ECONOMICS – REGIONAL STUDIES

Infrastructure Investment in the **Western Balkans**

A First Analysis

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Infrastructure Investment in the Western Balkans: A First Analysis

European Investment Bank

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

Infrastructure Investment in the Western Balkans: A First Analysis

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Introduction

The study provides a first analysis of the recent development in infrastructure investment in the Western Balkans. It identifies infrastructure gaps as well as key infrastructure initiatives in the region, outlines the political dimension and provides the respective detailed infrastructure investment data as collected from the Western Balkans statistical offices.

The Western Balkans is a region with a substantial economic catch-up potential. Compared to other European economies these countries are either poor or very poor. Structural underdevelopment and low competitiveness impede the catch-up process. Mass unemployment and a huge trade deficit indicate heavy internal and external imbalances. A 'Big Push' (Rosenstein-Rodan, 1943) in infrastructure investment is imperative for long-term prosperity. An investment volume of EUR 7.7 billion as envisaged in the intergovernmental cooperation initiative 'Berlin Process' has the potential for an additional GNP growth impulse of about 1% p.a. and a positive employment effect of up to 200,000 people in the region (Holzner et al., 2015). More recently, China has emerged as an important infrastructure developer in the Western Balkans. It is financing infrastructure that is related to its 'Belt and Road Initiative'. The Chinese aim is that improved transport and energy infrastructure in the region will support the flow of Chinese goods from the Chinese-acquired Greek port of Piraeus further north towards wealthier EU economies.

In the run-up to the EU-Western Balkans Summit hosted by the Bulgarian Council Presidency in Sofia on 17 May 2018, the Commission published its Strategy for 'A credible enlargement perspective for and enhanced EU engagement with the Western Balkans'. This strategy (once again) reiterates the 2003 'Thessaloniki promise' of a European perspective of the Western Balkans and highlights the importance of regional cooperation. More specifically, the EU has developed a 'connectivity agenda' with a focus on improving transport and energy links within the Western Balkans as well as between the region and the EU (EC, 2018).

The infrastructure gap in the Western Balkans is significant (EBRD, 2017; Atoyan et al., 2018) and it is widely considered as a major impediment for the countries of the region to substantially catch up in economic terms (Sanfey and Milatovic, 2018), which is also detrimental for their political integration into the European Union. This paper aims to contribute to a growing infrastructure literature on the Western Balkans, *inter alia* by investigating infrastructure investment in more detail, using partly unpublished indicators.

The paper is structured as follows. First, we examine the development and structure of gross fixed capital formation and its sub-indicators for the six Western Balkan economies Albania, Bosnia and Herzegovina, Kosovo, Former Yugoslav Republic of (FYRO) Macedonia, Montenegro and Serbia. Second, we estimate the gaps in transport and energy infrastructure in the region, compared to its European peers. There, we also look at the growth impact of infrastructure investment. Third, we describe the EU-related infrastructure initiatives in the Western Balkans. Fourth, we analyse the activities of other players in the region – particularly China. Finally, we conclude and offer a set of policy recommendations based on the Western Balkan case study that could act as a blueprint for EU activities in other neighbouring regions to the East and the South of the Union.

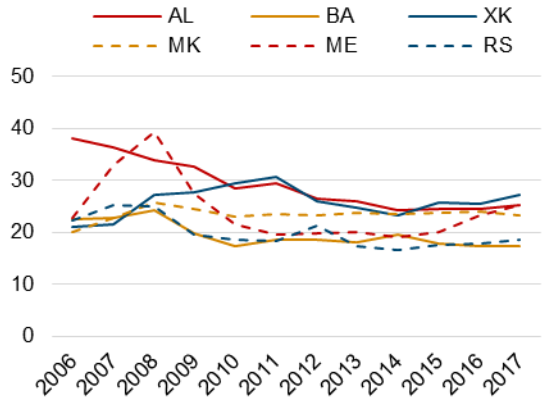
Infrastructure investment in the Western Balkans

The number of proxies for investment in infrastructure is vast. Often, public sector investment or investments in particular types of infrastructure are used. More recently, Revoltella et al. (2016) use newly available Eurostat data on gross fixed capital formation (GFCF) for a more precise proxy for infrastructure investment, which is GFCF in 'other buildings and structures' (see also EIB, 2016 for an extensive comparison of infrastructure investment across Europe). Our contribution is to collect and analyse comparable data for the Western Balkans from the countries' national accounts and investment surveys. Figures 1 and 2 show the differences of the development of sub-categories of investment[1] across time and countries of the region.

Figure 1 compares overall GFCF and GFCF in total construction in per cent of GDP for the six Western Balkan countries for the last dozen years (2006–2017). It becomes clear that construction is the most important part of overall investment in the region, with a share of almost 60%. On average, GFCF makes about a quarter of GDP, which is clearly above an EU average of around a fifth. It is also striking that GFCF shares in GDP dropped significantly during the global financial crisis, from levels of about 27% before the outbreak of the crisis to levels below 22%. Only most recently we can observe a slight improvement to levels above 22% of GDP. Total construction shares took a similar turn over the last 12 years. However, we do not see an improvement of the trend most recently, also because for sub-categories of GFCF latest year 2017 data is not yet available.

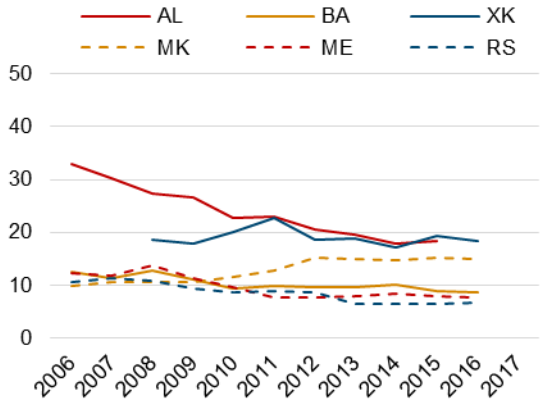
Figure 1 / Gross fixed capital formation and total construction investment, 2006-2017

Gross fixed capital formation in % of GDP



Note: National accounts data.
Source: wiiw Annual Database.

Total construction investment in % of GDP



Note: National accounts data; ME investment survey.
Source: wiiw and national statistical offices.

The case of Montenegro is somewhat surprising as the GFCF jump in 2016 should be driven by the ongoing Chinese motorway construction project along the line Bar-Boljare. However, this is not (yet) reflected in the total construction figures. It is interesting to note that Albania and Kosovo and to a certain extent also FYRO Macedonia have higher shares than the other countries of the region in

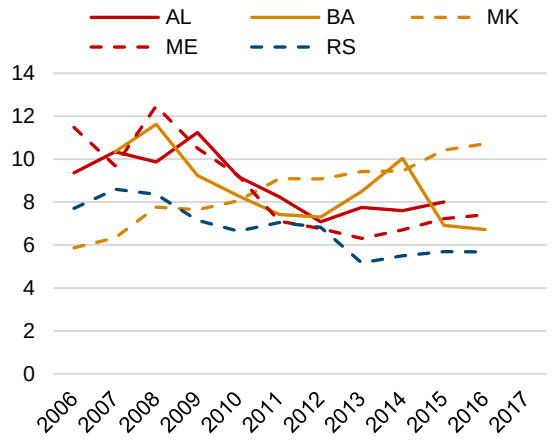
[1] Detailed information on the definition and sources of infrastructure investment variables can be found in the appendix.

both statistics. Particularly in the case of the former two countries this is also related to very low levels of GDP, where a few investment projects can have a high impact as a share in GDP.

Figure 2 compares sub-categories of total construction investment. The asset type 'other buildings and structures' represents investment in non-residential buildings and other structures, such as civil engineering works. With an average of about 8% of GDP, this asset type represents the bulk of total construction investment. This is good news since it can be assumed that (e.g. due to network effects) these types of investments add more to increasing productivity in the medium to longer run than investment in the construction of private residential dwellings. Interestingly, FYRO Macedonia is performing increasingly well. This corresponds with the more recent observation of foreign direct investment taking place in FYRO Macedonia's export industry in the automotive, machinery and chemical sectors (Gligorov, 2017). 'Infrastructure proper', which can be defined as the sum of investments in other buildings and structures in the sectors of energy, water supply, transport, communication, education and health (NACE categories D, E, H, J, P, Q) makes only a small fraction of total other buildings and structures in the Western Balkans. Moreover, the regional average in these categories has declined quite strongly over the last decade. In 2010 it still made about one and a half percentage point in GDP. By 2013 it was clearly less than a percentage point. Similar to other regions, infrastructure investment became a victim of the global financial crisis. Only more recently infrastructure proper rebounded again above 1% of GDP, on average. However, low levels of investment in strategic infrastructure do not imply that these investments are not important. On the contrary, improvements of roads and the like can have substantial effects on the cost structure of enterprises and their productivity.

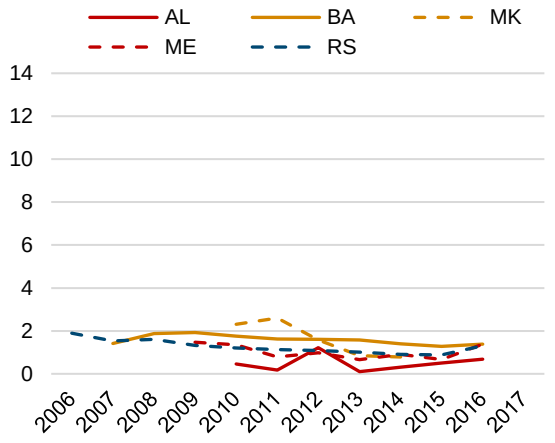
Figure 2 / Other buildings and structures and infrastructure investment, 2006-2016

Other buildings and structures in % of GDP



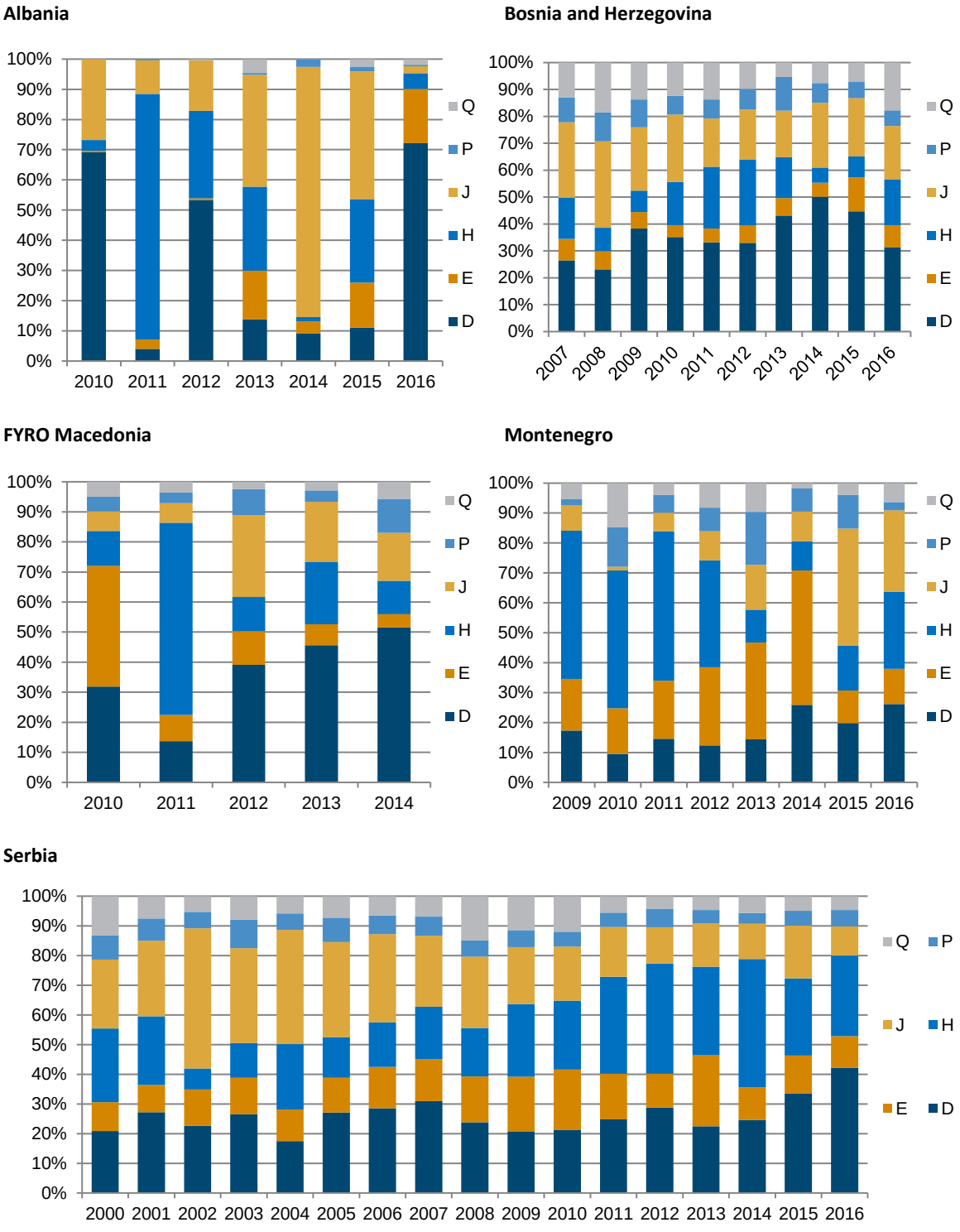
Note: National accounts data; BA structural business statistics; XK not available; ME investment survey.
Source: wiiw and national statistical offices.

Infrastructure proper in % of GDP



Note: Investment survey data; BA structural business statistics; XK not available; MK national accounts.
Source: wiiw and national statistical offices.

Figure 3 / Structure of investment in infrastructure proper, in % of total by NACE 2 categories



Note: Investment survey data; BA structural business statistics; XK not available; MK national accounts; ME (all years) and MK (2013, 2014) structure estimated using structure of total construction. D Electricity, gas, steam, air conditioning supply; E Water supply, sewerage, waste management, remediation; H Transportation and storage; J Information and communication; P Education; Q Human health and social work activities.

Source: wiiw, national statistical offices.

The composition of investment in infrastructure proper is changing quickly (Figure 3). This is particularly visible in the case of Albania. In one year the energy sector is dominating, in another year

the vast majority of infrastructure investment is channelled into the transport or the communication sector. It is often a few major projects that are responsible for these massive shifts in the structure. The dominance of the energy sector infrastructure investment share in 2016 is related to the completion of the first of two hydro power stations along the Devoll river by Norwegian Statkraft, under a BOOT (build, own, operate, transfer) concession with the Government of Albania. This demonstrates that it is not only public investment in the region that goes into infrastructure development.

The structure of Bosnian infrastructure investments is much more balanced, although, more often than not, dominated by investment in energy infrastructure. Also in FYRO Macedonia the energy sector is dominant in infrastructure investment. However, in 2011 the transport sector absorbed most of the infrastructure expenditures. Apart from a number of road and railway projects, 2011 was also the year when many of the construction activities for the Skopje 2014 project took place. In 2011 a number of bridges across the city's river Vardar were constructed or renovated and a cable car was built, connecting Skopje with the 66-metre-high 'Millennium Cross' on Vodno mountain.

In Montenegro, infrastructure investment in the years after the outbreak of the global financial crisis was very much focused on transport. More recently, the structure of infrastructure expenditures became more balanced. In Serbia, most of the time infrastructure investment spending is fairly well balanced across sectors, with a certain emphasis on information and communication infrastructure in the early 2000s and transport infrastructure in more recent years. Infrastructure investment in education and health sectors throughout the region are rather scarce. Infrastructure investment in the water supply, sewerage and waste management sector peaks only in a few years.

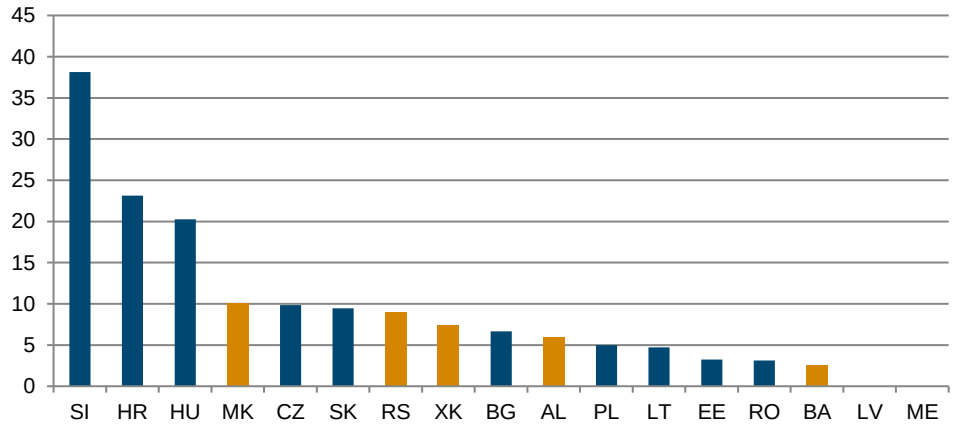
Gaps in transport and energy infrastructure

As can be seen from Figure 3, investment in energy and transport infrastructure is dominating infrastructure expenditures in the Western Balkans. Hence, it is useful to have a closer look at the state of the road and rail infrastructure as well as the electricity generation and transmission capacities.

Historically at the fringes of large empires and far away from the core regions of the industrial revolution in the north-western parts of Europe, the Balkans are still an economically backward region with underdeveloped institutions and a lack of modern infrastructure. Some (Milanovic, 2018) argue that this goes back all the way to the Roman empire, *inter alia* due to unfavourable geography (i.e. high mountains right at the coast disconnected with the vulnerable plains in the hinterland). It is reassuring that better infrastructure has the potential to overcome adverse geography (see Box1 for an assessment of the impact of infrastructure investment on growth in the region).

The current situation (latest comparable data from 2015) is as follows. Compared to EU Member States from Central and Eastern Europe (EU-CEE), the Western Balkan countries have typically low or average levels of motorway density (Figure 4). Only FYRO Macedonia has achieved levels comparable for instance to the Czech Republic. This is however still far away from the much higher densities observable among the front runners in the comparator group of countries – Slovenia, Croatia and Hungary.

Figure 4 / Motorway density in km per 1000 km² land area, 2015

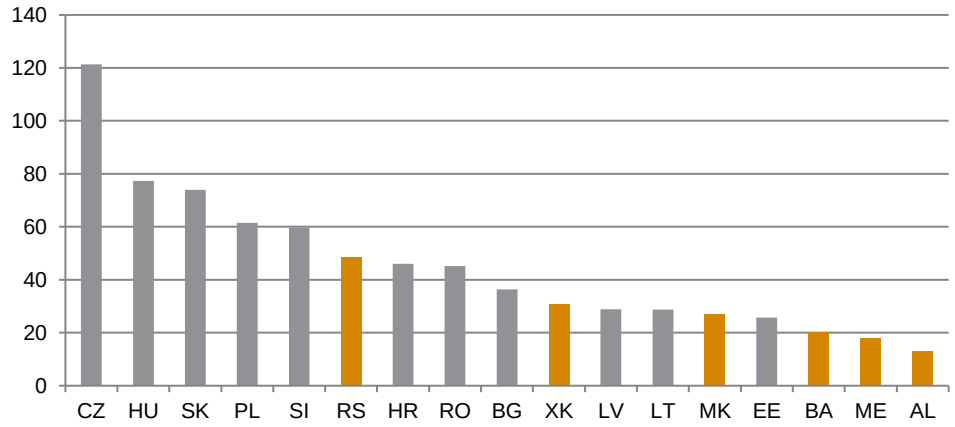


Note: AL own estimate.
Source: Eurostat.

The situation is similar, if not worse, in terms of railway density (Figure 5). While Serbian railway density is comparable to the average of the peers, most Western Balkan countries are at the very bottom of this statistics. Particularly the region's countries neighbouring the Adriatic Sea have developed hardly any major railway lines. This is similar to the situation in Greece, where in the West of the country, neighbouring the Ionian Sea, almost no railways were ever built. The barely existing

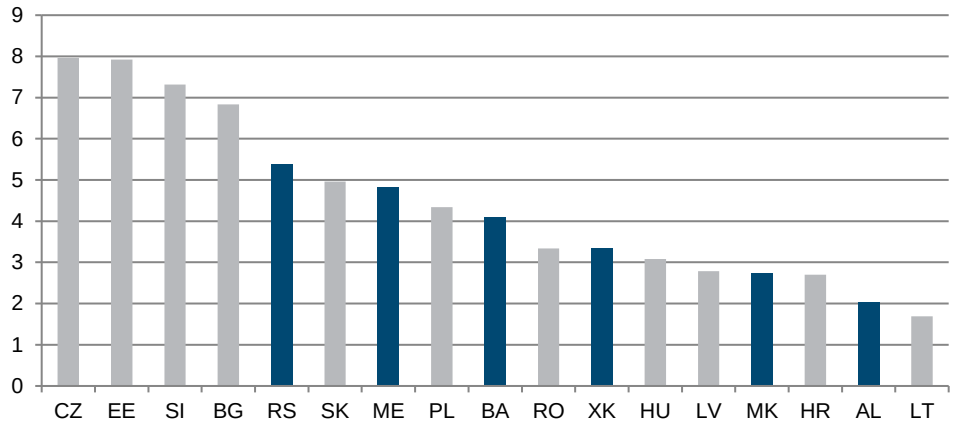
rail connections on the eastern shores of the Adriatic and the Ionian Sea have likely contributed to the lack of industrialisation of this part of Europe (Holzner, 2016).

Figure 5 / Railway line density in km per 1000 km² land area, 2015



Source: Eurostat.

Figure 6 / Gross electrical production in GW/h per 1000 population, 2015

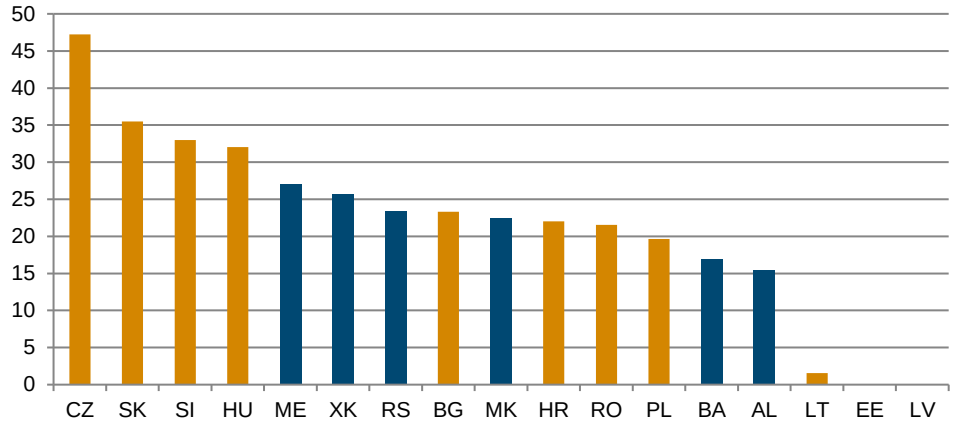


Source: Eurostat.

Looking at the energy infrastructure it can be observed that the state of electricity production capacities (Figure 6) is a bit better, but still the countries of the region are in the lower to average ranks, compared to their EU-CEE peers. In terms of high-voltage electricity transmission capacities (Figure 7), the Western Balkan countries fare better. Compared to the EU-CEE countries[2] they are mostly in the upper middle range. This is important for the region, as some countries have a rather one-sided reliance on certain forms of electricity generation. Albania is almost exclusively dependent on hydro power, while Kosovo is almost entirely dependent on lignite fired thermal power plants. Hence, electricity exchange for the balancing of supply and demand among neighbours is extremely useful.

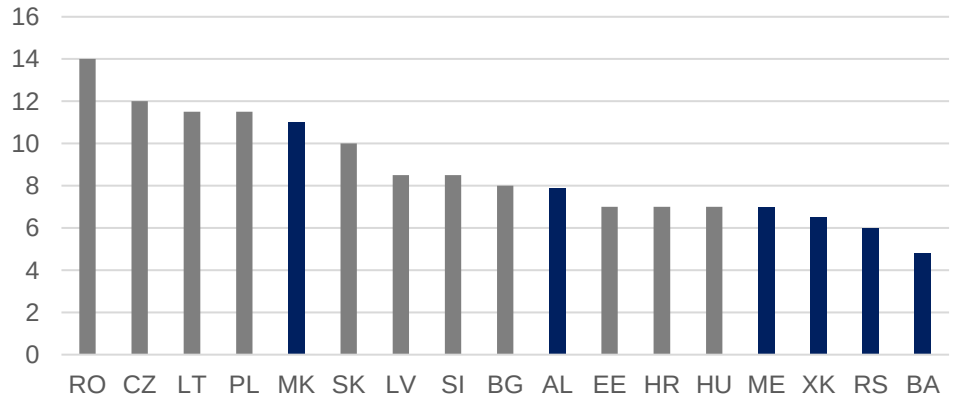
[2] However, almost inexistent high voltage transmission lines in the Baltics do not necessarily imply that these countries have a bad energy infrastructure.

Figure 7 / Length of 380/400kV electricity circuit in km per 1000 km² land area, 2015



Source: Eurostat, KOSTT.

Figure 8 / Proportion of individuals (age 16-74) who access the Internet, on average, at least once a week (but not every day), in %, 2017

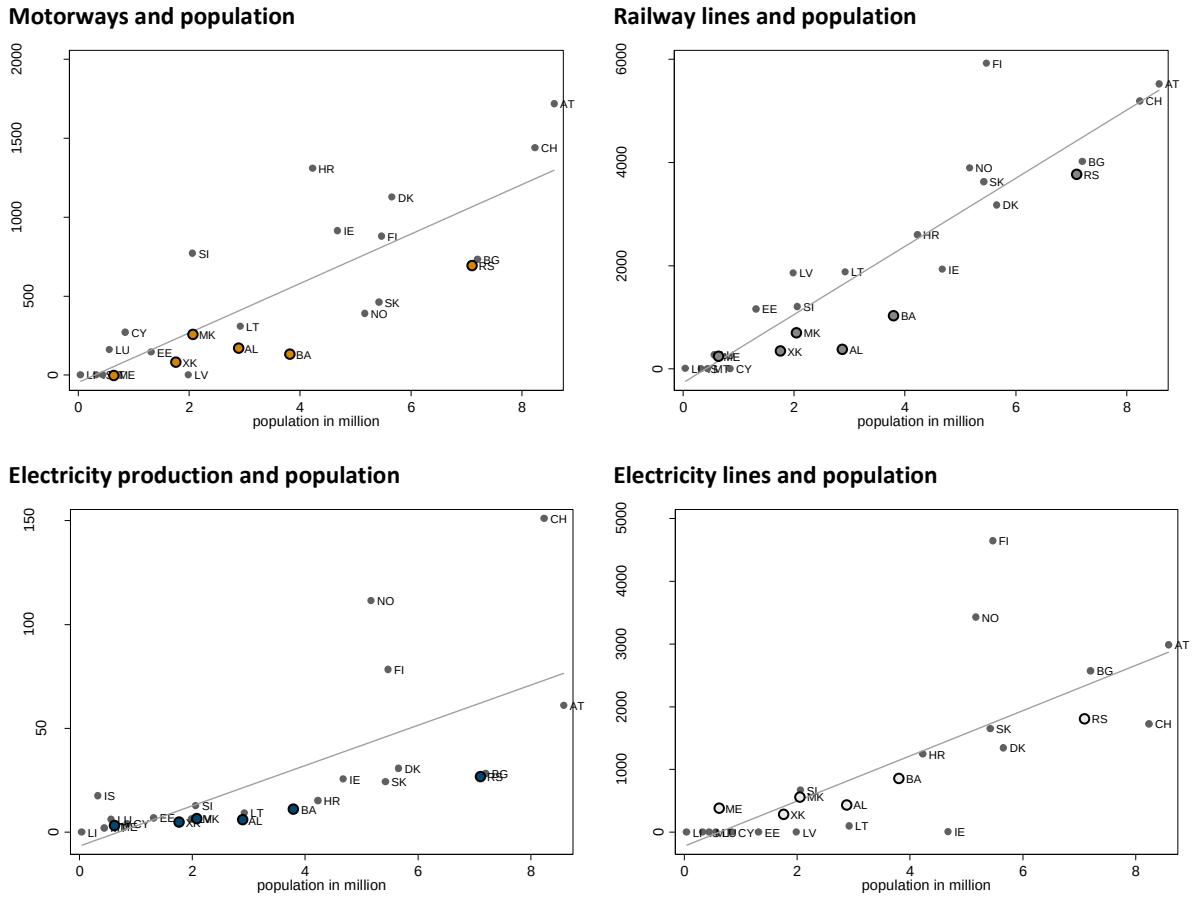


Note: Albania 2012.
Source: Eurostat.

A side note: in terms of digital economy infrastructure, comparable data for Western Balkan and EU-CEE economies is scarce. Figure 8 displays an access-to-internet-indicator, which shows that – with the exception of FYRO Macedonia and Albania – the Western Balkan societies are among the least connected to the internet in Central, Eastern and Southeastern Europe.

While the above descriptive evidence seems to clearly indicate large infrastructure gaps in major types of transport and energy infrastructure in the Western Balkans, it is interesting to econometrically look at possible gaps, while controlling for important infrastructure determinants such as population (and potentially also land area and ruggedness of the terrain). In the following set of scatter plots we compare the stock of the first four above analysed infrastructure types per country and the respective population size (originally estimated for 39 European countries – 28 EU, 4 EFTA and 7 EU candidate and potential candidate countries in the year 2015, for graphical reasons we only display the plots for countries with less than 9 mn inhabitants).

Figure 9 / Infrastructure gaps relative to the European average, EU and accession countries with less than 9 million population, 2015



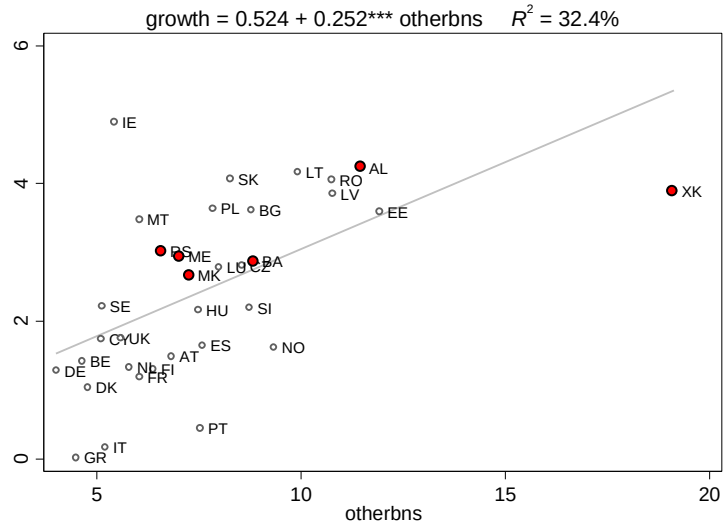
Note: Western Balkan countries specially indicated; vertical distance below the regression line can be interpreted as an infrastructure gap vis-à-vis the sample countries' average and given the population size.
Source: Eurostat, KOSTT, own estimates.

Given the population size and the respective European average, infrastructure gaps can be identified in the case of motorways for all the Western Balkan countries (Figure 9). In the case of railway lines, electricity production and 380/400 kV electricity lines gaps were found for most of the region's economies, except for Montenegro and in the latter case also for FYRO Macedonia. The inclusion of additional control variables such as land area and ruggedness of the terrain does not change these results substantially.

Box 1 / Infrastructure growth effects in the Western Balkans

While theory is very much in favour of infrastructure investment, particularly in lagging regions, the empirics are slightly more ambiguous about the aggregate effects. This is *inter alia* due to different effects given different ways of financing these investments at different points in the economic cycle and a host of other conditions. There is a broad empirical literature (e.g. Pereira and Andraz, 2013; IMF, 2014; Donaldson and Hornbeck, 2016; EC, 2016; Holl, 2016; Revoltella et al., 2016; Galiani et al., 2017; Donaldson, 2018) which mostly confirms the positive economic effects of infrastructure investment, both in the historical as well as current context and for developed as well as developing countries.

Figure 10 / Average GDP growth and investment in other buildings and structures in % of GDP, 34 European economies, 2001-2017



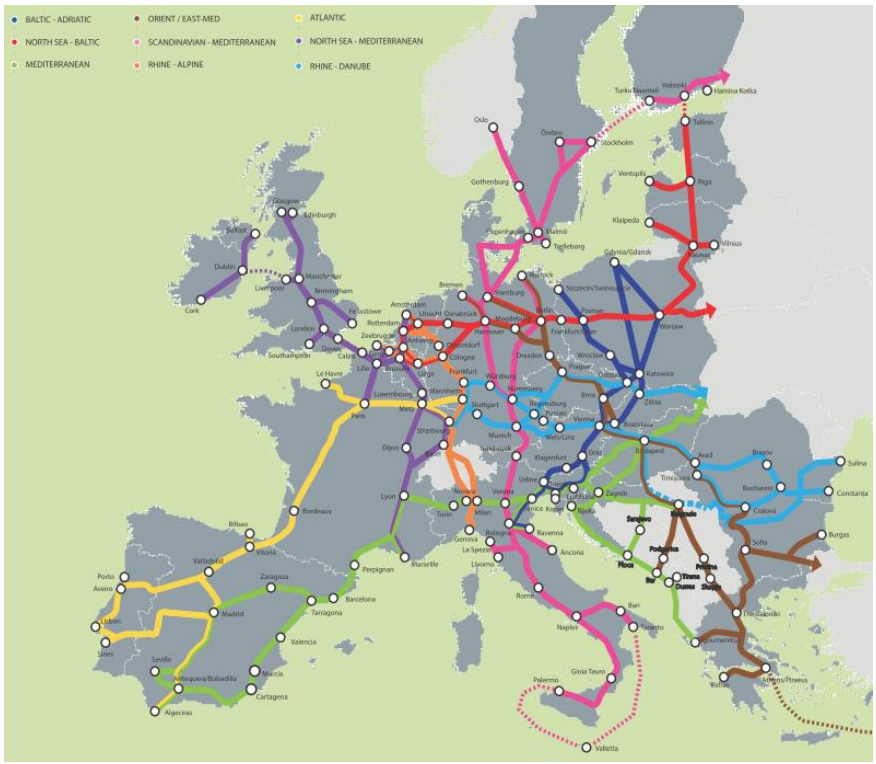
Source: Own calculations.

Here, in another simple cross-section exercise we correlate economic growth with the share of investment in other buildings and structures in per cent of GDP. The infrastructure proper indicator would in principle be superior, but it is available only for shorter time spans and has many breaks as mentioned above due to changes in statistical nomenclatures. Earlier information on the mentioned investment indicator applies also here. For Kosovo we need to take total construction due to a lack of the other buildings and structures indicator. We combine a dataset for 34 European countries for which the infrastructure variable is available as an average share in GDP over the period 2001-2017. For Bosnia, Kosovo and Montenegro averages are calculated for somewhat shorter time periods, due to data availability. The dependent variable employed is the average real GDP growth rate. From Figure 10 it can be seen that there is a positive relationship between our infrastructure investment indicator and average growth in Europe over the recent decade or two. Apart from the outlier Kosovo (due to the above-mentioned data issues) all the Western Balkan economies can be found fairly close to the overall regression line. A one percentage point increase of the average infrastructure investment share in GDP was related to about a quarter percentage point higher average GDP growth in the years since 2011. The results also hold in a simple form of the conditional convergence model based on augmented Cobb-Douglas type of growth models in the tradition of seminal papers by Barro (1991) and Levine and Renelt (1992). When we include initial GDP per capita at PPP (in order to control for convergence) in the above regression and exclude Kosovo as an outlier the results for the infrastructure investment coefficient remain almost unchanged. Our caveat: this should be only seen as a simple descriptive exercise.

EU-related infrastructure initiatives in the Western Balkans

For the Western Balkans the so-called 'Berlin Process' began with the 2014 Conference of Western Balkan States in Berlin. The aim of this intergovernmental process is to support the economies in the region on their path to EU membership with a special focus on infrastructure development, human capital and regional cooperation. The EU supports infrastructure development in the region with its Instrument for Pre-accession Assistance (IPA II for the period 2015-2020). The IPA II funds earmarked for the co-financing of infrastructure investment amount to EUR 1 billion. Additional funds (mostly loans) are available from a number of international financial institutions (IFIs). The Western Balkan countries are also integrated in the Trans-European Network plans (as can be seen from the map in Figure 11 that covers the core transport corridors in Europe).

Figure 11 / Map of the Trans-European Transport (TEN-T) Core Network Corridors



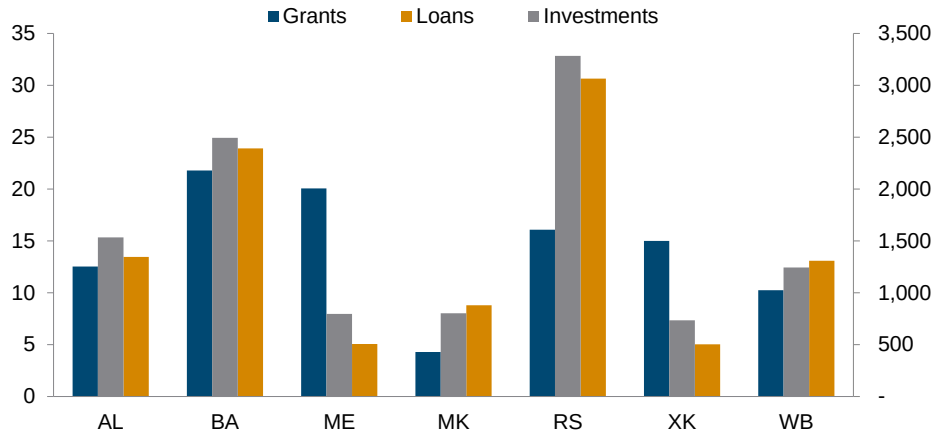
Note: Regulation (EU) No. 1316/2013 O.J. L348 - 20/12/2013.
Source: European Commission, EU-Western Balkans Transport Community Factsheet.

Transport infrastructure development is coordinated by the South East Europe Transport Observatory (SEETO), a regional transport organisation established by the Memorandum of Understanding for the development of the Core Regional Transport Network signed in 2004 by Albania, Bosnia and Herzegovina, Croatia, FYRO Macedonia, Montenegro, Serbia, Kosovo and the European Commission. The aim of SEETO is to promote cooperation in the development of the main and ancillary infrastructure on the multimodal Indicative Extension of the TEN-T Comprehensive Network to the Western Balkans, and to enhance local capacity for the implementation, data

collection and analysis of investment programmes. A list of priority infrastructure projects was signed in 2015, and in 2017, a Transport Community Treaty was signed between the EU and the Western Balkan parties.

Figure 12 / Regional Western Balkan breakdown of WBIF infrastructure projects 2009-2017

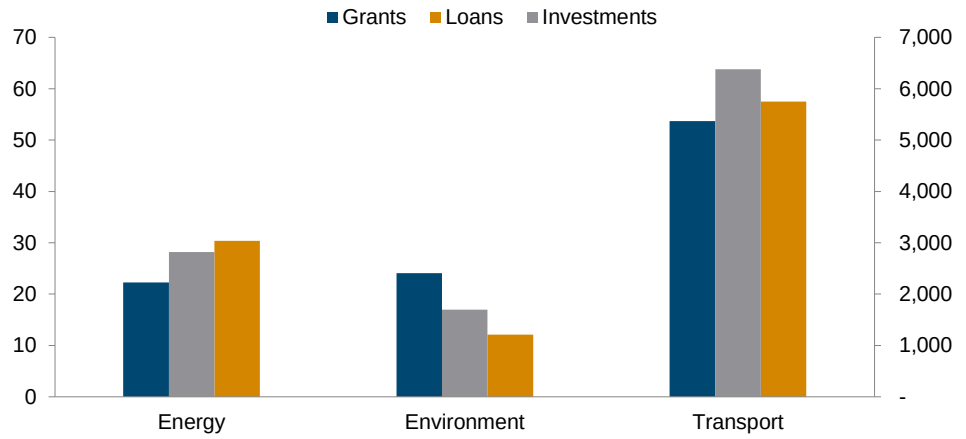
total investment volume in EUR million (right scale), grants and loans shares in % of total



Note: Data accessed from https://www.wbif.eu/wbif-projects on 9 February 2018.
Source: West Balkan Investment Framework (WBIF).

Figure 13 / Sectoral Western Balkan breakdown of WBIF infrastructure projects 2009-2017

total investment volume in EUR million (right scale), grants and loans shares in % of total



Note: Data accessed from https://www.wbif.eu/wbif-projects on 9 February 2018.
Source: WBIF.

Over the past 12 years the transport sector in the Western Balkan economies has received considerable investment, estimated at EUR 12.2 billion by SEETO. Road (EUR 9.9 billion) and rail (EUR 1.8 billion) account for the bulk of that effort. The financing sources were mostly the national budgets as well as loans and grants from IFIs. The West Balkan Investment Framework (WBIF) was created at the end of 2009 as a so-called 'blending instrument', combining grants and loans as well as technical assistance. WBIF is a cooperation between the Council of Europe Development Bank (CEB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Kreditanstalt für Wiederaufbau (KfW) and the World Bank as well as bilateral donors.

So far 146 WBIF projects in the infrastructure-relevant areas of energy, environment and transport were able to generate an investment volume of EUR 10.9 billion in the Western Balkans. However, most of the funding consists of loans (EUR 7.9 billion) and only a smaller part of grants (EUR 796 million), the remainder is national co-financing. Up to mid-2014 only about EUR 300 million of overall grants (including also funds for social issues and private sector development) were provided. Hence, the bulk of the WBIF grants were only approved once the IPA II funds were made available in 2015 (WBIF, 2016). The smallest and poorest countries of the region have received the largest shares (Figure 12) of these grants (especially Bosnia and Herzegovina – 22% – and Montenegro – 20%). Sector wise transport dominates clearly with 54% of all grants (Figure 13).

These efforts to improve regional infrastructure have seemingly been successful. Improvements in infrastructure have likely been an important factor underpinning FDI in the region (Hunya, 2017). Nevertheless, WBIF-supported Regional Balkans Infrastructure Study – Transport (IBRD, 2015) concluded that 30% of the region's comprehensive road network required immediate maintenance and/or upgrade. It also identified capacity constraints on more than 30% of the rail network and stressed the urgent need for rail rehabilitation and maintenance.

Among the WBIF projects we find a number of alternative energy developments (especially hydropower plants and wind farms) and, most importantly, several electricity interconnection projects. This is in line with the respective Berlin Process plans: the Western Balkan energy ministers signed a joint statement in Vienna on 2 July 2015 agreeing on five priority interconnection projects for financing and implementation under IPA 2015. These are mostly 400 kV electricity interconnections between Albania and FYRO Macedonia, Serbia–Montenegro–Bosnia and Herzegovina, Serbia and Romania and the Serbian section of the Trans-Balkan Electricity Corridor, linking Montenegro, Bosnia and Herzegovina, Serbia and Romania via a 400 kV transmission line and Montenegro and Italy via a submarine cable. Also the Serbian grid of the Serbia-Bulgaria gas interconnection is on the priority list. The status of these projects is either in preparation, tendering or already in implementation.

In terms of transport projects, eleven core network roads were agreed upon in the framework of the Berlin Process and mentioned in a joint statement of the six Western Balkan prime ministers in Brussels on 21 April 2015. WBIF is active along Corridor X (and Xc). This is the core network's main North-South Corridor, connecting the Western Balkans with Croatia and Greece (with additional stretches connecting Serbia with Hungary Xb and Bulgaria Xc). Also, along the European corridor VIII that connects Albania with FYRO Macedonia and Bulgaria, WBIF is financing a stretch of the motorway. In addition, WBIF supports the construction of the core network's East-West Route 7, connecting the southern Serbian city of Niš with Kosovo and Albania. WBIF is also financing sections of Route 4 in Montenegro, as well as the core network Routes 1 and 2, connecting the country with Croatia and Albania. WBIF support for the Adriatic-Ionian highway (Route 2) also exists for Albania (there also Corridor VIII gets funding). In Kosovo WBIF is active along core network Route 7 and Route 6, connecting the country's capital with the FYRO Macedonian capital. WBIF is strongly engaged in several road projects in Bosnia and Herzegovina, along the North-South core network Corridors Vc and 2a. Moreover, WBIF supports a host of railway projects throughout the Western Balkans, focusing on the agreed core network along the Corridors Vc, VIII, X (including Xb and Xc) and Routes 2, 4 and 10 (connecting Southern Serbia with Kosovo and FYRO Macedonia).

Apart from the above-mentioned funds, there is also the EU's Connecting Europe Facility (CEF) available for the Western Balkans. The CEF offers financial contributions for the construction (as well as studies) of traditional transport infrastructure. However, so far, only Bosnia and Herzegovina and Serbia have drawn negligible amounts of funding from this source.

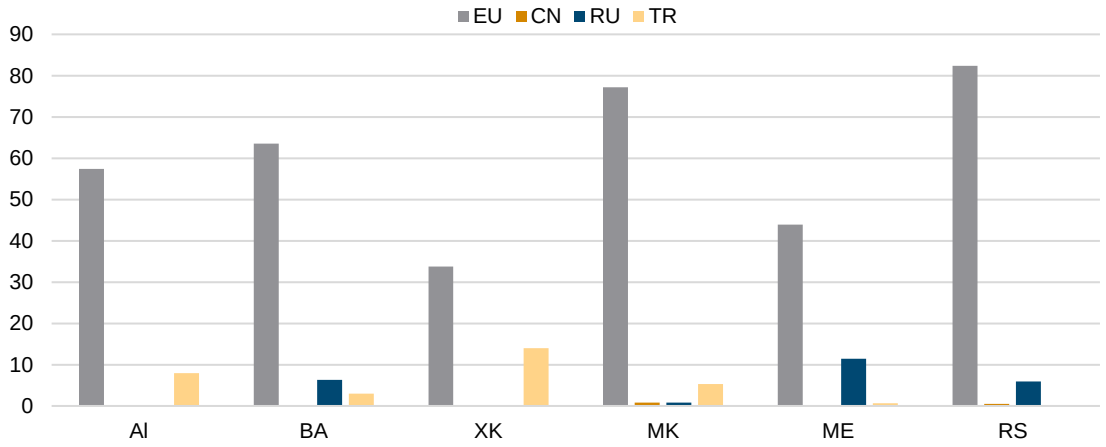
Other players in the region

Concerns about the influence of outside actors in the Western Balkans from the likes of Russia, Turkey and China, and the potential for these countries to seriously compete with the EU for influence, have grown louder in recent years. However, at least in an economic sense, we see these concerns as being often overplayed. From the perspective of trade and FDI, for example, it is difficult to overstate the dominance of the EU in the Western Balkans (and consequently the much smaller role of other powers, see Figures 14 and 15).

Russia's investment in the region tends to be motivated by political and security factors (Grieveson et al., 2018). Russian FDI in the Western Balkans is mainly focused on the energy sectors in Serbia and the Republika Srpska in Bosnia, along with private real estate in Montenegro. Russia accounts for 11% of the inward FDI stock in Montenegro, and 6% in both Serbia and Bosnia, but effectively nothing anywhere else. Turkey's FDI in the region tends to be more commercially-driven, and is more diverse in terms of sectors and partner countries. However, its highest level is 14% of the total in Kosovo, followed by 8% in Albania, 5% in FYRO Macedonia, 3% in Bosnia and 1% in Montenegro. All of these levels are dwarfed by the EU, which accounts for an average 60% of the total FDI stock across the six countries.

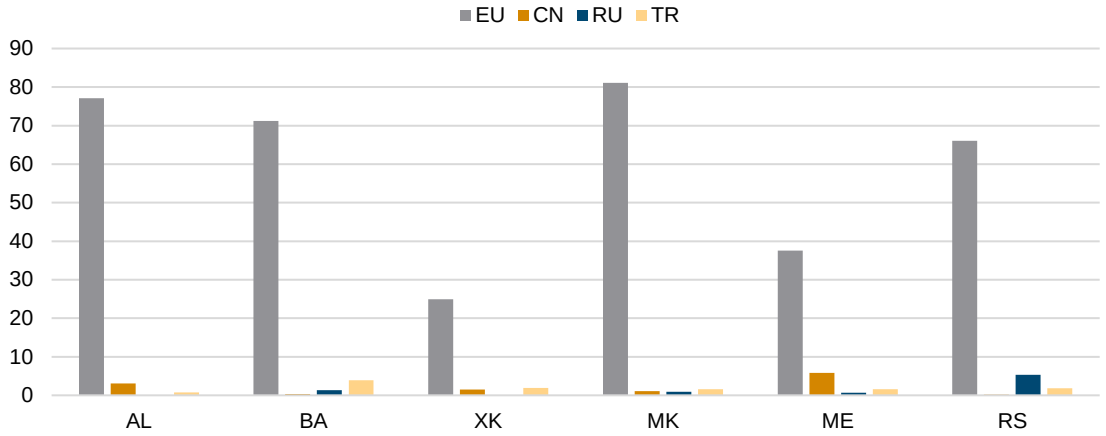
The situation with trade is similar. The EU is overwhelmingly dominant as an external partner, with others only playing minor roles. On average 60% of exports from the six Western Balkan countries go to the EU, compared with 1.7% for Russia, 1.9% for Turkey, and 2% for China. The highest share of exports that any of the six Western Balkan countries send to these three is 5.8% from Montenegro to China.

Figure 14 / Inward FDI stock by source country, in % of total, 2016



Source: wiiw FDI Database.

Figure 15 / Merchandise exports by destination country, in % of total, 2016



Source: wiiw Annual Database.

This is not to say, however, that the situation is static and that outside powers will not aim to increase their economic role in the Western Balkans in the coming years. One particularly significant development is China's Belt and Road Initiative (BRI), within which the Western Balkan countries will play an important role (Grübler et al. 2018). The Western Balkans has a particular importance for China as it lies between the port of Piraeus in Greece (67% of which was acquired by the Chinese state-owned company COSCO in 2016) and the big markets of Western Europe. Announced Chinese construction projects as part of the initiative in 2007-17 were worth EUR 12.2bn in loans for 16 CESEE countries. Within these projects, the Western Balkans countries are quite dominant: 29.4% alone is earmarked for projects in Serbia, with a further 20.7% in Bosnia and 7.4% in Montenegro. The vast majority of the projects are either in energy or transport.

There are questions about the extent to which all planned projects will actually be realised, but if they are, it would certainly help to alleviate some of the region's infrastructure deficiencies. The upgrading of energy capacity would also be a highly welcome development, and help to drive economic expansion. In addition, Chinese activities in the region could increase demand, reduce transport costs and time, help with the diversification of exports, and strengthen regional connectivity and cooperation.

Nevertheless, we see certain risks to the region as a result of Chinese involvement, some of which could have implications for EU accession. First, Chinese money will exclusively arrive in the form of loans, creating risks of unsustainable debt burdens for some countries (Hurley et al. 2018). Second, there is a chance that Chinese activities in the region will not help to reduce the already existing problem of corruption (Makochi and Nechev, 2017), unlike other financiers that put more emphasis on institutional, environmental and social standards. Third, there are concerns about greater dependency and political influence. Fourth, it is quite possible that infrastructure development will be undertaken by Chinese contractors, suppliers and workers, and using Chinese materials. This would significantly reduce the economic benefits for the region (Barisitz and Radzyner 2017).

Table 1 / Chinese firms' major construction contracts in the Western Balkans, 2010-2017

Country	Year	Contractor	Sector	USD mn
BA	2010	Dongfang Electric	Energy	710
BA	2013	Power Construction Corp	Energy	280
BA	2014	China Energy Engineering	Energy	1,060
BA	2015	Dongfang Electric	Energy	460
BA	2017	Shandong Gaosu	Transport	640
MK	2013	Power Construction Corp	Transport	400
ME	2014	China Communications Construction	Transport	1,120
RS	2010	China Communications Construction	Transport	260
RS	2010	Sinomach	Energy	340
RS	2013	China Communications Construction	Transport	850
RS	2013	Shandong Gaosu	Transport	330
RS	2013	Sinomach	Energy	720
RS	2016	China Communications Construction	Transport	230
RS	2016	Sinomach	Energy	230
RS	2016	Huawei	Technology	170
RS	2016	China Comm. Constr. and China Railw. Eng.	Transport	160
RS	2016	Power Construction Corp	Transport	220
RS	2017	Shanghai Electric	Energy	210
RS	2017	China Communications Construction	Transport	520
RS	2017	Power Construction Corp	Energy	230

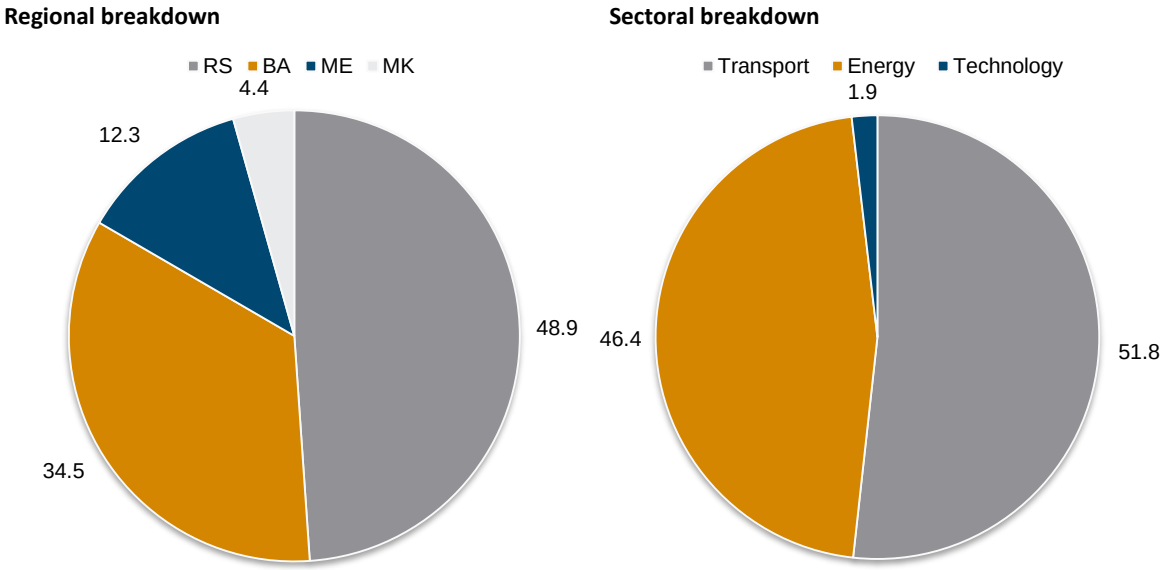
Note: These projects are not FDI, but mostly public investment contracts financed by Chinese banks; not all the projects might be realised.
Source: China Global Investment Tracker, January 2018.

The number of major Chinese construction projects contracted in the region since the outbreak of the global financial crisis is non-negligible. Overall, Chinese infrastructure projects make up about USD 9.1 billion (EUR 7.8 billion). Almost 90% of these, however, have been initiated only since 2013. The most important transport sector contractor is the predominantly state-owned China Communications Construction Company. In the energy sector, the state-owned China National Machinery Industry Corporation – known as Sinomach – is the leading contractor.

Geographically, the prime target of Chinese construction contracts is Serbia (Figure 16). Almost half of the projected amounts are earmarked for construction in this country, strongly driven by the upgrade of the Budapest-Belgrade railway link. Out of the total projected construction costs more than half are budgeted for transport and slightly less for energy projects. A minor contract is dedicated to a (communication) technology project.

Comparing the type of Chinese construction projects with those of the EU in the Western Balkan region demonstrates to a large extent complementarity in the sense that they are not competing for the same type of project. This is especially true for the energy sector (and to a much lesser extent for transport). Some of the projects might be even seen as contradictory. Most Chinese energy projects are related to the construction of coal-fired power plants (e.g. in Bosnia and Herzegovina and Serbia). There are also a few Chinese gas and alternative energy projects in the region, but these have typically a smaller project volume. On the other hand, most energy-related EU projects are aiming to support the shift towards a low-carbon economy.

Figure 16 / Breakdown of Chinese construction project costs in % of total, 2010-2017



Note: These projects are not FDI, but mostly public investment contracts financed by Chinese banks; not all the projects might be realised.
Source: China Global Investment Tracker, January 2018.

In the field of transport, there are more overlaps between the activities of China and the EU. Thus, for instance, two highway projects in FYRO Macedonia are currently under construction by Sinohydro, a brand of the Power Construction Corporation of China (Powerchina). One connects the capital with a regional economic hub, the other is also part of the European corridor VIII that connects Albania with FYRO Macedonia and Bulgaria. The most famous and costly Chinese highway construction project in the region is the one in Montenegro, which is also part of the Berlin Process core network Route 4 that links the Montenegrin port of Bar with the Serbian and Romanian border. The section is only 40 km long but costs about USD 1 billion, as the route passes through the mountains requiring a tunnel stretch. Another Chinese motorway project has been signed recently in Bosnia and Herzegovina (not part of the core network), but the remaining Chinese highway projects are all located in Serbia. And they are mostly related to the core network's main North-South Corridor X, as well as the above-mentioned Route 4. In the former case, several sections are currently being constructed by Chinese companies; the latter projects should start this year. Chinese railway construction projects are few but very prominent, dealing mostly with the improvement of the rail tracks between Budapest and Belgrade. It is the Chinese flagship project in the wider region. The works in Serbia have allegedly started recently. The Hungarian part of the rail upgrading is delayed due to the European Commission insisting on a tender process.

Conclusions and policy recommendations

A major contribution of this report is the collection of partly unpublished detailed sectoral data of gross fixed capital formation in 'other buildings and structures' for the six Western Balkan countries – Albania, Bosnia and Herzegovina, Kosovo, FYRO Macedonia, Montenegro and Serbia. The analysis shows that these infrastructure proper investments make only a small (but important) fraction of overall investment. Both, however, have suffered a lot after the outbreak of the global financial crisis and show only more recently first signs of recovery. Infrastructure investment could help the economies of the Western Balkans to overcome the century-long developmental backwardness and catch-up with the EU average. Large infrastructure gaps can be identified, especially in transport and energy. More substantial infrastructure investment in this lagging region has the potential to kick-start other investment too, in line with the 'Big Push' theory.

The region receives support for infrastructure development from EU Member States within the 'Berlin Process' as well as the EU via its IPA II pre-accession funds. Moreover, the West Balkan Investment Framework provides for grants and loans as well as technical assistance in the infrastructure-relevant areas of energy, environment and transport. However, most of the funding consists of loans (EUR 7.9 billion, which is comparable to about one and a half times annual investment in other buildings and structures in the Western Balkans) and only a smaller part of grants (EUR 796 million). More recently, a new player is active in infrastructure development in the region: China has initiated infrastructure projects of about EUR 7.8 billion in the Western Balkans. Most likely, not all of these projects will be executed in the end and there are no grants but only loans involved. While still of little importance to the region in terms of FDI and as an export market, China's infrastructure projects' volumes are comparable to volumes involved in the EU initiatives. While it is unlikely geopolitical interest that drives China's activities in the Western Balkans, its geoeconomic interests might still be a reason for concern in Brussels.

The Western Balkans are a good case study also for other regions in the EU neighbourhood that have similar developmental problems. It teaches that (i) intensity of involvement is important and that other powers can gain influence with fairly little amounts of investment funds, especially in small and poor countries. This is also a reminder for the EU to top up its investment support funds to the Western Balkan economies. (ii) Also the composition of these funds matters, as loans instead of grants increase foreign indebtedness of these vulnerable countries. A larger grant component would also indicate more benevolent underlying intentions. (iii) The experiences of the Western Balkans can also teach that infrastructure funding and other forms of support will not automatically lead to more political cooperation. Recent changes in the European Commission's strategy towards the Western Balkans have recognised this and thus EU officials are regularly touring through the region in order to mediate for political reconciliation with an aim to settle border disputes and improve the security situation in the region. (iv) Infrastructure development funds can also be used as a sort of reward for more political cooperation. These principles could be applied in the EU's neighbourhood policy for the Eastern Partnership countries as well as the Euro-Mediterranean Partnership countries, according to the local requirements.

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Appendix

The infrastructure investment data for the Western Balkans provided in the Appendix are available by two sources:

(i) Gross Fixed Capital Formation (GFCF) based on National Accounts (NA) data and

(ii) Gross investment data taken from Annual Investment Surveys.

The preferred and internationally comparable source is National Accounts. However, these data are hardly available for the Western Balkans. FYRO Macedonia is the only country reporting according to this source (no Investment Survey data). All other countries (except Kosovo) provide gross investment data from investment surveys. The Albanian data reflect investments of market producers (no public investments) taken from Structural Business Statistics.

In order to define infrastructure investment one needs a cross-tabulation of GFCF (NA) / Gross investment in asset type 'Other buildings and structures (AN.112)' broken down by selected NACE activities. The asset types are defined according to ESA 2010 (code in brackets) in both sources. 'Other buildings and structures' comprise investment in non-residential buildings, other structures and land improvements (ESA 2010 p. 122).

Due to the lack of availability of this asset type, countries often report investments in "Total construction" summarizing the asset type 'Dwellings (AN.111)' and 'Other buildings and structures (AN.112)'. This information was used in case of Montenegro and in FYRO Macedonia in the period 2013-2014 in order to estimate the investment in other building and structures.

The selected NACE activities used for infrastructure investments are the following:

NACE Rev.2	Infrastructure investments
D	Electricity, gas, steam, air conditioning supply
E	Water supply, sewerage, waste management, remediation
H	Transportation and storage
J	Information and communication
P	Education
Q	Human health and social work activities

Data for NACE Rev. 2 mostly start from 2009/2010 and cannot be properly combined with NACE Rev. 1 data which are available backward (one would need NACE 4-digit codes), we therefore show NACE Rev. 1 data for your information.

NACE Rev. 1	Infrastructure investments
E	Electricity, gas and water supply
I	Transport, storage and communication
M	Education
N	Health and social work

The break in the NACE revisions impede and limit the comparison of infrastructure investment over time starting from 2000. All data provided in the following tables have been collected with the support of the statistical offices of the region. Due to space we show here the time period from 2010 while the full time range is provided in the Excel tables.

Albania

Gross Investment

Infrastructure investments by selected NACE activities

ALL mn

Other buildings and structures (AN.112)

	NACE 2	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**8251**	**5373**	**25659**	**3110**	**5886**	**13233**	**20148**
	Infrastructure investments	**5698**	**2235**	**16219**	**1381**	**4222**	**7113**	**10067**
D	Electricity, gas, steam, air conditioning supply	3943	91	8650	191	390	784	7262
E	Water supply, sewerage, waste manag., remediation	26	67	85	222	162	1065	1810
H	Transportation and storage	201	1819	4706	385	62	1967	528
J	Information and communication	1525	249	2703	511	3499	3008	223
P	Education	1	9	2	8	108	110	52
Q	Human health and social work activities	2	0	73	64	1	179	192
	Shares in infrastructure investments	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
D	Electricity, gas, steam, air conditioning supply	69.2	4.1	53.3	13.8	9.2	11.0	72.1
E	Water supply, sewerage, waste manag., remediation	0.5	3.0	0.5	16.1	3.8	15.0	18.0
H	Transportation and storage	3.5	81.4	29.0	27.9	1.5	27.7	5.2
J	Information and communication	26.8	11.1	16.7	37.0	82.9	42.3	2.2
P	Education	0.0	0.4	0.0	0.6	2.6	1.5	0.5
Q	Human health and social work activities	0.0	0.0	0.5	4.6	0.0	2.5	1.9

	NACE 1	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**8248**			.	.	.	.
CDE	Industry	4845	.	.	.	.	.	.
I	Transport & Communication	448	.	.	.	.	.	.

Note: Data refer to market producers based on Structural Business Statistics.
Source: Institute of Statistics of Albania.

Bosnia and Herzegovina

Gross Investment

Infrastructure investments by selected NACE activities

BAM mn

Other buildings and structures (AN.112)

	NACE 2	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**2101.0**	**1946.6**	**1916.0**	**2275.5**	**2745.8**	**1977.6**	**2009.9**
	Infrastructure investments	**446.0**	**426.0**	**420.6**	**422.5**	**383.3**	**365.4**	**412.9**
D	Electricity, gas, steam, air conditioning supply	157.0	141.1	138.8	182.2	192.0	163.2	129.7
E	Water supply, sewerage, waste manag., remediation	19.4	21.8	27.0	27.7	20.0	46.0	33.4
H	Transportation and storage	71.9	97.8	103.6	64.0	21.6	28.7	70.7
J	Information and communication	111.5	76.5	77.8	73.1	92.2	79.2	81.6
P	Education	31.1	30.3	32.4	53.1	28.4	21.8	24.1
Q	Human health and social work activities	55.1	58.5	41.0	22.4	29.2	26.5	73.4
	Shares in infrastructure investments	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
D	Electricity, gas, steam, air conditioning supply	35.2	33.1	33.0	43.1	50.1	44.7	31.4
E	Water supply, sewerage, waste manag., remediation	4.3	5.1	6.4	6.6	5.2	12.6	8.1
H	Transportation and storage	16.1	23.0	24.6	15.2	5.6	7.8	17.1
J	Information and communication	25.0	17.9	18.5	17.3	24.0	21.7	19.8
P	Education	7.0	7.1	7.7	12.6	7.4	6.0	5.8
Q	Human health and social work activities	12.3	13.7	9.7	5.3	7.6	7.3	17.8

Note: Data based on an annual survey on investments.

Source: Agency of Statistics of Bosnia and Herzegovina.

Montenegro

Gross Investment

Infrastructure investments by selected NACE activities
EUR mn

Other buildings and structures (AN.112)

	NACE 2	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**288.6**	**232.1**	**215.5**	**212.1**	**231.9**	**263.9**	**292.8**
	Infrastructure investments	**42.2**	**25.7**	**31.2**	**22.2**	**31.5**	**24.6**	**54.9**
D	Electricity, gas, steam, air conditioning supply	4.0	3.7	3.9	3.2	8.2	4.9	14.4
E	Water supply, sewerage, waste manag., remediation	6.4	5.0	8.2	7.2	14.2	2.7	6.5
H	Transportation and storage	19.4	12.8	11.1	2.4	3.1	3.7	14.2
J	Information and communication	0.6	1.6	3.0	3.3	3.1	9.6	14.9
P	Education	5.6	1.5	2.5	3.9	2.5	2.8	1.5
Q	Human health and social work activities	6.2	1.0	2.6	2.1	0.5	1.0	3.5
	Shares in infrastructure investments	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
D	Electricity, gas, steam, air conditioning supply	9.5	14.6	12.4	14.4	25.9	19.8	26.2
E	Water supply, sewerage, waste manag., remediation	15.2	19.4	26.1	32.4	44.9	10.9	11.8
H	Transportation and storage	46.1	49.9	35.6	10.9	9.7	15.0	25.8
J	Information and communication	1.3	6.2	9.8	15.0	9.9	39.1	27.2
P	Education	13.3	5.9	7.9	17.7	7.9	11.2	2.7
Q	Human health and social work activities	14.6	4.0	8.2	9.6	1.6	4.0	6.4

	NACE 1	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**.**	**.**	**.**	**.**	**.**	**.**	**.**
	Infrastructure investments	**.**	**.**	**.**	**.**	**.**	**.**	**.**
E	Electricity, gas and water supply	.	.	.	.	.	.	.
I	Transport, storage and communication	.	.	.	.	.	.	.
M	Education	.	.	.	.	.	.	.
N	Health and social work	.	.	.	.	.	.	.
	Shares in infrastructure investments	**.**	**.**	**.**	**.**	**.**	**.**	**.**
E	Electricity, gas and water supply	.	.	.	.	.	.	.
I	Transport, storage and communication	.	.	.	.	.	.	.
M	Education	.	.	.	.	.	.	.
N	Health and social work	.	.	.	.	.	.	.

Note: Data based on an annual survey on investments; wiiw estimate based on cross-tabulation data of asset type Total construction (comprises Dwellings AN.111 and Other buildings and structures AN.112).
Source: Statistical Office of Montenegro.

FYRO Macedonia

Gross Fixed Capital Formation (NA)

Infrastructure investments by selected NACE activities

MKD mn

Other buildings and structures (AN.112)

	NACE 2	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**35247**	**42233**	**42373**	**47274**	**49893**	**58281**	**64153**
	Infrastructure investments	**10109**	**12059**	**7372**	**4263**	**4137**	**.**	**.**
D	Electricity, gas, steam, air conditioning supply	3221	1649	2882	1946	2134	.	.
E	Water supply, sewerage, waste manag., remediation	4053	1051	827	297	180	.	.
H	Transportation and storage	1179	7716	839	886	462	.	.
J	Information and communication	665	781	2001	850	658	.	.
P	Education	491	425	644	161	469	.	.
Q	Human health and social work activities	500	436	179	124	234	.	.
	Shares in infrastructure investments	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**		
D	Electricity, gas, steam, air conditioning supply	31.9	13.7	39.1	45.6	51.6	.	.
E	Water supply, sewerage, waste manag., remediation	40.1	8.7	11.2	7.0	4.3	.	.
H	Transportation and storage	11.7	64.0	11.4	20.8	11.2	.	.
J	Information and communication	6.6	6.5	27.1	19.9	15.9	.	.
P	Education	4.9	3.5	8.7	3.8	11.3	.	.
Q	Human health and social work activities	4.9	3.6	2.4	2.9	5.7	.	.

	NACE 1	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**35247**	**42233**	**42373**	**47274**	**49893**	**58281**	**64153**
	Infrastructure investments	**.**	**.**	**.**	**.**	**.**	**.**	**.**
E	Electricity, gas and water supply	.	.	.	.	.	.	.
I	Transport, storage and communication	.	.	.	.	.	.	.
M	Education	.	.	.	.	.	.	.
N	Health and social work	.	.	.	.	.	.	.
	Shares in infrastructure investments	**.**	**.**	**.**	**.**	**.**	**.**	**.**
E	Electricity, gas and water supply	.	.	.	.	.	.	.
I	Transport, storage and communication	.	.	.	.	.	.	.
M	Education	.	.	.	.	.	.	.
N	Health and social work	.	.	.	.	.	.	.

Note: Data refer to gross fixed capital formation (GFCF) based on National Accounts ESA10 from 2012, ESA95 before. wiiw estimate in 2013-2014 based on cross-tabulation data of asset type total construction (comprises Dwellings AN.111 and Other buildings and structures AN.112).

Source: State Statistics Office of Macedonia.

Serbia

Gross Investment

Infrastructure investments by selected NACE activities
RSD mn

Other buildings and structures (AN.112) - new fixed assets

	NACE 2	2010	2011	2012	2013	2014	2015	2016
NACE code	**Total by activities**	**177408**	**235450**	**215944**	**177342**	**178934**	**187083**	**215584**
	Infrastructure investments	**36856**	**38713**	**38928**	**39194**	**35403**	**35609**	**55510**
D	Electricity, gas, steam, air conditioning supply	7859	9593	11221	8798	8703	11923	23445
E	Water supply, sewerage, waste manag., remediation	7471	5943	4404	9395	3900	4569	5873
H	Transportation and storage	8539	12657	14449	11677	15307	9246	15085
J	Information and communication	6711	6508	4784	5695	4213	6342	5450
P	Education	1860	1853	2423	1806	1274	1768	3046
Q	Human health and social work activities	4416	2159	1647	1823	2005	1759	2611
	Shares in infrastructure investments	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
D	Electricity, gas, steam, air conditioning supply	21.3	24.8	28.8	22.4	24.6	33.5	42.2
E	Water supply, sewerage, waste manag., remediation	20.3	15.4	11.3	24.0	11.0	12.8	10.6
H	Transportation and storage	23.2	32.7	37.1	29.8	43.2	26.0	27.2
J	Information and communication	18.2	16.8	12.3	14.5	11.9	17.8	9.8
P	Education	5.0	4.8	6.2	4.6	3.6	5.0	5.5
Q	Human health and social work activities	12.0	5.6	4.2	4.7	5.7	4.9	4.7

Note: Data refer to investments in new fixed assets (around 90% of new and existing fixed assets) based on an annual survey on investments. Date exclude the private sector until 2005.
Source: Statistical Office of Serbia.

Kosovo

Gross Fixed Capital Formation (NA)

Infrastructure investments by selected NACE activities

EUR mn

Other buildings and structures (AN.112)

NACE 2	2010	2011	2012	2013	2014	2015	2016
Total by activities	.	.	.	.	.	.	.

Total construction (AN.111 + AN.112)

NACE 2	2010	2011	2012	2013	2014	2015	2016
Total by activities	**881**	**1089**	**940**	**1001**	**952**	**1126**	**1120**

GFCF by asset type

GFCF by asset type	2010	2011	2012	2013	2014	2015	2016
Total by type	1301	1476	1317	1323	1294	1499	1550
Total construction (AN.111 + AN.112)	881	1089	940	1001	952	1126	1120
Other buildings and structures (AN.112)	.	.	.	.	.	.	.
Share Total construction in GFCF total, %	67.7	73.8	71.4	75.7	73.6	75.1	72.3

Note: Data refer to gross fixed capital formation (GFCF) based on National Accounts (from 2008 ESA'10, ESA'95 before).

Source: Kosovo Agency of Statistics.

ECONOMICS – REGIONAL STUDIES

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