



LICOS Centre for Institutions and Economic Performance

Centre of Excellence

## LICOS Discussion Paper Series

Discussion Paper 310/2012

### **Impact of Private Incidence of Corruption and Firm Ownership on Performance of Firms in Central and Eastern Europe**

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# **Impact of Private Incidence of Corruption and Firm Ownership on Performance of Firms in Central and Eastern Europe <sup>1</sup>**

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**February 2012**

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<sup>1</sup> The paper has benefited from financial support of the European Investment Bank (EIB), funded under the STAREBEI program for financing of University research. The views expressed herein are those of the authors and do not necessarily reflect the views of the European Investment Bank. We also thank EIB Economic and Research departments, participants at the EIB Third Annual Meeting, and especially EIB Co-tutor Simona Bovha Padilla and EIB Economic Advisor Maria Luisa Ferreira for offering very constructive and helpful suggestions. The paper has also benefitted from discussion with participants of the ICABEC conference (Kuala Terengganu) and EBR Conference (University of Ljubljana).

# **Impact of Private Incidence of Corruption and Firm Ownership on Performance of Firms in Central and Eastern Europe**

## *Abstract*

The paper investigates how efficiency of business environment and corruption (informal payments and state capture) affect the microeconomic performance of firms. The novelty of the paper is to look at these effects in the interaction with the firm ownership. We use firm-level micro data collected by the Business Environment and Enterprise Performance Survey (BEEPS) for 27 transition countries for the period 2002-2009. Among other data, BEEPS collects also information on different corruption activities at the firm-level and firm ownership. We find somehow surprising results that private firms (domestic and foreign owned) are more involved both into informal payments as well as state capture activities. Our results also reveal that foreign owned firms that are involved in informal payments are likely to benefit from these corruption practices. On the other side, state owned firms are more likely to experience negative effects of involvements in corruption practices on productivity growth. After 2004, involvement of firms in corrupt practices diminished, and that their negative impact on firm performance dissipates indicating an improvement in the stability of business environment and law enforcement.

**KEYWORDS:** corruption, informal payments, state capture, institutional stability, firm ownership, firm performance.

**JEL Code:** D04, D73, H10, K42, O17, P37

## 1. Introduction

During the last decades, a growing body of research has been devoted to the issue of corruption and development (see Bardhan, 1997 for a survey of issues related to corruption and development). More corrupt countries are more likely to be less developed and to have more meager prospects for future growth (see Mauro (1995), and a survey of empirical papers on the issue by Dreher and Herzfeld (2005)). Studies also show a significant negative correlation between corruption and growth rates. Dreher and Herzfeld (2005) estimate the effect of corruption on economic growth and GDP per capita as well as on six possible transmission channels for 71 countries in the period 1975-2001. They find that an increase of corruption by about one index point reduces GDP growth by 0.13 percentage points and GDP per capita by 425 US\$.

However, the relationship between corruption and development is not straightforward but it is rather complex as it involves the quality of the institutional system and a complex network of interactions between government agencies, legal system, informal institutions and economic agents. The central role of institutional system becomes evident when considering that formal institutions, e.g. courts are required to effectively perform their function and enforce legislation. Frye and Shleifer (1997), Shleifer and Vishny (1998) and Shleifer (1998) describe three theoretical models of interaction between institutional system and entrepreneurs in the course of development. Under the invisible-hand model, the government is generally uncorrupt, well organized and provides basic public goods, such as law enforcement. While there is some regulation, government leaves most allocative decisions to the private sector. In the alternative helping-hand model, the government is above law but it uses its power to help business. There is aggressive regulation, which is abused to promote some businesses and kill off others. Bureaucrats are corrupt, but corruption is limited and organized. Finally, in the grabbing-hand model, government uses its power only to extract rents. The legal system does not work and mafia replaces government as a contract enforcer. There is excessive, predatory regulation and corruption is widespread and disorganized. Under these three models, the invisible-hand state system is most favorable for general entrepreneurship; the helping-hand system helps only the politically well-connected firms, while in the grabbing-hand model the state is generally oppressive against any business.

Thus, according to the three theoretical models, the invisible-hand implies that government shareholders are inefficient. They are unable to monitor

managers effectively and do not care about maximizing shareholder value. The helping-hand theory implies that firms benefit from the presence of government shareholders and government affiliated managers. Finally, the grabbing-hand theory implies that government shareholders extract resources from publicly listed companies. They do so either to perform a social role or because government affiliated managers are corrupt and consists of a large number of independent bureaucrats pursuing their own interests, such as taking bribes, with no regard for the impact of their actions on private sector activity.

Méon and Sekkat (2005), based on sample of 71 countries between 1970 and 1998 also find that corruption is most harmful to economic development where governance and institutional system is weak. The quality of institutional system and corruption affect general economic development through microeconomic performance, i.e. through entry and exit dynamics of firms and their individual performance. These effects are aggravated when institutional system is interacted with different ownership structure of firms. What happens when firm shareholders transact with the state? Is there any difference if firm is owned by the state? Empirical studies are unambiguous in finding that private ownership is associated with superior firm performance when compared to the state-owned firms (see overview of empirical studies on a wide variety of countries in Havrylyshyn and McGettigan, 2000; Djankov and Murrell, 2000 and 2002; Megginson and Netter, 2001; Estrin, Hanousek, Kocenda and Svejnar, 2009). One can argue that this superior performance of privately owned firms refer to the context of the invisible-hand framework with inefficient state owners, since these studies do not control for potential bias arising from close ties to the government in specific firms and specific sectors (such as infrastructure and financial sector, etc.).

This paper contributes to the debate on the impact of corruption on development and in particular it aims to understand, how private incidence of corruption and state capture affects the microeconomic performance of firms in transition countries. The paper asks several essential questions. Are firms that operate in a more corrupt business environment subject to additional informal costs that affect the effectiveness of their performance? Does micro-level corruption (informal payments and state capture) pay? What is the impact of a private incidence of corruption/state capture on firm performance in terms of productivity growth growth? How is private incidence of corruption (informal payments and state capture) related to the firm ownership? Is the incidence of informal payments and state capture more significant for incumbent (partially) state-owned firms than for private

(domestic and foreign owned) firms? And finally, how does the interaction between corruption practices and ownership affect firm performance?

Studying the impact of corruption and state capture on firm performance thus far has been limited by lack of appropriate data accounting for highly sensitive information, such as managers' perceptions of corruption practices and their active involvement in such practices. In this paper, we make use of the firm-level micro data collected by the Business Environment and Enterprise Performance Survey (BEEPS) for 27 transition countries for the period 2002-2009. In addition to firm characteristics, the data includes valuable survey information on the private incidence of corruption and state capture (as measured by informal payments and state capture variables at the firm level). In order to address the issues listed above we estimate the impact of informal payments and state capture both on firm productivity growth, whereby we control for firm ownership. We use three waves of data for each country, which enables us to account for the long lasting effects of informal payments and state capture on firm performance.

We find somehow surprising results that private firms (domestic and foreign owned) are more involved both into informal payments as well as state capture activities. Our results also reveal that foreign owned firms that are involved in informal payments and state capture are likely to benefit from these corruption practices. On the other side, state owned firms are more likely to experience negative effects of involvements in corruption practices on their productivity growth. When controlling for country groups, we find that inefficient law enforcement has positive impact on productivity growth for foreign owned firms in new EU countries. At the same time, we also find that mostly foreign owned firms in new EU member states experience productivity growth when involved in informal payments. This may indicate how foreign firms might circumvent weaker contract enforcement. This effect, however, disappears after 2004.

The remainder of the paper is organized as follows. Section 2 provides an overview of related literature on corruption and its effects on economic performance. Section 3 describes the BEEPS panel 2002-2009 data, as well as present some descriptive statistics. Section 4 describes the methodology and empirical models. Section 5 presents the results on effects of informal payments and state capture on firm productivity. Final Section concludes.

## **2. Corruption and economic performance**

This Section provides a brief overview of existing research on the impact of corruption on economic performance in interaction with the institutional system and firm ownership. It also discusses the dimensions of corruption and its potential impact on firm performance.

### **2.1. Corruption and institutional system**

Type of institutional system plays an important role in the process of transition, which is characterized by restructuring of firms and ownership transformation (Shleifer, 1998) and the occurrence of corruption. The literature shows that the economic outcomes of transformation may differ widely across countries though the countries have pursued similar reforms and with a similar speed, and that these differences can be in part attributed to corruption. Frye and Shleifer (1997) document the role of different institutional systems in Poland and Russia in the 1990s for the outcome of their economic transformation. Though both countries have implemented similar packages of reforms, including price and trade liberalization and privatization, within a similarly long time period, they have led to different economic outcomes. In Poland, the government has played more neutral role in terms of general law enforcement and regulations leading to a larger dynamics of small businesses. In contrast, Russian institutional system was characterized by the weak state, aggressive regulation and widespread corruption, which have oppressed businesses from arising and expanding their activities. A good indication of negative outcomes of this divergence of institutional systems is that in 1995 in Poland there were 2 million new private businesses, while Russia had only 1 million firms with a population almost four times larger. Similarly, Knack and Keefer (1995) and Rodrik, Subramanian and Trebbi (2002) find the primacy of institutions over the macroeconomic programs, geography and economic integration for economic development.

Adversely, in the helping-hand framework, politically well-connected private shareholders in publicly listed firms benefit from close ties to governments. There is a number of studies that can be classified into this framework. Fisman (2001) find that Indonesian firms with ties to Suharto declined in value when news about Suharto's illness became public. Leuz and Oberholzer-Gee (2003) find that these firms are also less likely to issue foreign securities. Johnson and Mitton (2003) find that Malaysian firms with political connections increased in value after the imposition of capital

controls. These benefits, however, are not restricted to developing countries. In an event study around the death of the U.S. Senator Henry Jackson in 1983 and his replacement as Senate Armed Services Committee minority leader by Sam Nunn, Roberts (1990) finds that firms that represented constituent interests of the departing Senator earned negative excess returns while firms representing constituent interests of the incoming Senator earned positive excess returns. Similarly, Ziobrowski (2003) and Cheng, Boyd and Ziobrowski (2004) find that U.S. Senators make stock investments that outperform the market.

There is also evidence of borrowing from state-owned banks at preferential terms. Sapienza (2004) finds that Italian state-owned banks charge lower interest rates compared to privately owned banks after controlling for the borrower's credit-worthiness and other firm characteristics. They lend to larger firms and to firms located in economically depressed areas. Bank's lending behavior at the local level is related to electoral strength of the political party affiliated with the bank's top management. Similarly, Dinc (2004), finds in a sample of 36 emerging and developed countries that banks controlled by the government increase their lending during election years relative to private banks. Finally, in a theoretical exercise, Shleifer and Vishny (1994) show in the grabbing-hand framework that the amount of firm resources that can be extracted by politicians is positively related to the fraction of the cash flow rights accruing to private shareholders. High ownership by outside shareholders increases the amount of resources that politicians can extract from private shareholders when politicians control the firm.

Private firms, however, are not necessarily only the victims of the corrupt government. In the corrupt environment, they become part of the corruption cycle. Firms fear that they cannot win project only on the merits of their bids alone and thus engage in corruption. The situation becomes more complex when allowing for state owned incumbent firms, which are well connected and dominate the markets. Based on Stigler (1971) seminal work on the capture theory, Hellman, Jones, and Kaufmann (2000) study how firms influence the state, in particular how they exert influence on and collude with public officials to extract advantages. Some firms in transition economies have been able to shape the rules of the game to their own advantage, at considerable social cost, creating a "capture economy" in many countries. In the capture economy, public officials and politicians privately sell underprovided public goods and a range of rent-generating advantages "a la carte" to individual firms.



Furthermore, Fries, Lysenko and Polanec (2003) show that capture economy leads to significant efficiency losses in transition countries. Using the 2002 BEEPS data, they demonstrate that those firms engaged in state capture have investment rates about 10 per cent higher and real revenue growth rates about 15 per cent higher than do other firms. At the same time, those firms that report being affected by state capture have slightly lower rates of productivity and sales growth than do other firms. This finding suggests that state capture is associated with benefits by those firms that engage in it, but is associated with unexpected reductions in real revenue growth and productivity of other firms.

Nevertheless, observing that levels of institutional quality are generally higher in EU countries, this may suggest that the effects of corrupt behavior on firm performance vary depending on broader country characteristics (De Rosa, Gooroochurn and Görg, 2010). The dimensions and types of corruption activity that present the largest obstacles to economic performance are likely to vary not only across countries, but also across firms within a country. Gray, Hellman and Ryterman (2004) use BEEPS 2002 data to run country-specific, cross-firm regressions of the 'obstacle' measure on several administrative corruption measures and find bribes paid in dealing with courts to be a significant obstacle, while in others bribes paid to obtain business licenses are significant.

## **2.2. Corruption dimensions and forms**

There are numerous definitions of corruption in the academic literature and among donor agencies; most are quite broad, and in some cases vague. Transparency International defines corruption as 'the misuse of entrusted power for private gain'. Also, corruption can be disaggregated along many dimensions and can take many forms, narrower and broader. A distinction can be made between different broad purposes of the improper actions. For example, informal payments may be intended to influence the content of laws and rules, i.e. *state capture*, or alternatively to influence their implementation or to get things done with regard to customs, taxes, licenses, regulations, services, and the like, i.e. *administrative corruption* (World Bank, 2012).

Thus, the most common form is *bribery*, whereby an official demands informal payments to perform an official task or to influence the legislation (legal or illegal forms of lobbying). Other forms of exchange of favors other than monetary bribes include *political patronage*, *nepotism* and *cronyism*,

whether or not they involve monetary kickbacks, may also be included in a broad definition of corruption (De Rosa, Gooroochurn and Görg, 2010).

Actors that are involved in corrupt transactions can also be distinguished. For example, informal payments or diversion of public funds may involve various combinations of firms, households, and public officials. These actors can be distinguished further by their characteristics, e.g. large vs. small firms, private vs. state firms, foreign vs. domestic firms, rich vs. poor households, low-level vs. high-level officials, etc. Finally, corruption can be disaggregated by the type of institution or services involved, such as tax and customs, business licenses, inspections, utility connections, courts, or public education and health facilities. BEEPS survey and other surveys of firms and households on corruption often emphasize this distinction.

Regardless of one's preferred conceptual definition, theory may provide little guidance as to which aspects of corruption are most harmful to growth. What weight should be given to either form of corruption depends on the purpose of the research, policy or activity to be implemented (Knack 2007). For some purposes, broader measures may be preferred: a researcher testing the hypothesis that more women in parliament reduces corruption (Swamy et al., 2001), or that corruption slows economic growth (Mauro, 1995) may not be concerned about exactly how corruption is defined. This provides little guidance as to which aspects of corruption are present. A donor funding projects in a country, on the other hand, may be interested in a measure of corruption in public procurement, while a donor providing budget support might prefer a measure of the likelihood of diversion of funds to unintended purposes (Knack, 2007).

The design of effective anti-corruption policies and other institutional reforms requires that narrow measures be used in order to identify specific problem areas and track progress over time. The BEEPS survey panel data from 2002 to 2009 we are using contains multiple questions pertaining to narrower aspects of corruption thus allowing us to investigate dimensions, forms and actors involved in corrupt activities across 27 transition countries.

### **3. Data and descriptive statistics**

#### **3.1. Data coverage**

To study how corruption (informal payments and state capture) affect the economic performance of firms, we employ the Business Environment and

Enterprise Performance Survey (BEEPS) firm-level panel data for transition and advanced countries collected. BEEPS is an initiative of the EBRD and the World Bank to investigate the extent to which government policies and practices facilitate or impede business activity and investment in Central and Eastern Europe and the former Soviet Union. We use three waves of BEEPS data (2002, 2005, 2009) for large samples of firms (BEEPS covers 4,104 firms in 1999, 6,153 firms in 2002, 9,665 firms in 2005, and 11,909 firms in 2009) in 27 countries of Central and Eastern Europe, and the former Soviet Union. First wave in 1999 was not possible to include due to limited overlap between firms covered in the 1999 survey and firms that were interviewed in latter years and included in the panel data.

BEEPS survey is conducted uniformly in all covered countries. Firms interviewed per country range from 200 to 1,150, and are heterogeneous in terms of size, origin, location, sector, and ownership type. For this study, it is important that BEEPS provides information on firms characteristics, such as number of employees, sales, value added, exports, sector, location as well as information on firm ownership (10 ownership types including the percentage of ownership shares by certain ownership type; information whether a firm is a private start up or has been privatized, etc.). On the other side, BEEPS also covers extensively five corruption aspects as perceived by firms, i.e. corruption as an obstacle to business, frequency of informal payments, size of the “bribe tax” (broken down by type of public service), manager’s perception of the impact of state capture on the firm, and extent of the firm’s direct participation in state capture.

Perception bias in BEEPS survey is possible due to different cultural norms and degrees of political freedom across countries, which may influence the choice of specific ratings and the willingness of business people to criticize state institutions (De Rosa, Gooroochurn and Görg, 2010). Fries et al. (2003) check for such perception bias in the BEEPS 2002 by statistically comparing measures obtained from the aggregation of survey responses to related objective measures and find no significant perception biases across the countries in the sample. Moreover, it is important to mention that BEEPS surveys place greater emphasis on experience, and less on perceptions by interviewing managers of business firms who are viewed as ‘well-informed persons’. Nevertheless, as a further control, we make use of sector and country level fixed effects in our investigation.

### **3.2. Variables investigated**

For our purposes, and to delimit the field of investigation, we divide and examine three dimensions of corruption: stability of business environment, sector specific informal payments and state capture impact. The classification and description of corruption dimensions and variables is presented in Table 1.

*[Table 1 about here]*

Table 1 reports the corruption variables included in both the BEEPS panel data we use in our analysis. Note that questions are phrased in terms of unofficial payments or gifts typically paid 'by firms like yours', to elicit more honest responses than if respondents were asked directly about informal payments their own firm had paid.

### **3.3. Descriptive statistics**

In this section we provide some main descriptive statistics of the firms included in our sample separately for firm ownership, industry type and also for the country group.

*[Table 2 about here]*

Table 2 presents a breakdown of firms by countries and type of ownership. As shown in Table 2, the coverage of the data varies across countries, thus firms sample size and type of firm ownership varies across countries. In terms of representativeness of the datasets, the average number of firms with private domestic ownership represented in 27 countries is 727 firms per country, data for latter increasing from 2002 to 2009. The average number of firms with private foreign ownership and state ownership in the same set of countries equal to 96 and 68, respectively. In total, we have data for 19,639 domestic firms, 2,603 foreign owned firms and 1,846 state owned firms for the period between 2002 and 2009 for 27 countries. Based on this data coverage, we can argue that results obtained below may be fairly representative of the frequencies of informal payments and involvement in state capture in firms of the transition countries being studied.

*[Table 3 about here]*

Table 3 provides information on firms included in the sample from various industries within the three country groups. Domestic privately owned firms dominate the survey in all three country groups, mostly being represented in retail sector in new EU and ex Soviet countries, and in wholesale sector in Balkan region. Foreign owned firms are most numerous in the wholesale sector in the EU and Balkan country group, and in the food industry in the ex-Soviet country group. State owned firms dominate the other services sectors in all three country groups.

### **3.3. Corruption dimensions and firms participation in corruption activities**

The aim of this research is to investigate the extent to which firms involvement in informal payments and state capture impact their productivity growth. At the micro level, it is expected that corrupt activities have negative consequences for the productivity efficiency. This effect is linked to the efficiency of the institutional system as discussed in previous Section.

*[Table 4 about here]*

Table 4 presents firms involvements in informal payments, state capture and percent of contract values they give for bribing. In order to measure *Informal payments* firms were asked to rank whether it is common to have to pay some irregular additional payment or gifts to get things done on a scale from 1 (never) to 6 (always). To measure *State capture* firms were asked to rank whether it is common to have to pay some irregular unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions on a scale from 1 (never) to 6 (always). Lastly, to measure *Percent of contract value in informal payments* firms were asked to estimate the percent of the amount value typically paid in informal payments to get things done. The data reveals that firms in ex-Soviet countries are more likely to be involved in the corrupt activities and pay highest percent of the contract values for bribery.

*[Table 5 about here]*

Further, Table 5 provides information on frequency of informal payments by country group and type of firm ownership for 2002-2009. Highest levels of informal payments as reported by the firms are recorded for the countries of

former Soviet Union, followed by Balkan countries and the Central and Eastern European countries, which report the lowest levels of informal payments. Table 5 also reveals that frequency of informal payments is larger in private owned firms than in state owned firms. The frequency of informal payments is diminishing over time. For the new EU member countries, the index of informal payments for private domestic and foreign firms on average decreased by 0.2 index points, while for state owned firms it decreased by 0.1. In the Balkan region, private domestic and foreign firms decreased average informal payments by 0.5 and 0.3 index points, respectively. State owned firms also decreased average informal payments by 0.3. Lastly, in former Soviet countries, domestic and foreign owned private firms have decreased informal payments by 0.3 index points, while state owned firms continue with providing the same amount of informal payments to ‘get things done’. The levels of informal payments, however, remain remarkably higher in private domestic and foreign owned firms relative to the state owned firms.

Kuncoro (2006) finds a similar result for Indonesian firms, where firms with some degree of foreign ownership are about 10 per cent more likely to make informal payments to government officials than purely domestically owned firms. Similar results were found by Gaviria (2000) that used perception-based data at the firm level in 20 Latin American countries.

Similarly, Table 6 shows that private (domestic and foreign) firms are on average more engaged in state capture than state owned firms. The involvement in state capture, however, is decreasing over time, with the largest reduction in domestically owned and foreign owned private firms. Again, the highest levels of informal payments are reported by the firms from the countries of former Soviet Union, followed by Balkan countries and the Central and Eastern European countries.

*[Table 6 about here]*

Breaking down the sample into three corruption dimensions and regardless of the firm category, the data in Table 7 show that stability of business environment has decreased between 2002 and 2009 for all three country groups.. During this period corruption became the greatest obstacle in former Soviet countries. The perception that courts are not corrupt and fair has experienced the greatest decline in new EU member states, the same holds true for the efficiency of legal enforcement. Political instability is increasing in all three country groups. Furthermore, corrupt activities within specific sectors have decreased in all country groups, however, to get connected to and maintain public services, as well as to obtain business licenses and

permits remain problematic in all country groups, especially in Balkan region. State capture has generally decreased, except for the former Soviet Union countries where it still remains frequent activity.

*[Table 7 about here]*

However, when taking into account also the firm ownership in three country groups, the data shows slight variations among them. In general, firms' perception is that they operate in relatively unstable environment. Table 8 shows that the corruption and political instability are becoming obstacle to business in all country groups. Moreover, firms perceive courts becoming more corrupt and increasing inefficiency of legal enforcement. Next, the most common informal payments are made for utilities and licenses and other permits. Also, the state capture involvement of firms is slowly decreasing, but the extent of it still remains problematic for all country groups.

*[Table 8 about here]*

These results suggest that while the perception of firms of corrupt activities is low and the period from 2002 to 2009 experienced slight decrease in informal payments and state capture, such practices have been internalized by firms and have been commonly accepted. Alternatively, the discrepancy could mean that firms do not report accurately these corrupt activities for fear of retaliation.

In what follows, we test empirically whether state capture as well as informal payments affect the microeconomic performance of firms.

#### **4. Methodology and empirical models**

The aim of our research is to estimate the impact levels of state capture and frequency of informal payments on productivity growth of firms in 27 transition countries. We employ different measures of productivity of firms and a variety of standard econometric methods. Moreover, we link the stability of business environment with the occurrence and effects of firms corrupt behavior.

In order to analyze potential effects of informal payments and state capture on firm productivity, we proceed with the empirical methodology in three steps. First, we examine the impact of informal payments and state capture on firms productivity growth, controlling for firm ownership. Second, we

proceed with the analysis of the informal payments and state capture on firm productivity, but controlling for country groups and conditional on the level of stability of business environment term. Finally, we examine the effect of firm's involvement in informal payments and state capture examined taking into account pre- and post- EU enlargement in 2004 in order to detect possible effects of EU accession requirements related to institution advancement and greater stability of business environment.

For estimating the impact of corruption practices on productivity growth, we use a standard growth accounting model (1), which takes into account the impact of corrupt activities (as measured by informal payments and state capture variables at the firm level) on firm productivity growth ( $y_{ijt}$ ):

$$y_{ijt} = a + b_1 l_{ijt} + b_2 k_{ijt} + b_3 b_{ijt} * Own_{ijt} + b_4 ca_{ijt} * Own_{ijt} + Y_t + S_i + u_{ij} + e_{ijt}, \quad (1)$$

where  $y_{ijt}$ ,  $k_{ijt}$  and  $l_{ijt}$  are growth rates of labor productivity (or TFP), capital and labor of firm  $i$  in country  $j$  and year  $t$ , respectively. The growth rates are calculated as differences of logged variables between the first and the last year in each survey wave. Namely, in each survey firms were asked to indicate their characteristics such as employments, sales, fixed assets etc. for the current year and the period of 3 years ago.

In terms of productivity measures in our regressions, we use both measures, labor productivity and total factor productivity (TFP). As BEEPS data is lacking the complete set of information on value added by all firms included, we define labor productivity as value of total sales over number of employees. Alternatively, we also use a measure of TFP for firms for which the data on value added is provided. For the purposes, TFP is estimated as a residual in a standard Cobb-Douglas production function with industry-, year-, and firm-fixed effects. This allows us for robustness check of the reported results using the labor productivity. However, due to much larger set of observations the main empirical results rely on using the firm labor productivity as a measure of productivity.

Variable  $b_{ijt}$  denotes *administrative corruption*, which is computed as a non-weighted average index consisting of informal payments/gifts that individual firm would make in a given year to influence implementation of laws and rules or to get things done with regard to connection and maintenance of public services (UTILITIES), obtaining business licenses/permits (PERMITS) and government contracts (GOVNT CONTRACTS), to deal with environmental inspections (ENVIRONMENT), tax collection (TAX



COLLECT) and customs (CUSTOMS). Variable  $ca_{ijt}$  denotes *state capture*, it is computed as a non-weighted average index consisting of informal payments/gifts, private payments or other benefits to parliamentarians to affect their vote (PARL VOTE), government officials to affect government decrees (GOVNT CAPT), and courts to affect decisions (JUDICIARY CAPT), as well as other ways of influencing the content of laws and rules. Both variables are interacted with the ownership type (*Own*) to control for different effects across firms with different ownership structure. Finally, we include year-, sector- and country-fixed effects.

Due to the panel structure of the data, we estimate the model by using the fixed effects estimator. We perform several robustness checks to control for the endogeneity of corruption, state capture and informal payments variables. To serve this purpose, we use the instrumental variables (IV) approach. In the first step, we apply a multinomial logit model to investigate, which lagged firm characteristics, including the ownership type, lead to higher scores of different measures of firm state capture and informal payments. In the second stage, we use the predicted values of selected measures of firm informal payments and state capture from the first step when estimating the model (1). Due to space limitations we only report the final results from the IV fixed-effects regressions.

## **5. Results and discussion**

In this subsection we report the results obtained by estimating the model (1). We first present overall results for pooled data for 27 transition countries. We then proceed to the analysis for three distinct country groups and by accounting for the impact of ownership type. Then we provide results for two separate time periods, i.e. before and after EU accession of Central and Eastern European countries in 2004. Finally, we also provide a robustness check using the TFP as a measure of productivity.

### **5.1. Impact of informal payments and state capture on firm productivity growth**

Table 9 shows the correlations between the explanatory variables we use in our regression model. According to expectations, legislation enforcement is positively correlated to both measures of productivity, while informal payments and state capture negatively affect productivity. On the other side, percent of contract value paid as bribery is positively correlated with the

labor productivity, but this seems to be the effect of domestically owned firms only while the correlation with foreign and state ownership is negative.

*[Table 9 about here]*

Results for the estimated productivity growth from empirical model (1) with and without fixed firms effects for firms with different ownership are reported in Table 10.

*[Table 10 about here]*

For pooled data, the results show an overall significant negative impact of weak contract enforcement, informal payments and state capture on productivity growth (column 1). These effects seem to hold irrespective of the ownership type. When interacting the variables on firm corrupt behavior with firm ownership (column 2), none of the interactions turned out to be significant. This implies that on average all firms, whatever the differences in their ownership structure, suffer substantial efficiency losses due to undertaken corrupt behavior.

How robust are these results to country- and region – specific business environment? We investigate whether there are variations in firms' productivity growth across different country groups (new EU member states, Balkan and ex Soviet countries). By doing this we account for potential differences in the regional business environment and whether these differences impact the relationship between firm corrupt behavior and firm productivity growth.

When accounting for differences in regional business environment by estimating the model separately for each region, the overall results show some variation in estimated effects of corrupt firm behavior. In former Soviet countries informal payments and state capture do not have any impact on firm productivity, while in Balkan countries perceived contract enforcement and engagement in informal payments do not seem to matter for firm performance. In the latter group, involvement in informal payments significantly negatively affects productivity growth of foreign firms only. For a set of new EU member states, the overall landscape of generally harmful effects of firm corrupt behavior remain intact. The striking findings for this country group, however, is that weaker enforcement of courts decisions and contracts as perceived by the firms and firms' involvement informal payments positively impacts at productivity growth of foreign firms. Foreign

firms seem to benefit from informal payments, but not from state capture activities.

## **5.2. Impact of informal payments and state capture pre- and post - EU enlargement in 2004**

Finally, we investigate the effect of firm's involvement in informal payments and state capture pre- and post- EU enlargement in 2004 in order to detect possible effects of EU accession requirements related to institution advancement and greater stability of business environment.

Empirical results reported in Table 11 below show not only differences between the country groups but also some significant differences before and after year 2004. In line with findings of De Rosa *et al.* (2010) weaker judiciary enforcement and stability of business environment have overall negative effect in all country groups before and after 2004 (but statistically significant only in the new EU member countries before 2004 and in former Soviet countries after 2004). Interestingly though, while after 2004 the negative effects of the weaker contract enforcement on average disappeared, they seem now to benefit foreign and state owned firms in the new EU member states.

Involvement in informal payments had a significant negative effect on productivity growth of firms that involve in such corrupt activity before 2004 in all country groups. These overall effects, however, hide a lot of variation, which shows up when accounting for differences in firm ownership structure. Though on average negative, impact of informal payments turn out positive for foreign owned firms in new EU member countries and for state owned firms in former Soviet countries, implying that these two groups of firms benefited from involvement in corrupt practices. After 2004, these – negative or positive – effects disappear completely in all country groups indicating the improvements in the business environment.

There is much less variation among countries and different ownership types in terms the effects of state capture on firm productivity. Before 2004 the effects were generally negative, while after 2004 the impacts remain overly negative only in the Balkan countries and for state owned firms in new EU member states.

*[Table 11 about here]*

### 5.3. Robustness checks

As a robustness check we employ TFP as a measure of productivity in the empirical model (1) with fixed effects for firms with different ownership. Both sets of results, however, are not directly comparable, due to the differences in compositions of firm samples. Namely, due to missing data, for the TFP measure we can use only about 40 per cent of observations that is available for the labor productivity. Nevertheless, the results for TFP specification, reported in Table 12, in general resemble the results obtained using the labor productivity.

*[Table 12 about here]*

For pooled data, overall results confirm a negative impact of informal payments and state capture on productivity growth, but not of the weak contract enforcement (column 1). Weak legal enforcement is again shown to have a positive impact on foreign firms' productivity growth in the new EU member countries, while (though similar in size) the coefficients for informal payments is not significant at 10 per cent anymore. State capture remain to have a general negative impact on all firms, in particular for firms in the new EU member countries and no effect on firms in former Soviet countries.

Lastly, the pre- and post-EU enlargement effects of firm's involvement in informal payments and state capture on productivity growth by using the TFP measure remain qualitatively similar to the use of TFP measure see Table 13). Effects of weak legal enforcement, that remain to have some impact after 2004 with the labor productivity measure, however, disappear completely with the TFP measure.

*[Table 13 about here]*

To conclude, our results confirm a robust overall negative impact of informal payments and state capture on firm productivity growth. The striking issue is that in particular foreign owned firms in the new EU member countries seem to benefit both from weak legal enforcement and from being involved in informal payments. The latter seem to indicate how these firms overcome the weaknesses of law enforcement. Though, after 2004, this effect disappears.

## 6. Conclusions

The main aim of our paper is to investigate the impact of stability of business environment and private incidence of corruption on microeconomic performance of firms. We investigate this relationship at the micro level by analyzing the impact of informal payments and state capture on firm productivity growth, whereby we control for firm ownership and country groups. We use firm-level micro data collected by the Business Environment and Enterprise Performance Survey (BEEPS) for 27 transition countries for the period 2002-2009.

Our results of testing impact of corruption (informal payments and state capture) on firm productivity show mixed results. Overall, the results are in line with the previous research findings (Frye and Schleifer, 1997; Knack and Keefer, 1995; Rodrik, Subrimanian and Trebbi, 2002; Gray, Hellman and Ryterman, 2004; De Rosa, Gooroochurn and Görg, 2010) that corrupt activities negatively affect firms' productivity and the effects are even more negative with less efficient institutional environment. Our results, however, show that there is more variation than previously inferred. First, we show that there are groups of firms that do benefit from engaging in corrupt activities to either circumvent weaker contract enforcement or by engaging in informal payments. These involve mainly foreign owned firms in the new EU member countries and state owned firms in former Soviet countries. And second, most of these effects dissipate after 2004, indicating the general improvements in the business environment.

These somehow surprising findings need some further discussion. First, the results suggest that foreign owned firms are more likely to engage in informal payments. Possible explanation is that foreign owned firms feel to be a priori at a competitive disadvantage vis-à-vis domestically (private or state) owned firms. Hence, this might be due to foreign firms' perception on what are the unspoken rules of doing business in a country they set up a base or perhaps they feel domestic firm owners are more politically connected and have easier access to doing business. As the foreign owned firms fear they would ultimately lose business to domestic or state owned firms they strategically chose to engage in informal payments. Likewise, there are practical considerations owing to where giving informal payments are outlawed in most countries; meanwhile they are allowed in certain countries and hitherto defined as the in-kind payments or facilitation payments. Consequently, the foreign owned firms engage in well-intentioned business activity because they think that is actually legal. On the other hand, they might intentionally engage in informal payments as they might deem the law

enforcement weak or penalties not being severe in comparison to the benefits.

Second, whether in the developed or in transition countries, big firms have an intimate relation with governments. Firms lobby for fewer regulations, lighter taxes, governmental subsidies and access to natural resources. Firms also depend on government bodies, such as law enforcement agencies, court systems, permit offices, and transportation networks. Hence, when a foreign owned firm sets up a base in a foreign country, its interaction with government creates possibility for unpleasant situations. Some governments may support them and some may be unfriendly to the firms' interests. In these cases, foreign owned firms might be tempted to oppose or even undermine that government. Between these two extremes, there is the normal course of doing business in transition countries, which involves the normal lobbying efforts that some developed countries have. This involves at least attempting to influence governments of transition countries, where this is not common practice or is still not defined by the lobbying regulation. Thus they are more likely to be involved in state capture as suggested by our results.

Third, unstable and weak business environment has a significant negative impact on firm performance, while some groups of firms seem to overcome this by involving in informal payments. These findings suggest that stricter law and contract enforcement are must, which may make firms' involvement in informal payments obsolete.

Thus, in terms of policy implications according to what our results show, institutions that promote transparent business environment, reliability of law enforcement and measures that align anti-corruption policies and lobbying regulation may help reduce firms' involvement in corrupt activities, such as informal payments and state capture. This, in turn, may decrease the likelihood of in particular foreign owned firms to involve in informal payments.

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## Tables to be included in the text

*Table 1: Corruption dimensions and variables used from BEEPS 2002 to 2009 panel data*

Corruption dimension	Variables					
<b>I. Stability of environment</b>	<i>Can you tell me how problematic are these different factors for the operation and growth of your business?</i>					
	Corruption is obstacle. (CORR OBSTACLE)	Courts are fair, uncorrupt. (CORR COURTS)	Enforcement of legal contracts and decisions. (LEGAL ENF)	Political instability is obstacle. (POLIT INSTABILITY)		
<b>II. Sector specific informal payments</b>	<i>Thinking now of unofficial payments/gifts that a firm like yours would make in a given year, could you please tell me how often would they make payments/gifts for the following purposes. What percent of the amount value would be typically paid?</i>					
	To get connected to and maintain public services (UTILITIES)	To obtain business licenses and permits. (PERMITS)	To obtain government contracts (GOVNT . CONTRACTS)	To deal with environmental inspections. (ENVIRONMENT)	To deal with taxes and tax collection. (TAX COLLECT)	To deal with customs. (CUSTOMS)
<b>III. State capture</b>	<i>It is often said that firms make unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions. How often would you make payments/gifts for the following purposes?</i>					
	How often would you pay for these purposes? (CAPT FREQ)	Parliamentarians to affect their vote. (PARL VOTE)	Govnt officials to affect govnt decrees. (GOVNT CAPT)	Courts to affect decisions. (JUDICIARY CAPT)		

Source: BEEPS 2002 to 2009 panel data.

**Table 2: Number of firms by country, 2002-2009**

<b>Country</b>	<b>Firm ownership</b>		
	<i>Domestic</i>	<i>Foreign</i>	<i>State</i>
Albania	318	45	37
Belarus	616	93	117
Georgia	601	68	56
Tajikistan	598	47	65
Ukraine	1,562	183	141
Uzbekistan	698	97	101
Russia	1,708	162	143
Poland	1,555	165	135
Romania	1,063	162	78
Serbia	665	112	84
Kazakhstan	1,182	110	82
Moldova	698	93	55
Bosnia	546	69	53
Azerbaijan	722	97	79
FYROM	623	83	24
Armenia	765	71	52
Kyrgyz	468	78	53
Estonia	501	102	44
Czech Rep.	669	105	66
Hungary	897	181	42
Latvia	435	91	55
Lithuania	514	71	58
Slovakia	487	79	55
Slovenia	541	71	40
Bulgaria	669	99	68
Croatia	405	62	58
Montenegro	133	7	5
<b>Total</b>	<b>19,639</b>	<b>2,603</b>	<b>1,846</b>

Source: BEEPS 2002-2009 panel

**Table 3: Breakdown of firms included in sample by country region, industry and type of ownership, 2002-2009**

Industry	EU			Balkan			ex Soviet		
	dom.	for.	state	dom.	for.	state	dom.	for.	state
Food	738	167	65	337	45	41	1,504	256	157
Textiles	68	21	1	26	2	4	134	22	3
Garments	355	44	1	51	12	5	476	35	8
Chemicals	39	17	1	34	4	1	153	28	11
Plastics & rubber	74	22	1	33	3		69	13	2
Non metallic mineral products	71	16	2	27	11	1	163	14	8
Basic metals	29	6	2	11	4	2	58	8	11
Fabricate metal products	490	57	8	78	10	7	280	21	11
Other manufacturing	427	87	22	221	25	26	594	75	70
Machinery and equipment	279	48	17	34	3	12	364	40	31
Electronics	28	11		13	2	1	52	2	1
Construction	839	53	58	302	9	16	1,067	55	135
Other services	760	126	229	236	33	66	943	91	167
Wholesale	928	187	46	475	118	7	1,132	200	75
Retail	1,260	120	24	456	38	9	1,706	88	62
Hotel and restaurants	408	56	28	164	21	22	390	57	43
Transportation	458	67	132	171	31	39	466	80	141
IT	75	17	2	18	6		64	9	6
<b>Total</b>	<b>7,326</b>	<b>1,122</b>	<b>639</b>	<b>2,687</b>	<b>377</b>	<b>259</b>	<b>9,615</b>	<b>1,094</b>	<b>942</b>

Notes: dom – domestic private owned firms, for – foreign private firm, state – domestic state owned firm.

Source: BEEPS 2002-2009 panel

**Table 4: Summary statistics for firms by informal payments, state capture and percent of contract values given for bribery (mean values and standard deviations), 2002-2009**

Ownership	EU		Balkan		ex Soviet	
	mean	sd	mean	sd	mean	sd
<b><i>Domestic firms</i></b>						
Informal payments	0.30	0.40	0.40	0.50	0.50	0.50
State capture	2.00	1.30	2.20	1.50	2.60	1.60
% Contract value in inf.pay	1.10	2.70	1.40	3.90	2.40	4.60
<b><i>Foreign firms</i></b>						
Informal payments	0.20	0.40	0.30	0.50	0.50	0.50
State capture	1.90	1.30	2.30	1.40	2.60	1.60
% Contract value in inf.pay	0.90	2.20	1.10	2.90	1.50	2.90
<b><i>State firms</i></b>						
Informal payments	0.20	0.40	0.40	0.50	0.40	0.50
State capture	1.70	1.10	2.10	1.40	2.10	1.40
% Contract value in inf.pay	0.40	1.80	0.50	1.60	1.00	3.20
<b>Total</b>						
Informal payments	<b>0.20</b>	0.40	<b>0.40</b>	0.50	<b>0.50</b>	0.50
State capture	<b>1.90</b>	1.30	<b>2.20</b>	1.50	<b>2.50</b>	1.60
% Contract value in inf.pay	<b>1.00</b>	2.60	<b>1.30</b>	3.60	<b>2.10</b>	4.30

**Notes:** *Informal payments* - firms were asked to rank whether it is common to have to pay some irregular additional payment or gifts to get things done on a scale from 1 (never) to 6 (always). *State capture* - firms were asked to rank whether it is common to have to pay some irregular unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions on a scale from 1 (never) to 6 (always). *% of contract value in informal payments* - firms were asked to estimate the percent of the amount value typically paid in informal payments to get things done.

Source: BEEPS 2002-2009 panel

**Table 5: Average informal payments change from 2002 to 2009 (average across firms)**

Year of survey	EU			Balkan			ex Soviet		
	Domestic	Foreign	State	Domestic	Foreign	State	Domestic	Foreign	State
2002	0.30	0.30	0.20	0.60	0.40	0.30	0.60	0.60	0.40
2005	0.30	0.30	0.20	0.50	0.40	0.40	0.60	0.60	0.40
2009	0.10	0.10	0.10	0.10	0.10	0.00	0.30	0.30	0.40
<b>Total change</b>	<b>-0.20</b>	<b>-0.20</b>	<b>-0.10</b>	<b>-0.50</b>	<b>-0.30</b>	<b>-0.30</b>	<b>-0.30</b>	<b>-0.30</b>	<b>0.00</b>

**Notes:** *Informal payments* - firms were asked to rank whether it is common to have to pay some irregular additional payment or gifts to get things done on a scale from 1 (never) to 6 (always).

Source: BEEPS 2002-2009 panel; own calculations

**Table 6: Average state capture change from 2002 to 2009 (average across firms)**

Year of survey	EU			Balkan			ex Soviet		
	Domestic	Foreign	State	Domestic	Foreign	State	Domestic	Foreign	State
2002	2.50	2.40	1.90	2.60	2.40	2.00	3.00	2.90	2.10
2005	2.10	2.00	1.50	2.70	2.60	2.40	2.70	2.70	2.10
2009	1.50	1.40	1.40	1.80	2.00	1.60	2.30	2.20	2.20
<b>Total change</b>	<b>-1.00</b>	<b>-1.00</b>	<b>-0.50</b>	<b>-0.80</b>	<b>-0.40</b>	<b>-0.40</b>	<b>-0.70</b>	<b>-0.70</b>	<b>0.10</b>

**Notes:** *State capture* - firms were asked to rank whether it is common to have to pay some irregular unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions on a scale from 1 (never) to 6 (always).

Source: BEEPS 2002-2009 panel; own calculations

*Table 7: Average corruption dimension change from 2002 to 2009 (average across firms)*

Corruption dimension	EU	Balkan	ex Soviet
<b>I Stability of environment</b>			
$\Delta$ Corruption obstacle	0.20	0.00	0.60
$\Delta$ Uncorrupt courts	-1.00	-0.80	-0.70
$\Delta$ Legal enforcement	-0.60	-0.50	-0.50
$\Delta$ Political instability	1.80	1.80	1.80
<b>II Sector specific inf.pay.</b>			
$\Delta$ Utilities	0.00	0.20	0.03
$\Delta$ Licences and permits	0.10	0.30	0.10
$\Delta$ Govnt contracts	-2.00	-2.30	-1.80
$\Delta$ Inspections	-0.13	0.10	-0.03
$\Delta$ Taxes	-0.30	-1.00	-0.50
$\Delta$ Customs/imports	-0.60	-2.30	-1.80
<b>III State capture impact</b>			
$\Delta$ State capture frequency	-0.20	-0.60	0.10
$\Delta$ Parliament vote	-0.30	-0.60	-0.30
$\Delta$ Govnt capture	-0.40	-0.60	-0.30
$\Delta$ Judiciary capture	-1.40	-1.60	-1.30

**Notes:** *Stability of business environment* - Firms were asked to rank how problematic are corruption, corrupt courts, inefficiency of legal enforcement and political instability to the operations and growth of the firm business on a scale from a 0 (no obstacle) to 4 (very severe obstacle). *Sector specific informal payments* - firms were asked to rank whether it is common to have to pay some irregular additional payment or gifts to get things done on a scale from 1 (never) to 6 (always). *State capture impact* - firms were asked to rank whether it is common to have to pay some irregular unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions on a scale from 1 (never) to 6 (always).

Source: BEEPS 2002-2009 panel; own calculations

*Table 8: Average corruption dimension change from 2002 to 2009 (average across firms)*

Corruption dimension	EU			Balkan			ex Soviet		
	Domestic	Foreign	State	Domestic	Foreign	State	Domestic	Foreign	State
<b>I Stability of environment</b>									
ΔCorruption obstacle	0.20	0.00	0.50	0.10	0.00	0.60	0.60	0.10	0.30
ΔUncorrupt courts	-0.90	-0.70	-0.60	-0.90	-0.90	-0.80	-0.90	-1.10	-0.60
ΔLegal enforcement	-0.60	-0.50	-0.50	-0.50	-0.70	-0.50	-1.20	-0.50	-0.20
ΔPolitical instability	1.80	1.80	1.80	1.70	2.10	1.70	2.30	1.60	1.30
<b>II Sector specific inf.pay.</b>									
ΔUtilities	0.66	0.77	0.60	0.56	0.70	0.53	0.40	0.80	0.63
ΔLicenses and permits	0.20	0.30	0.10	0.10	0.40	0.00	0.20	0.30	-0.10
ΔGovn't contracts	-2.00	-2.30	-1.90	-1.90	-2.00	-1.70	-1.60	-1.90	-1.50
ΔInspections	0.00	-0.10	0.03	0.00	0.23	0.00	-0.33	-0.23	-0.16
ΔTaxes	-0.40	-1.00	-0.60	-0.30	-0.70	-0.40	-0.30	-0.80	0.10
ΔCustoms/imports	-0.60	-1.10	-0.40	-0.80	-0.90	-0.50	-0.20	-0.80	0.10
<b>III State capture impact</b>									
ΔState capture frequency	-0.20	-0.60	0.00	-0.30	-0.20	0.00	-0.30	-0.70	0.20
ΔParliament vote	-0.30	-0.60	-0.30	-0.30	-0.50	-0.30	-0.30	-0.40	-0.20
ΔGovn't capture	-0.40	-0.60	-0.30	-0.40	-0.60	-0.30	-0.40	-0.50	-0.20
ΔJudiciary capture	-1.40	-1.60	-1.40	-1.40	-1.60	-1.40	-1.40	-1.60	-1.20

**Notes.** *Stability of business environment* - Firms were asked to rank how problematic are corruption, corrupt courts, inefficiency of legal enforcement and political instability to the operations and growth of the firm business on a scale from a 0 (no obstacle) to 4 (very severe obstacle). *Sector specific informal payments* - firms were asked to rank whether it is common to have to pay some irregular additional payment or gifts to get things done on a scale from 1 (never) to 6 (always). *State capture impact* - firms were asked to rank whether it is common to have to pay some irregular unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions on a scale from 1 (never) to 6 (always).

Source: BEEPS 2002-2009 panel; own calculations



*Table 9: Correlation coefficients and significance levels (p-values)*

	$\Delta$ Lab. prod.	$\Delta$ TFP	Domestic	Foreign	State	Legal enforc.	Inf. pay.	State cap.	% Contr. value
$\Delta$ Lab. prod.	1								
$\Delta$ TFP	0.7102*	1							
Domestic	0.0141	0.0750*	1						
Foreign	0.0208*	-0.0079	-0.6122*	1					
State	-0.0422*	-0.0802*	-0.5500*	-0.0950*	1				
Leg. enforc.	0.0196*	0.0195	0.0526*	-0.0087	-0.0570*	1			
Inf. pay.	-0.0784*	-0.0976*	0.0206*	0.0069	-0.0416*	0.0093	1		
State cap.	-0.0501*	-0.0737*	0.0354*	-0.0004	-0.0531*	0.0569*	0.4677*	1	
% Contr. val	0.0717*	-0.0082	0.0841*	-0.0398*	-0.0788*	0.0679*	0.2252*	0.3586*	1

Note: \*  $p < 0.01$

*Table 10: Impact of informal payments and state capture on firm productivity for three country groups (dep.variable: labor productivity)*

VARIABLES	(1) All	(2) All	(3) new EU	(4) Balkan	(5) ex Soviet
<b>foreign</b>	0.060*** [3.46]	0.030 [0.65]	-0.101* [-1.65]	0.179 [1.23]	0.009 [0.11]
<b>state</b>	0.006 [0.36]	0.001 [0.03]	-0.035 [-0.56]	0.226* [1.67]	-0.048 [-0.64]
<b>exporter</b>	0.076*** [6.08]	0.075*** [6.01]	0.090*** [5.77]	-0.003 [-0.09]	0.093*** [3.64]
<b>contract_enf</b>	-0.064*** [-2.92]	-0.072*** [-2.92]	-0.070** [-2.16]	-0.088 [-1.15]	-0.128*** [-3.02]
<b>contract_enf * for</b>		0.114 [1.53]	0.237** [2.35]	0.192 [0.85]	0.154 [1.24]
<b>contract_enf * state</b>		-0.047 [-0.62]	0.1 [0.78]	-0.247 [-1.16]	-0.008 [-0.06]
<b>inform. pay.</b>	-0.024** [-2.04]	-0.025* [-1.96]	-0.036** [-2.13]	0.046 [1.14]	-0.034 [-1.42]
<b>inform. pay * for</b>		-0.025 [-0.65]	0.118** [2.34]	-0.175* [-1.70]	-0.097 [-1.32]
<b>inform. pay * state</b>		0.045 [1.13]	-0.017 [-0.28]	-0.084 [-0.62]	0.06 [0.87]
<b>state capture</b>	-0.007*** [-3.55]	-0.005*** [-2.80]	-0.007** [-2.43]	-0.022*** [-5.58]	-0.004 [-1.48]
<b>capture * for</b>		-0.006 [-0.83]	-0.014 [-1.33]	-0.01 [-0.47]	0.004 [0.38]
<b>capture * state</b>		-0.012 [-1.48]	0.003 [0.18]	0.026 [0.47]	-0.005 [-0.56]
<b>Constant</b>	0.066** [2.24]	0.069** [2.28]	0.092** [2.06]	0.133 [1.64]	0.130** [2.45]
<b>Observations</b>	8,533	8,533	3565	888	4080
<b>R-squared</b>	0.397	0.397	0.498	0.434	0.354

*Notes:* Reported are IV – fixed effects results. Table presents major results of interest only. Full results are available from the authors upon request.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1; t statistics in brackets.

*Table 11: Impact of informal payments and state capture on firm productivity pre- and post-EU enlargement in 2004 (dep.variable: labor productivity)*

VARIABLES	Before 2004			After 2004		
	(1) new EU	(2) Balkan	(3) ex Soviet	(4) new EU	(5) Balkan	(6) ex Soviet
<b>foreign</b>	-0.073 [-0.76]	0.185 [1.11]	-0.042 [-0.41]	-0.128 [-1.57]	0.204 [0.80]	0.034 [0.26]
<b>state</b>	0.032 [0.33]	0.582*** [3.16]	-0.118 [-1.39]	-0.223** [-2.37]	0.098 [0.50]	0.023 [0.19]
<b>exporter</b>	0.086*** [3.28]	0.008 [0.16]	0.111*** [3.58]	0.078*** [3.95]	-0.024 [-0.47]	0.074* [1.94]
<b>contract_enf</b>	-0.127** [-2.21]	-0.046 [-0.41]	-0.046 [-0.86]	-0.043 [-1.10]	-0.100 [-0.98]	-0.181*** [-2.92]
<b>contract_enf * for</b>	0.184 [1.23]	0.160 [0.57]	0.184 [1.12]	0.301** [2.12]	0.208 [0.57]	0.155 [0.88]
<b>contract_enf * state</b>	0.051 [0.27]	-1.214*** [-3.00]	-0.026 [-0.19]	0.304* [1.65]	-0.064 [-0.24]	-0.013 [-0.06]
<b>inform. pay.</b>	-0.057* [-1.91]	0.063 [1.16]	-0.077** [-2.45]	-0.024 [-1.16]	0.036 [0.64]	-0.003 [-0.10]
<b>inf. pay * for</b>	0.213*** [2.78]	-0.201 [-1.54]	-0.043 [-0.48]	0.038 [0.56]	-0.162 [-1.07]	-0.130 [-1.19]
<b>inf. pay * state</b>	-0.014 [-0.15]	-0.371** [-2.10]	0.185** [2.46]	-0.060 [-0.71]	0.112 [0.57]	-0.078 [-0.67]
<b>state capture</b>	-0.013*** [-2.65]	-0.016* [-1.70]	-0.008** [-2.45]	-0.003 [-0.82]	-0.023*** [-4.85]	-0.001 [-0.29]
<b>capture * for</b>	-0.010 [-0.70]	-0.008 [-0.36]	0.005 [0.32]	-0.017 [-1.11]	-0.021 [-0.43]	0.005 [0.31]
<b>capture * state</b>	0.021 [1.06]	0.006 [0.05]	-0.016 [-1.13]	-0.057** [-2.17]	0.007 [0.10]	-0.005 [-0.44]
<b>Constant</b>	0.051 [0.40]	0.057 [0.28]	0.128 [1.21]	0.519*** [7.54]	0.046 [0.51]	0.765*** [10.03]
<b>Observations</b>	1,363	335	1,687	2,202	553	2,393
<b>R-squared</b>	0.449	0.573	0.411	0.540	0.387	0.335

*Notes:* Reported are IV – fixed effects results. Table presents major results of interest only. Full results are available from the authors upon request.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1; t statistics in brackets.

*Table 12: Impact of informal payments and state capture on firm productivity for three country groups (dep.variable: TFP)*

VARIABLES	(1) All	(2) All	(3) new EU	(4) Balkan	(5) ex Soviet
foreign	-0.007 [-0.25]	-0.097 [-1.26]	-0.249** [-2.47]	0.130 [0.56]	-0.034 [-0.25]
state	-0.041 [-1.44]	-0.166** [-2.11]	-0.253** [-2.26]	0.013 [0.06]	-0.131 [-0.91]
exporter	0.002 [0.10]	-0.000 [-0.01]	-0.002 [-0.07]	0.000 [0.00]	-0.010 [-0.26]
contract_enf	0.029 [0.76]	-0.002 [-0.05]	0.033 [0.63]	-0.150 [-1.35]	-0.033 [-0.41]
contract_enf * for		0.224* [1.73]	0.312* [1.77]	-0.022 [-0.07]	0.241 [1.15]
contract_enf * state		0.139 [0.85]	0.392* [1.71]	0.054 [0.12]	-0.035 [-0.12]
inform. payments	-0.074*** [-3.94]	-0.081*** [-3.83]	-0.076*** [-2.86]	-0.080 [-1.43]	-0.069 [-1.63]
inform. pay * for		-0.011 [-0.17]	0.091 [1.11]	0.153 [1.01]	-0.248** [-2.10]
inform. pay * state		0.052 [0.78]	0.059 [0.60]	0.010 [0.06]	0.012 [0.09]
state capture	-0.008** [-2.53]	-0.009*** [-2.61]	-0.009 [-1.60]	-0.017 [-1.54]	-0.004 [-0.70]
capture * for		0.014 [1.01]	0.020 [1.01]	0.011 [0.35]	0.014 [0.63]
capture * state		0.006 [0.39]	-0.022 [-0.81]	0.051 [0.57]	0.006 [0.34]
Constant	-0.586** [-2.02]	-0.569** [-1.96]	-1.577*** [-9.14]	-0.377 [-1.06]	1.568*** [2.65]
Observations	3617	3617	2028	490	1367
R-squared	0.611	0.612	0.503	0.845	0.537

**Notes:** Reported are IV – fixed effects results. Table presents major results of interest only. Full results are available from the authors upon request.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; t statistics in brackets.

*Table 13 Impact of informal payments and state capture on firm productivity pre- and post-EU enlargement in 2004 (dep.variable: TFP)*

VARIABLES	Before 2004			After 2004		
	(1) new EU	(2) Balkan	(3) ex Soviet	(4) new EU	(5) Balkan	(6) ex Soviet
<b>foreign</b>	-0.330** [-2.06]	0.453 [1.28]	0.039 [0.21]	-0.228* [-1.73]	-0.260 [-0.74]	-0.139 [-0.70]
<b>state</b>	-0.472*** [-2.60]	0.260 [0.46]	-0.127 [-0.74]	-0.222 [-1.44]	-0.093 [-0.34]	-0.043 [-0.17]
<b>exporter</b>	-0.014 [-0.30]	-0.024 [-0.29]	0.005 [0.10]	-0.018 [-0.60]	0.019 [0.30]	-0.017 [-0.27]
<b>contract_enf</b>	-0.143 [-1.34]	-0.050 [-0.25]	0.111 [1.04]	0.093 [1.57]	-0.198 [-1.52]	-0.187 [-1.61]
<b>contract_enf * for</b>	0.400 [1.43]	-0.098 [-0.19]	0.224 [0.77]	0.329 [1.42]	0.280 [0.56]	0.286 [0.94]
<b>contract_enf * state</b>	1.017*** [2.67]	-0.329 [-0.24]	-0.141 [-0.41]	0.111 [0.37]	0.133 [0.27]	-0.004 [-0.01]
<b>inform. payments</b>	-0.118** [-2.29]	-0.074 [-0.74]	-0.089 [-1.48]	-0.056* [-1.82]	-0.099 [-1.44]	-0.032 [-0.52]
<b>inform. pay * for</b>	0.269** [2.10]	0.121 [0.49]	-0.267* [-1.70]	-0.043 [-0.40]	0.176 [0.91]	-0.211 [-1.17]
<b>inform. pay * state</b>	0.165 [0.99]	-0.207 [-0.68]	0.058 [0.40]	-0.068 [-0.54]	0.21 [0.83]	-0.052 [-0.21]
<b>state capture</b>	-0.033*** [-3.44]	-0.039*** [-2.66]	-0.012** [-2.01]	0.005 [0.80]	0.024 [1.37]	0.015 [1.52]
<b>capture * for</b>	0.031 [1.16]	0.089* [1.93]	0.004 [0.14]	0.026 [0.79]	0.009 [0.13]	0.016 [0.46]
<b>capture * state</b>	-0.010 [-0.24]	0.057 [0.30]	-0.036 [-0.60]	-0.055 [-1.35]	0.018 [0.18]	-0.011 [-0.48]
<b>Constant</b>	0.420*** [4.26]	-0.323 [-1.46]	0.173 [1.49]	-0.302 [-0.63]	0.090 [0.23]	1.747*** [2.80]
<b>Observations</b>	625	211	696	1,403	279	671
<b>R-squared</b>	0.191	0.191	0.087	0.582	0.92	0.676

**Notes:** Reported are IV – fixed effects results. Table presents major results of interest only. Full results are available from the authors upon request.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1; t statistics in brackets.