Intervention, corruption and capture

The nexus between enterprises and the state[1]

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Abstract

We study the nexus between enterprises and the state in transition countries, using new enterprise survey data. We examine the quality of governance, state intervention in enterprise decision-making, state benefits to firms, and corruption payments. The quality of governance varies both across countries and across different dimensions of governance within countries. Economic reform improves governance in countries with a low degree of 'state capture' by vested interests, but not in high-capture countries. Despite reform, state intervention in firm decisions continues, but it varies substantially across firms. At the micro level (within a country), there is clear substitution between the degree of state intervention, state benefits to firms, and corruption payments, which is consistent with a bargaining model of politicians and firms. But at the macro level (across countries) these elements are complementary, suggesting that politicians, perhaps under pressure from captor firms, have some control over the scope of regulation and intervention.

1. Introduction

This paper examines the nexus between enterprises and the state in transition countries. We begin by investigating how firms evaluate the effectiveness of the state in providing the institutional infrastructure that underpins any well-functioning market economy. We refer to this as the *quality of governance*, which is distinct from the concept of corporate governance that has been widely discussed in the literature. Although there is no single model of governance in industrialized market economies, there is broad agreement that key elements include maintaining law and order, macroeconomic stability, adequate infrastructure, and a transparent and fair tax and regulatory framework. One useful measure of the quality of governance is the extent to which the state provides these services in an efficient and non-discriminatory manner, as judged by the enterprises that are affected by them.[2] Using new microeconomic survey evidence, we show that, despite the considerable achievements during the first decade of transition, the promise of good governance remains largely unfulfilled across much of the region.

But the quality of governance itself is an outcome of sustained economic reform. If vested economic interests can influence the development or implementation of reform programmes so as to promote their private gains, through political influence payments or other channels, the quality of governance will be affected. Thus, it is important to investigate how the extent of economic reform, and the impact of such reform on the quality of governance, are related to the capacity of vested interests to shape government policy (including regulatory agencies and the judiciary) through illicit and non-transparent methods. We refer to such activities by private agents as 'state capture.' In this paper we use firm-level survey data to construct a measure of state capture. This measure reflects both how widely firms report that they are *affected* by the 'sale' of parliamentary legislation, presidential decrees, and judicial decisions to private interests, and the degree to which efforts to capture the state are concentrated among a small number of firms.[3] The evidence shows that in countries with a high degree of state capture, progress in economic reform (including privatization) is slower, and the impact of a given level of reform on the quality of governance is much weaker.

This finding emphasizes the limitations on how much privatization can improve the quality of governance in an environment highly susceptible to state capture. This conclusion runs contrary to the view that one of the main contributions of large-scale privatization is to jump-start the *demand* for institutional development to support a private market economy (World Bank, 1996; Boycko, Shleifer and Vishny, 1995). If the method of privatization

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[2] For a review of existing efforts to measure the quality of governance, and a factor analytic approach to constructing an aggregate index, see Kaufmann, Kraay and Zoido-Lobaton (1999a, b).

[3] By this, we mean the extent to which the formation of laws and regulations are influenced by illicit private payments from firms to public officials.

exacerbates the power of concentrated vested interests, it could seriously compromise the subsequent institutional and regulatory developments that underpin good governance. The policy message is that privatization and other reforms will be more effective in improving the quality of governance if there are institutional reforms to constrain state capture by private interests.

But in addition to the institutional framework of governance, within which all private firms operate, there are many ways in which the state has *direct interaction* with enterprises. To complement the country-level analysis of governance, we also study three important *direct* links between the state and firms. The first is the extent to which the state intervenes in the operational decisions of enterprises, including prices, investment, employment, wages and sales. The second is the extent to which the state provides direct benefits to firms, such as subsidies or tax arrears. The third direct link between firms and the state is the extent to which firms engage in bribery of government officials. We show that the nature and strength of these links varies systematically with the characteristics of the firm. Taken together, these links are a useful indicator of the extent to which the state has withdrawn from *direct* political intervention in the enterprise sector. Of course, one should be cautious in drawing conclusions about economic welfare from such indicators because some degree of state intervention may be justifiable on economic grounds. But equally important, these direct links do not take account of the economic consequences arising from state capture, running *from* firms *to* the state. An overall assessment of the degree to which the enterprise sector is 'politicized' must take account of both channels.

The transition has changed the relationship between enterprises and the state. But the reform process has been associated with a change in the *form* of state intervention, as much as with a reduction in the overall *level* of intervention or in the 'informal tax' imposed on firms in the form of bribes and time spent dealing with government officials. At the same time, the micro evidence clearly indicates that bribery payments are associated with less intervention by the state. We find that privatized firms and new start-ups experience less state intervention in their decision-making, but pay a larger 'bribe tax' than state firms. In contrast, state-owned firms face much higher levels of intervention, but pay a lower bribe tax and receive higher levels of state subsidies (in the form of transfers and tax arrears). These findings are consistent with the predictions of an implicit bargaining model between politicians and firms in which state intervention, state transfers and corruption can be considered *substitutes at the enterprise level, within a given country (*Shleifer and Vishny, 1994). This suggests a nexus of interactions between firms and the state rooted in a bargain that is tailored to the particular characteristics, and hence bargaining power, of the individual firm. As predicted, we observe trade-offs among these elements of the 'bargain' at the micro level,

when we control for relevant firm characteristics.[4]

But when we move to the *cross-country* level, we have to account for the fact that the scope for state intervention and regulation, and thus for corruption, is endogenous. Politicians exercise their power by shaping regulations that give them greater discretion and scope for intervention, and thereby improve their bargaining position with firms. Some of this endogenous growth of regulation may arise from capture activities of a small number of firms in an attempt to gain competitive advantage through the political arena, and sharing the rents with politicians. Either way, in equilibrium we would expect the average levels of state intervention, state benefits and bribes to be *positively* correlated *across countries.* This paper provides the first econometric evidence that state intervention, state benefits and corruption are substitutes at the enterprise level, as might be predicted by a bargaining perspective, but that they are positively related across countries, as predicted by an endogenous regulation approach.

This evidence indicates that some transition economies face twin problems that undermine the quality of governance: *state capture* by which powerful firms distort the reform agenda for their narrow private gains, and *the grabbing hand* (Shleifer and Vishny, 1998) by which the state officials generate excessive regulations to increase their bribe income.[5] The evidence in this paper shows that both mechanisms operate, and indicates the need for theoretical models of transition that combine bargaining between the state and firms at the micro level with endogenous regulation at the macro level. At the same time, the paper shows that effective market reform in certain environments needs to be combined with measures to constrain the risk of state capture by private interests.

The paper is organized as follows. Section 2 examines cross-country differences in the quality of governance and their relationship to economic reform. Section 3 constructs a measure of state capture and relates it to the quality of governance. Section 4 shows that the effectiveness of reform in improving governance depends on the degree of state capture. Sections 5, 6 and 7 examine the direct links between the state and enterprises in the form of state intervention in enterprises, the time spent by senior management in firms dealing with bureaucrats, corruption payments from firms to state officials, and state benefits to firms. Section 8 shows that the relationship between intervention and corruption at the macro level is very different from the micro level. In the concluding remarks we summarize key findings and suggest directions for future research.

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[4] In this paper we treat all forms of bribery the same for the purposes of exploring the relationship between corruption, state intervention and state transfers. For an analysis that 'unbundles' different forms of corruption and examines their economic consequences see Hellman, Jones and Kaufmann (2000).

[5] Hellman, Jones and Kaufmann (2000) show that state capture generates considerable performance gains to the firm, while corruption of the 'grabbing hand' variety (i.e. 'petty' forms of corruption related to the implementation of rules and regulations) is associated with slower firm-level growth rates. This suggests that, while rents that are generated by state capture are shared by firms and the state, the rents from grabbing hand corruption are largely retained by public officials.

2. Measuring the quality of governance

The empirical work in this paper is based on the 1999 Business Environment and Enterprise Performance Survey (BEEPS), developed jointly by the EBRD and the World Bank. The BEEPS survey was conducted on the basis of personal interviews with high level managers or owners of firms in site visits in the following twenty countries: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovak Republic, Slovenia, Ukraine and Uzbekistan. In each country, between 125 and 150 firms were interviewed except in three countries where larger samples were used: Poland (25), Russia (550) and Ukraine (250). The sample was structured to be fairly representative of the domestic economies, with specific quotas placed on firm size, sector, location, and export orientation. The sample was heavily weighted toward privately-owned firms (both privatized firms and start-ups), but minimum quotas were used to ensure some representation of state-owned firms and firms with foreign ownership. In total the survey covered more than 3,000 firms. The survey placed particular emphasis on the extent and nature of the relationship between firms and the state, including sensitive questions on corruption, state intervention in enterprise decision-making, and the influence of firms on government policy-making. As a result, the BEEPS survey provides a unique opportunity to compare the relationship between firms and the state across transition countries and also across firms with different characteristics within a given country. (For a detailed description of the survey and a summary of the dataset, see Hellman, Jones, Kaufmann and Schankerman, 2000).

To evaluate the quality of governance, the survey asked firms to assess the extent to which different functions of the state posed an obstacle to their business. Nine key functions were rated by firms on a scale of 1 (no obstacle) to 4 (major obstacle). The functions fall into four main areas: macroeconomic governance (policy instability, inflation and exchange rate), microeconomic governance (taxes and regulations), physical infrastructure, and law and order (corruption, organized crime, street crime and the functioning of the judiciary). In Figure 1 we summarize the rating of each dimension of governance in the form of star diagrams, for each country.[6] Each axis of the star represents one dimension of governance for that country. The length of each axis is proportional to the percentage of firms responding that the dimension of governance represented either a moderate or major obstacle to the operation and growth of the enterprise. To fix the scale, we identify on each star the theoretical extreme where 100 per cent of responses falls into these two categories. These star diagrams allow for easy comparison both across dimensions of governance within a given country, and across countries for any given dimension of governance.

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[6] The rankings of different dimensions of governance and countries do not change substantially if we control for the size, ownership status, and sector of firms.

Figure 1. Dimensions of governance, by country
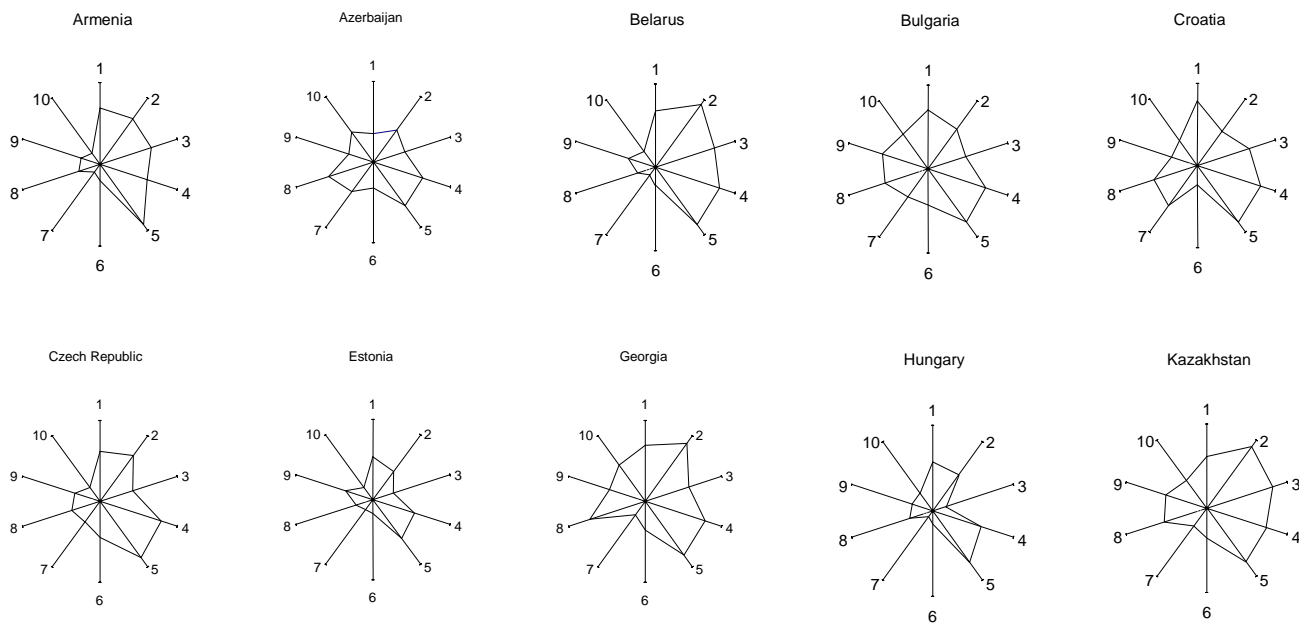
Key: 1 - Policy instability; 2 – Inflation; 3 - Exchange rate; 4 – Finance; 5 - Taxes and regulations; 6 – Infrastructure; 7 - Functioning of the judiciary; 8 – Corruption; 9 - Street crime/ theft/ disorder; 10 - Organised crime/ mafia.

Notes: Survey Question: 'How problematic are these different factors for the operation and growth of your business?' Categories listed above. Response Categories: No Obstacles, Minor Obstacles, Moderate Obstacles, Major Obstacles.

Figure 1 (continued). Dimensions of governance, by country
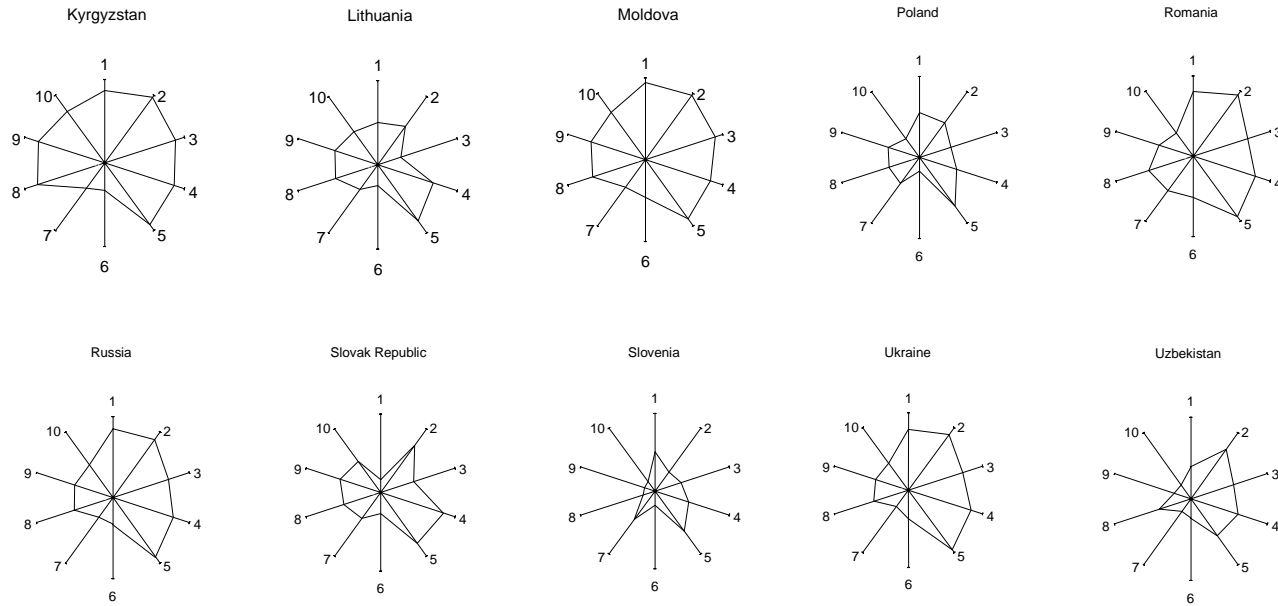
Kyrgyzstan	Lithuania	Moldova	Poland	Romania

Russia	Slovak Republic	Slovenia	Ukraine	Uzbekistan

Key: 1 - Policy instability; 2 – Inflation; 3 - Exchange rate; 4 – Finance; 5 - Taxes and regulations; 6 – Infrastructure; 7 - Functioning of the judiciary; 8 – Corruption; 9 - Street crime/ theft/ disorder; 10 - Organised crime/ mafia.

Notes: Survey Question: 'How problematic are these different factors for the operation and growth of your business?' Categories listed above. Response Categories: No Obstacles, Minor Obstacles, Moderate Obstacles, Major Obstacles.

There is variation in the average assessment of different dimensions of governance both within and across countries. An analysis of variance reveals that 46 per cent of the overall variance is due to variation across dimensions of governance (within-country variance), 26 per cent is across countries (within-dimension variance), and the remainder is 'residual' variance. This means that any ranking of countries on an aggregate index of governance would conceal substantial within-country variation. Most firms in the region report that the problem of taxes and regulations in the microeconomic environment is the main obstacle to their business. Macroeconomic problems – inflation, exchange rate and policy instability – also represent significant obstacles. Problems associated with physical infrastructure and with the strength of law and order are generally ranked as less serious obstacles. Surprisingly, firms regard the functioning of the judiciary as one of the least significant obstacles to their business. This may reflect low expectations of the role of the judiciary since under the old system, legal institutions were subordinated to the Communist Party and the state.

Figure 2. The security of property and contract rights
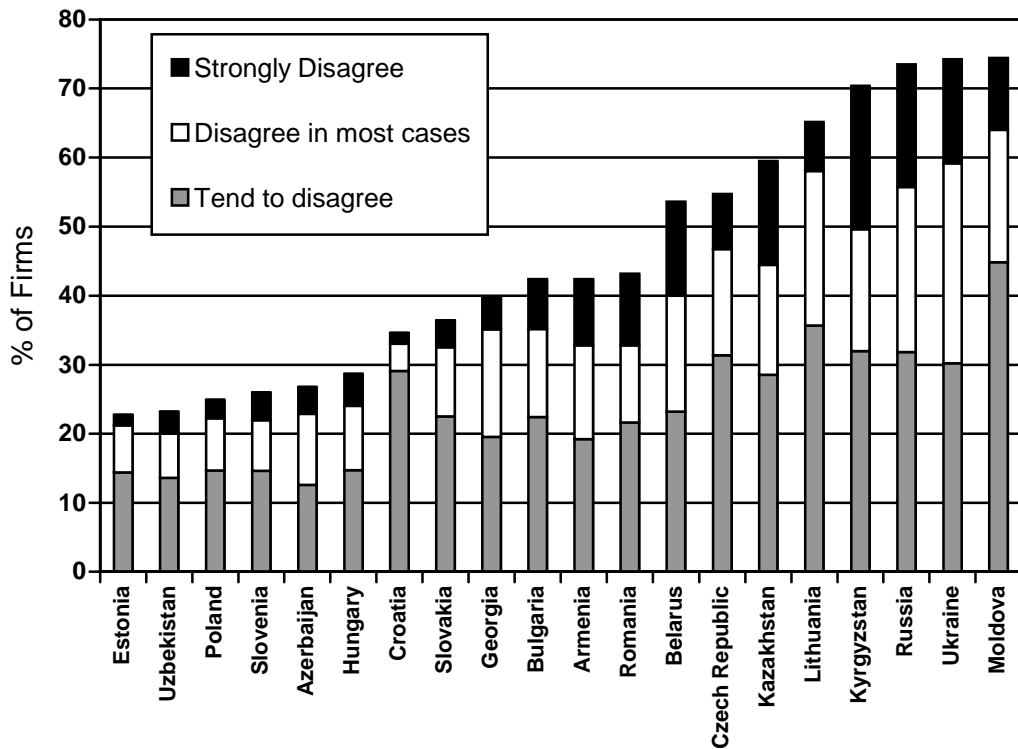
Notes: Survey Question: 'To What degree do you agree with this statement? 'I am confident that the legal system will uphold my contract and property rights in business disputes'. Response Categories: Agree in most cases, tend to agree, tend to disagree, disagree in most cases, strongly disagree.

Nonetheless, it is clear that firms across the region do not have much confidence in the security of their property and contract rights (see Figure 2). Nearly 75 per cent of the firms surveyed in Kyrgyzstan, Moldova, Russia and Ukraine report that they are not confident that the state would uphold their property and contract rights in business disputes. The figure is lower but still substantial, about 25 per cent, among firms in Azerbaijan, Estonia, Hungary, Poland and Uzbekistan. Not surprisingly, confidence in the security of property rights is closely linked with the overall assessment of governance.

3. Measuring state capture

In this section we construct measures of the degree of 'state capture', by which we mean the extent to which the formulation of official laws, regulations or decrees is influenced, or vetted, by a narrow set of interest groups in the economy through the provision of private benefits to politicians. Effective state capture requires two conditions: first, firms (or other private agents) must be able to influence policy decisions by providing some private benefits to politicians, and second, such influence must be concentrated in a relatively small number of firms. If the ability to influence state institutions is widely, and evenly, dispersed among agents, rent-seeking behaviour may be compatible with efficient allocation of resources.[7] Policy distortions, and associated private rents, are most likely when capture is concentrated. States that are subject to concentrated vested interests are less likely to undertake reforms that would improve governance but which, at the same time, would reduce the distortions or restrictions in the economy that provide private benefits to such interests (Hellman, 1998; EBRD, 1999). Thus high-capture countries should be characterized by less economic reform and, as a result, a lower quality of governance. Moreover, economic reform measures that are undertaken in high-capture countries are less likely to improve overall governance if vested interests have influenced their design or implementation.

The survey provides a unique opportunity to measure the extent of state capture and how it varies across countries.[8] To measure the extent to which firms are *affected by* the ability of private agents to 'buy' state policies that suit their own interests, the survey asked firms to assess the impact on their business of the sale of parliamentary legislation and presidential decrees to private interests. We

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[7] In the recent literature, the market for economic influence is modelled as an application of the theory of 'menu auctions', according to which independent bidders name a menu of offers for various possible actions available to the auctioneer. In this context, firms make their political contributions conditional on the policies adopted by politicians. For formal models, see Bernheim and Whinston (1986) and Grossman and Helpman (1994).

[8] For a detailed discussion of the measurement issues relating to state capture and checks for country-level biases, see Hellman, Jones, Kaufmann and Schankerman (2000). For a policy perspective on the problem of state capture in transition economies, see World Bank (2000).

measure the *pervasiveness* of state capture as the proportion of all firms that respond that they were significantly affected by the sale of legislation or decrees.

The survey also provides us with a rough indication of the degree to which influence is concentrated in a small number of enterprises. Firms were asked to report how frequently they make unofficial payments to influence the content of new laws, decrees or regulations. We identify firms that report they make such payments ('sometimes or more frequently') as 'captor' firms.[9] We measure the concentration of state capture by one minus the proportion of firms significantly affected by the sale of parliamentary legislation or presidential decrees that are captor firms. Thus capture is judged to be less concentrated if there are fewer captor firms or if, for a given number of captor firms, there are more firms that are affected by capture activities.[10] Values of the index closer to unity indicate greater concentration of state capture. While it is important to distinguish conceptually between the pervasiveness and concentration of state capture, we recognize that there are serious measurement problems involved, not least the selection process involved in the willingess of firms to respond to the survey. Thus we regard these measures as rough, but informative indicators of cross-country differences.

Figure 3 presents the index of pervasiveness and concentration of state capture in each country, ranked in ascending order of pervasiveness. The differences across transition countries, as well as the sheer extent of the problem in particular cases, are striking. In Azerbaijan, Moldova, Russia and Ukraine, more than 30 per cent of the firms report a significant impact from the sale of legislation at the national level. By contrast, fewer than 10 per cent of firms in Armenia, Belarus, Hungary, Slovenia and Uzbekistan report such impact. While many enterprises report that they are *affected* by state capture, only a small proportion reports that they actually *engage in* making payments to influence laws, decrees or regulations. Based on Figure 3, in the discussion that follows we will treat the following states as high-capture states: Romania, Georgia, Slovakia, Croatia, Bulgaria, Kyrgystan, Russia, Ukraine, Moldova and Azerbaijan.

It is interesting to observe that the degree of concentration of state capture is closely related to the pervasiveness index across countries. There is nothing in the construction of these variables that makes this so. This correlation indicates either that the pervasiveness of state capture is mitigated when there is less concentration of capture, as predicted by recent game theoretic models of influence, or that both the effects and concentration of capture are determined by common factors.

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[9] For a detailed analysis of the characteristics and performance of captor firms, see Hellman, Jones and Kaufmann (2000).

[10] Let n_c denote the number of captor firms that report they are affected by the purchase of laws, decrees or regulations ('affected' firms), and n_{nc} be the number of non-captor firms that report they are affected. The concentration index is $1 - n_c/n$ where $n = n_c + n_{nc}$ is the total number of firms that report they are affected. The pervasiveness index is n/N where N is the total number of firms in the sample in a given country.

**Figure 3. Pervasiveness and concentration of capture**
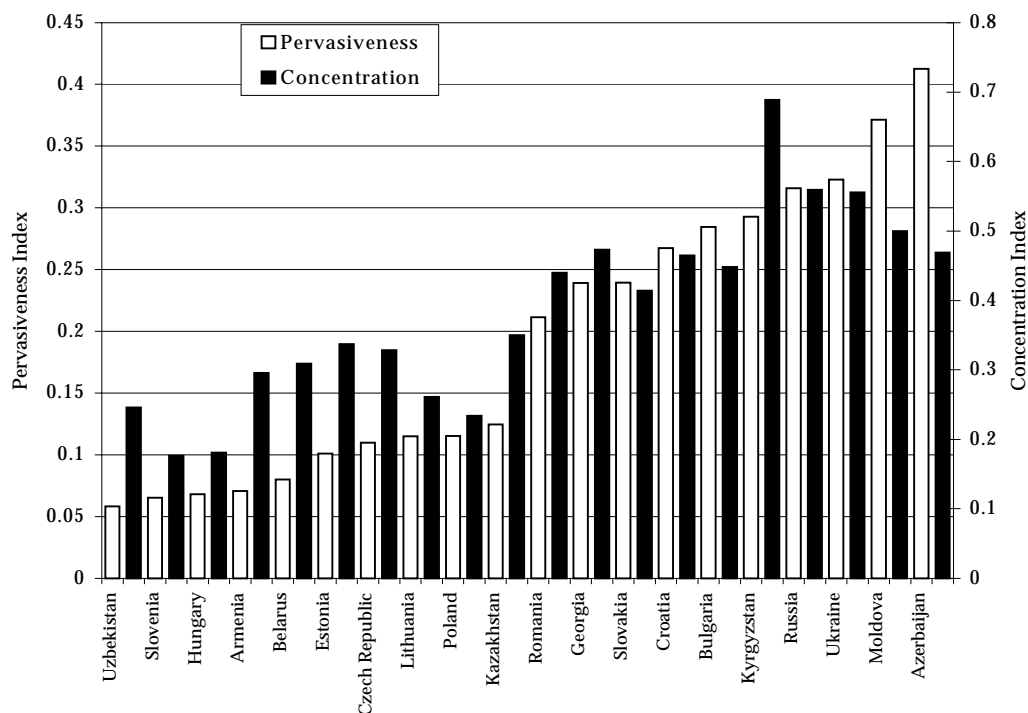
Notes: Pervasiveness is measured as the per cent of firms reporting they are significantly affected by the sale of parliamentary votes on laws or presidential decrees to private interests. Concentration is measured as the proportion of firms reporting they are significantly affected (by the sale of parliamentary votes on laws or presidential decrees) that are identified as captor firms. A captor firm is firm that reports making 'unofficial payments to public officials to influence the content of new laws, decrees or regulations'.

Because 'high capture' states are more responsive to the interests of a small group of powerful firms than to diffuse pressures to improve governance, we would expect such states to undertake less genuine economic reforms and, since economic reform improves governance, also to have a lower quality of governance. But capture may also distort government policy or its implementation in ways that reduce the quality of governance (for most firms), even if the economic reform, as we measure it, is unchanged. Figure 4 depicts both relationships on the same graph: the relationship between state capture and the EBRD index of economic reform, and the relationship between state capture and the quality of governance. State capture has a powerfully negative impact on the quality of governance in transition economies: high-capture countries have

heavier taxes and regulation, greater corruption, poorer macroeconomic management, and less effective law and order.[11] At the same time, state capture is strongly negatively associated with progress on economic reform (again, Belarus and Uzbekistan are the outliers). On the basis of the available data, we cannot pin down the channels through which the degree of state capture affects the quality of governance. It may work only through its effects on economic reform, or directly as well. But either way, the evidence shows that state capture, and policies to prevent or reduce it, are an important part of the reform process.

Figure 4. Governance, reform and state capture

Pervasiveness of Capture Index
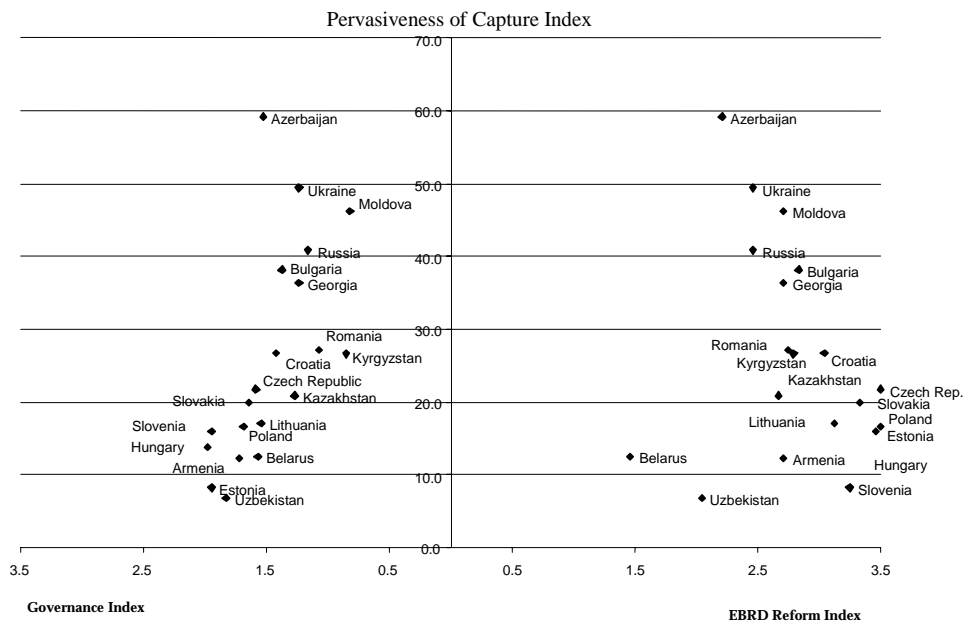
Note: The Governance Index is the average response over the ten dimensions of governance represented in Figure 1, for each country. The EBRD reform index is taken from EBRD *Transition Report* (1999).

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[11] Of course, this does not prove causation. State capture itself could be a function of weak governance. But this begs the question of what prevents the state from undertaking reforms that would lead to improvements in the quality of governance. Our argument is that captured states have weaker incentives and fewer constraints that might lead it to improve governance.

4. Privatization and governance

By shifting ownership rights from the state to private individuals and institutions, one of the main objectives of privatization was to reduce the state's direct role in enterprise decisions and thereby to 'de-politicize' the firm. Moreover, privatization was expected to create private sector pressure on the government for further reforms to strengthen the security of property rights and improve the business environment. In short, privatization promised to create the players who would, over time, hold the state accountable for improvements in governance.[12] While there has been much research on the timing and methods of privatization and on the effects of privatization on *corporate* governance and enterprise performance, there has been little empirical research on the broader effects of privatization on the quality of governance more generally.[13] The survey data allow us to study this relationship. There is a striking difference between the effects of privatization on the quality of governance depending on the degree of state capture. Figure 5 depicts the relationship between the average quality of governance in each country and its score on the EBRD index of large-scale privatization (for details, see EBRD, 1999), where we have identified each country as a high- or low-capture state on the basis of Figure 3. For the low-capture countries, there is a significant, positive association between the degree of privatization and the quality of governance. A least squares regression confirms this (as shown in the table). However, there is *no* evidence that privatization improves governance in high capture states.[14] The point estimate from a least squares regression is negative for high capture countries, but completely insignificant. A more powerful test of how capture affects the relationship between privatization and governance must await a larger sample of countries.[15]

These results *do not necessarily mean* that privatization worsens the quality of governance in countries with states that are more effectively captured by vested interests. To draw such a conclusion, we would need to compare the quality of governance before and after privatization in those countries. Advocates of mass privatization have argued that the benefits of privatization must be evaluated

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[12] For a strong statement of this view, see Boycko, Shleifer and Vishny (1995). For an early, insightful discussion that emphasizes the role of vested interests in post-privatization politics, see Frydman and Rapacynzski (1994, Chapter 6).

[13] See Frydman and Rapaczynski (1994), and Frye and Shleifer (1997).

[14] These conclusions do not change materially if Belarus and Uzbekistan are removed. The results are also confirmed in a statistical analysis of the enterprise data, in which the firm's rating on governance depends upon the degree of privatization and state capture at the country level, and their interaction, as well as firm size and ownership status.

[15] The difference in the relationship between privatization and governance in high- and low-capture countries is not attributable to differences in the timing or method of privatization. Each group includes countries that pursued both early and late privatization, and the variety of privatization methods including direct sales, vouchers, and management-employee buy-outs. Also, the quality of governance is not systematically related to the timing and method of privatization across countries. For discussion of the timing and methods of privatization, see EBRD (1999).

against the environment of poorly defined property rights, so-called spontaneous privatization (theft of state assets), and political constraints that preceded it in most countries. Nonetheless, our results strongly suggest that there are limits to the effectiveness of privatization policies as a means of creating effective demand for improving governance, and these limits are related to the degree of state capture. When the state is subject to influence by powerful and concentrated vested interests, the effectiveness of reforms in improving governance and securing property rights is diluted. This may occur either because there is a weaker demand for better governance due to the lack of collective action by private enterprises, or because such reforms are blocked by vested interests that profit from the market distortions associated with partial economic reforms. Either way, it is clear that state capture matters.

Figure 5. The interaction of privatization and state capture on governance
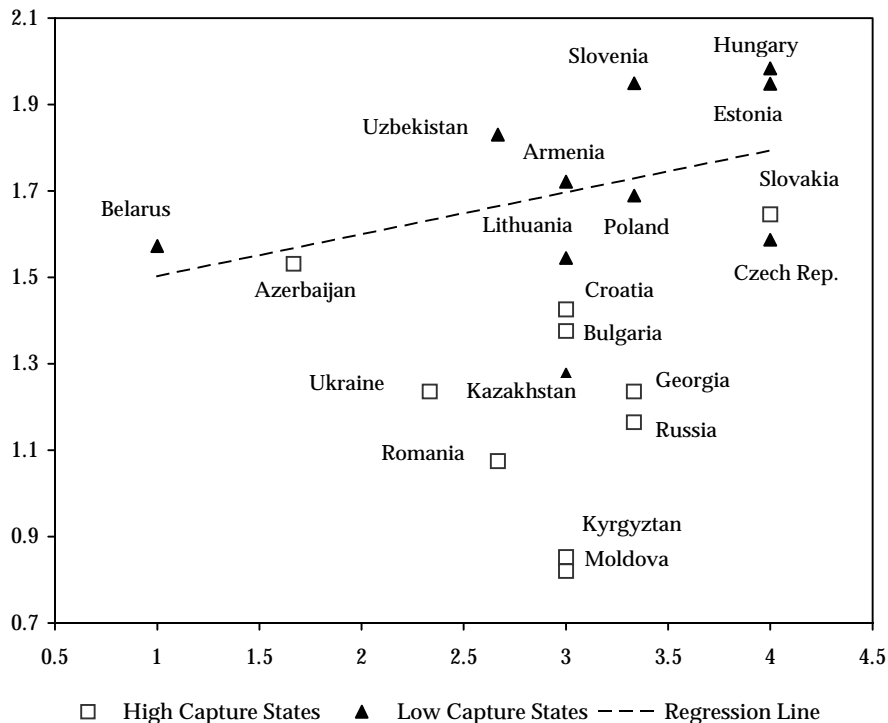
Notes: The Government Index is the average response over the ten dimensions of governance represented in Figure 1, for each country. The large scale privatization index is taken from EBRD Transition Report (1999). A least squares regression of governance on the privatization index, for low capture states yields a slope coefficient of 0.12 with an estimated standard error of 0.07.

5. The extent and form of state intervention in enterprises

The quality of governance is rooted in the state's relationship with firms. Under the previous economic system, the state directed the activities of enterprises through a formal system of plans and commands. Informally, however, firms engaged in a complex bargaining process with state planning agencies, party officials, and local and central authorities to influence the setting and implementation of plan targets. Although the formal system of central planning has been abandoned, the bargaining between the state and firms has changed form but not ceased, as the survey shows. In transition economies, states and enterprises are tied in ways that go beyond the standard provision of public goods in exchange for taxes. The state gives a wide range of benefits to firms, in the form of state financing, explicit subsidies and implicit subsidies, including tolerance of tax arrears and barter. Firms provide state officials with political and private benefits in the form of control rights over company decisions and through bribes.

In comparison with the degree of state control over firms under the command system, ten years of liberalization and privatization have led to a dramatic decline in the level of state intervention throughout the region. Table 1 shows the percentage of all firms in the survey that say they face significant state intervention in five areas of their operations.[16] State intervention is most common on pricing, with 36 per cent of firms reporting some degree of intervention. In some countries, the level of reported price intervention is extremely high, such as Belarus, the Slovak Republic, Moldova and Ukraine. On investment, sales and wages, around a quarter of all firms report some state intervention. The small share of firms reporting state intervention in employment – just 16 per cent – is rather surprising given the state's previous commitment to full employment under communism. Although much reduced, state intervention in company decisions remains a prominent feature of transition economies.

There is considerable diversity across the transition countries both in the level of state intervention and the types of decision-making in which the state intervenes. One might expect declines in state intervention to be directly related to the progress in liberalization and privatization across the region, since these reforms are intended to reduce the role of the state in enterprise decision-making. But Table 1 is not consistent with a simple distinction between advanced and less advanced transition countries. Surprisingly, the highest levels of state intervention are reported in some of the most advanced transition countries, such as Hungary, the Slovak Republic and Slovenia, and in the least advanced

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[16] The survey question is: 'How often does the government intervene in the following types of decisions by your firm?' Response categories include Always, Usually, Frequently, Sometimes, Seldom, and Never. We record intervention as 'significant' if the firm responds in one of the first three categories.

countries, such as Belarus, Ukraine and Uzbekistan.[17] But there are clear differences in the types of decisions in which these states choose to intervene. In Hungary, the Slovak Republic and Slovenia, there are higher reported levels of intervention in employment and wages than in some of the less advanced economies with similar levels of intervention. States in less advanced countries tend to focus on intervention in prices and sales, with minimal intervention in employment.

Table 1. State intervention, by intervention type and country

Country	Per cent of firms reporting intervention					
	Investment	Employment	Sales	Wages	Prices	Average intervention index
Armenia	7.7	5.3	11.7	7.4	13.2	9.01
Azerbaijan	23.1	19.7	24.0	11.2	17.2	19.0
Belarus	32.6	17.4	69.8	53.3	87.8	52.2
Bulgaria	17.0	12.3	17.1	15.0	25.8	17.4
Croatia	18.4	9.5	15.3	20.6	15.2	15.8
Czech Republic	23.7	20.3	21.7	24.0	27.1	23.4
Estonia	10.2	6.9	10.9	15.4	15.4	11.8
Georgia	17.9	10.3	16.0	15.0	17.6	15.4
Hungary	37.9	38.2	40.0	59.6	44.0	43.9
Kazakhstan	24.7	14.0	27.4	17.6	41.7	25.1
Kyrgyzstan	25.9	15.0	30.9	14.9	44.2	26.2
Lithuania	15.7	13.0	19.8	31.6	23.8	20.8
Moldova	17.0	11.0	31.4	22.2	53.7	27.1
Poland	17.3	13.0	13.8	26.9	10.8	16.4
Romania	30.9	16.0	19.5	31.7	27.5	25.1
Russia	15.9	10.1	30.2	10.3	42.1	21.8
Slovakia	52.2	42.7	54.6	57.9	63.6	54.2
Slovenia	23.1	31.7	24.0	47.2	23.1	29.8
Ukraine	25.6	19.6	36.3	40.2	44.4	33.2
Uzbekistan	28.7	9.9	47.0	34.7	51.2	34.3

Notes: Survey Question: 'How often does the government intervene in the following types of decisions by your firm: Sales, Prices, Wages, Employment, Investment?'. Response Categories: Always, Usually, Frequently, Sometimes, Seldom, Never. The table reports the proportion of firms responding 'sometimes' or more frequently.

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[17] We recognize that a respondent's assessment of the extent of state intervention may be influenced by expectations of what the state's role should be, in light of the progress of market-oriented reforms. The same level of state intervention might be perceived as excessive by firms in more advanced market systems, but not by firms in unreformed economies more accustomed to the command system. There is not much we can do about the possibility of such perception bias. For discussion and some attempts to check for such bias, see Hellman, Jones, Kaufmann and Schankerman (2000).

While the advanced economies appear to intervene to support the workforce, the less advanced countries are more likely to intervene in enterprise decisions as a tool of macroeconomic management (price and wages), as they did under central planning. The extent of market reform is less clearly associated with the level of state intervention in a country than one might have expected, as part of the impact is reflected in the type of state intervention that is undertaken.

Table 2. Determinants of state intervention in enterprises

Firm characteristics	Intervention equation				
	Sales	Prices	Wages	Employment	Investment
Small	−0.177	−0.309*	−0.216*	−0.186	−0.422*
	(0.095)	(0.092)	(0.098)	(0.103)	(0.101)
Medium size	−0.123	−0.194*	−0.104	−0.093	−0.232*
	(0.082)	(0.079)	(0.083)	(0.087)	(0.084)
Start-up	−0.463*	−0.491*	−0.889*	−0.540*	−0.657*
	(0.077)	(0.075)	(0.078)	(0.082)	(0.081)
Privatized	−0.413*	−0.436*	−0.881*	−0.537*	−0.689*
	(0.071)	(0.069)	(0.072)	(0.075)	(0.075)
Sector effects	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes
No. obs	2869	2928	2933	2864	2606
Pseudo-R^2	0.047	0.074	0.090	0.055	0.050
F-test	272.1	485.3	370.3	218.1	129.0
(p-value)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)

Notes: An asterisk denotes statistical significance at the 0.05 level. Estimated standard errors are in parentheses. The baseline category is a large, state-owned firm. Firm size is defined in terms of full time employees: small 1–49, medium 50–499, large 500+. All equations are estimated by ordered probit. Sector dummies included manufacturing, mining and agriculture/fishing/forestry. The dependent variable in each equation is defined as the response to the following survey question: 'How often does the government intervene in the following types of decisions by your firm: Sales, Prices, Wages, Employment, Investment?' Response Categories: Always, Usually, Frequently, Sometimes, Seldom, Never.

There are also important differences in the pattern of state intervention within the group of advanced economies and their relationship to the quality of governance. Estonia and Poland report some of the lowest levels of state intervention in the region. Yet the divergence in the extent of state intervention is striking. More than three times as many firms in Hungary as in Estonia report

state intervention across the five dimensions analysed here. Moreover, some countries with the highest levels of state intervention, such as Hungary and Slovenia, have the strongest governance ratings in the region. Other high-intervention countries, such as Ukraine or Kyrgyzstan, are near the bottom of the governance rankings. Estonia, with its extremely low level of state intervention, has a governance rank similar to Slovenia. These differences demonstrate that it is not simply the extent of government intervention that weakens governance and creates obstacles in the business environment, but also the nature of the intervention (and the efficiency with which it is conducted; see the discussion on the 'time tax' in the next section).

The pattern of state intervention varies sharply across different types of firms. Table 2 summarizes the results of ordered probit regressions that relate the degree of state intervention in each of the five areas of operations to firm size, ownership status, and a set of country and sector dummy variables. The reference category for these regressions is a large, state-owned firm. As expected, we find that small, and to a lesser extent medium-sized firms, are less likely to face state intervention than large firms. Holding size constant, the state intervenes much less frequently in private firms than in state-owned firms (nearly twice as many state-owned firms, over 40 per cent, reported some intervention), as might be expected. Interestingly, there is no significant difference between the level of state intervention in privatized firms versus new entrants. Previous links with the state do not expose privatized firms to a higher probability of state intervention.

The finding that the state intervenes less frequently in the decisions of privatized firms could be partly due to selection bias arising in the privatization process. That is, the state might be more likely to privatize firms in which it intervenes less (such firms may be less politically sensitive or in less financial difficulty). We cannot confidently identify a selection equation with the available data – i.e., it is hard to specify firm-level variables that belong in the privatization equation but not in the intervention equation. However, we can conduct a less formal test for selection bias. We know from the survey whether or not a firm that is currently private has changed ownership during the previous three years (this almost surely signifies that it was privatized during that period). Potential selection bias arises from the covariance between the disturbances in the intervention and selection (privatization) equations, which is likely to be negative. Under the reasonable assumption that this covariance dissipates with time since the date of privatization (i.e., the 'initial condition' of the firm matters less as time passes), then the selection bias should be smaller when we exclude firms that were recently privatized. If the negative coefficient on the privatized-firm dummy in the intervention equations is contaminated by selection bias, we expect that coefficient to fall (in absolute value) when we exclude firms that changed ownership during the previous three years. We re-estimated each of the intervention regressions in Table 2 on the subset of firms that did *not* change ownership during the preceding three years. This involved dropping about 200 firms out of the total sample of about 2,900 firms (the number varies by country

and type of intervention). The point estimates and statistical significance of the parameter estimates on all of the ownership and size variables were virtually unchanged for this subset of firms (not reported for brevity). We conclude that our finding that privatized firms are less subject to state intervention than state-owned firms is *not* due to selection bias. Privatization itself reduces state intervention, and thereby helps to de-politicize firms.

In short, although the dismantling of central planning and large-scale privatization have sharply reduced the level of state intervention throughout the region, progress in transition is not synonymous with a reduction in state intervention in enterprises. Despite similarities in the general progress of reform, there are strong differences in the strategic choices that countries have made about the role that the state will play in the economy. Economic reforms have had an impact on the types of company decisions in which the state chooses to intervene, shifting the focus from macroeconomic management towards social support. And while the extent of state intervention is broadly related with the quality of governance; the specific nature of the state intervention also shapes firms' perceptions about governance.

6. The 'time tax' on enterprises

State intervention imposes demands on the time of senior managers in enterprises. The first column in Table 3 presents the estimates, based on the survey data, of the average proportion of senior management's time spent dealing with government officials about the application and interpretation of laws and regulations in each country. We call this the 'time tax.' As with the degree of state intervention in enterprises, we observe considerable variation across countries in the time tax on management. In Kazakhstan, Russia, Ukraine and Uzbekistan, the time tax exceeds 13 per cent of management time, while it is less than half of this figure in Azerbaijan, Croatia, the Czech Republic and Slovenia.

The first column in Table 5 summarizes the regression analysis that relates the time tax reported by each firm to its size, ownership status and a set of country and sector dummy variables.[18] These time tax regressions are based on the midpoints of intervals reported by firms (see notes to Table 3) and are estimated by ordinary least squares. The reference category for these regressions is a large, state-owned firm. Unlike the degree of state intervention, the time tax is not significantly smaller for small and medium-sized firms. With the available data,

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[18] We also tried two alternative estimation techniques. The first was ordered probit analysis of the responses in each category (interval). This approach assumes that there is no cardinal information in the data, whereas there is in fact a meaningful metric defining the distance between each category. To exploit this information, we also tried a censored probit analysis, where each data point represents an interval of possible values whose boundaries are specified by the survey question. The results from both of these techniques are similar to those reported in the text.

we cannot tell whether this is due to economies of scale in dealing with government officials or simply less efficient modes of intervention in small and medium-sized firms. Conditional on size, the time tax is significantly smaller for start-up and privatized firms than for state firms.[19]

Table 3. Time and bribe taxes

	Time tax[a]	% of firms bribing frequently[b]	Bribe tax (bribing firms)[c]	Bribe tax (all firms)[d]
Armenia	9.8	40.3	6.8	4.6
Azerbaijan	5.7	59.3	6.6	5.7
Belarus	11.2	14.2	3.0	1.3
Bulgaria	5.9	23.9	3.5	2.1
Croatia	3.3	17.7	2.1	1.1
Czech Republic	5.1	26.3	4.5	2.5
Estonia	7.3	12.9	2.8	1.6
Georgia	11.3	36.8	8.1	4.3
Hungary	7.2	31.3	3.5	1.7
Kazakhstan	15.2	23.7	4.7	3.1
Kyrgyzstan	11.2	26.9	5.5	5.3
Lithuania	12.9	23.2	4.2	2.8
Moldova	14.3	33.3	6.0	4.0
Poland	9.5	32.7	2.5	1.6
Romania	7.7	50.9	4.0	3.2
Russia	12.7	29.1	4.1	2.8
Slovakia	6.5	34.6	3.7	2.5
Slovenia	5.9	7.7	3.4	1.4
Ukraine	16.8	35.3	6.5	4.4
Uzbekistan	12.5	46.6	5.7	4.4

Notes: a) Time tax Survey Question: 'What percentage of senior management's times per year is spent in dealing with government officials about the application and interpretation of laws and regulations?' Response Categories: Up to 1%, 1 to 5%, 6 to 10%, 11 to 25%, 26 to 50%, more than 50%. The categories were imputed at 1%, 3%, 8%, 18%, 38%, 50%.

b) Bribe frequency Survey Question: 'Thinking about officials, how frequently would you say the following statement is true: 'It is common for firms in my line of business to have to pay some irregular 'additional payments' to get things done'. Response Categories: Always, Mostly, Frequently, Sometimes, Seldom, Never. The proportion of firms responding frequently or more is reported.

c) Bribe tax Survey Question: 'On average, what per cent of revenues do firms like yours typically pay per annum in unofficial payments to public officials?' Response Categories: 0%, Less than 1%, 1–1.99%, 2–9.99%, 10–12%, 13–25%, Over 25%. The categories were imputed at 0%, 1%, 2%, 6%, 11%, 19%, 25% and averaged. The first measure of the bribe tax is conditional on the firm reporting a non-zero level of bribes; the second measure includes all firms in the sample.

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[19] We also checked whether the effects of ownership were due to a selection bias in the privatization process, using the same procedure as for state intervention. There is no evidence of selection bias.

The point estimates on ownership dummies represent percentage point reductions in the time tax. The time tax is about 2.4 (3.3) percentage points lower for new start-ups (privatized firms) than for state firms, for whom the average is about 12 per cent. However, the time tax is particularly high for new entrants in Moldova and Ukraine, where it is nearly 18 per cent.

The evidence on the time tax confirms that the state continues to play an active management role in state-owned firms in some countries, but the extent of involvement varies widely across countries. In Russia more than a quarter of senior management time in state-owned firms is spent dealing with officials. Similarly high levels (above 15 per cent) are also reported by state-owned firms in Armenia, Georgia, Kazakhstan, Ukraine and Uzbekistan. In contrast, managers of state-owned firms in Bulgaria, Croatia, Estonia and Hungary have much less interaction with government officials – the time tax is less than 7 per cent.

7. The 'bribe tax' on enterprises

In addition to time spent with government officials, firms also pay direct private benefits to public officials in the form of bribes. These are paid for a variety of purposes, such as to obtain public services, to avoid taxes or existing regulations, to gain government contracts, to obtain subsidies and other state financing, to influence policy, and to appease predatory officials. Bribes are an unofficial tax on enterprises that arises from weaknesses in the system of governance. However, unlike the time tax, which tends to be positively related to the degree of state intervention, there is clear evidence in the survey data that bribes are a 'substitute' for state involvement in enterprise decision-making. Since state control rights presumably impose costs on firms, we would expect firms to use bribes in the implicit bargain with government officials to reduce such intervention. That is what we find.

The economic burden of corruption on firms is related both to the level of the bribe tax and the frequency of bribe payments, which affects the associated transaction costs.[20] Both of these dimensions of corruption differ across countries. Turning first to the raw cross-country comparisons, the survey confirms that the frequency and size of bribe payments vary substantially among transition economies.[21] The second column in Table 3 presents the proportion of firms that

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[20] The social costs of corruption extend beyond the direct burden on enterprises, in part because it induces resources to move into the rent-seeking bureaucracy and away from the productive sector. For discussion, see Shleifer and Vishny (1998, Chapter 7). For estimates of the social costs of different forms of bribery in terms of their effects on the growth rates of firms and on the security of property and contract rights, see Hellman, Jones and Kaufmann (2000).

[21] Measuring bribes is extremely difficult. Given the sensitivity of the issue, respondents were asked to estimate annual bribe payments as a share of revenue typically paid by 'firms like yours.' Respondents were assured that their estimates would be used only in aggregate form for research purposes and would

report they pay bribes frequently. The third column presents the level of the bribe tax in each country, for firms reporting they pay bribes, calculated as a share of the firm's annual revenues (which we call the 'bribe tax').[22] The last column gives the corresponding bribe tax when we include firms that report they do not pay any bribes as having a zero bribe tax. Firms in the region pay an average bribe tax that ranges from a low of 2 per cent of annual revenues in Croatia to a high of 8 per cent in Georgia. While data on profits are very unreliable, we can use the profit to sales margins reported by firms in the survey, averaged across firms within a country, to compute a roughly equivalent bribe tax expressed as a per cent of profits. This yields a bribe tax on profits ranging from 10 per cent in Croatia to 37 per cent in Georgia.[23] When added to what is already considered by firms to be an extremely high level of official taxation, the bribe tax imposes a severe burden on enterprises in the region.

The average bribe tax in the CIS countries – 5.7 per cent of revenues – is almost twice the level reported in Central and Eastern Europe – 3.3 per cent of revenues. Within the CIS, firms in the Caucasus countries consistently report the highest rate of bribe tax, followed by Ukraine and Moldova. In Central Asia, the bribe tax is somewhat lower but the proportion of firms reporting that they pay bribes frequently is considerably higher in Uzbekistan than in other countries. The bribe tax is less than 3 per cent of revenues in Croatia, Estonia and Poland. Fewer than 20 per cent of the firms in Croatia, Estonia and Slovenia report paying bribes frequently. Firms in Bulgaria, the Czech Republic, Lithuania and Romania report a similar level of bribe tax, but there are sharp differences in the frequency of bribe payments. More than 50 per cent of Romanian firms say they pay bribes frequently, a proportion that is twice as high as the other countries.

At the micro level, the survey data point to a new and important finding: corruption in transition economies taxes small firms much more heavily than large ones. Using the raw data comparisons, we find that the average bribe tax paid by large firms (more than 500 employees) is 2.8 per cent of revenues, compared to 5.4 per cent for small firms (less than 50 employees). There is also a major difference in the frequency of bribe payments. While 16 per cent of large firms report paying bribes frequently, for small firms this figure is 37 per cent. This characteristic of the bribe tax is especially pronounced in a number of CIS countries. In Moldova, for example, small firms report paying an average bribe

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not be attributed to any individual or firm. Several questions on bribery were included in the survey to allow for consistency checks of the responses. Extensive piloting of the survey was also employed in each of the 20 countries to ensure that respondents properly understood the questions. The ratio of annual bribes to annual revenue (the 'bribe tax') is computed on the basis of the midpoint of six possible categories (the lower end in the open-ended category) listed in the survey: < 1%, 1 to 1.99%; 2 – 9.99%; 10–12%; 13–25%; and > 25%.

[22] Using revenues, instead of profits, to compute the bribe tax is preferable since data on revenues are more reliable. There are strong incentives to under-report profits in transition countries.

[23] The profit margin is defined as the percentage difference between sales price and operating costs of the firm's main product line. In this calculation we assume that firms include bribes in their estimates of operating costs.

tax of nearly 9 per cent of revenues, which is more than four times higher than the level for large firms. Small firms in Armenia, Ukraine and Uzbekistan report bribe levels nearing or exceeding 8 per cent, and in these cases bribes account for a third or more of their profits (not shown). In addition, the high frequency of bribe payments for small firms in these countries contributes to the extremely high level of senior management time spent dealing with government officials, as high as 18 per cent in Ukraine. For small firms, in particular, the combination of the bribe tax and the time tax has had a severe impact on the development of new private sector companies, the most dynamic sector in the economy. Of course, these simple comparisons do not control for ownership status and other factors that might affect the bribe tax.

We also find that private sector firms pay higher bribe taxes than state companies, but this is due primarily to the higher average bribe tax paid by new entrants (5.1 per cent). The difference in the average bribe tax between state and privatized firms is more modest (3.9 per cent versus 4.2 per cent, respectively). The frequency of bribes follows a similar, but more pronounced, pattern. Our empirical finding that new start-ups and privatized firms experience less state intervention in their decision-making, but pay larger bribe taxes, than state firms is consistent with the predictions of an implicit bargaining model in which state intervention (control rights) and bribes are substitutes.[24] The micro-level evidence clearly indicates that bribery payments do reduce the direct costs to the firm from intervention by the state.

These raw comparisons are confirmed by econometric analysis. The second column in Table 5 summarizes the regression analysis that relates the bribe tax at the enterprise level to firm size, ownership status and a set of country and sector dummy variables. These regressions are based on the midpoints of intervals reported by firms (see notes to Table 3) and are estimated by ordinary least squares.[25] In all of these regressions, the reference category is a large, state-owned firm. The estimates confirm that the bribe tax is significantly *higher* for small firms than for medium-sized or large firms. And conditional on size, the bribe tax is significantly *higher* for privatized firms and new start-ups as compared to state-owned firms.[26] It is interesting to note that privatized firms pay a lower bribe tax than start-ups, but a higher one than state-owned firms. The point estimates on the size and ownership dummies represent percentage point reductions in the bribe tax, and they indicate that the effects are large. For example, the regressions predict that a small start-up firm pays a bribe tax that is about 3.1 percentage points higher than a large state-owned firm, or about twice as high.

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[24] From a theoretical perspective, firms could grant the state limited cash flow rights in exchange for getting more secure control rights (Shleifer and Vishny, 1994).

[25] Similar results are obtained when we use ordered, and censored, probit estimation techniques on the raw interval data.

[26] We checked whether the effects of ownership were due to a selection bias in the privatization process (the state is more likely to privatize potentially profitable firms that can pay bribes), using the same procedure as for state intervention. There is no evidence of selection bias.

8. State benefits for enterprises

Firms receive private benefits, beyond the provision of standard public goods, in return for giving up control rights or paying bribes to government officials. Such benefits take the form of direct subsidies, implicit subsidies (e.g., tolerance of tax arrears and arrears to state-owned utilities), special exemptions from state regulations, and preferences in awarding state contracts. Some of these benefits are non-transparent by nature and cannot be easily measured, but the survey provides evidence on two types of benefits, direct subsidies and tax and utility arrears. The tolerance of arrears, both tax arrears to the state and payment arrears to state-owned utilities, has also become an important form of implicit state subsidies to firms in transition economies.

Table 4 reports the proportion of firms in each country that report receiving state subsidies or maintaining substantial arrears either to the state or utility companies. The proportion of firms receiving subsidies is quite low in most countries of the region, typically less than 15 per cent, but this gives no indication of the volume of subsidies. Belarus and Hungary – countries at opposite ends of the reform spectrum – have the largest proportion of subsidized firms. A large fraction of firms report accumulating substantial arrears in a number of countries. The relationship between the proportion of subsidized firms and the number of firms with high arrears is particularly interesting. In Armenia, Bulgaria, Georgia, Kazakhstan, Kyrgyzstan and Ukraine, firms are primarily supported by means of implicit rather than direct subsidies. In Belarus, Uzbekistan, the Czech Republic and Hungary, firms are supported primarily through direct subsidies, whereas arrears has been contained. Again, the decision to use direct rather than implicit subsidies to channel benefits to firms may depend on differences in the capacity of the state. We find that in cases where the state supports enterprises, there is a greater reliance on direct subsidies in more advanced transition countries and, at the other extreme, in countries which have largely maintained the previous command system.

The pattern of state benefits to the firm depends on to the characteristics of the firm, including size and ownership status. As expected, the state is more likely to give direct subsidies to state-owned firms, although it is worth noting that over 15 per cent of privatized firms also receive some state subsidies. But the reduced reliance on direct subsidies to privatized firms is partly compensated by higher implicit subsidies in the form of arrears. Nearly 25 per cent of privatized firms report a substantial level of arrears either to the national or local government tax authorities or to state-owned utilities. New entrants are least likely to get any state subsidies, but when they are given, they are more likely to be in the form of implicit subsidies.

These raw comparisons are confirmed by multivariate analysis. In the last three columns of Table 5, we present regression analysis of three state benefits to firms: whether a firm receives a direct subsidy (no information on the size of the subsidy is available), whether a firm maintains substantial arrears to tax

authorities or state-owned utilities, and whether a firm receives direct state investment. We relate these outcomes at the enterprise level to firm size, ownership status and a set of country and sector dummy variables. We estimate the subsidy and arrears equations by probit analysis. We use tobit analysis for the state investment equation because the level of investment is truncated at zero. For all of these regressions, the reference category is a large state-owned firm.

Table 4. Subsidies and arrears

	% of firms with subsidies[a]	% of firms with arrears[b]
Armenia	4.0	17.0
Azerbaijan	15.6	19.3
Belarus	27.2	13.7
Bulgaria	6.4	12.1
Croatia	14.4	21.6
Czech Republic	13.9	4.7
Estonia	10.7	3.1
Georgia	6.2	28.9
Hungary	23.3	3.9
Kazakhstan	7.5	18.3
Kyrgyzstan	4.8	22.0
Lithuania	5.5	0.0
Moldova	14.4	23.9
Poland	11.6	10.1
Romania	6.5	4.1
Russia	13.7	20.3
Slovakia	14.4	12.2
Slovenia	11.5	8.9
Ukraine	4.0	20.9
Uzbekistan	15.2	8.8

Notes: a) Subsidies Survey Question: 'Does your enterprise receive subsidies (including tolerance of tax arrears) from local or national government?' Response Categories: Yes or No. Proportion of firms responding to 'yes'.

b) Arrears Survey Question: 'Is the amount of payments overdue (by more than 90 days) by your company to each of the following substantial, manageable, modest or non existent? – state-owned utilities, government taxes, and local taxes. Firms were classified with substantial arrears if they responded 'substantial' on at least two categories. The figure depicts the proportion of firms with substantial arrears.

There are large and statistically significant effects of both firm size and ownership status on the probability of receiving state benefits. Small firms are far less likely to receive subsidies or direct state investment than either medium-size or large firms, but size does not affect the probability of maintaining arrears. There is no significant difference in the likelihood of a medium-sized firm and large firm receiving any of these state benefits. Holding firm size constant, we find that new start-ups are much less likely to receive any of these benefits than state-owned firms, with privatized firms falling in the middle (except for arrears, where they are no different from state-owned firms).

Table 5. Determinants of the bribe tax, time tax and state benefits

Firm characteristics	Time tax	Bribe tax	Subsidies	Arrears	State investment
Small	−0.11	0.018*	−0.586*	−0.127	−0.543*
	(0.100)	(0.004)	(0.130)	(0.122)	(0.133)
Medium size	0.003	0.007	−0.118	−0.088	−0.085
	(0.009)	(0.004)	(0.100)	(0.101)	(0.091)
Start-up	−0.24*	0.013*	−0.832*	−0.601*	−1.506*
	(0.008)	(0.003)	(0.103)	(0.102)	(0.123)
Privatized	−0.33*	0.006*	−0.369*	0.038	−1.062*
	(0.008)	(0.003)	(0.087)	(0.088)	(0.091)
Sector effects	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes
R²	0.090	0.108	0.156	0.116	0.278
No. obs	2947	2381	3189	3010	3066
F-test	13.71	9.14	80.5	98.8	4.2
(p-value)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)

Notes: An asterisk denotes statistical significance at the 0.05 level. Estimated standard errors are in parentheses. The reference category is a large state-owned firm. Firm size is defined in terms of full time employees: small 1–49, medium 50–499, large 500+. The bribe and time tax equations are estimated by least squares, the subsidy and arrears equations by Probit, and the state investment equation by Tobit. Sector dummies include manufacturing, mining and farming/fishing/forestry.

Our main concern is whether the nexus of state intervention, bribe payments and state benefits to firm is consistent with an implicit bargaining perspective of the interaction between enterprises and the state in transition countries. Taken

together, the micro-level evidence strongly supports a bargaining model.[27] *State-owned* firms give substantial control rights over company decisions to the state, pay relatively low levels of bribes to state officials, and are more likely to receive benefits from the state in the form of direct subsidies and investment. *Privatized* firms are subject to less state intervention than state-owned firms, but at the same time they pay a significantly higher level of bribes and receive fewer direct state benefits (though there is on-going transfer through arrears). The survey does not allow us to study differences in the pattern of costs and benefits for firms prior to and after privatization, but the comparison between state-owned and privatized firms suggests that privatization has helped to 'de-politicize' the firm in terms of reducing state control over company decisions. But it has not broken the financial ties – in terms of subsidies and bribes – that continue to bind the state and privatized firms. Finally, new *start-ups* have a very different relationship with the state. They face very little state intervention and receive few direct state benefits, but at the same time they pay a much higher bribe tax to state officials. But interestingly, they continue to spend nearly as much management time dealing with state officials as their counterparts in state and privatized firms.

9. Is there a macro-level trade-off between intervention and corruption?

We have shown that the micro-level data strongly supports the view that state intervention, corruption and state benefits are *substitutes*, as predicted by an implicit bargaining model of the relationship between enterprises and the state. In this section we show that the relationship is very different when one looks *across countries*, rather than across firms within a given country. The evidence shows that there is no trade-off at the macro level. We argue that this is consistent with the view that state officials have some control over the scope of discretionary rules and regulations that induce corruption, and that this control varies across countries – which we refer to as endogenous regulation. As we pointed out in the introduction, endogenous regulation may itself be influenced by the efforts of captor firms to gain competitive advantages or other sources of rents through political channels

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[27] In related work, Hellman, Jones and Kaufmann (2000) show that there are sharp differences between captor and non-captor firms in the gains from these interactions with the state which strongly depend on the overall level of state capture in the economy.

Figure 6. Cross-country variations in intervention and corruption

Panel A: Intervention Vs Bribe

Panel B: Intervention Vs Time
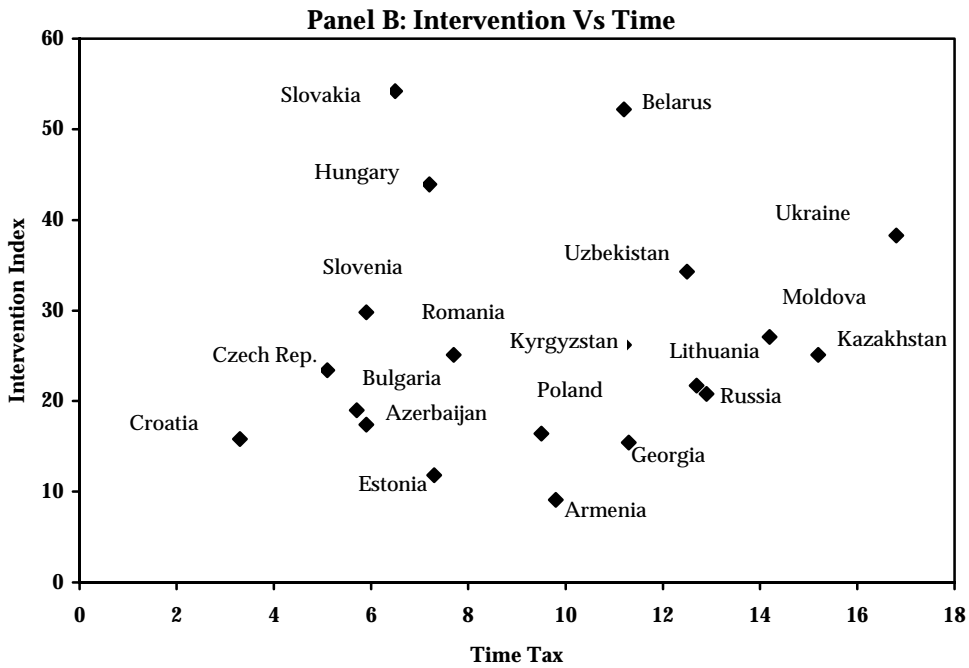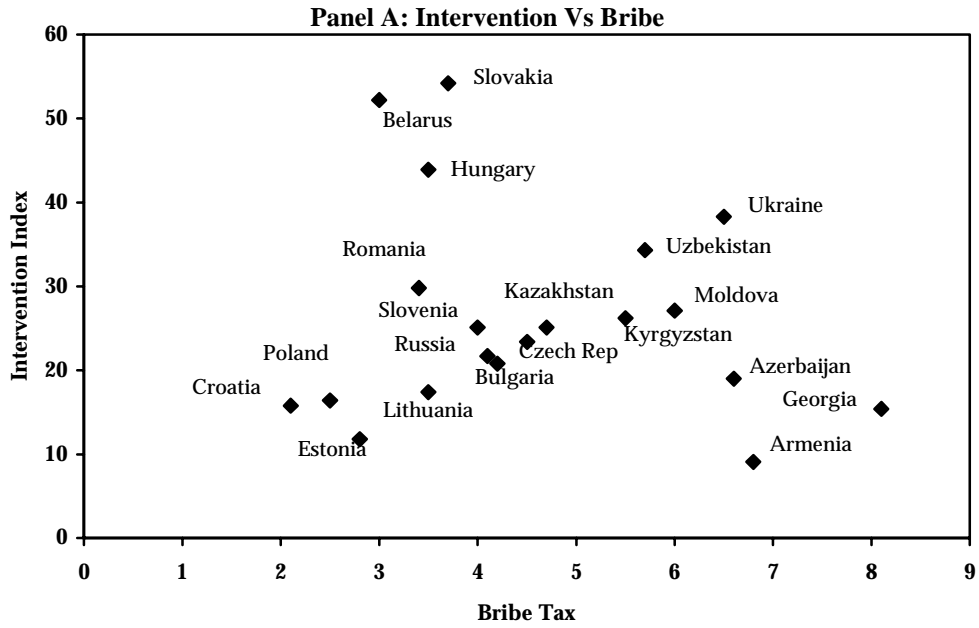
Panel A in Figure 6 plots the average level of the bribe tax and the average degree of state intervention reported by firms in each country. The relationship is clearly positive: the greater the level of state intervention, the higher the bribe tax.[28] However, there are two groups of countries that do not conform to this pattern. Three countries on the lower right-hand corner of the graph – Armenia, Azerbaijan and Georgia– have bribe tax levels that are the highest in the entire region, but at the same time have very low levels of state intervention. All three countries have experienced prolonged military conflicts or civil unrest, which have profoundly weakened the capacity of the state. Such weak states are likely to be both less able to intervene at the firm level and to enforce controls on public officials to constrain corruption. In sharp contrast, the countries in the upper left-hand portion of the graph – Belarus, Hungary and the Slovak Republic – have high levels of state intervention without high levels of corruption. In Belarus, the strong state reflects the very slow pace of reforms, which has resulted in little change from the Soviet-style relationship between the state and the firm. By contrast, Hungary and the Slovak Republic have continued to maintain state intervention in enterprise decision-making within the context of a market-oriented economy (though targeted at different dimensions of enterprise decisions, as discussed earlier), while at the same time putting in place constraints on public officials to limit corruption.

Panel B in Figure 6 presents the cross-country evidence on the relationship between state intervention and the time tax on management. Not surprisingly, we observe a positive relationship across countries between the degree of state intervention and the time tax. But the association between state intervention and the time tax is much 'noisier' than between intervention and the bribe tax.[29] This additional variation is not due to differences across countries in the composition of intervention (as might be expected if different forms of intervention impose different time costs on management). When we control for differences across countries in the composition of intervention, the correlation coefficient between the average level of intervention and the time tax actually falls from 0.21 to 0.14.

The alternative explanation is that differences in the efficiency with which state intervention is carried out (i.e., capacity of the state) is the source of the 'noise' in the relationship between the degree of state intervention and the time tax. However, we cannot test this directly since we do not have independent measures of the capacity of the state.

The positive relationship across countries between the degree of state intervention, the bribe tax, and the time tax is what one would expect if the scope and nature of regulation are endogenous or determined by a very narrow group of firms able to capture the state. Within the constraints imposed by political

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[28] Allowing for dummy variables for the two 'outlier' groups of countries discussed below, the correlation coefficient between state intervention and the bribe tax is 0.55.

[29] Allowing for a dummy variable for the 'outliers' – Armenia, Azerbaijan and Georgia – the correlation coefficient between the bribe tax and time tax is 0.50. Allowing for a dummy for Belarus, Slovakia and Hungary, the correlation coefficient between intervention and the time tax is 0.21.

institutions (including the procedural transparency in setting and enforcing regulations, and electoral accountability), politicians have private incentives to expand the scope of regulation, broadly defined, which is a primary source of public corruption and capture. If these political constraints differ across states, the capacity of politicians to expand regulation will also vary. This is not to deny that initial political and economic conditions in transition countries are important for the outcome. Indeed, their importance may lie primarily in how they shape the forces that determine subsequent policy choices. Exploring this question is beyond the scope of the paper, but the striking difference we find between the micro- and macro-level relationship between state intervention and corruption suggests that it is a potentially important direction for research.

10. Concluding remarks

A decade of transition has transformed the relationship between the state and enterprises. The state no longer uses plans and commands to direct firms, but the direct links between the state and firms remain close. These links include state intervention in enterprise decision-making, the provision of state benefits to firms in the form of investment, subsidies and tax arrears, and bribery payments to state officials. But the nature of this nexus between enterprises and the state varies both with the characteristics of firms, such as size and ownership type, and with features of the broader economic environment such as the degree of state capture, the level of economic reform, and the capacity of the state. The reform process has been associated with a change in the *form* of state intervention, but not necessarily with a reduction in the overall *level* of intervention or in the 'informal tax' imposed on firms in the form of bribes and time spent dealing with government officials.

The key findings can be summarized as follows. First, the quality of each dimension of governance varies substantially across transition countries, but there is even more variation across different dimensions of governance within countries. Second, the effects of economic reform on governance depend critically on the degree of state capture. Reform is clearly associated with *improved* governance in countries where the state has been less subject to capture by vested interests (low-capture states). But there is no evidence that reform has improved governance in high-capture countries. Third, economic reform has not been synonymous with the elimination of state intervention in enterprise decision-making, even though the focus of such intervention differs with the degree of reform. The mix of state intervention, state benefits and corruption varies across different types of firms, and thus is likely to affect the ability of different types of firms to compete effectively in such economies. Fourth, at the *micro level* within any given country, there is clear evidence of substitution between the degree of state intervention, state benefits to firms, and overall corruption payments. This is

consistent with a bargaining perspective of the relationship between enterprises and the state. But there is no such trade-off at the *country level*. In fact, these different elements are complementary across countries, which suggests that politicians, perhaps under pressure from powerful captor firms, have some control over the scope for regulation and intervention.

Taken together, the evidence in this paper indicates the need for theoretical models of transition that combine bargaining between the state and firms at the micro level with endogenous regulation and state capture at the macro level. On the empirical side, it is important to identify the political and other factors that constrain the growth of the scope for state intervention, and thus corruption. At the same time, the evidence shows that market reform must be combined with measures to constrain state capture by private interests.

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