



FORMER YUGOSLAV REPUBLIC OF MACEDONIA

SELECTED ISSUES

November 2016

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FORMER YUGOSLAV REPUBLIC OF MACEDONIA

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Approved By
European Department

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PUBLIC INFRASTRUCTURE INVESTMENT AND ECONOMIC GROWTH IN FYR MACEDONIA¹

Abstract

FYR Macedonia faces a strong need for its transport infrastructure. Recognizing this, the government has significantly scaled up infrastructure investments in recent years. This paper attempts to quantify the short and medium term growth effects of major ongoing highway and railway projects using a simple model-based simulation approach. The standard neo-classical growth model is augmented with public capital to capture both demand and supply side effects of public infrastructure investments. The calibrated model suggests that the four ongoing highway and railway investments of 2–3 percent of GDP annually for 2014–18 are likely to raise real GDP growth rate by 0.5 percentage points on average for each year in 2014–20. Enhancing public investment efficiency can increase growth effects up to 0.8 percentage points.

A. Introduction

1. FYR Macedonia has a strong need for improvements in its transport infrastructure. Good connectivity with the rest of the world and within the country is critical for a small, open and land-locked economy, where exports are expected to play an important role in driving long-term economic growth. During 2010–15, net exports contributed on average to 0.04 percent in annual GDP growth, indicating significant room for increase in that share. However, its road network is worse than in most countries with a similar income level. The World Bank’s Logistics Performance Index (LPI) shows that FYR Macedonia’s logistics and infrastructure scores rank among the lowest in the region. Road quality is below average in the region according to the World Economic Forum’s Global Competitiveness Report. Road density in FYR Macedonia is not low by regional standards, but the share of paved roads is among the lowest according to the World Bank World Development Indicators. A recent IMF report (IMF, 2015) on Western Balkan countries also identifies improving infrastructure as one of the top five priorities in FYR Macedonia (see panel chart below). Some other Western Balkan countries have recently scaled up public transport infrastructure investments to improve connectivity (Box 1).

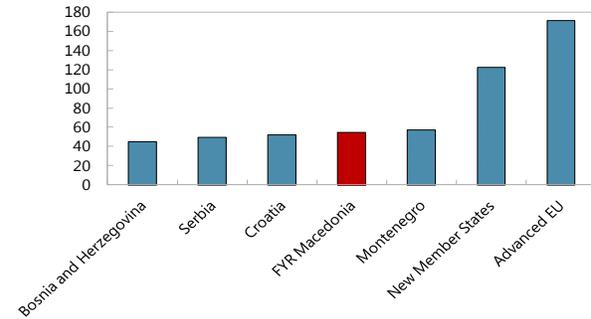
¹ Prepared by Hua Chai.

Figure 1. FYR Macedonia: Public Transport Infrastructure

Road density is decent by regional standards...

Road Density

(km per 100 square kilometer of land area)

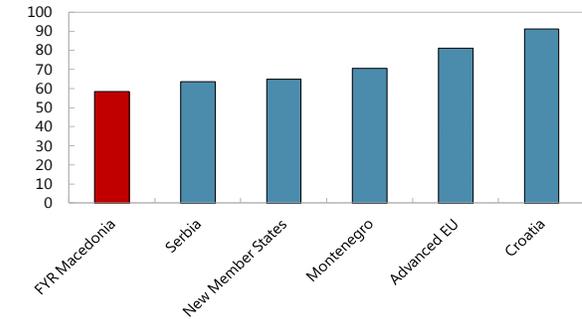


Source: WDI 2011.

But the share of paved roads is low.

Paved Roads in Percent of Total Road

(percent)

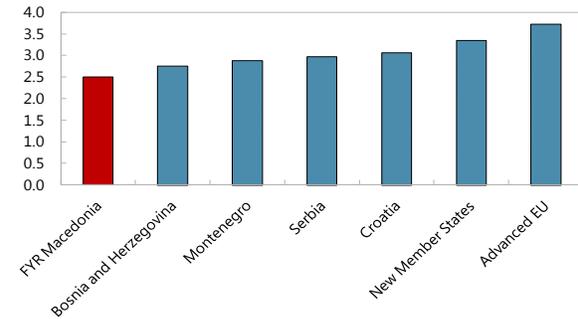


Source: WDI 2011.

Overall logistic performance is low in the region...

Logistics Performance Score

(higher score = better performance)

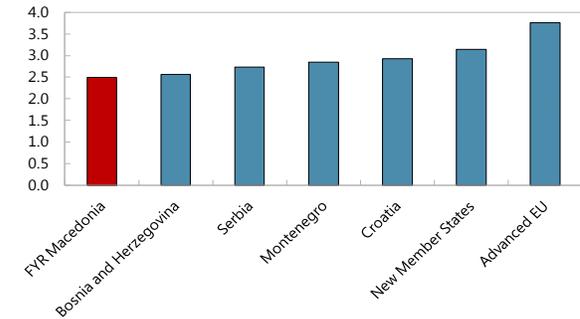


Source: World Bank International Logistics Performance Report, 2014.

And so is transport infrastructure in particular.

Transport Infrastructure Score

(higher score = better performance)

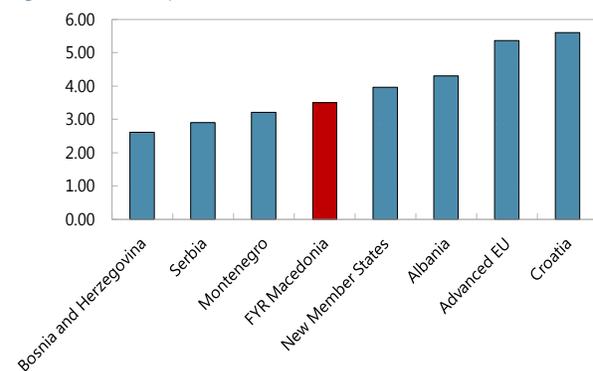


Source: World Bank Logistics Performance Report, 2014.

Quality of roads below is regional average.

Quality of Roads

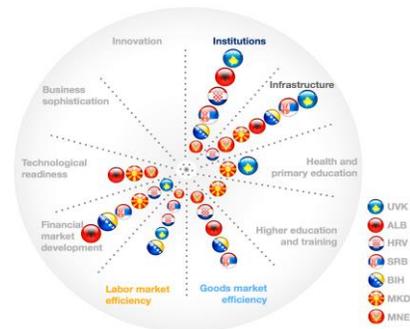
(higher score = better performance)



Source: World Economic Forum Global Competitiveness Report, 2015.

Infrastructure is a reform priority.

Top 5 Reform Priorities for Each Western Balkan State



Source: IMF staff calculations.

Box 1. Public Transport Infrastructure Investment in Western Balkan Countries

A number of other Western Balkan countries have scaled up public transport infrastructure investments in recent years.

Montenegro is currently building the Bar-Boljare highway to connect the main seaport of Bar to Serbia. Investment in the first 40 km amounts to €809 million, or almost a quarter of annual nominal GDP. The authorities intend to follow up with yet more public infrastructure projects, including the remaining 176 km of the Bar-Boljare highway, the “Trans-Adriatic” highway, railways and port developments.

Kosovo has completed the R7 highways project in 2014, connecting Pristina to the Albanian border, with a total cost of €973 million, or around 18 percent of GDP. It is now constructing the R6 Road connecting Pristina to the Macedonian border, which could significantly reduce driving time to one of Kosovo’s largest trading partners. Total cost is estimated at €668 million, or 12 percent of GDP. Construction began in 2015 and is scheduled to be completed in 2018–19.

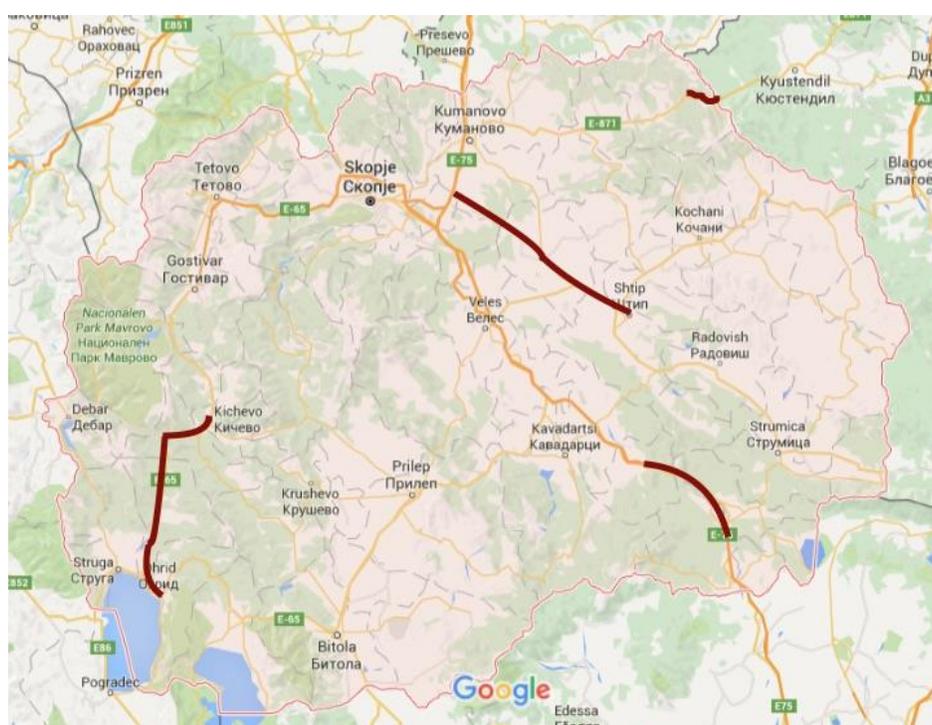
Serbia is continuing to invest heavily in transport infrastructure projects. In 2015, Serbia completed the construction of a total of 91.1 km of motorways, refurbished some 190 km of roads, and built 206 bridges and nine tunnels. This year, the country plans to complete the construction of a total of 90.7 km of motorways on the pan-European Corridor X—including the Dimitrovgrad bypass-Bulgarian border section, and to intensify works on the Corridor XI section between Belgrade and the Montenegrin border, with an estimated total annual investment of €115.5 million.

2. Recognizing infrastructure improvement as a top priority, the authorities recently scaled up infrastructure investments significantly. Public expenditure on transport infrastructure (including construction and maintenance) had averaged 1 percent of GDP between 2005 and 2013. In contrast, for 2014–2018, annual investments in road infrastructure are expected to reach 2–3 percent of GDP per year, more than doubling the historical average. In this paper, we restrict our analysis to big projects, namely three highway and one railway projects currently being undertaken that lie at the heart of the plan for infrastructure improvement. The highway constructions take place on the strategic route to connect FYR Macedonia to the Greek port of Thessaloniki, and to connect some other regions to this main route. The railway project is located on the extension of the trans-European transport network (TEN-T) to the Western Balkans, namely Corridor VIII. These investments are mostly financed by the EBRD, the EIB and the China EXIM Bank through publicly guaranteed debt denominated in FX, and carried out by state-owned enterprises such as PESR, outside the central

government budget.² While infrastructure investments in FYR Macedonia do not compete with government spending in other areas, it does add to government liability.

Major Highway and Railway Projects under Construction				
	Motorway Section: Miladinovci - Sveti Nikole - Shtip	Motorway Section: Kichevo - Ohrid	Motorway Corridor X Section: Demir Kapija - Smokvica	Railway Corridor VIII Kriva Palanka - Beljakovce
Total investment	€226.7m	€411.3m	€245.0m	€140.0m
Foreign creditor	EXIM Bank of China	EXIM Bank of China	EBRD/EIB	EBRD
Project start	May-14	May-14	Sep-12	May-14
Expected completion	May-17	Jan-18	May-17	Jan-18

Figure 2. FYR Macedonia: Road Network and Road Construction



Note: the four projects are marked in deep red on the map.

3. Public infrastructure investments can stimulate economic growth through both demand and supply effects. On the one hand, public investments boost aggregate demand through the short-term fiscal multiplier, similar to any other government spending. On the other hand, given the highly complementary nature of infrastructure services, higher public infrastructure capital stock raises the return to private sector, hence inducing an expansion of private investment resulting in higher private capital stock in the medium term. All these result in a stronger growth in the medium term. This higher production capacity then translates into more output. While the level effect is

² The highway Corridor X is financed by EBRD/EIB and is on the central government budget. The investment is thus part of fiscal policy. However, because of the in-and-out nature of funding, it is still budget-neutral.

permanent—the economy benefits from being on a higher growth trajectory, the growth effect from public infrastructure investment is transitory. Once infrastructure projects are completed and private sector capital fully adjusts to the new level of public capital stock, growth will again be determined by its long-run determinants, e.g., TFP growth, and hence revert to the long-run trend. In principle, public investment can also exert negative growth impact as public borrowing crowds out credit to the private sector. However, this effect is likely to be muted for FYR Macedonia as the public sector borrows primarily from foreign creditors that the private sector does not have access to anyways.

4. This paper attempts to estimate the growth effect of the ongoing public transport infrastructure projects. Public infrastructure investments may deliver growth effects, but also come with risks in the form of higher foreign currency denominated public debt. While the increase in debt and FX share of debt is relatively straightforward to project, the magnitude of growth effects is less understood. By how much do these public infrastructure investments raise growth for FYR Macedonia, in both the short and the medium term?

B. Estimating Growth Effects: Methodology

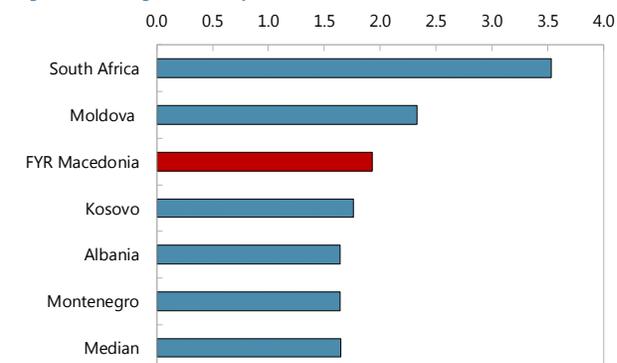
5. The quantitative analysis takes a model-based simulation approach. The model is developed based on the standard neoclassical growth model and incorporates public capital and public investment. We assume that public capital is a distinct factor of production, in addition to labor and private capital, and the evolution of the stock of public capital is determined by the government's public spending plan. Since one project takes multiple years to complete, we assume new public capital is formed and available for use only when a project is completed. Since FYR Macedonia's public transport infrastructure projects are mostly financed outside the budget and hence budget-neutral, the model abstracts away from fiscal policy considerations. That is, we assume that carrying out these projects will not oblige the government to reduce spending in other areas. Because both direct and indirect growth effects are explicitly captured in the model, we do not need to make assumptions on the size of the fiscal multiplier, which can nonetheless be inferred from the simulation exercise.

6. The simulation exercise focuses on the big highway and railway projects. The announcement of plans for these projects is introduced as an unanticipated shock at end-2013. The model then simulates reaction of the economy since 2014. Two types of growth effects are captured. The direct effect is the effect of additional investment on GDP, net of investment-related imports. The indirect effect involves the response of the private sector to public investments. In expectation of higher public capital stock and hence higher return to private capital, the private sector increases investment as well, providing an additional boost to GDP.

7. Public investment efficiency is incorporated in the model as a key parameter affecting the magnitude of the growth effect of public infrastructure investments. Studies have shown that

the social return on public investment and growth dividends depend critically on the quality and efficiency of public investment. In particular, the quality of project selection, appraisal, implementation and evaluation matters greatly for the efficiency of spending on public investments. Dabla-Norris et al (2011) develops an index measuring the efficiency of public investment in these areas, covering 71 emerging market and low-income countries. FYR Macedonia's overall efficiency score sits at upper-middle part of the distribution, which is higher than most countries in the West Balkan region, but falls significantly behind the best performers, indicating plenty of room for improvement.

Public Investment Efficiency Score, Selected Countries
(higher score = higher efficiency)



Sources: IMF WP/11/37

The simulation exercise takes public investment efficiency into account and is able to estimate potential gains from improving efficiency. In particular, we define investment efficiency in the model as the share of investment that actually goes into the formation of the public capital. For example, a country with 80 percent efficiency is able to add 800,000 dollars' worth of public capital stock with every million dollar of investment. We further assume that South Africa, the best performer in the sample with an overall score of 3.53, has an efficiency of 100 percent. We then calculate FYR Macedonia's efficiency proportional to its score relative to South Africa. Since FYR Macedonia has a score of 1.93, this implies that its public investment efficiency is $1.93/3.53 \times 100$ percent = 55 percent.

8. Compared with the cross-country regression approach (e.g., WEO 2014), the model-based simulation approach has several advantages. First of all, the model allows for diminishing returns to public investment, whereas estimates from the cross-country regression approach typically assumes a linear specification. Secondly, the model simulation utilizes more country-specific information. Some key parameters are calibrated to match country-specific moments, and country-specific investment efficiency is taken into the estimation.

C. Quantitative Results

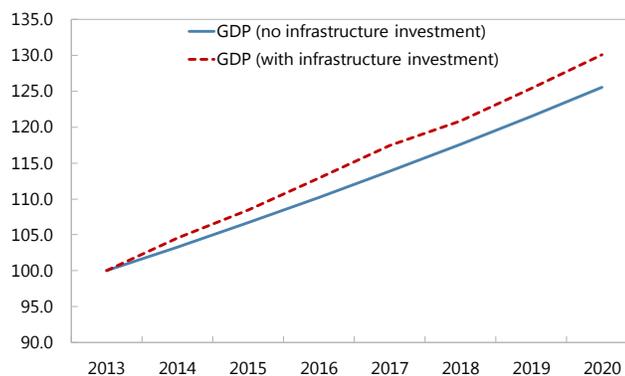
9. Planned public investment in big highway projects in FYR Macedonia could raise average annual growth rate by 0.5 percentage points annually for the period 2014–2020.

Investment in the four mega projects studied in this paper amounts to 2–3 percent of GDP per year. Due to low import content, direct short-term contribution from these projects is estimated to average 0.25 percent of GDP annually for 2014–2018, accounting for half of the total growth effect. Spillovers from public investments account for the remaining half, in the form of higher private investment and consumption. Private investment rises in anticipation of higher returns to capital, while consumption grows as higher investment drives up wages and raises expectation of future income. From a dynamic perspective, higher private and public investment raise production capacity in the future, delivering

medium term growth. After all projects studied in this paper (paragraph 2) are completed in 2018, private sector investment adjustments are assumed to continue for another three years before the economy reaches the new growth trajectory and reverts back to the long-run growth rate. The estimated magnitude of annual growth effect is consistent with the staff's macro framework, where real GDP growth is projected to reach 3.8 percent, up from a historical trend of 3.2–3.3 percent. To compare the estimates obtained in this paper with that from the cross-country regression in WEO 2014, it is useful to look at the contemporaneous effect of a one percent of GDP increase in public investment. It is about 0.3 percent increase in output in this paper, whereas the WEO chapter reports 0.25. In terms of the level of output, by end-2020 real GDP would be 4 percent higher than the hypothetical scenario without investments in the highway and railway projects. When interpreting the quantitative results, it is important to keep in mind the non-linearity of the growth effect due to decreasing returns to public capital. If expenditure in transport infrastructure keeps increasing, sooner or later it leads to projects located in less strategically important locations and/or more difficult terrain. Therefore, the estimates obtained in this paper should not be linearly extrapolated for assessing the potential growth effects of future infrastructure projects not included in the paper.

Real GDP Simulation

(2013 = 100)



10. Public infrastructure investment puts output at a higher trajectory in the long run. After spurts of growth induced by public investment in the medium term, the growth rate will revert back to its long run trend. Even though the growth effect is transient, the level effect is permanent. The economy will be sitting on a trajectory permanently higher by 4 percent, relative to the scenario without infrastructure investments. This reflects the fact that due to the improvement in public infrastructure, the private sector accumulates eight percent more capital stock by 2020 relative to the scenario without infrastructure investments. In reality, the higher level of economic activity may be most evident in the export sector and tourism, where movement of goods and people is most sensitive to the improvement in connectivity. As a result, improvement in the balance of payments could be expected as well.

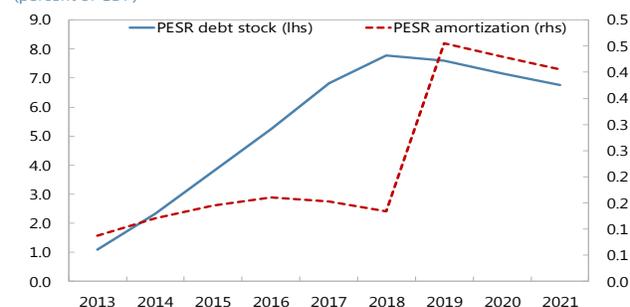
11. Enhancing efficiency in public investment can deliver bigger growth gains. The simulation exercise suggests that raising FYR Macedonia's public investment efficiency to the level of South Africa, the top performer in the set of countries covered by Dabla-Norris *et al* (2011) would generate an annual growth effect of 0.8 percent, instead of 0.5. On the flip side, it also allows the same effective amount of investment to be made with less nominal spending, and thus less for financing and incurring debt. In the four sub-areas of public investment efficiency, namely project appraisal,

selection, managing and evaluation, FYR Macedonia scores relatively well in selection and evaluation, but poorly in appraisal and managing (WP/11/37). Improving capabilities in project appraisal and managing should be priority for reforms to enhance public investment efficiency.

D. Costs of Public Infrastructure Investments

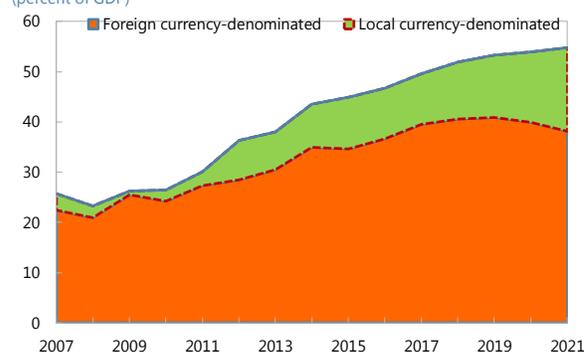
12. Even though FYR Macedonia's public transport infrastructure investments is expected to deliver sizable growth effects, a complete assessment of its overall effect on the economy should not overlook the costs. First of all, large scale public infrastructure projects lead to a fast buildup of public debt. The publicly-guaranteed debt of the PESR, the main implementer of public infrastructure projects, has gone up from 1.1 percent of GDP when the entity was formed in 2013, to 3.9 percent by 2015, and is expected to grow to more than 7 percent of GDP by 2018. As a result, public debt now at 46 percent of GDP, and double of what it used to be in 2008, is expected to climb to 54 percent of GDP by 2021. Although this level of public debt is not too high to invite imminent public debt distress, it restricts fiscal policy space, in a country where fiscal policy is the only countercyclical policy tool. Secondly, since debt is mostly denominated in FX, if the stabilized arrangement of exchange rate comes under pressure, currency mismatch could present significant fiscal risks, especially since debt service is projected to pick up from 2019 onwards. Also, highways and railways will require fiscal resources for maintenance work, which need to be budgeted in order to reap their benefits for a long time. The World Bank Public Expenditure Report estimates that an annual maintenance cost of 5000–7000 USD per kilometer will be required to reduce the existing maintenance backlog and to ensure that future maintenance needs are met.

PESR Debt and Amortization
(percent of GDP)



Sources: MoF, PESR and IMF staff calculation.

Composition of Public Debt by Currency
(percent of GDP)



Source: IMF staff estimates.

E. Conclusion

13. This paper attempts to quantify the growth effects of major ongoing public transport infrastructure projects in FYR Macedonia. Quantitative results from simple model-based calculations suggest that annual investments in the four highway and railway projects of 2–3 percent of GDP for 2014–18 are likely to raise real GDP growth rate by 0.5 percentage points on average for each year in 2014–2020. While the estimated growth effect is sizable, plans for subsequent projects need to be weighed against the rising public debt level and the inevitable diminishing returns to investment. While public investment efficiency in FYR Macedonia is decent by regional standards, improvements in this area can deliver sizable gains in growth.

I. Technical Annex

1. Model Description

The model is based on the standard Neo-classical growth model. The setup of the households is standard. The representative household chooses consumption and capital sequences to maximize lifetime utility, subject to a budget constraint.

$$\max U = \sum_{t=0}^{\infty} \beta^t u(c_t)$$

$$s. t. c_t + k_{t+1} = y_t + (1 - \delta)k_t,$$

where y_t is household income, which is equivalent to the output of private firms. Labor supply is inelastic and normalized to one. The production function differs from the standard model in that public infrastructure enters as public capital (K_t^G), a distinct factor of production, in addition to capital and labor.

$$Y_t = K_t^\alpha L_t^{1-\alpha} (K_t^G)^\gamma.$$

Note that the parameter α measures the capital share of income

Given these assumptions, the steady state equilibrium can be readily calculated. In particular, the steady state private sector capital stock is given by:

$$K_{ss} = \left[\frac{\frac{1}{\beta} - 1 + \delta}{(K_{ss}^G)^\gamma} / \alpha \right]^{\frac{1}{\alpha-1}}.$$

The steady state output can then be calculated by inserting K_{ss} and K_{ss}^G back into the production function.

2. Calibration

Standard values are taken from the literature for two model parameters: $\beta = 0.96$, $\delta = 0.1$. The rest of the parameters are calibrated to match chosen moments of data. In particular, α is calibrated to match long-run consumption to GDP ratio, and γ to the long-run elasticity of output to public capital, which is provided in WEO October 2014 Chapter 3. The result is $\alpha = 0.35$, $\gamma = 0.12$.

3. Public Capital Stock

I construct the public infrastructure capital stock from the annual nominal investment amount for each project. The nominal investment amount is then adjusted for inflation and investment efficiency to arrive at an estimate of real effective investment. I assume South Africa's efficiency is 1. Since FYR Macedonia's public investment efficiency score is 55 percent of that of South Africa's, its efficiency is set at 0.55. I assume new public capital is formed only when a project is completed. Public infrastructure capital stock for 2013 is estimated by assuming public infrastructure spending in 2013 (1 percent of GDP) is spent on restoring depreciated capital and that the depreciation rate is 4 percent (WP/07/202). This implies that infrastructure capital stock in 2013 is 25 percent of GDP. The infrastructure investments studied in this paper render public capital stock in 2017 to be 27 percent higher than that in 2013.

References

Dabla-Norris, Era, Jim Brumby, Annette Kyobe, Zac Mills, and Chris Papageorgiou, 2011, "Investing in Public Investment: An Index of Public Investment Efficiency", IMF Working Paper (WP/11/37).

Kumhof, Michael and Douglas Laxton, 2007, "A Party without a Hangover? On the Effects of U.S. Government Deficits", IMF Working Paper (WP/07/202).

Murgasova, Zuzana, Nadeem Iahi, Jacques Miniane, Alasdair Scott, Ivanna Vladkova-Hollar and an IMF staff team, 2015, "The Western Balkans 15 Years of Economic Transition", Regional Economic Issues Special Report.

World Bank, 2015, "FYR Macedonia Public Expenditure Review Fiscal Policy for Growth".

World Economic Outlook, October 2014 Chapter 3, "Is It Time for An Infrastructure Push? The Macroeconomic Effect of Public Investment".

FDI SPILLOVERS ON GROWTH AND EMPLOYMENT¹

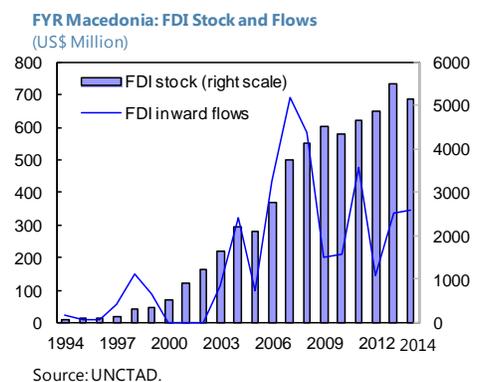
FDI incentives as well as improved business environment have helped attract significant FDI inflows to FYR Macedonia over the past decade, although less so than other countries in the region. This study finds FDI inflows to have notable positive impacts on growth, while FDI incentives have generated some fiscal costs. A rising share of debt component in FDI needs monitoring. With high unemployment, attracting FDI could be a key policy to tackle unemployment, particularly complemented by labor market and institutional reforms.

A. Introduction

1. In developing countries, foreign direct investment (FDI) is often considered an important driver of growth and technology transfer (Borensztein et al, 1998). As foreign firms establish production lines in host countries, increased investment, employment, and exports from these firms help boost economic growth. Indirectly, foreign firms could also contribute to productivity improvement through the transfer of new technologies, professional management, skill training and good practices. Therefore, capital accumulation and technological improvements would help lift the host country's potential.

2. Given the large potential benefits of FDI, the Macedonian government has provided considerable incentives to attract FDI. In FYR Macedonia, since the political situation stabilized in early 2000s, the country's agenda shifted to accelerating economic reforms. These reforms aimed particularly to transform the country into a market economy and prepare for the integration with the European Union. Generous FDI incentives including tax exemptions and various subsidies have been provided to investors in line with benefits provided by other countries in the region (FYR Macedonia Selected Issues Paper SM/15/243). This favorable package along with the re-establishment of peace in 2001 and subsequent announcement of the EU candidacy in 2005 has improved FYR Macedonia's attractiveness as an FDI destination.

3. FDI inflows have increased significantly since mid-2000. In early years, FDI inflows were mostly for privatization of state-owned enterprises and the acquisitions of major companies and banks (UNCTAD, 2012). These were for example the sale of Makedonski Telekom to Magar Telekom—the Hungarian affiliate of Deutsche Telekom, ESM Distribution to Austria's EVN group, and Stopanska Banka to National Bank of Greece. Since 2007, inflows were mostly for greenfield projects including in the free trade zones. By 2014, FDI stock had grown nearly tenfold from that of 2000 albeit from a low base.

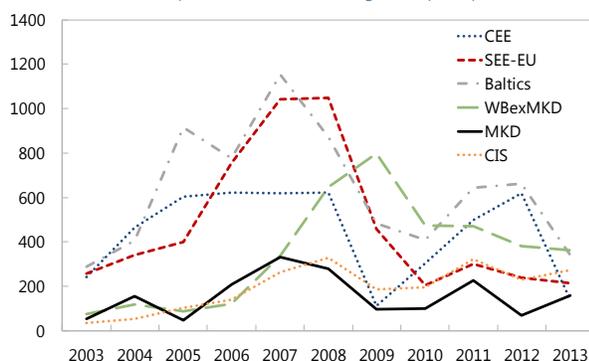


¹ Prepared by Piyaporn Sodsriwiboon.

4. However, in per capita term, FDI inflows look modest compared to peers. Despite large FDI take-up for the country, FYR Macedonia appears to rank low in both FDI inflows and stock of FDI, compared to its Central, Eastern, and Southeastern European (CESEE) peers. A cluster analysis based on Demekas et al (2005) places FYR Macedonia in the group of “laggards” in 2003 and 2014 together with other Balkan countries and countries in the Commonwealth of Independent States.² The performance of inward FDI likely reflects low FDI potential of the country due to the small size of the economy and population, less skilled labor, as well as lower level of technological development.

FDI Inflows

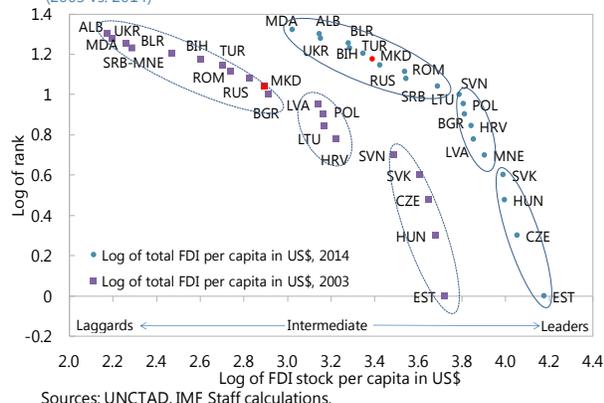
(US Dollars at current prices and current exchange rates per capita)



Source: UNCTAD.

FDI Clusters in Central and Southeastern Europe

(2003 vs. 2014)

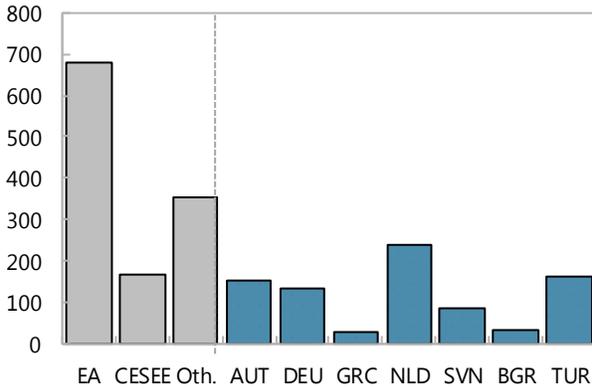


Sources: UNCTAD, IMF Staff calculations.

5. FDI inflows to FYR Macedonia were sourced mostly from EU countries and were largely into manufacturing sector. The largest FDI flows to FYR Macedonia are from the EU countries of which FDI inflows from Germany, Austria, and the Netherlands accounted for about a third of total FDI inflows. The flows were mostly in the form of equity during 2003–2013, after which they partly switched to inter-company loans. To a large extent, the flows were for greenfield FDI projects rather than cross-border merger and acquisitions of existing business in FYR Macedonia. FDI inflows are mostly attributed to the manufacturing sector. The flows to financial and insurance sector were also large though volatile.

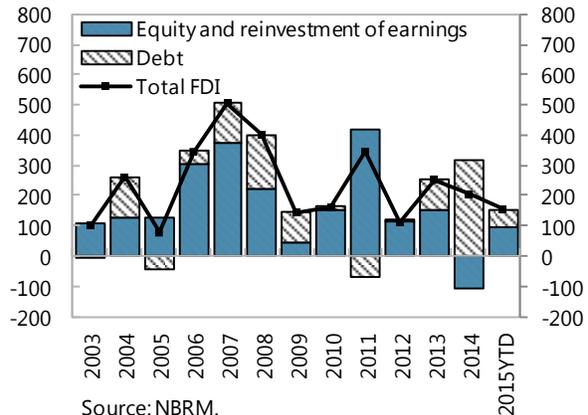
² Demekas et al., (2005) pair the level of countries' per capita FDI stocks with their ranking of per capita FDI stocks within each group. This procedure helps to cluster the countries into smaller groups based on their performance in attracting FDI inflows.

FYR Macedonia: FDI Inflows by Country
(Cumulative flows 2010-2015H1, Millions of Euro)



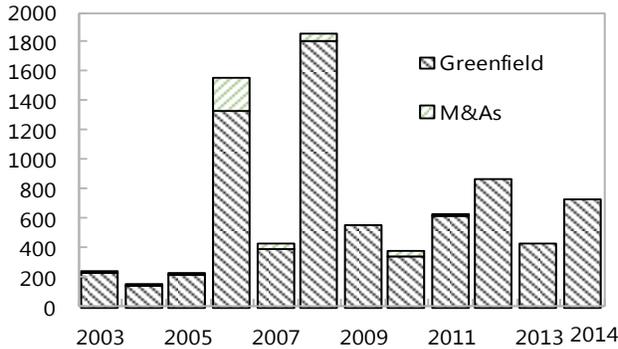
Sources: NBRM and IMF Staff Calculations.

FYR Macedonia: FDI by Instruments
(Millions of Euro)



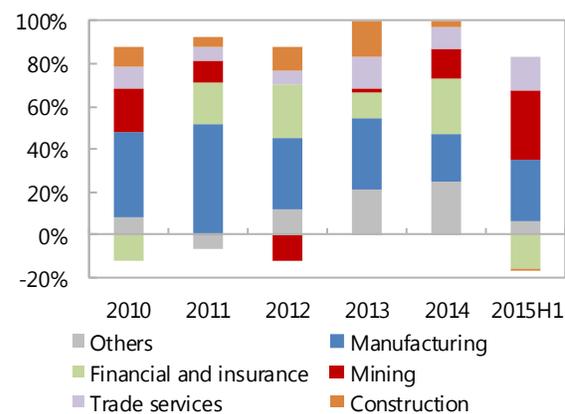
Source: NBRM.

FYR Macedonia: Value of Cross-Border M&As and Greenfield FDI Projects
(Millions of euros)



Source: UNCTAD.

FYR Macedonia: Sector Decomposition of FDI Inflows
(Percent of total)



Sources: NBRM, IMF Staff Calculations.

B. Impact of FDI on Growth and Employment

6. Measuring the full economic impacts of FDI is neither easy nor straightforward. The direct impacts of FDI on the host country are generally measured by its contributions to output, employment and exports. A lack of data prevents us from estimating direct and indirect impact of activities in the TIDZ on Macedonian economy. Estimates by NBRM based on customs foreign trade data show that exports from TIDZ are about 42 percent of total goods exports, and imports to the zone around 25 percent with overall net exports contributing to 2.6 percent of GDP during 2014–15. Data from the authorities also show linkages through domestic vendor purchases including construction, production inputs, and other goods and services to be limited, where such purchases accounted for only 0.4 percent of GDP in 2015. The employment of FDI companies was about 2.5 percent of total employment as of September 2016, but at the full capacity, the employment of foreign companies in FYR Macedonia would have reached about 4.7 percent of total employment. According to the data provided by the Public Revenue Office of FYR Macedonia, companies within the TIDZ paid social security contributions and personal income tax in amount of MKD 1.1 billion during

2011–2015, or approximately 0.16 percent of total tax revenues and contributions per year. A recent study shows companies in the TIDZ to account for only one percent of total gross value added in 2013 (CEA, 2016; FISCAST (2016)). Gauging the indirect impacts such as technology and skill transfer, productivity improvement, potential crowding out effects on domestic enterprises, or fiscal revenues would require more detailed data and coordination with various stakeholders. Such estimates are beyond the scope of this paper.

7. This study finds that FDI has contributed positively to economic growth in FYR

Macedonia. This study empirically quantifies the impact of FDI on growth, utilizing the framework as in Borensztein et al (1998), and Carkovic and Levine (2002). The empirical estimation uses a cross-country setting to identify the determinants of real per capita GDP growth, and the variables include FDI inflows, structural and institutional indicators (Annex I). The sample includes 20 CESEE countries with data ranging from 1991 to 2014. The estimated results are presented in Table 1. In line with Borensztein et al (1998) and Krstevska and Petrovska (2012), this study shows FDI inflows have a positive impact on growth in CESEE countries in most regression specifications (Annex I). The estimated coefficient indicates real per capita GDP growth rate could rise by about 0.5 percentage point as the FDI inflows increase by one percent of GDP, well within the range of estimates found in other studies. When analyzing the growth decomposition, FDI inflows among other things had likely contributed to the annual growth of real per capita GDP for FYR Macedonia of about 1.3 percent on average between 2010 and 2013. The FDI contribution to growth for FYR Macedonia was in line with its regional peers, but on the low side given relatively low FDI inflows during the period considered.

8. These results should be interpreted with caution given mixed evidences in literature.

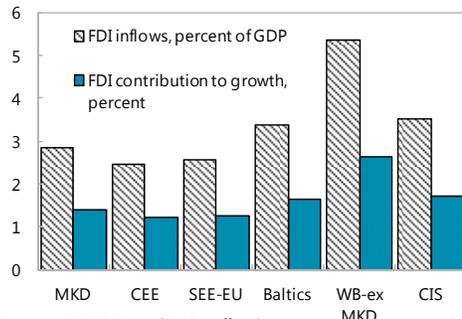
There is little consensus for the relationship between foreign direct investment and national growth. Borensztein et al (1998) test the effect of FDI on economic growth among 69 developing countries and find that FDI is an important vehicle for technological transfer, thus contributing to growth in which the study found the estimated coefficient of FDI on per capita real GDP growth of 0.659. The study also stresses the importance of the interaction between FDI and investment in human capital. Krstevska and Petrovska (2012) focus on FYR Macedonia and conclude that FDI inflows were an important factor for GDP growth and export performances of the Macedonian economy. It found the estimated coefficient of FDI on GDP growth of 0.226. Nonetheless, some other studies argue that FDI may not accelerate growth such as Aitken and Harrison (1999) and Carkovic and Levine (2002). It is also important to note that growth regression may be subject to methodological problems or endogeneity issues and the results have to be interpreted with caution. Also, this study does not differentiate between the type of FDI and treats all FDI equally. Arguably, the impact of manufacturing FDI (particularly, high-end manufacturing FDI) may be different than FDI into real estate.

9. The results also emphasize the role of institutional reforms in supporting economic

growth. On the role of institution, Borensztein et al (1998) and Carkovic and Levine (2002) analyzed the role of institutions on growth using institutional indicators such as war, black market premium, political rights. In this study, it uses a more recent set of institutional indicators provided by the World Bank, which include, government effectiveness, political stability, quality of regulation, and rule of law.

It finds that growth in CESEE countries could further be enhanced through institutional reforms such as the improvement of government effectiveness. The survey-based governance effectiveness indicator captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies, in which the estimate ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance.³ In contrast, this study did not find a statistically significant role for schooling in most regressions. This could reflect that this variable is an imperfect proxy for skills level.

FDI Contribution to Growth 1/2/
(Percent, average 2010-2013)

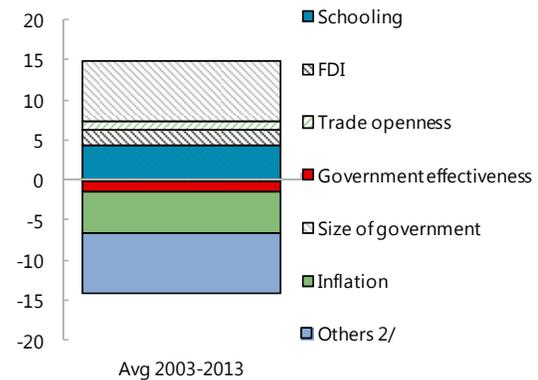


Sources: UNCTAD; and IMF staff estimates.

Notes: 1/ The FDI contribution to growth is calculated from the estimated elasticity of real per capita GDP growth to FDI inflows. However, it needs to be interpreted with caution as it may not capture other factors influencing the overall growth during the periods and does not differentiate the type or industry of FDI inflows in the host country.

2/ CEE includes Czech Republic, Hungary, Poland, Slovak Republic, and Slovenia. SEE-EU refers to Bulgaria, Romania, and Croatia. Baltics comprise Estonia, Latvia, and Lithuania. Western Balkans (WBexMKD) includes Albania, Bosnia and Herzegovina, and Serbia. CIS refers to Belarus, Russian Federation, and Ukraine.

FYR Macedonia: Real Per Capita Income Growth Decomposition 1/
(Percent)



Source: IMF Staff Estimates.

1/ Based on the estimated results for growth determinants shown in Table 1.

2/ Other factors include constant term, fixed effect and time effect dummies.

10. A recent study also finds FDI to improve employment prospects in Balkan countries.

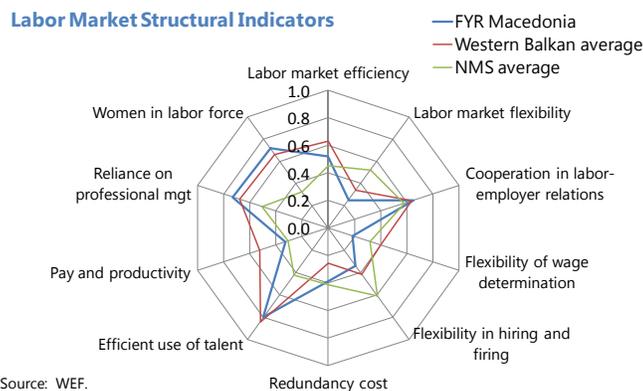
Atoyán and Jankulov (2015) estimates the labor market outcomes at the individual level for each surveyed person using multinomial logit model linked with various demographic characteristics of the labor force, macroeconomic factors, and structural factors including labor market flexibility and efficiency. The micro-level data are derived from labor force surveys of four Western Balkan countries (Bosnia and Herzegovina, Kosovo, FYR Macedonia, and Serbia) as well as Bulgaria, Poland, and Romania from 2006 to 2013 (Annex II). The results are shown in Table 1. Based on the evidence from the CESEE countries, FDI seems to enhance labor market outcomes. In particular, FDI inflows reduce the probability of being unemployed and increase the probability of being employed at the same time. For FYR Macedonia, the estimates suggest an increase in FDI inflows per capita by 10 percent would reduce the unemployment rate by 2–3 percent. This may reflect the fact that FDI inflows in recent years are mostly greenfield investments which would potentially increase the opportunity for job creation. Other studies, however, have found contrary evidence of impact of FDI on employment.

³ FYR Macedonia's government effectiveness was at 0.15 in 2014, below the CESEE average of 0.25, of which CEE average of 0.98 and SEE-EU average of 0.70. See

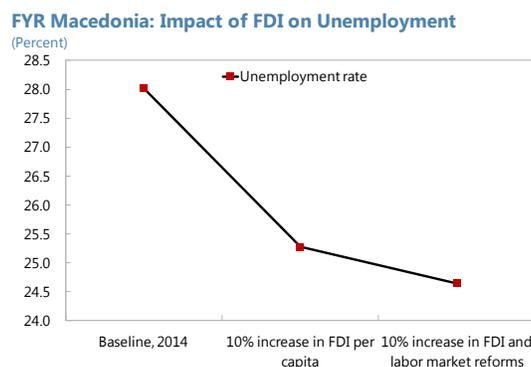
<http://info.worldbank.org/governance/wgi/index.aspx#home>

For example, Krstevska and Petrovska (2012) find negative employment impact from FDI in FYR Macedonia using data from 2001 to 2007. Different results may be explained by the size and type of FDI inflows. In early 2000s, FDI inflows were smaller and concentrated in the capital intensive industries; therefore, there might be less employment opportunity for Macedonian.

11. Further labor market reforms could enhance the impact of FDI on employment. FYR Macedonia appears to perform well in the areas of labor market efficiency and flexibility. However, improvements can be made in other areas, such as female participation in the labor force and professional management. According to the estimated results from labor market outcome model (Annex II), this study performs the scenario analysis by lifting these labor market structural indicators to the average level of the new member states and maintaining the areas where FYR Macedonia has advantages, the labor market reforms together with an increase in FDI inflows would significantly help to reduce the unemployment rate.



Source: WEF.
Notes: mgt = management. The smaller the number represents the better the ranking. NMS refers to new member state countries which include Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia. Western Balkan comprises of Albania, Bosnia and Herzegovina, Croatia, Kosovo, FYR Macedonia, Republic of Montenegro, Republic of Serbia.



Source: IMF staff estimates.

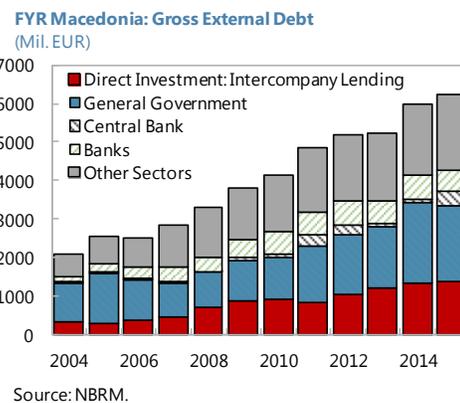
12. Indirect economic impacts could be negligible at this stage. Backward linkages with domestic firms appear limited, largely due to the inability of local producers to meet the necessary technical and safety requirements (IMF, 2015). Anecdotal evidence shows that domestic firms are making progress in improving its capacity, but this would take time. Outflows of high skilled labors,

particularly technical and engineering occupations, could hinder or delay in moving up the economic and technological ladders. In particular, IMF (2016) finds emigration lowered the working-age population thus affecting labor supply, skill composition, and growth⁴.

C. Costs of FDI Incentives

13. Despite potential benefits from FDI, there are costs related to FDI flows. The costs to the country occur through forgone tax revenues from exemptions including profit tax and personal income tax for the salaries of employees for the period of ten years, and subsidies and grants associated with FDI incentives. In order to precisely calculate the costs to FDI incentives, it would require detailed data from FDI firms, for instance, tax returns, subsidies and grants received, investment, exports and imports, as well as employment which are missing.

14. Debt financing of FDI could create external vulnerabilities. FDI has been an important source of external financing. More recently, debt component in FDI has been on the rise. Some foreign companies note that such debt financing reflects their initial investment in FYR Macedonia and will likely be converted into equity later on if the projects prove to be successful. In any case, a fast and continued rise in debt-financed FDI would expose the country to various shocks faced by parent companies or home countries.



D. Conclusions

15. This study finds that FDI has contributed positively to economic growth in FYR Macedonia. Tax incentives and other subsidies as well as improved business environments in several aspects have helped attract significant FDI flows to FYR Macedonia during the past decade. FDI inflows are found to have direct positive impacts on growth and exports but impact on employment and value added remains limited. For FDI to play a stronger role in tackling unemployment, financial benefits to investors need to be complemented by labor market and institutional reforms going forward. FDI incentives also generate fiscal costs and vulnerabilities which need monitoring.

⁴ It is estimated that emigration might have shaved off 0.6–0.9 percentage points of annual growth rates in some countries in CESEE.

Annex I. Growth and Foreign Direct Investment

This paper empirically examines the role of FDI on the economic growth as in Borensztein et al (1998), and Carkovic and Levine (2002). It utilizes a cross-country regression framework using data for 20 Central, Eastern, and Southeastern Europe (CESEE) countries from 1991 to 2014. The model takes form $y_{i,t} - y_{i,t-1} = (\alpha - 1)y_{i,t-1} + \beta'X_{i,t} + \mu_i + \varepsilon_{i,t}$ where y is the logarithm of real per capita GDP and X represents the set of explanatory variables including

Initial income: the lagged logarithm of real per capita GDP

Year of schooling: the enrollment in tertiary education, data are from structural and financial indicators across countries of the IMF's Research Department

Foreign direct investment: FDI inflows in percent of GDP, data are from UNCTAD

Inflation: percentage change of consumer price index

Size of government: Government expenditure in percent of GDP

Financial depth: Credit to private sector in percent of GDP

Trade openness: Exports and imports in percent of GDP

Other institutional variables: government effectiveness, political stability, quality of regulation, rule of law are survey-based indicators provided by World Governance Indicators (WGI) of the World Bank

Data are from Haver Analytics, unless indicated otherwise. Country-specific fixed effect is included. The estimated results and robust standard errors are reported in Table 1.

For FDI contribution to real per capita GDP growth, the estimated contribution for each country is calculated from the estimated FDI coefficient from growth model and FDI inflows per GDP for each recipient country. The results are presented in text chart. Nevertheless, it is important to note that the contributions do not take into account other factors influencing growth during the periods considered. Also, it may not differentiate the type or the industry of FDI inflows to the host country. For instance, some Western Balkan and CIS countries tend to receive large FDI inflows into natural resource or energy sector which requires substantial investment in machinery but domestic linkages are much thinner. Combining with various economic factors and shocks, the actual growth performance among these countries seemed to be much weaker than the estimates. On the other hand, FDI inflows to FYR Macedonia, CEE or the Baltics to a large extent are for manufacturing sector which largely contributes to investment, job creation, as well as technological transfer and skill developments; therefore, these linkages could help building the better ground for strong growth performance.

Table 1. Growth and Foreign Direct Investment

Independent variables	Dependent variable: Real per capita GDP growth				
	(1)	(2)	(3)	(4)	(5)
Initial income per capita	-0.221 (0.012)***	-0.033 (0.008)***	-0.034 (0.008)***	-0.034 (0.009)***	-0.016 (0.008)**
Schooling	0.002 (0.001)**	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)*	0.001 (0.001)
Foreign direct investment	0.391 (0.494)	0.442 (0.249)*	0.422 (0.252)*	0.490 (0.254)**	0.414 (0.257)
Size of government		-0.045 (0.206)	-0.049 (0.214)	-0.095 (0.250)**	-0.096 (0.240)**
Inflation		-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***
Financial depth		0.001 (0.000)***	0.001 (0.000)*	0.000 (0.000)	0.000 (0.000)
Trade openness			0.059 (0.000)*	0.011 (0.000)	0.045 (0.038)
Institutions:					
Government effectiveness				0.093 (0.022)***	0.236 (0.049)***
Political stability					0.007 (0.024)
Quality of regulation					0.004 (0.041)
Rule of law					-0.159 (0.052)***
Constant	0.887 (0.112)***	-0.092 (0.061)	-0.126 (0.067)	-0.175 (0.080)	-0.303 (0.082)
R ² adjusted	0.580	0.211	0.215	0.200	0.210

Source: IMF staff estimates.

1/ Table represents the estimated determinants of growth as in Barro and Sala-i-Martin (1995), Borensztein et al (1998), and Carkovic and Levine (2002), $y_{i,t} - y_{i,t-1} = (\alpha - 1)y_{i,t-1} + \beta' X_{i,t} + \mu_i + \varepsilon_{i,t}$ where y is the logarithm of real per capita GDP and X represents the set of explanatory variables. Country-specific effect is also included. Sample includes 20 Central, Eastern, and Southeastern Europe (CESEE) countries, ranging from 1991 to 2014.

2/ Standard errors are in parenthesis. *, **, *** are 10 percent, 5 percent, and 1 percent significance level respectively.

Annex II. Labor Market Outcomes—Regression Analysis

The empirical analysis on the labor market outcomes is from Atoyan and Jankulov (2015). The model estimates labor market outcomes at the individual level with a number of key macroeconomic and country-level structural and institutional indicators. Specifically, transitions between employment, unemployment, and non-participation in the labor force are linked by means of a micro-econometric multinomial logit model to various demographic characteristics of the labor force (age, disability, education, and marital status, as well as previous employment status), macroeconomic factors (overall economic growth rate, investment level, credit growth, as well as indicators of fiscal stance, public expenditures, and remittances inflows), and structural factors (indicators of institutional rigidities in the labor market and those reflecting the country's stage of transition to market economy). The micro-level data are derived from labor force surveys of four Western Balkan countries (Bosnia and Herzegovina, Kosovo, FYR Macedonia, and Serbia) as well as Bulgaria, Poland, and Romania from 2006 to 2013, thus covering periods of the pre-crisis boom, the crisis bust, and the post-crisis recovery for a diverse group of countries in the region.

Table 1. Determinants of Labor Market Outcomes

	BGR	POL	ROM	BIH	SRB	MKD	UKV	Pooled data 2/				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Employment status												
0=Inactive												
Constant	0.216 ***	1.495 ***	2.091 ***	3.52 ***	-0.1 **	-1.167 ***	2.012 ***	2.864 ***	7.437 ***	8.289 ***	5.947 ***	10.504 ***
Micro characteristics												
Age ≤ 20	2.461 ***	2.027 ***	1.068 ***	0.438 ***	2.037 ***	2.208 ***	0.88 ***	1.541 ***	1.556 ***	1.554 ***	1.545 ***	1.557 ***
20 < Age ≤ 25	1.015 ***	0.277 ***	0.587 ***	-0.06	0.745 ***	0.677 ***	-0.003	0.379 ***	0.414 ***	0.429 ***	0.426 ***	0.432 ***
45 < Age ≤ 55	0.219 ***	0.018	0.512 ***	0.523 ***	0.927 ***	0.544 ***	0.142 ***	0.507 ***	0.528 ***	0.533 ***	0.537 ***	0.53 ***
Age > 55	3.049 ***	2.546 ***	3.022 ***	2.467 ***	3.624 ***	3.019 ***	1.424 ***	2.98 ***	3.04 ***	3.037 ***	3.044 ***	3.041 ***
Married	...	0.082 ***	-0.09 ***	-0.248 ***	-0.102 ***	-0.27 ***	0.243 ***	-0.028 **	-0.035 **	-0.023 **	-0.027 **	-0.023 **
Female	0.542 ***	0.504 ***	0.447 ***	0.506 ***	0.65 ***	1.293 ***	0.728 ***	0.519 ***	0.545 ***	0.554 ***	0.555 ***	0.555 ***
Disabled	...	1.03 ***	3.402 ***	2.06 ***	...	...	4.755 ***	1.491 ***	1.527 ***	1.528 ***	1.519 ***	1.539 ***
Education: below highschool	0.449 ***	-0.003	0.649 ***	-1.111 ***	0.351 ***	0.597 ***	0.051	-0.003	0.125 ***	0.182 ***	0.196 ***	0.182 ***
Education: university 1/	0.243 ***	-0.548 ***	-0.762 ***	-2.021 ***	-0.238 ***	-0.477 ***	-0.961 ***	-0.633 ***	-0.554 ***	-0.52 ***	-0.521 ***	-0.513 ***
Education: graduate	0.576	...	0.037	-1.629 ***	0.44 **	4.597 ***	-0.9 ***	...	...	...	...	...
Status one year ago: unemployed	...	-2.659 ***	-3.761 ***	-3.248 ***	-2.339 ***	...	-2.649 ***	-2.911 ***	-2.928 ***	-2.951 ***	-2.963 ***	-2.952 ***
Macroeconomic indicators												
Real GDP growth	...	...	...	...	...	...	...	0.113 ***	0.139 ***	0.067 ***	0.061 ***	0.055 ***
Investment	...	...	...	...	...	...	...	0.035 ***	0.015 ***	0.024 ***	0.029 ***	0.032 ***
Private sector growth	...	...	...	...	...	...	...	-0.031 ***	-0.053 ***	-0.045 ***	-0.043 ***	-0.039 ***
General government fiscal balance	...	...	...	...	...	...	...	0.015 ***	0.089 ***	0.145 ***	0.136 ***	0.117 ***
General government expenditures	...	...	...	...	...	...	...	-0.048 ***	-0.071 ***	-0.108 ***	-0.1 ***	-0.099 ***
Remittances	...	...	...	...	...	...	...	0.058 ***	0.171 ***	0.197 ***	0.194 ***	0.146 ***
Structural indicators												
Labor market: flexibility												
Cooperation in labor-employer relations	...	...	...	...	...	...	...	...	-0.011 ***	-0.01 ***	-0.008 ***	-0.012 ***
Flexibility of wage determination	...	...	...	...	...	...	...	...	-0.006 ***	-0.007 ***	-0.007 ***	-0.006 ***
Hiring and firing practices	...	...	...	...	...	...	...	...	-0.005 ***	0.005 ***	0.004 ***	0.008 ***
Redundancy costs	...	...	...	...	...	...	...	...	-0.039 ***	-0.03 ***	-0.029 ***	-0.022 ***
Labor market: efficient use of talent												
Pay and productivity	...	...	...	...	...	...	...	...	...	0.02 ***	0.019 ***	0.02 ***
Reliance on professional management	...	...	...	...	...	...	...	...	...	-0.02 ***	-0.017 ***	-0.02 ***
Women in labor force	...	...	...	...	...	...	...	...	...	0	0.001	0.001 *
Stage of transition												
EBRD transition index	...	...	...	...	...	...	...	...	...	...	0.388 ***	...
FDI per capita	...	...	...	...	...	...	...	...	...	...	...	-0.401 ***
1=Unemployed (base outcome)												
1=Employed												
Constant	2.376 ***	2.818 ***	3.633 ***	2.29 ***	1.809 ***	0.558 ***	3.843 ***	3.843 ***	7.149 ***	7.575 ***	0.687 **	2.877 ***
Individual characteristics												
Age ≤ 20	-1.457 ***	-1.791 ***	-2.128 ***	-2.105 ***	-1.443 ***	-0.905 ***	-2.486 ***	-1.893 ***	-1.902 ***	-1.903 ***	-1.924 ***	-1.908 ***
20 < Age ≤ 25	-0.826 ***	-1.057 ***	-0.878 ***	-0.625 ***	-0.753 ***	-0.667 ***	-0.833 ***	-0.929 ***	-0.925 ***	-0.926 ***	-0.932 ***	-0.931 ***
45 < Age ≤ 55	0.153 ***	0.142 ***	-0.027	0.148 ***	0.283 ***	0.233 ***	0.303 ***	0.144 ***	0.135 ***	0.135 ***	0.146 ***	0.139 ***
Age > 55	0.186 ***	-0.216 ***	0.366 ***	-0.13 **	0.656 ***	0.17 ***	-0.472 ***	0.219 ***	0.24 ***	0.253 ***	0.262 ***	0.258 ***
Married	...	0.603 ***	0.304 ***	0.446 ***	0.465 ***	0.471 ***	0.51 ***	0.501 ***	0.49 ***	0.483 ***	0.475 ***	0.482 ***
Female	-0.014	-0.327 ***	-0.269 ***	-0.518 ***	-0.306 ***	-0.088 ***	-1.447 ***	-0.302 ***	-0.295 ***	-0.293 ***	-0.295 ***	-0.295 ***
Disabled	...	-0.863 ***	-1.836 ***	-0.547 **	...	...	1.566 **	-0.667 ***	-0.618 ***	-0.601 ***	-0.628 ***	-0.62 ***
Education: below highschool	-0.998 ***	0.039	0.457 ***	0.233 **	-0.12 **	-0.378 ***	-1.373 ***	0.053 ***	0.14 ***	0.15 ***	0.175 ***	0.142 ***
Education: university 1/	0.752 ***	0.298 ***	0.097 **	0.462 ***	0.284 ***	0.418 ***	-0.474 ***	0.268 ***	0.375 ***	0.384 ***	0.376 ***	0.361 ***
Education: graduate	1.531 **	...	1.361	0.617 **	1.148 ***	2.172 ***	0.191	...	...	...	...	...
Status one year ago: unemployed	...	-3.427 ***	-4.67 ***	-3.668 ***	-2.594 ***	...	-3.868 ***	-3.498 ***	-3.57 ***	-3.591 ***	-3.618 ***	-3.591 ***
Macroeconomic indicators												
Real GDP growth	...	...	...	...	...	...	...	0.06 ***	0.101 ***	0.07 ***	0.058 ***	0.103 ***
Investment	...	...	...	...	...	...	...	0.043 ***	0.006 **	0.014 ***	0.023 ***	-0.003
Private sector growth	...	...	...	...	...	...	...	-0.014 ***	-0.028 ***	-0.021 ***	-0.016 ***	-0.034 ***
General government fiscal balance	...	...	...	...	...	...	...	-0.058 ***	-0.041 ***	-0.041 ***	-0.07 ***	-0.006
General government expenditures	...	...	...	...	...	...	...	-0.051 ***	-0.083 ***	-0.105 ***	-0.082 ***	-0.126 ***
Remittances	...	...	...	...	...	...	...	-0.042 ***	-0.001	-0.008 *	0.016 ***	0.088 ***
Structural indicators												
Labor market: flexibility												
Cooperation in labor-employer relations	...	...	...	...	...	...	...	...	0.005 ***	0.002 ***	0.008 ***	0.006 ***
Flexibility of wage determination	...	...	...	...	...	...	...	...	-0.008 ***	-0.009 ***	-0.009 ***	-0.013 ***
Hiring and firing practices	...	...	...	...	...	...	...	...	-0.008 ***	-0.004 ***	-0.008 ***	-0.012 ***
Redundancy costs	...	...	...	...	...	...	...	...	-0.019 ***	-0.014 ***	-0.016 ***	-0.027 ***
Labor market: efficient use of talent												
Pay and productivity	...	...	...	...	...	...	...	...	...	0.009 ***	0.004 ***	0.009 ***
Reliance on professional management	...	...	...	...	...	...	...	...	...	-0.005 ***	0.004 ***	-0.006 ***
Women in labor force	...	...	...	...	...	...	...	...	...	0.003 ***	0.004 ***	0.001 **
Stage of transition												
Combined EBRD transition index	...	...	...	...	...	...	...	...	...	...	1.242 ***	...
FDI per capita	...	...	...	...	...	...	...	...	...	...	...	0.825 ***
Log likelihood	-123,043	-247,047	-215,371	-90,141	-141,478	-266,987	-64,837	-700,709	-690,966	-688,909	-688,041	-687,798
Pseudo R ²	0.310	0.352	0.303	0.368	0.279	0.294	0.316	0.339	0.348	0.350	0.351	0.351
Number of observations	211,110	443,760	380,783	198,279	209,568	382,562	106,296	1,232,390	1,232,390	1,232,390	1,232,390	1,232,390
Years	2006-12	2006-12	2006-12	2006-13	2008-13	2006-12	2012	2006-13, depending on availability				

Sources: National Labor Force Surveys; IMF staff estimates.

References

- Atoyan, R. and Jankulov, I., 2015, "Western Balkans: the Quest for Jobs", in *Regional Economic Issues*, April 2015: Europe: The Western Balkans: 15 Years of Economic Transition, Washington D.C.
- Borensztein, E., De Gregorio, J., and Lee, J-W., 1998, "How Does Foreign Direct Investment Affect Economic Growth?", *Journal of International Economics*, 45, pp. 115–135.
- Carkovic, M. and Levine, R., 2002, "Does Foreign Direct Investment Accelerate Economic Growth? (June 2002)", University of Minnesota Department of Finance Working Paper.
- Center for Economic Analyses (CEA), 2016, "Benefits and Costs from Foreign Direct Investments in the Technological Industrial Development Zones: the Case of FYR Macedonia in the Period of 2007–2014", Skopje.
- Demecas, D. G., Horvath, B., Ribakova, E., and Wu, Y., 2005, "Foreign Direct Investment in Southeastern Europe: How (and How Much) Can Policies Help?", IMF Working Paper No. 05/110.
- FISCAL Accountability, Sustainability and Transparency (FISCAST), 2016, "Cost-Benefit Analysis for the Public Policy of Attracting Foreign Direct Investment (FDI) in Republic of Macedonia", British Embassy, Skopje.
- IMF, 2015, "Export Competitiveness in FYR Macedonia", Selected Issues Paper, IMF Country Report No. 15/243.
- IMF, 2016, "Should They Stay or Should They Go? Economic Impact of Emigration on Eastern Europe", IMF Staff Discussion Note, Forthcoming.
- Krstevska, A. and Petrovska, M., 2012, "The Economic Impacts of the Foreign Direct Investments: Panel Estimation by Sectors on the Case of Macedonian Economy", *Journal of Central Banking Theory and Practice*, No. 2, pp. 55–73.
- Trigueros, M. P., 2014, "Tax Expenditures in Latin America: 2008–2012", Tax Studies and Research Directorate, Centro Interamericano de Administraciones Tributarias, Working Paper No. 2–2014.
- UNCTAD, 2012, "Investment Policy Review: The Former Yugoslav Republic of Macedonia", United Nations, New York and Geneva.