finished products.

International trade

Serbian trade has expanded substantially over the last ten years. Exports have more than doubled, from USD 6.4 billion in 2006 to USD 14.9 billion in 2016, while imports have increased from USD 13.2 billion to almost USD 20 billion over the same period.

The European Union (EU) represents the main trading bloc for Serbia, accounting for 66% of total exports and 40% of total imports in 2016. Looking at individual countries, Italy and Germany represent the top two trade partners for Serbia, accounting respectively for 15% and 13% of total exports and 10% and 13% of total imports (Table 2.28).

Table 2.28. Top 10 Serbian export and import markets (2016)

Exports			Imports		
Destination	USD billion	% of total exports	Origin	USD billion	% of total imports
Italy	2.2	15%	Germany	2.5	13%
Germany	1.9	13%	Italy	2.0	10%
Bosnia and Herzegovina	1.2	8%	China	1.6	8%
Romania	0.8	6%	Russian Federation	1.5	8%
Russian Federation	0.8	5%	Hungary	0.9	5%
Montenegro	0.7	5%	Poland	0.8	4%
North Macedonia	0.6	4%	Turkey	0.7	3%
Croatia	0.5	3%	Austria	0.6	3%
Hungary	0.5	3%	France	0.6	3%
Slovenia	0.5	3%	Slovenia	0.6	3%

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Exports of automobiles by the Fiat Chrysler group accounted for USD 960 million in 2016, almost 8% of total Serbian exports and 50% of exports to Italy. The second most exported category to Italy, footwear, stood at USD 80 million. As for Germany, electric motors and generators accounted for approximately USD 400 million, followed by insulated wire and cable for USD 112 million. These products are manufactured by German firms operating in Serbia, such as Siemens, Dunkermotoren and Dräxlmaier. Other relevant exports to Germany, with lower value added, include frozen fruits and nuts.

In 2016, Serbian imports from Italy included motor vehicle parts and accessories valued at USD 333 million, textiles and footwear (leather, hosiery and synthetic filament yarn) worth USD 137 million, and plastic articles amounting to USD 24 million. Imports from Germany included cars and automotive components valued at USD 270 million in 2016 (cars, motor vehicle parts and accessories, tractors and vehicles for the transport of goods) and medicaments (USD 95 million).

The importance of the Western Balkan economies for Serbian trade has diminished over time, with the region accounting for 18% and 4% of total Serbian exports and imports, respectively, in 2016, down from 25% and 5% in 2006. Still, the region is a significant destination for Serbian products, given the large trade surplus that the country maintains with its neighbouring economies. For example, Bosnia and Herzegovina is the third largest destination market for Serbian products, but its share of total exports decreased from 12% in 2006 to 8% in 2016. Most products exported to Bosnia and Herzegovina are agricultural outputs (sunflower and cottonseed oil, corn and bread, among others). Montenegro is also an important export destination for flavoured water products, medicaments, baked bread,

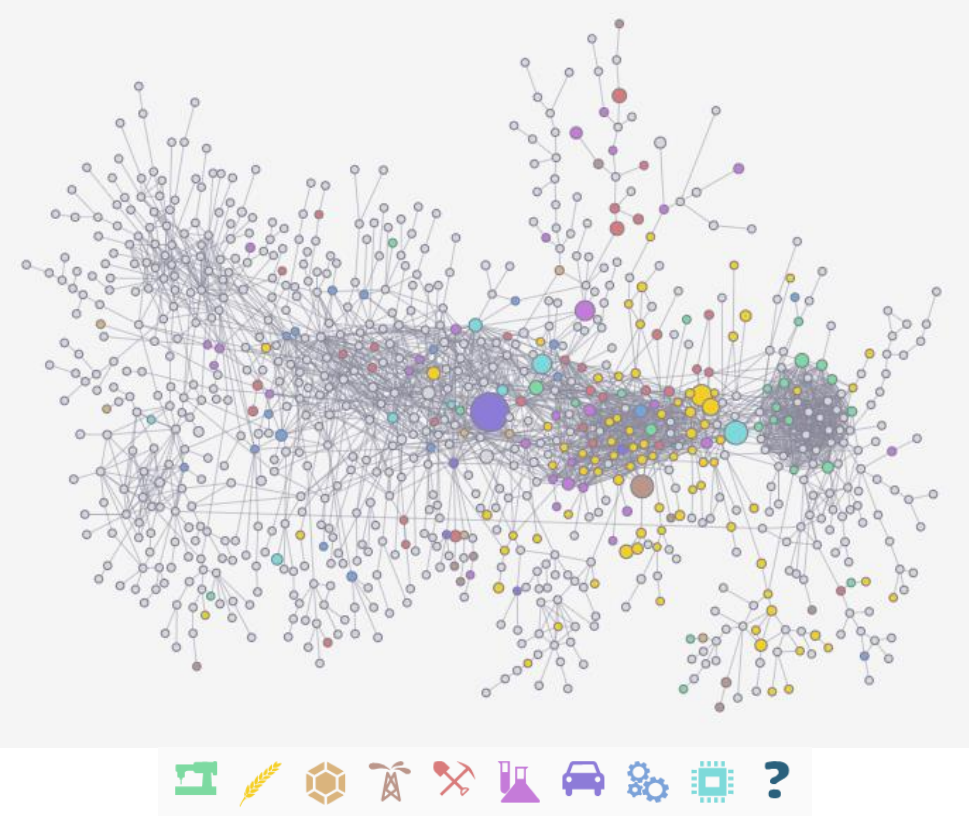
pastry and live bovine animals. The main products exported to North Macedonia include hot-rolled iron and steel products, followed by sunflower and cottonseed oil.

2.7.2. Product Space analysis and identification of export opportunities

Serbian exports are well distributed across the Product Space (PS), filling both peripheral and central nodes of the map. The most complex products include vehicles, machinery and chemicals. Peripheral products are predominantly primary and resource-based goods, such as refined oil, leather, furskins, fruits and vegetables (Figure 2.6).

While some of the central products account for large shares of the export basket (e.g. cars and electric motors), Serbia continues to rely heavily on peripheral and sparsely located products for sustaining its exports. These include unprocessed or low-processed metals (e.g. copper), vegetables (e.g. corn, wheat, apples and pears) and garment products (e.g. underwear).

Figure 2.6. The Product Space of Serbia (2016)



Note: HS4 product nodes weighted according to export value; Community labels are ordered as follows: textiles and furniture; vegetables, foodstuff and food; stone and glass; minerals; metals; chemicals and plastics; transport vehicles; machinery; electronics; and other.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Compared to its regional peers, Serbia holds both the highest Economic Complexity Index (ECI) and opportunity value. This means that the structure of its production offers the highest possibilities for further diversification and sophistication as a result of the diversified nature of its manufacturing. It is also a result of FDI aligning Serbian production

with the supply needs of more advanced European economies and, consequently, increasing the opportunity value for the Serbian economy.

Machinery, mechanical appliances and electrical equipment; metals; and chemicals represent the most promising categories for industrial sophistication in Serbia today (Table 2.29). Less significant categories include plastic articles and animal and vegetable products.

Table 2.29. Number of promising products by product category in Serbia (2016)

Product category (HS1)	Number of products
Machinery, mechanical appliances and electrical equipment	44
Base metals and articles of base metal	34
Chemical or allied industries	25
Wood, articles of wood and paper	16
Stone, construction materials, glass and glassware	16
Textiles and textile articles	13
Vehicles and transport equipment	13
Miscellaneous	13
Animals and animal products	10
Plastics, rubber and articles thereof	10
Vegetable products	8
Mineral products	7
Foodstuffs and tobacco	2
Raw hides and skins, leather, furskins	1

Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Serbian short gains are still primary and resource-based goods, ranging from agro-food products (e.g. poultry meat, lard, milk and barley) to construction materials and base metals (e.g. cement, aluminium, iron products). The short gains also marginally include some chemicals and machinery.

The export values of Serbian short gains are substantial, with the values of the top ten products ranging between USD 5-30 million in 2016 and on an upward trend. In terms of opportunity gain (OG), threshing and harvesting machinery are the most promising short gain products (Table 2.30).

Table 2.30. Selected short gains in Serbia, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Serbia
3920	Raw plastic sheeting	30 730.3	0.41	0.71	1.30	✔	✔	✔
8431	Excavation machinery	22 954.2	0.69	0.70	2.20		✔	
8433	Threshing and harvesting machinery	8 558.8	0.82	0.72	2.36		✔	✔
207	Poultry meat	8 373.1	0.32	0.71	1.04			✔
401	Milk and cream	6 961.3	0.29	0.68	0.95		✔	✔
6810	Cement articles	6 197.1	0.62	0.72	2.09			✔
7616	Other aluminium products	5 907.5	0.70	0.71	2.30	✔	✔	✔
7216	Iron blocks	5 194.1	0.25	0.69	0.71	✔	✔	✔
1003	Barley	5 105.9	0.37	0.71	1.53			
3307	Perfumery products	4 734.5	0.44	0.71	1.36			✔
3305	Hair products	3 198.1	0.30	0.69	1.21		✔	✔
7310	Small iron containers	2 971.0	0.37	0.68	1.13	✔	✔	✔
8417	Industrial furnaces	2 195.4	0.68	0.72	2.13		✔	✔
3916	Monofilament of plastics	1 446.7	0.53	0.70	1.48	✔		✔
7213	Hot-rolled iron bars	1 122.4	0.49	0.72	1.48	✔		✔
4817	Letter stock	601.3	0.37	0.70	1.29		✔	
4822	Paper spools	307.4	0.45	0.70	1.52		✔	✔
1501	Lard	273.9	0.77	0.72	2.22			✔
8311	Coated metal soldering products	162.5	0.49	0.72	1.60	✔		✔
4413	Densified wood	155.1	0.37	0.69	0.88		✔	✔
7215	Other iron bars	140.2	0.49	0.71	1.72	✔	✔	✔
6808	Panels of vegetable fibre	118.8	0.45	0.72	1.61			✔
6811	Asbestos cement articles	50.4	0.37	0.71	1.35			✔

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Long bets are dominated by automotive components and machinery. The most relevant long bet products in terms of export value are vehicle parts (USD 181.9 million in 2016), while eight out of ten top export products belong to the machinery category (Table 2.31). Additionally, machinery products present the largest scores in terms of OG, raising Serbia's likelihood of substantially increasing its average Product Complexity Index (PCI).

Table 2.31. Selected long bets in Serbia, sorted by export value (2016)

Product code (HS4)	Product name (HS4)	Exports, 2016 (USD thousand)	Opportunity Gain (OG)	Distance	Product Complexity Index (PCI)	Presence of FDI in the economy	Product also exported by other WB	Linked to the industrial heritage of Serbia
8708	Motor vehicle parts	181.9	0.99	0.74	3.01	✔	✔	✔
8483	Transmissions	26.6	1.22	0.76	3.65	✔	✔	✔
8419	Heating machinery	24.1	0.98	0.77	2.60	✔	✔	✔
8481	Valves	17.3	1.17	0.77	3.33	✔		✔
8538	Electrical power accessories	15.7	0.97	0.75	2.71	✔	✔	✔
8428	Lifting machinery	15.6	1.00	0.75	3.02		✔	✔
8466	Metalworking machine parts	15.5	1.20	0.77	3.72	✔		
7307	Iron pipe fittings	11.3	1.02	0.76	3.11		✔	✔
8482	Ball bearings	8.6	1.01	0.76	2.84	✔		✔
8515	Electric soldering equipment	5.2	1.30	0.78	4.02			✔
5911	Technical-use textiles	2.8	0.95	0.73	3.09	✔	✔	
8408	Combustion engines	2.2	1.09	0.78	3.00	✔		✔
8547	Metal insulating fittings	1.4	0.98	0.74	2.95		✔	✔
8463	Other non-metal removal machinery	1.2	0.96	0.77	2.83	✔	✔	
8546	Electrical insulators	1.1	1.01	0.76	3.01	✔	✔	✔
8459	Drilling machines	0.9	1.03	0.76	3.02	✔	✔	
8442	Print production machinery	0.7	0.96	0.77	3.19		✔	
8208	Cutting blades	0.7	1.06	0.77	3.49		✔	✔
9024	Tensile testing machines	0.6	1.10	0.78	3.20	✔		✔
8468	Soldering and welding machinery	0.5	1.11	0.77	3.21		✔	✔
3909	Amino-resins	0.4	1.00	0.77	2.77		✔	✔
6805	Abrasive powders	0.4	1.02	0.74	3.16		✔	✔
7226	Flat-rolled iron	0.4	1.07	0.77	3.34	✔	✔	✔

Note: Product characterisation based on information collected by the authors.
Source: OECD calculations based on CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Contrary to the other Western Balkan economies that show distinct trade patterns when it comes to regional exports versus exports to the EU, several Serbian short gain products are exported both to the region as well as to relatively proximate EU countries (Bulgaria, Croatia, Greece, Hungary, Romania and Slovenia). Therefore, it is reasonable in the Serbian case to analyse destination markets according to products, combining in the case of short gains Western Balkan economies and neighbouring EU economies. On the contrary, long bets are largely exported to individual Western European economies and are also partially integrated into the German-Central European Supply Chain (GCESC).

The Western Balkans and neighbouring EU economies

Short gains

Most of Serbia's short gain products are exported to the Western Balkans. Agro-food products (poultry, lard, milk and cream) are almost exclusively exported to the Western Balkans, while wood and construction materials are exported to the Western Balkans and to nearby EU economies, such as Slovenia and Greece.

Serbia faces a number of challenges exporting its agricultural products to the EU. This is largely due to the widespread lack of compliance with EU phytosanitary standards. For example, Serbia faces challenges exporting pork meat to the EU, which limits its ability to export lard – a short gain product with a significant OG. Investment interest already exists: the German company Tönnies has been negotiating with the Serbian government for several years regarding a potential investment of nearly USD 330 million in Serbian pig farms and slaughterhouses, with the ultimate objective of exporting Serbian products to the EU.

Although Serbian milk and dairy products were granted access to the EU market in 2008, by 2012, only one producer – Mlekara Subotica – was exporting to the EU. In 2016, Mlekara Subotica was acquired by Mid Europa, an investment fund specialised in Eastern European countries, and merged with what was, at the time, the largest Serbian dairy company, Imlek. This suggests that the dairy sector has potential for attracting foreign investment too, as long as the requisites for foreign market expansion are met.

Other products that do not face these challenges, such as barley, have seen an increasing demand from Serbia's neighbouring countries in the EU, importing altogether 60% of Serbian barley. Romania, in particular, is the most relevant importer, accounting alone for 40% of total barley exports.

Densified wood is exported predominantly to Serbia's neighbouring markets in the EU, in particular Slovenia. Transportation costs have a significant impact on the competitiveness of the Serbian wood sector. Therefore, its exports tend to focus on those economies to which the delivery is easy and fast.

The demand for Serbia's construction materials is largely driven by the Western Balkans and Greece. For example, Greece imported 80% of Serbia's vegetable fibre panels in 2016.

Aluminium products are exported across the Western Balkans, with no individual country claiming a large export share. However, Serbia has a long industrial tradition in the metal sector, with historic players such as Impol-Seval (part of the Slovenian Impol Group) in Sevojno, which is close to the border with Bosnia and Herzegovina, exporting to Slovenia and the rest of Europe.

Central and Eastern Europe and other countries

Short gains

Austria, Germany, the Czech Republic and the Slovak Republic import short gain machinery products. However, the concentration of export markets is not high, and Serbia manages to place its products from the EU to Kazakhstan.

Germany, Hungary, the Czech Republic and the Slovak Republic import 56% of Serbian excavation machinery and an increasing share of industrial furnaces. However, the leading

destination market for this particular Serbian product is currently Kazakhstan, which has seen its relevance in trade increase considerably.

Electrical components (coated metal soldering products) and agricultural machines (harvesting and threshing machinery) are exported both to the Western Balkans and the EU.

Long bets

Roughly 56% of Serbia's long bet products are exported to the EU. Italy is a strong partner; Germany and the Visegrad Group countries (the Czech Republic, Hungary, Poland and the Slovak Republic) are emerging as destinations for establishing supply links for complex products.

Today, Serbia finds itself with similar endowments and at a comparable position to the economies of Central and Eastern Europe in the 1990s. However, rather than being a direct competitor for these economies, Serbia is positioning itself within the German-Central European Supply Chain (GCESC) as a labour-intensive producer. This is a consequence of its current advantage in terms of labour costs as compared to the more advanced economies of the Visegrad Group. Thus, German manufacturers can disentangle part of their production chains to include Serbia, which then may become a producer of intermediate goods, exporting either to Germany directly or to other GCESC countries for further refinement, before reaching the final market.

This process is still in its infancy, but it is fairly pronounced when it comes to vehicle components. Despite the majority of Serbian exports going directly to Germany, it is possible to detect some Slovenian firms with German partners (e.g. Fori Group, producing automotive components including textiles, metal, plastics and toolmaking) that have also established plants in Serbia. Additionally, Austria imports many products that ultimately serve the German market and can be considered part of this chain (e.g. Boxmark, producing interior leather for automobiles).

Slovenia, notably through the Gorenje Group, is the leading importer of Serbian electrical power accessories, with factories located in Serbia that primarily address demand from Germany. Transmissions are largely supplied to Hungary and the Slovak Republic but also to some emerging Asian markets. In fact, the biggest Serbian company in this sector, Fabrika reznog alata (FRA), has important ties to India and Iran.

Regarding individual ties with EU15 countries, Italy has a long-lasting relation with Serbia dating back to the co-operation between the Yugoslavian car manufacturer Zastava and the Italian Fiat in the 1950-60s. Over time, Italy's relevance as a trade partner to Serbia has been declining because of the surge of Germany. Still, Italy prevails in some long bet products that are outside the strict scope of the automotive sector. In particular, it is a major importer of semi-finished metal components and machine parts, including industrial blades and knives and ball and roller bearings. The latter are produced, among others, by FKL, a long-established manufacturer of roller bearings and cardan shafts that supplies the machinery, processing and transportation industries. Other relevant firms include Jugo-impex and Progres, two Serbian companies exporting mainly heating machinery for the Italian wood and food industries.

France is the main importer of flat-rolled iron, which does not appear to be related to any specific FDI project. Serbia has an established industrial tradition related to this product, dating back to the SFRY.

2.7.3. Summary of Serbian export opportunities

The structure of Serbian exports varies considerably according to its destination markets. The analysis of the OG of Serbian products seems only to confirm and further accentuate this division, with basic exports being oriented towards the Western Balkans and bordering EU markets, whereas machinery and industrial components are exported to Germany, Central Europe and Italy.

Agro-food products represent traditional Serbian exports, whereas more complex manufactured products are an outcome of FDI inflows, particularly from the 2010s. Automotive, machinery and semi-processed products have become an integral part of Serbia's export basket, mainly due to foreign capital investment that takes advantage of a relatively skilled labour force and its proximity to EU markets.

In the short term, Serbia would gain a particular advantage by increasing the placement of its dairy products abroad and consequently supporting domestic companies to abide by EU phytosanitary regulations. For the medium to long run, electric soldering equipment, transmissions and metalworking machine parts are the products that would contribute the most towards increasing Serbian economic complexity. Achieving revealed comparative advantages in machinery, mechanical and automotive components will most likely go hand in hand with the further accumulation of foreign investments in the country.

2.8. Concluding remarks

The export basket of the Western Balkans displays an intermediate level of economic complexity. This positions the economies of the region at a crossroads between developing and developed economies. Generally, Western Balkan economies have an ECI that is slightly above the world median and, more importantly, they have a sustained opportunity value. Given their current endowments and capabilities, they have the possibility to reach more complex levels of production and converge with developed economies.

This chapter identified 40 to 50 short gain and long bet products for each Western Balkan economy. The selected products could support increasing the sophistication of the Western Balkan economies through further specialisation and the achievement of revealed comparative advantages.

Among the economies in the region, two main groups can be identified. The first group includes Albania, Montenegro and to some extent Kosovo, whose mix of short gains and long bets includes primarily basic metals, agro-food products and, to a limited extent, machinery and electrical components. The second group includes Bosnia and Herzegovina, North Macedonia and Serbia. These economies present a wider set of more complex products for both short gains and long bets and include electrical, machinery and automotive components.

This divide can be explained by several factors. In the first group, Albania historically had a limited manufacturing base and has not managed to attract significant machinery and automotive investments from the EU in recent years. Kosovo and Montenegro, on the other hand, are the smallest economies in the Western Balkan region, making it more difficult to attract sufficient investment to develop or expand capital-intensive industries.

In the second group of economies, the industrial tradition of Bosnia and Herzegovina, North Macedonia and Serbia, which had developed during the Socialist Federal Republic of Yugoslavia, included the metallurgy, automotive and machinery sectors. Despite economic failures in the 1990s, industrial know-how did not entirely disappear. Rather, it

re-emerged as an outcome of FDI inflows from the 2000s onward, contributing towards reviving and upgrading existing capacities.

Destination markets are determined by the complexity of exported products. Most short gains are traded regionally, whereas machinery, electrical and automotive sector long bets are oriented towards the EU market (where investment also tends to originate from).

Thus, FDI inflows remain a prerequisite for increasing industrial capacity. Albania, Kosovo and Montenegro should increase efforts to attract FDI in tradable manufacturing sectors. Bosnia and Herzegovina, North Macedonia and Serbia should attempt to shift from medium- to high-technology products by targeting investors in higher value-added activities. Furthermore, creating the economic conditions for sectoral development will require cross-cutting policies that would improve infrastructure in the region, develop the right set of skills and promote an entrepreneurial spirit (OECD, 2018[1]).

These elements will be taken into further consideration in the next chapter.

Chapter 3. Potential for Sector Competitiveness in the Western Balkans

This chapter profiles four sectors in the Western Balkans that are particularly promising, based on the results of the Product Space analysis. The agro-food and metal processing sectors are those with the most "short gain" products in the region. The automotive and machinery sectors are the two sectors with the most "long bet" products in the six Western Balkan economies. Each sector is profiled reflecting global and regional trends, its economic importance and the key challenges to growth in the region. Based on this analysis, the chapter concludes with policy considerations for each sector.

3.1. Sector selection

The economic integration of the six Western Balkan economies with the European Union (EU) and other global markets is paramount for fostering regional growth. In particular, their proximity to EU markets can facilitate the diffusion of industry-specific productivity. According to recent findings, the probability that an economy will start exporting a product is on average 65% greater if a neighbouring economy is already exporting that same product (Bahar, Haussmann and Hidalgo, 2014[51]). Therefore, the Western Balkans economies could more easily increase their production know-how by taking advantage of economies of scale and specialisation in sectors that are present in the whole region.

The Product Space (PS) analysis presented in Chapter 2 identified over 200 most promising products for the Western Balkans, among the thousands exported. These products are at the boundary of the Western Balkan economies' productive knowledge and have the most potential to upgrade and diversify the existing export baskets. Looking at commonalities at the regional level, four sectors emerge with the largest number of promising products (Table 3.1): the agro-food, metal processing, automotive and machinery sectors.

Cumulatively, they account for 15.3% of the gross domestic product (GDP) of the Western Balkan economies, 58.3% of exports and 31.0% of employment. In particular, the agro-food sector is the major contributor to gross value added (11.7% of GDP) and is highly labour intensive, employing one out of four workers in the region. The automotive sector is massively export-oriented, accounting for one-fourth (24.6%) of total Western Balkan exports. Differences across sectors are also present in terms of the average complexity of the products:

- The agro-food and metal processing sectors contain the most *short gain* products. Short gains are less complex and therefore easier to produce given the economy's current set of capabilities. The average Product Complexity Index (PCI) in the agro-food and metal processing sectors is 0.71 and 1.83, respectively. However, there is less potential for short gains to increase economic complexity. The list of specific agro-food and metal processing products, as well as of selected short gains in these sectors, can be found in Table A B.1 and Table A B.2 in Annex B.
- The automotive and machinery sectors contain the most long bet products. Long bets have the greatest potential for raising economic complexity. Given that these products are particularly knowledge intensive, long bets require the development of a wider set of capabilities. The average PCI of the promising products in the automotive and machinery sectors, most of which are long bets, is 2.55 and 2.82, respectively. The list of specific automotive and machinery products and the respective long bets can be found in Table A B.3 and Table A B.4 in Annex B.

Both short gains and long bets can support economic development in the region. In the short run, this can occur by diversifying production in the agro-food and metal processing sectors, and in the long run, by fostering more complex automotive and machinery products. This could trigger the diversification of domestic exports, which would in turn allow the Western Balkan economies to better integrate into global value chains and facilitate the structural transformation of domestic manufacturing industries and related services. In the longer run, this process could potentially create new job opportunities and form the basis for sustained economic growth.

Table 3.1. Promising products by economy and sector

Average PCI of promising products and number of products by economy

	Average PCI of promising products	ALB	BIH	KOS	MKD	MNE	SRB	Total
		AGRO-FOOD						
Short gains	0.71	6	5	4	6	13	4	**38**
Long bets		0	0	0	0	0	0	**0**
		METAL PROCESSING						
Short gains	1.83	2	4	3	6	5	6	**26**
Long bets		4	3	4	3	1	3	**18**
		AUTOMOTIVE						
Short gains	2.55	2	1	1	0	0	1	**5**
Long bets		8	5	4	6	6	5	**34**
		MACHINERY						
Short gains	2.82	0	2	0	0	0	2	**4**
Long bets		4	10	7	9	7	12	**49**

Source: OECD calculation based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

While the full extent of promising products identified in the Western Balkans belong to a wider range of sectors, the four sectors selected were those where promising products were identified across all six economies. However, each economy has additional potential industries that could contribute towards its development. As discussed in Chapter 2, chemical products are produced widely across the region, but the number of promising products in this industry is limited. Wood processing and the paper industry are important for Kosovo, Montenegro and North Macedonia, and textiles and garments could contribute to increasing economic complexity in Albania, Bosnia and Herzegovina, and North Macedonia.

3.2. Agro-food sector

3.2.1. Agro-food sector overview

The agro-food sector is economically important for the Western Balkans and plays an important role in food security, rural development and poverty reduction. The agro-food sector encompasses both the agriculture sector and the food processing sector (including beverages). Agricultural activities include the production of raw agricultural products such as crops and livestock and food processing activities include the chemical, mechanical or physical transformation of raw agricultural products into new products for consumption. The sector belongs to the broader agri-food[1] value chain and includes the following stakeholders and activities (Greenville, Kawasaki and Beaujeu, 2017[52]):

- **Agricultural input suppliers** provide key inputs such as seeds, fertilisers and equipment to producers.
- **Producers** are farmers as well as farmer co-operatives and companies. They use inputs and natural resources to grow and sell crops and livestock.
- **Processors** use raw agricultural products to manufacture food and beverages, as well as feed, fuel, fibres and new bio-based products.
- **Distributors**, including wholesalers and retailers, market and sell agro-food products to consumers.

This subchapter analyses the agro-food value chain with a specific focus on the agriculture and food processing sectors.

The structure of agro-food value chains and the enterprises involved at each step vary widely across products and geographies. For example, perishable products such as raw milk generally feed into domestic supply chains before being traded internationally. However, other perishable products such as fruit and vegetables generally go more directly to domestic and foreign markets and thus have lower levels of global value chain engagement (Greenville, Kawasaki and Beaujeu, 2017[52]).

Continuing along the value chain towards processed food products, the patterns of engagement in global value chains vary across major agricultural trading countries. For example, there are stark differences between European and American agro-food value chains: in Europe, sourcing is done globally and supplied locally, while the opposite applies for agro-food value chains in the United States, which source more regionally but then supply more globally. The growing global population and correspondingly increasing consumer demand are having significant impacts on the development of global agro-food value chains, whereby consumers are increasingly asking for higher quality and safer products. This is also affecting distribution channels: there has been a shift from spot markets (public financial markets for trading commodities for immediate delivery) to direct marketing channels where producers sell directly to consumers (Greenville, Kawasaki and Beaujeu, 2017[52]).

The global population is expected to increase by around 74 million people per year by 2027. This trend translates to needed growth of 20% in both agricultural and fish production in order to meet the increasing global demand in the coming decade, with the bulk of the additional food consumption originating in the regions with high population growth, namely Sub-Saharan Africa, India, the Middle East and North Africa (OECD/FAO, 2018[53]).

The growing global demand for high quality and diverse agro-food products creates opportunities to increase both the level and quality of production in the Western Balkans' agro-food sector. However, meeting this rising demand sustainably involves several challenges, including increasing productivity, improving the sector's environmental performance and strengthening the resilience of farm households to weather, markets and other shocks. In addition to policies specific to the agro-food sector, a wide range of economy-wide policies can also support structural change towards high value processed food products, innovation and more effective resource use, positively impacting the performance of the sector. More specifically, sustainable development of the agro-food sector will be driven by the following forces (World Bank, 2016[54]; PMA, 2018[55]):

- **Fostering technological progress**, including the use of more efficient irrigation, the adoption of modern technologies and mechanisation, and new and improved inputs.
- **Providing necessary public goods**, including government-provided institutions and infrastructure. Land and water property rights are crucial, as well as the regulatory system that governs them. Regarding infrastructure, irrigation, transportation and conservation deserve special attention.
- **Ensuring market access**, including access to both trade and finance. Trade involves national and international markets for agricultural goods as well as for inputs and machinery. Finance comprises the ability to tap into resources from the financial sector through credit, equity and insurance.

- **Developing niche markets**, in particular for organic and local products. Changing consumer preferences have led to an increasing demand for organic products. This has been one of the most noticeable trends in the agro-food sector. In 2016, the global organic food market stood at roughly USD 110 billion and is expected to reach nearly USD 263 billion by 2022, with Europe and North America driving the demand. The demand for organic products has also created new export opportunities. Equally important are the opportunities created by the increasing demand for local products, especially in relation to the domestic tourism sector.

Box 3.1. Ecological tourism and organic food production in Poland

Organic food is one the fastest growing segments in the agro-food sector. It is estimated that the annual growth of this segment is 20%. According to the Ministry of Agriculture and Rural Development, the value of the domestic organic food market in 2017 was about EUR 235 million. The number of organic producers increased from 3.7 thousand in 2004 to 24.2 thousand in 2016. The majority of these producers are located in the provinces of Warmia-Masuria, Podlasie, West Pomerania and Masovia. The number of organic processing plants in Poland increased from 55 in 2004 to 562 in 2015.

In Poland, the use of chemical pesticides and fertilisers in farming was already relatively small. This provided a natural environment conducive to organic farming. In addition, the European Centre for Ecological Agriculture and Tourism-Poland (ECEAT-Poland) has been using ecotourism as a tool to foster the transition to organic farming. This initiative was very beneficial for farmers, benefiting financially through the promotion of environmentally sustainable practices. The ECEAT programme included:

- Formal training sessions for groups of interested farmers that provided practical information on organic agriculture, ecotourism, the growing market for organic products, general ecological awareness and co-operation among farmers.
- Diagnostics of participating farms, including their surroundings and local tourist attractions, published on an annual basis in an ecological tourism brochure both in Polish as well as in other languages.
- Promotional campaigns to emphasise the social, ecological and economic goals of the project, which were conducted using press conferences, radio and television interviews, and newspaper and magazine advertisements and articles.

This initiative expanded rapidly in Poland and is now recognised by environmental organisations, local governments, and the public and private sectors as an effective way to promote ecotourism. The ECEAT programme is part of a broader network that includes other European economies.

Source: FAO (2002[56]), *General Concepts and Issues in Organic Agriculture*, http://www.fao.org/3/y4137e/y4137e01.htm; Food Portal (2017[57]), "Organic food is the fastest growing segment in the food industry", www.portalspozywczy.pl/ (accessed on 15 May 2019).

3.2.2. Agro-food sector in the Western Balkans

The economic importance of the agro-food sector in the Western Balkans derives from certain advantages, including rich natural resources, a favourable climate and proximity to the European Union (EU), all factors that strengthen the potential of the agro-food sector. Given these advantages, the region is also well suited to take advantage of consumer trends towards niche markets, including organic products (Lampietti and Lugg, 2009[58]).

Almost three decades have passed since the economies of the Western Balkans began their transition from centrally planned agro-food sectors towards market-based, competitive ones. Despite the prolonged exposure to market forces, the sector still faces significant obstacles.

The disintegration of the Socialist Federal Republic of Yugoslavia (SFRY) led to the collapse of agricultural value chains, which were once dominated by vertically integrated output-driven *agrokombinats.* As a result, agriculture became a source of income for a number of smallholders who were previously not involved in the sector and who had to rely on unsophisticated production structures and quality control systems. Operating outside the organised value chain and lacking adequate access to input markets, farmers could not take advantage of economies of scale. Furthermore, poorly defined property rights and weak institutions additionally restrained the development of the sector. The food processing sector was also underdeveloped, with inadequate links to good retail networks and an insufficient supply of products (Lampietti and Lugg, 2009[58]).

In the Western Balkans, the agricultural sector is a leading consumer of natural resources, requiring significant land area and large amounts of water. Based on data from 2015, agriculture uses on average about 40% of the total land of the Western Balkan economies (ranging from 17% in Montenegro to 50.1% in North Macedonia); the average for the Western Balkans is between the OECD (35.6%) and the EU averages (43.8%) (OECD, 2018[1]).

EU accession is top priority for the economies of the Western Balkans and is likely to have a strong impact on the adaptation and modernisation processes of agriculture in the region. All Western Balkan economies have made significant progress in the last few years in trying to align their long-term programming and administrative frameworks with EU requirements. Between 2013 and 2015, new strategic documents for agriculture and rural development, which mainly referred to the period up to 2020 (up to 2019 for Bosnia and Herzegovina and up to 2024 for Serbia), detailed the economies' medium- and long-term agricultural policy objectives and priorities. The content varied slightly across economies, but all expressed a common set of goals: 1) enhancing farm viability and the competitiveness of the agro-food sector; 2) ensuring the sustainable management of natural resources and mitigating the effects of climate change; and 3) improving quality of life and promoting the balanced territorial and economic development of rural areas (JRC European Commission, 2017[59]).

Role of the agro-food sector in the economy

The agro-food sector is an important economic sector in each of the Western Balkan economies. In 2016, agriculture contributed on average 8.9% of value added to gross domestic product (GDP) in the Western Balkan economies. Among the Western Balkan economies, agriculture had the highest value added contribution to GDP in Albania (19.9%) (Table 3.2). The contribution of food processing to GDP (2.8%) is much lower than that of agriculture in the Western Balkan economies, with highest being in Serbia (4.2%)

(Table 3.3). The share of value added in GDP for both agriculture and food processing was higher on average in the Western Balkans in comparison to the Central and Eastern European (CEE) economies (2.9% and 1.8% for agriculture and food in CEE, respectively) (Table 3.2 and Table 3.3).

Table 3.2. Importance of the agricultural sector in the WB and CEE (2016)

	Gross value added			Employment	Exports		
	Value (USD million)	% of GDP	CAGR 2012-16	% of total	Value (USD million)	% of total	CAGR 2012-16
Albania	2 366	19.9	0.6	39.8	108	5.1	14.1
Bosnia and Herzegovina	1 077	6.4	0.5	16.8	107	2.0	1.1
Kosovo	702	10.5	-3.0	–	10	3.0	9.3
Montenegro	327	7.5	1.8	7.7	11	2.9	-1.6
North Macedonia	979	9.2	2.5	16.6	254	4.9	1.3
Serbia	2 484	6.5	-5.2	18.6	1 310	9.2	7.8
Western Balkans	**7 935**	**8.9**	**-1.5**	**21.5**	**1 801**	**6.5**	**6.5**
Bulgaria	2 159	4.1	-3.2	6.8	2 440	9.8	0.3
Croatia	1 619	3.1	-3.5	7.6	536	4.1	2.6
Czech Republic	4 028	3.1	-4.6	2.9	3 150	2.1	-1.5
Hungary	4 879	2.1	-0.2	5.0	3 180	3.2	-6.0
Poland	11 237	3.9	-4.2	10.6	7 620	4.0	1.7
Romania	7 656	4.1	-1.1	23.1	4 970	8.2	11.7
Slovak Republic	3 022	3.4	0.0	2.9	1 180	1.6	-1.4
Slovenia	841	1.9	0.3	5.0	413	1.7	-6.2
Central and Eastern Europe	**35 442**	**2.9**	**-2.6**	**10.0**	**23 489**	**3.7**	**1.2**

Note: – data unavailable. Agriculture exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 101 to 106, 401 to 410, 501 to 511, 601 to 604, 701 to 709, 713, 714, 801 to 807, 809, 810, 813, 903 to 910, 1001 to 1008, 1201 to 1207, 1209 to 1214, 1301, 1302, 1801, 1802, 2401 to 2403, 4301, 5001 to 5003, 5101 to 5103, 5201 to 5203, 5301, 5302.
Source: OECD calculations based on UNIDO (2017[60]), *INDSTAT 2 2017, ISIC Revision 3* (database), http://stat.unido.org; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp; ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Over 2012 to 2016, the growth rate in agricultural value added was the highest in North Macedonia (2.5%) and contracted in Kosovo and Serbia (-3% and -5.2%, respectively). Over the same period, agricultural value added shrank in all CEE economies except Slovenia (Table 3.2). In the food processing sector, value added grew with the highest rate in North Macedonia (10.1%) and contracted the most in Montenegro (-4.4%). A declining trend in the relative contribution of food processing value added to GDP can also be observed across CEE economies (-2.3%) (Table 3.3), which likely reflects Central and Eastern Europe's structural transformation towards other economic sectors.

Table 3.3. Importance of the food processing sector in the WB and CEE (2016)

	Gross value added			Employment	Exports		
	Value (USD million)	% of GDP	CAGR 2012-16	% of total	Value (USD million)	% of total	CAGR 2012-16
Albania	83	0.7	2.4	–	70	3.3	1.9
Bosnia and Herzegovina	373	2.2	-2.7	2.5	414	7.7	7.7
Kosovo	–	–	–	–	51	14.9	3.3
Montenegro	55	1.3	-4.4	–	51	12.9	-7.7
North Macedonia	233	2.2	10.1	3.0	293	5.6	-1.8
Serbia	1 591	4.2	-1.5	4.6	1 620	11.4	1.4
Western Balkans	**2 335**	**2.8**	**-0.8**	**3.8**	**2 500**	**9.0**	**1.7**
Bulgaria	1 170	2.2	1.9	3.1	1 810	7.3	3.4
Croatia	1 362	2.7	-2.6	3.9	1 210	9.2	7.3
Czech Republic	3 006	1.5	-3.8	2.3	4 040	2.7	3.4
Hungary	2 265	1.8	0.2	2.4	5 260	5.3	-0.9
Poland	10 883	2.3	-1.6	2.6	16 600	8.7	4.2
Romania	1 739	0.9	-8.5	2.2	1 520	2.5	3.9
Slovak Republic	881	1.0	-2.9	1.6	1 700	2.4	-4.2
Slovenia	605	1.4	1.3	1.8	828	3.5	-5.8
Central and Eastern Europe	**21 910**	**1.8**	**-.2.3**	**2.4**	**32 968**	**5.2**	**2.4**

Note: – data unavailable. Food sector gross value added and employment comprises ISIC 3.0 Division 15. Food exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 201 to 210, 710 to 712, 811, 812, 814, 901, 902, 1101 to 1109, 1208, 1401 to 1404, 1501 to 1522, 1601 to 1605, 1701 to 1704, 1803 to 1806, 1901 to 1905, 2001 to 2009, 2101 to 2106, 2201 to 2209, 2301 to 2309, 3301, 3501 to 3505, 4101 to 4103. Employment share for Serbia is calculated for year 2017.
Source: OECD calculations based on UNIDO (2017[60]), *INDSTAT 2 2017, ISIC Revision 3* (database), http://stat.unido.org; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp; ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

The low productivity in the agro-food sector can be regarded as a reflection of the limited complexity of agro-food products in the Western Balkans. The Product Complexity Index (PCI) of the Western Balkan agro-food products is lower than the global average for the sector (Table 3.4). Serbia, with -0.79, is the closest to the PCI of the overall agro-food sector, standing at -0.52, while Albania is the most distant, with an agro-food PCI of -1.44. The promising products (short gains and long bets) that the Western Balkan economies already produce, and whose production specialisation could upgrade the sector's complexity, have a much higher average PCI of 0.71 (Table 3.1).

Table 3.4. PCI of agro-food sector export baskets in the WB (2016)

Albania	Kosovo	Montenegro	North Macedonia	Bosnia and Herzegovina	Serbia	**Agro-food sector average**
-1.44	-1.38	-1.35	-1.24	-0.94	-0.79	**-0.52**

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp

The agricultural sector is a significant source of employment in the Western Balkans. On average, the share of those employed in the agricultural sector in the Western Balkans is more than twice that of those employed in the agriculture sector in Central and Eastern Europe (21.5% and 10%, respectively). Among the Western Balkan economies, the share of agriculture sector employment is highest in Albania (39.8%) and lowest in Montenegro (7.7%), where the share is close to the Central and Eastern European average of 8% (Table 3.2). Although employment data for the food processing sector is available for just three of the Western Balkan economies, the sector is a much smaller source of employment in the Western Balkans than agriculture. The share of food processing sector employment is highest in Serbia (4.6%). The food processing sector is less labour intensive than the agricultural sector in CEE economies as well (Table 3.3).

There are approximately 1.65 million farms currently operating in the six Western Balkan economies. Despite the presence of some larger farms, especially in Serbia and Kosovo, the majority of farms in the Western Balkan economies are small, family owned and highly fragmented. Average farm holding sizes range from 1.3 hectares in Albania to 5.8 hectares in Montenegro – much smaller than the EU average of 16.1 hectares (Kosovo Agency of Statistics, 2015[61]; Eurostat, 2017[62]; Montenegro Statistical Office, 2017[63]; Statistical Office of the Republic of Serbia, 2017[64]). Agricultural co-operatives can aggregate a large number of small family farms. However, they do not play a major role following the region's history of mandatory collective farming under communism.

An estimated 10.8 thousand enterprises currently operate in the food and beverage manufacturing industry in the Western Balkans (roughly 2.3% of all enterprises in the region). About 33% of these enterprises operate in Albania and Serbia each and approximately 10% operate in North Macedonia. Small and medium-sized enterprises (SMEs) predominate in this sector. For example, in Serbia, only 2% of enterprises are large (employing 250 or more people) while 76% are micro enterprises (employing fewer than 10 people).

Trade performance of the agro-food sector

The agro-food sector is an important contributor to the total external trade of the Western Balkan economies. In 2016, agriculture contributed 6.5% to total exports in the Western Balkans; in comparison, agriculture contributed 3.7% to total exports in Central and Eastern Europe (Table 3.2). Similarly, food processing exports contributed more to Western Balkan exports (9.0%) than to CEE exports (5.2%) (Table 3.3).

Between 2012 and 2016, agriculture and food processing sector exports increased for most economies in the Western Balkans and Central and Eastern Europe. On average, agriculture exports in the Western Balkans grew five times more than in Central and Eastern Europe (6.5% and 1.2%, respectively). However, food processing exports grew more quickly in Central and Eastern Europe than in the Western Balkans over the same period, with growth rates of 2.4% and 1.7%, respectively. Although trends in exports are often masked by the high price volatility of agro-food products, they also reflect Central and Eastern Europe's move from exports of agricultural products towards processed food products with higher value added. In agriculture, Albania leads both regions with 14.1% growth. In processed food exports, Bosnia and Herzegovina leads both regions with 7.7% growth (Table 3.2 and Table 3.3).

Most Western Balkan agro-food exports are destined for other Western Balkan economies (Table 3.5). Over 50% of agro-food exports from Bosnia and Herzegovina, Kosovo and Montenegro are bound for their regional neighbours in the Western Balkans. Albania,

North Macedonia and Serbia also export a significant share of agro-food products to their neighbours. In addition, Albania exports a significant share of agro-food products to Italy (32%) and Serbia exports a significant share of tobacco-related products to Japan.

Table 3.5. Top destinations for agro-food sector exports from the WB (2016)

% of agro-food sector exports

Albania		Bosnia and Herzegovina		Kosovo		Montenegro		North Macedonia		Serbia	
Italy	32%	Turkey	41%	Albania	31%	Serbia	24%	Serbia	22%	Bosnia and Herzegovina	18%
Greece	14%	Croatia	13%	North Macedonia	9%	Bosnia and Herzegovina	22%	United States	10%	Japan	9%
United States	11%	Serbia	10%	Serbia	9%	Albania	5%	Croatia	8%	Montenegro	7%
Germany	8%	North Macedonia	7%	Bosnia and Herzegovina	8%	United Arab Emirates	4%	Germany	7%	North Macedonia	6%
Serbia	6%	Italy	7%	Austria	7%	China	3%	Greece	7%	Croatia	5%

Source: OECD calculations based on UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

In terms of value, the most significant agro-food products that experienced a constant positive export trend between 2012 and 2016 are perfume plants and processed fish (Albania), wheat and seed oils (Bosnia and Herzegovina), fruits and flavoured water (Kosovo), dried legumes and vegetables (Montenegro), raw tobacco and baked goods (North Macedonia), and rolled tobacco and frozen fruits and nuts (Serbia). Focusing on the promising products as detected in Chapter 2, a few show positive export trends over time: cheese (Kosovo), milk (Montenegro), sunflower seeds (North Macedonia) and barley (Serbia). However, the processed food sector is the one that can contribute the most to increasing the complexity of the agro-food industry in the Western Balkans. In particular, considering only growing exports: flavoured water, frozen fruits and nuts, jams, and confectionary sugar (Albania); animal food and starch residue (Bosnia and Herzegovina); animal food and prepared meat (Kosovo); processed cereals (North Macedonia); and poultry meat (Serbia). A detailed list of agro-food exports by economy can be found in Annex C.

3.2.3. Key drivers of agro-food sector competitiveness in the Western Balkans

Sustainable development of the agro-food sector in the Western Balkan economies will require an enabling policy environment. It should be driven by technological progress, the provision of necessary public goods and the ability to tap into regional and global markets. This requires policy consideration in several areas, including (OECD, 2018[1]):

- **Agricultural policy and programmes** including agricultural land consolidation, which affects farm and firm productivity.
- **Sanitary and phytosanitary measures,** relevant for food safety and animal and plant health.
- **Education and innovation systems** to facilitate more productive and sustainable practices in agriculture and to keep up with market trends in the agro-food sector.

Agricultural policy

In recent years, agricultural policy in the Western Balkans has largely been shaped by the prospect of EU enlargement. The respective strategies and actions plans of the Western Balkan economies have generally followed the guidelines of the EU Common Agriculture Policy. According to the *Competitiveness in South East Europe: A Policy Outlook 2018* (OECD, 2018[1]), most of the Western Balkan economies (except Kosovo) have strategies and action plans for agriculture and rural development in place. However, these strategies and action plans are rarely monitored and evaluated. This subsection looks at the support measures for farmers, protection of the natural environment and irrigation infrastructure.

When it comes to the specific support to farmers, both the direction and magnitude of the support matter. While governments have ample instruments to provide support, including through direct support, taxes and trade, these have different implications in terms of cost and impact on the agricultural sector (OECD, 2018[1]). Specific indicators can measure the impact of support policies in relation to key economic variables (see Box 3.2).

Box 3.2. Definitions of the OECD indicators of agricultural support

Indicator of support to producers

Producer Support Estimate (PSE): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

Indicator of support to consumers

Consumer Support Estimate (CSE): The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on the consumption of farm products.

Indicator of support to general services for agriculture

General Services Support Estimate (GSSE): The annual monetary value of gross transfers arising from policy measures that create enabling conditions for the agricultural sector through the development of private or public services, institutions and infrastructures, regardless of their objectives and impacts on farm production and income or the consumption of farm products. It includes policies where agriculture is the main beneficiary but does not include any payments to individual producers. GSSE transfers do not directly alter producer receipts, costs or consumption expenditures.

Indicator of total support to agriculture

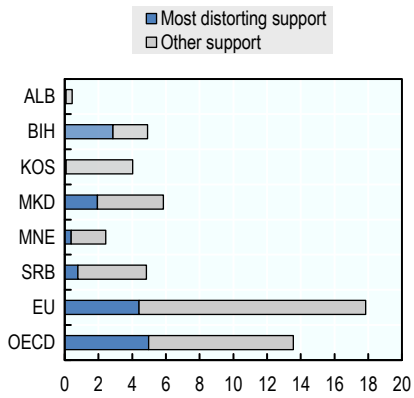
Total Support Estimate (TSE): The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on the consumption of farm products.

Source: OECD (2016[65]), "Agricultural Policy Monitoring and Evaluation 2016", https://dx.doi.org/10.1787/agr_pol-2016-en.

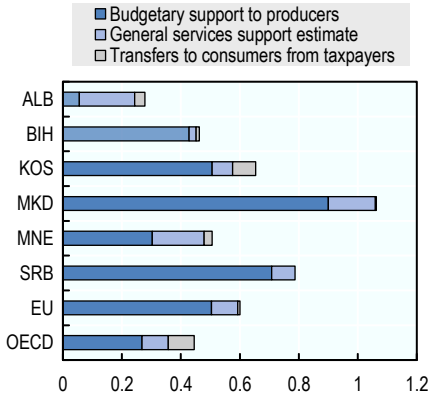
The composition of budgetary support to producers (as a share of gross farm receipts) is generally not of a market distorting nature in the Western Balkans. The main exception is Bosnia and Herzegovina, where budgetary support occurs mainly through payments based on output and variable input use without input constraints (Figure 3.1A). Looking at the composition of budgetary support to agriculture as a share of GDP, most of the support in the Western Balkans occurs through producer support measures and less so through general services support and transfers to consumers from taxpayers. In Kosovo, North Macedonia and Serbia, total budgetary transfers to agriculture comprise an equal or greater share of GDP than the EU average of 0.6%. In the remaining economies (Albania, Bosnia and Herzegovina, and Montenegro), total budgetary transfers have a lower incidence on GDP (Figure 3.1B).

Figure 3.1. Budgetary support to agriculture (2013-15 average)

A. Composition of budgetary support to producers (% of gross farm receipts)



B. Composition of total budgetary support to agriculture (% of GDP)



Note: Data on market price support in the Western Balkan economies are currently unavailable, so support indicators only include budgetary support. As a result, assuming that market price support is positive in the Western Balkan economies, support values are probably lower than they otherwise would be. Data for agricultural output for Albania is 2009-11, for Montenegro 2012-13 and for North Macedonia 2012-14.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

When it comes to the protection of the natural environment in relation to agriculture, measures are either absent or poorly developed in all Western Balkan economies. This includes environmental cross-compliance requirements, minimum environmental standards and practices farmers must comply with to receive agricultural support payments (OECD, 2018[1]). Although the Western Balkan economies have legislation on soil, water and biodiversity in relation to agriculture, according to the OECD assessment there is substantial room for improvement, particularly in transposing the Nitrates Directive (1991/676/EC) and for enforcing the relevant legislation (OECD, 2018[1]).

While irrigation measures are generally well defined and there are comprehensive irrigation plans in the region, the existing irrigation system does not sufficiently take into consideration the potential adverse effects of intensive irrigation. This can include overexploitation, soil salinisation or the depletion of groundwater. Likewise, when it comes to water use, there are weak incentives to use it efficiently, as water pricing is not based on volume, but rather by geographical area (OECD, 2018[1]).

Sanitary and phytosanitary (SPS) system

Technical regulations and standards, such as sanitary and phytosanitary (SPS) measures, are used by countries to ensure that food is safe for consumers and to prevent the spread of pests or diseases among animals and plants. SPS measures can take many forms, such as the requirement that products come from a disease-free area, requirements for product inspections, the specific treatment or processing of products, the establishment of allowable maximum levels of pesticide residues or the permitted use of only certain additives in food (WTO, 2019[66]). As SPS measures apply to both domestically produced agro-food as well as to products coming from other countries, they can play an important role in the international trade of agro-food products.

SPS measures are intended to achieve legitimate public policy objectives, such as those related to public health and safety and environmental protection. However, they may explicitly or implicitly become barriers to trade when they are enforced non-proportionally, arbitrarily or through testing and certification requirements that are unclear or not easily accessible to foreign manufacturers or producers (OECD, 2018[1]).

In the case of the Western Balkans, an important element towards EU integration and the liberalisation of trade in the agro-food sector (as well as for other products) was the facilitation of regional co-operation, especially through the establishment of the Central European Free Trade Agreement (CEFTA). CEFTA was signed by the six Western Balkan economies, as well as Croatia and Moldova, in 2006 and entered in force in 2007. Although CEFTA was very important for the Western Balkans, particularly because it led to increased total trade especially between the CEFTA economies (Birovljev et al., 2017[67]), agricultural exports and imports did not reach their full potential. This can be attributed to SPS measures as well as to the differences in regulations between the Western Balkan economies and the EU (OECD, 2012[68]).

While the legislation is largely in place in most of the Western Balkan economies, further challenges are related to the weak implementation of the laws and sub-laws to regulate risk management and analysis. For example, apart from North Macedonia, the Western Balkan economies generally struggle with weak capacities to undertake risk-based controls for inland and border inspections. At the same time, SPS agencies in many of the Western Balkan economies suffer from lack of staff and restricted financial resources (OECD, 2018[1]).

Agricultural education and innovation systems

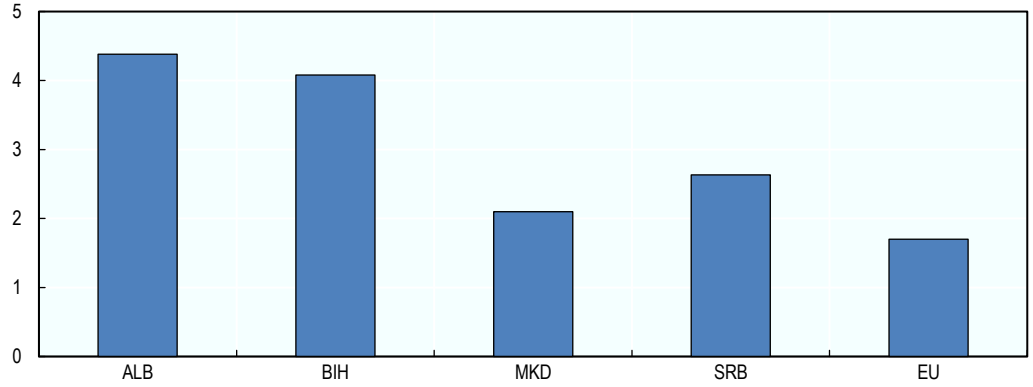
Skilled labour and effective innovation systems are key to improving the economic, environmental and social performance of the agro-food sector. The agricultural innovation system is composed of a number of actors that play important roles in transferring knowledge and technology, applying new practices and fostering innovation. This includes farmers, private sector participants and agricultural extension services. The Netherlands provides a good example of an innovation-supporting environment for food processing companies (Box 3.3).

All six Western Balkan economies are committed to compulsory primary education and, as a result, literacy rates among farmers are close to 100%. While higher percentages of tertiary education graduates completed agriculture programmes in Albania (4.4), Bosnia and Herzegovina (4.1), North Macedonia (2.1) and Serbia (2.6) than the EU average (1.7), these shares are still likely to be insufficient for the sector's needs given the relatively high contribution of agriculture to the economies' gross value added (Figure 3.2). Despite this

probable deficit of university graduates in agriculture, keeping graduates in the sector is challenging. Evidence points to the insufficient quality and alignment of curricula with labour market needs (OECD, 2018[1]).

Figure 3.2. Agriculture in tertiary education (2015)

% of graduates from agricultural programmes



Note: Data for Montenegro and Kosovo not available. Data for North Macedonia for 2014.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

While agricultural research is taking place across all Western Balkan economies, there is no strategy specifically guiding such research (OECD, 2018[1]). Co-ordination between the ministries of science and agriculture is rather weak in all of the Western Balkan economies. The Albanian Ministry of Agriculture and Rural Development, for example, established Centres of Agricultural Technology Transfer in 2006 to identify, test and adapt agricultural practices, methods and materials at a national level and provide training to agricultural specialists, farmers and students of agriculture (OECD, 2018[1]). However, according to information from the OECD, the centres have been limited in supporting the commercialisation of research as well as more effective collaboration between researchers and the private sector.

Agricultural extension services can also play an important role in fostering innovation. These services are rather widely used in the Western Balkans. For example, there are about 100 thousand registered farmers in North Macedonia and 80% are recipients of extension services. Despite this, however, extension services across the region have modest funding and capacities (OECD, 2018[1]).

Box 3.3. The food processing sector in the Netherlands

The Dutch food processing sector is innovative and export oriented. It is the second largest exporter of agro-food products in the world and is a significant contributor to world patents on food processing innovations. Several factors are key to the competitiveness of the Dutch food processing sector, which attracts investment from domestic and foreign multinationals:

- A strong enabling environment, which includes ease of doing business, well-functioning and competitive markets, openness to trade and investment, high-quality infrastructure and education systems responsive to industry needs. Indeed, the Netherlands is among the world's most competitive countries as reflected in its rank of 4th out of 137 countries in the 2017-2018 World Economic Forum's *Global Competitiveness Index*.
- Tax incentives comprise the bulk of support for innovation in the private sector and help private research institutions directly and public research institutions indirectly by encouraging the industry's participation in public-private partnerships.
- Policy incentives for adopting innovation include business investment support and support for public-private partnerships. Examples include the public (co-)funding of training services through vouchers for SMEs to hire experts and networking activities that bring together entrepreneurs, researchers and intermediaries to learn from each other.

Source: OECD (2015[69]), *Innovation, Agricultural Productivity and Sustainability in the Netherlands*, http://dx.doi.org/10.1787/9789264238473-en; World Economic Forum (2017[70]), *The Global Competitiveness Report 2017-2018*, http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf.

3.2.4. Policy recommendations for the agro-food sector in the Western Balkans

Based on the assessment of key factors to agro-food sector competitiveness, the Western Balkan economies can consider the recommendations below to strengthen the agro-food sector. These policy recommendations should be embedded in the context of wider reforms to strengthen the overarching enabling environment and be driven by a need to foster technological progress, provide the necessary public goods, ensure market access and identify new market opportunities. As such, key policy recommendations include (OECD, 2018[1]):

(1) Reorient and enhance policies to better support agricultural productivity and sustainability.

- Improve incentives for producers to innovate and use production factors more efficiently. Support to agricultural producers which distorts agricultural input and output markets (output-based systems and variable input subsidies without constraints) should be gradually eliminated.
- Provide support dedicated to general services for the agro-food sector, addressing key areas such as infrastructure, knowledge and inspections. This includes increasing resources for agricultural extension services that can improve access to knowledge and technology.

- Fully implement farmland consolidation plans. In some economies, further efforts are required to reform cadastres and clarify property rights.
- Address and enhance environmental sustainability objectives and corresponding measures. This includes the careful structuring of producer support and targeting environmental practices to meet basic environmental standards, such as those set out in EU regulations.
- Strengthen the regulations on natural resources affecting agriculture, including adopting relevant EU directives such as the Nitrates Directive.
- Improve the allocation of water resources. The Western Balkan economies could improve their irrigation policy frameworks by aligning their water use with river basin plans and assessing the environmental impacts of planned infrastructure. Water charges should incentivise efficient water use and cover irrigation infrastructure and maintenance costs.
- Improve data collection to inform policies, including data on agricultural economic accounts, employment and output.

(2) Improve the implementation of SPS measures to enable trade in agro-food products.

- Further develop risk assessment and management capacities among all border agencies, especially to avoid the repeated sampling and testing of products, to reduce the time and cost of both importing and exporting. This can include regular trainings on risk analysis for SPS agencies and their inspectors. In addition, the further development of risk assessment tools should be considered, including the creation of databases on food business operators according to risk level as well as checklists and guidelines.
- Further develop information systems for better connectivity with different SPS agencies and laboratories. This can help reduce the frequency of physical checking, sampling and re-testing.
- Simplify SPS inspection procedures and reduce the burden of inspection by avoiding assigning multiple agencies control over the same product/operation. This includes a clear division of responsibilities in inspections.

(3) Enhance the quality and impacts of the agricultural labour skills and innovation system.

- Improve co-ordination in formulating and implementing agricultural innovation across all relevant actors involved in the agricultural innovation systems, including farmers, private sector participants, agricultural extension services, research and educational institutions and government.
- Support research institutions to become partners in collaborative international research projects, in particular at the EU level, but also in regional networks and initiatives. Likewise, more funding could be acquired from internationally funded projects to diversify funding sources and reduce research institutes' dependence on public funding. Examples of EU research programmes include Horizon 2020 and Hercule III.

3.2.5. Summary of opportunities for agro-food sector development

A growing global population with changing preferences is raising demand for higher quality agro-food products. This is increasing stress on natural resources, while the changing climate is transforming agricultural production. There is also a growing demand for niche markets such as organic food products. In addition, many small farmers around the world are focusing on filling local niche markets with specialty and higher value-added products. The Western Balkans should therefore tap into these opportunities, while at the same time addressing the challenges hampering the agro-food sector's productivity and sustainability.

The agro-food sector is economically crucial in all six Western Balkan economies. It plays an important role in food security, rural development and poverty alleviation. Overall, the contribution of agriculture to the economy is relatively more important than that of food processing. This suggests that the structural transformation of the agro-food sector from agriculture towards food processing, which offers greater potential to increase value added to the economy and exports growth, has been rather slow in the region.

Agro-food sector strategies aiming to implement the recommendations from this report should be embedded in the context of wider reforms to strengthen the overarching enabling environment and focus on technological progress, the provision of necessary public goods, and ensuring market access. As such, key policy recommendations include:

- Reorient agricultural policy to better support productivity and sustainability.
- Improve the implementation of sanitary and phytosanitary measures to enable trade and access to global value chains.
- Strengthen agro-food education and innovation systems to improve the economic, environmental and social performance of the agro-food sector.

3.3. Metal processing sector

3.3.1. Metal processing sector overview

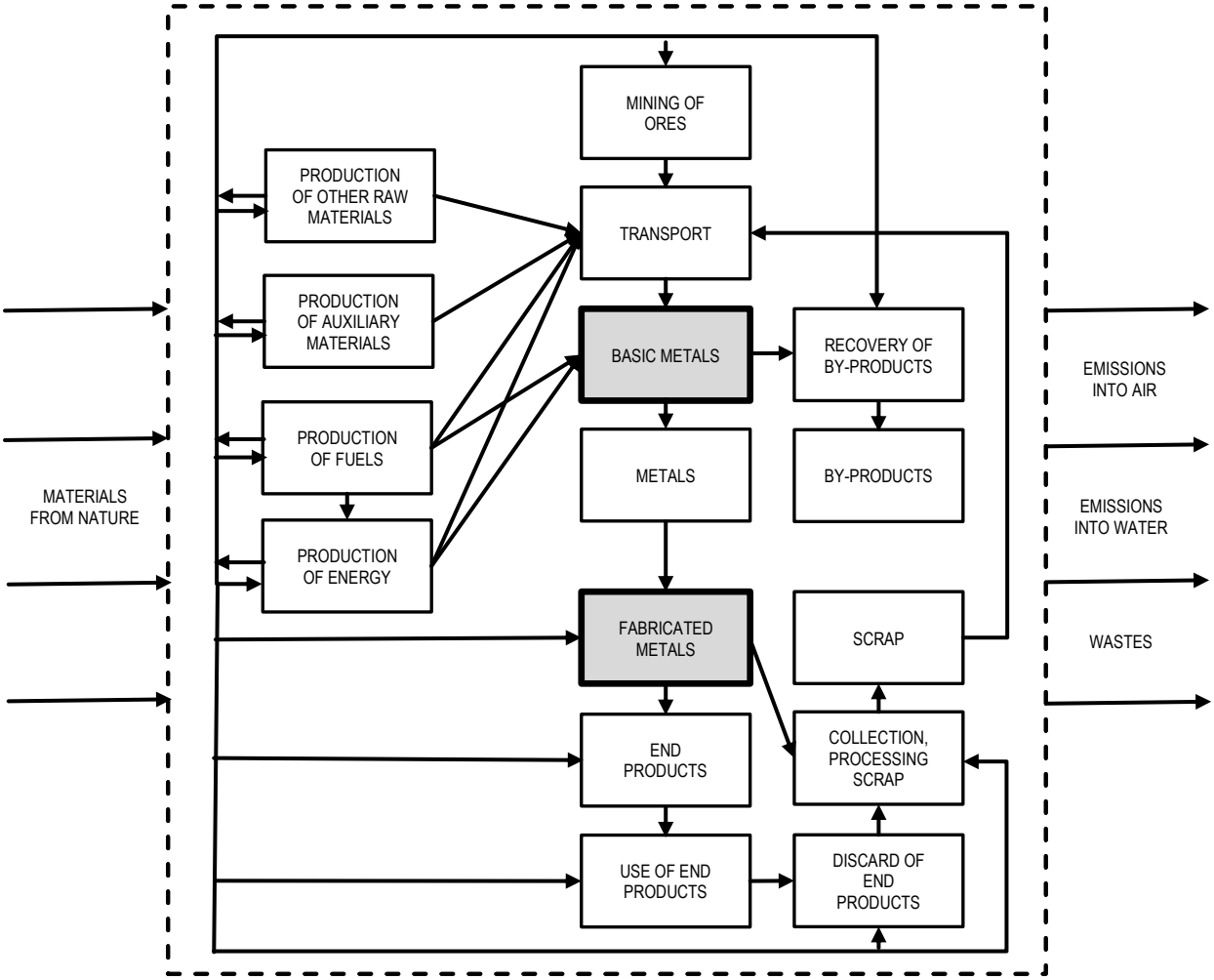
The metal processing sector is fundamental for the manufacturing industry of any economy, as metal components are used in almost all industries and industrial applications, including in transport, energy, construction and machinery. It thus constitutes a major pillar for economic growth. The metal processing sector consists of two major manufacturing sub-sectors: basic and fabricated metals. These include either ferrous metals (iron and steel) or non-ferrous metals (cobalt, nickel, zinc, copper, lead and aluminium) (Eurostat, 2008[71]).

- **Basic metals** include the manufacture of basic iron and steel and ferroalloys; tubes, pipes, hollow profiles and related fittings of steel; other products of first processing of steel; basic precious and other non-ferrous metals; and the casting of metals.
- **Fabricated metals** use basic metals as their input products and include, among others, the manufacture of structural metal products; containers of metal; steam generators; cutlery and tools; and the pressing, stamping and coating of metals.

The metal processing sector uses mineral ores obtained from mining activities at the upstream level of the value chain (raw material extraction) to manufacture basic and fabricated metal products used in other industries at the downstream level (end user/final consumption). Increasingly, recycling activities play an important role in the metal processing sector, whereby metal scrap is converted to new material through metallurgical

processes, including remelting and refining. The metal processing sector is therefore highly capital and energy intensive. Each activity in the value chain can have significant environmental impacts, including material waste, as well as emissions into the air and water (see Figure 3.3).

Figure 3.3. Schematic overview of the metal processing sector



Source: Seppälä et al. (2002[72]), "The Finnish metals industry and the environment", https://pdfs.semanticscholar.org/76ee/25c9dce687d40d78784eb2b8f2c8478a1890.pdf.

Moreover, despite the metal processing's economic importance, the sector is very cyclical, subject not only to fluctuations in economic activity and growth, but also to political interferences and geopolitical disruptions, which often lead to market volatility and price hikes. This is even more important in the current global economic and political context, which is characterised by rising trade frictions.

Key considerations relevant for the competitiveness of the metal processing sector include:

- **Strong competitive pressures from other economies operating in the metal processing sector and changing demand trends in material use in downstream sectors.** On the one hand, further development of the sector will significantly depend on the international context, which is characterised by competing pressures

from other economies. At the same time, changing demand patterns in other sectors using metals as their inputs will put pressure on economies exporting metal processing products, requiring them to carefully identify their opportunities in the global market.

- **Energy prices.** Energy costs play an important role in the competitive position of enterprises in this sector. Energy constitutes a significant portion of the total cost of production of metals, being deployed directly in metal processing activities, but also indirectly through mining and transportation. This might result in a competitive disadvantage for energy-dependent and importing economies like the Western Balkans (OECD, 2018[1]).
- **Environmental regulations and environmental sustainability.** There are concerns for the metal processing sector with respect to the environmental consequences of raw material extraction and processing, unsustainable energy consumption and the management of steadily growing waste streams (McCarthy and Börkey, 2018[73]). This is particularly relevant given the 2015 Paris Agreement on Climate Change and the global resolve to embark on development patterns that would be significantly less greenhouse gas intensive, having potentially significant implications on various sectors, including the metal processing one (World Bank, 2017[74]). In this context, there is a growing interest to move towards an economy in which a greater proportion of material resources are recycled and re-used (McCarthy and Börkey, 2018[73]).

3.3.2. Metal processing sector in the Western Balkans

The metal processing sector has a long history in the Western Balkans, especially due to the rich domestic mining base. By the early 1930s, mineral deposits in the region were well-defined with increasing levels of mineral extraction. The major base metals mined have included bauxite, chromium, cobalt, copper, iron ore, lead, magnesium, manganese, nickel and zinc. Precious metals such as gold, silver, palladium and platinum are found mainly in association with base metals such as copper, lead and zinc. In the period up until the early 1990s, mining, minerals processing and the downstream exploitation of base metals established the region as a major European source of copper, lead and zinc. Albania was also a major international source of chromate (UNEP, 2009[75]).

Under the Socialist Federal Republic of Yugoslavia (SFRY), Bosnia and Herzegovina, in particular, had a major metal processing sector including steel and aluminium, which were bound for the SFRY's heavy industries, such as the machinery sector. However, the transition from centrally planned to market economies and the ensuing tensions and conflicts degraded or destroyed much of the region's mineral sector infrastructure (Steblez, 2005[76]).

Role of the metal processing sector in the economy

The sector's share of value added in gross domestic product (GDP) is lower in the Western Balkans than in Central and Eastern Europe (1.6% and 2.1%, respectively). Among the Western Balkan economies, Bosnia and Herzegovina has the highest share of value added in GDP (2.5%) but is still behind the Czech Republic (3.2%), the Slovak Republic (2.8%) and Slovenia (3.7%). Conversely, the sector contributes the least to GDP in Montenegro (0.4%) (Table 3.6.). In terms of growth rates, in the period 2012-16, the sector's value added increased in Central and Eastern Europe at an average rate of 1.3% per year. Among

the Western Balkan economies, it increased in Albania and Bosnia and Herzegovina, and contracted in Montenegro, North Macedonia and Serbia.

Table 3.6. Importance of the metal processing sector in the WB and CEE (2016)

	Gross value added			Employment	Exports		
	Value (USD million)	% of GDP	CAGR 2012-16	% of total	Value (USD million)	% of total	CAGR 2012-16
Albania	109	0.9	8.8	-	166	7.9	-6.2
Bosnia and Herzegovina	430	2.5	5.6	2.9	850	15.7	-3.5
Kosovo	-	-	-	-	100	29.0	-7.0
Montenegro	17	0.4	-2.8	-	101	25.3	-21.4
North Macedonia	119	1.1	-2.8	2.0	497	9.5	-12.6
Serbia	615	1.6	-4.1	3.0	1 350	9.5	-0.7
Western Balkans	**1 290**	**1.6**	**-0.3**	**2.8**	**3 060**	**11.0**	**-5.5**
Bulgaria	1 171	2.2	6.0	2.3	3 500	14.1	-5.8
Croatia	791	1.5	0.9	2.3	856	6.5	-1.0
Czech Republic	6 250	3.2	1.1	4.6	10 200	6.7	-2.9
Hungary	2 167	1.7	2.4	2.3	3 560	3.6	-4.4
Poland	9 671	2.1	0.5	2.1	15 700	8.2	-4.7
Romania	1 855	1.0	-0.5	1.5	3 960	6.5	-4.8
Slovak Republic	2 509	2.8	2.2	3.7	5 500	7.6	-5.9
Slovenia	1 633	3.7	4.1	4.6	2 430	10.1	-5.7
Central and Eastern Europe	**26 046**	**2.1**	**1.3**	**2.5**	**45 706**	**7.2**	**-4.5**

Note: – data unavailable. Metal processing sector gross value added and employment comprises ISIC 3.0 Division 27-28. Metal processing exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 2818, 7106 to 7111, 7201 to 7203, 7205 to 7229, 7301 to 7319, 7322 to 7325, 7401 to 7403, 7405 to 7412, 7414, 7416, 7418, 7501, 7502, 7504 to 7508, 7601, 7603 to 7616, 7801, 7803 to 7806, 7901, 7903 to 7907, 8001, 8003 to 8007, 8101 to 8113, 8201 to 8215, 8303 to 8306, 8308, 8309, 8311, 8402, 8404, 8485, 9307 and 9406. Employment share for Serbia is calculated for year 2017.
Source: OECD calculations based on UNIDO (2017[60]), *INDSTAT 2 2017, ISIC Revision 3* (database), http://stat.unido.org; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp; ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Despite the modest value added to GDP of its metal processing sector, Montenegro is the only economy in the Western Balkans showing a Product Complexity Index (PCI) higher than the average for the sector (1.60 as compared to the sector's average of 1.59, as illustrated in Table 3.7. This is largely due to products such as aluminium and iron structures, hand tools and parts. Kosovo's PCI (1.58) is also close to the sectoral average (Table 3.7). The other economies in the region follow at some distance, with Albania holding the lowest PCI in the group (1.32). The average PCI of the short gain and long bet products selected in Chapter 2 that are capable of increasing the sophistication of metal processing in the Western Balkan economies is 1.83 (Table 3.1). Their development would positively contribute towards raising not only the product complexity of the metal processing sector, but also the overall economic complexity of the Western Balkans.

Table 3.7. PCI of metal processing sector export baskets in the WB (2016)

Albania	North Macedonia	Bosnia and Herzegovina	Serbia	Kosovo	**Metal-processing sector average**	Montenegro
1.32	1.40	1.44	1.45	1.58	**1.59**	1.60

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The metal processing sector's share of total employment is similar in Central and Eastern Europe (2.5% on average) and in the three Western Balkan economies with data available – Bosnia and Herzegovina (2.9%), North Macedonia (2.0%) and Serbia (3.0%) (Table 3.6.).

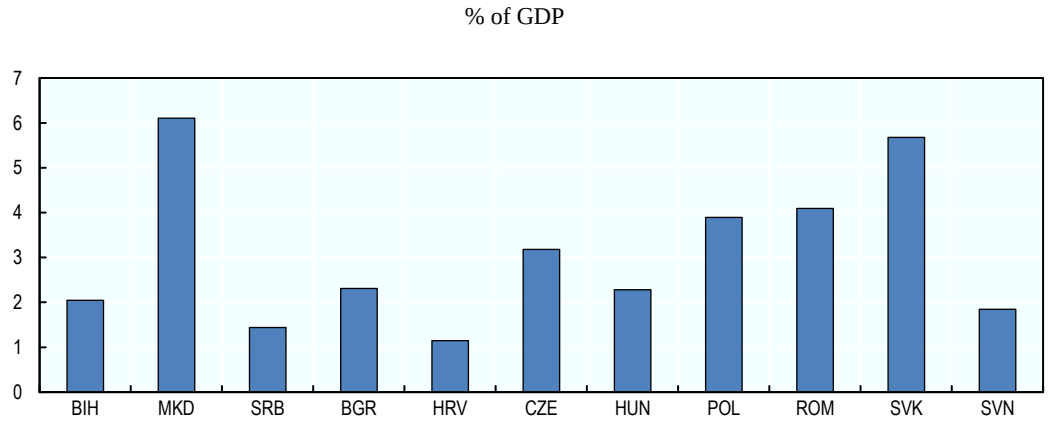
In 2015-16, there were about 6 thousand firms operating in the metal processing sector in the Western Balkan economies. Out of these, Serbia hosts approximately 37.3% of active enterprises, followed by Albania – 24.5%, Bosnia and Herzegovina –23.6% and North Macedonia – 14.6% (Albanian Institute of Statistics, 2016[77]; Agency for Statistics of Bosnia and Herzegovina, 2017[78]; Statistical Office of the Republic of Serbia, 2017[64]; Eurostat, 2019[79]). Data for Kosovo is not available.

On average, the number of firms operating in the fabricated metal products sector vastly exceeds the number of firms in the basic metals sector – the share of firms belonging to the former category is 96.2% in Bosnia and Herzegovina, 93.8% in North Macedonia and 89.5% in Serbia.[2] Another common trend across these three economies is the prevalence of microenterprises and small and medium-sized enterprises (SMEs) in the manufacturing of fabricated metals (on average 80.1% and 19.3%, respectively) (Agency for Statistics of Bosnia and Herzegovina, 2017[78]; Statistical Office of the Republic of Serbia, 2017[64]; Eurostat, 2019[79]). This stems in part from the more customised and demand-oriented nature of fabricated metal products (e.g. producing parts for one specific car manufacturer) as well as the sector's lower economies of scale relative to basic metals.

The presence of foreign investors is relatively strong in the metal processing sector in the region, based on the data available for Bosnia and Herzegovina, North Macedonia and Serbia (Figure 3.4). Looking at foreign direct investment (FDI) as a share in GDP, North Macedonia has the highest share among the observed economies, both in the Western Balkans and in Central and Eastern Europe. Privatisation processes in North Macedonia led to a series of re-structuring activities, including foreign investments in the production of cold-rolled, hot-rolled and coated sheets; ferroalloys, moulds and pipes; steel reinforcements; and other types of products (South-East European Industrial Market, 2017[80]). Bosnia and Herzegovina and Serbia also have a relatively strong presence of foreign investors, comparable to Croatia, Hungary and Slovenia. For example, in Bosnia and Herzegovina in 2014, Mittal Steel bought a majority share of the Zenica steel plant, which was at the time the largest foreign investment in Bosnia and Herzegovina (World Bank, 2018[81]). In 2018, ArcelorMittal Zenica announced the completion of a about USD 33 million project to rebuild the blast furnace and undertake some other technological modernisations, including those related to energy performance (ArcelorMittal, 2018[82]). The Serbian steel sector has historically been dominated by the Smederevo Steel Company (formerly known as Železara Smederevo d.o.o.). After being sold to US Steel in 2003, US Steel sold it back to the government of Serbia in 2012. The company was then purchased by the Chinese Hesteel Group in 2017. With almost all Serbian steel produced by the

Smederevo Steel Company, production, which amounted to 1.8 million tons of raw steel in 2018, was growing at high rates up to 2019 (Central European Financial Observer, 2018[83]).

Figure 3.4. Inward FDI stock in the metal processing sector in the WB and CEE



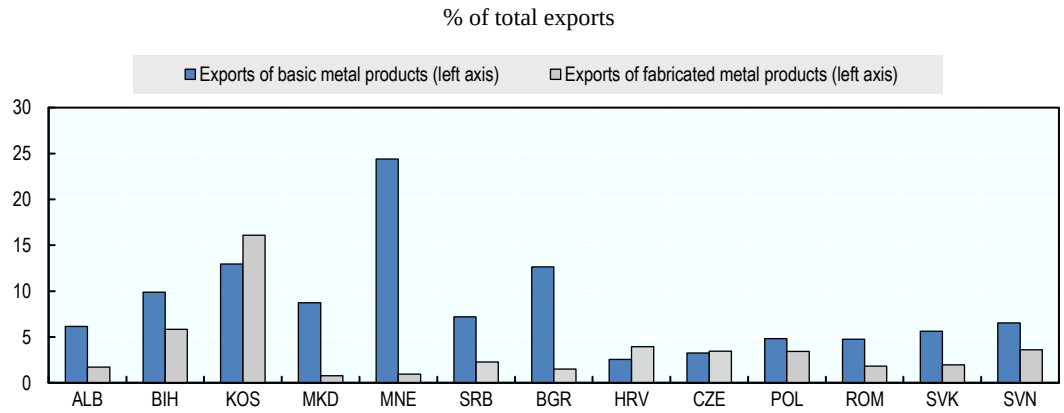
Note: FDI data for Serbia and the Slovak Republic are 2015. Inward FDI stock data for the metal processing sector for Albania, Kosovo and Montenegro are unavailable.
Source: OECD calculations based on wiiw (2018[30]), *wiiw FDI Database* (database), https://wiiw.ac.at/fdi-database.html.

Trade performance of the metal processing sector

Generating about 11% of total exports – and over 25% of exports in Kosovo and Montenegro – the metal processing sector contributes significantly to trade in all six Western Balkan economies (Table 3.6.). On average, the metal processing sector's contribution to total trade is higher in the Western Balkan economies than in the Central and Eastern European (CEE) economies (7.2%). For both Western Balkan and CEE economies, exports of basic metal products generally contribute a larger share of sector exports than fabricated metal products, except in three economies (Croatia, Kosovo and the Czech Republic), where fabricated metal products make up more than 50% of sector exports. Overall, a large share of value added in GDP is found in the economies where the export basket is more balanced between basic and fabricated metals; the share is less in the economies that predominantly export basic metals (Figure 3.5).

Given that there are fewer enterprises operating in basic metals than in fabricated metals (see the previous section), this indicates that enterprises in basic metals operate at large volumes, much of which is destined for exports, especially considering that the domestic markets are relatively small. On the contrary, enterprises in fabricated metals export relatively little given their size (Figure 3.5).

Figure 3.5. Metal processing sector exports from the WB and CEE (2016)



Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

In line with the lower global prices of base ferrous and non-ferrous metals since 2013 (COFACE, 2018[84]), metal processing sector exports in the Western Balkans and Central and Eastern Europe have, on average, been decreasing (Table 3.6).

A detailed product level analysis shows that most of the exported products from the Western Balkan economies are based on steel and aluminium. Most of Montenegro's metal processing exports consist of unwrought aluminium (about 82% in 2016). Metal processing sector exports are most diversified in Bosnia and Herzegovina and Serbia, albeit exports in Bosnia and Herzegovina are largely based on steel and aluminium, whereas in Serbia exports of copper and copper alloys (unwrought) have the highest share in total metal processing sector exports (16.1% in 2016) (Table 3.8). With regard to the short gain and long bet products in the metal processing sector, several economies in the region have seen the exports of their long bets increase between 2012 and 2016, highlighting potential for further development. These products include aluminium and iron products (pipes, wire, cans, bars, fittings and more) and are particularly strong in Albania, Bosnia and Herzegovina, Kosovo and Serbia. Detailed export trends for all metal products exported by the six Western Balkan economies can be found in Annex C.

Table 3.8. Exports of metal processing sector products (2016)

	Product code	Product name	Export value (in USD)	Export share (% of metal processing exports
ALB	7202	Ferroalloys	49 639 016	29.9
	7214	Other bars and rods of iron or non-alloy steel	37 792 120	22.7
	7601	Unwrought aluminium	20 778 596	12.5
	7308	Structures and parts of structures (for example, for bridges, roofs, towers, etc.)	17 524 864	10.5
	7604	Aluminium bars, rods and profiles	10 686 928	6.4
	7610	Aluminium structures and part of structures (for example, bridges, roofs, towers, etc.)	5 430 435	3.3
	7314	Cloth, grill, netting and fencing of iron or steel wire; expanded metal of iron or steel	5 036 542	3.0
BIH	7601	Unwrought aluminium	178 652 960	21.0
	7308	Structures and parts of structures (for example, for bridges, roofs, towers, etc.)	92 906 456	10.9
	2818	Artificial corundum, whether or not chemically defined; aluminium oxide	81 652 368	9.6
	7213	Bars and rods, hot-rolled, in irregularly wound coils of iron or non-alloy steel	78 449 952	9.2
	7214	Other bars and rods of iron or non-alloy steel	77 871 784	9.2
	7604	Aluminium bars, rods and profiles	64 595 248	7.6
	7314	Cloth, grill, netting and fencing of iron or steel wire; expanded metal of iron or steel	42 232 016	5.0
	7318	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, etc., of iron or steel	41 284 960	4.9
	7610	Aluminium structures and part of structures (for example, bridges, roofs, towers, etc.)	41 103 528	4.8
	9406	Prefabricated buildings	31 732 072	3.7
KOS	7610	Aluminium structures and part of structures (for example, bridges, roofs, towers, etc.)	43 599 925	43.7
	7202	Ferroalloys	25 210 937	25.3
	7306	Other tubes, pipes and hollow profiles of iron or steel	8 737 507	8.8
	7304	Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel	7 577 748	7.6
	9406	Prefabricated buildings	3 209 677	3.2
MKD	7202	Ferroalloys	123 655 056	24.9
	7208	Flat-rolled products of iron or non-allow steel, hot rolled, not clad, plated or coated	109 578 720	22.0
	7306	Other tubes, pipes and hollow profiles of iron or steel	87 414 448	17.6
	7210	Flat-rolled products of iron or non-alloy steel, clad, plated or coated	82 348 496	16.6
	7308	Structures and parts of structures (for example, bridges, roofs, towers, etc.)	15 437 525	3.1
MNE	7601	Unwrought aluminium	82 694 544	81.8
	7228	Other bars and rods of other alloy steel, shapes and sections of other alloy steel; hollow drill bars and rods of alloy or non-alloy steel	7 281 568	7.2
	7214	Other bars and rods of iron or non-alloy steel	4 514 403	4.5
SRB	7403	Refined copper and copper alloys, unwrought	217 191 120	16.1
	7208	Flat-rolled products of iron or non-alloy steel, hot rolled, not clad, plated or coated	205 642 368	15.3
	7606	Aluminium plates, sheets and strip	119 503 808	8.9
	7308	Structures and parts of structures (for example, bridges, roofs, towers, etc.)	78 586 656	5.8
	7210	Flat-rolled products of iron or non-alloy steel, clad, plated or coated	68 978 336	5.1
	7612	Aluminium casks, drums, cans, boxes or similar containers for any material (other than liquefied gas)	61 293 936	4.6
	7411	Copper tubes and pipes	59 665 368	4.4
	7209	Flat-rolled products of iron or non-alloy steel, cold-rolled, not clad, plated or coated	56 760 816	4.2
	7409	Copper plates, sheets and strip	54 483 880	4.0

Note: For the sake of saving space, only products with a share in total metal processing exports above 3% are shown in the table.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

3.3.3. Key drivers of metal processing sector competitiveness in the Western Balkans

In addition to an enabling environment, three competitiveness factors deserve closer attention in the Western Balkan region:

- **International competitive pressures and demand trends in material use in downstream sectors.** While the metal processing sector traditionally played an important role in the Western Balkans, its future development is highly dependent on the international context. This includes competition from other economies with

significant metal processing sectors and changes in consumer preferences concerning downstream products (e.g. cars).

- **Energy costs**. Energy constitutes an important production input in the metal processing sector and can represent a significant cost for enterprises. The Western Balkan economies are generally very energy dependent and often provide large energy subsidies for coal and lignite extraction. This has important budgetary implications and distorts competition.
- **Environmental regulations and environmental sustainability** are increasingly important in the metal processing sector, which is highly energy intensive and can generate significant waste and cause air and water pollution. This is particularly the case for the Western Balkans, which has a large number of abandoned mines and outdated metal processing practices dating back to before the 1990s.

International competitive pressures and demand trends in material use in downstream sectors

Robust global economic growth since mid-2016 and corresponding price increases and technological shifts (e.g. increased demand for critical components of electronics and batteries, influenced by the growth of the production of electric vehicles[3]) have triggered the demand for metals. Consequently, this has also had implications on the mining sector, leading to the reopening of some mines, especially to cater to the global demand for aluminium, copper and zinc. According to some models, it is predicted that the prices for metals should, in general, rise by the end of 2019, especially for aluminium (2%), copper (2.4%), nickel (18%) and zinc (14%). For steel, on the other hand, prices could decrease (COFACE, 2018[84]). Although these are only forecasts, they reflect the current global economic and political landscape, as well as its influence on the demand for metals and increasing trade frictions.

Supply-side factors have an important impact on the price of some metals and, consequently, on exports and the ability of economies to compete in international markets. The global steel sector is currently in a state of overcapacity, with global demand at about 1.6 billion tonnes and production capacity at well over 2 billion tonnes (OECD, 2019[85]). This is creating significant challenges for steel producers in all producing countries, including the Western Balkans. Enhancing the competitiveness of the steel industry and providing opportunities for the Western Balkan economies to compete will require a significant reduction in excess capacity. Overcapacity is also a problem among non-ferrous metals, including in the aluminium sector. Likewise, this has depressed prices over the period 2011-15, leading to a marked fall in the profitability of aluminium-producing firms and contributing to some companies' curtailment of aluminium smelters in, for example, Australia, the European Union (EU), North America and South America (OECD, 2019[86]).

Looking at the export shares of the metal processing sector in the world total (top 15 exporting economies), China had the highest share (11.6%) in 2016, followed by Switzerland (7.4%), Germany (6%) and the United States (5.5%). Combined, the four economies accounted for about one-third of world exports of metals (Table 3.9). As mentioned earlier, most of the economies had declining exports, reflecting also lower global prices in base ferrous and non-ferrous metals since 2013 (COFACE, 2018[84]). Having a closer look at the metal processing sector, the export baskets of the 15 economies examined in Table 3.9 are slanted towards exports of basic metals and less so towards fabricated metals (on average, 77% of basic metals and 23% of fabricated metals), apart from China which exports equal values of basic and fabricated metals. Mineral ore, which

constitutes one of the key inputs for the metal processing sector, is highly concentrated, with Australia exporting about one-third of world exports in 2016. Together with Brazil and Chile, they accounted for more than half of world exports in 2016 (Table 3.9). The Western Balkan economies currently play a relatively minor role in global metal processing markets.

Table 3.9. World metal processing sector exports (2016)

Metal processing sector					Mineral ore	
Share in world total exports (%)		Export share in metal processing (%)		Exports CAGR 2012-16	Share in world total exports (%)	
		Basic metals	Fabricated metals			
China	11.6	57.0	43.0	-1.6	Australia	32.9
Switzerland	7.4	96.0	4.0	5.6	Brazil	11.0
Germany	6.0	64.9	35.1	-8.0	Chile	9.9
United States	5.5	72.4	27.6	-6.8	Peru	8.5
Japan	4.7	82.4	17.6	-8.2	South Africa	5.2
Korea	3.4	77.7	22.3	-6.4	Canada	4.0
Italy	3.2	68.6	31.4	-8.0	United States	3.9
Canada	3.0	89.1	10.9	2.2	Mexico	2.6
United Arab Emirates	2.8	95.0	5.0	-4.7	Indonesia	2.5
South Africa	2.8	97.1	2.9	-1.2	Sweden	1.5
United Kingdom	2.8	85.5	14.5	5.7	Mongolia	1.5
Russian Federation	2.6	96.0	4.0	-10.1	Russian Federation	1.4
Australia	2.6	98.1	1.9	0.5	Ukraine	1.3
Belgium	2.2	80.5	19.5	-5.8	Bolivia	1.3
France	2.2	73.2	26.8	-5.9	Spain	1.0
Serbia	0.11	76	24	-0.7	Serbia	0.03
Bosnia and Herzegovina	0.07	62.9	37.1	-3.5	Bosnia and Herzegovina	0.02
North Macedonia	0.04	91.8	8.2	-12.6	North Macedonia	0.02
Albania	0.01	78.2	21.8	-6.2	Albania	0.07
Kosovo	0.01	44.6	55.4	-7	Kosovo	-
Montenegro	0.01	96.3	3.7	-21.4	Montenegro	0.02

Source: UN Comtrade (2016[16]), *International Trade Statistics* (database), https://comtrade.un.org/data/.

At the same time, shifts in demand are changing the importance of certain metals, highlighting potential export opportunities. Various international sources are aligned in their forecasts that demand for steel will not considerably grow. The latest forecasts for steel demand point to a moderation in the pace of growth going forward, with long-term growth remaining at levels of around 1%. At the same time, all relevant forecasts suggest world steel consumption remaining well below the level of global capacity (2 291 million metric tonnes, according to the OECD) in the long term (OECD, 2018[87]).

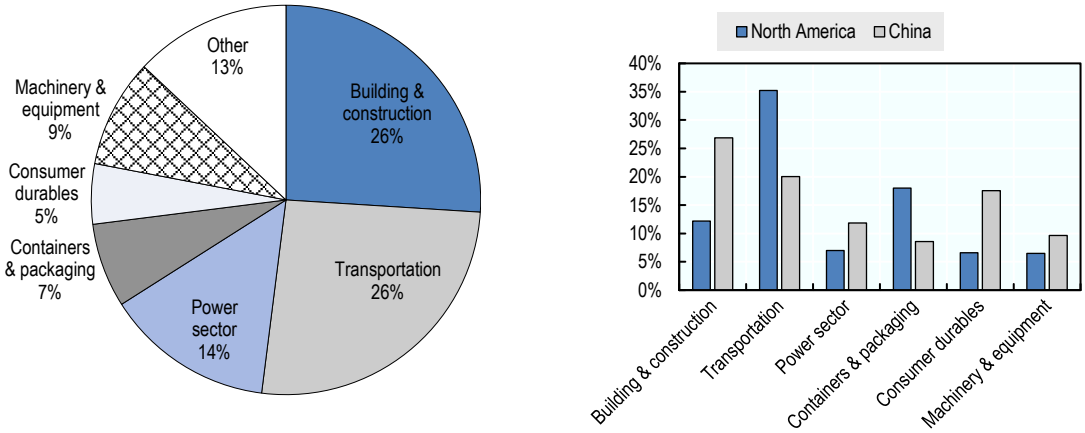
On the other hand, demand for aluminium, especially for semi-fabricated aluminium products for further use in manufacturing and construction, is expected to rise in the future. Given the variety of uses for semi-fabricated aluminium products, demand is more diversified and also less volatile than for other base metals. For example, the emergence of electric cars, which are characterised by a large weight due their batteries, as well increased consumer demand for various other car components is increasing the relevance of aluminium, which is about three times lighter than steel (Figure 3.6). This is even more important as the automotive industry is seeking to reduce the weight of vehicles in order to meet tighter emission standards; hence, the aluminium content in road vehicles has been increasing in recent years (Figure 3.7) (OECD, 2019[86]).

This has implications for the Western Balkan economies: there may be new potential export opportunities for semi-fabricated aluminium products which cater to different downstream sectors. The production of lighter vehicles will especially require wrought alloys (Organisation of European Aluminium Refiners and Remelters, 2006[88]).

Understanding their current export markets as well as whether their destination markets have growing downstream sectors can help the Western Balkan economies in identifying their current strengths and potential future export opportunities.

Figure 3.6. Demand for aluminium semi-finished products

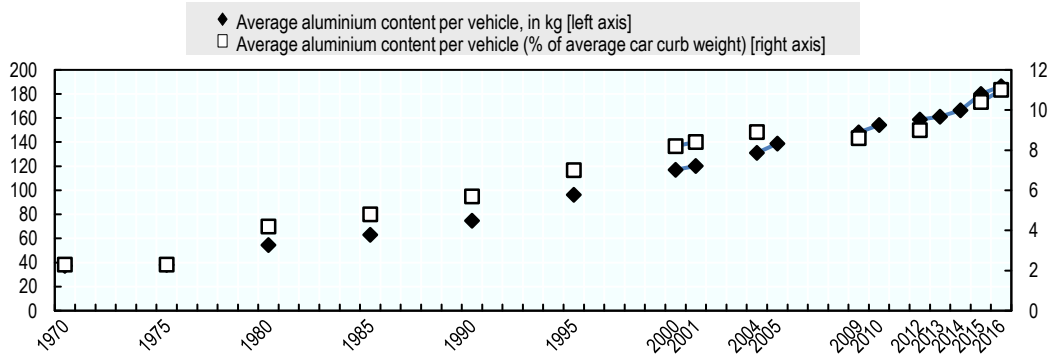
Aluminium consumption in 2016 by end-use, globally (left) and in selected economies (right)



Note: Data for China are for the year 2015.
Source: Extracted from OECD (2019[86]), "Measuring distortions in international markets: The aluminium value chain", https://dx.doi.org/10.1787/c82911ab-en.

Figure 3.7. Aluminium content of road vehicles (1970-2016)

Average aluminium content of light road vehicles built in the United States



Source: Extracted from OECD (2019[86]) "Measuring distortions in international markets: The aluminium value chain", https://dx.doi.org/10.1787/c82911ab-en.

Currently, most of the Western Balkan metal processing exports with the exception of those from Kosovo are destined for the EU, although intra-regional trade within the Western Balkan region is also important. Italy is the major export destination for Albania (31%),

Bosnia and Herzegovina (19%), and Serbia (12%). In Kosovo, 43% of sector exports are bound for Kazakhstan and 12% for China (Table 3.10).

Table 3.10. Top destinations for metal processing sector exports from the WB (2016)

% of metal processing sector exports

Albania		Bosnia and Herzegovina		Kosovo		Montenegro		North Macedonia		Serbia	
Italy	31%	Italy	19%	Kazakhstan	43%	Hungary	39%	Serbia	17%	Italy	12%
Serbia	24%	Germany	11%	China	12%	Turkey	16%	Italy	11%	Germany	12%
France	9%	Croatia	10%	Albania	8%	Serbia	13%	Greece	9%	Turkey	10%
North Macedonia	7%	Slovenia	9%	North Macedonia	6%	Italy	10%	Romania	7%	Bosnia and Herzegovina	6%
India	4%	Serbia	9%	India	5%	Bosnia and Herzegovina	8%	Bulgaria	6%	Croatia	6%

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Energy costs

Having a low-cost position for energy is an important consideration in the metal processing sector, given that energy constitutes an important input in production processes. At the global level, energy is a critical intermediate input in both primary and secondary metal production, consuming around 7.5% of the global energy supply in 2014 (McCarthy and Börkey, 2018[73]). Primary metal manufacturing includes smelting and/or refining non-ferrous (and ferrous) metals from ores, pig iron or metal scrap, using electrometallurgical and other process metallurgical techniques (U.S. Bureau of Labor Statistics, 2018[89]). Secondary metal manufacturing is the process of recycling metal scrap into metals that can be used again. For example, in the case of aluminium, recycling is about 92% more energy efficient than primary production. The increased adoption of recycled aluminium in manufacturing has created significant economic and environmental wins for both industry and consumers (The Aluminium Association, 2019[90])

In order to provide affordable energy to their industries, economies with significant metal processing industries often resort to subsidising their energy producers, including coal-based power generation. This can have significant negative impacts on public budgets and the environment. Energy subsidies generally result in higher spending or foregone government revenues, either because metal processing companies (and mines) do not generate "normal" market returns on investment or because they operate at below-cost recovery; hence, periodic financial transfers are sometimes made to sustain operations (McCarthy and Börkey, 2018[73]).

Energy costs are substantial for all non-ferrous sub-sectors, especially in primary aluminium production (Table 3.11). High energy costs are also relevant for secondary production (recovery and recycling), although it is less energy intensive than primary production. Apart from aluminium, energy costs account for between 18% and 36% of total conversion costs. Similar to non-ferrous metals, ferrous metals, such as steel, consume large amounts of energy – 20-40% of total production costs (ECORYS, 2011[91]).

Table 3.11. Conversion cost structure of non-ferrous metal sub-sectors (2009)

	Cost category			
	Energy costs (%)	Labour costs (%)	Other costs (%)	Capital costs (%)
Aluminium, primary	40	-	-	-
Aluminium, secondary	22	78		-
Copper	25-34	23-36	15-21	20-27
Zinc	36	24	27	13
Lead	18	27	41	14
Nickel	19	30	7	44

Note: For the aluminium sub-sector, figures for capital costs were not distinguished and could not be derived from the data provided. For the secondary aluminium sub-sector, data are for 2008 from the European Aluminium Association cost survey for extrusions, rolling and recycling; for secondary aluminium, the share of labour costs could not be identified because workers typically carry out several tasks on site. For copper, the figures are an average estimate from company accounts across primary and secondary production and were consulted with the European Copper Institute. The importance of primary and secondary production varies across companies, and the company accounts do not provide sufficient detail for cost structure to be estimated separately for each type of production. Other costs include administrative costs, environmental costs, consumables, external services, onsite services, maintenance costs and transport costs, among others.
Source: For the aluminium (primary) estimate see United States International Trade Commission (2017[92]), Aluminium: *Competitive Conditions Affecting the US Industry*, https://www.usitc.gov/publications/332/pub4703.pdf; for other estimates see: ECORYS (2011[93]), *Competitiveness of the EU Non-Ferrous Metals Industries*, https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en/system/files/ged/82%20fn97624_nfm_final_report_5_april_en.pdf.

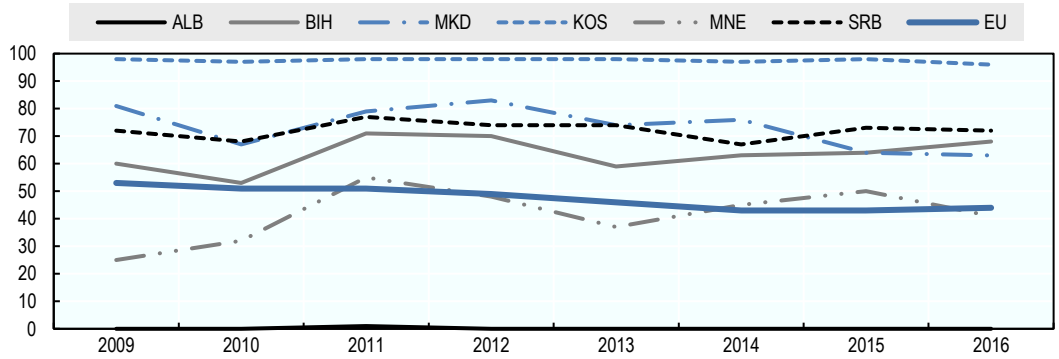
Given the importance of the metal processing sector in Western Balkans, high energy costs are an important consideration, particularly for primary production, which is generally more energy intensive. The six Western Balkan economies extensively use fossil fuels to secure a sufficient, reliable and affordable energy supply. Excluding Albania, the average share of fossil fuels used for the Western Balkan economies to generate electricity was 68% in 2016, significantly higher than in the EU (44%) (Figure 3.8).

The use of subsidies for fossil-based power generation additionally incentivises economies to use this source of energy at the expense of cleaner alternatives and serves as a support instrument for metal processing production. Based on estimates from 2011, the Western Balkan governments extensively use fossil fuel subsidies, ranging from 7-8% of GDP in Albania to 35-36% of GDP in Kosovo (Table 3.12). Transfers to financially distressed utilities, combined with direct and indirect subsidies to consumers, create a massive burden on fiscal budgets and can result in significant environmental degradation.

At the same time, many of the metal processing enterprises in the Western Balkan region have been undergoing a lengthy process of privatisation, and the existing state-owned enterprises have been using outdated technologies (EBRD, 2016[94]), resulting in high energy intensity (Figure 3.9).

Figure 3.8. Fossil fuels in electricity generation (2009-16)

% of total electricity generation



Source: IEA (2019[95]), *World Energy Balances* (database), https://doi.org/10.1787/data-00512-en.

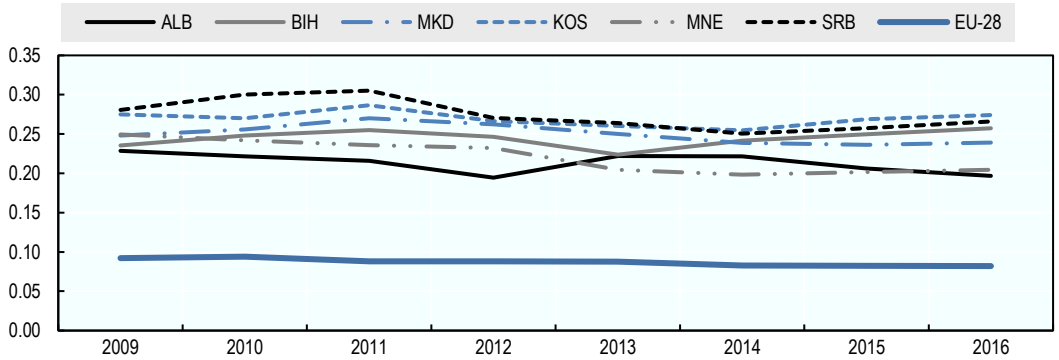
Table 3.12. Estimation of fossil fuel subsidies in the WB (2005–09)

	Energy related subsidies as % of GDP
Albania	7-8%
Bosnia and Herzegovina	9-10%
Kosovo	35-36%
Montenegro	10-11%
North Macedonia	8-9%
Serbia	7-9%

Note: GDP levels estimated using wiiw and EBRD databases. Kosovo's GDP is underestimated due to its large informal economy. If Kosovo's GDP could be accurately estimated, its subsidy share would likely be somewhat lower.
Source: UNDP (2011[96]), *Fossil fuel subsidies in the Western Balkans*, http://www.tr.undp.org/content/dam/turkey/docs/Publications/EnvSust/Fossil_Fuel_Subsidies_F.pdf.

Figure 3.9. Energy intensity

Gross inland consumption of energy divided by GDP (kg of oil equivalent per EUR)



Note: Data for Bosnia and Herzegovina not available. Data for Montenegro from 2011.
Source: Eurostat (2019[97]), Data (database, https://ec.europa.eu/eurostat/data/database; IEA (2019[95]), *World Energy Balances* (database), https://doi.org/10.1787/data-00512-en.

Environmental regulations and sustainable development

Environmentally sustainable development is an important issue in relation to the competitiveness of the metal processing sector. Negative environmental externalities from metal processing activities (as well as mining) can include waste, air pollution, adverse impacts on land use and biodiversity, water pollution and water availability, hazardous materials, noise and vibration, and energy use, among others (UNEP, 2009[75]).

These externalities are generated at several parts of the metal processing value chain. First, there are direct environmental impacts from mining and metal processing production, which occur through the generation of unwanted solids and liquids and the emission of gases. At the same time, there are indirect impacts associated with the consumption of raw materials and utilities (for example, in the generation of electric power and the manufacture of reagents and explosives). In the overall supply chain of material needs, mineral resource extraction and processing are particularly critical stages for the potential release of gas, liquid and solid emission: in order to transform ores to metals, significant chemical transformations are required (Norgate, Jahanshahi and Rankin, 2006[98]).

Negative externalities are then exacerbated by the impact of transboundary pollution, which occurs when polluting water or air crosses national borders. Given these challenges, environmental regulations and sustainable development can have a significant impact on the performance of the metal processing sector.

Following the dissolution of communist regimes in the early 1990s, the Western Balkan economies experienced a sharp economic contraction and industrial output dropped significantly. This led to the widespread shutdown of mining operations and metal processing activities. While on the one hand this decreased pollution streams, on the other, plants were either abandoned or privatised under conditions that did not clearly establish environmental liability (UNEP, 2009[75]).

Even today, there are several environmental hotspots across the region in the mining and metal processing sectors where outdated processes exacerbate the negative environmental impacts. In Albania, for example, the former Elbasan iron and steel plant represented one of the most serious metal industry-related hotspots. It generated significant waste that contaminated soil and ground water.[4] The plant ceased operations in the 1990s and became part of Kurum International; however, in 2015, the company was suspended from performing its operations by the State Inspectorate for Environment due to environmental pollution and failing to meet its environmental requirements for waste (Tirana Times, 2015[99]). Likewise, aluminium refining and smelting activities in Mostar in Bosnia and Herzegovina have led to significant releases of toxic elements. In Serbia, the copper mines and smelting complex located in Bor is the region's most serious environmental hotspot, causing both air and water pollution (UNEP, 2009[75]).

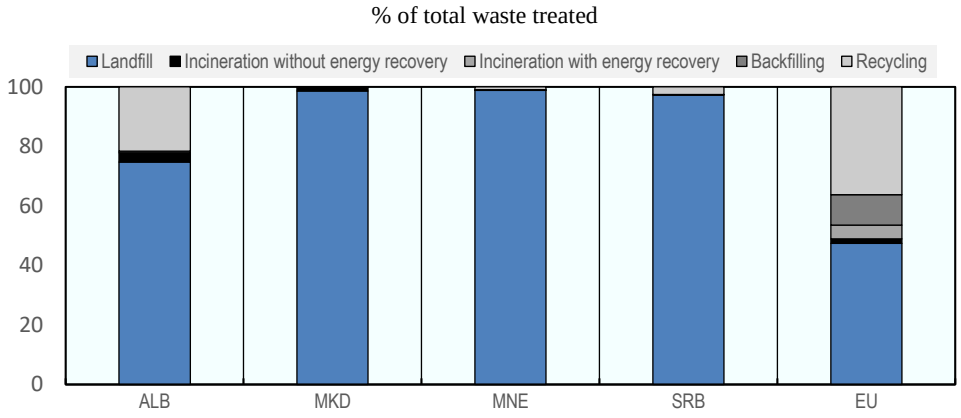
Today, the EU is at the forefront of the development and implementation of environmental policies (European Commission, 2019[100]), having set sustainable development as a clear overarching principle for economic growth. While such policies have added to production costs, they have also spurred innovation and technological development and, to some extent, have contributed to the strong position of the metal processing sector in terms of energy efficiency, recycling rates and product innovation (European Commission, 2015[101]).

When it comes to environmental standards, especially those closely linked to metal processing activities, the Western Balkan economies have made good progress in transposing various EU directives (e.g. the Environmental Liability Directive

(2004/35/EC), the Industrial Emissions Directive (2010/75/EU) and the Water Framework Directive (2000/60/EC)), albeit to varying degrees. Nevertheless, challenges still remain to better apply environmental standards. These include lack of data on hazardous waste, lack of hazardous waste disposal facilities, lack of capacities to implement existing policy measures, and hampered transboundary co-ordination efforts by poor domestic co-ordination among water-related government institutions, which are exacerbated by an unclear division of roles and responsibilities (OECD, 2018[1]). In view of the EU integration efforts of the Western Balkans, the implementation of and compliance with relevant environmental standards is gaining importance.

Recycling scrap metal is of crucial and increasing importance for the metal processing sector given resource scarcity, security of access to raw materials, high energy costs and environmental regulations. There are two main sources of scrap: industrial (waste) streams (i.e. remelt from the smelter/metal production process) and end-of-life scrap (European Commission, 2015[101]). In addition to having a positive impact on the environment (including decreased energy intensity), the recycling of metals also has an important economic value. For example, customers are increasingly looking to buy from companies with a strong sense of corporate responsibility and a solid environmental track record. As more companies see the link between sustainable manufacturing, customer loyalty and profits, interest in recycled metals will continue to rise (Nielsen, 2018[102]). Recycling rates in all six economies are very low, although Albania, and to a much lesser extent Montenegro and Serbia, recover some waste through recycling (Figure 3.10**).** However, the 22% of solid waste recycled in Albania is lower than the EU average of 35% and far short of its own 2020 target of 55% (OECD, 2018[1]).

Figure 3.10. Waste treatment by type (2014)



Note: Data for Bosnia and Herzegovina and Kosovo not available.
Source: Eurostat (2019[97]), *Treatment of Waste by Waste Category, Hazardousness and Waste Operations* (database), http://appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wastrt.

The importance of recycling will continue to increase due to rising energy constraints in the Western Balkan region. For example, roughly 95% of energy is saved per tonne in the production of aluminium using scraps when compared to primary aluminium production (European Aluminium, 2016[103]). On an annual basis, over 26 million tonnes of new and old scrap[5] are remelted into raw aluminium ingots, accounting for about 30% of all aluminium, both primary and secondary (OECD, 2019[86]). Europe in particular has impressive recycling rates – in construction and the automotive sector, about 90% of the aluminium used is recycled, and in packaging, about 60% (European Aluminium,

2016[103]). Products made from recycled aluminium include various automotive and engineering components, such as engine blocks (World Aluminium, 2006[104]). Likewise, steel is also highly recyclable. The average end-of-life recycling rate – that is, the share of steel within a final product that will be recycled when the products reaches the end of its useful life – is 85%. Recycling rates also vary by product – 95% for automotive sector products, 85% for construction products and 70% for packaging products (World Steel Association, 2018[105]). The most commonly recycled end-of-life steel products include containers, vehicles, appliances, industrial machinery and construction materials (Bureau of International Recycling, 2019[106]). The steel industry also recycles steel scrap as well the by-products of the steel manufacturing process, including steelmaking dust and sludges, whereby other metals can also be recovered and reused, such as zinc (Steel Recycling Institute, 2017[107]).

Within the metal processing sector itself, however, there are differences in recycling processes, which vary in terms of technological requirements and quality of outputs, placing certain limitations on recycling in terms of how much recycling can provide inputs to downstream sectors. Likewise, the availability of scrap also plays an important role (Box 3.4).

In the aluminium sub-sector, recycling takes place at both the refining and remelting stage: refiners use scrap exclusively as input and remelters use both scrap and primary metals.[6] To obtain the needed high-quality scrap for recycling, waster collectors, dismantlers, metals merchants and scrap processors all play an important role. Hence, the ability to recycle will depend on a number of factors within a country (World Aluminium, 2006[104]).

The electric arc furnace method of steel production is used to recycle steel (World Steel Association, 2019[108]). The use of this technology has been increasing around the world (OECD, 2015[109]). Despite this, however, the global share of steel produced using a blast furnace/basic oxygen furnace – where iron ore is refined to steel – is still overwhelmingly greater than the steel obtained from the electric arc furnace: 71.5% of steel produced in 2017 was obtained using the blast furnace/basic oxygen furnace method of production and the remainder using the electric arc furnace method (World Steel Association, 2018[110]). This suggests that the demand for steel was greater than the availability of scrap. In Serbia, the Smederevo steel plant which produces most of Serbia's crude steel uses blast furnace/basic oxygen furnaces to convert iron to raw steel (HBIS Group, 2019[111]). Hence, at this stage of steel production, no recycling is possible. In Bosnia and Herzegovina, ArcelorMittal Zenica applies both blast furnaces and electric arc furnaces in their production process (ArcelorMittal, 2019[112]).

Box 3.4. Key considerations related to recycling

Despite of the importance of recycling, the potential for the recovery of secondary materials and their use as raw materials should take into consideration the following limitations:

- **Metals cannot be infinitely recycled.** Although the literature on the circular economy often describes metals such as steel and aluminium as 100% infinitely recyclable at the end-of-life, without the loss of corresponding quality, there are physical limits to recycling. These relate to social behaviour, product design, recycling technologies and the thermodynamics of separation that cause the

contamination of secondary materials, which render them of a lower quality. Steel scrap, for example, is often contaminated with copper, in which case the secondary steel can only be used in construction. In order to reach the level of purity required for other uses, the addition of primary supply is required.

- **The use of secondary materials cannot be scaled up to meet demand in the foreseeable future.** Both the limited availability of metallic scrap as well as the loss of value during the recycling process place limits on the use of secondary material. Scaling up would require substantial improvements in the collection and processing of scrap to avoid leakages and contamination. In the case of steel, where global recycling rates are around 80%, the proportion of secondary output in total production is only around 25-30%. The recycling rates for many minor metals are even smaller, placing even larger limitations on scalability.

Source: OECD (2019[113]), "The circular economy and trade in metals and minerals".

Overall, recycling policies by themselves are not sufficient. Competitive and environmentally sustainable practices should also include redesign (e.g. using products with less materials), reuse, repair, remanufacturing and refurbishment strategies in order to reduce and avoid waste in the metal processing sector (OECD, 2019[113]).

3.3.4. Policy recommendations for the metal processing sector in the Western Balkans

The Western Balkan economies can consider several options to strengthen the competitiveness of the metal processing sector. These policy recommendations should be embedded in the context of wider reforms to strengthen the overarching enabling environment characterised by technological progress and the provision of necessary public goods. As such, key policy recommendations include (UNEP/International Resource Panel, 2013[114]; OECD, 2015[115]; OECD, 2015[116]; OECD, 2019[113]):

(1) Implement education and investment policies to further the development of the metal processing sector.

- Foster the acquisition of the relevant skills and technical knowledge, including in design, product engineering, the use of carbon capture and storage technologies, energy management, recycling and other areas. This can be done by developing high-quality education training systems that provide adequate adult learning opportunities.
- Encourage FDI in emerging areas, including in the production of semi-fabricated aluminium products for further use in manufacturing and construction.

(2) Ensure the efficient use of energy.

- Design competition-friendly incentives for metal processing enterprises that improve energy management practices as an overall approach to reducing and optimising energy use across the value chains. This can include:
  - Direct programmes and/or technical assistance (e.g. various energy management programmes and energy audits)
  - Reward programmes and other forms of recognition and the public reporting of company performance

- Progressively phase out environmentally harmful energy subsidies, such those benefiting coal and lignite.

(3) Improve the environmental and competitive position of the metal processing sector.

- Foster green(er) investment in the metal processing sector to improve environmental performance. This can include: 1) the development and application of new products with improved energy efficiency and 2) the improvement of plant performance through benchmarking and the transfer of breakthrough technologies relevant for cutting carbon dioxide emissions, especially carbon capture and storage technologies.
- Promote and encourage a circular economy through innovative design, a reduction in the amount of materials used, the encouragement of the reuse and recycling of all materials, and minimised waste:
  - First, recycling requires well-designed recycling and waste policies that directly affect the cost of recycling processes and generate a sufficiently large feedstock of scrap metal that can be processed. Finland shows a positive example of a circular approach adopted in the metal processing and extractive sector (Box 3.5). Specific policies include:
    - Introduce quantifiable recycling obligations (e.g. the weight percentage of the product that must be recycled to meet legal compliance). This can facilitate the creation of a secondary raw materials market when accompanied by quality standards for recycling.
    - Improve interactions across various government levels involved in the recycling systems (e.g. between environmental departments, urban construction authorities and industrial-management authorities). This can minimise conflicts between policies that arise out of a lack of communication between different government departments).
    - Design effective public procurement processes that can boost the market for products containing recycled materials.
    - Enhance the use of information tools and eco-labelling in order to influence consumers' choices of products and therefore disposal behaviour. By labelling a product as recyclable, or as containing recyclable materials, consumers can choose products that promote recycling.
    - Improve Extended Producer Responsibility systems, whereby costs for the final recycling or disposal of materials fall on the producer of the goods. More specifically, this can include product take-back requirements at the post-consumer stage and incentives to bring used products back to the selling point (e.g. deposit-refund schemes).
  - Second, in the manufacturing cycle, waste reduction can be improved by addressing redesign, reuse, remanufacturing and refurbishing phases.

Longer-lived products that can be disassembled at the end-of-life and parts that can be reused may have a significant environmental impact.

- Third, fostering the application of digital technology has vast potential to improve circularity in the metal processing sector, for example, in the areas of storing and communicating information about the location, condition and availability of scrap. Likewise, digital technology can improve traceability in logistics to enable optimal stock utilisation, thus reducing material waste and transport costs.

Box 3.5. Metal processing and mineral extractive sector in Finland

The metal processing sector is key for the Finnish economy. The country's bedrock and soil provide a solid foundation for the extraction of metals and the development of new extractive operations. The sector offers valuable opportunities for exports and is an important source of regional job creation. However, as noted by the Finnish Ministry of Employment and the Economy, the metal processing sector and related extractive operations also have an important impact on the environment. Therefore, there are concerns that the opening of several new mines in recent years will involve irreversible changes and damages to the surrounding environment. Further, the metallurgical industry accounts for a significant amount of Finnish carbon dioxide emissions (7% in 2016).

In 2013, the government developed an action plan together with mining companies, regional representatives and other stakeholders, which is still ongoing. The aim of the action plan is to make Finland a leader for the sustainable extractive industry. An Extractive Industry Working Group, consisting of officials from several ministries, monitors the implementation of the action plan through yearly roundtable forums. The action plan outlines a total of 35 measures and the responsible stakeholder for each measure. Examples of measures are:

- The creation of water-management plans for mines and the development of water technology. Mining companies are responsible for the implementation of this measure.
- A research strategy was prepared for the extractive industry, comprising key fields of research and the development of research infrastructure. Responsible stakeholders are, for example, research institutes, universities, extractive industry companies and the Finnish Funding Agency for Technology and Innovation.
- The energy efficiency of the extractive industry has been systematically addressed. The responsible parties for this are, for example, extractive industry companies and the Finnish Association of Extractive Resources Industry.
- Obstacles to the recycling of metal scrap in the metal processing sector were identified and eliminated. In addition, instruments, steering methods and incentives were created for the recycling and reuse of side rock, tailings, construction masses and mineral products. Here, the government, several ministries, municipalities and government agencies are responsible.

In addition, Finland has adopted national circular economy roadmaps and implementation plans that are more general and include several industries. The Finnish metal processing

sector is currently approaching its goal of becoming a leader in sustainability. For example, Finnish companies and researchers have developed processes that efficiently use energy and raw materials. One example is the flash smelting method, which self-generates the energy required in the process. More than one-half of the copper and one-third of the nickel in the world is produced with this method. Another example of how Finland is moving forward in sustainable metal processing is that stainless steelmaking is currently based 85% on recycled raw materials. In addition, Corporate Knights' Global 100 Most Sustainable Corporations ranking rated a Finnish metal processing company, Outotec, as the fifth most sustainable company in 2018. Alongside its traditional ore and metal technology, Outotec has developed technologies that significantly reduce the consumption of water and energy in mines and refineries.

Source: Ministry of Employment and the Economy (2013[117]), *Making Finland a Leader in the Sustainable Extractive Industry: Action Plan*, https://tem.fi/en/publications; Technology Industries of Finland (2016[118]), "Metals industry", https://teknologiateollisuus.fi/en/technology-finland/metals-industry; Holappa and Taskinen (2017[119]), "Process innovations and sustainability in Finnish metallurgical industries", http://dx.doi.org/10.1080/03719553.2016.1259197; Corporate Knights (2018[120]), "Global 100 results", www.corporateknights.com/reports/2018-global-100/2018-global-100-results-15166618/; OECD (2019[113]), "The circular economy and trade in metals and minerals".

3.3.5. Summary of opportunities for metal processing sector development

The metal processing industry is comprised of two sub-sectors, basic and fabricated metals, which differ in the complexity of the end products and the processes involved. The sector is highly capital and energy intensive and depends on the availability of raw materials at the upstream level of its value chain. Due to this, the sector also has significant implications for the environment, which surround the inefficient use of energy, waste, and water and air pollution. Given the increasing global pressures on economies to adopt environmental best practices, the industry will go through a significant transformation.

The Western Balkans have a long tradition in the metal processing sector as well as an abundance of mineral resources. However, the sector is characterised by the inefficient use of energy, in particular carbon-intensive lignite and coal, which are often heavily subsidised. At the same time, existing enterprises often use outdated practices, exacerbating the negative environmental impacts of the sector and rendering themselves uncompetitive in comparison to economies that have managed to transform their metal processing sectors.

In order to boost competitiveness and improve environmental sustainability in the metal processing sector, the Western Balkans could explore several options, in particular:

- Fostering education and investment policies relevant for furthering the development of the metal processing sector.
- Supporting the efficient use of energy by progressively phasing out environmentally harmful energy subsidies, designing incentives for greater energy efficiency and encouraging investment in energy efficient technologies.
- Improving the environmental and competitive position of the metal processing sector.

3.4. Automotive sector

3.4.1. Automotive sector overview

The automotive sector is knowledge- and capital-intensive. Its value chain has evolved over time from a geographically concentrated to geographically dispersed production network (Baldwin, 2013[121]). The manufacturing segment of the automotive value chain is portrayed as follows (Humphrey and Memedovic, 2003[122]; OECD, 2009[123]; Lejarraga et al., 2016[124]):

- **Original equipment manufacturers (OEMs)** produce and/or assemble final products (vehicles) under the brand name. OEMs are generally highly innovative and have strong design capabilities.
- **First-tier suppliers** are component manufacturers that deliver directly to OEMs. First-tier suppliers work with OEMs to design, manufacture and deliver complex automobile systems and modules, such as front or rear modules and drive train units. First-tier suppliers are supplied by second- and third-tier suppliers.
- **Second-tier suppliers** produce parts in the minor sub-assembly phase. Examples of these parts include wire harnesses, front or rear suspensions, brakes and tires. Second-tier suppliers are supplied by third-tier suppliers and deliver to first-tier suppliers. Process engineering skills are required to meet cost and flexibility requirements. Second-tier suppliers must also meet certain requirements in order to obtain quality certifications.
- **Third-tier suppliers** produce engineered materials such as rolls of sheet steel. In most cases, established technologies are used and firms at this level compete predominantly on price.

In addition to the above, activities such as marketing and advertising, sales, and customer relationship management, as well as the maintenance and repair of vehicles, complement the manufacturing portion of the automotive value chain and play an important role in the sector.

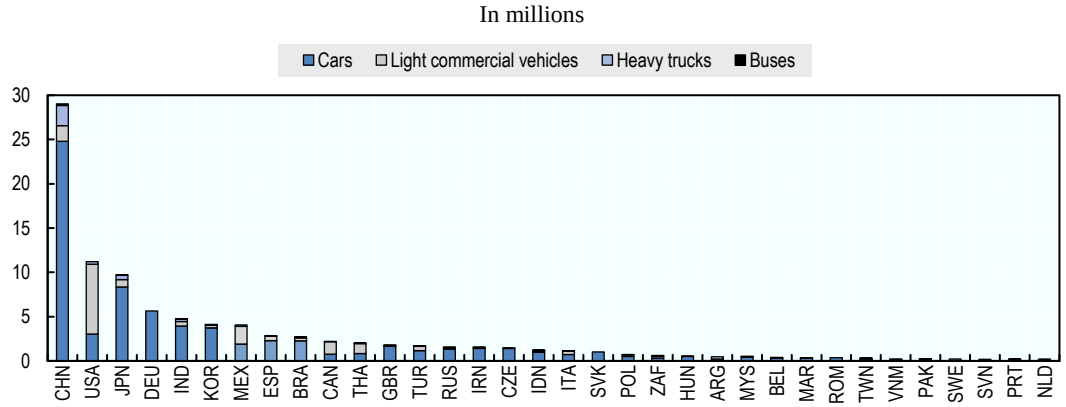
In 2017, the global automotive industry produced over 90 million cars, vans, trucks and buses. Currently, there are approximately 9 million people employed in the production of vehicles and related parts, which is roughly 5% of the world's total manufacturing employment. It is estimated that each direct automotive job supports at least five other indirect jobs in areas where the automotive sector is active. This results in more than 50 million jobs created by the automotive industry (OICA, 2018[125]).

China is the world's leading producer of automotive vehicles (including cars, light commercial vehicles, heavy trucks and buses/coaches), producing roughly 30 million vehicles in 2017, which is almost one-third of the global vehicle production. China is followed by the United States, Japan, Germany, India, Korea and Mexico, all of which produce significantly fewer vehicles. Together with China, these economies produced about 69 million vehicles in 2017, which was approximately 70% of all vehicles produced globally (Figure 3.11). However, despite the large number of vehicles produced in China, turnover generated by the industry in 2017 was USD 95.7 billion, which is a fraction of that of Japan (USD 479.6 billion), the United States (USD 447.5 billion) and Germany (USD 250.8 billion) (OICA, 2018[126]). Furthermore, among the top 35 vehicle producing countries shown in Figure 3.11, there are also some recent European Union (EU) Member

States. These include the Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia. Together, these countries produce about 3.8 million vehicles.

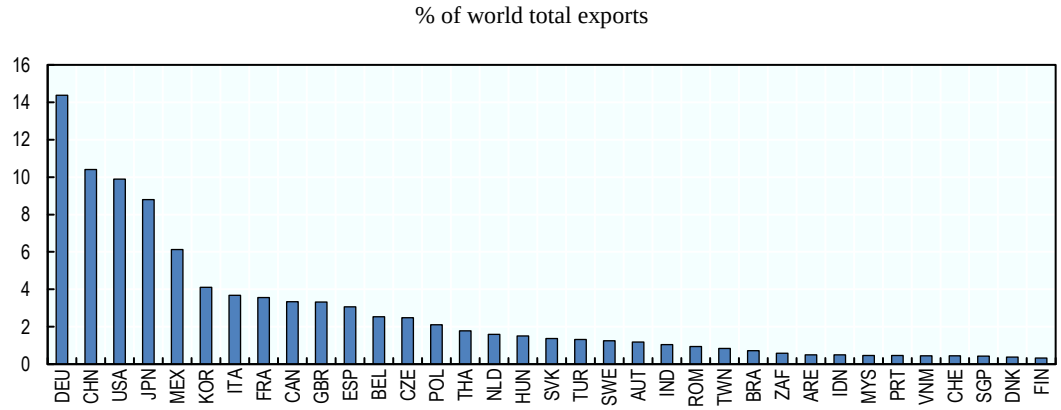
In terms of exports, Germany is the world's top automotive sector exporter (accounting for 14.4% of total automotive exports globally in 2016), followed by China, the United States, Japan, Mexico and Korea (Figure 3.12).

Figure 3.11. World motor vehicle production (2017)



Source: OECD calculations based on OICA (2018[127]), *2017 Statistics* (database) http://www.oica.net/category/production-statistics/2017-statistics/.

Figure 3.12. World automotive sector exports (2016)



Note: Automotive exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 3815, 3819, 3820, 4011 to 4013, 4016, 6813, 7007, 7009, 7320, 7326, 7413, 7415, 7419, 8301, 8302, 8307, 8310, 8407 to 8409, 8413 to 8415, 8421, 8425, 8426, 8431, 8481 to 8484, 8507, 8511, 8512, 8519, 8527, 8544, 8701 to 8708, 8716, 9025, 9029, 9031, 9104, 9401, 9404.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Although the automotive sector is highly cyclical, it has displayed strong performance in recent years. In 2016, a record-high 88million vehicles were sold worldwide, which was a 4.8% increase from the previous year. Furthermore, profit margins for suppliers and OEMs were at a ten-year high in 2016 (Parkin et al., 2018[128]). Nevertheless, the industry is

currently facing significant challenges, which suggest profound changes in the automotive sector in the future (Lejarraga et al., 2016[124]; IEA, 2018[129]; Parkin et al., 2018[128]):

- **Increased capital costs**, coupled with the increased need for capital to innovate, pose challenges for the sector. Automotive companies operate in a very competitive industry and must increase productivity, particularly through expanding innovation and knowledge capital, to remain viable in the future. This has major implications for OEMs and suppliers as well as for their business models, collaboration modalities and manufacturing processes. Shared platforms for manufacturing could be one solution to mitigate the effects of limited capital. An example of this type of collaboration is the agreement between Nissan and Daimler to jointly develop the Modular Front Architecture platform, which is used on both the Nissan Infiniti QX30 model and the Mercedes CLA- and GLA-class models.
- **Emergence of new technologies**, including in electronics, digital services, the electrification of engines and connectivity systems, is reshaping automotive parts, components and functions. It is estimated that vehicle electronics could account for up to 20% of a car's value by 2020. This is a significant increase from the rate of about 13% in 2015. OEMs and suppliers therefore must acquire new technology and recruit experienced technical talent. Accordingly, many OEMs are beginning to outsource different aspects of the digital features of vehicles to tech industry partners with more expertise in designing and producing digital components and software.
- **Changes in consumer preferences** are already causing a fundamental transformation of vehicles (e.g. towards those that are smaller, safer, greener, connected and driver-less) and the way they are used (e.g. towards shared cars and new business models for mobility services). However, the growing global demand for safer vehicles with added technology and a reduced environmental footprint creates significant opportunities for the automotive sector. In 2017, the global stock of electric passenger cars reached 3.1 million, which is an increase of 57% from the previous year. Around 40% of the global stock of electric cars are found in China, whereas the EU and the United States each account for about one-quarter of the total. Although on the rise, the share of electric cars among the total vehicle stock across countries is still relatively small. For example, in Sweden, the Netherlands and Norway – countries with a relatively high use of electric cars – the shares of electric cars in the total vehicle stock were 1%, 1.6% and 6.4%, respectively.
- **Stricter safety and environmental regulations** aimed at increasing driver and passenger safety and decreasing the environmental impact of vehicles are also having a profound impact on the automotive sector. In order to better compete in the automotive sector value chain, enterprises will be required to adjust their management, production and supply practices to comply with international standards.

However, changing consumer preferences, particularly toward electric cars, as well as the emergence of new technologies also creates opportunities for the automotive sector. This includes the Western Balkans where there is already a solid automotive manufacturing base and the labour force is relatively skilled and competitively priced.

3.4.2. Automotive sector in the Western Balkans

The automotive sector is a growing industry in the Western Balkans and has the potential to contribute to increasing the economic development of its individual economies. Currently, Bosnia and Herzegovina, North Macedonia and Serbia have the most developed automotive industries within the region. Skilled and cost-effective labour forces, building on the traditions of the Socialist Federal Republic of Yugoslavia (SFRY) in the automotive sector, support further development of this sector. During the time of the SFRY, the vehicle assembly plant Zastava (the first OEM vehicle producer in the SFRY, based in Kragujevac, Serbia, and established in the 1950s) provided a supply base for automotive components. This also led to the development of a range of skills including metalworking, mechanical, and electrical engineering skills, available across the whole of the SFRY (OECD, 2009[123]).

In the SFRY, vehicle assembly activities in what is now present-day Serbia and Bosnia and Herzegovina (e.g. the Volkswagen OEM factory near Sarajevo) encouraged the development of a network of about 240 automotive component suppliers throughout the country. This value chain network was based on the "Yugoslav policy" where each of the SFRY's republics and provinces had a supply base to serve Zastava. The network of suppliers increased in number, diversity and complexity through the 1980s with the expansion of production. While the Yugoslav policy created the basis for the development of the automotive industry, it also resulted in relatively high costs and low profitability for Zastava. For example, there were almost no incentives for component suppliers to improve their equipment and quality standards. Vehicle production peaked in the early 1990s and then dropped under trade sanctions and the disintegration of the SFRY. In the 2000s, these factories and companies began to privatise and also opened up to foreign investors such as Fiat in Serbia (OECD, 2009[123]).

Role of the automotive sector in the economy

The Western Balkans underwent an economic transition similar to that of Central and Eastern Europe. However, the Central and Eastern European (CEE) countries, with the exception of Croatia, were not affected by conflicts that would impact their industrial base. As part of the first and second waves of EU accessions, the CEE countries implemented a number of economic reforms which created an environment conducive to playing an increasingly important role in the European and global automotive sectors. In this context, they are an important benchmark for the Western Balkan economies.

Although the automotive sectors in the Western Balkans are growing, they have yet to reach the average levels of value added contribution to gross domestic product (GDP) and employment seen in CEE countries. In 2016, the average value added contribution to GDP in CEE countries was 2.2%, as compared to 0.8% for the Western Balkan economies (Table 3.13).

Table 3.13. Importance of the automotive sector in the WB and CEE (2016)

	Gross value added			Employment	Exports		
	Value (USD million)	% of GDP	CAGR 2012-16	% of total	Value (USD million)	% of total	CAGR 2012-16
Albania	–	–	–	–	93	4.4	6.0
Bosnia and Herzegovina	82	0.5	13.3	0.4	894	16.6	1.1
Kosovo	–	–	–	–	6	1.9	2.0
Montenegro	0	0.0	-10.4	–	45	11.4	19.0
North Macedonia	44	0.4	65.7	1.1	2 550	48.7	32.2
Serbia	403	1.1	21.9	1.6	3 220	22.7	16.8
Western Balkans	**529**	**0.8**	**22.1**	**1.3**	**6 809**	**24.6**	**17.9**
Bulgaria	266	0.5	13.2	0.7	2 950	11.9	6.3
Croatia	59	0.1	5.5	0.2	1 470	11.2	8.9
Czech Republic	8 009	4.1	3.8	3.3	59 600	39.1	5.2
Hungary	4 684	3.7	9.7	2.1	36 200	36.3	6.7
Poland	6 510	1.4	1.2	1.1	50 500	26.4	4.2
Romania	3 151	1.7	6.5	2.0	22 400	37.0	8.0
Slovak Republic	3 361	3.7	7.4	2.9	32 800	45.4	2.9
Slovenia	653	1.5	2.0	1.6	7 440	31.1	2.9
Central and Eastern Europe	**26 692**	**2.2**	**4.8**	**1.7**	**213 360**	**33.4**	**5.1**

Note: – data unavailable. Automotive sector gross value added and employment comprises ISIC 3.0 Division 34. Automotive exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 3815, 3819, 3820, 4011 to 4013, 4016, 6813, 7007, 7009, 7320, 7326, 7413, 7415, 7419, 8301, 8302, 8307, 8310, 8407 to 8409, 8413 to 8415, 8421, 8425, 8426, 8431, 8481 to 8484, 8507, 8511, 8512, 8519, 8527, 8544, 8701 to 8708, 8716, 9025, 9029, 9031, 9104, 9401, 9404. The employment share for Serbia is calculated for the year 2017.

Source: OECD calculations based on UNIDO (2017[60]), *INDSTAT 2 2017, ISIC Revision 3* (database), http://stat.unido.org; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp; ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

The current contribution of value added to GDP of the Western Balkan economies is actually closer to where the Czech Republic and Slovak Republic were in 1995 (1% and 0.4% of GDP, respectively). Serbia has the highest contribution of value added to GDP among the Western Balkan economies (1.1% in 2016) (UNIDO, 2017[60]).

In terms of product complexity, the average Product Complexity Index (PCI) of the entire automotive sector is 2.26. Perhaps surprisingly, Serbia, which is the most important automotive player in the Western Balkans, is the only economy in the Western Balkans with a lower-than-average PCI in the automotive sector (2.24) (Table 3.14). On the contrary, Montenegro, with its limited automotive sector, displays the highest PCI among the six, at 2.42. Given that the Serbian automotive basket includes the highest number of products in the region, many with a low PCI, this tends to decrease the average PCI of the automotive sector in Serbia. Still, one-third of Serbian exports revolve around cars, which hold a PCI of 2.37 and were worth over USD 1.1 billion in 2016. The average PCI of the selected short gains and long bets in the automotive sector is 2.55. Their development would contribute towards further increasing the sophistication of this industry in the region.

Table 3.14. PCI of automotive sector export baskets in the WB (2016)

Serbia	**Automotive sector average**	North Macedonia	Albania	Bosnia and Herzegovina	Kosovo	Montenegro
2.24	**2.26**	2.31	2.32	2.34	2.39	2.44

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

When it comes to employment levels, the CEE economies are outperforming the Western Balkan ones in terms of contribution to total employment, with average rates of 1.7% and 1.3%, respectively, in 2016. Contribution to total employment is particularly high in the Czech Republic and the Slovak Republic (3.3% and 2.9%, respectively, in 2016) (Table 3.13).

In the Western Balkans, the most relevant OEM assembling vehicles is Fiat Chrysler Automobiles (FCA) in Kragujevac, Serbia. In North Macedonia, there are several, primarily foreign-owned, automotive suppliers and the Belgian bus manufacturer Van Hool. Volkswagen in Sarajevo, Bosnia and Herzegovina, produces a range of vehicle parts, and there are other automotive suppliers across the country. Very few enterprises operate in the automotive sector in Albania, Kosovo and Montenegro.

Fiat Chrysler Automobiles Serbia is a 2012 joint venture between Fiat-Chrysler, which owns 67% of the company, and the Serbian government. Following the Fiat-Chrysler investment, various first-tier suppliers began operating in Serbia, building their factories in the designated special economic zone near the FCA plant (Development Agency of Serbia, 2011[130]; Development Agency of Serbia, 2017[131]). Other first-tier and second-tier enterprises are located throughout Serbia, including in special economic zones (Development Agency of Serbia, 2017[131]; OECD, 2017[15]). Although FCA is Serbia's top exporter, production was temporarily halted in 2018, in particular due to low sales of the 500L model in European markets. However, production has since resumed (N1, 2019[132]; Serbian Monitor, 2019[133]). Given its size, the operation of FCA in Serbia has important implications for the entire automotive sector in the country.

In Bosnia and Herzegovina, the Volkswagen OEM factory near Sarajevo has been in operation since the early 1970s under the name Tvornica Automobila Sarajevo (Foreign Investor Council, 2019[134]), and foreign investors have established a number of first-tier and second-tier suppliers. For example, Car Trimm, a German company producing vehicle seat covers, has a factory in Žepče. Another German group producing filter elements, Mann+Hummel, has a facility in Tešanj. Remus Innovation, an Austrian company producing sport exhausts, has a production facility in Sanski Most. Local companies have also emerged as major suppliers to world-renowned car producers, in particular Prevent Group and Bekto Precisa. Over the past decade, Bekto Precisa has grown rapidly, supplying metal and plastic parts to major car producers, such as BMW, Porsche and Audi (World Bank, 2016[54]). Bekto Precisa currently employs about 400 people (Bekto Precisa, 2019[135]).

The automotive components sector in North Macedonia started developing in the 1960s as part of the Zastava supplier network (World Bank, 2017[136]). Foreign investment began with the privatisation of state-owned enterprises which was followed by FDI in special economic zones (OECD, 2017[15]). Early investments from first-tier suppliers, the US car parts producer Johnson Controls (2007) and UK exhaust catalyst producer Johnson Matthey (2010), in the Skopje industrial development zone paved the way for other foreign

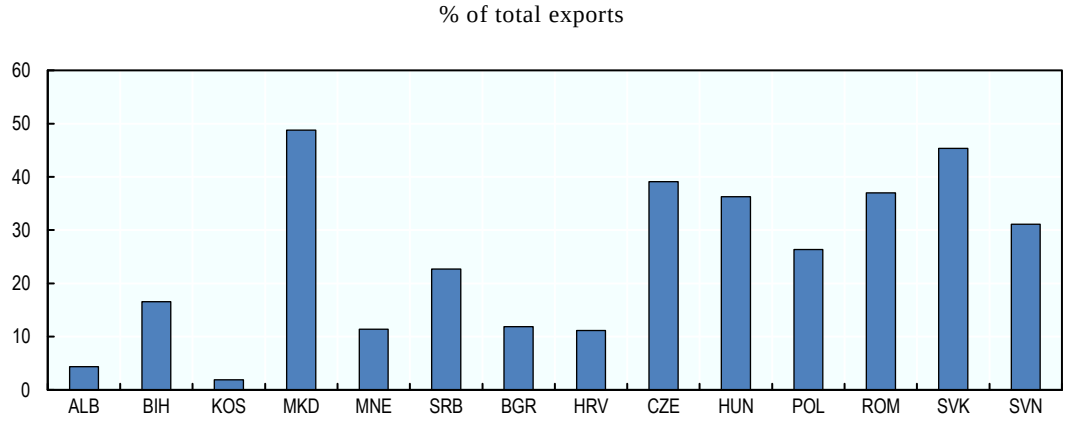
investors to follow. Foreign investors in first-tier and second-tier companies continue to cluster in special economic zones, including two technological industrial development zones in Skopje and others in Prilep and Gevgelija. However, despite significant foreign investment, domestic supplier linkages remain largely underdeveloped in North Macedonia (World Bank, 2017[136]).

The automotive sectors in Kosovo, Montenegro and Albania are nascent. In Kosovo, Ramiz Sadiku, a vehicle seat producer, was established in the late 1960s as a subsidiary of the Zastava vehicle manufacturer in Kragujevac. However, following the disintegration of the SFRY, the company was economically unviable (European Stability Initiative, 2002[137]). In Montenegro, the Japanese enterprise Daido Metal is an example of a successful greenfield automotive component investment (World Bank, 2006[138]). In Albania, there are a few important factories in the sector, including Forschner from Germany, PSZ Albania, Delmon Group from France and Yura Tech from Korea, which is expected to start producing automobile ignition parts in 2019 (Invest in Albania, 2019[139]; Reuters, 2019[140]).

Trade performance of the automotive sector

The automotive sector contributes significantly to exports in North Macedonia (48.7% of exports), Bosnia and Herzegovina (16.6%), and Serbia (22.7%); however, these figures are on average far lower than for CEE countries (33.4% on average) (Figure 3.13).

Figure 3.13. Automotive sector exports from the WB and CEE (2016)



Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The Western Balkans have shown strong growth in automotive sector exports: the average compound annual growth rate during 2012-16 was 17.9%, with North Macedonia leading the region with 32.2% (Table 3.13). Additionally, the average compound annual growth rate of the Western Balkans surpassed that of Central and Eastern Europe (5.1%). However, most of the leading automotive sector exports from Western Balkan economies do not display a significant value added. This is because the Western Balkan economies often import complex and ready-made components which are then assembled locally into complete vehicles or composed parts. This is, in large part, driven by foreign direct investment (FDI) and, as such, reflects a comparative advantage stemming from low labour costs rather than technological know-how.

The top destinations for automotive sector exports from the Western Balkans are the EU economies (Table 3.15). Germany receives the greatest share of sector exports from North Macedonia (70%) and Bosnia and Herzegovina (34%). The top export destination for Montenegro is Belgium (44%), and for Albania and Serbia, Italy (67% and 31%, respectively). Additionally, some CEE countries, including Croatia, the Czech Republic, Hungary, Slovenia, the Slovak Republic and Romania, are important recipients of automotive sector export products from the Western Balkans. Kosovo's exports are also oriented towards its Western Balkan neighbours, namely Albania and North Macedonia. Kosovo also exports some products to Australia, mainly seats, albeit at very low levels, valued at about USD 320 thousand. Montenegro is the only Western Balkan economy to include an Asian country, Japan, among its top export destinations, exporting transmission shafts.

Table 3.15. Top destinations for automotive sector exports from the WB (2016)

% of automotive sector exports

Albania		Bosnia and Herzegovina		Kosovo		Montenegro		North Macedonia		Serbia	
Italy	67%	Germany	34%	Albania	17%	Belgium	44%	Germany	70%	Italy	31%
France	9%	Slovenia	16%	Germany	14%	Germany	9%	Belgium	7%	Germany	13%
Germany	4%	Austria	12%	Switzerland	12%	Serbia	6%	United States	6%	Slovak Republic	6%
Czech Republic	4%	Italy	7%	North Macedonia	9%	Sweden	5%	Spain	3%	United Kingdom	4%
Greece	4%	Croatia	6%	Australia	6%	Japan	5%	Romania	3%	Hungary	4%

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

With respect to export value, the most relevant automotive products in the region are insulated wire (Albania), seats (Bosnia and Herzegovina and Kosovo), vehicle parts (Montenegro), reaction and catalytic products (North Macedonia), and cars (Serbia). Focusing on the promising products detected in Chapter 2, those that have shown constant growth rates in export value over the 2012-16 period are insulated wire, seats, rubber products, excavation machinery, iron springs, safety glass and engine parts (Albania); vehicle parts, lighting equipment and iron springs (Bosnia and Herzegovina); seats and vehicle parts (Kosovo); vehicle parts, lighting equipment and motor filters (Montenegro); vehicle parts and electrical ignitions (North Macedonia); and vehicle parts, transmissions, excavation machinery and combustion engines (Serbia). A detailed list of automotive sector exports by economy can be found in the tables in Annex C.

3.4.3. Key drivers of automotive sector competitiveness in the Western Balkans

The automotive sector is a capital- and knowledge-intensive industry and is currently subject to rapid technological development. The following factors are particularly relevant to the evolution of the automotive sector:

- **Investment policy and promotion** can attract FDI as a potential source of capital, technology and know-how for the sector, which can also result in important links with domestic suppliers.

- **High quality standards** facilitate the access of firms to domestic and foreign markets.
- **Labour skills and innovation** systems are critical for the development of high-technology automotive products.
- **Transport infrastructure** can play a crucial role in lowering the costs of access to international markets for automotive products and improving the investment attractiveness of the sector.

These factors were also particularly relevant for automotive sector development in CEE. For example, the automotive sector in Poland is one the most successful ones in the region. The Polish government encouraged the development of this sector by creating an enabling environment, which attracted FDI inflows through strategic infrastructure connections, relevant domestic innovation capability and a trained and skilled labour force (Box 3.6).

Box 3.6. The automotive sector in Poland

Poland is currently the sixth largest car producer in the EU and its role is gaining in importance. The country has a long tradition of automotive manufacturing and experienced a large boom after its accession to the EU in 2004. The automotive sector's expansion is export driven. Poland represents just above 2% of world exports in the automotive sector. Other EU countries, Germany in particular, lead export demand.

Foreign companies such as Volkswagen, Fiat and Volvo form the basis of the Polish automotive sector. Poland is especially attractive to foreign investors due to:

- Availability of support infrastructure and utilities, business services and various incentives for foreign investment and R&D. For example, Poland has implemented special economic zones in several regions, boosting investments considerably.
- Well-designed and implemented investment and trade reforms, which improved the overall business environment in Poland. Poland ranks 33rd in the World Bank's Ease of Doing Business ranking. This is below OECD countries such as Denmark, Germany and the United States, but above countries such as the Netherlands, Switzerland and Italy. Poland scores particularly high in ease of setting up a business and facilitating trading across borders.
- Investment in transport and logistics. In part because of EU structural funds, Poland has invested heavily in digital infrastructure and transportation. Poland is currently one of the most attractive countries for shippers and carriers.

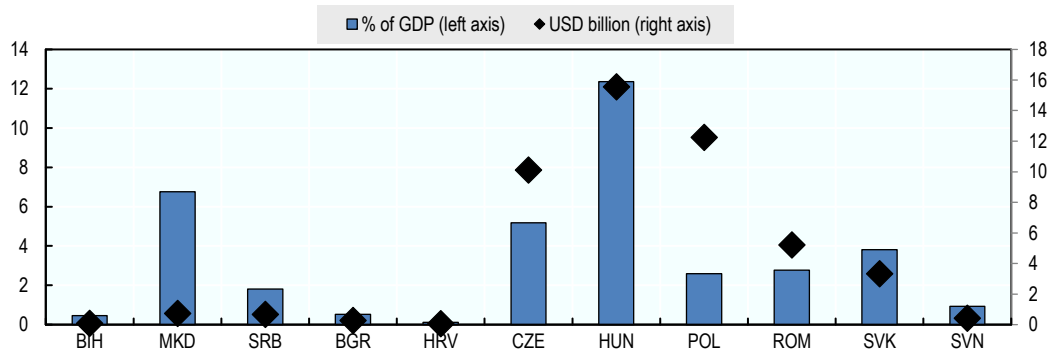
Source: Polish Information and Foreign Investment Agency (2010[141]), *The Automotive Industry in Poland*, www.paih.gov.pl/files/?id_plik=14305; OECD (2017[15]), *Tracking Special Economic Zones in the Western Balkans*, www.oecd.org/south-east-europe/SEZ_WB_2017.pdf; MaschinenMarkt International (2018[142]), "Poland: Good results of the automotive industry", www.maschinenmarkt.international/poland-good-results-of-the-automotive-industry-a-685003/; OECD (2018[143]), *OECD Economic Surveys: Poland*, https://doi.org/10.1787/eco_surveys-pol-2018-en; The Economist Intelligence Unit (2018[144]), "Poland's place in a complex web", www.eiu.com/industry/article/466846630/polands-place-in-a-complex-web/2018-06-19; World Bank (2019[145]), *Doing Business 2019: Training for Reform*, www.worldbank.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf.

Investment policy and promotion

Foreign investment regulations. The Western Balkan economies do not apply regulatory restrictions to foreign investments in the manufacturing sector. For example, as measured by the OECD *FDI Regulatory Restrictiveness Index*, the FDI regimes in the Western Balkan economies are less restrictive than the average of those in OECD economies. The Western Balkan economies also compare favourably against the average of the EU Member States covered by the index (OECD, 2018[1]).

Despite having a relatively non-restrictive foreign investment regime in place, the inward stock of FDI in terms of value is less pronounced in selected Western Balkan economies (Bosnia and Herzegovina, North Macedonia and Serbia) than in most of the CEE economies (although, Bulgaria, Croatia and Slovenia also account for relatively little FDI in the automotive sector). North Macedonia, however, stands out among the Western Balkan and CEE economies in terms of share of inward FDI in GDP, being second after Hungary (Figure 3.14).

Figure 3.14. Inward FDI stock in the automotive sector in the WB and CEE (2016)



Note: FDI data for Serbia and Slovak Republic are for 2015. Inward FDI stock data for the automotive sector for Albania, Kosovo and Montenegro not available.
Source: OECD calculations based on wiiw (2018[30]), *wiiw FDI Database* (database), https://wiiw.ac.at/fdi-database.html.

Investment promotion and facilitation. All six Western Balkan economies have created investment promotion agencies (IPAs) to promote and facilitate inward FDI. However, the objectives of the different IPAs vary in terms of attracting investment and the adequacy of the resources available.

Although in most cases these IPAs tailor their operations around priority sectors and markets, their time and resources are more often spent on reactive promotion – that is, helping firms that have already expressed investment interests. However, IPAs in North Macedonia and Serbia have more sophisticated mechanisms in place, targeting potential investors in a proactive and systematic manner (OECD, 2018[1]). In North Macedonia, for example, the Directorate for Technological Industrial Development Zones and Invest in Macedonia approach potential investors in the economy's priority industries on a regular basis, focusing in particular on attracting investors in manufacturing to its special economic zones. To improve the targeting of their activities, the two agencies focus on assigned geographical areas and use their sectoral knowledge (OECD, 2017[15]; OECD, 2018[1]).

In addition, the aftercare done by the IPAs is also important. Aftercare can include a broad set of measures to keep existing investors satisfied, encourage them to expand their activities or reinvest in new ones, and foster linkages with domestic companies. This can be done primarily through regular and constructive dialogue with the private sector. The objective of these dialogues is to collect feedback from businesses on recurrent issues affecting their activities and involve them in policy design and reform. According to the OECD, all six Western Balkan economies have established public-private dialogue platforms (e.g. the Foreign Investors Council or National Economic Council) that meet on a regular basis. Generally, these platforms aim to involve large multinational enterprises. The involvement of small and medium-sized enterprises (SMEs), which constitute the core of all enterprises in the sector, has been assessed as insufficient in the public-private dialogue platforms; this also hampers the creation of linkages between SMEs and large multinational enterprises (OECD, 2018[1]).

All six Western Balkan economies provide tax incentives to investors, equally to foreign and domestic investors in most cases. Incentives usually aim to attract investors in specific sectors or to remote areas or simply to stimulate job creation and high value-added projects. Additional incentives in the region are provided for specific sectors and in special economic zones (OECD, 2017[15]).

Special economic zones. In the last decade, there has been an increase in the number of special economic zones in the Western Balkans. These are seen as an important tool to attract foreign investors. North Macedonia and Serbia were the first in the region to establish special economic zones. The zones have managed to attract significant new investment in manufacturing, particularly in the automotive sector. Albania and Kosovo, in turn, have recently introduced new zone legislation and are now in the process of establishing economic zones in their territories (OECD, 2017[15]).

Overall, the contribution of special economic zones to total exports in the Western Balkan economies is significant. In 2015, in Bosnia and Herzegovina, Serbia and North Macedonia, the special economic zones accounted for 6.4%, 17.6% and 36.4% of total exports, respectively. They played a particularly important role in the development of the automotive sector. In the automotive sector, special economic zones host subsidiaries of multinational companies, which are generally suppliers for the industry. Their output is almost entirely export oriented (OECD, 2017[15]).

Serbia's special economic zones are by far the largest recipients of FDI in the region, attracting EUR 2.2 billion in 2015 and accounting for about 7.7% of total Serbian FDI stock (USD 1.1 billion of which was due to Fiat Chrysler Automobiles Serbia in the Kragujevac special economic zone). Serbia is followed by North Macedonia, where USD 227 million in foreign investments were directed to its special economic zones during the period 2011-15, accounting for about 4.3% of the total FDI stock in North Macedonia (OECD, 2017[15]).

The special economic zone incentive systems of the Western Balkan economies show considerable variety, offering a wide range of fiscal and non-fiscal incentives, including cash-flow based customs, value-added tax (VAT) exemptions, increased capital expenditure deductions and tax rebates (OECD, 2017[15]).

Nevertheless, there is little evidence of backward linkages. First, most of the special economic zone investors are multinational companies that source the majority of their inputs through bulk purchasing from an already established global supplier network, and this is facilitated by customs and VAT exemptions on imported raw materials and

machinery in the special economic zones. Moreover, a number of foreign investors attracted or brought along their foreign suppliers to the Western Balkan region. This was the case with Fiat Chrysler Automobiles Serbia in Kragujevac, where the company brought 21 suppliers to Serbia, seven of which are located within the special economic zone. None of the previous local suppliers of Zastava, the former Serbian car manufacturer, met the quality standards needed to supply their parts to Fiat Chrysler Automobiles, with the exception of one car jack producer (OECD, 2017[15]).

Quality standards

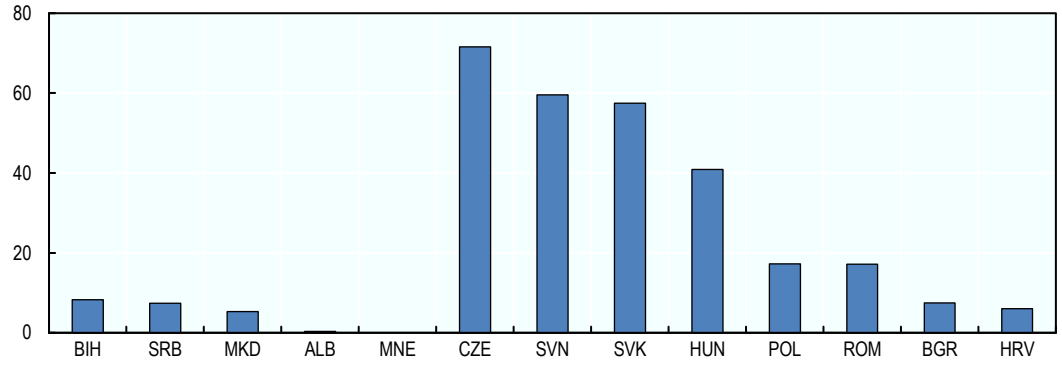
International quality standards have become an integral part of almost every industry, including the automotive sector. Enterprises that obtain and update their quality standards can better compete in an international environment since they have a better ability to assure the quality and safety of their products, to deliver on as promised, and to meet the very basics of customer expectations. By meeting quality standards, enterprises often reap better profits and reduce losses (CEBOS, 2018[146]).

Entry into the automotive supply chain increasingly depends upon quality certification. For second-tier component manufacturers, ISO 9001:2008 certification and, increasingly, ISO/TS 16949 certification are essential. ISO/TS 16949:2009, in conjunction with ISO 9001:2008, defines the quality management system requirements for the design and development, production and, when relevant, installation and service of automotive-related products (ISO, 2018[147]). It is to be expected that, in the future, a greater emphasis will be placed on environmental standards, such as ISO 14001:2015 (Humphrey and Memedovic, 2003[122]). ISO 14001:2015 specifies the requirements for an environmental management system that an organisation can use to enhance its environmental performance managing its environmental responsibilities in a systematic manner (ISO, 2018[147]).

The Western Balkan economies are trailing behind the CEE economies in the number of ISO/TS 16949 certificates per million of the population (except for Bulgaria and Croatia, which have figures comparable to Bosnia and Herzegovina, North Macedonia and Serbia). Looking at the number of environmental ISO 14001:2004 certificates per million of the population, it can be concluded that the Western Balkan economies again lag behind the CEE economies; the exception, however, is Serbia, where the share of the environmental certificates is higher than in Poland (Figure 3.15 and Figure 3.16).

Figure 3.15. ISO/TS 16949 certification in the WB and CEE (2016)

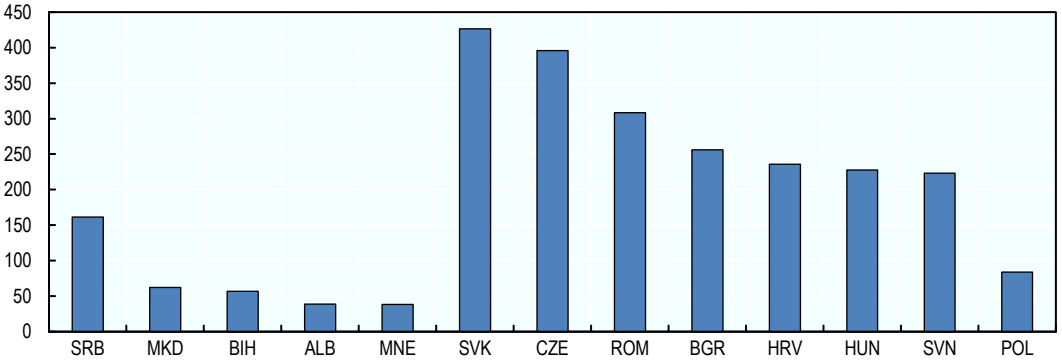
Number of certificates per million population



Note: Data for Kosovo not available.
Source: OECD calculations based on ISO (2017[148]), *ISO Survey of Management System Standard Certifications* (database), https://isotc.iso.org/livelink/livelink?func=ll&objId=18808772&objAction=browse&viewType=1; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

Figure 3.16. ISO 14001 certification in the WB and CEE (2016)

Number of certificates per million population



Note: Data for Kosovo not available.
Source: OECD calculations based on ISO (2017[148]), *ISO Survey of Management System Standard Certifications* (database), https://isotc.iso.org/livelink/livelink?func=ll&objId=18808772&objAction=browse&viewType=1; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

The availability of quality testing infrastructure is one of the key conditions to the uptake of international standards, such as ISO certificates. Easy access to adequate physical facilities for testing and inspection is a key condition for a cost-effective conformity assessment system that benefits businesses, particularly in the automotive sector. The provision of testing, measurement and calibration facilities plays an important role in enabling firms to meet market requirements. This is particularly true for small firms, as the costs of testing and measurement facilities can be high (Humphrey and Memedovic, 2003[122]).

North Macedonia and Serbia have satisfactory physical capacity and competence and a sufficient number of accredited conformity assessment bodies to carry out assessments in many priority sectors (OECD, 2018[1]). In the remaining economies (including Albania, Bosnia and Herzegovina, Kosovo and Montenegro), there are only a limited number of priority sectors that are covered by sufficient numbers of accredited conformity assessment bodies. While designation procedures have been established, they are not always fully implemented. Furthermore, in some instances (Bosnia and Herzegovina and Kosovo), there are no systematic definitions of national conformity assessment infrastructure needs (Table 3.16).

Table 3.16. Accredited conformity assessment bodies in the WB (2017)

Number

Type	Method	ALB	BIH	KOS	MKD	MNE	SRB
Accreditation of laboratories	Testing, calibration ISO/IEC 17025	40	69	33	80	21	300
	Medical analyses ISO 15189	4	1	/	6	/	12
Accreditation of certification bodies	Certification of products EN 45011	/	/	/	6	1	20
	Certification of persons ISO/IEC 17024	3	/	/	/	/	6
	Certification of management systems ISO/IEC 17021	3	/	/	4	1	15
Accreditation of inspection bodies	Inspection ISO/IEC 17020	13	25	8	100	6	123
Total		63	95	41	196	29	476

Note: ISO/IEC – International Organization for Standardization/International Electronic Commission; EN – European Standards.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

Labour skills and innovation systems

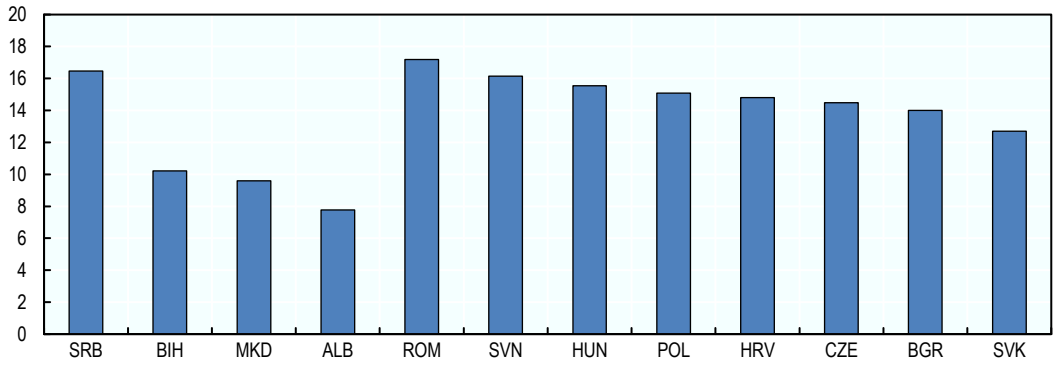
Firms operating in the automotive sector need skilled labour to meet the high technical and quality standards set by the industry. Emerging occupations in the automotive industry include (among others) process engineers, product engineers, R&D engineers and technicians, and product design and development technicians. In certain segments of the components industry, there is also an increasing emphasis on materials science, the use of new materials and software applications (European Sector Skills Council, 2016[149]). Skilled and abundant labour is also an important factor for attracting FDI. While the six Western Balkan economies are generally characterised by relatively skilled labour, all except Serbia are trailing behind the CEE economies in terms of the share of graduates in engineering, manufacturing and construction programmes (Figure 3.17). Collaboration between higher education institutions (HEIs) and local industrial employers was widespread in the former socialist systems. However, it later fell into disuse during the transition process, which saw the collapse of many old industries and the disruption of the linkages between HEIs and the business sector.

Given the development of the automotive sector, many of these occupations increasingly require skills such as communication skills, commercial awareness, critical/logical thinking, computer skills, negotiating skills, analytical skills, creative thinking and problem-solving skills. Automotive component companies in the Western Balkans often suffer from skills gaps in areas where it is necessary to build and maintain strong and long-term relationships with customers, especially regarding design, supply chain management and quality assurance (OECD, 2009[123]).

Related to the level of skills that graduates bring with them to the workplace, employers face several challenges in taking on new graduate recruits (Bartlett et al., 2014[150]). Many stakeholders complain about the lack of job-readiness of higher education graduates, while others report graduates' lack of interactive skills such as planning and organisational skills, decision-making skills, analytical and problem-solving skills, and adaptability. All this points to deficiencies in the quality of higher education systems, especially when teaching interactive skills. In addition, the curricula of many study programmes often fail to reflect the combination of skills that employers seek. Lack of skills is also reflected in vocational education and training (VET). Although the rates of vocational enrolment are high on average in the Western Balkans (OECD, 2018[1]), they are not matched by effectiveness in skill formation. This is often a result of underinvestment in equipment and buildings, obstacles to effective learning due to outdated curricula that have not adapted to changing labour market needs, poor teaching methods and weaknesses in teachers' subject knowledge (LSE, 2014[151]).

Figure 3.17. Graduates in the WB and CEE (2015)

% of all graduated from tertiary education in engineering, manufacturing and construction

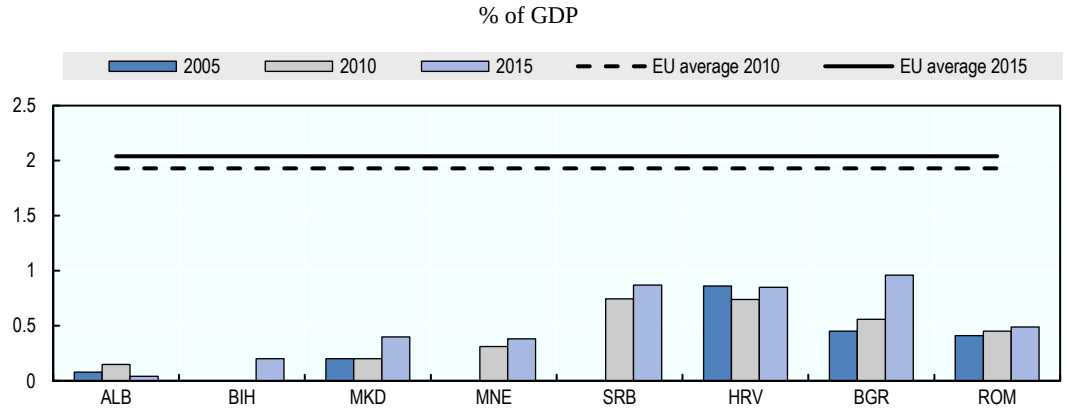


Note: Note: Data for Montenegro and Kosovo not available.
Source: OECD calculations based on UNESCO (2019[152]), *Sustainable Development Goals* (database), http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS.

Productive human capital is also essential to fostering domestic innovation, which is becoming increasingly important in the global automotive sector. Overall spending on R&D is a key statistical indicator of government commitment to supporting science, technology and innovation policies. Figure 3.18 provides an overview of gross domestic expenditure on R&D (GERD). Overall, GERD remains below 0.5% of GDP in most Western Balkan economies except Serbia, where it reaches 0.9%. This is a fraction of the average EU level of 2% in 2015.

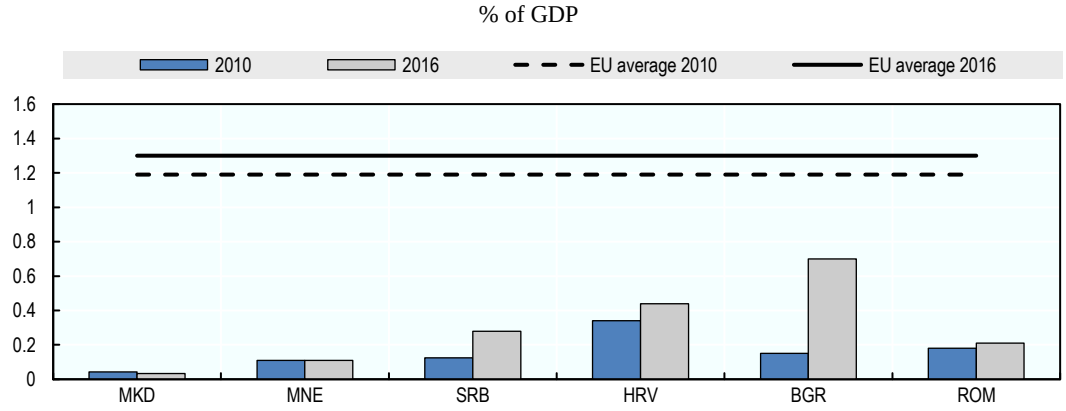
Additionally, business expenditure on R&D in the Western Balkan economies is lower in comparison with the EU Member States (Figure 3.19).

Figure 3.18. Gross domestic expenditure on R&D



Note: Data for Kosovo not available.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

Figure 3.19. Business expenditure on R&D



Note: Data for Albania and Kosovo not available.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

Transport infrastructure

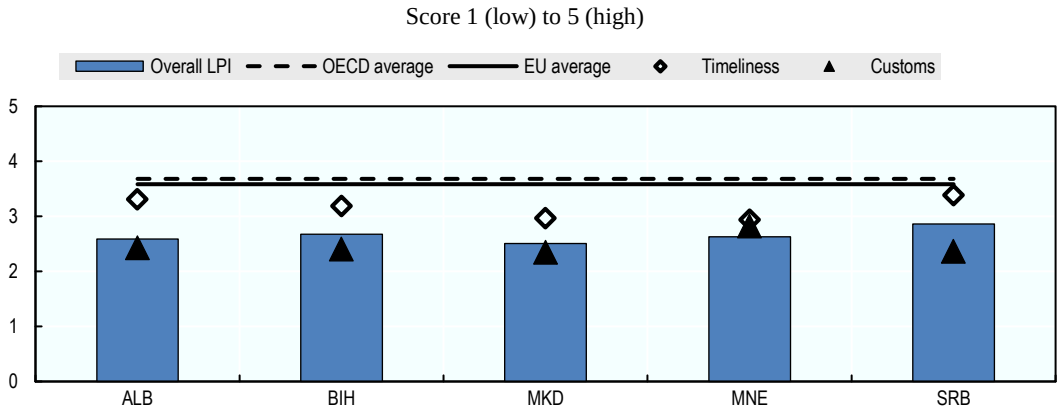
Transport infrastructure can play an important role in improving the competitiveness of selected sectors. Theoretical and empirical studies have underscored the positive relationship between high-quality infrastructure and economy-wide productivity (OECD, 2018[1]).

On one hand, well-functioning logistics systems can improve trade performance by lowering the costs of access to international markets (World Bank, 2014[153])). On the other hand, high-quality transport infrastructure increases an economy's attractiveness to foreign investors (Yeaple and Golub, 2007[154]).

The World Bank's survey-based Logistics Performance Index (LPI) shows that the five Western Balkan economies for which data are available perform below the OECD and EU averages (Figure 3.20). Two components of the LPI, timeliness and customs, are particularly important for determining logistics performance. The Western Balkan

economies perform worst on customs procedures, reflecting the large number of administrative procedures for shippers, which negatively affects export and import performance. Delays and unexpected costs are perceived as slightly less problematic; Albania, Bosnia and Herzegovina, and Serbia score over 3 for timeliness of clearance and delivery.

Figure 3.20. Logistics Performance Index in the WB (2014-16 average)

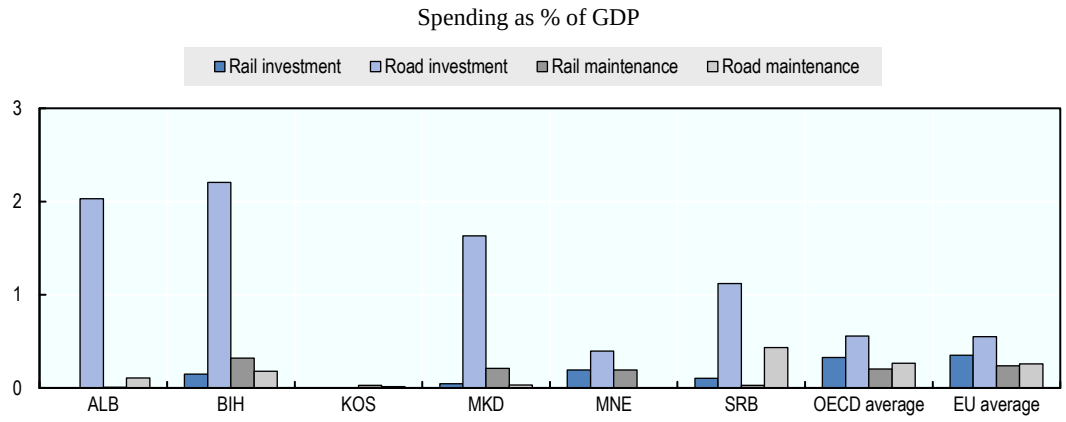


Note: The World Bank's LPI is a multi-dimensional assessment and international benchmarking tool focused on trade facilitation. The LPI is based on surveys of port operators, shippers and freight forwarders, producing a composite index that reflects their responses to the questionnaire. The LPI is oriented towards assessing the transport of manufactured goods rather than bulk commodities and is more applicable to higher-value goods. For Albania, the average covers 2012-16. Data for Kosovo not available.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

An examination of the level of investment and maintenance spending for road and rail networks over a three-year period shows that road investments received a relatively large share of funding. In Albania and Bosnia and Herzegovina, road investments were around 2% of GDP. This figure reflects the major road building and rehabilitation programmes being completed across the region. Investment in rail is below the OECD and EU averages (Figure 3.21).

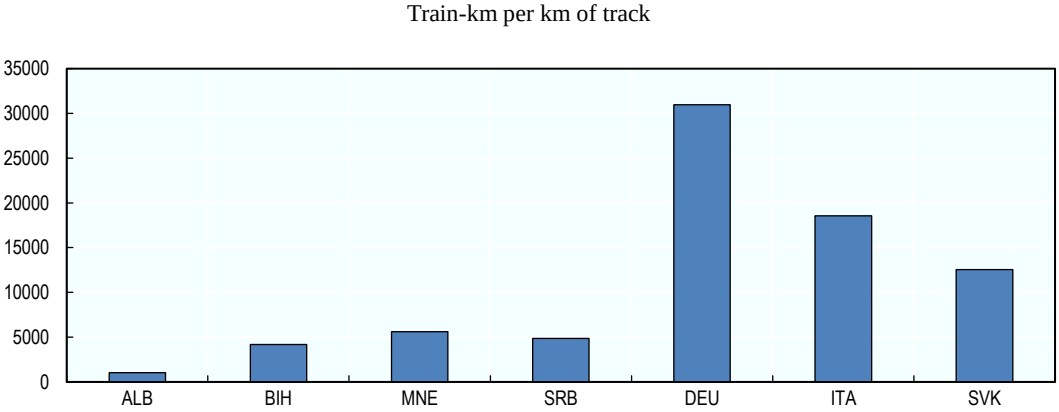
Likewise, rail network utilisation shows that, despite the availability of historical rail networks, this is not a competitive nor an attractive transport mode (Figure 3.22).

Figure 3.21. Rail and road transport infrastructure (2013-15 average)



Note: Road investment data for Kosovo and road maintenance data for Montenegro not available. Major rail investment in Albania was due to start in 2017. The Western Balkans statistical offices and ministries provided economy-specific data as part of the Competitiveness Outlook assessment conducted in 2016-17.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

Figure 3.22. Rail network utilisation (2015)



Note: Data for Kosovo and North Macedonia not available. The Western Balkans statistical offices and ministries provided economy-specific data as part of the Competitiveness Outlook assessment conducted in 2016-17.
Source: Extracted from OECD (2018[1]), *Competitiveness in South East Europe: A Policy Outlook 2018*, https://dx.doi.org/10.1787/9789264298576-en.

3.4.4. Policy recommendations for the automotive sector in the Western Balkans

Technological development, changes in consumer preferences and stricter environmental standards are shaping the global automotive industry. While these trends will increase costs and competition, they also offer opportunities to the Western Balkan economies to further develop the sector and further integrate into global value chains. Policy recommendations include (IMF, 2015[155]; European Sector Skills Council, 2016[149]; OECD, 2015[156]; OECD, 2018[1]; OECD/World Bank, 2019[157]):

(1) Improve overall investment policies and ensure more strategic investment promotion and facilitation. This has proven effective in attracting FDI and fostering linkages with domestic suppliers.

- Ensure that well-designed and transparent tax incentive systems are in place. Tax incentives can play an important role in attracting investors. However, generous profit-based tax incentives should be avoided. These types of tax incentives lower revenues from corporate income tax without necessarily increasing investment and can create negative spillover effects as well as opportunities for tax avoidance.
- Build an investment policy framework by consulting the OECD Policy Framework for Investment, which provides a comprehensive list of tools for analysing the investment policy of a specific economy (Box 3.7).
- Shift the approach of IPAs in the Western Balkans towards sector-wide promotion while building competences based on the specific needs of automotive investors.
- Provide aftercare services to retain existing investors and incentivise them to expand their current businesses.
- Create backward linkages between foreign investors and domestic SMEs, support the internationalisation of local companies and provide sectoral lists of domestic suppliers to foreign investors.

Box 3.7. OECD Checklist for FDI incentive policies

In 2003, the OECD published a report on the key principles and policy options for attracting FDI. The report contains a checklist for policy makers to assess the usefulness and relevance of FDI incentive policies.

The main conclusion of the report was that the most effective policies for attracting FDI are those which improve a country's general economic and business environment, rather than targeted tax incentives, financial subsidies and regulatory exemptions directed at foreign enterprises and some investors over others. Thus, the most effective policies include:

- Safeguarding public sector transparency.
- Ensuring the principle of non-discrimination between foreign and domestic enterprises.
- Providing rights of free transfers related to an investment and preventing arbitrary expropriation.
- Promoting a healthy and competitive framework for the domestic business sector.
- Removing obstacles to international trade.
- Redressing aspects of the tax system that constitute barriers to FDI.

The OECD acknowledges that incentives can contribute to an efficient allocation of FDI. However, they can also distort competition and come at an excessive cost for the international community and, in the long run, for the host country. Therefore, the OECD report lists the FDI incentives available to policy makers with the positive and wasteful outcomes of each. Thus, it provides guidance on the challenges and risks that host countries should take into consideration before providing these types of incentives. There are five main ways that incentives aimed at enhancing FDI can be wasteful:

- **Ineffectiveness.** The benefits to the host economy of the FDI do not exceed the costs of attracting it.
- **Inefficiency.** The benefits exceed the costs, but the authorities fail to maximise the benefits and/or minimise the costs.
- **Opportunity costs**. Scarce public resources are allocated to FDI incentives instead of more profitable alternatives.
- **Deadweight loss.** The investment would have occurred regardless of the incentives; the intended recipients have not been properly specified, reaching too many applicants; the authorities have to offer offsetting subsidies to other enterprises to balance the provision of state-aid across sectors; or the incentives effectively raise the bar so future investors will no longer invest without similar or better subsidies.
- **Triggering competition.** Some jurisdictions introduce unbalanced incentives, leading others to react by offering similar or even better conditions in order to attract investors.

The OECD offers the following operational criteria for countries to assess the quality and coherence of their FDI incentive policy framework:

- **The desirability and appropriateness of offering FDI incentives.** Policy makers need an appropriate understanding of the relationship between the broader economic environment and the incentive framework. Incentives should not be substitutes for an attractive investment environment that is characterised by an improved business climate and reduced operational risks.
- **Frameworks for policy design and implementation.** National authorities need to carefully decide on what level of government FDI incentives should be provided. This is to avoid wasteful competition among different regions.
- **The appropriateness of the choice of strategy and policy tools.** Authorities need to consider the cost of maintaining a level playing field with regard to incentive measures versus departing from the principle of non-discrimination.
- **The design and management of individual programmes.** Policy makers need to carefully consider how to minimise deadweight losses from the start. There is a high risk of incentives being too heavily front loaded, risking rent-seeking investors staying only until incentives expire.
- **Transparency of procedures (evaluation, monitoring and follow up).** Sound and comprehensive cost-benefit analyses should be performed independently and on a regular basis.
- **Assessing the extra-jurisdictional consequences of FDI incentive strategies.** Authorities should avoid the risk of triggering retaliation by taking into consideration potential reactions from neighbouring and similar jurisdictions. Additionally, international obligations such as trade and investment agreements must be considered.

Source: OECD (2003[158]), *Checklist for Foreign Direct Investment Incentive Policies*, www.oecd.org/investment/investment-policy/2506900.pdf.

(2) Strengthen quality standards and ensure access to quality infrastructure to enable trade and linkages with global value chains.

- Enable national standards bodies to offer services for industrial compliance with international standards while taking into account private sector, exporter and consumer needs.
- Develop local capacities in metrology, calibration and product testing in order to provide services to local testers, producers and exporters according to international best practices and to enhance consumer protection.
- Make internationally recognised certification services for international public and private standards available to exporters and local enterprises. These services should focus on, among other things, quality, the environment, social accountability and traceability.
- Enable national and regional accreditation schemes to assess the performance of local and regional laboratories, inspection units and certification bodies.
- Build the capacities of consumer associations to promote consumer rights based on national policies and in line with international best practices.

(3) Develop relevant labour skills and support domestic innovation systems to improve export and industrial upgrading and foster domestic innovation.

- Leverage the OECD Skills Strategy when designing approaches to improve domestic skills (Box 3.8). The OECD Skills Strategy helps to identify the strengths and weaknesses of national skills systems, benchmark them internationally and develop policies that can transform improved skills into better jobs, economic growth and social inclusion, including in the automotive sector. The OECD Skills Strategy provides a useful approach to embracing opportunities and addresses challenges related to skills development. It is based on three main policy levers: 1) developing relevant skills by empowering individuals with applicable skills for knowledge-intensive sectors, such as the automotive sector, and helping them to rapidly adjust to shifts in skills demand and technology; 2) activating skills supply, for example, by strengthening the employability of unemployed people, thus supplying the labour market with workers trained in high demand skills; and 3) putting skills to effective use, thus ensuring that skills are fully utilised and do not depreciate overtime.
- Develop and implement relevant training programmes that involve the private sector in the automotive sector. Within this context, a network of local and foreign companies to develop various training programmes could be established.
- Increase the number of employers participating in work-based learning schemes, particularly in SMEs, in the automotive sector. There are several options that could be followed, including developing support measures to encourage companies to offer apprenticeships, matching apprentices and employers, and improving quality assurance in VET.
- Promote the improvement of quality levels in the mechanical and electrical fields as well as in design and product engineering through the adoption and implementation of sector-specific linkage programmes. This could include matchmaking activities between international companies and local suppliers and

fostering exchanges with foreign companies (e.g. company visits and internship schemes, among others).

- Support workforce training and digital leadership in SMEs. Currently, many SMEs lack sufficient resources to develop training programmes. At the same time, training providers have not sufficiently developed training content specific to the needs of SMEs. For example, the creation of multi-stakeholder consortia at the automotive sector level to share workforce training costs represents one possibility to address these issues.
- Design and implement comprehensive measures to encourage stronger co-operation between higher education institutions and businesses in the automotive sector when designing study programmes. Some specific measures could include: strategies for supporting university entrepreneurship, financing and human resources development (start-up support schemes), and start-up support infrastructure.
- Introduce measures to encourage the greater mobility of researchers between the public and private sectors. One such measure is the entrepreneurial leave of absence. The guarantee of a return to a safe job could lower the perceived risk of entrepreneurship and encourage researchers to attempt to start their own companies. This type of measure does not require additional spending; however, some effort would be required from the institution in order to replace the employee during their absence.
- Spread new technology to a broader range of SMEs in the automotive sector through systematic support for technology extension services. According to the OECD Innovation Policy Platform, technology extension services are normally offered by a network of field engineers based in local offices who proactively reach out to companies in their area. Some specific measures could include, among others: providing information on opportunities for improvement in existing technologies, best practices, international trends, relevant regulations and business networks; benchmarking companies in their industries at national and international levels to identify areas for improvement; and joint projects between companies and public research institutes to solve specific problems related to the company's products or processes.

Box 3.8. OECD Skills Strategy

The OECD Skills Strategy encourages governments to:

- **Foster a whole-of-government approach.** If skills are to be developed over a lifetime, then a broad range of policy fields are implicated, including education, science, technology and innovation, industry, employment, economic development, migration and public finance. Aligning policies among these diverse fields helps policy makers to identify policy trade-offs that may be required and to avoid the duplication of efforts and ensure efficiency. This may prove challenging in national skills development systems where responsibilities are shared across subnational levels of government, such as cities, regions and states.

- **Align the perspectives of different levels of government.** With major geographical variations in the supply of and demand for skills within countries, there is a strong rationale for considering skills policies at the local level. This would help countries to align national aspirations with local needs.
- **Include all relevant stakeholders.** Designing effective skills policies requires more than co-ordinating different sectors of public administration and aligning different levels of government. A broad range of non-governmental actors including employers, professional and industry associations, chambers of commerce, trade unions, education and training institutions, and individuals must be involved.
- **Prioritise investment of scarce resources.** As developing new skills is a costly and long-term endeavour, skills policies need to be designed so that these investments reap the greatest economic and social benefits.
- **Combine short- and long-term considerations.** Effective skills policies are needed to respond to structural and cyclical challenges, such as rising unemployment when economies contract or acute skills shortages when sectors boom, and to ensure longer-term strategic planning for the skills that are needed to foster a competitive edge and support the required structural changes.
- **Build a case for lifelong learning.** By seeing skills as a tool to be honed over an individual's lifetime, a strategic approach allows countries to assess the impact of different kinds of learning – from early childhood education through formal schooling to formal and informal learning later on – with the aim of balancing the allocation of resources to maximise economic and social outcomes.

Source: OECD (2016[159]), *Skills for a Digital World*, http://dx.doi.org/10.1787/5jlwz83z3wnw-en.

(4) Foster investment in transport infrastructure and optimise its utilisation to lower the costs of access to international markets:

- Mobilise domestic resources in the Western Balkan economies to create fiscal room for critical transport infrastructure spending and the co-financing of projects. Strengthened project implementation would help to better utilise the available fiscal space and to improve absorption of the available donor financing.
- Bolster public investment management frameworks to improve the efficiency of public spending on infrastructure. Efforts are needed to strengthen public investment management to improve planning, allocation and implementation capacities and ultimately reduce waste and improve the efficiency of investments.
- Enhance regional co-operation in the Western Balkan economies to improve transport planning. Across all aspects of transport planning, international co-operation is critical. Such co-operation could include the improvement of data collection and analysis as well as the exchange of best practices. Organisations such as the International Transport Forum and South East Europe Transport Observatory are good platforms for this type of collaboration.
- Improve and implement technical standards and soft measures such as aligning and simplifying border crossing procedures, railway reforms, information systems, road safety and maintenance schemes, railway unbundling and third-party access.

3.4.5. Summary of opportunities for the automotive sector development

Companies and clusters in the automotive sector specialise and operate generally as first-, second- and third-tier suppliers to produce inputs that are then assembled as a final vehicle, following the designs of OEMs. Enterprises operating in this sector are constantly facing strong competitive pressures to reduce costs and deliver high quality products. At the same time, the emergence of new technologies, changes in consumer preferences and stricter environmental and safety standards are rapidly transforming the automotive sector. Technology development is a leading strategy to avoid competition on labour costs.

Certain Western Balkan economies, such as Bosnia and Herzegovina, North Macedonia and Serbia already have vibrant automotive industries. Nevertheless, even in these economies, the automotive sectors have yet to reach their full potential given the capabilities and other competitive advantages of the economies. Although the automotive sectors are smaller in Albania, Kosovo and Montenegro, these economies have demonstrated the potential to develop industries producing relevant and technologically advanced automotive components.

The Western Balkan economies are in a good position to further develop their automotive industries. However, to cope with the dynamics of the global automotive industry, policies should be carefully designed to better foster technological development, adapt to changes in consumer preferences and adhere to stricter environmental and safety standards. This can be accomplished through the following:

- Strengthening investment promotion and facilitation strategies. This has been proven effective in attracting FDI and fostering linkages with domestic suppliers.
- Ensuring adequate levels of quality standards to provide international benchmarks for managerial, manufacturing and environmental practices in the automotive sector, thereby facilitating trade and investment.
- Fostering labour skills and innovation systems, supporting export and industrial upgrading, improving domestic innovation capabilities and benefiting from investment attraction efforts in the automotive sector.
- Addressing gaps in transport infrastructure and optimising its utilisation to lower the costs for domestic enterprises to access international markets and improve attractiveness for foreign investors.

3.5. Machinery sector

3.5.1. Machinery sector overview

The machinery sector is a capital- and knowledge-intensive sector. It is also a very broad and complex sector that includes a wide variety of products such as intermediate products used in other sectors (including engines or transmission shafts) and final consumption products (such as harvesting machinery or washing machines). Moreover, products within the machinery sector can be characterised as general purpose products (i.e. used in wide range of industries) or special purpose products (i.e. machinery to be used exclusively in a specific industry or a small cluster of specific industries[7]). Considering the sector's breadth, there are therefore large variations among different sub-sectors when it comes to capital and knowledge requirements as well as other factors that drive the sector's growth.

The machinery sector's value chain is highly fragmented, depending on the different actors at the downstream and upstream levels of the value chain (Figure 3.23).

Figure 3.23. Schematic overview of the machinery sector value chain

RAW MATERIAL SUPPLIERS	2nd TIER SUPPLIERS	1st TIER SUPPLIERS (COMPONENT PRODUCERS)	MACHINERY SECTOR COMPANIES	PARTNERS AND REPRESENTATIVES (AFTER MARKET)	END CUSTOMERS
Mining ores	Basic metal producers Fabricated metal producers	Engineering companies Electronic companies Other component manufacturers	Special purpose machinery General purpose machinery	Consulting firms Sales and distribution (agents, dealers and customer service partners) Installation, aftersales services and repairs	Sectors: – Agriculture and food processing – Mining and metal processing – Construction – Energy – Transportation Final customers

Source: Adapted based on Koponen (2012[160]), "Global Value Chain Analysis: Case of Metalli Inc. in Machinery Industry", https://aaltodoc.aalto.fi/handle/123456789/3836.

The variations in end customer demand by sector (or by final consumer at the upstream level of the value chain), effectiveness of sales and distribution channels, and availability and prices of raw materials at the downstream level of the value chain all play an important role in machinery sector, which is dominated by micro, small and medium-sized enterprises (MSMEs).[8]

At the global level (looking at the top 15 exporting economies), China had the highest share of machinery sector exports in 2016 – about one-quarter of the world total. China is followed by the United States and Germany, with machinery sector export shares in 2016 of about 9.2% and 6.2%, respectively. Together, these three economies accounted for roughly 40% of world exports in 2016 (Table 3.17).

Table 3.17. Machinery sector export trends (2016)

% of world total

Machinery sector		Medium-high-technology machinery		High-technology machinery	
China	24.66	China	19.30	China	27.32
United States	9.21	Germany	11.19	United States	8.81
Germany	6.15	United States	10.08	Chinese Taipei	8.23
Chinese Taipei	6.08	Japan	7.63	Korea	6.66
Japan	5.88	Italy	5.50	Japan	4.90
Korea	5.62	Korea	3.57	Malaysia	4.35
Malaysia	3.33	France	3.55	Germany	3.68
Netherlands	3.14	United Kingdom	3.35	Netherlands	3.31
Mexico	2.93	Mexico	2.76	Singapore	3.22
Singapore	2.64	Netherlands	2.73	Mexico	3.07
Italy	2.39	Chinese Taipei	1.79	Vietnam	2.97
Vietnam	2.13	Switzerland	1.77	Thailand	2.43
France	2.11	Canada	1.57	Switzerland	1.50
United Kingdom	2.06	Belgium	1.54	Philippines	1.48
Thailand	1.95	Poland	1.48	France	1.38
Switzerland	1.59	Spain	1.46	United Kingdom	1.36
Philippines	1.10	Singapore	1.43	Ireland	1.20
Belgium	1.03	Austria	1.35	Czech Republic	0.86
Czech Republic	1.01	Czech Republic	1.34	Italy	0.83
Ireland	0.90	Sweden	1.31	Belgium	0.78
Poland	0.89	Malaysia	1.22	Hong Kong, China	0.67
Canada	0.81	Thailand	1.02	Poland	0.61
Sweden	0.80	Hungary	1.02	Hungary	0.60
Hungary	0.74	Turkey	0.91	Sweden	0.52
Austria	0.70	Denmark	0.87	Canada	0.45
Spain	0.67	India	0.82	Israel	0.43
Hong Kong, China	0.55	Finland	0.57	Slovak Republic	0.41
Denmark	0.46	Romania	0.52	Austria	0.38
India	0.41	Brazil	0.52	Indonesia	0.30
Slovak Republic	0.41	Vietnam	0.52	Denmark	0.27
Israel	0.41	Indonesia	0.46	Spain	0.27
Turkey	0.39	Slovak Republic	0.43	United Arab Emirates	0.26
Indonesia	0.36	Russian Federation	0.41	India	0.21
Finland	0.28	Philippines	0.38	Australia	0.19
United Arab Emirates	0.28	Israel	0.35	Finland	0.14
Serbia	0.04	Serbia	0.12	Serbia	0.01
Bosnia and Herzegovina	0.01	Bosnia and Herzegovina	0.02	North Macedonia	0.003
North Macedonia	0.01	North Macedonia	0.01	Bosnia and Herzegovina	0.002
Albania	0.001	Albania	0.004	Albania	0.0005
Montenegro	0.0005	Montenegro	0.001	Montenegro	0.0004
Kosovo	0.0002	Kosovo	0.0005	Kosovo	0.0001

Note: Machinery exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 7321, 7417, 8401, 8403, 8405 to 8406, 8410 to 8412, 8416 to 8420, 8422 to 8424, 8427 to 8430, 8432 to 8480, 8501 to 8506, 8508 to 8510, 8513 to 8518, 8520 to 8522, 8525, 8526, 8528 to 8543, 8545 to 8548, 8709, 8710, 9001 to 9022, 9024, 9026 to 9028, 9030, 9032, 9033, 9101 to 9103, 9105 to 9114, 9301 to 9306, 9402, 9405.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

The relevant literature identifies several key factors for the growth and competitiveness of the machinery sector:

- **The availability of financial capital** affects the operational ability of existing enterprises and their decisions to upgrade production, while also influencing the entry of new enterprises into the sector. The investments required in the machinery sector can be substantial, especially for MSMEs. As a consequence of the economic crisis, banks are more reluctant to lend to MSMEs, especially in the machinery sector, which is seen as cyclical and too risky. Likewise, strong competition from Asia is also considered as a risk for the sector – a risk that banks are unwilling to take on (CECIMO, 2011[161]).
- **The uptake of information technology (IT) and the availability of digital skills** have the potential to boost productivity and facilitate the integration of domestic enterprises into global value chains. In Germany, for example, which is a global leader in the machinery sector, more than one-third of engineers active in the machinery sector are already dealing with matters related to IT and automation (GTAI, 2019[162]).
- **An MSME-supportive environment** can help MSMEs to enhance their competitiveness by improving their performance across a wide range of activities. For example, the availability of business support services (BSS)[9] – ranging from general information and advice to training, mentoring and technical services – can increase entrepreneurs' knowledge and skills (OECD et al., 2019[163]).
- **Targeted and proactive investment promotion and facilitation** can foster domestic and foreign investment as well as improve the overall investment environment (OECD, 2011[164]).

3.5.2. Machinery sector in the Western Balkans

Although the machinery sector in the Western Balkans is still underdeveloped, its historical legacy, skills and resource endowments, and proximity to European Union (EU) markets form a solid basis for its expansion.

The Socialist Federal Republic of Yugoslavia (SFRY) began a period of industrialisation starting in the 1960s through to the early 1980s. This was a period that was marked by high investment rates (Četković, 2015[165]). Among the SFRY's fastest-growing industries was producing machinery for electric power generation and transport equipment. In 1986, the machinery sector was among its top industries, contributing almost 11% to industrial output. The dissolution of the SFRY resulted in the contraction of the machinery sector and hastened privatisation in the following decade (Curtis, 1992[166]).

Despite these changes, however, the strong industrial tradition of the Western Balkans remains. This can serve as the basis for the development of the machinery sector in selected Western Balkan economies.

Role of the machinery sector in the economy

The machinery sector contributes little value added to gross domestic product (GDP) in the Western Balkan economies. The regional average was 1.2% of GDP in 2016, while that of Central and Eastern European (CEE) economies was 3.1%. Additionally, the relative weight of the machinery sector in the Western Balkans decreased during 2012-16, while increasing in CEE in the same period (-0.2% and 0.7%, respectively). Among the Western

Balkan economies, Serbia was the exception with a growth rate of value added of 2.2% and a contribution of 1.7% of value added to GDP, which is comparable to some CEE economies (Table 3.19).

In terms of product complexity in the machinery sector, the Product Complexity Index (PCI) of the Western Balkan economies is aligned with the average for the entire sector (2.52). More precisely, Albania, Kosovo and Montenegro have a slightly lower-than-average PCI for their machinery exports, whereas Bosnia and Herzegovina, North Macedonia and Serbia are slightly above this figure (Table 3.18). The machinery sector is not only the most complex among the sectors analysed for the Western Balkans, but it also shows the highest average PCI among the selected short gains and long bets (2.82, as shown in Table 3.1).

Table 3.18. PCI of machinery sector export baskets in the WB (2016)

Albania	Montenegro	Kosovo	**Machinery sector average**	Bosnia and Herzegovina	Serbia	North Macedonia
2.43	2.48	2.48	**2.52**	2.53	2.53	2.56

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Although there is a lack of employment data for most of the Western Balkan economies, the contribution of the machinery sector to total employment in Bosnia and Herzegovina, North Macedonia and Serbia was 1.1%, 0.9%, and 2.1%, respectively. This is relatively low in comparison to the CEE average of 3.2%.

The total number of active enterprises in the machinery sector in Serbia, North Macedonia, and Bosnia and Herzegovina – the economies for which enterprise data are available and which have the strongest machinery sectors in the region – was about 1.1 thousand in 2015-16.[10] Among these three economies, Serbia hosts almost three-quarters of machinery sector enterprises while North Macedonia and Bosnia and Herzegovina host 13.3% and 11.7%, respectively. As in many other economies, the machinery sector in the Western Balkan economies is driven by MSMEs, accounting for 98.9% in Serbia, 99.3% in North Macedonia and 97.7% in Bosnia and Herzegovina. Among the MSMEs in the machinery sector in these three economies, the majority are micro enterprises with less than 10 employees (on average, 72.6%). While no enterprise data are available for Albania, Kosovo and Montenegro, their machinery sectors are relatively small as the following analysis will show (Statistical Office of the Republic of Serbia, 2017[64]; Eurostat, 2019[79]).

Table 3.19. Importance of the machinery sector in the WB and CEE (2016)

	Gross value added			Employment	Exports		
	Value (USD million)	% of GDP	CAGR 2012-16	% of total	Value (USD million)	% of total	CAGR 2012-16
Albania	7	0.1	-4.2	–	53	2.5	-1.1
Bosnia and Herzegovina	134	0.8	-6.3	1.1	292	5.4	4.2
Kosovo	-	–	–	–	9	2.5	-15.4
Montenegro	16	0.4	-9.6	–	19	4.8	8.7
North Macedonia	136	1.3	-2.5	0.9	192	3.7	2.3
Serbia	661	1.7	2.2	2.1	1 419	10.0	6.1
Western Balkans	**953**	**1.2**	**-0.2**	**1.6**	**1 983**	**7.2**	**5.0**
Bulgaria	1 332	2.5	5.7	2.6	3 001	12.1	5.9
Croatia	1 123	2.2	2.2	2.5	2 043	15.5	5.8
Czech Republic	9 948	5.1	2.7	6.4	37 388	24.5	-0.9
Hungary	6 765	5.4	-1.3	4.0	27 312	27.3	-2.4
Poland	11 041	2.3	-0.6	2.4	33 220	17.3	3.5
Romania	2 696	1.4	0.1	1.8	9 925	16.4	7.3
Slovak Republic	3 429	3.8	2.7	4.5	15 310	21.2	0.1
Slovenia	1 902	4.3	-1.0	5.2	3 516	14.7	-4.1
Central and Eastern Europe	**38 236**	**3.1**	**0.7**	**3.2**	**131 715**	**20.6**	**0.6**

Note: – data unavailable. Machinery sector gross value added and employment comprises ISIC 3.0 Division 29-33. Machinery exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 7321, 7417, 8401, 8403, 8405 to 8406, 8410 to 8412, 8416 to 8420, 8422 to 8424, 8427 to 8430, 8432 to 8480, 8501 to 8506, 8508 to 8510, 8513 to 8518, 8520 to 8522, 8525, 8526, 8528 to 8543, 8545 to 8548, 8709, 8710, 9001 to 9022, 9024, 9026 to 9028, 9030, 9032, 9033, 9101 to 9103, 9105 to 9114, 9301 to 9306, 9402, 9405. Employment share for Serbia is calculated for year 2017.
Source: OECD calculations based on UNIDO (2017[60]), *INDSTAT 2 2017, ISIC Revision 3* (database), http://stat.unido.org; Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp; ILO (2019[13]), *Key Indicators of the Labour Market* (database), www.ilo.org/global/statistics-and-databases/lang--en/index.htm; World Bank (2019[11]), *World Development Indicators* (database), https://databank.worldbank.org/data/source/world-development-indicators.

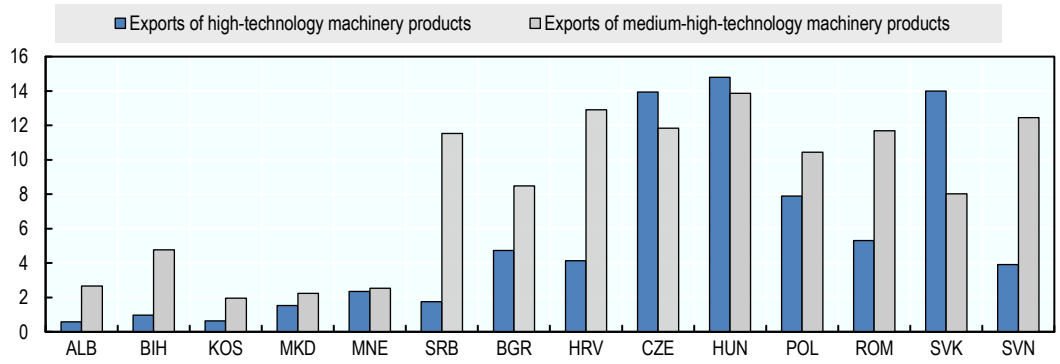
Trade performance of the machinery sector

On average, machinery sector exports contributed about 7.2% to total trade in the Western Balkans in 2016, which is significantly less than in CEE (20.6% in 2016). Among the Western Balkan economies, Serbia had the highest share of machinery sector exports in total trade (10%). During 2012-16, machinery sector exports in the Western Balkans grew, on average, more than the average of those in CEE (5% versus 0.6%, respectively), which can be expected given the much higher base of machinery sector exports in CEE economies. Export growth was particularly impressive in Montenegro and Serbia (8.7% and 6.1%, respectively) (Table 3.19).

Separating the machinery sector into high-technology machinery products and medium-high-technology machinery products, all observed economies export relatively more medium-high-technology machinery products than high-technology products, especially the Western Balkan economies (Figure 3.24).

Figure 3.24. Machinery sector exports from the WB and CEE (2016)

% of total exports



Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Aside from Kosovo and Montenegro, where machinery products are largely exported to other Western Balkan economies, the remaining four Western Balkan economies export machinery products primarily to the EU. This suggests that the Western Balkan economies are taking advantage of the close proximity of EU markets. For example, Albania exports about 74% of its machinery to Italy, and the top three performers in the machinery sector (Bosnia and Herzegovina, North Macedonia and Serbia) export predominantly to Germany (Table 3.20).

Table 3.20. Top destinations for machinery sector exports from the WB (2016)

% of machinery sector exports

Albania		Bosnia and Herzegovina		Kosovo		Montenegro		North Macedonia		Serbia	
Italy	74%	Germany	20%	North Macedonia	27%	Croatia	14%	Germany	14%	Germany	40%
Serbia	4%	Slovenia	17%	Albania	17%	Serbia	14%	Slovak Republic	13%	United States	6%
Turkey	3%	Austria	14%	Switzerland	10%	United Kingdom	12%	Italy	12%	Slovenia	5%
Netherlands	2%	Italy	8%	Congo	8%	China	7%	France	9%	Austria	5%
Philippines	2%	Croatia	5%	Germany	7%	Netherlands	6%	Serbia	7%	Russian Federation	4%

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

In terms of export value for the Western Balkan economies, the most relevant machinery products for which export values have risen constantly between 2012 and 2016 include electric motors (Albania and Serbia), medical instruments (Bosnia and Herzegovina), calculators (Kosovo), broadcasting accessories (Montenegro) and telephones (North Macedonia). The specific promising products from Chapter 2 with rising export values that would contribute to raising economic complexity in the region are: electrical power accessories (Albania and Serbia), heating and lifting machinery (Bosnia and

Herzegovina and North Macedonia), and washing and bottling machines (Kosovo and Montenegro). The expanded list of all machinery products exported by the Western Balkan economies can be found in Annex C.

3.5.3. Key factors of machinery sector competitiveness in the Western Balkans

The machinery sector is a capital- and knowledge-intensive sector which is largely driven by MSMEs. The sector is highly cyclical and is influenced by the demands of final consumers and the industries using its products at the downstream level of the value chain, as well as the availability of materials and resources at the upstream level of the value chain. Although the machinery sector is a broad sector that is characterised by a large variety of products, there are several overarching factors relevant for its competitiveness:

- **Access to finance** provides businesses in the machinery sector with the needed financial capital to operate.
- **Application of IT and the uptake of digital skills** gives enterprises a competitive edge by optimising production processes, increasing productivity and improving product quality.
- **Availability and uptake of business support services (BSS) for MSMEs** is particularly relevant given the number of enterprises operating in the sector. Such services can help enterprises acquire new sets of skills and business practices.
- **Effective and targeted investment promotion and facilitation** can attract foreign direct investment (FDI) and create linkages with domestic MSMEs.

As can be seen from the experience of CEE, these factors were highly relevant for the development of their machinery sectors, as these economies built on their long industrial traditions, strong enabling environments, research and development (R&D) capabilities, BSS and policies targeted at skill development. The Czech Republic, in particular, stands out for its impressive performance in the machinery sector (Box 3.9).

Box 3.9. The machinery sector in the Czech Republic

The machinery sector is one of the most important sectors in the Czech Republic. It contributes 5.1% of value added to GDP, 6.5% to total employment and 37.3% to total exports. Value added and net exports grew by 25.5% and 107%, respectively, after the global financial crisis of 2008. Although Germany is the Czech Republic's main trading and investment partner, machinery sector enterprises have established trading and investment relationships outside the EU as well (e.g. the Russian Federation, Africa and Asia). Building on the historical legacy of the machinery sector in the Czech Republic, some of the key factors that contributed to the sector's success include:

- **Technically skilled workforce.** The Czech Republic has greatly benefitted from a qualified pool of mechanical and energy engineers. In addition, in recent years the country has invested in the development of scientific centres (e.g. Central European Institute of Technology and IT4Innovations) and enhanced networks with foreign partners.
- **Access to finance.** Since 2008, the country has significantly improved its access to finance. In addition to the operations supported by the European Fund for Strategic

Investments and the Agency for Entrepreneurship and Innovation, the recently established Czech-Moravian Guarantee and Development Bank (under the auspices of three ministries: the Ministry of Industry and Trade, the Ministry of Regional Development and the Ministry of Finance) provides bank guarantees and preferential loans to small and medium-sized enterprises, particularly for investment projects in industry and construction.

- **Increased R&D investments**. The National Research and Innovation Strategy for Smart Specialization 2013-15 provided significant support to machinery sector enterprises, especially in strengthening their R&D capacities.
- **Effective business support services and investment promotion.** The Czech Republic is one of the leading recipients of FDI in Europe. Among the investment incentives available, there are tax breaks available for up to ten years, subsidies related to job creation and employee training, and support for the acquisition of land.

Sources: OECD (2015[167]), *Business Brief: The Czech Republic's Fourth Industrial Revolution*, www.oecd.org/innovation/czech-republic-fourth-industrial-revolution.htm; European Commission (2018[168]) *Annual Report of European SMEs 2017-2018*, http://dx.doi.org/10.2873/248745; Ministry of Industry and Trade of the Czech Republic (2018[169]), *Panorama of the Manufacturing Industry of the Czech Republic 2017*, www.mpo.cz/assets/en/industry/manufacturing-industry/panorama-of-the-manufacturing-industry/2018/9/Panorama-2017-en.pdf; KPMG (2019[170]), *Investment in the Czech Republic*, https://assets.kpmg.com/content/dam/kpmg/pdf/2016/05/investment-in-the-czech-republic-2016.pdf.

Access to finance

Given the high degree of investment required in the machinery sector, as well as the large number of MSMEs with limited funds available to invest in upgrading and innovation operating in the sector, financial constraints can represent a significant barrier to the sector's growth.

As a result of the financial crisis, credit to the private sector contracted rapidly in the Western Balkans from 2008 onwards. First, domestic credit to the private sector, a proxy indicator for the depth of financial intermediation, declined after 2008 from about 51% of GDP to about 44.5% in 2016 (OECD et al., 2019[163]). Second, the credit contraction following the financial crisis translated into a significant increase in non-performing loans in the region. Between 2007 and 2013, the average share of non-performing loans in the economies more than tripled from 5.1% of total loans to 17.6% (OECD, 2018[1]). This figure has since improved: during 2014-18, the average share of non-performing loans was about 7.9%. However, despite this improvement, the share remains higher than before the crisis (OECD et al., 2019[163]).

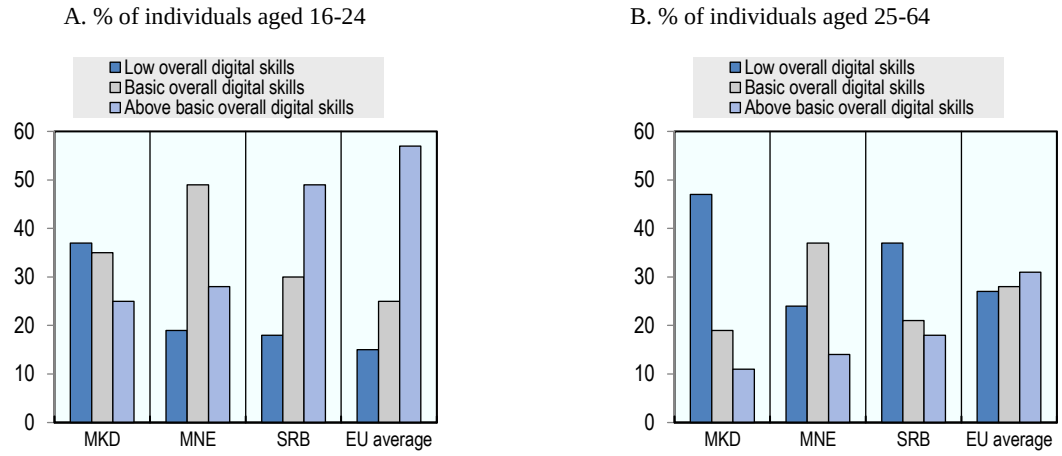
The current financing gap in the Western Balkan economies results from constraints on both the supply and demand sides. On the supply slide, there is a lack of available credit, which is coupled with punitive interest rates and unattractive market opportunities. On the demand side, the Western Balkan economies are suffering from a lack of entrepreneurial training, ineffective business strategies and inadequate private assets which hamper business growth (OECD, 2018[1]).

IT technology and digital skills

Production and operational processes in the machinery sector are undergoing radical changes as a result of the increased use of IT. This requires the application and uptake of the relevant digital skills among enterprises operating in the machinery sector. Shortages and mismatches in digital skills undermine economic growth and competitiveness (European Commission, 2016[171]). It is estimated that IT and digitalisation will have an important impact on factory processes in the machinery sector. For example, automation and electrification linked to intelligent control systems (e.g. centralised mechanisation processes) are becoming increasingly more important for various production segments (GTAI, 2019[162]).

The data available for Montenegro, North Macedonia and Serbia show that the share of the population aged 16-24 with above basic overall digital skills is significantly higher than the share for those aged 25-64. However, it is still lower than the EU average. In North Macedonia, almost half of the respondents in the age group 25-64 (47%) have low overall digital skills (Figure 3.25).

Figure 3.25. Level of overall digital skills (2017)



Note: Data for Albania, Bosnia and Herzegovina, and Kosovo not available. Digital skills indicators are composite indicators which are based on selected activities related to internet or software use performed by individuals aged 25-64 in four specific areas (information, communication, problem solving and software skills). It is assumed that individuals having performed certain activities have the corresponding skills. Therefore, the indicators can be considered as a proxy of the digital competences and skills of individuals. According to the variety or complexity of activities performed, two levels of skills ("basic" and "above basic") are computed for each of the four dimensions. Finally, based on the component indicators, an overall digital skills indicator is calculated as a proxy of the digital competences and skills of individuals ("no skills", "low", "basic" or "above basic").
Source: OECD calculations based on Eurostat (2019[172]), *Digital Economy and Society* (database), http://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database.

Business support services

MSMEs constitute an important part of the machinery sector in the Western Balkans and therefore play a vital role in the development of the machinery sector. However, they often face a number of challenges which prevent them from effectively scaling up their productivity and developing new products. These challenges can include weak management and technical skills and the inability to tap into new markets, as well as

challenges related to the application of new technologies (OECD, 2018[1]). Given their limited financial and human resources, BSS can play a vital role in supporting MSMEs in the machinery sector to improve productivity and to generate new export opportunities (OECD et al., 2019[163]).

Despite the potential benefits of BSS for MSMEs and the efforts of governments to provide them, the uptake of BSS by MSMEs is very slow across many economies (OECD et al., 2019[163]). This relates to many factors, among them being lack of information on BSS availability and their benefits (Stone, 2012[173]; Braidford and Stone, 2016[174])

According to an OECD assessment (OECD et al., 2019[163]), in 2017, MSMEs in North Macedonia, Bosnia and Herzegovina, Montenegro, Serbia and Turkey provided publicly (co-)funded support in the form of general information (e.g. on the relevant legislation for starting a business or on how to develop a business plan). The four economies also provided more pro-active support, including training and/or mentoring and consulting (Table 3.21.).

Table 3.21. Publicly (co-)funded BSS to MSMEs in the WB (2017)

Number of MSMEs/entrepreneurs benefitting by service category

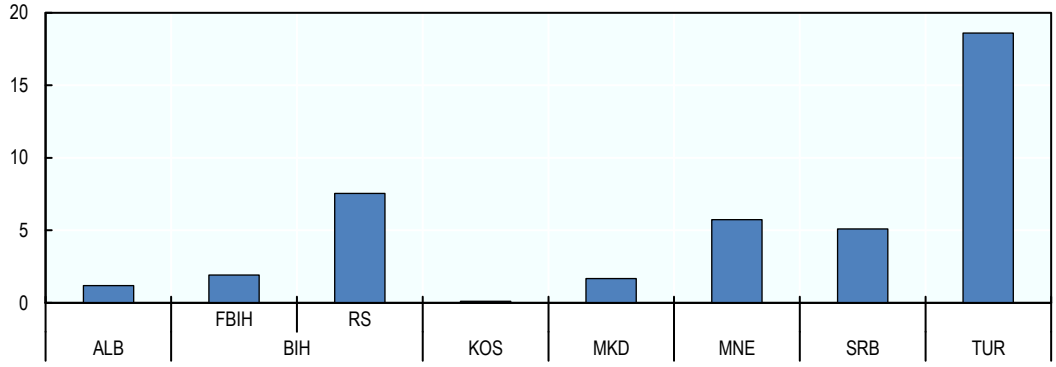
	ALB	BIH		KOS	MKD	MNE	SRB
		FBIH	RS				
General information	530	387	682	37	512	1 081	13 264
Training	0	0	40	0	385	626	3 480
Mentoring & consulting	0	0	0	0	22	28	1 420
Total	530	387	722	37	919	1 735	18 164

Note: Bosnia and Herzegovina consists of a state-level government and two territorial and administrative entities: the Federation of Bosnia and Herzegovina, the Republika Srpska and the Brčko District. At the entity level, both the Federation of Bosnia and Herzegovina and the Republika Srpska have significant autonomy, which is taken into account in the Small Business Act for Europe (SBA) assessment, when relevant. The Brčko District is not dealt with separately in the SBA assessment.
Source: Extracted from OECD et al. (2019[163]), *SME Policy Index: Western Balkans and Turkey 2019*, https://doi.org/10.1787/g2g9fa9a-en.

In order to assess the impact of BSS, it is also important to look at the uptake of BSS by MSMEs, which can be measured by estimating the share of MSMEs that have benefited from BSS in relation to all MSMEs. Figure 3.26 shows great diversity among the Western Balkans and Turkey in MSMEs' uptake of publicly (co-)funded BSS, with two economies – Serbia and Turkey – having much higher figures than the others. Whereas 18.8% of MSMEs in Serbia and 23.1% of MSMEs in Turkey used a publicly (co-)funded BSS in 2017, only 3.0% of MSMEs did so in the other five Western Balkan economies on average (Figure 3.26).

Figure 3.26. MSMEs' uptake of BSS in the WB and Turkey (2017)

% of MSMEs/entrepreneurs benefitting from publicly (co-)funded business support services

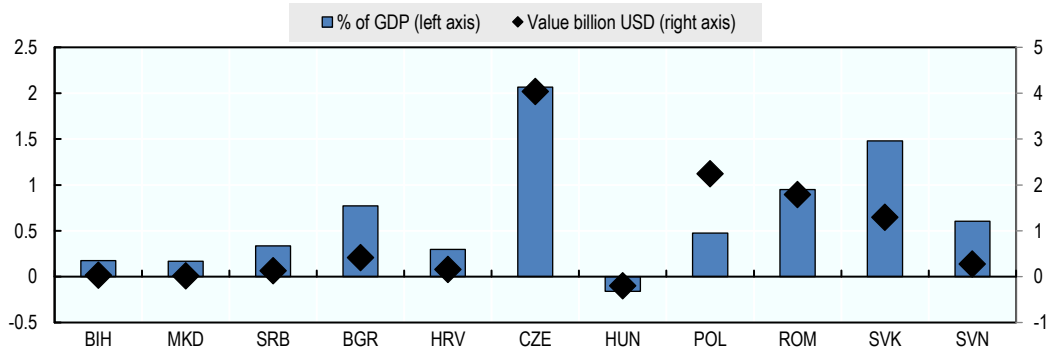


Note: Data for the total number of MSMEs (denominator) as of 2016 for Albania and Kosovo. Data on the number of MSMEs for Bosnia and Herzegovina do not include unincorporated enterprises.
Source: Extracted OECD et al. (2019[163]), *SME Policy Index: Western Balkans and Turkey 2019*, https://doi.org/10.1787/g2g9fa9a-en.

Investment promotion

For the three Western Balkan economies for which FDI data for the machinery sector are available: Bosnia and Herzegovina, North Macedonia and Serbia – the economies with the strongest performing machinery sectors among the six Western Balkan economies (Table 3.19, the shares of FDI are relatively low compared to those of the CEE economies (Figure 3.27).

Figure 3.27. Inward FDI stock in the machinery sector (2016)



Note: FDI data for Serbia and the Slovak Republic are 2015. Inward FDI stock data for the machinery sector for Albania, Kosovo and Montenegro not available.
Source: OECD calculations based on wiiw (2018[30]), *wiiw FDI Database* (database), https://wiiw.ac.at/fdi-database.html.

Inward FDI stock in the machinery sector is very limited. Serbia registers the highest share in GDP of roughly 0.3%, which is on par with Croatia. FDI value added for the sector also remains marginal. Among the economies examined in Figure 3.27, the Czech Republic is by far the largest recipient of FDI, both in terms of share in GDP and absolute value.

All six Western Balkan economies have created investment promotion agencies (IPAs) with a mandate to promote and facilitate inward FDI. However, the IPAs vary in their objectives in terms of attracting investment and in the adequacy of the resources available to achieve these objectives. IPAs in the Western Balkan region, in general, undertake the identification of economic sectors that are potentially relevant for FDI attraction. However, their approach is more reactive. This means that they generally assist only those companies that have already expressed interest in investing (OECD, 2018[1]). Nevertheless, North Macedonia and Serbia have a more proactive approach to FDI and use co-ordinated targeting strategies to reach potential investors. For example, the Directorate for Technological Industrial Development Zones bases their targeting activities on assigned geographical areas and leverages its sectoral knowledge through an effective client relationship management system (OECD, 2017[15]).

Additionally, the aftercare done by IPAs is also relevant. Aftercare consists of a broad set of measures aimed at keeping existing investors satisfied, encouraging them to expand their activities or reinvest in new ones, and fostering linkages with domestic companies. This can be done through regular dialogue with the private sector, whereby various business challenges and support measures can be addressed and brought to the attention of policy makers. Such platforms generally do exist in the region; however, they often involve only large multinational enterprises (OECD, 2018[1]).

3.5.4. Policy recommendations for the machinery sector in the Western Balkans

The machinery sector in the Western Balkans is a capital- and knowledge-intensive sector that is driven by MSMEs. The sector is influenced by the demands of final consumers and the industries using its products at the downstream level of the value chain as well as the availability of materials and resources at the upstream level of the value chain – all of which play an important role in its development. To support the growth of the machinery sector in the Western Balkans, several relevant policy considerations emerge from the analysis (OECD, 2018[1]; OECD et al., 2019[163]).

(1) Improve access to finance to ensure the necessary financial capital for machinery sector enterprises – especially MSMEs – in their efforts to upgrade production processes, innovate and better integrate into global value chains.

- Relax security rights over non-fixed assets and extend the use of intangible assets as collateral to incentivize investments, making them more accessible. Furthermore, consider more flexible provision requirements for smaller loans.
- Develop and implement alternative financial tools for every firm profile: factoring and leasing better suit low-risk enterprises and venture capital or business angel networks are preferable for high risk ones.
    - Strengthen the implementation of repossession rules under leasing mechanisms by speeding up administrative processes and by establishing commercial courts. Leasing activities sometimes show tax disadvantages such as value-added tax (VAT) incorporation in interest payments and double taxation standards. Independent leasing companies are also rare.
    - Support supply chain factoring mechanisms, for example, through electronic matchmaking platforms, training and trade finance opportunities. Although legal frameworks on factoring have been introduced in most economies, further efforts are required.

- Continue to develop seed and early-stage financing infrastructure in the region. First attempts to regulate this area are currently in process in Montenegro, North Macedonia and Serbia. Extend supply-side support for risk capital investors together with co-investment schemes. Business angel networks exist only informally and do not receive public support or tax incentives.

(2) Support the uptake of information technology and the development of relevant digital skills to improve the sourcing, production and distribution processes of machinery sector enterprises and to better foster innovation.

- Advance the Digital Agenda for the Western Balkans and the overarching Multi-annual Action Plan for a Regional Economic Area in the Western Balkans to reap the benefits of digital infrastructure for their citizens and businesses.
- Improve average digitalisation by targeting the structural imbalances in the labour markets and digital exclusion. Policies addressing the prevention of and compensation for early school leavers through, for instance, the offer of additional opportunities for education and training outside the ordinary education environment should be designed.
- Design relevant active labour market policies focused on improving skills of workers in IT-intensive sectors, such as the machinery sector.
- Explore models of co-operation with the private sector for the provision of computers and Internet connectivity in every school. National e-content strategies have to be constantly updated and digital skills emphasised more in vocational education and training.
- Make digital skills an integral part of continuing education. In this regard, the Western Balkans would need to develop more incentives for the private sector and provide specific support for MSMEs in digital skills training.

(3) Support the uptake of business support services provided by the government and foster government initiatives to stimulate private business support services.

- Address the gaps in BSS provision, which include better targeting and the creation of more effective BSS provision systems. BSS programmes and initiatives should be tailored for MSMEs, as well as to the machinery sector.
- Provide easier access to information on BSS to stimulate uptake by MSMEs. This can be done by increasing co-ordination among the various information channels and by developing a common communication strategy.
- Develop an environment conducive for private sector BSS providers. This can include the provision of co-financing schemes and a platform of qualified exporters to be linked with MSMEs.

(4) Proactive investment promotion and facilitation, which have proven effective in attracting FDI and fostering linkages with domestic suppliers.

- Focus the approach of IPAs on sector-specific projects. Effective investment promotion draws on the strong points of an economy's business environment to highlight profitable investment opportunities and includes the systematic targeting of potential investors.

- Cultivate the concept of aftercare services in the machinery sector. Continuous open dialogue between the public and the private sector on both operational challenges and strategic thinking is key to preserving existing investors and to incentivising them to expand their current businesses.
- Foster the creation of backward linkages between foreign investors and domestic MSMEs in the sector. This includes supporting the internationalisation of local companies and providing sectoral lists of domestic suppliers to foreign investors. The transfer of knowledge and technology between the two has proven to greatly contribute to productivity gains.

3.5.5. Summary of opportunities for machinery sector development

The machinery sector is a capital- and knowledge-intensive sector that includes a broad range of products. The sector is driven by MSMEs, which are often constrained by ill-functioning financial markets, poor BSS, the slow uptake of IT and inadequate investment promotion and facilitation.

The industrial legacy of the SFRY creates a solid foundation for the development of the machinery sector in the Western Balkans. Bosnia and Herzegovina, North Macedonia and Serbia have relatively large machinery sectors, and the EU is a leading trade partner.

To further develop the machinery sector in the Western Balkans, policy initiatives should focus on the following:

- Ensuring effective access to both traditional and alternative means of financing in order to cope with high capital investments.
- Advancing the uptake of IT and fostering the development of relevant digital skills.
- Increasing the outreach, effectiveness and scope of private BSS, addressing the needs of MSMEs in the machinery sector.
- Proactive investment promotion and facilitation to attract FDI and to better link them with domestic MSMEs.

3.6. Concluding remarks

In order to stay on the path towards European Union (EU) convergence, the Western Balkan economies need to accelerate their economic growth rates. To achieve this, a transformation of their productive capacity is required in order to shift from low to higher value-added products. This process requires a shift from labour-intensive production to capital-intensive production as well as the capacity to enter more developed foreign supply chains.

This report identifies a number of product categories which have the potential to achieve a comparative advantage in the global market and, in turn, support higher value-added production and increase export volumes. These products are concentrated mainly in the agro-food, metal processing, automotive and machinery sectors.

Long-established competences in the agro-food and metal processing sectors suggest that the Western Balkans could still upgrade its average level of economic complexity by focusing on these sectors. However, the contribution of these sectors to economic sophistication would be marginal. The automotive and machinery sectors are more technology intensive and could offer greater opportunities for economic sophistication.

However, their development will require higher capital investments, meaning a need to attract more foreign investment.

These sectors in the Western Balkans currently face different challenges to increasing their productivity and growth, as well as to developing products with significant trade opportunities:

- In the agro-food sector, the current structure of agricultural producer support is unlikely to facilitate long-term productivity, and non-tariff trade barriers, including the effective implementation of sanitary and phytosanitary legislation, have not been well addressed.
- Given the endowment of mineral resources across the region, the metal processing sector has traditionally been very important for economic development. However, it faces challenges related to negative environmental effects, especially due to energy-intensive processes.
- The automotive sector is a knowledge- and capital-intensive industry with complex and geographically dispersed production networks, but skills gaps and a lack of quality standards stand out as key impediments.
- The growth of the machinery sector is hampered by insufficient access to finance for micro, small and medium-sized enterprises (MSMEs), which are the engine of growth for the sector. Moreover, the uptake of information technology to boost productivity is hindered by the lack of adequate digital skills.

As many sector-specific challenges are also cross-cutting, policy responses can have positive spillovers across the four sectors (as well as others not named here). Thus, the development of all four sectors will benefit from reforms to strengthen the enabling environment as well as from targeted, sector-specific policies.

The **agro-food sector**, encompassing both agriculture and food processing, plays a strategic role in food security, rural development and poverty reduction in the Western Balkan economies. It is economically significant, contributing about 15.3% of gross value added to gross domestic product (GDP) and 31.0% of total employment. Policy recommendations for the agro-food sector include:

- Reorient agricultural policy to better support productivity and sustainability.
- Improve the implementation of sanitary and phytosanitary measures to enable trade and access to global value chains.
- Strengthen agro-food education and innovation systems.

Economic development and metal use are strongly connected. The **metal processing sector** in the six Western Balkan economies contributes 11% to total Western Balkan exports, with over 25% of exports in Kosovo and Montenegro attributable to the sector. It is also a material- and energy-intensive sector, with a significant environmental impact. Policy recommendations for the metal processing sector include:

- Foster education and investment policies.
- Ensure the efficient use of energy.
- Improve the environmental and competitive position of the metal processing sector.

The **automotive sector** contributes significantly to the economy as a share of total exports in three Western Balkan economies – North Macedonia (48.7%), Bosnia and Herzegovina (16.6%), and Serbia (22.6%). The sector is nascent in the other three Western Balkan economies. Key policy recommendations for the automotive sector include:

- Strengthen quality standards and ensure access to quality infrastructure to enable trade and linkages with global value chains.
- Improve skills and innovation to support exports and industrial upgrading and improve domestic innovation capabilities.
- Improve transport connectivity, foster green logistics and address gaps in the existing logistics infrastructure to bring down logistics costs and to ensure the on-time delivery of goods.

The **machinery sector** is a capital- and knowledge-intensive sector. It contributes 7.2% to total exports, on average, in the six Western Balkan economies (and about 10% in Serbia). Policy recommendations for the machinery sector include:

- Improve access to finance to ensure the necessary financial capital for machinery sector enterprises, especially for MSMEs.
- Foster the uptake of information technology and the development of relevant digital skills.
- Provide business support services to MSMEs to support technological absorption and innovation.

Key policy recommendations to strengthen the **enabling environment** for all four sectors are to:

- Improve the investment policy regime and ensure targeted investment promotion and facilitation to attract foreign direct investment (FDI) in priority sectors. Likewise, to enable relevant spillovers for domestic economies, policies should support the creation of linkages between foreign investors and domestic suppliers.
- Increase investment and efforts in developing labour skills and ensure that a strong research and development (R&D) and innovation system is in place. Such a system is essential to develop new products as well as to improve productivity and sustainability across all economic sectors.

Notes

[1] Agro-food includes only agriculture and downstream industries, such as food processing. Agri-food includes also upstream industries, such as agricultural input suppliers (e.g. seeds producers). The chapter mainly refers to agriculture and food processing; hence, the term agro-food is used throughout the chapter.

[2] For Albania, there is no separate information reported for basic metal and fabricated metal products.

[3] It is estimated that the sales of electric passenger vehicles could increase from 2.4 million in 2016 to 14.2 million in 2025 (IEA, 2018[129]).

[4] Waste from smelting activities generated about 1.5-2.0 million tons of ferronickel slag and ferrochromium waste. This caused significant contamination of the soil and groundwater with heavy metals, such as chromium, nickel and manganese (UNEP, 2009[75]).

[5] Both end-of-life (old scrap) and aluminium industry by-products (new scrap) can be recycled. In general, new scrap can be fully collected since this is under the control of the aluminium industry; however, old scrap requires broader efforts, including an efficient collection system involving consumers, industry, legislators and local communities (Organisation of European Aluminium Refiners and Remelters, 2006[88]).

[6] Also, the upstream segment of the aluminium sub-sector producing primary aluminium from bauxite, particularly large firms, can do significant in-house recycling and remelting activities. This allows them to obtain the raw materials for the production of semi-fabricated aluminium products. An example includes Norsk Hydro from Norway, which operates various secondary-aluminium plants throughout Europe (Organisation of European Aluminium Refiners and Remelters, 2006[88])

[7] This division also includes the manufacture of other special purpose machinery, not covered elsewhere in the classification, whether or not used in a manufacturing process, such as fairground amusement equipment or automatic bowling alley equipment, among others.

[8] The share of MSMEs in the machinery sector is predominant in all European Union (EU) countries and ranges from 83.3% in Luxembourg to 99.3% in Spain in 2016 (Eurostat, 2019[79]).

[9] Business support services (BSS) can be defined as “non-financial services that enable companies to enhance their competitiveness and improve their performance across a wide range of activities. This includes the provision of specialist external advice and expertise to facilitate the enhancement of internal resources and capabilities” (OECD et al., 2019[163]).

[10] Data for Serbia are from 2015. Data for North Macedonia and Bosnia and Herzegovina are from 2016 and are an estimation by Eurostat.

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Annex A. Revealed Comparative Advantage

The concept of revealed comparative advantage (RCA) is defined as follows (Balassa, 1965[175]):

$$RCA_{ij} = \frac{\frac{X_{ij}}{X_{iT}}}{\frac{X_{Wj}}{X_{WT}}}$$

Where: RCA_{ij} is the revealed comparative advantage of country *i* in product *j*, X_{ij} are exports of *j* by country *i*, X_{iT} are total exports of country *i*, X_{Wj} are total exports of product *j* on the world level, and X_{WT} are total world exports. If RCA_{ij} is >1, then country *i* has a revealed comparative advantage in *j*, if RCA_{ij} is <1, it has not.

In order to trace RCA shifts in Chapter 1, RCAs are calculated for three consecutive years, in 2006-08 and 2014-16. Then, a binary matrix is constructed with two time periods and two values, 1 when single exported products at the HS4 level have an RCA>1 for all three years in a period, and 0 otherwise. Hence, established goods have a unity for both periods, emerging goods have 0 in the first period and 1 in the second period, disappearing goods have 1 in the first period and 0 in the second, and marginal goods have 0 in both periods. A similar approach was applied by Rodarte and Lofgren (2015[176]) in the case of Morocco.

Annex B. Short Gains and Long Bets in the Western Balkans

Table A B.1. Agro-food sector short gains and long bets in the Western Balkans

Product code	Product name	PCI	ALB	BIH	KOS	MKD	MNE	SRB
102	Bovine animals	0.46				Short gain	Short gain	
207	Poultry meat	1.04						Short gain
401	Milk	0.95					Short gain	Short gain
403	Fermented milk products	1.29				Short gain		
406	Cheese	0.75		Short gain	Short gain	Short gain	Short gain	
706	Root vegetables	-0.37	Short gain					
811	Frozen fruit and nuts	-0.13	Short gain					
1001	Wheat	0.95			Short gain			
1003	Barley	1.53						Short gain
1104	Processed cereals	0.61				Short gain	Short gain	
1205	Rape or colza seeds	1.00		Short gain				
1206	Sunflower seeds	0.31				Short gain	Short gain	
1501	Lard	2.22						Short gain
1602	Other prepared meat	0.90			Short gain			
1704	Confectionery sugar	0.09	Short gain					
1904	Prepared cereals	0.51					Short gain	
2007	Jams	0.14	Short gain				Short gain	
2102	Yeast	0.16					Short gain	
2103	Sauces and seasonings	0.32	Short gain				Short gain	
2104	Soups and broths	0.45				Short gain	Short gain	
2105	Ice cream and other edible ice	0.99					Short gain	
2106	Other edible preparations	0.80					Short gain	
2202	Flavoured water	0.37	Short gain				Short gain	
2203	Beer	0.97		Short gain				
2303	Starch residue	1.42		Short gain				
2309	Animal food	0.84		Short gain	Short gain			
Average for the entire agro-food sector		**-0.52**						

Note: Agriculture exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 101 to 106, 401 to 410, 501 to 511, 601 to 604, 701 to 709, 713, 714, 801 to 807, 809, 810, 813, 903 to 910, 1001 to 1008, 1201 to 1207, 1209 to 1214, 1301, 1302, 1801, 1802, 2401 to 2403, 4301, 5001 to 5003, 5101 to 5103, 5201 to 5203, 5301, 5302. Food exports comprises Harmonized System (revision 1992) 4-digit product codes: 201 to 210, 710 to 712, 811, 812, 814, 901, 902, 1101 to 1109, 1208, 1401 to 1404, 1501 to 1522, 1601 to 1605, 1701 to 1704, 1803 to 1806, 1901 to 1905, 2001 to 2009, 2101 to 2106, 2201 to 2209, 2301 to 2309, 3301, 3501 to 3505, 4101 to 4103.

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A B.2. Metal processing sector short gains and long bets in the Western Balkans

Product code	Product name	PCI	ALB	BIH	KOS	MKD	MNE	SRB
7212	Large coated flat-rolled iron	2.39			Long bet		Long bet	
7213	Hot-rolled iron bars	1.48						Short gain
7215	Other iron bars	1.72		Short gain				Short gain
7216	Iron blocks	0.71		Short gain				Short gain
7217	Iron wire	0.47	Short gain					
7226	Flat-rolled iron	3.34		Long bet				Long bet
7306	Other small iron pipes	0.42	Short gain				Short gain	
7307	Iron pipe fittings	3.11		Long bet	Long bet			Long bet
7308	Iron structures	1.66					Short gain	
7309	Large iron containers	1.13			Short gain	Short gain	Short gain	
7310	Small iron containers	1.13			Short gain	Short gain		Short gain
7315	Iron chains	2.41				Long bet		
7322	Iron radiators	2.39	Long bet					
7604	Aluminium bars	1.44			Short gain	Short gain		
7606	Aluminium plating	2.20	Long bet					
7607	Aluminium foil	2.66		Long bet	Long bet	Long bet		
7608	Aluminium pipes	2.20	Long bet			Long bet		
7610	Aluminium structures	1.60				Short gain	Short gain	
7612	Aluminium cans	1.18		Short gain		Short gain	Short gain	
7616	Other aluminium products	2.30	Long bet					Short gain
8208	Cutting blades	3.49			Long bet			Long bet
8309	Metal stoppers	1.55		Short gain				
8311	Coated metal soldering products	1.60						Short gain
9406	Prefabricated buildings	1.45				Short gain		
Average for the entire metal processing sector		**1.59**						

Note: Metal processing exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 2818, 7106 to 7111, 7201 to 7203, 7205 to 7229, 7301 to 7319, 7322 to 7325, 7401 to 7403, 7405 to 7412, 7414, 7416, 7418, 7501, 7502, 7504 to 7508, 7601, 7603 to 7616, 7801, 7803 to 7806, 7901, 7903 to 7907, 8001, 8003 to 8007, 8101 to 8113, 8201 to 8215, 8303 to 8306, 8308, 8309, 8311, 8402, 8404, 8485, 9307 and 9406.

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A B.3. Automotive sector short gains and long bets in the Western Balkans

Product code	Product name	PCI	ALB	BIH	KOS	MKD	MNE	SRB
4016	Other rubber products	2.50	Long bet	Short gain		Long bet	Long bet	
7007	Safety glass	2.40	Long bet					
7320	Iron springs	2.76	Long bet	Long bet		Long bet	Long bet	
8408	Combustion engines	3.00						Long bet
8409	Engine parts	2.79	Long bet		Long bet	Long bet	Long bet	
8413	Liquid pumps	3.45		Long bet				
8421	Filters for combustion engines	2.85	Long bet		Long bet		Long bet	
8425	Pulley systems	2.07	Long bet					
8431	Excavation machinery	2.20	Long bet					Short gain
8481	Valves	3.33						Long bet
8482	Ball bearings	2.84						Long bet
8483	Transmissions	3.65		Long bet				Long bet
8511	Electrical ignition	2.37	Long bet			Long bet		
8512	Electrical lighting or signalling equipment	2.64		Long bet		Long bet		
8544	Insulated wire	-0.04	Short gain					
8707	Car bodies	2.86			Long bet		Long bet	
8708	Vehicle parts	3.01		Long bet	Long bet	Long bet	Long bet	Long bet
9401	Seats	1.19	Short gain		Short gain			
	Average for the entire automotive sector	**2.26**						

Note: Automotive exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 3815, 3819, 3820, 4011 to 4013, 4016, 6813, 7007, 7009, 7320, 7326, 7413, 7415, 7419, 8301, 8302, 8307, 8310, 8407 to 8409, 8413 to 8415, 8421, 8425, 8426, 8431, 8481 to 8484, 8507, 8511, 8512, 8519, 8527, 8544, 8701 to 8708, 8716, 9025, 9029, 9031, 9104, 9401, 9404.

Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A B.4. Machinery sector short gains and long bets in the Western Balkans

Product code	Product name	PCI	ALB	BIH	KOS	MKD	MNE	SRB
8416	Liquid fuel furnaces	3.00		Long bet	Long bet		Long bet	
8417	Industrial furnaces	2.13	Long bet					Short gain
8418	Refrigerators	1.92		Short gain				
8419	Other heating machinery	2.60		Long bet				Long bet
8422	Washing and bottling machines	3.15			Long bet	Long bet	Long bet	
8428	Lifting machinery	3.02		Long bet	Long bet	Long bet		Long bet
8432	Soil preparation machinery	1.75		Short gain				
8433	Harvesting machinery	2.36				Long bet	Long bet	Short gain
8438	Industrial food preparation machinery	2.68				Long bet	Long bet	
8442	Printing machinery	3.19		Long bet	Long bet			Long bet
8459	Drilling machinery	3.02		Long bet	Long bet			Long bet
8463	Other non-metal removal machinery	2.83				Long bet		Long bet
8466	Metalworking machine parts	3.72						Long bet
8468	Soldering and welding machines	3.21		Long bet				Long bet
8480	Metal moulds	2.83	Long bet		Long bet	Long bet		
8515	Electric soldering equipment	4.02						Long bet
8535	High voltage protection equipment	2.43				Long bet	Long bet	
8537	Electrical control boards	2.32	Long bet					
8538	Electrical power accessories	2.71	Long bet	Long bet	Long bet	Long bet	Long bet	Long bet
8546	Electrical insulators	3.01		Long bet				Long bet
8547	Metal insulating fittings	2.95		Long bet				Long bet
9024	Tensile testing machines	3.20						Long bet
9032	Thermostats	2.96		Long bet				
9033	Opto-electric instrument parts	2.58				Long bet	Long bet	
	Average for the entire machinery sector	**2.52**						

Note: Machinery exports comprises the following Harmonized System (revision 1992) 4-digit product codes: 7321, 7417, 8401, 8404 to 8406, 8410 to 8412, 8416 to 8420, 8422 to 8424, 8427 to 8430, 8432 to 8480, 8501 to 8506, 8508 to 8510, 8513 to 8518, 8520 to 8522, 8525, 8526, 8528 to 8543, 8545 to 8548, 8709, 8710, 9001 to 9022, 9024, 9026 to 9028, 9030, 9032, 9033, 9101 to 9103, 9105 to 9114, 9301 to 9306, 9402, 9405.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Annex C. Sectoral Exports and Product Export Trends in the Western Balkans

The following tables present exports at the HS4 level for each economy in the Western Balkans and in the four sectors analysed in Chapter 3 (agro-food, metal processing, automotive and machinery).

A filter has been applied in order to preserve only those products that have been exported each year between 2012 and 2016, so to account for continuity in exports. Therefore, the tables do not include the entire export baskets for the year 2016, and some short gain and long bet products detected in Chapter 2 might be missing, if they were not exported for the entire considered period.

In addition to this, export trends have been taken into consideration: in the first stage, differentiating between falling and growing product exports in the 2012-16 period. In the second stage, single economy's trends were matched to the exports of the same products from the rest of the Western Balkan region to compare local and regional export trends. When the local and regional trends diverge, this could imply specific dynamics at the economy level that positively or negatively affect the exports of that economy in particular. As a result, there are four potential outcomes:

- **GROWING domestic AND regional exports**: products that have seen their exports constantly grow between 2012 and 2016, both at the economy and regional level;
- **GROWING domestic BUT NOT regional exports**: products that have seen their exports constantly grow between 2012 and 2016 at the economy level, while falling for the rest of the Western Balkans;
- **FALLING domestic BUT NOT regional exports**: products that have seen their exports constantly decrease between 2012 and 2016 at the economy level, while increasing for the rest of the Western Balkans;
- **FALLING domestic AND regional exports**: products that have seen their exports constantly decrease between 2012 and 2016, both at the economy and regional level.

Aiming to make the trend comparison between the single economy and the region meaningful, regional exports were filtered to account exclusively for the same sectoral trade partners of the specific economy subject to the analysis. This way destination markets were matched to control for the origin of foreign demand.

Table A C.1. Agriculture in Albania (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1211	Perfume plants	32 800 000	-2.51
702	Tomatoes	19 500 000	-1.62
2401	Raw tobacco	9 128 810	-2.32
802	Other nuts	8 437 140	-2.27
707	Cucumbers	5 865 446	-0.79
709	Other vegetables	4 254 068	-1.73
704	Cabbages	1 693 333	-1.56
909	Spice seeds	1 472 989	-1.43
810	Other fruits	1 158 134	-2.34
713	Dried legumes	932 370	-2.40
703	Onions	902 057	-2.42
1212	Locust beans, seaweed, sugar beet, cane, for food	881 971	-1.97
805	Citrus	668 143	-1.18
604	Foliage	550 773	-0.75
602	Other live plants	384 819	-1.04
508	Coral and shells	353 297	-1.96
1214	Forage crops	193 265	-0.17
1302	Vegetable saps	171 277	-1.43
708	Legumes	146 177	-2.26
406	Cheese	108 123	0.75
2402	Rolled tobacco	33 825	-0.66

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
807	Melons	3 100 926	-1.93
5101	Wool	478 392	-2.32
806	Grapes	97 192	-1.11
714	Cassava	47 240	-3.69
1209	Sowing seeds	27 165	-1.54
403	Fermented milk products	8 835	1.29

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
813	Dried fruits	1 727 467	0.06
106	Other animals	923 029	-1.38
809	Pitted fruits	284 992	-1.98
705	Lettuce	219 657	-0.46
706	Root vegetables	76 367	-0.37
603	Cut flowers	8 125	-2.11

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
504	Animal organs	3 263 220	-0.98
910	Spices	2 400 466	-1.84
407	Eggs	735 277	0.02
804	Tropical fruits	421 595	-2.58
701	Potatoes	130 350	-0.27
904	Pepper	9 753	-2.91

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.2. Agriculture in Bosnia and Herzegovina (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1001	Wheat	20 300 000	0.95
707	Cucumbers	6 059 169	-0.79
602	Other live plants	2 778 125	-1.04
402	Concentrated milk	2 449 847	-0.12
405	Butter	1 719 353	1.02
702	Tomatoes	946 069	-1.62
909	Spice seeds	896 872	-1.43
802	Other nuts	754 256	-2.27
4301	Raw furskins	395 419	1.50
813	Dried fruits	353 260	0.06
5201	Raw cotton	290 006	-3.42
1212	Locust beans, seaweed, sugar beet, cane, for food	254 028	-1.97
713	Dried legumes	82 851	-2.40
603	Cut flowers	35 844	-2.11
1302	Vegetable saps	12 631	-1.43

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1005	Corn	11 400 000	-0.64
1006	Rice	364 660	-1.64
910	Spices	136 334	-1.84
103	Pigs	120 403	1.84
1008	Buckwheat	48 034	-0.27
1209	Sowing seeds	43 865	-1.54
409	Honey	34 468	-0.87
804	Tropical fruits	22 069	-2.58

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
809	Pitted fruits	5 693 304	-1.98
2402	Rolled tobacco	5 453 376	-0.66
709	Other vegetables	3 018 666	-1.73
406	Cheese	2 739 601	0.75
1211	Perfume plants	2 347 212	-2.51
2401	Raw tobacco	2 020 292	-2.32
705	Lettuce	685 848	-0.46
810	Other fruits	609 630	-2.34
1206	Sunflower seeds	386 274	0.31
106	Other animals	262 817	-1.38
2403	Processed tobacco	235 824	-0.20
508	Coral and shells	190 760	-1.96
704	Cabbages	118 037	-1.56
604	Foliage	105 092	-0.75
703	Onions	77 919	-2.42
408	Processed egg products	24 120	1.30
706	Root vegetables	14 138	-0.37

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
401	Milk	23 800 000	0.95
403	Fermented milk products	3 024 064	1.29
407	Eggs	2 767 660	0.02
701	Potatoes	997 862	-0.27
105	Poultry	547 617	0.48
806	Grapes	534 525	-1.11
5101	Wool	274 878	-2.32
511	Other inedible animal products	257 334	-0.24
807	Melons	141 038	-1.93
904	Pepper	102 984	-2.91
5202	Cotton waste	8 718	-2.38
1207	Other oily seeds	3 776	-2.80
404	Whey	1 509	2.04

Note: Products highlighted in grey are short gains.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.3. Agriculture in Kosovo (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
810	Other fruits	3 000 000	-2.34
709	Other vegetables	1 500 000	-1.73
1211	Perfume plants	1 300 000	-2.51
813	Dried fruits	241 347	0.06
909	Spice seeds	190 090	-1.43
702	Tomatoes	159 863	-1.62
707	Cucumbers	82 187	-0.79
602	Other live plants	60 325	-1.04
406	Cheese	29 690	0.75
708	Legumes	28 855	-2.26
601	Bulbs and roots	3 945	-0.05

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
701	Potatoes	2 100 000	-0.27
401	Milk	187 572	0.95
904	Pepper	60 460	-2.91
5101	Wool	57 416	-2.32
1006	Rice	57 000	-1.64

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
704	Cabbages	63 763	-1.56
802	Other nuts	38 145	-2.27
703	Onions	4 704	-2.42

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
806	Grapes	50 358	-1.11
910	Spices	11 100	-1.84
807	Melons	9 938	-1.93

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.4. Agriculture in Montenegro (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
713	Dried legumes	38 200 000	-2.40
1211	Perfume plants	989 751	-2.51
2402	Rolled tobacco	791 374	-0.66
802	Other nuts	28 854	-2.27
704	Cabbages	13 893	-1.56

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
401	Milk	139 454	0.95
804	Tropical fruits	104 486	-2.58
105	Poultry	52 729	0.48
1005	Corn	3 655	-0.64

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
709	Other vegetables	601 931	-1.73
805	Citrus	277 735	-1.18
809	Pitted fruits	134 225	-1.98
810	Other fruits	74 042	-2.34
703	Onions	6 562	-2.42
909	Spice seeds	3 428	-1.43
602	Other live plants	1 429	-1.04

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
806	Grapes	552 768	-1.11
807	Melons	137 399	-1.93
5101	Wool	24 311	-2.32
1213	Cereal straws	17 055	1.04
910	Spices	5 872	-1.84
701	Potatoes	1 704	-0.27

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.5. Agriculture in North Macedonia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2401	Raw tobacco	143 000 000	-2.32
704	Cabbages	23 000 000	-1.56
709	Other vegetables	15 900 000	-1.73
602	Other live plants	6 917 053	-1.04
707	Cucumbers	6 237 485	-0.79
1211	Perfume plants	3 332 623	-2.51
909	Spice seeds	2 396 841	-1.43
810	Other fruits	2 232 972	-2.34
802	Other nuts	1 413 393	-2.27
1001	Wheat	876 997	0.95
805	Citrus	765 068	-1.18
1206	Sunflower seeds	527 150	0.31
106	Other animals	519 129	-1.38
1214	Forage crops	477 710	-0.17
1003	Barley	364 389	1.53
2403	Processed tobacco	220 799	-0.20
604	Foliage	167 475	-0.75
1204	Linseed	4 893	0.46
708	Legumes	3 666	-2.26

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
904	Pepper	700 089	-2.91
1005	Corn	409 321	-0.64
910	Spices	29 384	-1.84
410	Other edible animal products	15 771	-1.17

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
702	Tomatoes	13 700 000	-1.62
809	Pitted fruits	11 100 000	-1.98
2402	Rolled tobacco	10 500 000	-0.66
406	Cheese	2 035 972	0.75
703	Onions	2 031 258	-2.42
813	Dried fruits	512 808	0.06
713	Dried legumes	146 956	-2.40
603	Cut flowers	95 150	-2.11
508	Coral and shells	28 360	-1.96
705	Lettuce	17 407	-0.46
1302	Vegetable saps	16 847	-1.43
706	Root vegetables	6 456	-0.37

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
806	Grapes	17 500 000	-1.11
807	Melons	5 332 341	-1.93
1006	Rice	1 686 163	-1.64
701	Potatoes	550 683	-0.27
5101	Wool	323 228	-2.32
504	Animal organs	305 017	-0.98
409	Honey	102 598	-0.87
1207	Other oily seeds	46 794	-2.80
1209	Sowing seeds	42 215	-1.54
1202	Ground nuts	8 932	-2.52

Note: Products highlighted in grey are short gains.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.6. Agriculture in Serbia (2016)

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic AND regional exports	2402	Rolled tobacco	641 000 000	-0.66
	1001	Wheat	80 600 000	0.95
	809	Pitted fruits	73 000 000	-1.98
	2403	Processed tobacco	66 200 000	-0.20
	1206	Sunflower seeds	60 100 000	0.31
	1201	Soybeans	44 100 000	-1.79
	406	Cheese	37 000 000	0.75
	2401	Raw tobacco	32 700 000	-2.32
	810	Other fruits	28 500 000	-2.34
	709	Other vegetables	22 500 000	-1.73
	813	Dried fruits	20 300 000	0.06
	602	Other live plants	16 900 000	-1.04
	1211	Perfume plants	7 819 042	-2.51
	104	Sheep and goats	6 470 340	-1.60
	702	Tomatoes	6 049 762	-1.62
	707	Cucumbers	5 637 153	-0.79
	1003	Barley	5 615 805	1.53
	405	Butter	5 339 981	1.02
	703	Onions	4 810 432	-2.42
	1212	Locust beans, seaweed, sugar beet, cane, for food	4 748 279	-1.97
	706	Root vegetables	4 427 081	-0.37
	402	Concentrated milk	2 340 944	-0.12
	704	Cabbages	2 291 665	-1.56
	909	Spice seeds	1 547 444	-1.43
	802	Other nuts	1 414 555	-2.27
	1302	Vegetable saps	1 064 016	-1.43
	106	Other animals	623 406	-1.38
	1004	Oats	561 141	1.72
	4301	Raw furskins	512 942	1.50
	805	Citrus	485 825	-1.18
	603	Cut flowers	434 776	-2.11
	705	Lettuce	354 681	-0.46
	508	Coral and shells	339 031	-1.96
	408	Processed egg products	235 455	1.30
	801	Coconuts, brazil nuts and cashews	101 978	-3.54
	1002	Rye	82 028	2.44
	601	Bulbs and roots	44 280	-0.05
	1204	Linseed	21 949	0.46
	1210	Hops	16 925	1.34
	1007	Sorghum	11 365	-1.62
	905	Vanilla	4 663	-2.16
	5302	Hemp fibres	2 416	-0.32

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic BUT NOT regional exports	403	Fermented milk products	13 200 000	1.29
	1205	Rapeseed	10 500 000	1.00
	701	Potatoes	4 155 972	-0.27
	407	Eggs	2 925 467	0.02
	105	Poultry	1 862 745	0.48
	504	Animal organs	444 240	-0.98
	1213	Cereal straws	174 680	1.04
	404	Whey	105 881	2.04
	5202	Cotton waste	72 663	-2.38
	804	Tropical fruits	67 740	-2.58

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.7. Agriculture in Serbia (2016) (continued)

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
713	Dried legumes	867 812	-2.40
604	Foliage	120 518	-0.75
1214	Forage crops	69 158	-0.17
1301	Insect resins	5 029	-3.13
708	Legumes	4 508	-2.26

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1005	Corn	282 000 000	-0.64
102	Bovine	28 300 000	0.46
409	Honey	9 181 036	-0.87
401	Milk	7 537 224	0.95
904	Pepper	6 620 748	-2.91
1209	Sowing seeds	4 370 826	-1.54
103	Pigs	1 759 496	1.84
1207	Other oily seeds	1 667 826	-2.80
505	Bird feathers and skins	1 570 831	1.86
5101	Wool	1 309 760	-2.32
807	Melons	1 021 031	-1.93
806	Grapes	434 797	-1.11
910	Spices	354 936	-1.84
1008	Buckwheat	316 819	-0.27
511	Other inedible animal products	96 384	-0.24
1006	Rice	61 365	-1.64
101	Horses	41 998	0.94
507	Raw bones	21 485	-2.02
714	Cassava	13 177	-3.69
906	Cinnamon	12 247	-2.12

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.8. Food processing sector in Albania (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1604	Processed fish	19 300 000	-1.88
1905	Baked goods	7 004 102	0.51
2208	Hard liquor	3 947 168	-0.05
3301	Essential oils	1 451 883	-1.42
208	Other meat	1 433 449	1.11
712	Dried vegetables	1 015 219	-1.63
2202	Flavoured water	898 554	0.37
2106	Other edible preparations	672 869	0.80
4103	Other hides and skins	556 878	-2.87
2201	Water	376 850	-0.12
711	Preserved vegetables	193 365	-1.05
901	Coffee	185 549	-3.16
1401	Vegetable plaiting materials	185 020	-1.13
1509	Pure olive oil	102 156	-1.14
1904	Prepared cereals	64 797	0.51
811	Frozen fruits and nuts	48 637	-0.13
2308	Other vegetable residues and waste	47 921	-0.21
710	Frozen vegetables	39 382	-0.65
2007	Jams	37 443	0.14
2101	Coffee and tea extracts	14 383	-0.55

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1605	Processed crustaceans	7 645 815	-1.53
2005	Other processed vegetables	3 761 576	-0.86
1806	Chocolate	815 421	1.50
2204	Wine	527 332	-0.15
1701	Raw sugar	394 040	-2.13
1704	Confectionery sugar	120 940	0.09
2203	Beer	86 836	0.97
2008	Other processed fruits and nuts	40 462	-1.35
1601	Sausages	32 221	1.40

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
201	Bovine meat	591 230	0.58
2001	Pickled foods	74 226	-0.53
1602	Other prepared meat	19 309	0.90
1404	Other vegetable products	11 964	-1.82

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
4101	Equine and bovine hides	6 442 247	-0.88
4102	Sheep hides	1 311 578	-1.37
2103	Sauces and seasonings	75 161	0.32
2306	Other vegetable residues	67 726	-0.65
902	Tea	18 057	-2.70
2009	Fruit juice	8 697	-0.78
2304	Soybean meal	3 457	-0.69
1106	Legume flours	1 926	-2.33

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.9. Food processing sector in Bosnia and Herzegovina (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1512	Seed oils	88 000 000	-0.65
811	Frozen fruits and nuts	38 500 000	-0.13
1101	Wheat flours	24 400 000	-1.09
1602	Other prepared meat	18 800 000	0.90
1702	Other sugars	18 000 000	1.05
2202	Flavoured water	16 800 000	0.37
2106	Other edible preparations	7 424 875	0.80
712	Dried vegetables	5 247 577	-1.63
901	Coffee	5 132 706	-3.16
3301	Essential oils	4 612 244	-1.42
1901	Malt extract	3 892 668	0.76
2201	Water	2 049 829	-0.12
2309	Animal food	1 313 197	0.84
2303	Starch residue	862 898	1.42
1104	Processed cereals	680 300	0.61
2302	Bran	487 784	-2.54
1904	Prepared cereals	421 611	0.51
2301	Animal meal and pellets	416 986	-1.43
1518	Inedible fats and oils	266 078	1.23
2101	Coffee and tea extracts	243 533	-0.55
2104	Soups and broths	183 633	0.45
1604	Processed fish	175 180	-1.88
1102	Cereal flours	139 337	-1.02
2004	Other frozen vegetables	104 185	0.98
2006	Sugar preserved foods	30 683	-0.05
1513	Coconut oil	22 358	-2.73
4103	Other hides and skins	13 116	-2.87
2003	Processed mushrooms	6 177	1.87

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1806	Chocolate	15 900 000	1.50
2103	Sauces and seasonings	3 082 847	0.32
2005	Other processed vegetables	2 749 486	-0.86
2306	Other vegetable residues	2 385 463	-0.65
2009	Fruit juice	1 366 527	-0.78
210	Preserved meat	1 274 271	1.52
1605	Processed crustaceans	652 049	-1.53
1902	Pasta	643 811	-1.26
1704	Confectionery sugar	630 875	0.09

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1905	Baked goods	28 300 000	0.51
2208	Hard liquor	5 159 235	-0.05
2001	Pickled foods	2 134 921	-0.53
2007	Jams	2 126 883	0.14
710	Frozen vegetables	1 660 143	-0.65
711	Preserved vegetables	266 725	-1.05
2002	Processed tomatoes	34 943	-0.71
1805	Cocoa powder	26 659	-0.97
1108	Starches	5 005	0.43
3505	Dextrins	3 023	1.25

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
4101	Equine and bovine hides	44 400 000	-0.88
1701	Raw sugar	9 997 127	-2.13
207	Poultry meat	5 534 677	1.04
1514	Rapeseed oil	2 463 453	1.55
2204	Wine	2 405 651	-0.15
1601	Sausages	2 127 418	1.40
1507	Soybean oil	1 325 219	-1.16
2203	Beer	869 337	0.97
2304	Soybean meal	811 041	-0.69
4102	Sheep hides	756 413	-1.37
1517	Margarine	675 424	-0.74
2008	Other processed fruits and nuts	364 673	-1.35
2102	Yeast	71 034	0.16
1103	Cereal meal and pellets	62 276	-0.13
902	Tea	31 603	-2.70
1106	Legume flours	24 856	-2.33
1703	Molasses	21 565	-1.88
2209	Vinegar	8 241	0.14
1515	Other pure vegetable oils	6 718	-0.26
2207	Alcohol > 80% ABV	4 586	-0.86
2206	Other fermented beverages	1 788	1.69

Note: Products highlighted in grey are short gains.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.10. Food processing sector in Kosovo (2016)

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic AND regional exports	2202	Flavoured water	10 000 000	0.37
	901	Coffee	2 100 000	-3.16
	2001	Pickled foods	1 800 000	-0.53
	1905	Baked goods	1 600 000	0.51
	2007	Jams	1 300 000	0.14
	712	Dried vegetables	1 200 000	-1.63
	811	Frozen fruits and nuts	830 382	-0.13
	2302	Bran	827 921	-2.54
	2201	Water	782 433	-0.12
	1904	Prepared cereals	280 838	0.51
	2106	Other edible preparations	206 437	0.80
	710	Frozen vegetables	163 541	-0.65
	3505	Dextrins	58 712	1.25
	2309	Animal food	39 621	0.84
	2003	Processed mushrooms	35 936	1.87
	711	Preserved vegetables	34 676	-1.05
	1102	Cereal flours	32 947	-1.02
	1602	Other prepared meat	9 422	0.90

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic BUT NOT regional exports	2203	Beer	4 500 000	0.97
	1806	Chocolate	2 700 000	1.50
	1704	Confectionery sugar	889 963	0.09
	2005	Other processed vegetables	621 415	-0.86
	1601	Sausages	510 920	1.40
	1902	Pasta	197 943	-1.26
	2103	Sauces and seasonings	195 373	0.32
	2206	Other fermented beverages	45 464	1.69
	902	Tea	34 704	-2.70
	2102	Yeast	27 677	0.16
	1105	Potato flours	2 540	2.07

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic BUT NOT regional exports	1101	Wheat flours	4 600 000	-1.09
	2004	Other frozen vegetables	41 265	0.98
	2208	Hard liquor	37 862	-0.05
	1901	Malt extract	16 249	0.76
		Wheat flours	4 600 000	

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic AND regional exports	4101	Equine and bovine hides	11 000 000	-0.88
	2204	Wine	3 300 000	-0.15
	2008	Other processed fruits and nuts	197 692	-1.35
	2009	Fruit juice	171 517	-0.78
	2306	Other vegetable residues	118 487	-0.65

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.11. Food processing sector in Montenegro (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
712	Dried vegetables	2 337 839	-1.63
3301	Essential oils	2 048 370	-1.42
1602	Other prepared meat	1 848 541	0.90
710	Frozen vegetables	1 470 739	-0.65
209	Animal fat	386 487	1.90
1404	Other vegetable products	224 985	-1.82
2309	Animal food	164 317	0.84
1401	Vegetable plaiting materials	130 510	-1.13
2301	Animal meal and pellets	58 584	-1.43
1901	Malt extract	48 928	0.76
1702	Other sugars	16 547	1.05

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
210	Preserved meat	6 359 888	1.52
1806	Chocolate	998 252	1.50
2009	Fruit juice	119 445	-0.78
1704	Confectionery sugar	35 180	0.09

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
811	Frozen fruits and nuts	983 170	-0.13
2208	Hard liquor	751 110	-0.05
1905	Baked goods	353 383	0.51
711	Preserved vegetables	179 901	-1.05
2201	Water	163 012	-0.12
1604	Processed fish	80 694	-1.88
2106	Other edible preparations	46 605	0.80
203	Pig meat	40 092	2.32
2202	Flavoured water	30 729	0.37
901	Coffee	25 252	-3.16
2007	Jams	16 107	0.14
1101	Wheat flours	10 649	-1.09

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2204	Wine	14 600 000	-0.15
4101	Equine and bovine hides	3 392 779	-0.88
2203	Beer	2 553 261	0.97
1601	Sausages	1 564 527	1.40
4102	Sheep hides	69 798	-1.37
902	Tea	9 635	-2.70
1501	Pig and poultry fat	4 419	2.22

Note: Products highlighted in grey are short gains.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.12. Food processing sector in North Macedonia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
1905	Baked goods	49 500 000	0.51
811	Frozen fruits and nuts	19 700 000	-0.13
1512	Seed oils	18 400 000	-0.65
2001	Pickled foods	15 300 000	-0.53
1901	Malt extract	11 600 000	0.76
710	Frozen vegetables	10 300 000	-0.65
1904	Prepared cereals	5 824 153	0.51
1602	Other prepared meat	3 338 782	0.90
901	Coffee	1 410 583	-3.16
4103	Other hides and skins	860 925	-2.87
2302	Bran	546 440	-2.54
3301	Essential oils	448 718	-1.42
2007	Jams	398 706	0.14
1518	Inedible fats and oils	332 988	1.23
2201	Water	244 401	-0.12
2004	Other frozen vegetables	210 225	0.98
1101	Wheat flours	119 118	-1.09
2101	Coffee and tea extracts	73 716	-0.55
1104	Processed cereals	44 120	0.61
2006	Sugar preserved foods	30 427	-0.05
3505	Dextrins	13 817	1.25
1102	Cereal flours	12 088	-1.02
1108	Starches	9 262	0.43
1404	Other vegetable products	6 287	-1.82
1604	Processed fish	5 825	-1.88

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2005	Other processed vegetables	19 300 000	-0.86
1806	Chocolate	9 242 302	1.50
2103	Sauces and seasonings	6 288 146	0.32
2009	Fruit juice	2 682 081	-0.78
2306	Other vegetable residues	191 631	-0.65
902	Tea	172 237	-2.70
2209	Vinegar	135 351	0.14
1902	Pasta	110 212	-1.26
1515	Other pure vegetable oils	62 910	-0.26
1106	Legume flours	19 839	-2.33
1516	Other vegetable oils	8 616	-1.24

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2106	Other edible preparations	7 456 555	0.80
2202	Flavoured water	5 899 976	0.37
2105	Ice cream	4 035 061	0.99
712	Dried vegetables	3 948 217	-1.63
2208	Hard liquor	582 127	-0.05
2002	Processed tomatoes	453 969	-0.71
2003	Processed mushrooms	328 723	1.87
711	Preserved vegetables	326 059	-1.05
2104	Soups and broths	202 488	0.45
2308	Other vegetable residues and waste	11 987	-0.21

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2204	Wine	51 800 000	-0.15
204	Sheep and goat meat	13 600 000	-1.09
1704	Confectionery sugar	7 279 228	0.09
1601	Sausages	6 216 762	1.40
2102	Yeast	3 948 687	0.16
4101	Equine and bovine hides	2 438 895	-0.88
2008	Other processed fruits and nuts	2 036 699	-1.35
4102	Sheep hides	1 144 511	-1.37
2203	Beer	667 688	0.97
207	Poultry meat	291 598	1.04
210	Preserved meat	290 896	1.52
2207	Alcohol > 80% ABV	166 052	-0.86
1605	Processed crustaceans	79 259	-1.53
1517	Margarine	75 768	-0.74
2307	Wine lees	38 196	0.66
1208	Oil seed flower	23 925	-0.64
1701	Raw sugar	8 790	-2.13
1103	Cereal meal and pellets	7 885	-0.13
1520	Glycerol	3 511	0.69
2205	Vermouth	1 593	0.07

Note: Products highlighted in grey are short gains.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.13. Food processing sector in Serbia (2016)

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic AND regional exports	811	Frozen fruits and nuts	369 000 000	-0.13
	2202	Flavoured water	111 000 000	0.37
	1905	Baked goods	91 500 000	0.51
	2309	Animal food	85 000 000	0.84
	2106	Other edible preparations	61 300 000	0.80
	710	Frozen vegetables	47 500 000	-0.65
	1901	Malt extract	30 600 000	0.76
	2105	Ice cream	19 200 000	0.99
	2201	Water	18 200 000	-0.12
	2007	Jams	16 000 000	0.14
	203	Pig meat	15 400 000	2.32
	712	Dried vegetables	14 100 000	-1.63
	1904	Prepared cereals	13 100 000	0.51
	2303	Starch residue	12 700 000	1.42
	2302	Bran	11 100 000	-2.54
	2208	Hard liquor	9 500 786	-0.05
	1108	Starches	9 457 054	0.43
	901	Coffee	6 701 584	-3.16
	2104	Soups and broths	6 014 610	0.45
	3504	Peptones	5 763 484	1.65
	2001	Pickled foods	4 346 935	-0.53
	1104	Processed cereals	3 117 371	0.61
	1518	Inedible fats and oils	2 656 305	1.23
	2002	Processed tomatoes	2 472 462	-0.71
	2301	Animal meal and pellets	2 411 741	-1.43
	1506	Other animal fats	2 171 032	2.60
	1702	Other sugars	2 166 505	1.05
	3505	Dextrins	1 934 891	1.25
	3301	Essential oils	1 912 350	-1.42
	2101	Coffee and tea extracts	1 697 561	-0.55
	1604	Processed fish	1 658 117	-1.88
	1102	Cereal flours	1 127 539	-1.02
	1109	Wheat gluten	1 076 208	1.28
	1805	Cocoa powder	1 043 347	-0.97
	2003	Processed mushrooms	974 333	1.87
	711	Preserved vegetables	940 751	-1.05
	2006	Sugar preserved foods	874 588	-0.05
	206	Edible offal	797 355	-0.04
	1404	Other vegetable products	795 118	-1.82
	1401	Vegetable plaiting materials	761 023	-1.13
	209	Animal fat	719 042	1.90
	2308	Other vegetable residues and waste	586 612	-0.21
	812	Preserved fruits and nuts	563 836	-0.73
	1804	Cocoa butter	456 655	-2.58
	1522	Fat and oil residues	333 469	-0.23
	2004	Other frozen vegetables	251 916	0.98
	3502	Water soluble proteins	73 260	2.11
	1502	Bovine, sheep and goat fat	47 568	0.07

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic BUT NOT regional exports	1601	Sausages	29 300 000	1.40
	2103	Sauces and seasonings	24 900 000	0.32
	207	Poultry meat	9 163 656	1.04
	1704	Confectionery sugar	7 515 318	0.09
	210	Preserved meat	2 503 305	1.52
	902	Tea	304 431	-2.70
	204	Sheep and goat meat	171 090	-1.09
	1521	Waxes	68 621	-2.53

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.14. Food processing sector in Serbia (2016) (continued)

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic BUT NOT regional exports	1512	Seed oils	125 000 000	-0.65
	1101	Wheat flours	50 900 000	-1.09
	1602	Other prepared meat	16 800 000	0.90
	201	Bovine meat	7 645 348	0.58
	4103	Other hides and skins	217 833	-2.87
	1513	Coconut oil	28 966	-2.73
	1509	Pure olive oil	21 016	-1.14
FALLING domestic AND regional exports	1701	Raw sugar	110 000 000	-2.13
	1806	Chocolate	50 700 000	1.50
	2203	Beer	50 600 000	0.97
	1507	Soybean oil	46 000 000	-1.16
	4101	Equine and bovine hides	31 600 000	-0.88
	2009	Fruit juice	31 200 000	-0.78
	2005	Other processed vegetables	27 700 000	-0.86
	2304	Soybean meal	23 900 000	-0.69
	2204	Wine	15 700 000	-0.15
	2008	Other processed fruits and nuts	12 000 000	-1.35
	2102	Yeast	10 800 000	0.16
	1517	Margarine	9 154 959	-0.74
	1208	Oil seed flower	9 070 555	-0.64
	1514	Rapeseed oil	5 804 386	1.55
	1902	Pasta	5 590 842	-1.26
	2306	Other vegetable residues	5 285 175	-0.65
	1103	Cereal meal and pellets	5 092 306	-0.13
	1703	Molasses	4 711 073	-1.88
	2206	Other fermented beverages	4 049 186	1.69
	1107	Malt	2 096 032	1.05
	1516	Other vegetable oils	1 691 291	-1.24
	4102	Sheep hides	978 951	-1.37
	2209	Vinegar	529 348	0.14
	1605	Processed crustaceans	424 092	-1.53
	1515	Other pure vegetable oils	401 933	-0.26
	1501	Pig and poultry fat	274 136	2.22
	1106	Legume flours	267 338	-2.33
	2207	Alcohol > 80% ABV	145 323	-0.86
	1105	Potato flours	88 965	2.07
	2205	Vermouth	37 822	0.07
	1510	Olive oil	24 520	-0.79
	1511	Palm oil	16 236	-3.27
	1803	Cocoa paste	9 482	-1.36
	3503	Gelatin	1 572	0.88
	3501	Casein	1 121	1.00

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.15. Metal processing sector in Albania (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7308	Iron structures	18 300 000	1.66
7610	Aluminium structures	5 674 670	1.60
8208	Cutting blades	1 289 041	3.49
9406	Prefabricated buildings	1 255 070	1.45
7616	Other aluminium products	1 215 417	2.30
7108	Gold	1 026 728	-3.53
7608	Aluminium pipes	407 428	2.20
7310	Small iron containers	407 047	1.13
7324	Iron toiletry	179 444	1.50
7307	Iron pipe fittings	63 830	3.11
7318	Iron fasteners	39 494	3.57
7412	Copper pipe fittings	23 539	2.28
7315	Iron chains	6 322	2.41
7229	Steel wire	5 915	2.72
8202	Hand saws	5 133	3.55
8213	Scissors	2 782	1.10
7211	Large flat-rolled iron	2 146	2.12
8311	Coated metal soldering products	1 098	1.60

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7202	Ferroalloys	56 200 000	-0.92
7601	Raw aluminium	22 500 000	-1.28
7604	Aluminium bars	6 871 637	1.44
7314	Iron cloth	5 122 084	1.46
7213	Hot-rolled iron bars	844 010	1.48
7217	Iron wire	192 530	0.47
7215	Other iron bars	170 854	1.72
7606	Aluminium plating	131 965	2.20
7325	Other cast iron products	128 547	1.49
7304	Iron pipes	113 596	1.85
7317	Iron nails	52 947	0.72
7210	Coated flat-rolled iron	36 279	1.55
7212	Large coated flat-rolled iron	25 077	2.39
7407	Copper bars	10 389	1.08
8211	Knives	4 563	2.32

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8308	Other metal fasteners	1 035 602	1.98
7403	Refined copper	85 405	-1.21
7609	Aluminium pipe fittings	78 425	2.00
7322	Iron radiators	71 366	2.39
8207	Interchangeable tool parts	59 983	3.39
8205	Other hand tools	46 133	3.04
7309	Large iron containers	29 498	1.13
8306	Bells and other metal ornaments	24 599	-0.41
8203	Hand tools	3 358	2.17
7209	Cold-rolled iron	1 732	1.04

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7214	Raw iron bars	7 883 855	-1.11
7801	Raw lead	2 538 777	-1.40
7207	Semi-finished iron	1 259 815	-0.24
7311	Iron gas containers	116 837	-0.15
7306	Other small iron pipes	97 423	0.42
7216	Iron blocks	34 282	0.71
7312	Stranded iron wire	6 968	0.74
7411	Copper pipes	4 835	1.45
7607	Aluminium foil	3 070	2.66
7323	Iron housewares	2 429	0.51
8215	Cutlery sets	1 939	0.02

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.16. Metal processing sector in Bosnia and Herzegovina (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
2818	Aluminium oxide	87 800 000	0.48
7308	Iron structures	80 500 000	1.66
7318	Iron fasteners	50 500 000	3.57
7610	Aluminium structures	41 700 000	1.60
9406	Prefabricated buildings	29 300 000	1.45
8207	Interchangeable tool parts	14 400 000	3.39
7616	Other aluminium products	11 300 000	2.30
7907	Other zinc products	8 864 193	1.78
7310	Small iron containers	4 781 440	1.13
7307	Iron pipe fittings	3 911 412	3.11
7309	Large iron containers	3 805 759	1.13
8007	Other tin products	1 324 004	0.66
8208	Cutting blades	1 256 746	3.49
7106	Silver	1 015 018	-0.60
7324	Iron toiletry	914 039	1.50
8311	Coated metal soldering products	867 446	1.60
8308	Other metal fasteners	839 253	1.98
8205	Other hand tools	672 823	3.04
7608	Aluminium pipes	416 145	2.20
7322	Iron radiators	342 132	2.39
7609	Aluminium pipe fittings	305 073	2.00
7615	Aluminium housewares	232 773	0.74
8202	Hand saws	205 146	3.55
7219	Large flat-rolled stainless steel	152 274	3.21
7806	Other lead products	121 000	-0.15
7315	Iron chains	94 008	2.41
7412	Copper pipe fittings	53 520	2.28
8214	Other cutlery	52 529	1.97
8303	Safes	40 521	2.13
7226	Flat-rolled iron	30 678	3.34
8206	Tool sets	24 857	-0.12
7229	Steel wire	23 512	2.72
7223	Stainless steel wire	21 394	2.73
7418	Copper housewares	15 797	0.33
8305	Metal office supplies	15 561	1.86
8213	Scissors	8 972	1.10
7319	Iron sewing needles	3 477	1.54
8306	Bells and other metal ornaments	3 247	-0.41
7508	Other nickel products	2 322	2.33

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7207	Semi-finished iron	21 300 000	-0.24
7205	Iron powder	3 561 419	2.53
7323	Iron housewares	995 342	0.51
7215	Other iron bars	349 160	1.72
7607	Aluminium foil	247 509	2.66
8404	Boiler plants	183 995	2.13
7612	Aluminium cans	98 567	1.18
7411	Copper pipes	94 543	1.45
7222	Other stainless-steel bars	74 425	2.77
8204	Wrenches	63 077	2.48
7313	Barbed wire	18 152	-0.85
8211	Knives	11 946	2.32
7220	Flat-rolled stainless steel	8 510	3.48
8215	Cutlery sets	3 750	0.02
8304	Filing cabinets	1 172	1.50

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.17. Metal processing sector in Bosnia and Herzegovina (2016) (continued)

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8402	Steam boilers	586 646	1.58
7208	Hot-rolled iron	361 183	1.30
8201	Garden tools	261 693	1.34
7211	Large flat-rolled iron	181 180	2.12
7108	Gold	108 200	-3.53
8203	Hand tools	79 911	2.17
7209	Cold-rolled iron	35 873	1.04
7225	Flat flat-rolled steel	4 565	2.88
8105	Cobalt	4 206	-0.06

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7601	Raw aluminium	186 000 000	-1.28
7213	Hot-rolled iron bars	87 800 000	1.48
7214	Raw iron bars	85 000 000	-1.11
7604	Aluminium bars	69 000 000	1.44
7314	Iron cloth	42 700 000	1.46
7306	Other small iron pipes	7 783 844	0.42
7217	Iron wire	5 927 142	0.47
7325	Other cast iron products	3 615 926	1.49
7312	Stranded iron wire	1 814 757	0.74
7216	Iron blocks	1 606 445	0.71
7201	Pig iron	1 001 343	-0.34
7202	Ferroalloys	726 888	-0.92
7304	Iron pipes	449 929	1.85
7210	Coated flat-rolled iron	254 792	1.55
7801	Raw lead	177 674	-1.40
7311	Iron gas containers	169 015	-0.15
7606	Aluminium plating	145 640	2.20
8309	Metal stoppers	144 760	1.55
7317	Iron nails	79 748	0.72
7224	Steel ingots	76 989	2.61
8209	Tool plates	73 441	4.37
7611	Large aluminium containers	72 798	1.38
7212	Large coated flat-rolled iron	64 062	2.39
7228	Other steel bars	60 567	2.51
7407	Copper bars	51 634	1.08
7410	Copper foil	26 740	2.12
7302	Iron railway products	21 389	2.03
8101	Tungsten	12 842	2.25
7408	Copper wire	9 493	-0.34
7614	Stranded aluminium wire	5 360	0.14
7305	Other large iron pipes	4 423	1.44
7409	Copper plating	3 569	1.16
8112	Other metals	2 050	1.45
7303	Cast iron pipes	2 049	0.44

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.18. Metal processing sector in Kosovo (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7610	Aluminium structures	44 000 000	1.60
9406	Prefabricated buildings	3 200 000	1.45
7308	Iron structures	2 700 000	1.66
7322	Iron radiators	2 200 000	2.39
7318	Iron fasteners	1 200 000	3.57
7907	Other zinc products	906 518	1.78
7616	Other aluminium products	275 076	2.30
7307	Iron pipe fittings	170 479	3.11
8402	Steam boilers	85 920	1.58
7324	Iron toiletry	34 168	1.50
7301	Iron sheet piling	33 871	1.55
8206	Tool sets	21 339	-0.12
7309	Large iron containers	19 747	1.13
8205	Other hand tools	17 447	3.04
7615	Aluminium housewares	12 602	0.74
8207	Interchangeable tool parts	12 026	3.39
8303	Safes	7 237	2.13
8203	Hand tools	6 360	2.17
7315	Iron chains	6 028	2.41
8202	Hand saws	5 896	3.55
8311	Coated metal soldering products	3 411	1.60
8208	Cutting blades	2 686	3.49
8308	Other metal fasteners	1 976	1.98
7608	Aluminium pipes	1 744	2.20

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7304	Iron pipes	7 600 000	1.85
7217	Iron wire	607 832	0.47
7216	Iron blocks	274 161	0.71
7604	Aluminium bars	200 039	1.44
7606	Aluminium plating	173 611	2.20
7903	Zinc powder	41 600	0.88
7212	Large coated flat-rolled iron	34 498	2.39
7323	Iron housewares	11 448	0.51
7302	Iron railway products	7 254	2.03
7305	Other large iron pipes	7 233	1.44
7325	Other cast iron products	6 780	1.49
8211	Knives	3 638	2.32
8204	Wrenches	1 724	2.48

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7310	Small iron containers	103 639	1.13
7403	Refined copper	23 998	-1.21
7806	Other lead products	1 775	-0.15
8214	Other cutlery	1 056	1.97

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7202	Ferroalloys	25 000 000	-0.92
7306	Other small iron pipes	8 700 000	0.42
7314	Iron cloth	899 310	1.46
7210	Coated flat-rolled iron	388 926	1.55
7215	Other iron bars	24 370	1.72
7303	Cast iron pipes	16 570	0.44
7312	Stranded iron wire	5 167	0.74
7311	Iron gas containers	4 672	-0.15
7214	Raw iron bars	4 162	-1.11
7228	Other steel bars	2 113	2.51
7220	Flat-rolled stainless steel	1 056	3.48

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.19. Metal processing sector in Montenegro (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7610	Aluminium structures	221 911	1.60
7616	Other aluminium products	40 747	2.30
8205	Other hand tools	28 811	3.04
7324	Iron toiletry	4 687	1.50
8203	Hand tools	3 133	2.17
7615	Aluminium housewares	2 166	0.74

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7612	Aluminium cans	6 961	1.18
7311	Iron gas containers	5 666	-0.15

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7308	Iron structures	199 918	1.66
7318	Iron fasteners	27 313	3.57
8207	Interchangeable tool parts	26 220	3.39
9406	Prefabricated buildings	13 625	1.45
7307	Iron pipe fittings	7 912	3.11
8202	Hand saws	3 660	3.55
8306	Bells and other metal ornaments	3 156	-0.41

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7601	Raw aluminium	93 700 000	-1.28
7228	Other steel bars	9 108 473	2.51
7214	Raw iron bars	5 405 815	-1.11
7224	Steel ingots	1 180 347	2.61
7215	Other iron bars	572 688	1.72
7325	Other cast iron products	184 280	1.49
7604	Aluminium bars	20 225	1.44
7306	Other small iron pipes	10 492	0.42
7304	Iron pipes	8 473	1.85

Note: Products highlighted in grey are short gains.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.20. Metal processing sector in North Macedonia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
9406	Prefabricated buildings	1 130 150	1.45
7108	Gold	1 003 304	-3.53
7412	Copper pipe fittings	64 870	2.28
8311	Coated metal soldering products	55 659	1.60
8003	Tin bars	34 456	1.24
7615	Aluminium housewares	12 989	0.74
7613	Aluminium gas containers	11 209	2.51
7319	Iron sewing needles	4 280	1.54

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7228	Other steel bars	39 745	2.51
7222	Other stainless-steel bars	23 675	2.77

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7208	Hot-rolled iron	118 000 000	1.30
7308	Iron structures	10 500 000	1.66
7301	Iron sheet piling	10 100 000	1.55
7616	Other aluminium products	9 479 823	2.30
7403	Refined copper	5 776 758	-1.21
7209	Cold-rolled iron	5 319 937	1.04
7307	Iron pipe fittings	1 459 429	3.11
7610	Aluminium structures	1 316 462	1.60
7211	Large flat-rolled iron	971 142	2.12
7225	Flat flat-rolled steel	935 685	2.88
8207	Interchangeable tool parts	662 170	3.39
8303	Safes	311 798	2.13
7310	Small iron containers	310 218	1.13
7309	Large iron containers	259 045	1.13
7318	Iron fasteners	236 815	3.57
8208	Cutting blades	205 917	3.49
7324	Iron toiletry	113 710	1.50
8205	Other hand tools	91 129	3.04
7608	Aluminium pipes	31 367	2.20
7905	Zinc sheets	27 109	2.38
8402	Steam boilers	22 780	1.58
8308	Other metal fasteners	20 799	1.98
8203	Hand tools	19 167	2.17
7219	Large flat-rolled stainless steel	8 971	3.21
7322	Iron radiators	8 754	2.39
7315	Iron chains	7 586	2.41
7907	Other zinc products	7 154	1.78
7609	Aluminium pipe fittings	1 809	2.00
8206	Tool sets	1 576	-0.12

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7202	Ferroalloys	110 000 000	-0.92
7306	Other small iron pipes	94 600 000	0.42
7210	Coated flat-rolled iron	73 900 000	1.55
7314	Iron cloth	4 671 766	1.46
7214	Raw iron bars	4 299 832	-1.11
7212	Large coated flat-rolled iron	3 475 833	2.39
7317	Iron nails	3 142 522	0.72
7217	Iron wire	3 108 778	0.47
7216	Iron blocks	1 711 781	0.71
7311	Iron gas containers	1 507 363	-0.15
7604	Aluminium bars	1 473 525	1.44
7205	Iron powder	530 838	2.53
7325	Other cast iron products	516 508	1.49
7305	Other large iron pipes	489 685	1.44
7304	Iron pipes	487 021	1.85
7606	Aluminium plating	412 934	2.20
7801	Raw lead	277 845	-1.40
7323	Iron housewares	185 489	0.51
8309	Metal stoppers	158 523	1.55
7607	Aluminium foil	104 766	2.66
7213	Hot-rolled iron bars	90 764	1.48
7313	Barbed wire	62 235	-0.85
7303	Cast iron pipes	54 759	0.44
7408	Copper wire	26 469	-0.34
8204	Wrenches	22 038	2.48
8215	Cutlery sets	18 078	0.02
8211	Knives	17 775	2.32
7601	Raw aluminium	16 267	-1.28
7411	Copper pipes	13 384	1.45
7312	Stranded iron wire	6 822	0.74
7612	Aluminium cans	1 350	1.18

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.21. Metal processing sector in Serbia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7403	Refined copper	238 000 000	-1.21
7208	Hot-rolled iron	221 000 000	1.30
7308	Iron structures	84 400 000	1.66
7209	Cold-rolled iron	53 300 000	1.04
7610	Aluminium structures	27 700 000	1.60
9406	Prefabricated buildings	26 600 000	1.45
7108	Gold	19 000 000	-3.53
8207	Interchangeable tool parts	16 900 000	3.39
7318	Iron fasteners	14 900 000	3.57
8104	Magnesium	11 800 000	2.78
7307	Iron pipe fittings	11 500 000	3.11
7309	Large iron containers	7 653 083	1.13
7106	Silver	7 044 979	-0.60
8402	Steam boilers	6 207 451	1.58
7616	Other aluminium products	6 064 449	2.30
7310	Small iron containers	4 466 475	1.13
7322	Iron radiators	3 690 376	2.39
7315	Iron chains	2 672 793	2.41
7615	Aluminium housewares	1 942 051	0.74
7907	Other zinc products	1 699 414	1.78
7402	Raw copper	1 681 373	-1.52
7901	Raw zinc	1 585 513	0.29
7412	Copper pipe fittings	1 533 504	2.28
8205	Other hand tools	1 220 978	3.04
7608	Aluminium pipes	1 192 766	2.20
8303	Safes	1 137 848	2.13
7110	Platinum	1 027 161	1.68
8201	Garden tools	600 837	1.34
8202	Hand saws	575 020	3.55
7225	Flat flat-rolled steel	463 678	2.88
8306	Bells and metal ornaments	445 149	-0.41
8308	Other metal fasteners	246 216	1.98
8305	Metal office supplies	232 007	1.86
7226	Flat-rolled iron	196 134	3.34
7609	Aluminium pipe fittings	175 421	2.00
8210	Cooking hand tools	164 288	1.79
7418	Copper housewares	136 343	0.33
8311	Coated metal soldering products	115 029	1.60
8203	Hand tools	107 438	2.17
7806	Other lead products	96 614	-0.15
8214	Other cutlery	82 591	1.97
8206	Tool sets	81 079	-0.12
7508	Other nickel products	74 149	2.33
7218	Stainless steel ingots	69 293	1.55
8108	Titanium	63 619	2.14
7507	Nickel pipes	56 689	3.50
7605	Aluminium wire	45 555	0.32
7223	Stainless steel wire	45 289	2.73
8213	Scissors	34 605	1.10
7904	Zinc bars	22 343	1.64
7613	Aluminium gas containers	8 781	2.51
7319	Iron sewing needles	7 781	1.54
8001	Raw tin	3 989	-0.84

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7210	Coated flat-rolled iron	74 000 000	1.55
7306	Other small iron pipes	35 200 000	0.42
7604	Aluminium bars	33 900 000	1.44
7304	Iron pipes	5 846 909	1.85
7216	Iron blocks	4 169 661	0.71
7217	Iron wire	2 097 447	0.47
7311	Iron gas containers	1 834 531	-0.15
7614	Stranded aluminium wire	1 056 974	0.14
7205	Iron powder	199 883	2.53
7305	Other large iron pipes	132 194	1.44
8112	Other metals	16 088	1.45

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.22. Metal processing sector in Serbia (2016) (continued)

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7324	Iron toiletry	1 701 740	1.50
7211	Large flat-rolled iron	1 637 752	2.12
8208	Cutting blades	758 963	3.49
7219	Large flat-rolled stainless steel	292 706	3.21
7301	Iron sheet piling	109 677	1.55
7229	Steel wire	35 103	2.72
7905	Zinc sheets	30 638	2.38
8003	Tin bars	4 745	1.24
2818	Aluminium oxide	4 370	0.48
8007	Other tin products	3 028	0.66

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7606	Aluminium plating	143 000 000	2.20
7612	Aluminium cans	65 700 000	1.18
7411	Copper pipes	65 500 000	1.45
7409	Copper plating	58 200 000	1.16
7601	Raw aluminium	19 600 000	-1.28
7323	Iron housewares	18 700 000	0.51
7408	Copper wire	13 500 000	-0.34
7407	Copper bars	12 400 000	1.08
7325	Other cast iron products	10 700 000	1.49
7406	Copper powder	9 756 558	2.11
8309	Metal stoppers	8 929 628	1.55
7607	Aluminium foil	5 976 913	2.66
7202	Ferroalloys	5 961 294	-0.92
7212	Large coated flat-rolled iron	5 420 113	2.39
7214	Raw iron bars	4 677 985	-1.11
7314	Iron cloth	4 653 608	1.46
7201	Pig iron	2 214 066	-0.34
7317	Iron nails	1 805 459	0.72
7302	Iron railway products	1 463 074	2.03
7213	Hot-rolled iron bars	829 288	1.48
7801	Raw lead	789 477	-1.40
7312	Stranded iron wire	528 887	0.74
8209	Tool plates	485 040	4.37
7207	Semi-finished iron	466 574	-0.24
8404	Boiler plants	432 484	2.13
7502	Raw nickel	306 396	0.17
7228	Other steel bars	270 845	2.51
7303	Cast iron pipes	150 942	0.44
7313	Barbed wire	143 765	-0.85
8113	Cermets	120 641	4.27
8204	Wrenches	107 141	2.48
8101	Tungsten	104 116	2.25
7215	Other iron bars	100 066	1.72
8211	Knives	94 972	2.32
7220	Flat-rolled stainless steel	90 381	3.48
8212	Razor blades	76 247	1.13
8215	Cutlery sets	74 027	0.02
8304	Filing cabinets	65 187	1.50
7222	Other stainless-steel bars	52 130	2.77
7410	Copper foil	50 721	2.12
7206	Iron ingots	35 141	0.43
7804	Lead sheets	25 158	0.10
7316	Iron anchors	24 060	0.97
7227	Steel bars	22 360	3.24
7505	Nickel bars	6 296	3.09
7611	Large aluminium containers	3 074	1.38
7224	Steel ingots	2 432	2.61

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.23. Automotive sector in Albania (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8544	Insulated wire	9 343 784	-0.04
8708	Vehicle parts	9 021 221	3.01
9401	Seats	6 483 658	1.19
7326	Other iron products	3 303 465	2.34
8302	Metal mountings	2 768 844	2.04
4016	Other rubber products	2 267 877	2.50
8431	Excavation machinery	1 511 456	2.20
8414	Air pumps	1 308 440	3.58
9404	Mattresses	1 208 112	0.28
8707	Vehicle bodies	900 159	2.86
8716	Trailers	733 860	2.51
8704	Delivery trucks	672 397	1.76
7320	Iron springs	479 869	2.76
7007	Safety glass	437 892	2.40
8483	Transmissions	354 237	3.65
8409	Engine parts	335 583	2.79
3820	Antifreeze	304 491	1.83
9031	Other measuring instruments	158 172	3.21
8408	Combustion engines	123 658	3.00
8701	Tractors	95 209	2.09
7009	Glass mirrors	62 330	3.12
4011	Rubber tires	41 546	1.23
8527	Radio receivers	13 749	1.39
8310	Metal signs	4 479	1.31
8426	Cranes	4 188	2.88

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8481	Valves	438 403	3.33
8482	Ball bearings	18 289	2.84
4012	Used rubber tires	13 547	1.14

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8421	Centrifuges	597 015	2.85
8705	Specialised vehicles	452 649	1.77
8413	Liquid pumps	430 988	3.45
8507	Electric batteries	191 050	2.10
8702	Buses	103 970	1.58
8512	Electrical lighting and signalling equipment	19 142	2.64
8425	Pulley systems	10 936	2.07
8484	Gaskets	9 442	3.48
8511	Electrical ignitions	7 447	2.37
9025	Hydrometers	1 700	3.08

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7419	Other copper products	62 050	1.93
8415	Air conditioners	40 557	2.04
8301	Padlocks	16 837	2.10
8407	Spark-ignition engines	4 706	2.64
7419	Other copper products	62 050	1.93

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.24. Automotive sector in Bosnia and Herzegovina (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
9401	Seats	157 000 000	1.19
8544	Insulated wire	107 000 000	-0.04
8708	Vehicle parts	96 400 000	3.01
8414	Air pumps	72 800 000	3.58
8421	Centrifuges	47 700 000	2.85
7326	Other iron products	34 900 000	2.34
8703	Cars	24 000 000	2.37
8716	Trailers	16 300 000	2.51
8302	Metal mountings	12 300 000	2.04
9404	Mattresses	12 100 000	0.28
8511	Electrical ignitions	7 678 150	2.37
8512	Electrical lighting and signalling equipment	3 544 984	2.64
8425	Pulley systems	3 227 279	2.07
9031	Other measuring instruments	2 239 687	3.21
8701	Tractors	2 120 094	2.09
7007	Safety glass	1 851 741	2.40
8704	Delivery trucks	1 255 676	1.76
8707	Vehicle bodies	942 282	2.86
7320	Iron springs	842 472	2.76
8307	Flexible metal tubing	597 169	2.08
8408	Combustion engines	336 989	3.00
7009	Glass mirrors	271 668	3.12
8484	Gaskets	262 809	3.48
3815	Reaction and catalytic products	235 054	3.17
9029	Revolution counters	118 028	2.81
7415	Copper fasteners	82 587	3.49
8527	Radio receivers	11 425	1.39

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8482	Ball bearings	41 900 000	2.84
7419	Other copper products	634 968	1.93
8407	Spark-ignition engines	100 500	2.64

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8431	Excavation machinery	50 500 000	2.20
8413	Liquid pumps	9 916 111	3.45
8483	Transmissions	7 889 549	3.65
8409	Engine parts	4 766 268	2.79
8426	Cranes	1 579 547	2.88
4016	Other rubber products	1 056 019	2.50
8310	Metal signs	293 866	1.31
8705	Specialised vehicles	198 070	1.77
3820	Antifreeze	145 822	1.83
9025	Hydrometers	124 051	3.08
4011	Rubber tires	84 182	1.23
3819	Hydraulic brake fluid	53 490	2.23
8507	Electric batteries	23 525	2.10

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8301	Padlocks	23 100 000	2.10
8481	Valves	3 372 017	3.33
8415	Air conditioners	403 029	2.04
4012	Used rubber tires	245 315	1.14
7413	Stranded copper wire	181 316	1.31
6813	Friction material	9 497	1.26

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.25. Automotive sector in Kosovo (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
9401	Seats	1 300 000	1.19
7326	Other iron products	921 830	2.34
8431	Excavation machinery	455 588	2.20
8701	Tractors	420 341	2.09
8708	Vehicle parts	390 654	3.01
9404	Mattresses	336 565	0.28
8704	Delivery trucks	281 507	1.76
8703	Cars	245 435	2.37
8544	Insulated wire	144 678	-0.04
8302	Metal mountings	109 765	2.04
8414	Air pumps	86 310	3.58
7007	Safety glass	61 144	2.40
8716	Trailers	50 426	2.51
8408	Combustion engines	38 157	3.00
7009	Glass mirrors	23 794	3.12
4011	Rubber tires	21 258	1.23
4016	Other rubber products	15 386	2.50

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8301	Padlocks	71 270	2.10
8415	Air conditioners	20 508	2.04
8407	Spark-ignition engines	6 571	2.64
8482	Ball bearings	5 365	2.84

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8421	Centrifuges	365 602	2.85
8409	Engine parts	359 989	2.79
8413	Liquid pumps	88 681	3.45
8507	Electric batteries	25 460	2.10
7415	Copper fasteners	16 985	3.49
9031	Other measuring instruments	8 711	3.21
8426	Cranes	3 391	2.88
8425	Pulley systems	2 617	2.07
9025	Hydrometers	2 550	3.08
8483	Transmissions	1 891	3.65

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7419	Other copper products	77 204	1.93
4012	Used rubber tires	46 086	1.14
8481	Valves	29 808	3.33
7419	Other copper products	77 204	1.93

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.26. Automotive sector in Montenegro (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8708	Vehicle parts	1 031 150	3.01
8701	Tractors	809 514	2.09
8409	Engine parts	398 463	2.79
8512	Electrical lighting and signalling equipment	371 127	2.64
9404	Mattresses	280 767	0.28
7326	Other iron products	216 909	2.34
8421	Centrifuges	155 645	2.85
9401	Seats	124 132	1.19
8408	Combustion engines	99 757	3.00
8716	Trailers	62 584	2.51
8413	Liquid pumps	61 233	3.45
8414	Air pumps	53 940	3.58
8519	Sound recording equipment	31 015	1.08
8484	Gaskets	17 941	3.48
7009	Glass mirrors	6 398	3.12
8301	Padlocks	4 893	2.10
7007	Safety glass	3 425	2.40
9029	Revolution counters	1 042	2.81

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8483	Transmissions	8 593 353	3.65
8431	Excavation machinery	536 600	2.20
8544	Insulated wire	94 301	-0.04
8481	Valves	58 570	3.33
9031	Other measuring instruments	31 047	3.21
8482	Ball bearings	29 188	2.84
8302	Metal mountings	17 536	2.04
7320	Iron springs	17 515	2.76
8425	Pulley systems	14 909	2.07
8426	Cranes	13 108	2.88
8507	Electric batteries	10 055	2.10
8511	Electrical ignitions	8 217	2.37
4016	Other rubber products	7 577	2.50
4011	Rubber tires	5 866	1.23
8415	Air conditioners	4 774	2.04
9025	Hydrometers	2 649	3.08

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI

Note: Products in blue are long bets.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.27. Automotive sector in North Macedonia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
3815	Reaction and catalytic products	1 200 000 000	3.17
8421	Centrifuges	554 000 000	2.85
8544	Insulated wire	374 000 000	-0.04
8708	Vehicle parts	296 000 000	3.01
8702	Buses	295 000 000	1.58
9401	Seats	140 000 000	1.19
8703	Cars	56 400 000	2.37
8507	Electric batteries	45 900 000	2.10
9404	Mattresses	33 200 000	0.28
8413	Liquid pumps	4 201 606	3.45
9029	Revolution counters	4 131 773	2.81
8431	Excavation machinery	4 040 270	2.20
8302	Metal mountings	2 695 348	2.04
9031	Other measuring instruments	922 657	3.21
8716	Trailers	615 007	2.51
8705	Specialised vehicles	394 909	1.77
8704	Delivery trucks	187 732	1.76
7007	Safety glass	134 340	2.40
8408	Combustion engines	118 953	3.00
3820	Antifreeze	78 694	1.83
8484	Gaskets	23 670	3.48
9025	Hydrometers	21 078	3.08
8511	Electrical ignitions	10 162	2.37
8527	Radio receivers	8 987	1.39
8310	Metal signs	6 169	1.31
7415	Copper fasteners	4 403	3.49
8307	Flexible metal tubing	3 503	2.08

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
4012	Used rubber tires	60 536	1.14
7419	Other copper products	6 402	1.93
6813	Friction material	6 210	1.26
8407	Spark-ignition engines	6 137	2.64

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7326	Other iron products	4 122 005	2.34
8701	Tractors	1 023 768	2.09
8483	Transmissions	408 268	3.65
8707	Vehicle bodies	401 484	2.86
8414	Air pumps	383 654	3.58
8512	Electrical lighting and signalling equipment	249 667	2.64
4016	Other rubber products	129 732	2.50
4011	Rubber tires	71 658	1.23
7320	Iron springs	64 415	2.76
8425	Pulley systems	35 798	2.07
7009	Glass mirrors	19 979	3.12
8409	Engine parts	19 190	2.79

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8481	Valves	1 004 437	3.33
8415	Air conditioners	237 559	2.04
8482	Ball bearings	138 624	2.84
8301	Padlocks	66 248	2.10
7413	Stranded copper wire	12 930	1.31

Note: Products highlighted in blue are long bets.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.28. Automotive sector in Serbia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8703	Cars	1 150 000 000	2.37
8544	Insulated wire	566 000 000	-0.04
4011	Rubber tires	467 000 000	1.23
9401	Seats	234 000 000	1.19
8708	Vehicle parts	185 000 000	3.01
8413	Liquid pumps	134 000 000	3.45
8512	Electrical lighting and signalling equipment	130 000 000	2.64
7326	Other iron products	57 600 000	2.34
8409	Engine parts	56 500 000	2.79
8414	Air pumps	53 600 000	3.58
4016	Other rubber products	43 800 000	2.50
8704	Delivery trucks	37 800 000	1.76
8302	Metal mountings	31 100 000	2.04
8483	Transmissions	29 000 000	3.65
8431	Excavation machinery	24 700 000	2.20
4013	Rubber inner tubes	12 100 000	-0.53
9404	Mattresses	11 800 000	0.28
8426	Cranes	8 708 571	2.88
9031	Other measuring instruments	8 112 013	3.21
8707	Vehicle bodies	7 098 193	2.86
8425	Pulley systems	6 507 937	2.07
8484	Gaskets	4 849 291	3.48
8702	Buses	4 824 969	1.58
8701	Tractors	4 614 343	2.09
3820	Antifreeze	1 614 382	1.83
7009	Glass mirrors	1 213 722	3.12
8408	Combustion engines	1 110 737	3.00
8310	Metal signs	948 644	1.31
7415	Copper fasteners	841 908	3.49
9029	Revolution counters	829 947	2.81
9025	Hydrometers	800 820	3.08
8307	Flexible metal tubing	447 059	2.08
8527	Radio receivers	236 084	1.39
8519	Sound recording equipment	146 204	1.08
3815	Reaction and catalytic products	128 353	3.17

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8415	Air conditioners	6 143 773	2.04
8301	Padlocks	5 587 969	2.10

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8716	Trailers	54 300 000	2.51
8421	Centrifuges	19 500 000	2.85
8507	Electric batteries	8 088 089	2.10
8705	Specialised vehicles	3 148 487	1.77
7320	Iron springs	1 546 542	2.76
7007	Safety glass	1 089 335	2.40
8511	Electrical ignitions	484 413	2.37
3819	Hydraulic brake fluid	166 040	2.23

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8481	Valves	18 000 000	3.33
8482	Ball bearings	9 122 419	2.84
7413	Stranded copper wire	1 340 264	1.31
7419	Other copper products	1 244 403	1.93
8407	Spark-ignition engines	922 690	2.64
4012	Used rubber tires	459 307	1.14
6813	Friction material	312 599	1.26

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.29. Machinery sector in Albania (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8474	Stone processing machines	1 372 648	2.02
8471	Computers	1 026 137	1.94
8504	Electrical transformers	692 721	1.75
8537	Electrical control boards	345 791	2.32
8525	Broadcasting equipment	285 471	1.20
8452	Sewing machines	125 894	0.54
8410	Hydraulic turbines	64 236	1.23
9003	Eyewear frames	62 124	2.68
9102	Base metal watches	52 126	3.92
9101	Precious metal watches	31 168	1.38
8533	Electrical resistors	15 311	2.31
8459	Drilling machines	9 523	3.02
8411	Gas turbines	3 327	2.04
8513	Portable lighting	2 017	1.85

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8501	Electric motors	17 100 000	2.32
8536	Low-voltage protection equipment	2 752 801	1.88
9026	Gas and liquid flow measuring instruments	2 615 638	3.91
9018	Medical instruments	2 546 119	2.45
8428	Lifting machinery	1 484 377	3.02
8538	Electrical power accessories	1 029 578	2.71
8480	Metal moulds	1 007 276	2.83
8548	Electrical parts	1 001 167	1.43
8443	Industrial printers	918 728	2.97
8438	Industrial food preparation machinery	916 924	2.68
8453	Leather machinery	646 772	1.35
7321	Iron stovetops	607 756	1.58
8462	Forging machines	572 659	3.68
8422	Washing and bottling machines	472 156	3.15
8466	Metalworking machine parts	402 944	3.72
8417	Industrial furnaces	387 779	2.13
8531	Audio alarms	297 196	2.60
8418	Refrigerators	280 274	1.92
9019	Therapeutic appliances	252 055	2.01
9021	Orthopaedic appliances	247 240	3.44
8515	Electric soldering equipment	215 044	4.02
8427	Fork-lifts	201 904	3.84
8433	Harvesting machinery	159 257	2.36
9402	Medical furniture	131 220	1.79
9022	X-ray equipment	115 603	4.27
9015	Surveying equipment	80 442	2.28
8534	Printed circuit boards	40 333	1.78
9014	Compasses	29 889	2.14
9006	Cameras	7 388	1.42
9013	LCDs	6 433	2.08
8505	Electromagnets	3 007	3.51

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.30. Machinery sector in Albania (2016) (continued)

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic BUT NOT regional exports	8517	Telephones	3 242 938	1.96
	8542	Integrated circuits	320 720	2.56
	8477	Rubber working machinery	318 324	3.34
	8429	Large construction vehicles	306 531	2.41
	8502	Electric generating sets	125 720	2.80
	8465	Woodworking machines	93 012	2.82
	9004	Eyewear	81 453	1.21
	9030	Oscilloscopes	63 320	2.35
	8541	Semiconductor devices	29 477	1.47
	9033	Opto-electric instrument parts	28 577	2.58
	8439	Papermaking machines	22 551	2.92
	8539	Electric filament	20 857	2.63
	8514	Electric furnaces	13 292	3.94
	8521	Video recording equipment	6 010	1.07
	9032	Thermostats	4 607	2.96
	8506	Batteries	3 320	2.05
	8450	Household washing machines	2 950	1.36
	8508	Vacuum cleaners	1 323	2.50
FALLING domestic AND regional exports	8503	Electric motor parts	13 100 000	2.27
	8479	Machinery having individual functions	361 917	3.85
	8518	Microphones and headphones	261 026	0.63
	8430	Other construction vehicles	257 776	0.76
	9405	Light fixtures	215 772	2.92
	8528	Video displays	180 943	1.32
	8432	Soil preparation machinery	174 354	1.75
	8473	Office machine parts	134 875	2.15
	8529	Broadcasting accessories	117 366	1.73
	8451	Textile processing machines	81 657	2.23
	8543	Other electrical machinery	68 487	3.25
	8467	Motor-working tools	63 427	3.59
	8419	Other heating machinery	60 616	2.60
	9027	Chemical analysis instruments	60 297	4.11
	8526	Navigation equipment	47 681	2.29
	8412	Other engines	39 660	2.32
	8509	Other domestic electric housewares	36 728	2.65
	8516	Electric heaters	30 687	1.91
	8424	Liquid dispersing machines	26 199	2.81
	9001	Optical fibres	15 125	2.21
	8464	Stone working machines	12 380	3.05
	8441	Other paper machinery	11 119	2.84
	8423	Scales	8 900	2.53
	9002	Mirrors and lenses	4 318	1.86
	8437	Mill machinery	3 822	1.58
	8463	Other non-metal removal machinery	2 656	2.83
	9017	Drafting tools	1 406	4.40

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.31. Machinery sector in Bosnia and Herzegovina (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
9018	Medical instruments	38 500 000	2.45
8503	Electric motor parts	36 200 000	2.27
9306	Explosive ammunition	23 200 000	1.81
8501	Electric motors	19 900 000	2.32
8466	Metalworking machine parts	16 700 000	3.72
8480	Metal moulds	10 800 000	2.83
8548	Electrical parts	9 382 475	1.43
8515	Electric soldering equipment	9 279 419	4.02
8479	Machinery having individual functions	7 579 722	3.85
7321	Iron stovetops	7 452 892	1.58
8417	Industrial furnaces	5 927 948	2.13
8419	Other heating machinery	4 856 228	2.60
8428	Lifting machinery	4 354 101	3.02
8443	Industrial printers	4 070 087	2.97
8424	Liquid dispersing machines	4 022 336	2.81
8516	Electric heaters	3 842 576	1.91
8509	Other domestic electric housewares	2 981 267	2.65
8518	Microphones and headphones	2 739 196	0.63
8438	Industrial food preparation machinery	2 633 998	2.68
8422	Washing and bottling machines	2 268 566	3.15
8476	Vending machines	1 365 065	2.05
8441	Other paper machinery	1 218 378	2.84
8531	Audio alarms	1 027 954	2.60
8462	Forging machines	912 268	3.68
8470	Calculators	863 828	-0.01
8505	Electromagnets	774 801	3.51
8543	Other electrical machinery	742 221	3.25
8434	Dairy machinery	581 266	2.23
8430	Other construction vehicles	549 402	0.76
9013	LCDs	534 233	2.08
8478	Tobacco processing machines	515 377	1.56
9015	Surveying equipment	427 928	2.28
9019	Therapeutic appliances	412 329	2.01
9017	Drafting tools	386 620	4.40
8427	Fork-lifts	380 851	3.84
8460	Metal finishing machines	348 874	3.48
8442	Print production machinery	342 158	3.19
8464	Stone working machines	329 477	3.05
8528	Video displays	255 526	1.32
9027	Chemical analysis instruments	254 236	4.11
9001	Optical fibres	246 723	2.21
8420	Rolling machines	165 865	3.49
8463	Other non-metal removal machinery	146 683	2.83
8423	Scales	122 495	2.53
9014	Compasses	114 096	2.14
8472	Other office machines	107 055	2.22

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8403	Central heating boilers	9 214 480	2.16
8537	Electrical control boards	7 754 109	2.32
8504	Electrical transformers	7 532 476	1.75
8471	Computers	1 457 395	1.94
8439	Papermaking machines	922 884	2.92
8445	Textile fibre machinery	481 992	3.94
8513	Portable lighting	376 247	1.85
8458	Metal lathes	119 929	3.75
8416	Liquid fuel furnaces	95 914	3.00
8541	Semiconductor devices	47 116	1.47
8508	Vacuum cleaners	41 474	2.50
8506	Batteries	11 250	2.05
8521	Video recording equipment	4 963	1.07
9010	Photo lab equipment	1 957	4.48

Note: Products highlighted in blue are long bets.

Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.32. Machinery sector in Bosnia and Herzegovina (2016) (continued)

	8532	Electrical capacitors	91 925	1.41
	8435	Fruit pressing machinery	83 688	2.13
	9305	Weapons parts and accessories	67 474	2.33
	8437	Mill machinery	60 997	1.58
	8526	Navigation equipment	50 035	2.29
	9024	Tensile testing machines	23 108	3.20
	9105	Other clocks	12 923	4.13

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic BUT NOT regional exports	8536	Low-voltage protection equipment	13 600 000	1.88
	9405	Light fixtures	8 698 179	2.92
	8538	Electrical power accessories	7 065 105	2.71
	8418	Refrigerators	2 279 442	1.92
	8473	Office machine parts	1 449 684	2.15
	9028	Utility meters	975 577	1.69
	8529	Broadcasting accessories	904 268	1.73
	8412	Other engines	630 924	2.32
	8432	Soil preparation machinery	423 227	1.75
	8451	Textile processing machines	371 110	2.23
	9021	Orthopaedic appliances	306 883	3.44
	8453	Leather machinery	292 656	1.35
	8467	Motor-working tools	279 255	3.59
	8436	Other agricultural machinery	201 155	2.57
	8433	Harvesting machinery	171 759	2.36
	9026	Gas and liquid flow measuring instruments	115 978	3.91
	8547	Metal insulating fittings	82 452	2.95
	9022	X-ray equipment	42 964	4.27
	8534	Printed circuit boards	42 962	1.78
	9402	Medical furniture	35 087	1.79
	8530	Traffic signals	18 624	2.25
	8545	Carbon-based electronics	16 226	2.27
	9002	Mirrors and lenses	3 222	1.86
	9005	Binoculars and telescopes	3 071	2.52
	9114	Other clocks and watches	1 253	2.42
FALLING domestic AND regional exports	8510	Hair trimmers	24 500 000	2.99
	8517	Telephones	2 703 127	1.96
	8477	Rubber working machinery	2 287 367	3.34
	8474	Stone processing machines	1 824 857	2.02
	8410	Hydraulic turbines	1 567 518	1.23
	8514	Electric furnaces	1 459 066	3.94
	8454	Casting machines	1 134 135	3.57
	8465	Woodworking machines	908 417	2.82
	9030	Oscilloscopes	854 806	2.35
	8459	Drilling machines	625 548	3.02
	8450	Household washing machines	508 357	1.36
	9032	Thermostats	465 364	2.96
	8429	Large construction vehicles	432 043	2.41
	9106	Time recording instruments	423 507	2.14
	8448	Knitting machine accessories	356 213	3.10
	8455	Metal-rolling mills	337 998	1.79
	8411	Gas turbines	285 012	2.04
	8452	Sewing machines	199 449	0.54
	8502	Electric generating sets	161 939	2.80
	8525	Broadcasting equipment	122 994	1.20
	8440	Book-binding machines	101 079	3.38
	9033	Opto-electric instrument parts	83 649	2.58
	9303	Other firearms	49 552	2.44
	8468	Soldering and welding machinery	39 657	3.21
	9004	Eyewear	35 249	1.21
	8461	Metalworking machines	34 507	4.19
	8535	High-voltage protection equipment	31 218	2.43
	8542	Integrated circuits	30 276	2.56
	8546	Electrical insulators	27 521	3.01
	8456	Non-mechanical removal machinery	23 344	5.58
	8709	Work trucks	21 159	2.52
	9003	Eyewear frames	19 681	2.68
	8539	Electric filament	18 403	2.63
	8533	Electrical resistors	11 766	2.31
	9102	Base metal watches	7 883	3.92
	8447	Knitting machines	7 308	2.01
	8406	Steam turbines	5 157	2.75
	8522	Audio and video recording accessories	3 976	1.39
	9107	Time switches	1 651	1.58

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.33. Machinery sector in Kosovo (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8470	Calculators	702 880	-0.01
8418	Refrigerators	385 344	1.92
8443	Industrial printers	354 872	2.97
8516	Electric heaters	291 310	1.91
8422	Washing and bottling machines	273 654	3.15
8427	Fork-lifts	159 435	3.84
8433	Harvesting machinery	139 283	2.36
9018	Medical instruments	123 700	2.45
9027	Chemical analysis instruments	115 643	4.11
8432	Soil preparation machinery	113 880	1.75
9405	Light fixtures	110 217	2.92
8441	Other paper machinery	89 189	2.84
9021	Orthopaedic appliances	89 131	3.44
8467	Motor-working tools	88 366	3.59
8424	Liquid dispersing machines	85 291	2.81
8473	Office machine parts	81 461	2.15
7321	Iron stovetops	74 894	1.58
8451	Textile processing machines	44 789	2.23
8462	Forging machines	44 192	3.68
8536	Low-voltage protection equipment	40 103	1.88
8423	Scales	39 785	2.53
8437	Mill machinery	37 074	1.58
8464	Stone working machines	27 084	3.05
9022	X-ray equipment	25 807	4.27
8434	Dairy machinery	23 999	2.23
8515	Electric soldering equipment	17 067	4.02
9019	Therapeutic appliances	16 016	2.01
8526	Navigation equipment	15 220	2.29
8528	Video displays	12 670	1.32
9013	LCDs	4 285	2.08
9017	Drafting tools	1 655	4.40

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8517	Telephones	528 058	1.96
8504	Electrical transformers	448 265	1.75
8465	Woodworking machines	235 060	2.82
8471	Computers	116 686	1.94
8525	Broadcasting equipment	99 614	1.20
8508	Vacuum cleaners	30 078	2.50
9004	Eyewear	27 711	1.21
8537	Electrical control boards	23 863	2.32
8450	Household washing machines	17 978	1.36
8514	Electric furnaces	16 422	3.94
9033	Opto-electric instrument parts	15 175	2.58
8539	Electric filament	11 890	2.63
8459	Drilling machines	11 600	3.02
8452	Sewing machines	8 203	0.54
8458	Metal lathes	7 382	3.75
8416	Liquid fuel furnaces	6 149	3.00
8506	Batteries	5 587	2.05
8513	Portable lighting	1 590	1.85

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.34. Machinery sector in Kosovo (2016) (continued)

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic BUT NOT regional exports	8548	Electrical parts	1 600 000	1.43
	8438	Industrial food preparation machinery	199 900	2.68
	8479	Machinery having individual functions	136 091	3.85
	8419	Other heating machinery	79 448	2.60
	8480	Metal moulds	35 608	2.83
	8430	Other construction vehicles	34 420	0.76
	8428	Lifting machinery	33 637	3.02
	8501	Electric motors	30 130	2.32
	8466	Metalworking machine parts	28 325	3.72
	9015	Surveying equipment	22 786	2.28
	8463	Other non-metal removal machinery	15 818	2.83
	8529	Broadcasting accessories	9 845	1.73
	8518	Microphones and headphones	8 148	0.63
	8538	Electrical power accessories	5 515	2.71
	8509	Other domestic electric housewares	3 282	2.65
	8543	Other electrical machinery	3 101	3.25
	9402	Medical furniture	2 485	1.79

	HS4 code	Product name	Exports (USD, 2016)	PCI
FALLING domestic AND regional exports	8474	Stone processing machines	383 169	2.02
	8403	Central heating boilers	296 104	2.16
	8429	Large construction vehicles	251 630	2.41
	8477	Rubber working machinery	72 481	3.34
	8439	Papermaking machines	66 806	2.92
	8502	Electric generating sets	45 432	2.80
	8535	High-voltage protection equipment	1 229	2.43

Note: Products in blue are long bets.
Source: OECD calculations based on Kosovo Agency of Statistics (2018[6]), *International Trade Statistics* (database), http://ask.rks-gov.net/en/.

Table A C.35. Machinery sector in Montenegro (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8529	Broadcasting accessories	3 374 741	1.73
8528	Video displays	3 236 495	1.32
9021	Orthopaedic appliances	2 614 749	3.44
8418	Refrigerators	1 235 937	1.92
8428	Lifting machinery	853 916	3.02
8412	Other engines	428 210	2.32
8479	Machinery having individual functions	419 154	3.85
8532	Electrical capacitors	290 363	1.41
9018	Medical instruments	208 119	2.45
8473	Office machine parts	129 762	2.15
9027	Chemical analysis instruments	106 260	4.11
9405	Light fixtures	103 383	2.92
8422	Washing and bottling machines	99 006	3.15
8467	Motor-working tools	77 757	3.59
8419	Other heating machinery	65 648	2.60
8538	Electrical power accessories	58 463	2.71
8518	Microphones and headphones	37 678	0.63
8501	Electric motors	37 612	2.32
8543	Other electrical machinery	31 963	3.25
8516	Electric heaters	30 207	1.91
9026	Gas and liquid flow measuring instruments	22 260	3.91
9014	Compasses	1 761	2.14
8423	Scales	1 361	2.53

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8541	Semiconductor devices	685 429	1.47
9102	Base metal watches	410 391	3.92
8506	Batteries	191 811	2.05
9030	Oscilloscopes	134 965	2.35
8474	Stone processing machines	132 004	2.02
8450	Household washing machines	123 767	1.36
8459	Drilling machines	112 503	3.02
8525	Broadcasting equipment	57 830	1.20
8403	Central heating boilers	44 401	2.16
8539	Electric filament	5 246	2.63
8535	High-voltage protection equipment	4 127	2.43
8465	Woodworking machines	3 854	2.82

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8548	Electrical parts	1 185 475	1.43
8536	Low-voltage protection equipment	186 761	1.88
8443	Industrial printers	71 619	2.97
8438	Industrial food preparation machinery	34 507	2.68
8526	Navigation equipment	30 703	2.29
8531	Audio alarms	20 878	2.60
8480	Metal moulds	17 152	2.83
8427	Fork-lifts	12 481	3.84
8534	Printed circuit boards	10 567	1.78
7321	Iron stovetops	8 178	1.58
8503	Electric motor parts	7 091	2.27
8515	Electric soldering equipment	5 316	4.02
8424	Liquid dispersing machines	2 546	2.81
8466	Metalworking machine parts	2 506	3.72

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8517	Telephones	2 067 491	1.96
8471	Computers	297 577	1.94
8504	Electrical transformers	171 943	1.75
8537	Electrical control boards	114 851	2.32
8508	Vacuum cleaners	58 989	2.50
8542	Integrated circuits	31 935	2.56
8411	Gas turbines	23 013	2.04
9032	Thermostats	19 380	2.96
8429	Large construction vehicles	9 999	2.41
8533	Electrical resistors	2 674	2.31
9302	Handguns	2 563	2.36

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.36. Machinery sector in North Macedonia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
7321	Iron stovetops	22 100 000	1.58
8532	Electrical capacitors	21 100 000	1.41
8516	Electric heaters	11 300 000	1.91
8534	Printed circuit boards	10 600 000	1.78
8536	Low-voltage protection equipment	8 106 071	1.88
8528	Video displays	5 355 651	1.32
9402	Medical furniture	4 230 230	1.79
8428	Lifting machinery	2 280 235	3.02
8547	Metal insulating fittings	2 024 515	2.95
8480	Metal moulds	1 832 539	2.83
9021	Orthopaedic appliances	1 340 913	3.44
8462	Forging machines	1 056 625	3.68
8538	Electrical power accessories	827 710	2.71
8451	Textile processing machines	712 270	2.23
8466	Metalworking machine parts	519 843	3.72
8501	Electric motors	493 524	2.32
9405	Light fixtures	465 761	2.92
8420	Rolling machines	431 286	3.49
8529	Broadcasting accessories	418 129	1.73
8543	Other electrical machinery	241 685	3.25
9027	Chemical analysis instruments	184 412	4.11
8515	Electric soldering equipment	182 104	4.02
8441	Other paper machinery	176 173	2.84
9026	Gas and liquid flow measuring instruments	172 263	3.91
8505	Electromagnets	131 798	3.51
8427	Fork-lifts	127 456	3.84
8518	Microphones and headphones	123 931	0.63
8430	Other construction vehicles	118 137	0.76
8531	Audio alarms	116 496	2.60
8453	Leather machinery	106 291	1.35
9015	Surveying equipment	98 939	2.28
8467	Motor-working tools	74 249	3.59
9028	Utility meters	51 718	1.69
8417	Industrial furnaces	34 562	2.13
9017	Drafting tools	32 412	4.40
9013	LCDs	22 986	2.08
8526	Navigation equipment	14 388	2.29
9024	Tensile testing machines	13 415	3.20
8509	Other domestic electric housewares	12 874	2.65
8463	Other non-metal removal machinery	6 085	2.83

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8517	Telephones	30 300 000	1.96
8474	Stone processing machines	794 594	2.02
8411	Gas turbines	369 433	2.04
8454	Casting machines	334 310	3.57
9032	Thermostats	231 299	2.96
8450	Household washing machines	158 789	1.36
8525	Broadcasting equipment	152 229	1.20
8452	Sewing machines	145 537	0.54
9102	Base metal watches	128 985	3.92
8458	Metal lathes	40 613	3.75
8440	Book-binding machines	34 093	3.38
8533	Electrical resistors	20 308	2.31
8459	Drilling machines	13 538	3.02
8502	Electric generating sets	13 320	2.80
8510	Hair trimmers	7 875	2.99
8506	Batteries	6 116	2.05
8513	Portable lighting	3 505	1.85

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.37. Machinery sector in North Macedonia (2016) (continued)

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
9018	Medical instruments	10 800 000	2.45
8419	Other heating machinery	3 218 711	2.60
8479	Machinery having individual functions	2 158 821	3.85
8548	Electrical parts	1 626 476	1.43
8418	Refrigerators	1 291 846	1.92
8438	Industrial food preparation machinery	489 834	2.68
8443	Industrial printers	280 330	2.97
8412	Other engines	257 196	2.32
8473	Office machine parts	242 058	2.15
8433	Harvesting machinery	228 696	2.36
8422	Washing and bottling machines	211 073	3.15
8432	Soil preparation machinery	167 309	1.75
8424	Liquid dispersing machines	114 257	2.81
9019	Therapeutic appliances	92 111	2.01
8442	Print production machinery	23 749	3.19
9002	Mirrors and lenses	18 904	1.86
8436	Other agricultural machinery	14 235	2.57
9022	X-ray equipment	14 225	4.27
8503	Electric motor parts	11 617	2.27
8460	Metal finishing machines	11 023	3.48
8423	Scales	8 080	2.53
8470	Calculators	8 056	-0.01
8434	Dairy machinery	6 422	2.23
8464	Stone working machines	2 857	3.05
9014	Compasses	1 030	2.14

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8537	Electrical control boards	38 900 000	2.32
8504	Electrical transformers	1 523 908	1.75
8471	Computers	614 909	1.94
8542	Integrated circuits	362 294	2.56
8477	Rubber working machinery	317 465	3.34
8403	Central heating boilers	267 596	2.16
8535	High-voltage protection equipment	209 651	2.43
8508	Vacuum cleaners	138 296	2.50
8456	Non-mechanical removal machinery	135 109	5.58
8539	Electric filament	131 169	2.63
9030	Oscilloscopes	129 389	2.35
9033	Opto-electric instrument parts	119 900	2.58
8429	Large construction vehicles	92 658	2.41
8541	Semiconductor devices	73 223	1.47
8465	Woodworking machines	65 377	2.82
8546	Electrical insulators	63 077	3.01
8455	Metal-rolling mills	33 945	1.79
8514	Electric furnaces	23 893	3.94
8416	Liquid fuel furnaces	8 145	3.00
9004	Eyewear	5 914	1.21
8521	Video recording equipment	5 630	1.07
8468	Soldering and welding machinery	3 570	3.21
8445	Textile fibre machinery	2 000	3.94

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.38. Machinery sector in Serbia (2016)

GROWING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8501	Electric motors	383 000 000	2.32
8503	Electric motor parts	185 000 000	2.27
8418	Refrigerators	169 000 000	1.92
8536	Low-voltage protection equipment	117 000 000	1.88
8516	Electric heaters	106 000 000	1.91
9018	Medical instruments	81 700 000	2.45
9306	Explosive ammunition	75 700 000	1.81
7321	Iron stovetops	51 900 000	1.58
8443	Industrial printers	51 100 000	2.97
9405	Light fixtures	26 400 000	2.92
8419	Other heating machinery	24 200 000	2.60
8467	Motor-working tools	21 300 000	3.59
8479	Machinery having individual functions	21 300 000	3.85
8422	Washing and bottling machines	21 100 000	3.15
8538	Electrical power accessories	18 200 000	2.71
8480	Metal moulds	17 500 000	2.83
8428	Lifting machinery	15 400 000	3.02
8543	Other electrical machinery	13 500 000	3.25
8509	Other domestic electric housewares	10 400 000	2.65
9001	Optical fibres	9 938 112	2.21
8432	Soil preparation machinery	9 668 295	1.75
8412	Other engines	9 254 080	2.32
9301	Military weapons	8 592 463	1.91
8433	Harvesting machinery	7 865 953	2.36
8441	Other paper machinery	7 234 053	2.84
8438	Industrial food preparation machinery	7 217 898	2.68
8548	Electrical parts	6 629 484	1.43
8424	Liquid dispersing machines	6 350 794	2.81
9007	Video cameras	5 296 614	2.56
8515	Electric soldering equipment	5 261 613	4.02
9026	Gas and liquid flow measuring instruments	5 169 402	3.91
8473	Office machine parts	4 844 802	2.15
8460	Metal finishing machines	4 439 727	3.48
9022	X-ray equipment	4 184 369	4.27
8451	Textile processing machines	3 951 632	2.23
8531	Audio alarms	3 763 974	2.60
8436	Other agricultural machinery	3 530 588	2.57
9006	Cameras	2 861 933	1.42
9015	Surveying equipment	2 361 467	2.28
8530	Traffic signals	2 232 811	2.25
9028	Utility meters	2 158 591	1.69
8540	Cathode tubes	2 086 935	2.23

GROWING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8537	Electrical control boards	11 900 000	2.32
9033	Opto-electric instrument parts	2 002 102	2.58
8535	High-voltage protection equipment	1 894 799	2.43
8455	Metal-rolling mills	1 858 458	1.79
8465	Woodworking machines	1 778 791	2.82
8542	Integrated circuits	1 684 237	2.56
8541	Semiconductor devices	1 248 485	1.47
8709	Work trucks	876 597	2.52
8456	Non-mechanical removal machinery	743 746	5.58
8510	Hair trimmers	299 058	2.99
8445	Textile fibre machinery	161 353	3.94
8533	Electrical resistors	142 126	2.31
8521	Video recording equipment	99 284	1.07
9106	Time recording instruments	67 485	2.14

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.39. Machinery sector in Serbia (2016) (continued)

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic AND regional exports	8529	Broadcasting accessories	1 946 448	1.73
	9013	LCDs	1 701 116	2.08
	9305	Weapons parts and accessories	1 576 300	2.33
	8526	Navigation equipment	1 388 814	2.29
	8430	Other construction vehicles	1 274 344	0.76
	8545	Carbon-based electronics	1 198 314	2.27
	8463	Other non-metal removal machinery	1 068 464	2.83
	8547	Metal insulating fittings	929 828	2.95
	8434	Dairy machinery	906 534	2.23
	8437	Mill machinery	867 393	1.58
	8423	Scales	786 781	2.53
	9024	Tensile testing machines	697 757	3.20
	9021	Orthopaedic appliances	692 811	3.44
	8472	Other office machines	658 310	2.22
	8453	Leather machinery	615 926	1.35
	9019	Therapeutic appliances	603 720	2.01
	8464	Stone working machines	569 345	3.05
	9002	Mirrors and lenses	522 336	1.86
	8457	Metalworking transfer machines	416 160	4.81
	9017	Drafting tools	401 774	4.40
	9020	Breathing appliances	387 485	3.09
	8470	Calculators	314 959	-0.01
	9011	Microscopes	171 956	3.77
	8532	Electrical capacitors	156 418	1.41
	9005	Binoculars and telescopes	153 406	2.52
	8405	Water and gas generators	118 738	1.76
	8449	Felt machinery	108 113	2.19
	9105	Other clocks	76 661	4.13
	9014	Compasses	62 973	2.14
	8435	Fruit pressing machinery	47 767	2.13
	8475	Glass working machines	29 926	3.99
	9114	Other clocks and watches	26 050	2.42
	9113	Watch straps	24 370	1.30
	9016	Balances	14 103	2.49

	HS4 code	Product name	Exports (USD, 2016)	PCI
GROWING domestic BUT NOT regional exports				

Note: Products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

Table A C.40. Machinery sector in Serbia (2016) (continued)

FALLING domestic BUT NOT regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8466	Metalworking machine parts	16 800 000	3.72
8462	Forging machines	4 848 333	3.68
8417	Industrial furnaces	3 660 944	2.13
8528	Video displays	3 257 880	1.32
9027	Chemical analysis instruments	1 361 753	4.11
8518	Microphones and headphones	1 196 652	0.63
8427	Fork-lifts	605 141	3.84
8534	Printed circuit boards	539 171	1.78
8505	Electromagnets	390 201	3.51
8442	Print production machinery	287 662	3.19
8420	Rolling machines	224 401	3.49
8478	Tobacco processing machines	123 490	1.56
9402	Medical furniture	71 785	1.79
8476	Vending machines	26 005	2.05
9012	Non-optical microscopes	5 015	4.04

FALLING domestic AND regional exports

HS4 code	Product name	Exports (USD, 2016)	PCI
8504	Electrical transformers	29 500 000	1.75
8474	Stone processing machines	26 000 000	2.02
8517	Telephones	21 100 000	1.96
8403	Central heating boilers	13 600 000	2.16
8450	Household washing machines	10 600 000	1.36
8411	Gas turbines	10 300 000	2.04
8471	Computers	5 746 369	1.94
9032	Thermostats	5 162 119	2.96
9303	Other firearms	4 768 408	2.44
8477	Rubber working machinery	4 370 497	3.34
9302	Handguns	3 491 751	2.36
8416	Liquid fuel furnaces	2 262 674	3.00
8514	Electric furnaces	2 063 350	3.94
8525	Broadcasting equipment	1 980 004	1.20
9030	Oscilloscopes	1 872 405	2.35
8429	Large construction vehicles	1 426 766	2.41
8546	Electrical insulators	1 119 459	3.01
8406	Steam turbines	890 305	2.75
8502	Electric generating sets	798 980	2.80
8508	Vacuum cleaners	681 970	2.50
8458	Metal lathes	567 803	3.75
8447	Knitting machines	537 386	2.01
9102	Base metal watches	487 556	3.92
8410	Hydraulic turbines	419 362	1.23
8439	Papermaking machines	392 554	2.92
8459	Drilling machines	380 320	3.02
8452	Sewing machines	347 698	0.54
8448	Knitting machine accessories	343 773	3.10
8468	Soldering and welding machinery	337 573	3.21
8454	Casting machines	317 700	3.57
8461	Metalworking machines	298 577	4.19
8539	Electric filament	296 666	2.63
9304	Spring, air and gas guns	166 949	1.64
	Batteries	163 077	2.05
9004	Eyewear	145 691	1.21
9101	Precious metal watches	127 027	1.38
9003	Eyewear frames	124 146	2.68
8513	Portable lighting	82 027	1.85
8522	Audio and video recording accessories	79 030	1.39
8440	Book-binding machines	71 608	3.38
9107	Time switches	30 295	1.58
9010	Photo lab equipment	13 400	4.48
9103	Clocks with watch movements	2 652	2.88

Note: Products highlighted in grey are short gains; products highlighted in blue are long bets.
Source: OECD calculations based on UN Comtrade (2016[16]) *International Trade Statistics* (database), https://comtrade.un.org/data/; CEPII (2019[5]), *CEPII BACI World Trade Database* (database), www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp.

GLOBAL SOUTH EAST EUROPE

UNLEASHING THE TRANSFORMATION POTENTIAL FOR GROWTH IN THE WESTERN BALKANS

The Western Balkans have been striving to integrate into global markets and to develop their economies by fostering trade and attracting foreign direct investment. To this end, they have progressively liberalised their markets and reformed the business environment. However, much remains to be done in order to reduce unemployment and close the average income gap with the European Union.

The present report applies the Product Space methodology to determine which products and sectors the Western Balkans can rely on in order to converge to the development levels of more advanced economies. The analysis shows how the potential for upgrading manufacturing and increasing external competitiveness is built upon the existing knowledge that Western Balkan economies hold in the agro-food, metal processing, machinery and automotive sectors.

However, in order for the Western Balkans to unleash the transformation potential of the aforementioned sectors, the report detects challenges that still need to be addressed in each of the sectors. By removing such obstacles and increasing the complexity of their export baskets, the Western Balkan economies will be able to latch on to global value chains, supporting the creation of local jobs and positioning themselves strategically to meet future global demand, while minimising negative environmental externalities. Ultimately, the report provides a number of policy recommendations to achieve these goals.