2. State Businesses: Catalysts or Constraints?

Introduction

As an active player in commercial activities, the state competes with private firms, but it also collaborates with the private sector when ownership is joint. This chapter focuses on the economic efficiency of businesses of the state (BOSs) in the real sector. Do they tend to be more, or less, productive than private firms? And what can state presence mean for sector dynamism and investment over time? This chapter examines census data from Brazil, Ecuador, Romania, Türkiye, and Viet Nam as well as panel data from Orbis for 14 European countries. The answers are at the heart of debates over when and where BOSs catalyze or constrain productivity growth and private investment.

State businesses may receive preferential treatment or not be held to the same efficiency standards as private firms. Having the state as full or partial owner could put a firm at an advantage if it receives preferential treatment from regulatory authorities or enjoys preferential access to finance or procurement contracts (IMF 2020; Shleifer and Vishny 1998; World Bank 1995, 2018). BOSs could thus allocate resources away from their most productive uses and dampen innovation and growth. Most literature treats BOSs as homogeneous or looks at a single sector or country. This report is the first to test for these effects across countries, differentiating across types of BOSs and market structures (Dall'Olio et al. 2022a, 2022b).

Three key patterns reinforce the importance of looking not just at the relative performance of firms by ownership but also at their impacts on the broader dynamics of state presence in a sector.

1. The performance of BOSs compared with that of private firms varies across different types of ownership and market structures. Minority-owned firms often perform better than firms with majority state ownership (Brazil, Viet Nam, and 14 European countries). There is also some evidence suggesting that BOSs owned directly have lower sales growth than those owned indirectly. However, rather than sweeping conclusions, analysts should take into account the heterogeneous types of BOSs to understand their performance in specific countries of interest.
2. The presence of BOSs in a sector is associated with a significant misallocation of resources, greater market concentration, and lower rates of firm entry—these are the most significant and worrying effects of BOSs on market dynamism.

3. Despite the state’s justification for using BOSs to crowd in or catalyze private investment in competitive markets, there is no significant evidence of this effect in the countries analyzed here. This finding is true in aggregate for a sector and for the average rates of investment of private firms.

Many governments justify the creation of BOSs to address market failures and meet social mandates. However, the ability to deliver these benefits needs to be weighed against the fiscal costs and the adverse impacts on market dynamism and productivity growth. State ownership per se is not the only way to address market failures. The empirical evidence found in this report underlies the importance of reconsidering the state presence in competitive markets and addressing the concerns about governance and preferential treatment of BOSs that may come at the expense of market dynamism.

**Mixed Results of State Ownership on BOSs’ Performance**

**Characteristics and Productivity Levels of BOSs versus Private Firms**

Across countries, BOSs are larger and employ more workers than private firms in the same two-digit sector. This finding is common in the literature and is true in all five countries with census data and in 14 European countries with panel data (IMF 2020; World Bank 1995). The size premium tends to rise with the extent of state ownership and is most often highest in natural monopoly markets. In Brazil, BOSs in partially contestable and natural monopoly markets are almost twice as large as BOSs in competitive markets. For Türkiye and Viet Nam, the size premium is largest in natural monopoly markets. But, for Ecuador, the size premium is largest in competitive markets.

Labor productivity varies across countries and across types of markets within countries. In Türkiye and Viet Nam, BOSs are more productive, especially those with majority state ownership and those in natural monopoly markets. But, in Romania, BOSs are less productive, particularly in both competitive and natural monopoly markets. In Ecuador, it is worrying that BOSs in competitive markets are much less productive than private firms in the same sector, especially given their greater size. Where data on assets are available, BOSs also tend to have higher capital per worker. With both more labor and more capital, it is not so surprising that total factor productivity varies across countries. Differences in the profiles of BOSs and private firms need to be kept in mind when interpreting results. The sectors and firms in which the state chooses to own or invest are not random; results demonstrate conditional correlations rather than causation.
BOSs are often associated with paying a wage premium consistent with a social contract of providing more and better jobs. One concern is that the public sector sets wages with social goals in mind, decoupling them from productivity; it is also true that many BOSs attract higher-quality and more educated workers. A BOS wage premium is found in almost all countries, ranging from 3 percent to 22 percent. In Brazil, with an employer-employee census of formal workers, the wage premium is 18.5 percent. Controlling for differences in the quality of workers, including individual worker fixed effects to absorb differences in workers who sort into working for BOSs, the premium remains significant, but declines to 4.5 percent. Wages tend to be higher, particularly in minority-owned firms and, even more so, in competitive markets. But, in the other countries, the wage premium is generally highest for wholly and majority-owned BOSs. For minority-owned firms, there is no significant premium. For private firms, the presence of this wage premium can make it hard to attract talent. In the extreme, workers can queue for jobs with BOSs (or the public sector more broadly) if the jobs are seen as more secure and higher paying than in the private sector.

**Relative Growth of BOSs and Inefficiencies**

In exploring how BOSs may contribute to productivity growth and broader private sector development, much of the literature focuses on whether BOSs grow faster or more slowly than private firms (IMF 2020). However, the presence of BOSs can also impair the reallocation of resources across firms (Fang et al. 2023). BOSs can discourage private firms from entering and hasten their exit. These effects have longer-term implications for growth. This chapter examines three channels for improving productivity growth—the improved relative performance of BOSs over time, the greater reallocation of resources into more productive activities, and the greater net entry of firms—to see whether BOSs and new BOS investments catalyze new investments by private firms. Because concern about the potential distortions of state ownership is greatest in competitive markets, the chapter looks at results overall as well as only in competitive markets.

Overall, while BOSs’ sales and employment tend to be bigger than private firms, the relative growth of BOSs is not as striking. Many differences are not statistically significant. And, more tellingly, the patterns are not the same in each country. So it is not possible to make sweeping statements about the growth of BOSs. In part, this heterogeneity can reflect differences in the regulatory environment or the extent to which some BOSs may receive preferential treatment or state aid (chapters 3 and 4).

However, the results underscore that taking the extent and nature of state ownership into account matters. In the four countries with sufficient information to estimate productivity, productivity growth is lower, on average, for BOSs than for private firms, except in Romania. Figures 2.1 and 2.2 illustrate this for Romania and Viet Nam. What is also striking is that in both countries, the results for majority- and minority-owned
FIGURE 2.1  Growth of BOSs Relative to Privately Owned Enterprises in Romania, by Sector, 2011–19

Sources: Dauda, Pop, and Iootty 2023 using World Bank Global Businesses of the State (BOS) database and census data sets.

Note: The regression coefficients are for measures of BOSs on the outcomes of interest, controlling for lagged firm size, age, sector, and year effects. BOSs = businesses of the state.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

FIGURE 2.2  Growth of BOSs Relative to Privately Owned Enterprises in Viet Nam, by Type of Ownership, 2007–19

Sources: Hallward-Driemeier, Aterido, and Tran 2023 using World Bank Global Businesses of the State (BOS) database and census data sets.

Note: The error bars provide the 95 percent confidence interval around the estimated effect. If the error bars cross the x-axis, the result is not statistically significant at the 5 percent level. BOSs = businesses of the state; TFP = total factor productivity.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.
BOSs are statistically different from each other. Often the 25 percent threshold is taken as relevant in the literature, as a proxy for control, but the impacts of ownership at the 10–24.9 percent level are often similar to those of 25–49.9 percent ownership. In 9 of the 14 European countries, the effect of government ownership on employment growth is statistically different for BOSs owned directly than for those owned indirectly. In Italy, Lithuania, North Macedonia, and Romania, the effects on employment growth go in opposite directions for firms owned by local governments versus those owned by central governments.

There are some signs that greater shares of private ownership among BOSs provide some market discipline. This is true in Viet Nam, where there is a significant negative relationship between the extent of state ownership and productivity growth (figure 2.2). It is also true in Brazil for employment growth and innovative activities. And it holds for European countries as a whole for productivity growth—but not for all countries.

The patterns are often more striking across market taxonomies, sometimes in conjunction with ownership levels (figure 2.3). In Brazil, the results for employment growth are not significant overall, but they are significant at the 10 percent level for competitive markets (box 2.1). This result is driven by BOSs in competitive markets with minority state ownership. In Romania, employment growth, wage growth, and labor productivity growth are highest and statistically significant for BOSs in natural monopoly markets (figure 2.3).

Figure 2.3 shows the relative performance of BOSs compared to private firms. The height of the bars indicates how much more BOSs hire, are productive, pay wages, etc., compared to the average private firm (more if they are positive; less if they are negative). In Türkiye and Viet Nam, labor productivity, or value added per worker, is higher on average in BOSs than in private firms, particularly in natural monopolies, where sectors can be more capital-intensive. This could reflect some selection issues of which types of firms the state chooses to invest in, but it is also a reminder that not all BOSs are inefficient. However, the growth of labor productivity of BOSs in these countries is lower than that of private firms. Hiring workers faster than the value added is growing will lower productivity growth and lower the efficiency of how resources are allocated.

As Romania is one of the few countries that report data on subsidies at the firm level, box 2.2 discusses the evidence on the extent to which subsidies can explain the relative performance of BOSs in Romania. In Türkiye, employment growth is higher in competitive markets, but productivity growth is lower for BOSs than for private firms, including in competitive and partially contestable markets. In Viet Nam, BOSs in natural monopolies have higher growth of employment and total factor productivity.
FIGURE 2.3 Performance in Levels and for Growth in Select Countries, by Type of Market, Various Years 2007–19

(Figure continues on the following page.)
FIGURE 2.3 Performance in Levels and for Growth in Select Countries, by Type of Market, Various Years 2007–19 (continued)

Sources: Cireira, Brolhato, and Martins-Neto 2023 (Brazil); Ferro and Patiño Peña 2023 (Ecuador); Dauda, Pop, and Iootty 2023 (Romania); Akcigit and Cilasun 2023 (Türkiye); and Hallward-Driemeier, Aterido, and Tran 2023 (Viet Nam) using World Bank Global Businesses of the State (BOS) database and census data sets. The years covered vary by country: 2016–19 for Brazil, 2011–19 for Ecuador and Romania, 2015–19 for Türkiye, and 2007–19 for Viet Nam.

Note: The bars are average marginal effects. TFP = total factor productivity.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

BOX 2.1 Incentives to Innovate

In Brazil and Türkiye, businesses of the state (BOSs) have greater access to both skilled workers and larger markets, which improves their ability and incentives to be more innovative. In Brazil, state-owned firms outperform private firms on two measures of innovation. More than 43 percent of BOSs employ workers in occupations associated with innovation, accounting for an average of 5.7 percent of total firm employment, compared with 3.0 percent and 0.6 percent, respectively, for private firms. Some of the gaps reflect differences in firm size. Firms with state participation

(Box continues on the following page.)
employ 1,329 workers, on average, and almost 10 percent of them employ technical and scientific occupations highly correlated with investment in research and development (R&D). Private firms without state participation have one-tenth the number of workers with such innovation-related qualifications.

In Brazil’s more innovative BOSs, the state participates often as a minority partner, rather than being the majority or full owner: 71 percent of minority-owned BOSs have workers in innovation-related occupations, compared with 46 percent for majority-owned and 22 percent for fully owned BOSs. The intensity of innovation is three times higher for minority-owned BOSs than for wholly state-owned BOSs. The results suggest that the public sector intentionally invests in some key sectors and innovative private companies rather than starting with state ownership and bringing in private partners (productivity data are not available for Brazil).

BOSs in Türkiye are also more likely to have skilled workers and to conduct R&D. They are significantly more likely than private firms to receive patents. So the measures of productivity can reflect the greater skill mix and R&D activities, while leaving open the question of whether BOSs really are strong performers or whether many private firms are fairly weak. Compared with R&D in higher-income countries, R&D activities in private firms in large middle-income countries are indeed lower. And, although Turkish BOSs are more productive than other firms, they have negative productivity growth.

Channeling public resources to firms does not necessarily translate into more innovation. As chapters 1, 3, and 4 show, there are many examples of expensive failures of state-owned firms as national champions, but the converse is also true. In an environment with more limited financial markets and more frictions in the allocation of resources, state assistance can provide the funds and ability to achieve scale that firms otherwise could not achieve. The lower productivity growth of BOSs, despite higher measures of innovation, raises concerns, as does the limited evidence of spillovers to other firms from the innovative activities (Akcigit and Cilasun 2023; Cirera, Brolhato, and Martins-Neto 2023).

**BOX 2.1**

**Incentives to Innovate (continued)**

**BOX 2.2**

**Subsidies to Firms in Romania**

In Romania, support to firms tends to be geared toward majority-owned businesses of the state (BOSs), and when they receive subsidies the amount tends to be larger, even when all firms are eligible. The average BOS firm is four times more likely to receive government subsidies than the average private firm, irrespective of productivity (figure B2.2.1). The odds of receiving government subsidies are five times higher for majority-owned, direct, and local BOSs than for other firms. The subsidy is also significantly higher for majority state-owned firms. Firms with less than 25 percent state ownership have no statistical advantage.
BOSs’ growth could reflect their preferential access to inputs or markets. When BOS growth is consistently lower than that of private firms, BOSs may not be required to operate at the same standards and performance as private firms to stay in business (Dewenter and Malatesta 2001; La Porta and Lopez-de-Silanes 1999; Le, Park, and Castillejos-Petalcorin 2023; Vickers and Yarrow 1991). Particularly when employment growth is positive and productivity growth is negative, as in Ecuador and Türkiye, the state may distort the allocation of resources when prioritizing employment rather than efficiency gains (Akcigit, Baslandze, and Lotti 2023). To improve the allocation of resources and to raise productivity, labor and capital should be moving to where productivity is growing. For productivity growth, it should be the productive businesses and sectors that are expanding employment. Yet, in Ecuador and Türkiye, the risk with BOSs is that, on average, the inefficient firms are the ones hiring more workers.
Impact of BOS Presence on Sector Dynamism—Lower Firm Entry, Greater Market Concentration, and Misallocation

The effects of state ownership are mixed on measures of firm growth, but the effects on firm entry are striking—and worrying. The greater the state presence is in a sector, the lower the entry of firms in Romania and Türkiye and the lower the share of economic activity accounted for by young firms in Brazil, Ecuador, and Viet Nam (figure 2.4). In Ecuador, Romania, and Viet Nam, the effect is significant for private firms; in Türkiye, it is generally significant for private firms only in competitive sectors. Rather than encouraging entry, the evidence shows that greater state presence in BOSs discourages it. And, as in Viet Nam, in Türkiye rolling back the state’s presence encourages the entry of private firms.

The impact on competition is also a concern, with a greater state presence associated with higher market concentration in four of the five countries. The effects are largest in Brazil and Ecuador, the two countries where entry rates are the most sensitive to the presence of BOSs in a sector.

Other measures of dynamism raise additional flags suggesting that a greater state presence can constrain dynamism. In Viet Nam, state presence is associated with less net job creation and less job reallocation, particularly in the private sector. It is also associated with less job creation in Brazil and with misallocation in Ecuador (box 2.3).

**FIGURE 2.4** Effect of State Presence on Market Dynamism in Select Countries: Entry and Competition When BOSs Are Present, Various Years 2007–19

Sources: Cirera, Brolhato, and Martins-Neto 2023 (Brazil); Ferro and Patiño Peña 2023 (Ecuador); Dauda, Pop, and Iooty 2023 (Romania); Akgioi and Cilasun 2023 (Türkiye); and Hallward-Driemeier, Aterido, and Tran 2023 (Viet Nam) using World Bank Global Businesses of the State (BOS) database and census data sets.

Note: Entry is based on the rate of entry of new firms in Romania and Türkiye and on the share of revenues accounted for by young firms (under age five) in Brazil, Ecuador, and Viet Nam. The years covered vary by country: 2016–19 for Brazil, 2011–19 for Ecuador and Romania, 2015–19 for Türkiye, and 2007–19 for Viet Nam. All effects are statistically significant, except the effect of market concentration in Romania was extremely small and not significant and so not graphed here. Coefficients are on the market share of businesses of the state (BOSs) in a two-digit sector for both of the outcomes run separately, controlling for a sector’s size over time, and sector, taxonomy, country, and year fixed effects. HHI = Herfindahl-Hirschman Index.
Resource Misallocation in Ecuador

The relationship between the presence of businesses of the state in a sector and a measure of allocative efficiency shows a negative pattern. In sectors in which businesses of the state have a higher share of labor, allocative efficiency is lower. This suggests that the presence of state-owned enterprises may contribute to Ecuador’s highly distorted labor markets and the pervasive aggregate productivity effects of labor misallocation.


a. From the Olley-Pakes decomposition, the unweighted average of firm-level productivity and the within-industry covariance between firm productivity and firms’ shares in economic activity provide a measure of allocative efficiency.

FIGURE 2.5 Impact of BOS Presence on Market Dynamics in 14 European Countries

Sources: World Bank Global Businesses of the State (BOS) database and Orbis.

Note: Coefficients on the market share of BOSs in a two-digit sector for each of the outcomes run separately, controlling for sector’s size over time, sector, taxonomy, country, and year fixed effects. The error bars provide the 95 percent confidence interval around the estimated effect. If the error bars cross the x-axis, the result is not statistically significant at the 5 percent level. BOSs = businesses of the state; HHI = Herfindahl-Hirschman Index.

In the 14 European countries, almost all of the measures of dynamism are lower when the presence of the state is greater, but country results can vary (figure 2.5). The impacts are especially large in competitive markets, which is worrying because a larger state presence is associated with less reallocation of capital and workers and less entry and exit.
The effects on market dynamics are more consistent across countries than the effects on the performance of individual firms—yet they do not receive the attention they deserve. The literature often focuses on whether BOSs themselves are efficient or not (for example, Abramov et al. 2017; Kabaciński, Kubiak, and Szarzec 2020; Liljeblom, Maury, and Hörhammer 2020). To be clear, BOSs may not have these dampening effects in all countries. But it is necessary to investigate and monitor their dynamic effects to be sure that they do not. The analysis using panel data includes the effects of changing the extent of state ownership over time. Isolating only at the extreme of state ownership moving to zero—on firms and on workers—helps to understand what effects might be realized with reforms (boxes 2.4 and 2.5). In Viet Nam, greater entry, change in state ownership share among minority BOSs, and exit among majority BOSs are found over time, with mild benefits of increased productivity for privatized firms. But, in both Brazil and Viet Nam, some BOSs provide more and higher-paying jobs and workers bear significant effects of privatization, which can also explain the political resistance to reform.

The analysis so far has been partial equilibrium, but a general equilibrium model can provide insights on the aggregate effects. Such general equilibrium models of the

**BOX 2.4**

**Viet Nam’s Transition from State to Private Ownership**

Viet Nam’s transition of firms from state to private ownership displays the following patterns:

- The rate of privatizing state-owned firms is higher for firms with lower shares of state ownership.
- Of firms wholly state owned, more than 80 percent remain so, whereas 10 percent become jointly owned, with the state retaining majority ownership; just over 1 percent come to have only minority ownership, whereas 3.8 percent are privatized and 4.5 percent exit outright.
- The share of private firms that have state ownership is very low: less than 0.1 percent of firms.
- The rate of exit is highest for private firms; among businesses of the state, exit rates are higher the greater is the extent of state ownership.

With just over 300 privatizations, it is possible to do an “event study” to examine the effects on employment and growth of assets in Viet Nam. Comparing firms that were privatized with firms that were not privatized shows no significant difference in rates of employment before privatization. But there is a significant initial decline in employment with privatization and a somewhat lower, but sustained, decline in the years following privatization. This finding is consistent with businesses of the state having higher rates of employment and with privatization weakening the social mandate to provide employment. The growth of total assets also falls after privatization. The effect on productivity after privatization is mildly positive but not significant.

*Source: Hallward-Driemeier, Aterido, and Tran 2023.*
BOX 2.5

Effects of Privatization on Workers’ Employment and Wages in Brazil

Privatization in Brazil reduces workers’ income. Workers who are part of a privatization event see their relative wages decline by about 10 percent in the first two years. And privatized firms tend to lay off more educated, older, and longer-tenured individuals (figure B2.5.1). The findings are consistent with the growing literature on the impacts of privatization—for instance, Olsson and Tåg (2021) evaluate the impact of privatization in Sweden from 1997 to 2011 and find that wages declined about 4 percent in the first two years and 9 percent during the third and fourth years. In Brazil, Arnold (2022) evaluates the impact of privatization during the 1990s—the first wave of large privatization in the country. In banking, telecommunications, and electricity state-owned enterprises, workers enjoyed a substantial wage premium, and privatization reduced it. This finding helps to illustrate the possibility of social resistance to reforms or privatization efforts.

FIGURE B2.5.1  The Effect of Privatization on Brazilian Workers, by Education and Age, 2011–20


microeconomics of growth emphasize how frictions, constraints, and preferential treatment can hamper the efficient allocation of resources and distort key economic decision-making—with big impacts on long-run growth and prosperity. Cusolito et al. (2022) apply a model of misallocation that looks at frictions in the financial sector to include the role of state-owned enterprises (SOEs) in 24 countries in Europe. They find that an expanded state footprint is associated with lower costs of finance for BOSs, with a resulting increase in their assets and capital intensity. The potential gains from removing frictions in financial markets and closing SOEs that are less productive can deliver productivity gains (see box 2.6).

The greater state presence associated with lower firm entry is already worrying. If BOSs were effective at creating markets, their presence should bring in new firms.
This would be true if BOSs were effective at solving coordination failures or at demonstrating the profitability of engaging in a sector or a location with no activity before (Chang 2002; Mazzucato 2011). An easier test might simply be to see whether, rather than catalyze new firms, investments might expand existing firms.

There is no evidence that BOS presence or new BOS investments trigger new investments from incumbent firms—a remarkably robust nonresult when a key rationale for state ownership is to catalyze private investment. Firms, on average, are not more likely to invest or increase their assets in sectors where the state has a larger presence or where BOS firms are investing. And aggregate assets do not increase in response either to the extent of state presence or to changes in the assets of BOS firms in a sector. The analysis looks at all two-digit sectors (allowing BOSs to spur investments in other BOSs) and at only firms in competitive markets. The regression results show that, on average, there is no significant relationship between increasing BOS presence and private investment. Ecuador and Romania do show increases in the growth of assets of private firms—but only in natural monopoly and partially contestable markets. In Brazil, Türkiye, and Viet Nam, there is no significant effect on investment rates or total asset growth. If the

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**BOX 2.6**

The Aggregate Costs of Misallocation

Since Hsieh and Klenow’s (2009) seminal work, there have been debates as to the extent of misallocation and how best to measure it (Cusolito and Maloney 2018). Applying a general equilibrium model to 24 countries in Europe allows for thought experiments on the potential benefits of reforms. Looking at the period 2010–16, when financial markets were facing distortions and significant state intervention in light of the global financial crisis of 2008–09, Cusolito et al. (2022) conduct an exercise that shows the types of gains that could be realized under various scenarios that assume away frictions and the least-productive state-owned enterprises (SOEs).

Cusolito et al. (2022) estimate that the aggregate potential gains of addressing distortions associated with state ownership could be a 20–80 percent increase in total factor productivity (TFP). A reform that simply removes SOEs from the market could lead to moderate aggregate TFP gains for some countries, whereas other reforms lead to moderate losses. The reason is that, for some countries, SOEs may be more productive, on average, than their private counterparts, and their shutdown would reduce aggregate productivity. And financial market distortions may be severe enough across private firms that reallocating resources would lead to higher inefficiencies. But a targeted reform that shuts down only the less productive state-owned firms could free up more funds that could flow to more productive SOEs and private firms.

This targeted approach can lead to productivity gains for most countries, even with financial market distortions. A targeted approach coupled with fixing financial markets before reallocating resources may be necessary to produce gains in TFP across the board. Under this coupled reform, aggregate TFP would increase between 19 percent and 81 percent for all 25 European countries in the study.

Source: Cusolito et al. 2022.
rationale for state ownership in competitive markets is to jump-start growth in these markets, there is little evidence, on average, that it does.

The lack of evidence supporting BOSs as catalyzing new private investment—and the results showing that they even have a constraining effect on firm entry—underscores the importance of revisiting state ownership, particularly in competitive markets. These nonresults do not mean that no market failures limit private investment; they do mean that state ownership is not the most effective way to solve them. Indeed, other regulatory options are discussed in more detail in the following chapters.

Annex 2A The Extent and Nature of the State’s Footprint

The countries analyzed in this chapter have different profiles of the presence of BOSs, which allows an examination of broader patterns. Panel census data of firms are needed to look at changes in the presence and dynamics of state ownership, including the impacts on firm entry and the extent of overall misallocation.

This work draws on five countries with different levels of income and from three regions. With Latin America and the Caribbean having some of the biggest increases in firms that meet BOS criteria relative to traditional SOE criteria and Europe and Central Asia having the highest levels of BOSs, two countries were chosen from the former (Brazil and Ecuador) and two from the latter (Romania and Türkiye). Viet Nam has a gross domestic product per capita in purchasing power parity terms comparable to that of Ecuador. Romania had a history of strong state involvement but has undertaken significant steps to reduce the state’s footprint since its transition to a market economy in the 1990s. Viet Nam, while still reforming, has a larger state role in the economy. Including Brazil and Türkiye as large G-20 countries where the state is active but not dominant can test where scale matters, including having a sufficient pool of talented workers. In addition, because Europe and Central Asia has the most BOSs and a range of histories with state-led development and privatization efforts, there is a special interest in using Orbis panel data from 14 countries from that region to examine the role of BOSs (Cusolito 2020). To capture dynamics, the BOS indicators were collected for the years 2016–20.

Table 2A.1 summarizes some of the key differences or striking features of each of the five countries examined here. Table 2A.1 summarizes some of the key differences or striking features of each of the five countries examined here, and tables 2A.2 through 2A.7 show BOS distribution for the countries individually and for the region. The analysis is done for Brazil on employment data and for Romania and Viet Nam on the full set of performance measures. For Ecuador and Türkiye, the analysis is only possible using the 0–1 indicator of BOS ownership. Country-specific background papers prepared for this report provide detailed analysis and results; key findings and illustrations of the broader set of relationships are included here.
<table>
<thead>
<tr>
<th>Country and time period covered</th>
<th>Overall trends</th>
<th>Ownership features</th>
<th>Market taxonomy features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil, 2016–20</td>
<td>The number of majority-owned BOSs declines by two-thirds over time.</td>
<td>By 2019, about 40 percent of BOSs are minority-owned by the state.</td>
<td>BOSs are pervasive across sectors; 95 percent of sectors had some BOS firms in 2016 and still 86 percent of sectors by 2020.</td>
</tr>
<tr>
<td>Ecuador, 2011–20</td>
<td>The employment share is constant, whereas the revenue share declines (reflecting changing prices for oil). Many of the BOSs surviving until 2019 entered between 2012 and 2016.</td>
<td>The overwhelming share of BOSs are majority owned.</td>
<td>While close to half of all BOSs are in competitive markets, almost a quarter are in natural monopoly and partially contestable sectors, the highest of the five countries studied.</td>
</tr>
<tr>
<td>Romania, 2011–20</td>
<td>There is a mild decrease in market and employment shares over time for BOSs surviving until 2019; however, for BOSs in 2019, half were started after 2011.</td>
<td>BOSs in Romania are overwhelmingly majority owned by local governments: 88 percent of BOSs are majority state owned, 80 percent by local governments.</td>
<td>Like Ecuador, there are more BOSs in natural monopoly and partially contestable markets.</td>
</tr>
<tr>
<td>Türkiye, 2015–20</td>
<td>There is some increase in the shares of BOS employment and revenues surviving until 2019. Although relatively few in number, the BOSs are large.</td>
<td>Türkiye has many BOSs that are minority as well as majority owned, with most directly owned.</td>
<td>The large majority are in competitive markets. In partially contestable and natural monopolies, ownership is more likely to be minority and indirect.</td>
</tr>
<tr>
<td>Viet Nam, 2007–20</td>
<td>There is a significant decline in the market and employment shares of BOSs as the private sector has grown tremendously, reaching 45 percent of total revenues from just over 15 percent and 30 percent of employment from 10 percent (based on all firms in the census). The absolute decline in revenues or employment of BOSs is relatively small.</td>
<td>Viet Nam has a very large share of ownership that is indirect, in both minority and majority BOSs.</td>
<td>The very large majority of BOSs are in competitive sectors. All but 8 of the 96 two-digit sectors have BOSs. Even with the dramatic decline, there has been no complete exit of the state presence in any of the two-digit sectors.</td>
</tr>
<tr>
<td>14 European countries, 2016–20</td>
<td>Most countries have a relatively stable share of BOSs in overall employment and revenues. Serbia stands out, with declining shares of BOSs in total revenues.</td>
<td>On average, more than three-quarters of BOSs are majority owned.</td>
<td>Two-thirds of BOSs are in competitive sectors, and just under a fifth are natural monopolies.</td>
</tr>
</tbody>
</table>

**Sources:** Orbis and census data sets.

**Note:** In Ecuador, Romania, and Türkiye, BOSs are identified in 2019 and can be traced back in the data. There is thus survivor bias in the identification of BOS firms; the approach omits information on any other BOSs that exited before 2019 and so underestimates the ways in which the state’s footprint may have declined. For Brazil, the census contains information about wholly and majority-owned state firms, allowing for variation over time in these firms and in their entry and exit. For minority-owned firms, the data rely on the World Bank Global Businesses of the State (BOS) database for 2019; the approach traces the trends for these surviving firms over time and does not capture the exit of such firms prior to 2019. For Viet Nam, there is information on the percentage of ownership held directly by the local or central government; the exit and privatization of state-owned firms is captured for the whole panel. Information on indirect ownership was not available for the larger set of firms and was not used. BOSs = businesses of the state.
### TABLE 2A.2 Distribution of BOSs in Brazil, by Type of Market and Ownership Category, 2019

<table>
<thead>
<tr>
<th>Sector</th>
<th>Minority ownership</th>
<th>Majority ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive</td>
<td>19.9</td>
<td>38.9</td>
</tr>
<tr>
<td>Partially contestable</td>
<td>9.7</td>
<td>8.2</td>
</tr>
<tr>
<td>Natural monopoly</td>
<td>12.4</td>
<td>8.6</td>
</tr>
</tbody>
</table>


*Note:* Number of businesses of the state (BOSs) = 920.

### TABLE 2A.3 Distribution of BOSs in Ecuador, by Type of Market and Ownership Category, 2019

<table>
<thead>
<tr>
<th>Sector</th>
<th>Minority ownership</th>
<th>Majority ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Competitive</td>
<td>0.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Partially contestable</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Natural monopoly</td>
<td>0.6</td>
<td>0.0</td>
</tr>
</tbody>
</table>


*Note:* Number of businesses of the state (BOSs) = 346.

### TABLE 2A.4 Distribution of BOSs in Romania, by Type of Market and Ownership Category, 2019

<table>
<thead>
<tr>
<th>Sector</th>
<th>Minority ownership</th>
<th>Majority ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Competitive</td>
<td>3.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Partially contestable</td>
<td>0.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Natural monopoly</td>
<td>1.0</td>
<td>0.7</td>
</tr>
</tbody>
</table>


*Note:* Number of businesses of the state (BOSs) = 1,416.

### TABLE 2A.5 Distribution of BOSs in Türkiye, by Type of Market and Ownership Category, 2019

<table>
<thead>
<tr>
<th>Sector</th>
<th>Minority ownership</th>
<th>Majority ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Competitive</td>
<td>4.6</td>
<td>12.9</td>
</tr>
<tr>
<td>Partially contestable</td>
<td>1.3</td>
<td>10.5</td>
</tr>
<tr>
<td>Natural monopoly</td>
<td>0.2</td>
<td>10.6</td>
</tr>
</tbody>
</table>


*Note:* Number of businesses of the state (BOSs) = 480.
Notes

1. The 14 countries analyzed are Bosnia and Herzegovina, Bulgaria, Estonia, Croatia, Italy, Latvia, Lithuania, Montenegro, North Macedonia, Romania, Poland, Romania, Serbia, and Slovenia.

2. State presence is calculated using revenue shares, except for Brazil, which uses employment shares because data on revenues are not available. The background paper for Viet Nam (Hallward-Driemeier, Aterido, and Tran 2023) provides comparisons using both measures.

3. This work underscores the complexity of the agenda and why the effort to collect data does not end here. Currently there are no systematic data on the performance of BOSs in meeting their social mandates. A second dimension of analysis where more data would improve the analysis (and transparency) regards the individual benefits that BOSs receive (see chapter 4).

4. The inclusion reflects the scope of Orbis’s coverage. Some firms are captured only after they have been in business for several years. Some of the timing of changes in ownership reflect when Orbis reports the change and not necessarily when it occurred. Over time, Orbis has made greater efforts to record the ownership of firms. It should be noted that having variation in ownership over 4 years is a relatively short panel. The advantages of the longer panels of census data is why those studies get greater emphasis.

5. The background papers provide more descriptive details on the types of ownership and trends over time for each of the countries.

References


