

Productivity, Ownership and the Investment Climate: International Lessons for Priorities in Serbia

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Abstract

This paper uses data on 27,000 firms from 50 countries, half of which are transition economies, together with the specific case of Serbia to examine the relationship between productivity, the investment climate and private ownership of firms. As government capacity to address the investment climate constraints is limited, the prioritization of the constraints is critical. Identification of the relative effects of various investment climate constraints and ownership on productivity should serve as a guide for such prioritization.

Although ownership has recently received less attention in policy decisions than previously, according to the econometric analysis of productivity reported in the paper, private ownership is an equally or more important determinant of productivity than other components of the investment climate. The importance of ownership shows that an unfinished privatization and restructuring agenda might have negative effects on productivity, in parallel to poor investment climate. Another important finding is that countries in which firms complain more about infrastructure tend to have less productive firms.

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Preface

Serbia emerged from a decade of sanctions, isolation and war to face the economic and political challenges of making an economic transition, building market institutions, and enacting wide-ranging policy reforms to promote private sector development. At the beginning of 2001, Serbia's new government launched its ambitious stabilization and reform program. The economic program was supported by the IMF, the World Bank and other donors and rested on three pillars (i) prudent macroeconomic policies; (ii) market-oriented structural reforms, including extensive price and trade liberalization; and (iii) significant financial and technical support from donors. This paper assesses the progress under way and offers recommendations on how to prioritize policies to improve the investment climate. The paper also examines how well the policy reforms—promoted by the Government and supported by the Bank—have been translated into results and how the process can be effectively improved.

Some results are already observable. Serbia is now recovering from the recession of the 1990s and the Serbian economy has grown by 4.3 percent per annum on average since 2001. The economic rebound has been fuelled primarily by a dynamic private sector. The “Cost of Doing Business 2006” results place Serbia as the top reformer—with a wide range of reforms implemented.

The Bank has played an important role and has helped the Government in defining and implementing a wide range of policy reforms, including the design of the new privatization program, the reform of the business registration system (business entry), preparing new legislation governing corporate governance, as well as a comprehensive set of reforms in the access to finance area. There is much more to be done. A new bankruptcy system has to be implemented, land issues are still, to a large extent, unresolved and there is a huge task ahead in reforming the judiciary and contract enforcement systems.

Finally, the implementation of the Bank's program in Serbia has shown that despite a rather difficult political environment, carefully tailored and well focused structural adjustment operations incorporating lessons learned from other bank programs accompanied by significant and long-term technical assistance and institutional building efforts could remove some of the major bottlenecks and make a major difference.

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Work to improve the investment climate is recognized as a key pillar of the World Bank Group to promote economic growth and poverty alleviation in developing countries. The World Development Report 2005 defines the investment climate as “the factors in a particular location that shape the opportunities and incentives for firms to invest productively, create jobs, and expand.... Firms are the starting point of the framework.”² In this article we focus on productivity, sales and employment as indicators of the goals of the firm. These goals are shaped by the regulatory and institutional factors defined above as the “investment climate”.

This paper examines the widely assumed causal relationship between three variables: (i) productivity and other performance measures, (ii) investment climate constraints as perceived by individual firms, and (iii) the ownership of firms, distinguishing between privatized ones and new entrants. We ask whether one can show causal effects of the various investment climate constraints and of ownership on productivity or performance. These questions have important policy implications because the relative effects of various investment climate constraints and ownership on productivity serve as a guide for such prioritization.

Serbia provides a good example of how these lessons can be applied. Four years have passed since the October 2000 “velvet revolution”. During these four years, the investment climate was heavily affected by political instability: uncertainty related to the future status of Kosovo and the Hague criminal tribunal. Yet, several major policy steps conducive to a better investment climate were implemented: fiscal stability and trade liberalization were achieved; tax code reforms were carried out; a new privatization law was adopted and a program is being implemented; leasing, collateral and concessions laws were introduced. A critical factor in Serbia (as in all the other parts of former Yugoslavia) is the challenge presented by the legacy of “social ownership”, quite different from state ownership, it is an ownership-management system in which insiders had legal claims on the assets. The heritage of social ownership still poses major obstacles to the development of the private sector and negatively affects the investment climate.

The analysis in this paper focuses on the case of Serbia in 2000-2004 and provides an overview of Serbia’s investment climate in an international context, drawing on several datasets (Box 1). *First*, it examines how Serbia compares to other countries, in particular to other transition economies, in terms of its output and productivity. *Second*, it reviews which characteristics of firms worldwide are associated with high productivity and strong performance, show how investment climate variables affect productivity, and show how the characteristics of firms worldwide affect complaints about the investment climate. *Third*, it shows which Serbian firms have high productivity and are growing quickly, and present the investment climate constraints that they face.

Box 1: Background on Surveys

Productivity and Investment Climate Survey (World Bank): PICS utilizes a standard core questionnaire intended to calculate firm productivity. The PICS sample conducted in Serbia is different from the standard one as it does not cover exclusively manufacturing. The survey was administered to managers of firms and consisted of a core set of questions as well as several modules that can be used to explore specific aspects of the country's investment climate and links to firm-level productivity. The core survey had 11 sections:

- *General information about the firm:* ownership, activities, and location;
- *Sales and supplies:* imports and exports, supply and demand conditions, and competition;
- *Investment climate constraints:* evaluation of general obstacles;
- *Infrastructure and services:* power, water, transport, computers, and business services;
- *Finance:* sources of finance, terms of finance, financial services, auditing, and land ownership;
- *Labor relations:* worker skills, status and training, skill availability, over-employment, unionization, and strikes;
- *Business-government relations:* quality of public services, consistency of policy and administration, customs processing, regulatory compliance costs (management time, delays, bribes), informality, and capture;
- *Conflict resolution/legal environment:* confidence in legal system and resolution of credit disputes;
- *Crime:* security costs, cost of crimes, and use and performance of police services;
- *Capacity, innovation, and learning:* utilization, new products, planning horizon, sources of technology, worker and management education, and experience; and
- *Productivity information:* employment level, and balance sheet information (including income, main costs and assets).

The sample size was relatively large with 408 firms and includes a representative sample of the composition of the Serbian economy. The PICS survey was undertaken in the aftermath of the assassination of the Prime Minister at a time when the country was experiencing a great deal of uncertainty, so the survey results must be viewed in this light.

Business Environment and Enterprise Performance Survey (EBRD and World Bank): The BEEPS utilizes a standard survey instrument applied to nearly all countries in Eastern Europe and Central Asia, thus ensuring comparability. BEEPS II is a follow-up of an earlier BEEPS effort. In Serbia the BEEPS II survey had a sample size of approximately 230 firms in 2002 (BEEPS I did not cover Serbia). Generally, the sampling strategy in BEEPS II differs from that of the PICS, as the sample design of the BEEPS is highly skewed toward smaller firms.

Total Factor Productivity in the International Context

Increases in the level of total factor productivity (TFP) of firms are an essential feature of economic growth: rich countries are countries with firms that are highly productive. This section demonstrates how TFP at the firm level is related to GDP per capita at the country level, and compares the level of TFP in Serbian firms with the levels in comparator countries. These comparisons use the large PICS-BEEPS dataset of about 27,000 firms from 50 countries.³

TFP is a multi-factor productivity measure that represents the efficiency of the firm in transforming factor inputs into outputs. A firm that has a high level of TFP is one that can produce a high level of output for given quantities of capital and labor. TFP can be affected by wide range of factors: technology, managerial quality and incentives, corporate governance, government policies, and, of course, various dimensions of the investment climate. TFP is usually analyzed in a production function or growth

accounting framework. One approach is to account for the contribution of measured inputs, and label the “residual” – how much output is produced taking into account the volume of inputs – as an estimate of TFP. Another approach is to estimate the production function to try to measure the additional factors that affect productivity and output: when a characteristic of firm such as private ownership is associated with higher output, we say that after accounting for the contribution of the factors of production (capital and labor) to output, private ownership has a positive impact on TFP.

To obtain estimates of the average TFP level by country, the production function equation is first estimated on *country-averages*: averages were calculated for firm capital, labor and output were calculated for each of the 55 country surveys, and a regression estimated using these 55 observations⁴. This approach is known in econometrics as the “between estimator” because the variation between countries is the source of the information for estimating the effects on productivity; compare to the “within” approach presented below.

The basic estimation results are reported in column 1 of Table 1; the coefficients in the parentheses show the productivity gaps between Serbia and selected countries. Croatia, Hungary, Poland and Slovenia all had higher TFP than Serbia in 2002 or 2003.⁵ The TFP “residuals” as defined above are plotted in Figure 2 versus GDP per capita. The figure shows the strong positive correlation between country-average TFP and GDP per capita: richer countries have more productive firms.⁶

Table 1: Basic TFP regressions using country-survey-averages and firm-level data (manufacturing only)

	Regression on country-survey-averages	Regression on firms with country-survey dummies
Fixed capital	0.574**	0.387**
Labor	0.445**	0.663**
Country survey dummy variables included	No	Yes
Selected estimates of relative TFP Benchmark: Serbia 2002=0		
Croatia 2002	[0.612]	0.798**
Hungary 2002	[0.817]	0.922**
Poland 2002	[0.543]	0.717**
Poland 2003	[0.938]	1.087**
Slovenia 2002	[1.146]	1.347**
Number of observations	55 country-survey-averages based on 14,687 firms	14,687 firms

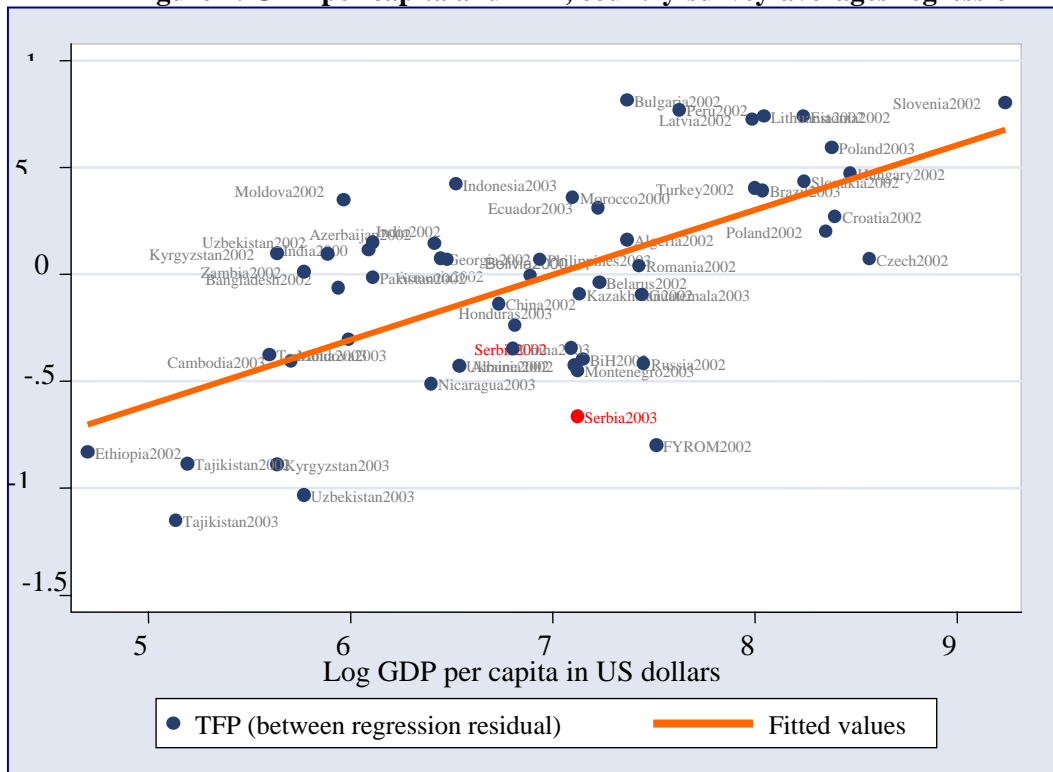
** significant at the 1 percent ; heteroskedastic-robust standard errors; [] indicates estimate based on a residual

The figure and the table also show that Serbia is well below its East European peers in productivity. Croatia is a natural comparator country. The country-survey-averages TFP regression implies that the productivity of Serbian manufacturing firms in the BEEPS 2002 survey is 61 percent⁷ below that of Croatian firms; the gap based on the PICS 2003

survey is even greater, 93 percent behind Croatia (0.61+0.32=0.93). The TFP gaps with other leading East European countries are as big or bigger.

In column 2 of Table 1 we show an estimation of the production function which uses the same PICS-BEEPS dataset as the country-averages estimation but with dummy variables included for each country. The coefficients of the country dummies capture country-average TFP. This approach is known in econometrics as the “within approach”:⁸ while the dummy variables are estimates of average firm TFP in a country, the coefficients of labor, capital, ownership and the investment climate variables explain the variation of productivity “within” the countries. The estimated difference in TFP levels between Serbian manufacturing firms in the BEEPS 2002 survey and Croatian firms is 80 percent⁹, and 108 percent using the 2003 Serbia PICS survey. These differences are statistically highly significant.¹⁰ These cross-country differences in TFP partly reflect the differences in GDP per capita between the countries, as is apparent in the figure. But lower TFP cannot be blamed on having too little capital: holding capital and labor constant, Serbia is generating much lower output than Croatia, Slovenia, or the other East European countries that have joined the EU. Serbia will need to invest in new fixed capital. However, to catch up with these countries, it will also need to invest in improving the investment climate, and in changing incentives for firms—including privatizing those that are still socially- or state-owned.¹¹

Figure 1: GDP per capita and TFP, country-survey-averages regression



What types of firms perform better than others?

In this section we account for the variation in productivity (TFP) across firms that can be attributed to various characteristics of firms. The key characteristics of interest are ownership and export orientation; it is particularly important in the Serbian context to establish that, based on international experience, private ownership enhances productivity. The previous section also established that the productivity of firms is highly correlated with the country in which they operate. The analysis here augments the estimation equation used in column 2 in Table 1 with measures of ownership, export orientation, and also location (whether or not the firm is operating in a capital city). In the regression results, the estimated impacts on TFP of these firm characteristics are impacts that raise or lower the TFP of a firm compared to other firms in the same country.

International evidence. The estimation used a sample of firms from 51 PICS-BEEPS surveys of firms in 44 countries. The estimations were done separately for manufacturing and services firms (Table 2). The omitted or benchmark category is state-owned, domestic, non-exporters and not in a capital city.¹² The results show that privately-owned firms, whether privatized or new private, have levels of TFP that are 30-38 percent higher than state-owned firms in the same country. Foreign ownership adds another 23-43 percent to TFP levels. Export orientation adds 22 percent to TFP (for manufacturing firms only).¹³

Table 2: TFP regressions using firm-level data

	Manufacturing	Services
Fixed capital	0.374**	0.268**
Labor	0.686**	0.698**
Privatized	0.382**	0.295**
New private	0.382**	0.289**
Foreign-owned	0.433**	0.226**
Exporter	0.216**	0.089
Capital city	0.092	0.178**
Country-survey dummy variables included	Yes	Yes
Number of observations	11,364 firms from 51 country surveys	3,314 firms from 35 country surveys

** significant at the 1% level; heteroskedastic- and cluster-robust standard errors

This analysis can be extended to other measures of firm performance. Appendix 2 to the Investment Climate Assessment¹⁴ reports the results using whether or not the firm reinvested any profits, invested in new plant in the preceding three years, and the log growth rate in its level of employment. The results reinforce those for TFP: in the international sample, private ownership and export orientation are good for firm performance.

Serbian evidence. What are the characteristics of productive, growing firms in Serbia, and how do these compare to those in the other PICS-BEEPS countries? We answer the first question by estimating the same regressions using only the sample of Serbian firms

in the PICS-BEEPS data. The second question is addressed by testing whether the estimated effects for Serbian firms are different from those for firms in other countries.

The 2003 Serbia PICS survey covered 408 firms; the 2002 Serbia BEEPS survey covered an additional 230 firms. About half of these firms were in services, about 10 percent were in construction, and the rest were manufacturing firms of varying sorts. Two thirds of the sample were small and medium-sized firms (employing 100 or more persons). Over half (57 percent) of the sample was composed of new private firms, 29 percent were socially- or state-owned, and the remainder had been privatized. Almost one-quarter of the sample were exporting, and about one in ten had significant foreign ownership. Because of the relatively small Serbian sample, the estimations of pool manufacturing, construction and services firms and employ sector dummy variables; the results are similar if the regressions are done separately by sector. Table 3 shows the results of the TFP estimations.

Table 3: TFP regressions using firm-level data – Serbia vs. other PICS-BEEPS countries

	49 country surveys	Serbia	Serbia different from 49 others?
Fixed capital	0.374**	0.394**	No
Labor	0.693**	0.590**	No
Privatized	0.359**	0.599**	No
New private	0.359**	0.846**	Yes*
Foreign-owned	0.205**	0.282	No
Exporter	0.216**	0.089	No
Capital city	0.089**	0.398*	No
Country-survey dummy variables included		Yes	
Sector dummy variables included		Yes	
Number of observations	15,050 firms from 51 country surveys		

* Significant at the 5 percent level; ** significant at the 1 percent level; heteroskedastic-robust standard errors

The estimations for Serbian firms show that new private firms in Serbia have productivity levels that are 85 percent higher¹⁵ than the benchmark socially-owned firms, and the productivity of privatized firms is 60 percent higher. The estimations based only on the Serbian firms in the sample do not show that foreign ownership and export activity are associated with high TFP levels, but this result is probably due to the relatively small sample size of the Serbian surveys. The last column in Table 3 compares the effect of the firm characteristics in Serbia to those in other countries: there is no evidence that Serbia is any different from other countries, with one exception — new private firms are even more strongly associated in Serbia with higher TFP than they are in other countries. Thus Serbia provides positive evidence in support of the general pattern found internationally, and no evidence against it.

These findings extend to the other three measures of performance used above.¹⁶ New private firms in Serbia are more likely to have higher employment growth, to have reinvested in profits, and to have invested in new plant, than state/socially-owned firms; Serbian exporters are also more likely to have invested in new plant. Moreover, there is no evidence that Serbian firms are any different from their counterparts in other countries

in any of these dimensions: there are no significant differences between the estimates for Serbia and the other countries for any firm characteristic.

These results need to be interpreted with some caution because of the possibility of reverse causality. For example, privatization may boost TFP, but higher productivity firms may also be more likely to be privatized or sold to foreign investors. Serbia provides an example: the 1997 privatization law, which has been replaced in 2001, allowed employees to take firms private if they so chose, and many of the best firms were privatized in this way; the better performance of some privatized firms in Serbia may simply reflect the fact that only management and employees in the better firms decided to take their firms private. The results for new entrants, however, are unambiguous: new private firms in Serbia, like those in the rest of the world, are more productive, more profitable, and growing more rapidly than state/socially-owned firms. The problem is simply that there are not enough of them: although the new private firms are better performers, their scope for growth, and the possibility of entry by new entrepreneurs, are both severely limited by the investment climate and by unrestructured socially-owned enterprises. Below the aspects of the investment climate that are particular constraints for these and other firms are analyzed.

What aspects of the investment climate affect total factor productivity?

The investment climate is an important component of the determinants of TFP. This section extends the analysis in the previous section to examine the impact of the investment climate on TFP, using the reported perceptions of firms of the major obstacles to conducting business that they face. An important qualification must be made: these are the reported perceptions of firms about the business obstacles they face. Firm characteristics and firm performance will be a major determinant these perceived constraints. This creates a major reverse causality problem: the reported constraints on doing business are determined partly by the country-average investment climate, but also by the particular situation the firm faces. Consider, for example, a rapidly growing firm in a country with a good average investment climate including a skilled labor force. The managers of this rapidly growing firm may still perceive difficulties in finding skilled people to hire. They will report that compared to the typical firm in this country, it faces skills shortages, but this perceived skills shortage is the result of its rapid growth. Yet the country as a whole may not have a skills shortage. The correlation between growth and skill shortages is better interpreted as evidence that rapidly growing firms are more likely to face skills shortages than stagnating firms. This line of analysis is picked up in the next section, which asks which constraints are better performing firms likely to face.

An approach to estimating the impact of the country-average investment climate on TFP that mitigates the reverse-causality problem is to use the country-averages regression framework. The average responses reported by firms in a country about the business obstacles they face are estimates of that country's average investment; the individual variations in investment micro-climate are "averaged away", leaving an estimated country-level investment climate. These firm-level variations in perceptions and performance are particularly susceptible to reverse-causality problems. Indeed, as reported in the next section, reverse-causality dominates at the level of the firm: firms

that perform above the average in their countries tend to report bigger constraints than their poorly-performing compatriotes. The scale of this problem is reduced when country-averages are used; it is unlikely that a country in which the average firm is high productivity is therefore more likely to be a country in which the average firm will perceive greater investment climate obstacles.

The BEEPS and PICS datasets have a very rich set of investment indicators, and the question is how to make use of them. Two sets of investment climate indicators were used. The first set was the simple country-survey-average of each of the raw indicators reported by firms, scaled from 1 (no obstacle) to 4 (major obstacle). These variables are those in the block of questions used in the factor analysis reported in the previous chapter. The second set used sets of indicators corresponding to aspects of the investment climate, combined (e.g., a single “finance” indicator was created using the responses to questions about financial access and cost of finance). The other combined indicators were for infrastructure, taxation, regulation, the macroeconomic environment, and property rights (corruption and crime). These were scaled to be comparable to the raw data on perceived business obstacles (the minimum was 1 and the maximum was 4). In addition to augmenting the country-survey-averages regression equation (2) with the average investment climate variable, country-survey-averages of ownership variables (privatized, new private, foreign owned) and export orientation were also included. The analysis was conducted on 50-51 country-survey-averages based on about 14,000 firms from manufacturing, services and construction; the analysis separating manufacturing and services firms yielded similar results.

In these TFP estimations most of the investment climate measures in the regressions were insignificant, with one very clear and consistent exception: infrastructure constraints generate lower TFP, with an estimated coefficient of about -0.7 . Countries in which firms complain a lot about infrastructure are, *ceteris paribus*, countries with less productive firms. The infrastructure constraints are: (i) access to telecommunications, (ii) access to electricity and (iii) access to land. These results are similar to Dollar et al. (2003) who find in a sample of 4000 firms in Bangladesh, China, Ethiopia and Pakistan that the significant investment climate indicators that affect TFP are power losses and telephone constraints¹⁷.

What types of firms report investment climate constraints?

The previous section pointed out that what firms report about the investment climate constraints they face is determined in part by the characteristics of the firm. This section, on the other hand, explores what types of constraints various types of firms face.

A simple and straightforward approach¹⁸ consists of splitting the sample of firms into groups according to the characteristics that affect performance in the regression analysis above or according to their actual economic performance, and identifying the differences in various groups of firms’ perceptions of the investment climate. Thus, for example, it is possible to group firms according to their ownership, and ask whether privatized firms,

new private firms, or state-owned firms, perceive infrastructure as a major constraint; or they can be grouped according to their estimated TFP or employment growth rates, and the same question asked. The main idea of the approach is to identify the differences in the investment climate faced by good performers versus that faced by bad performers.

This section takes the analysis a step further and uses regression analysis to answer the question: compared to other, similar, firms in the same country, what types of firms report significant investment climate constraints? The advantages of using a multivariate regression framework are that it allows for formal statistical testing, and it controls for multiple characteristics of firms simultaneously.

Reverse causality is also an issue here. It is possible that better performing firms will report that they are more likely to face certain constraints, but it is also possible that the causality can run the other direction: firms that are particularly constrained may suffer in their performance. Nevertheless, in the results reported below it is usually possible to identify which channel dominates. The reason is that when causality runs from the investment climate to TFP and other performance measures, we expect bigger constraints to generate lower performance (i.e., there will be a negative coefficient on the investment climate constraint measures). When, however, causality runs from performance measures to the perceived investment climate constraints, we expect better performance to generate higher reported IC constraints (i.e., there will be a positive coefficient, because rapidly growing, high productivity firms are more likely to be constrained). The exception to this is financial constraints, where poorly performing firms are if anything more likely to report that they are short of money than growing, profitable ones.

Thus for most constraints, the two effects work in the opposite direction of each other, and if we find coefficients that are significantly different from zero, this will tell us which effect dominates in the data. In fact, the second channel usually dominates: the coefficients are usually positive, meaning that better performing firms face bigger constraints. The exception also fits with the priors expressed above—poorly performing firms report bigger financial constraints.

International evidence. The main results from the 51 PICS and BEEPS surveys are summarized as follows:

- Privatized and especially new private firms perceive greater business constraints practically across the board compared to similar state-owned firms in the same country.
- Foreign-owned firms also generally perceive greater business constraints, except for constraints related to finance and crime, about which they complain less than domestically-owned firms.
- Exporters state they face greater constraints from infrastructure, skills shortages and regulation (especially, and not surprisingly, customs regulations), and complain less about crime, than do comparable non-exporting firms.
- Large firms complain more about infrastructure, regulation, and skills shortages, and less about financial constraints, than do smaller firms.

- Firms in capital cities, not surprisingly, complain less about electricity cuts and more about land access. They are also more likely to face perceived skills shortages, and complain more about the macroeconomic environment and about regulation.

There are also clear relationships between performance and perceived investment climate constraints:

- High TFP firms perceive higher constraints deriving from regulation, and complain less about finance.
- High employment growth firms face greater constraints from land access, regulation, and complain less about finance.
- Profit-reinvesting firms, and firms that have opened plants in the preceding three years, complain more about infrastructure, more about regulation, more about skills shortages, and more about property rights.

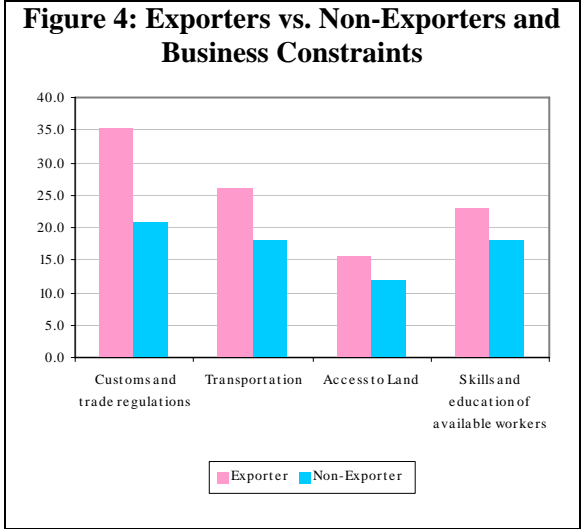
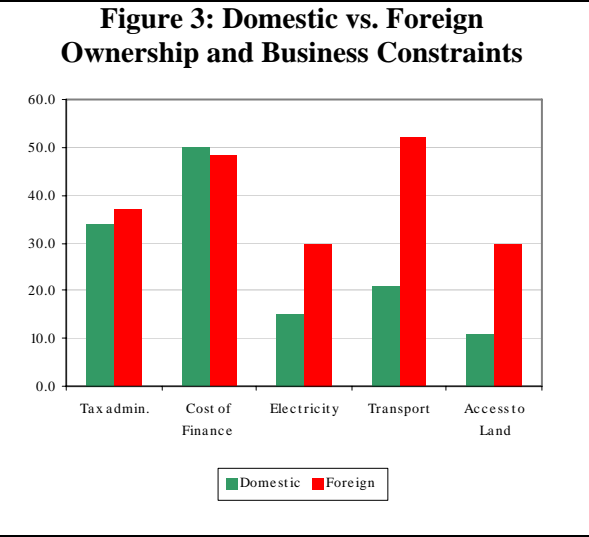
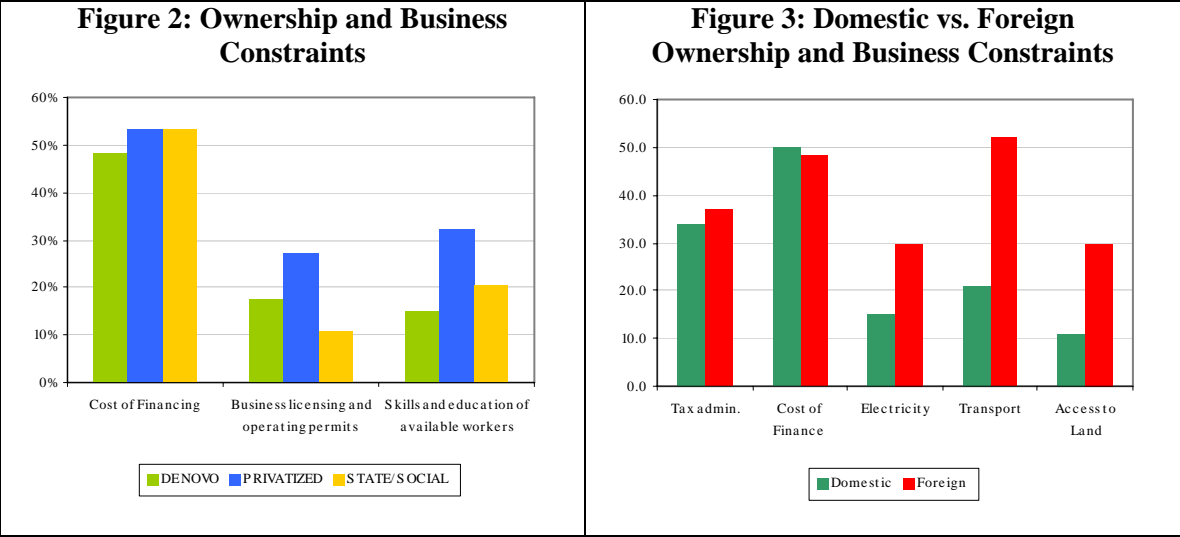
The interpretation of these results is straightforward: firms that have high productivity, are growing and investing, and that have characteristics that are associated with good performance and growth (private/foreign ownership and export orientation) are more likely to report that they face significant investment climate constraints of all sorts. The exception is finance, where poorer performers are more likely to complain they are constrained. The usefulness of these findings from the international PICS-BEEPS surveys is primarily to set a benchmark against which to compare the investment climate constraints perceived by Serbian firms.

Serbian evidence. Do firms in Serbia face the same kinds of investment climate constraints as those types of firms in the rest of the world? The same methodology used above was applied to just the firms in the 2003 Serbian PICS survey. The investment climate variables are those described earlier, plus composite measures for infrastructure, taxation, regulation, macroeconomic conditions, finance, and property rights. We estimated the effects on these investment climate measures of ownership (privatized, new private, foreign-owned), export orientation, size, sector (manufacturing, agriculture, services), and location (operating in Belgrade, Vojvodina, or central Serbia).

The main results from the analysis are summarized below:

- Privatized firms face greater skills shortages and bigger constraints from business licensing (Figure 2).
- New private firms also perceive licensing as an important constraint (Figure 2).¹⁹
- Foreign-owned firms perceive greater constraints than domestically-owned firms across almost the entire investment climate: infrastructure, regulation, macro conditions, and property rights problems. The only areas in which they do not perceive greater constraints are finance and taxation (Figure 3).
- Exporters complain about excessive customs and trade regulations (Figure 4).

The characteristics of firms associated with greater perceived investment constraints are also characteristics that the earlier analysis showed was typical of productive, growing firms in the other PICS-BEEPS countries: private ownership, foreign ownership, and export activity. The exception, as before, is finance; these firms complain less about their finances, presumably because of the revenue their better performance generates.²⁰

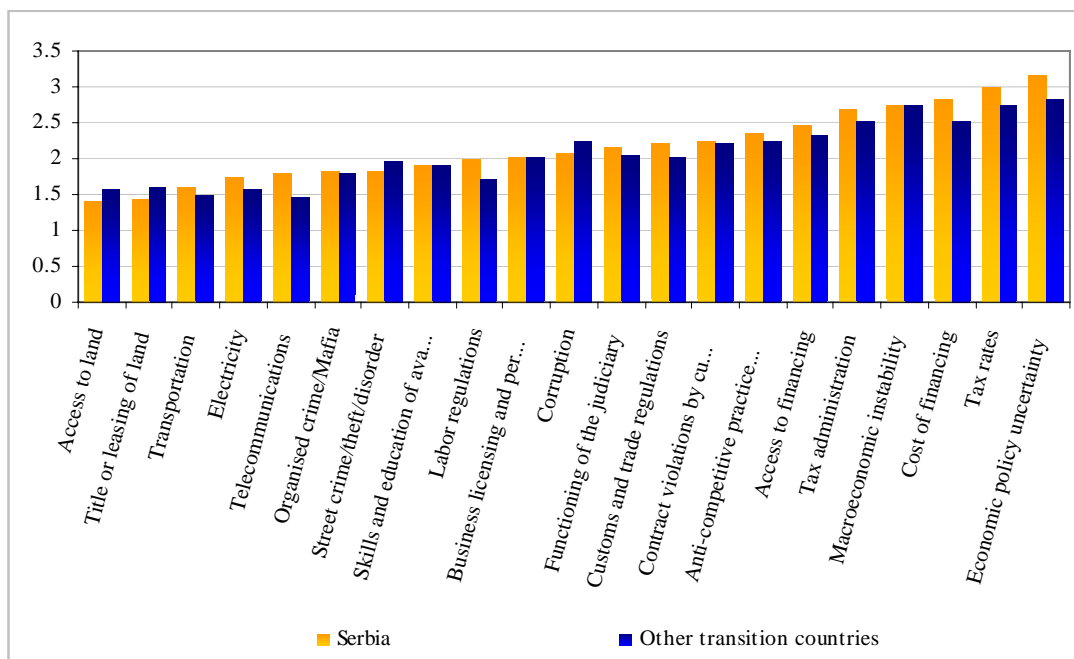


Business community perceptions

While the analysis described above provides guidelines about the relative importance of ownership and perceptions of the investment climate based on their effects on productivity and other performance measures, this section provides an alternative approach based on the ranking of the same perceptions by the survey respondents.

In the 2003 PICS survey, Serbian managers were invited to rate 18 dimensions of the investment climate in terms of whether they were important obstacles to doing business. These dimensions were rated from 0 (factor is no problem at all) to 4 (factor is a major obstacle). Economic policy uncertainty was considered the biggest obstacle (Figure 5), which is understandable in light of the assassination of Prime Minister Djindjic in March 2003, not long before the survey took place. The factor that managers believed presented the least problems was access to land, a finding that is not as surprising as it first appears, for reasons discussed below.

Figure 5: Perceived Investment Climate Constraints in Serbia and other transition countries



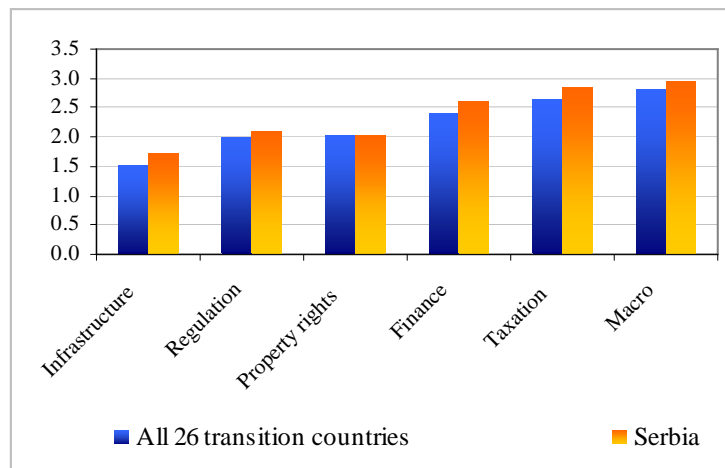
Source: BEEPS II, PICS

The views of Serbian managers can help answer the question of whether Serbia differs from other countries, in the sense of whether Serbian managers perceive the investment climate in the same basic ways as managers and policy makers in other countries. This question can be addressed using the technique of factor analysis. The analysis shows what Serbian managers or businessmen interviewed perceive to be the largest constraints to their businesses in order of importance: (i) policy instability; (ii) high taxation and bad enforcement; (iii) lack of access to finance; (iv) insecure property rights; (v) high burden of regulations; (vi) bad infrastructure. A simple graphical presentation of Serbian perceptions compared to those in other transition countries is presented below (Figure 6). The factor analysis results (reported in more detail in the Serbia Investment Climate Assessment) shows that the responses of managers reflect the view that the investment climate has a small number of key dimensions. These underlying basic features are very similar to the framework of analysis of the investment climate that is used in the World Development Report 2005, and that has been identified in numerous studies of the business environment elsewhere in the world. Furthermore, the ranking of perceived investment climate obstacles in Serbia is similar to that observed in other transition countries. Serbia, in this sense, is not different or a special case.

What can we learn for these results? As a recent report by the World Bank’s evaluation department argues, “investment climate indicators tell the analyst, from the perspective of firms, “what hurts,” or even “what hurts the most, relatively speaking,” but not “what to do about it.” Survey responses are an insufficient basis for defining policy priorities²¹.

Land is not rated as a major obstacle in large part because the respondents are managers of going concerns. Yet, in the regression analysis,²² we find that lack of access to land has a negative effect on TFP and the other performance indicators. The entrepreneurs who want to set up firms but cannot because they cannot get access to land are not covered in the survey. Taxes are rated by managers as a major business obstacles, but their responses would be different if the question also identified what public services would have to be cut (or what the level of inflation would rise to) as a consequence of tax cuts. Indeed, in surveys such as PICS and BEEPS, taxes are usually identified by managers as a major obstacle to doing business, whatever the country. Interestingly, infrastructure, which was found to have a strong negative effect on productivity in the regression analysis, ranks last in the results of the factor analysis in Figure 6. A possible explanation is that although infrastructure constraints indeed have a negative impact on performance, we know that the better performing firms complain more about infrastructure. Since the highly productive firms are in the minority in a simple count of companies, their complaints about infrastructure weigh less in comparison to the complaints of lesser performing firms which complain more about lack of financing and taxation. (see Figure 6). In contrast, the regression analysis presented above, shows the importance of infrastructure in enhancing productivity and is more relevant to policy than the ranking of perceptions. We argue therefore that for prioritisation of policy measures, the effects of investment climate constraints on performance or productivity in a regression analysis – and not the ranking shown in this section - should be the guide.

Figure 6: Combined investment climate measures



Source: BEEPS II, PICS 2003 Serbia

Policy implications for entry, privatization and exit

As presented above, the results from the international survey show that privately-owned firms, whether privatized or new private, have levels of TFP that are 30-38 percent higher than state-owned firms in the same country. Foreign ownership adds another 23-43 percent to TFP levels. Export orientation adds 22 percent to TFP (for manufacturing

firms only). Private ownership also has a positive effect on whether a firm reinvested any profits, invested in new plant in the preceding three years, and on the growth rate in its level of employment. These findings are consistent with a large body of evidence in the literature²³ about the effect of ownership on performance.

What are the implications for Serbia of the strong relationship between private ownership and infrastructure and productivity? For example, to put the estimated impact of infrastructure constraints in the Serbian context, the Serbian surveys average for the combined infrastructure investment climate constraint measure is 1.9; in Croatia and Slovenia it was 1.3. If the infrastructure constraint perceived by Serbian firms fell to Croatian or Slovenian levels, the impact on TFP would be an increase in average TFP of about 40 percent.²⁴

In Serbia, many firms remain to be privatized. In particular, the economically important infrastructure, such as electricity and telecommunications, which seem to play such an important role with respect to productivity and other performance indicators (see results above), remain in state hands. However, they require considerable preparation before ownership change can be considered. Serbia thus seems to face a difficult choice, between infrastructure services furnished by a poorly regulated private provider, operating in a deficient legal-political environment, or provision by an inefficient, capital-starved, publicly managed provider.

In transition economies, the movement of factors of production across enterprises is a source of productivity growth during the early phase of transition. This process, whereby bad firms exit and new ones replace them was dubbed “creative destruction” by Schumpeter over half a century ago. How do we encourage such “creative destruction”? Relatively easy entry and exit allow poorly performing firms to leave the market and dynamic new ones to enter.

Exit of un-restructured enterprises has proven key for putting the assets, including the real estate, of loss-makers back to productive use. It has been especially helpful to the important SME sector, where entrepreneurs are in particular need of the land and storefronts, as well as other assets, so often controlled by non-productive large firms. Exit in the sense of stopping production activity (plant closures) is not enough. What is also needed is the reallocation of the assets that are freed up, and this is what a good bankruptcy framework facilitates. Although the capacity utilization rate depends on many factors, including business sector, market conditions or business cycle, the high rates of excess capacity reported by the PICS data – 30-40percent - indicate that the exit mechanism is not working. Persistent and large scale excess capacity indicates that there are plants with obsolete machinery that is unlikely ever to be used again on a large scale, and many of these plants are occupying buildings and land and located next to infrastructure (electricity, water and sewage connections) that can be better used in other productive activities.

Access to land is another pre-requisite for the movement of factors of production across enterprises, a source of productivity growth. Lack of clear title and uncertain ownership claims remain a major constraints to the investment climate in Serbia. There is a need to

improve the perception of security of tenure and the real property market financing and to attract foreign investors, including a change of the urban land concept provided by the current Constitution.

Conclusion

In the international context, the econometric analysis in this article shows that, although ownership has recently received less attention in global policy debates, according to our econometric analysis of productivity in 55 countries, half of which are transition economies, private ownership is an equally or more important determinant of productivity than other components of the investment climate. We thus consider privatization, bankruptcy, competition and restructuring policies to be complementary to investment climate reform and therefore policy makers need to be advised to consider them in tandem. Unfortunately, the investment climate literature has focused almost exclusively on regulatory burden, access to finance, corruption and taxation. The latter may be due to the fact that surveys usually point out to managers' complaints about "what hurts," rather than "what to do".

Evidence based on surveys of firms in PICS-BEEPS countries and in Serbia itself shows that private ownership, FDI and export-orientation are all strongly associated with firm productivity, investment and growth. The surveys also show that firms with the characteristics associated with strong firm performance are the firms that complain the most about investment climate constraints on the operation of their businesses. Reducing investment climate constraints will benefit primarily the firms that can generate growth. Although we find that the new private firms are better performers, their scope for growth, and the possibility of entry by new entrepreneurs, are both severely limited by the investment climate and crowded-out by the unstructured enterprises.

In view of these findings, it is important that Serbia accelerate its enterprise reform program. [The development of the private sector still has a long way to go.](#) The share of the private sector in GDP, circa 50 percent, compares unfavorably to other countries in the area²⁵. FDI per capita in Serbia was also lower than in the neighboring countries²⁶. Almost all FDI in Serbia in the first period 2001-2003 was related to privatization. Although such brownfield investments potentially could play a positive role in encouraging greenfield investors, this requires that current investors find the investment climate acceptable and they are treated fairly. While experience so far is limited, the treatment of investment at times has been uneven.²⁷ Closing the productivity gap between Serbia and its near neighbors will require further privatization and new business development as well as improvements in the investment climate for firms.

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²World Development Report 2005 “A Better Investment Climate for Everyone”pp.20

³ Estimating TFP requires measures of capital and output. For both PICS and BEEPS we could use the book value of fixed capital as a measure of the capital input; value added, however, is available in PICS but not BEEPS. We therefore used sales as the measure of output. The production function estimations were generally acceptable, however, and the strong correlation between estimated TFP and GDP per capita reported below is a good validation check of the results.

⁴ Appendix 2 to the Serbia ICA (available on [www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/\\$FILE/IC-SerbiaDraft.pdf](http://www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/$FILE/IC-SerbiaDraft.pdf)) contains further details on the methodology and results of the analysis.

⁵Table 3.1 reports TFP gaps relative to Serbia in 2002. The TFP estimates for firms in the Serbian PICS 2003 survey showed lower productivity levels than in the Serbian BEEPS 2002 survey: the estimated gaps were -0.321 for the regression using country-survey averages (column 1) and -0.286 for the regression using country-survey dummies (column 2). The latter figure was not statistically significantly different from the Serbia 2002 benchmark.

⁶ The results also confirm that TFP estimates are feasible using the input and output measures available.

⁷ In log percentages, $e^{0.61}=1.84$, so this means Croatian TFP is 84 percent higher than Serbian TFP using standard percentages.

⁸ Another term for the “within” approach is “fixed effects”.

⁹ In log terms.

¹⁰ The coefficients on the country dummy variables are the estimated TFP differences reported in column 2 of Table 1, and as estimated coefficients, can be the subject of standard statistical significance tests. The differences reported in column 1 are residuals and hence these standard tests do not apply. See Appendix 2 for further discussion.

¹¹ In addition Serbia needs to invest in schooling as well as in R&D to better link its universities and science institutes with the private business sector.

¹² The results were similar when the data were pooled and sector dummies included (see Table 3.3 below). In alternative regressions, an SME dummy was included but was insignificant, probably because size is already captured by the capital and employment variables.

¹³ All in log percentages.

¹⁴ Available on [www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/\\$FILE/IC-SerbiaDraft.pdf](http://www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/$FILE/IC-SerbiaDraft.pdf)

¹⁵ In log terms.

¹⁶ See Appendix 2 to the Serbia ICA available on [www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/\\$FILE/IC-SerbiaDraft.pdf](http://www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/IC-SerbiaDraft.pdf/$FILE/IC-SerbiaDraft.pdf)

¹⁷ Dollar (2003) also find significant effects of the number of days to clear customs and inspections on wages, profits and growth in employment and output.

¹⁸ Adopted, for example, the Malaysia ICA, “Firm Competitiveness, Investment Climate, and Growth”, October 2003

¹⁹ Note that skills shortages faced by new private firms appear lower than those faced by privatized and socially-owned firms in the figure, but this is only because the bar chart presents a simple correlation and does not control for other factors. In particular, SMEs tend to complain less about skills shortages, and new private firms are smaller than average. Once size is controlled for, the fewer complaints about skills shortages by new private firms disappears.

²⁰ Performance measures were also included in the Serbia-only analysis, but no strong correlation between these measures and reported investment constraints was found. The likely explanation is the relatively small sample size for the Serbia survey, and multicollinearity between the performance measures and the other regressors (shown above to strongly correlated with each other).

²¹ Similar critique is made in Doingbusiness 2004 pp.10-14

²² See Tables A3, A4 and A5 in appendix 2 to the ICA.

²³ For an empirical analysis of the restructuring effects of different sorts of owners, see the study of S. Djankov and P. Murrell, "Enterprise Restructuring: A Quantitative Survey," *Journal of Economic Literature*, Vol. 40, No. 3 (September 2002).

²⁴ $(-0.6)*(-0.7) = +0.42$ which represents 40 percent in log terms.

²⁵ The share of the private sector in GDP in Hungary and the Czech Republic - 80 percent, Bulgaria and Poland - 75 percent, Romania - 70 percent, Slovenia and FYR Macedonia - 65 percent, and Croatia - 60 percent.

²⁶ FDI per capita in Serbia in 1989-2002 was US\$200 in comparison to US\$1,400 in Croatia US\$560 in Bulgaria, US\$460 in FYR Macedonia, and US\$419 in Romania.

²⁷ For example, the experience of one of the world leading firms in the detergent sector—investing in the privatization of a local firm has not easy . Without prior notice, the investor was asked to pay tax on the severance payments for privatized firm's employees, although it had already agreed on the terms of the severance pay package with the government. Other major investors, have had similar experiences after buying companies that were being privatized.