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Executive Summary

To better understand the sources of jobs and productivity growth, this note analyzes firm-level data. The dataset combines registry and financial account data from the Serbian Business Registers Agency (SBRA) with customs data, ownership data from the Central Registry, and data from the former Privatization Agency. The dataset covers all registered firms in all sectors except for sole entrepreneurs.

A Serbian manufacturing firm needs three times as many workers to produce the same output as a firm in the European Union (EU). Yet globally more than two-thirds of growth in GDP can be explained by productivity changes: A 1 percent increase in productivity translates to a 1 percent increase in output. Clearly, raising productivity should be a priority for Serbia in any growth strategy.

In Serbia productivity growth has been slow, which limits economic catch-up and creation of better-paid jobs. In 2017 the productivity of Serbian firms relative to Germany’s was still where it was in 2006—there has been no catch-up. For Serbia to meet its ambitious target of 7 percent economic growth, it must at least double its rate of productivity growth—which is also necessary to create more and better jobs: the firm-level data shows that more productive firms do not only employ more workers and create more jobs, but that those jobs also pay higher wages.

State-owned enterprises (SOEs) drag down productivity in sectors that have real potential for growth. Despite several waves of privatization, 18 percent of jobs in registered businesses are still in SOEs, which are also more prevalent in Serbia than in similar countries. Even though SOE reforms and privatization have resulted in downsizing and pushed up productivity in current as well as former SOEs, they are still about 25 percent less productive than other firms in their sectors. The presence of SOEs can also distort prices along the value chain, introduce distortion into market mechanisms, and limit growth of private firms. Their lower productivity compounds these effects.

The private sector, especially domestic firms, has been driving productivity and employment growth. Domestic firms created since the post-1990 transition (“de novo” firms) have been the main employers in the economy and have begun to be more productive and to create jobs. These firms are the backbone of the Serbian economy: they now provide 53 percent of formal private jobs, and between 2014 and 2017 they created 66,000 new jobs, nearly 60 percent of net job creation.

Job creation was driven by young firms, which created 96 percent of net new jobs, and high-growth firms, which created 77 percent. High-growth firms are those whose sales have risen by more than 20 percent annually for three years. In older, slower-growth firms, however, employment fell by 66 percent. Despite their importance as sources of jobs, only 5 percent of firms are high-growth—less than in many comparable countries (e.g., they are 45 percent in Latvia). Also, although young firms create many jobs, in recent years, there have been fewer new firms opening.

In manufacturing, productivity has increased because firms upgraded their productive capabilities, and more productive firms had higher growth; in services, because productive firms were not growing, productivity fell. Productivity improves when (1) firms adopt better technologies, improve their management and organizational practices, and rely on workers with higher skills (within-firm...
growth); (2) productive firms grow more than less productive firms (between-firm growth); (3) new firms enter and less successful firms exit (dynamic growth). Within-firm growth was positive in both manufacturing and services, but in services between-firm growth was negative, which suggests there are constraints that prevent productive service firms from growing. Entry and exit have a more limited role.

Foreign-owned enterprises have been vital for creating new jobs, but recently their productivity as a group has been slipping. Over the years foreign direct investment (FDI) has contributed to much-needed job creation and productivity gains. In 2013 the start of Serbian production of the Fiat 500L model boosted productivity growth in manufacturing from 1 to 5 percent. Massive entry of FDI firms into the automotive sector and their exports have been a major driver of the Serbian economy and employment. Recently, although FDI continues to be an important source of job creation, productivity has declined because FDI has been moving into less productive sectors, and there has been excessive growth of less productive firms.

Policies that remove barriers to the growth of productive firms and those that encourage firms to innovate and upgrade their technology can both boost productivity. It is necessary, for instance, to reduce misallocation of resources by removing distortions in capital, labor, and product markets; remove barriers to firm entry; improve the business environment; and rethink both allocation of state aid to SOEs and the incentives provided to FDI firms.¹

Higher Productivity and the New Growth Agenda

To meet the aspirations of Serbia’s New Growth Agenda, productivity must grow faster. Productivity is the efficiency with which inputs like labor and capital are transformed into production. Productivity growth is a major determinant of long-term economic growth; it explains up to half of income differences across the world (Figure 1). A 1 percent increase in productivity stimulates a 1 percent increase in economic growth. To meet Serbia’s ambition of 7 percent average growth will require a doubling of current growth in productivity.2

The contribution of productivity to growth in Serbia has declined. In recent years most growth contributions could be attributed to factors other than productivity growth (Figure 2). The main driver of growth was higher employment, mostly the new jobs created in the formal private sector. Together with a need to increase investment in the capital base and in human capital, productivity growth is crucial to foster economic growth and create better job opportunities. Higher growth will depend on a concerted effort to invest in human and physical capital as well as productivity.

Figure 1. Across countries, productivity is an important long-term determinant of GDP per capita (GDP Per Capita and Totak Factor Productivity, 2017)

![Figure 1](image1.png)

Source: Penn World Tables.

Figure 2. The contribution of productivity to GDP growth has declined in Serbia (Contributions to GDP growth, 2000-18)

![Figure 2](image2.png)

Source: CEM Synthesis Note.

2 From 2015 to 2018, economic growth averaged 3.2 percent annually, of which capital and labor contributed 2.8 percentage points (pp). Assuming that capital and labor continue to contribute 2.8 pp to growth, productivity will need to grow by 4.2 percent.
A Serbian manufacturer needs three times as many workers to produce the same output as an average EU firm. In 2017, value-added per worker in a Serbian manufacturer, a measure of labor productivity, was only 35 percent of the EU average (Figure 3). For services firms, it was 52 percent, and for ICT firms 57 percent. Even though these averages are higher than Bulgaria’s and not far from Croatia’s, they are lower than Slovenia’s.

Figure 3. A Serbian manufacturing firm needs three times more workers than the average EU firm to produce the same level of output.
(Labor Productivity Measured by Value-added per Worker, Serbia and EU28 Averages, 2017, Percent)

Productivity growth is also lower in Serbia than in other European countries with similar productivity, preventing catch-up (Figure 4). From 2013 to 2016 labor productivity as measured by value added per worker grew by 2.2 percent, compared to nearly 7.8 percent in Bulgaria and 7.3 percent in Lithuania, though all three countries have similar levels of productivity. Total factor productivity (TFP), which corrects for differences in capital usage (see Box 2 for definitions), grew by even less, just 1 percent. The low growth blocked much-needed catch-up in productivity. Figure 5 compares Serbian and German TFP and labor productivity. After impressive improvements in the early 2000s, in 2017 in Serbia both TFP and labor productivity were still where Germany had been in 2006.
Serbia’s New Growth Agenda

**Figure 4.** But productivity of Serbian firms is low and grows slowly compared to European peers (Value Added per Worker and Annual Growth Compared, 2016, Constant 2010 € Prices, Percent)

**Figure 5.** Serbia has failed to catch-up in productivity terms (Total Factor Productivity and Labor Productivity, as share of Germany, 1990-2017)

To better understand the issues related to productivity and job creation, this note analyzes granular firm-level registry data from the Serbian Business Registers Agency (SBRA). SBRA contains registration information and annual financial accounts for more than 70,000 firms, representing all registered enterprises in Serbia that are not sole proprietorships. For analysis, here SBRA data have been combined with other administrative data on customs, privatization, and ownership (see Box 1).
Box 1. Firm-level Data in Serbia

This note analyzes financial accounts information maintained by the Serbian Business Registers Agency (SBRA), which includes annual income and balance sheet statements plus information on employment, capital structure, and foreign or domestic ownership. The dataset covers all formal firms except for independent contractors and other solo entrepreneurs, and thus takes in about 75 percent of formal private sector jobs. The register does not contain information on informal firms or informally employed workers. SRBA data cover 2005 through 2017.

Additional administrative data were used to establish ownership, privatization status, imports, and exports. Data on shareholders in joint stock companies from the Central Registry, which records ownership for joint stock companies, were used to establish foreign and state ownership, combined with ownership data from SBRA financial accounts data. Additional manual checks ensured its accuracy. Privatization status was established through data from the Ministry of Economy, based on activities of the former Privatization Agency. Finally, matched firm-level customs data from the Customs Administration were used to establish firm imports and exports.

From labor force survey data it appears that in 2017 1.4 million people were employed in the formal private sector, of whom 1.1 million worked in registered enterprises covered in this dataset.

The informal private sector accounts for an estimated 19 percent of jobs (Reyes & Nguyen 2019).
Inadequate Serbian Productivity Growth

Between 2012 and 2017 growth in private sector productivity was positive but modest (Figure 6). This analysis relies on three measures of productivity: revenue per worker, value added per worker, and TFP. While revenue and value added per worker measure the productivity of only one production factor, labor, TFP also takes into account the efficiency in which capital is used as well (see Box 3). On all three measures, between 2012 and 2017 productivity growth varied between zero and 3 percent. Value added per worker grew by 2.6 percent over the period but TFP growth was only 1.0 percent, which suggests that firms were using more capital.4

Manufacturing has seen positive productivity growth, but in some services it has been low or negative (Figure 7). While most sectors had positive productivity growth, productivity declined in the wholesale, accommodation, and professional technical services sectors. In other industries, among them wood and paper manufacturing, retail, and other manufacturing (which includes furniture production and repair services), productivity growth was very close to zero.

Figure 6. Productivity growth rates were below 3 percent (Productivity growth rates, 2012-2017)

Figure 7. Productivity increased in most sectors, with low or negative rates for agriculture, commerce and other services. (Five-year averages of productivity growth rates, 2012-2017)

Source: SBRA data; World Bank staff calculations.
Note: ICT includes both information technology telecoms. Figure 6 excludes agriculture, mining and utilities.

4 This agrees with the results of the growth accounting decomposition (Figure 1), which suggests that growth of the capital stock contributed positively to economic growth.
Box 2. Measuring Productivity

Productivity is the efficiency with which the economy transforms the factors of production, capital and labor, into output. Cross-country studies have shown that growth in productivity may account for up to 60 percent of economic growth (Easterly and Levine 2001, Hall and Jones 1999).

This analysis relies on three measures of productivity: revenue per worker, value added per worker, and total factor productivity (TFP). Revenue and value added per worker are both measures of labor productivity and calculated by dividing the value of firm production, measured by revenue or value added, by the number of employees, both permanent and temporary. In capital-intensive firms, labor productivity is expected to be high because employees have more capital at their disposal. The advantage of value added per worker is that it can easily be compared across sectors and countries.

While labor productivity measures the productivity of only one factor of production, TFP measures how efficiently capital as well as labor is employed. TFP is estimated by calculating the share of output that is not explained by the quantity of factors of production used (the "residual"). In a production function $Y=A K^\alpha L^\beta$, in which $Y$ is output, $K$ is the amount of capital and $L$ the amount of labor, TFP is equal to $A$.

Figure B2.1. What Goes into TFP

[Diagram showing the calculation of TFP from labor and capital productivity]

Here, because no physical output quantity or price data were available, the analysis relies on revenue TFP (TFPR). This measure uses revenue as the variable for output instead of physical quantities and will therefore reflect not only production but also the prices firms can charge, so that productivity is likely biased upward for firms with more market power. a

a Cusolito and Maloney (2018) estimate that in certain cases up to half of observed productivity differences could be attributed to aspects of market power.

Large firms and foreign-owned firms are more productive, but how long they have been in business does not matter. Figure 8 shows a linear regression of TFP and TFP growth on such firm characteristics as age, size and sector, highlighting the partial correlations between these characteristics and productivity or its growth. The regression of TFP on firm characteristics shows that large or foreign-owned firms tend to be more productive and SOEs and privatized firms less productive. When controlling for age, older firms are no more productive than younger firms.
Micro, young, and foreign-owned firms are most likely to become more productive. A regression of productivity growth shows that small and medium-sized firms (10–249 employees) firms that are more than 5 years old are growing less than micro or young firms and that productivity growth is higher for foreign-owned than domestically owned enterprises.\footnote{Although foreign-owned firms were more likely to become more productive, aggregate productivity went down because growth was in less productive sectors, rather than lessening in individual firms.}

**Figure 8. How Firm Characteristics Affect TFP and TFP Growth**  
(Regression of TFP and TFP growth on firm characteristics, 2014-17)

Manufacturing saw growth in both employment and productivity (Figure 9). Productivity and employment can be related in numerous ways: The relationship can be negative when productivity rises because jobs have been cut, for example by shedding superfluous workers or switching to technologies that require less labor input; or it can be positive when more productive firms expand and recruit new employees. In manufacturing both productivity and more recently employment have gone up; agriculture, mining, and construction saw jobs go down but productivity go up; and in other services employment rose but productivity was stagnant. Figure 10 shows productivity growth and employment growth at a more granular level. While certain sectors saw both productivity growth and employment growth (e.g., IT and programming, admin and support services), others saw productivity decreases while employment grew (e.g., professional and technical services).
**Figure 9.** Different sectors have seen different trajectories of employment and productivity growth (Employment and Productivity (Value Added Per Worker) by Sector, 2014-17)

Source: SBRA data; World Bank staff calculations.

**Figure 10.** Some industries (e.g. professional and technical services) saw employment increases, but low productivity growth (Employment Growth and TFP Growth by Industry, 2014-17)

Source: SBRA data; World Bank staff calculations.
Firms of different ownership types have evolved differently in Serbia. Figure 10 shows the change in productivity and employment for manufacturing firms depending on whether a firm is privately owned by a domestic or foreign entity or is state-owned; and whether a de novo firm is currently or was previously state-owned. De novo firms were created “from scratch”; never state-owned or privatized, they constitute almost all firms founded since the early 1990s.

The increased employment and productivity of manufacturing firms was mostly due to growth of domestic de novo firms. Between 2008 and 2014, employment in these firms decreased but productivity increased. More recently, between 2014 and 2017, employment has risen again by 20,000 jobs, mostly in food manufacturing, metal products, furniture, and the garment industry.

Figure 11. New domestic private firms have been the main driver of employment and productivity. (Productivity dynamics of manufacturing firms, 2008-2017)

Foreign de novo firms similarly increased employment but saw average productivity decline. FDI-based manufacturing firms created 27,000 jobs between 2014 and 2017, mostly in motor vehicles, rubber and plastic products, and textiles, leather and apparel. However, value added per worker fell by 17 percent and TFP fell by 4.6 percent. As discussed in the later section on FDI, this drop occurred because foreign firms expanded in lower-value-added industries, notably administrative and support services and retail, and average productivity ebbed.
With fewer employees, both SOEs and privatized firms became more productive employees. Fiscal consolidation helped reduce employment in SOEs, which contributed to productivity growth although SOEs are still less productive than other firms. Domestically owned privatized firms followed the same path, but foreign-owned privatized firms, which were more productive to begin with, are adding jobs (see Box 6).

**Figure 12.** Productivity and employment growth of SOEs in the services sector has recently stagnated, while productivity and employment in domestic and foreign firms increased. (Productivity and employment trajectories of firms in the services sector, 2008-2017)

Source: SBRA data, World Bank staff calculations. Excludes utilities.

In services, SOE productivity has recently stagnated; meanwhile, the productivity of private domestic and foreign firms has gone up. Figure 12 shows changes in productivity and employment in services by ownership type. Just as in manufacturing, between 2014 and 2017 employment and productivity in domestic de novo service firms rose. The growth pattern of SOEs has been very volatile, but between 2014 and 2017 both employment and productivity of SOEs stagnated. Privatized firms have been similarly volatile.
Serbia’s SOEs: An Incomplete Transition

Since its transition to a market economy, Serbia has seen three waves of privatization, introduced by laws passed in 1991, 1997, and 2001 (Box 3). The largest wave was between 1997 and 2007, when more than 2,200 firms were privatized, 1,300 of which are still operating (Figure 7). Employment in privatized firms now constitutes 11.6 percent of total employment. Sectors with a significant presence of privatized firms are mining, 39 percent of industry employment; food manufacturing, 32 percent; metals and materials, 30 percent; agriculture, 27 percent; and accommodation, 24 percent.

Box 3. Serbia’s Three Waves of Privatization

At the start of Serbia’s transition to a market economy, most companies were state- or socially-owned: in 1991 over 4,000 companies were collectively (socially) owned, with semi-autonomous management controlled by workers’ councils; in these companies, supervisory boards were appointed and filled by employees and controlled by the company’s director, a public servant. There were also state-owned companies whose supervisory boards were appointed and controlled by the government. As in most post-socialist countries, when the transition began these companies suffered from unresolved ownership issues, surplus workers, a debt overhang, and soft budget constraints.

In the first wave of privatization, 1991–94, 700 relatively large companies were privatized, pursuant to the 1991 Law on Conditions and Procedures to Transform Collective Property into other Forms of Property. The law allowed sale of socially-owned assets; the council of workers decided whether the sale would be with or without discount. However, to recover proceeds eroded by hyperinflation, the law was amended to instruct that purchased shares were to be re-evaluated and adjusted for inflation. This resulted in re-nationalization of many companies, which once again became majority state-owned social enterprises.

In the second wave, which began in 1997, 786 companies were privatized by early 2001 pursuant to the Law on Ownership Transformation, which allowed for up to 60 percent of the socially-owned assets to be offered without charge to employees based on the length of their service to the company. The rest of the shares were transferred to the national Retirement Fund and the Development/Share Fund. Many of these companies were large because the law enabled company management to retain control of the joint stock companies. Major breweries, dairy farms and processing plants, pharmaceutical companies, and producers of tires, paper, and home appliances, were privatized. Some changed ownership internally, and later the Share Fund sold its minority stakes on the Belgrade Stock Exchange. Many found anchor investors, among them Michelin, InBev, Carlsberg, Heineken, Lactalis Group, Tetra Pak, Tarkett, and Stada. There have been many cases of de-nationalization after the 2001 wave of privatization (688 of 2,286 companies were re-nationalized, some of which are cases of asset stripping.

The 2001 Law on Privatization was directed to finding strategic investors and generating proceeds for the national budget. Privatizations sold 70 percent of the shares to investors, with the remaining 30 percent transferred to employees and other citizens through the Privatization Registry or a tender procedure. At the same time, the Law on the Share Fund and the Law on the Central Registry were passed to establish the institutional framework for development of the stock exchange. As by that time most of the largest companies had been privatized, except for the oil company, cement plants, and tobacco companies, this
dealt with the remaining socially-owned companies, which were mostly SMEs. Among investors attracted during this wave were Philip Morris, British American Tobacco, Actavis, Lafarge, CRH, Titan, Lukoil, Henkel, Strabag, and Veolia.

Finally, in 2007, shares of the most valuable large SOEs were sold on the stock exchange. Guided by the *Law on Free Shares Distribution and Proceeds from the Privatization to Citizens*, the Privatization Agency created the database of 4.8 million people who were eligible to receive shares or cash from the proceeds from selling the most valuable state-owned companies, such as NIS (oil), EPS (electricity), Telekom, and Airport Nikola Tesla.

**Figure B3.1.** The legacy of privatization: most of the privatized firms operating today were privatized before 2008.
(Number of firms and employment in 2017, by year of privatization)

By 2019 privatization had reduced the number of Serbian SOEs to about 90 formally owned by the Ministry of Economy and 600 utility companies; it had transformed socially-owned enterprises into SOEs, especially large energy and transport companies. The proceeds from privatization amounted to about US$9 billion.

Today, the state is continuing to privatize the remaining SOEs, but more slowly. Since the Privatization Agency was closed, line ministries formally own and manage SOEs, with the Ministry of Economy the largest holder. The ministries, in agreement with the government, can choose one of the modes of privatization discussed here to continue with the process.

Source: SBRA and Privatization Agency data. Authors: Boris Majstorovic and Ekaterina Vostroknutova.
Although privatization substantially reduced the number of SOEs, they still employ a large number of Serbians. In 2017, more than 800 SOEs were still in operation, representing 18 percent of jobs in registered enterprises (Figure 13). Besides utilities and forestry, where government-owned firms have a near monopoly, sectors where SOEs are significant employers are telecommunications, transport, and mining, where about half of the jobs are in an enterprise that is at least partly state-owned. Other sectors with significant state ownership are publishing and media, metals and materials, health, construction, administrative services, agriculture, and other manufacturing. Privatized firms represent 12 percent of total employment in mining, food processing, metals, materials, petroleum, and pharma, accommodation/hospitality, and agriculture.

Figure 13. 18 percent of employment is in SOEs and 12 percent in privatized firms. (Employment in SOEs and Privatized Firms, % of overall industry, 2017)

Source: SBRA and Central Registry data, World Bank staff calculations.

SOEs are less productive than private firms in the same industries. Although their productivity has been growing, SOEs are less productive than private firms (Figure 14). Figure 15 compares the productivity of an SOE with that of the average firm in its industry, controlling for the sectoral composition of SOEs. In manufacturing, the gap widened until 2014, mainly because private firms increasing their productivity more than SOEs. Between 2014 and 2017, the gap decreased, because the government had imposed restrictions on employment in SOEs as part of fiscal consolidation.

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6 For this analysis, an enterprise is considered an SOE when the government or a government entity holds more than 20 percent of the shares.
7 Between 2012 and 2017, employment in SOEs fell by 21,000 jobs, but productivity went up by 5.9 percent annually when measured in value added per worker, and by 2.1 percent annually when measured in TFP. However, part of the decrease was due to SOEs outsourcing employment using professional employer organizations; this result therefore deserves further research.
8 A simple comparison of productivity between an SOE and a privately-owned firm would be biased because throughout the economy SOEs differ in their industrial composition from privately-owned firms.
**Figure 14.** In many sectors productivity of SOEs lags behind domestic and/or foreign firms. 
(Value added per worker, Top 10 sectors with SOE employment, 2017)

![Value added per worker chart](image)

**Figure 15.** While in manufacturing, SOEs have narrowed the gap with their industry peers, in services non-SOEs have increased their productivity
(Value Added Per Worker, 2017)

A. Manufacturing  
B. Services

![Manufacturing and Services charts](image)

Note: The average of firms in SOE industries is the calculated average productivity of SOEs if they were at the same level of productivity as the average firm in their industry.
For privatized firms, gaps in productivity compared to de novo private firms are much smaller. Figure 16 compares the productivity of a privatized firm with the average firm in its sector; privatized domestic firms were found to be just as productive as their peers; privatized firms in foreign hands are much more productive than the average firm in their industry. Because most privatizations occurred before the period covered in our dataset, the data do not allow for separately identifying the selection effect (privatized firms being more productive before being privatized) from the privatization effect (privatized firms becoming more productive after privatization).

**Figure 16.** Productivity of domestic privatized firms is at similar levels as other firms in their industry, while foreign privatized firms exceed their productivity levels. *(Value added per worker, Manufacturing only, 2006-2017)*

A. Domestically Owned Privatized Firms  
B. Foreign-owned Privatized Firms

Note: Average of firms in SOE industries is the average productivity of SOEs if they were just as efficient as the average firm in their industry.

Note: Average of firms in SOE industries is the average productivity of SOEs if they were just as efficient as the average firm in their industry.
Contribution of the Private Sector to Recent Job Creation

*Three decades after the transition, the private sector, though still young, is now the main source of new jobs.* For decades the formal private sector was practically nonexistent but the transition to a market economy three decades ago sparked the establishment of many new firms. Only 1.2 percent of firms currently in operation (responsible for 10 percent of employment) were founded before 1990 (Figure 17), most being state-owned or formerly state-owned. The age of the average private firm is 10.9 years, up from just 8.1 years in 2006.

*The formal private sector provides 54 percent of Serbian jobs and in 2014–17 was the key driver of job creation.* After losing jobs for a decade, employment in the private sector has gone up again since 2014, creating 215,000 new jobs (Figure 18). The informal private sector is nevertheless still substantial, employing an estimated 491,000 people workers in 2017—about 19 percent of all jobs.

*Figure 17. Serbia’s private sector is young: most firms have been founded after 1990.*
*(Numbers of Firms and Employees by Year of Registration, 2017, Percent of All Firms)*

![Graph of percent by year of establishment](image)

*Source: SBRA data.*

*Figure 18. The formal private sector created many new jobs.*
*(Employment in Serbia, Formal and Informal, 2014–17, Thousands)*

![Graph of employment by year](image)

*Source: Reyes and Van Nguyen 2019*

*From 2014 to 2017, employment went up in most of the formal private sector, with mining the main exception.* During Serbia's transition and structural transformation, jobs moving away from agricultural and primary sectors into manufacturing and services. Industries with the largest increases in employment were wholesale trade, administrative and support services, retail, professional and technical services, electricity and gas utilities, and metals, materials and petrochemicals (Figure 19 and 20). Few sectors saw decreases, most prominently mining 9 followed by publishing and media and other primary production.

9 A part of this decrease in mining employment is the result of one of the largest electricity companies merging back mining operations into their holding.
**Serbia’s New Growth Agenda**

**Figure 19.** Most jobs have been created in the services industry, followed by manufacturing and commerce. (Net Job Creation by Sector, 2014-2017)

![Bar chart showing job creation by sector, with services leading, followed by manufacturing and commerce.]

Source: SBRA data, World Bank staff calculations.

**Figure 20.** Most jobs were created in wholesale, administrative/support, retail and professional technical surveys. (Gross Job Creation and Gross Job Destruction by Sector, 2013-17)

![Line chart showing gross job creation and destruction by sector, with wholesale leading in job creation, followed by administrative/support and retail.]

Source: SBRA data, World Bank staff calculations.
Job creation was concentrated in young firms and high-growth firms. Figure 21 and Table 1 show their net and gross job creation. Though just 30 percent of firms, young firms but created 96 percent of net new jobs between 2014 and 2017. High-growth firms – firms that increased their revenue by more than 20 percent annually over three years – are 5 percent of firms but created 77 percent of net new jobs. In other firms the number of net jobs fell. Together, these two groups thus accounted for 60 percent of gross job creation.

Figure 21. Young firms and high-growth firms created 96 and 77 percent of net job creation, corresponding to 33 and 25 percent of gross job creation.
(Gross Job Creation and Gross Job Destruction by Firm Group, 2013–17, Percent)

Table 1. Job Creation by Firm Groups, 2014–17

<table>
<thead>
<tr>
<th>Firm Group</th>
<th>Net Job Creation</th>
<th>Percent</th>
<th>Gross Job Creation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young firms (firms less than 5 years old)</td>
<td>103578</td>
<td>96%</td>
<td>113431</td>
<td>36%</td>
</tr>
<tr>
<td>High-growth firms</td>
<td>83646</td>
<td>77%</td>
<td>88334</td>
<td>28%</td>
</tr>
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<td>- of which young firms</td>
<td>8689</td>
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<td>8740</td>
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<td>100%</td>
<td>318453</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: SBRA data, World Bank staff calculations.

Note: Net job creation is the difference between the number of jobs created by a group of firms and the number of jobs destroyed. Gross job creation is the number of jobs created ignoring firms where employment decreased.

10 This analysis follows the turnover-based OECD/Eurostat definition of a high-growth firms (72.8 percent over three years), has more than 10 employees, and has been in business for more than four years.
**Serbia’s New Growth Agenda**

Although young firms are an important source of new jobs, fewer firms are starting up. Since 2006 Serbia has seen a steady decline in new firm entry; in manufacturing it decreased from 9.4 to 5.0 percent and in services from 12.6 to 6.7 percent (Figure 22). Meanwhile, exit rates have gone up, from 6 percent in 2006 to about 9 percent in 2016 (Figure 23).

**Figure 22.** The number of new firm entries – as measured by share of entry – has been decreasing. (Percentage of new firms, as percentage of all firms)

**Figure 23.** The number of firm exits has fluctuated, but recently increased. (Percentage of exiting firms, as percentage of all firms)

Source: SBRA data, World Bank staff calculations.

In Serbia, there are few high-growth firms. The 5 percent prevalence of high-growth firms is much lower than in, e.g., Latvia, 45 percent; Estonia, 36 percent; Lithuania, 25 percent; and Albania, 17 percent (Figure 24). Sectors with the most high-growth firms are motor vehicles and parts manufacturing, 20 percent; computers and electronics, 13 percent; construction, 11 percent; metals and machinery, 10 percent; and IT and programming, 8 percent. Foreign-owned firms are more than twice as likely to be high-growth (11 versus 5 percent). High-growth firms also tend to be more productive: a firm in the most productive 20 percent is four times as likely to be high-growth a firm in the least productive 20 percent.

**Figure 24.** Five percent of Serbian firms are high-growth firms, lower than seen in other countries (Percentage of High-Growth Firms, Most Recent Data)

Source: OECD/Eurostat; for Serbia: SBRA data, World Bank staff calculations.
*Productive firms are an important source not only of new but also of better-paid jobs.* Between 2014 and 2017, the 40 percent of manufacturing firms that were most productive created twice as many more jobs as the less productive 60 percent (Figure 25)—and a manufacturing firm in the top 20 percent for productivity pays a 38 percent higher median wage than the 20 percent that is least productive. Higher productivity firms pay a premium for the skilled workers who contribute to productivity and are also willing to pay higher wages to attract talent.

*In services, the relationship between productivity and job creation has been less strong.* Most job growth between 2014 and 2017 was in firms with median productivity. As will be argued later, the relative lack of growth of the most productive firms is one reason why productivity growth in services has been muted.

**Figure 25.** More productive firms have created more jobs and pay higher wages (Job Creation between 2014 and 2017 and Wages, by Value Added per Worker quintile, 2017)

Source: SBRA data, World Bank staff calculations. TFP quintiles are based on 2014 values.
Drivers of Productivity Growth in Serbia

Understanding the drivers of productivity growth is crucial to understand why Serbia has seen little growth. Aggregate productivity growth can be the result of three processes, which usually happen concurrently:

1. **Innovation and improvement of firm capabilities**: Firms can adopt new technologies and better managerial practices (within-firm productivity growth).

2. **Better factor allocation**: Productivity can also improve if the factors of production, labor and capital, move from less- to more-efficient firms (between-firm growth). Failure of more productive firms to grow can be a sign that resources are being misallocated—and that there are barriers to the growth of more productive firms.

3. **Productive entry and exit**: Factor allocation is improved when new firms enter that are more productive than the average firm and when less productive firms leave the market (dynamic productivity growth).

**Figure 26.** A decomposition of growth of the formal private sector (excluding SOEs) shows that most of past productivity growth is explained by firm upgrading (“within”) and resource allocation (“between”). (Melitz-Polánek decomposition of 3-year revenue TFPR growth, weighted by value added, 2009-2017)

Source: SBRA data, World Bank staff calculations. SOEs are not included.
Productivity growth in Serbian manufacturing was driven equally by firms upgrading their technology and better allocation of production factors between firms, according to a Melitz-Polanec decomposition of productivity growth (Figure 26). About half the increase in manufacturing productivity has come from higher within-firm productivity across the board. Improved allocation, both between manufacturing industries (inter-industry) and within an industry (intra-industry), has contributed positively: more productive manufacturing industries and their subsectors have expanded employment and market share at the expense of the less productive.

Since 2014, however, the benefits of better allocation of labor and capital have declined. Despite solid growth in firm capabilities, the contribution of better allocation of labor to productivity growth has fallen (see the “between” components in Figure 26). The entry of more firms in lower-productivity sectors has also been a problem, although entry-exit effects are less noticeable.

Similar more powerful trends have been realized in services, with more negative results: there has been a deterioration in allocative efficiency between different services. In services, productivity growth since 2014 has been muted: less productive services like restaurants and cafés, which grew by 5.8 percent, have been growing more than more productive industries like professional and technical services, where employment dropped by 1.3 percent.

In manufacturing, the productive firms grew in output and employment; in services the less productive grew just as much as the more productive firms. Allocation of resources is efficient when capital and labor flow to the firms with the highest marginal products of capital and labor, which is in large part determined by their productivity. Figure 27 shows growth in output (measured by value added) by productivity decile: in manufacturing, there is a positive relationship between productivity and both output and employment—more productive firms were able to expand production and take on additional workers, partly at the expense of less productive firms, whose production and employment shrank. (The relationship is less clear for capital.) In services, there has been much growth in capital, labor, and output in both more and less productive firms, and the growth of the latter is one reason for the negative contribution of allocative efficiency in the services sector.11

11 In decomposition of productivity growth, the “between” component measures changes in the correlation between productivity and market share—whether the most-productive firms are expanding more than the less-productive.
**Figure 27.** More productive manufacturing firms expanded output and employment (but did not increase their capital), while in services there was much growth in less productive firms. (Percentage Change in Employment, Capital Stock and Value Added (Output) by TFP decile, 2014-2017)

In many industries, less productive firms are growing, which suggests worsening allocative efficiency. While firm upgrading has happened everywhere in the Serbian economy except agriculture, in many sectors, especially in services, allocation of labor and capital is getting worse. Labor allocation has deteriorated most in telecoms, professional services, and IT (Figure 28). An industry-by-industry Melitz-Polanec decomposition of TFP found evidence in most industries of firm upgrading (a positive within component). There is more heterogeneity in the between component, which represents allocation of production factors. Sectors with negative between component are telecom, professional and technical services, IT, and other services. Manufacturing sectors with a negative between component are motor vehicle manufacturing, wood, paper and printing, and furniture and repair.
Figure 28. Although firm upgrading has been happening across the board, large degrees of misallocation are telecom, other services, professional/technical services and motor vehicles. (Melitz-Polanec Decomposition of Revenue TFP Growth by Industry, 2014-2017)

| Source: SBRA data, World Bank staff calculations. Excludes SOEs. |

In many sectors, there is considerable dispersion. Figure 29 shows the ratio of TFP productivity between firms in the 90th and in the 10th percentile. The ratios range from 4 to 22, implying huge differences in productivity in every industry. Dispersions are especially large in certain services (among them publishing and media, telecoms, and transport), retail, utilities, and agriculture. Manufacturing sectors with the highest degrees of dispersion are computers and machinery and other manufacturing, which includes furniture and repair activities—in other words, within the same sector, firms with vastly different levels of productivity co-exist. While part of this dispersion can be explained by such factors as differences in technology adoption, management capabilities, worker skills, product quality, and markups (Cusolito and Maloney 2018), its magnitude indicates the potential for gains from moving capital and labor from less- to more-productive industries. In advanced economies like the United States, firms in the 90th percentile are only twice as productive as firms in the 10th.
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**Figure 29.** A high degree of dispersion suggests that improvements in misallocation can be made. (Dispersion in Total Factor Productivity, Ratio between Lower and Upper Percentile, 2017)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Ratio upper-lower percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary</strong></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>11.3</td>
</tr>
<tr>
<td>Other primary (forestry, fishing)</td>
<td>9.9</td>
</tr>
<tr>
<td>Mining</td>
<td></td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td></td>
</tr>
<tr>
<td>Computers, machinery, electrical</td>
<td>12.7</td>
</tr>
<tr>
<td>Other manufacturing (furniture, repair)</td>
<td>11.1</td>
</tr>
<tr>
<td>Motor vehicles, transport man.</td>
<td>10.9</td>
</tr>
<tr>
<td>Food, bev., tobacco manufacturing</td>
<td>10.4</td>
</tr>
<tr>
<td>Textiles, apparel and leather</td>
<td>10.3</td>
</tr>
<tr>
<td>Metals, materials, petro, pharma</td>
<td>8.4</td>
</tr>
<tr>
<td>Wood, paper and printing</td>
<td>8.0</td>
</tr>
<tr>
<td>Other services</td>
<td>20.1</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>19.0</td>
</tr>
<tr>
<td>Water supply, sewerage, waste</td>
<td>15.1</td>
</tr>
<tr>
<td>Publishing and media</td>
<td>13.1</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>11.4</td>
</tr>
<tr>
<td>Retail</td>
<td>10.9</td>
</tr>
<tr>
<td>Tour agency</td>
<td>10.7</td>
</tr>
<tr>
<td>Professional/technical services</td>
<td>10.7</td>
</tr>
<tr>
<td>Transport</td>
<td>10.6</td>
</tr>
<tr>
<td>Administrative and support</td>
<td>10.4</td>
</tr>
<tr>
<td>Health</td>
<td>9.6</td>
</tr>
<tr>
<td>IT, programming, consulting</td>
<td>9.3</td>
</tr>
<tr>
<td>Accommodation</td>
<td>5.8</td>
</tr>
<tr>
<td>Restaurants, cafes, catering</td>
<td>5.1</td>
</tr>
<tr>
<td>Education</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Source: SBRA data, World Bank staff calculations. Note: Excludes SOEs.

**Entry and exit have minimal impact on productivity.** In manufacturing the entry component is positive, suggesting that on average new firms are more productive than incumbents. The exit component is negative, suggesting that it is not the least-productive firms that are exiting, so they continue to depress average productivity. But entry and exit have little effect on manufacturing productivity. In services, the impact of entry and exit is negative, but the impact is small.

**Productivity growth in Serbia is bleak compared to countries that became highly productive, as Poland did in the late 1990s.** Even though resource allocation has made a positive contribution to Serbia’s productivity growth, in general growth is still muted. In 1997, Poland’s income level was similar to Serbia’s today, but Poland’s manufacturing productivity grew by 22 percent because of both expanded trade and domestic reforms (Box 4). Serbia can push up productivity growth by removing distortions in specific industries, particularly in services, and by encouraging firm-level productivity.
Box 4. Lessons from Poland’s High-growth Years

Just before and after accession to the European Union (EU), better factor allocation stimulated productivity growth in Poland. In 1997, Polish incomes were about the same as Serbian incomes today. Poland had started EU accession negotiations and would become a member state in 2003. As part of the accession process, Poland adopted numerous reforms targeting increased exports, openness, and competition and improving market institutions. For instance, Poland reformed the competition authority, reduced subsidies, facilitated foreign investment, improved the bankruptcy law, liberalized financial services, and introduced a new legal framework for firm entry and business licensing.

During that period, the productivity of Polish manufacturing grew by 22 percent, mostly driven by growth of allocative efficiency. Polish productivity growth up to 2005 was driven by better allocation of production factors, so that more productive firms were able to grow more than less productive firms (Figure B4.1). While allocation has been increasing in Serbia, its positive allocative improvements have been barely one-twelfth of those in Poland at the turn of this century.

Box Figure B4.1. Poland’s high productivity growth was mostly driven through growth of productive firms (between firm growth) (Melitz-Polanec Decomposition, TFP Growth, Poland and Serbia, 1997–2017, Percent)

Growth from Greater Firm Capabilities and Innovation

Firm capabilities are important drivers of productivity. The ability and capacity of firms to use their factors of production optimally includes whether a firm adopts good managerial and organizational practices, whether a firm innovates or adopts new technologies, and the skills of management and the workforce.

Figure 30. Many employers report difficulties in attracting qualified workers (Firms Reporting Difficulties Filling Jobs, by Job Category, 2015–16, Percent)


Finding workers with the right skills is a major problem for many firms. Among firms recruiting workers, 69 percent reported difficulties in finding workers in all occupations with the right skills and qualifications (Figure 30). Employers especially value socio-emotional, cognitive, and advanced technical skills but report that current training curricula do not equip students with them. The difficulty in finding qualified workers is especially prevalent in industries that rely on more advanced technologies, such as ICT, manufacturing, and mining, and can therefore be expected to depress innovation, technology adoption, and ultimately productivity.

Spending on research and development (R&D) and productivity are closely linked. A firm in the top 20 percent of productive firms is twice as likely to invest in R&D than a firm in the bottom 20 percent (Figure 31). However, even though these firms are more likely to invest in R&D, the amount as share of sales they invest is lower than for less productive firms that invest in R&D.

Figure 31. More productive firms are more likely to invest in R&D, but invest a lower share of revenue than less productive firms. (R&D Spending and Revenue, Firms Investing in R&D, Percent, 2017)

Source: Eurostat Community Innovation Survey.
Compared to European averages, Serbia’s investment in R&D is low. Only 14.3 percent of firms with more than 10 employees invest in internal R&D (Figure 32), which is about the European median but below what is seen in high-income EU countries. The share of Serbian firms investing in R&D is higher than in many neighbors, like Croatia, 11.7 percent; North Macedonia, 7.4 percent; and Romania, 2.8 percent. However, the amount that Serbian firms invest in R&D, 0.3 percent of sales value, is among the lowest in Europe (Figure 33). It appears that low spending on innovation is to a large extent driven by the *intensive* margin (the amount invested in R&D by innovative firms) rather than the *extensive* margin (whether a firm invests at all).

**Figure 32.** The share of Serbian firms that invest in R&D is at the European average (Firms investing in Internal and External R&D, 2014, Percent)

**Figure 33.** But the amount of R&D that these firms invest is among the lowest in Europe (Internal and External R&D Spending as Share of Revenue, Firms Investing in R&D, 2014)

Small firms are less likely to spend on R&D than large firms (Figure 34). Only 11 percent or small firms invest in internal R&D, compared to 44 percent of firms with more than 250 employees. The share of Serbian small firms investing is much less than in Germany, 20 percent, and Slovenia, 18 percent, but about the same as Croatia, 10 percent, and higher than Hungary, 7 percent, and Poland, 3 percent.

However, large firms spend less on R&D than small firms (Figure 35). In Serbia large firms that invest in R&D spend only 0.25 percent of sales, among the least in Europe; for example, Slovenia spends 6.5 times more and Croatia 2.5 times more. Low large-firm spending on R&D to a large extent explains the low R&D spending in Serbia.
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**Figure 34.** Small firms are less likely to invest in R&D than large firms (Firms Investing in Internal R&D, by Size (Number of Employees), 2014, Percent)

**Figure 35.** But large firms spend less on R&D than small firms, making Serbia an outlier in Europe (Internal and External R&D Spending, Share of Revenue, Firms Investing in R&D, by Size (Number of Employees), 2014)

Source: Eurostat Community Innovation Survey.

**Figure 36.** Foreign firms are more likely to invest in R&D compared to domestic firms, but on average do not spend more R&D by Ownership Category, 2017, Percent

Source: SBRA Registry data.
Note: Includes only firms with more than 10 employees.

**Figure 37.** Exporting firms are more likely to spend on R&D than non-exporters (R&D by Ownership Category and Export Status, 2017, Percent)

Source: BSRA Registry data.
Note: Includes only firms with more than 10 employees.
Recent FDI: More Jobs, Lower Productivity

On average, foreign-owned firms are more productive and larger than domestic firms (Figure 38). A foreign-owned firm sells 31 percent more per worker than a domestic firm and the value added per worker is 31 percent higher. TFP is also higher, by 23 percent, because foreign firms depend more on capital usage. On average foreign-owned firms also employ 5.6 times more workers than domestic firms. These patterns can be seen across many industries (Figure 39).

Although only 5.5 percent of firms are foreign-owned, in 2017 they were responsible for 63 percent of imports and 54 percent of exports (Figure 40). Thus, they are crucial for linking Serbia to global value chains. In 2017 former SOEs that are now foreign-owned (0.2 percent of firms) produce 20 percent of exports, and de novo foreign-owned companies (5.3 percent of firms) produced 35 percent of exports.
Encouraged by government programs to attract FDI, in 2014–17 foreign-owned firms hired 31 percent more workers, growing their workforce from 140,000 to 184,000. FDI incentive programs established when employment was low probably contributed to the job gains. In the Attracting Direct Investment program administered by RAS, the Development Agency of Serbia, firms can apply for subsidies conditional on investment and job creation. The incentives have amounted to €50–60 million annually. Vasiljevic et al. (2019) found that this program has been very effective, creating an estimated 11,616 new jobs through 2015. The estimated wage subsidy per additional job was about €2,086 annually.

However, recently the average productivity of foreign-owned firms has been dropping (Figure 41). On average, labor productivity declined by 4 percent annually between 2014 and 2017, while TFP stagnated. Meanwhile, domestically owned firms, though less productive on average, managed to increase their productivity as measured by TFP by 5 percent.

The drop in productivity is not because foreign-owned firms have become less productive but because FDI has moved into lower-value-added sectors (Figure 42). Even though employment in foreign-owned firms went up along the productivity distribution, foreign-owned firms with a lower value added of about SBD 1 million increased employment most. In 2014–17 employment in this group of firms more than doubled, from about 16,500 to 34,600 jobs. A Melitz-Polanec decomposition of the productivity of foreign-owned firms (Figure 43) confirms that the decrease was not because foreign-owned firms became less productive (the within-firm component is positive) but because growth was in less productive industries (a negative inter-industry between component) and in less productive firms within the same industry (a negative intra-industry between component). Examples of low-value-added FDI industries where jobs were created are clothing and footwear, motor vehicle parts manufacturing, administrative and support services (e.g., call centers), and retail.
Figure 41. Average productivity of foreign-owned firms has decreased or stagnated, while employment increased
(Average Productivity and Employment in Foreign-owned Firms, 2007–17)

Figure 42. Foreign-owned firms increased employment the most at the lowest levels of labor productivity
(Employment by Value Added per Worker, Manufacturers, 2014 and 2017)

Similarly, new FDI firms have created more jobs but are less productive. Employment in firms in operation no more than one year was higher in 2016 and 2017 than in 2014 and 2015, but TFP in new firms has fallen by a third since 2014 (Figure 44). The Melitz-Polanec decomposition (Figure 43) confirms that entry of new firms contributed negatively to productivity growth between 2014 and 2017, and that the negative contribution was higher than in previous periods.
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**Figure 43.** Unlike for domestic firms, new entry of foreign enterprises and inter-industry reallocation of foreign activity has contributed negatively to productivity growth. (Melitz-Polanec Decomposition of TFP in Manufacturing, 2009–17, Percent)

**Figure 44.** New foreign-owned firms have recently been creating more jobs, but with lower productivity. (Average Productivity and Employment in Foreign-owned Firms Aged 0–1 Year)

Source: SBRA data, World Bank staff calculations. Source: SBRA data, World Bank staff calculations.

*Foreign firms create some productivity spillovers.* Brussevich and Tan (2019) suggest that domestic firms that supply a foreign firm (backward links) and those operating in the same industry as foreign firms (horizontal links) see productivity gains, but there is no evidence of forward spillover—productivity gains in industries buying from foreign firms.

*Other than the positive spillovers for domestic suppliers, there are few domestic links.* Trade data suggest that in many industries foreign firms import more than 90 percent of their inputs (Figure 45). While this is an indication that foreign firms help connect Serbia to global value chains, it also means that there are few opportunities for positive spillovers.
Figure 45. In most industries, foreign firms import the vast majority of their inputs. (Inputs Imported by Foreign-owned Firms, by Industry, 2017, Percent)

Source: Staff calculations based on BRA and customs data.
Note: Calculated by dividing imports in an industry by total inputs bought by foreign firms in that industry.
Box 5. Two Tales of FDI Growth in the Motor Vehicles Sector: FIAT and Car Parts

One sector that has seen impressive expansion thanks to foreign direct investment (FDI) has been the motor vehicles industry. A key event occurred in 2013 with the start of production of the Fiat 500L, which has had a clear and pronounced effect on productivity growth in Serbia: without the automotive industry, in 2013 productivity growth in manufacturing would have been 1 percent instead of 6 percent (Figure B5.1).

Figure B5.1. Without the automotive industry, productivity growth would have been significantly lower in 2012-13.
(TFP Productivity Growth, 2010–17, Percent)

Figure B5.2. Car manufacturing saw a large increase in productivity, with other motor vehicles sectors (apart from body manufacturing) following more gradually.
(TFP, Cars and Car Parts, 2004–17)

Source: SBRA data, World Bank staff calculations.
Car manufacturing has not been the only new development in motor vehicles. Production of vehicle parts—both electrical (e.g., cables) and non-electrical (e.g., car parts)—has been growing steadily and has recently taken over from car manufacturing in terms of output and jobs (Figure B5.3 and B5.4). As in car manufacturing, the progress has mostly been driven by FDI. The parts produced in Serbia are not used as inputs for FIAT but are in fact sold to car manufacturers elsewhere in Europe, such as Hungary, Romania, and Slovakia.

Although production of cars has seen volatility and a recent slowdown, production of car parts has gone up steadily. This has led to a decrease in the productivity of the entire industry because producing cars is more productive than producing parts. However, the growth of the car parts industry has been less volatile, steadier, and less dependent on a single company. And though the impact of the car parts industry on aggregate productivity has been lower than that of manufacturing whole vehicles, car parts plants are becoming more productive. Thus FDI-led productivity growth can be achieved in many different ways, even in a single industry.

Figure B5.3. More recently, car manufacturing has slowed down, but is taken over by parts manufacturing. (Total Value Added, Car and Car Parts Manufacturing, 2010 Prices, 2008–17)

Source: SBRA data, World Bank staff calculations.

Figure B5.4. This is also reflected in employment patterns. (Employment, Car and Car Parts Manufacturing, 2008–17)

Source: SBRA data, World Bank staff calculations.
Figure B5.5. Most of the motor vehicles industry is driven by FDI

Source: SBRA data, World Bank staff calculations.
Note: electrical/electronic refers to electrical and electronic equipment for cars.
Productivity-Boosting Reforms

To raise productivity, policies should incentivize firms to innovate, allow productive firms to grow, and remove constraints on entry. Productivity can grow by firms becoming more capable of innovating and running their firms more efficiently (within-firm productivity growth); by more resources being allocated to more-productive firms to allow them to grow (between-firm growth); and by productive entry and exit (dynamic growth). Table 2 summarizes policy directions that would promote each of these three channels of productivity growth. Most policies are not exclusively associated with one component. For example, reforming business regulations can facilitate both entry of new firms (dynamic) and growth of firms that were previously restricted (between-firm).

Table 2. Sources of Growth and Facilitative Policy

<table>
<thead>
<tr>
<th>Within-firm</th>
<th>Between-firm</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firms increasing their capabilities</td>
<td>Allocating resources to more productive firms</td>
<td>Entry of productive and exit of unproductive firms</td>
</tr>
<tr>
<td>Capabilities to be targeted are human capital skills, management and organizational practices, using and adopting technology, and innovation by the firm.</td>
<td>Misallocation of resources indicates barriers that prevent movement of capital, labor, and other factors of production to the most productive firms in the economy.</td>
<td>Entry of highly productive, fast-growing firms (gazelles) and exit of firms that are not growing (laggards)</td>
</tr>
</tbody>
</table>

**Policy levers:**

Within-firm

- Improving education and technical skills; encouraging entrepreneurship, technology adoption, and innovation; and reducing administrative burdens

Between-firm

- Removing distortions in product markets (competition policy); addressing frictions in land, capital, and labor markets; and opening markets to trade and investment.

Dynamic

- Same as within-firm and between-firm productivity levers, but with emphasis on dismantling barriers to entry and exit of domestic and foreign firms (e.g., licensing, asset recovery)

Policies should address current distortions that do not allow factors of production to flow freely to the most productive firms, restrain entry, or reduce firms’ own efforts to become more efficient. Although in Serbian manufacturing factors did flow to the most productive firms, productivity growth could have been faster if regulatory distortions were eliminated. In services, recently factors have been flowing to the least productive firms, a sign of sector-specific distortions and barriers to competition. In some sectors, such as telecoms, professional and technical services, wood, paper and printing, and other manufacturing, the most productive firms grew more slowly than the least productive. This is a sign that capital and labor are not always flowing to the firms that can use them most efficiently. Policies that remove distortions in input and output markets can therefore be expected to push up productivity.
Distortions in product markets continue to harm competition. Competitive pressures between firms are a driver of efficiency gains by allowing more productive firms, which usually produce higher-quality products and services at lower cost, to outcompete less efficient firms. Competition can also pressure firms to improve their production processes through innovation and more efficient operations. Analysis of regulatory barriers to competition conducted as part of this CEM suggests that Serbia is performing poorly in indicators that assess barriers to competition in product markets (Drozd & Sipka 2019).

Sectors highlighted as having significant barriers to competition are those where productive firms are not growing. Product market regulations appear to be more restrictive in both network sectors like energy, transport, and electronic communications and in professional services; except for transport these are also sectors where productive firms are not growing (Figure 28). Lack of competition in network sectors can increase prices in other areas of the economy and subdue production and productivity growth.

The gap between the skills employers demand and those workers provide must be bridged. Among firms recruiting, 69 percent of those surveyed reported difficulties in finding workers with the necessary skills and qualifications (Reyes and Van Nguyen 2019). The pattern holds across a wide range of occupations. The trouble employers have in finding skilled workers is a barrier to producing technologically more advanced products and more knowledge-intensive services. Policies to improve the skills of Serbia’s labor force can both contribute to lowering unemployment and enhance productivity by allowing firms to adopt more advanced technologies. Policies to reform and modernize the school, vocational education, and university system can help narrow the skills gap (Reyes and Van Nguyen 2019).

Despite several rounds of privatization, Serbia’s economy is still too dependent on SOEs. They employ 18 percent of the Serbian workforce and in half of the country’s industries they have a market share of at least 10 percent. Even though SOE productivity has gone up, they are still less productive than the average firm in the sectors where they operate—in many of which private operations would be viable, such as financial services (insurance and banking) and light manufacturing (e.g., furniture). As a result, Serbia has one of the worst scores for public ownership in the OECD-World Bank survey of product market regulations (Drozd & Spika 2019). Reforming governance of SOEs and working to privatize them should continue to be a policy priority.

Other constraints, such as difficulties in obtaining financing, may be stunting the growth of productive firms. Small and young firms especially report difficulties in financing their operations (Berg 2019). Yet these firms are the basis for Serbia’s future economic growth and productivity increases. Unequal access to credit can depress productivity if more productive firms cannot obtain the credit they need to expand.

There is significant scope to further improve the business environment. Thanks to reforms such as revision of the labor code, streamlined construction permitting, real estate registration, and most recently reforms of labor regulations for seasonal workers, Serbia has raised its ranking and score in the Doing Business report. Nevertheless, businesses continue to report problems, most notably in paying taxes, enforcing contracts, getting electricity, and protecting minority investors (Vasiljevic 2019).
A more conducive environment can encourage firm innovation. Technology upgrading is impeded by low spending on innovation. Serbian firms score in the middle of EU countries in terms of firms investing in R&D but are among the lowest in terms of the share of revenue spent. This high-extensive but low-intensive margin could suggest that firms benefit from some R&D spending but that the returns from spending larger amounts are low. This may indicate a lack of complementary factors—such as lack of skills or firm capacity to absorb innovation, or a deficient competitive business environment—that prevent firms from achieving returns on spending for innovation. Policies that target improvement of worker and manager skills, the innovative capacity of firms, and the quality of management can be expected to enhance productivity.

The lower productivity of foreign-owned firms and their limited domestic links warrants a review of the focus on FDI incentives for job creation. Currently, incentives to attract FDI do not explicitly target technology spillovers or facilitate domestic links, both of which can have large productivity gains. While the focus on job creation made sense when unemployment was high and Serbia was not yet firmly on the map as an FDI destination, unemployment is now low and FDI continues to flow in. Realigning incentive programs to encourage technology spillovers, domestic links, and productivity growth can make them more effective and more supportive of growth (Box 6).
Box 6. How Korea Achieved More than 7 Percent Economic Growth

From the 1970s through the early 2000s, the growth of Korea’s economy averaged more than 7 annually, with spikes exceeding 10 percent for many years in the 1970s and late 1980s. Productivity contributed about roughly a third of the observed growth, supported by capital deepening and rising labor force participation.

Industrial policies, including structural reforms, were a central component of that growth. Until the late 1960s the state took an active role, both owning production factors and protecting domestic industry from imports, but in the 1970s the focus shifted to encouraging exports in heavy and chemical industries by liberalizing trade and attracting FDI. Structural reforms, such as privatization of state-owned enterprises, financial liberalization, and macroeconomic stabilization were crucial.

In the 1990s, Korean policy shifted more to promoting productivity through innovation. Industrial policy has emphasized nurturing business ventures, building ICT infrastructure, reforming education, and supporting frontier research and innovation clusters (Figure B6.1).

Figure B6.1. Economic growth in Korea was mostly driven by productivity increases (GDP and Growth of Total Factor Productivity in Korea, Percent)

Source: OECD (2014).
Source: Presentation by Dr Sanghoon Ahn, Executive Director at the Korean Development Institute Center for International Development for the Serbia CEM New Growth Agenda, June 2019, Belgrade.
Conclusion

Low and slow-growing productivity in Serbia is preventing economic convergence with high-income countries. A Serbian manufacturing firm is only a third as productive as the average EU firm and since 2006 Serbia’s productivity relative to Germany's has plateaued, highlighting a lack of convergence. This has ramifications for growth: gains in productivity translate one-to-one to economic growth.

It is possible, and crucial, for Serbia to double productivity so that it grows at 7 percent. For Serbia to meet its ambitious growth agenda, the current 1 percent rate of productivity growth is not enough. To achieve 7 percent economic growth, not only must current growth at least double but investment and skills must also grow and improve. Experience from other countries, such as Poland in the late 1990s and early 2000s, demonstrates that with comprehensive reforms, and opening up to international markets, higher productivity growth is within reach for Serbia.

Heightening productivity will depend on a comprehensive package of policies and reforms. Policies are needed to address distortions in product, labor, and capital markets; improve the capabilities of firms; and further dismantle regulatory barriers to firm entry and exit. For FDI firms, an intensive review of incentives is warranted to encourage foreign investments not just in more jobs but in more productive jobs, those that create domestic links and technology spillovers. If the skills mismatch between what jobseekers offer and what employers want is narrowed; if firms are run more efficiently through better managerial and organizational practices; and if firms can be encouraged to upgrade through innovation, Serbia can significantly increase individual firm productivity. If there were fewer market distortions and fewer barriers to entry, firms could have better access to finance. Competition could then thrive, productive firms could grow more, and more productive startups could be established.
References


This note is part of the Serbia Country Economic Memorandum (CEM) 2.0, “Serbia’s New Growth Agenda.”

The report and associated papers outline a strategy that could seize the opportunity provided by the country’s successful macroeconomic stabilization to boost growth to 7 percent a year, nearly double its current rate of 3-4 percent. Serbia is well-positioned to turn itself into a fast-growing, sophisticated, modern economy, that, driven by its private sector, catches up rapidly with peers in Central and Eastern Europe and converges with the EU. With an ambitious new growth strategy, this vision of Serbia is entirely within reach.

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