

**UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE**  
Geneva, Switzerland

**DISCUSSION PAPER SERIES**

**No. 2013.1**

September 2013

**CORRUPTION AND ENTREPRENEURSHIP: DOES  
GENDER MATTER?**

- **Claudia Trentini**
- **Malinka Koparanova**



**UNITED NATIONS**

The UNECE series of Discussion Papers is intended to make available to a wider audience papers on matters of topical interest that have been prepared by the staff of the secretariat or commissioned by the secretariat from external experts. The purpose of the Discussion Papers is to contribute to the analysis and discussion of economic developments and policies in the UNECE region. The views expressed are those of the authors and do not necessarily reflect the official positions of the secretariat or of the member governments of the UNECE.

## Corruption and entrepreneurship: does gender matter?

Claudia Trentini<sup>1</sup>  
Malinka Koparanova<sup>2</sup>

### Abstract

*Corruption is a significant factor which determines the quality of the “doing business” environment at large. The aim of this paper is to contribute to our understanding of entrepreneurs’ corrupt behavior by looking at two questions: (1) does gender matter in corrupt behavior and (2) can corruption be an explanatory factor for gender gaps in firm growth. While it is often argued that female entrepreneurs face gender-specific challenges and might have different behaviors based on different ethics and moral standards, it is crucial to seek for empirical evidence at microeconomic level. Our results indicate that women entrepreneurs do have a significant lower propensity to bribe as compared to men entrepreneurs. Looking at the impact of corruption on employment growth, we do find a general negative impact of administrative corruption especially for micro enterprise but a positive one for women entrepreneurs. This is consistent with the fact that the majority of women are micro entrepreneurs; for them it is easier to escape the attention of corrupt officials, but greasing the wheels of state bureaucracy might become necessary and facilitate their firm’s growth.*

### I. Introduction

Gender differences in access to economic opportunities are often explained by the differences in the conditions and institutional constraints which women and men face. These differences are often discussed as gender differences in labour market participation, in education and skills to set up and manage businesses. This paper complements the existing literature on gender differences in entrepreneurship with an analysis of the relationship between entrepreneurial performance and corruption by gender in 31 countries in Europe and Central Asia.

Looking at gender differences in the corrupt behaviour of entrepreneurs is important. If women entrepreneurs are less likely to engage in corruption than men entrepreneurs, then measures and policies to fight corruption will reduce the advantages men entrepreneurs gain from these behaviours and thereby result in a reduction in the entrepreneurship gender gap. In addition, a business environment that is friendlier to women-managed and women-owned companies will be more attractive to women which will encourage more women to become entrepreneurs increasing in this way their incomes and welfare. Such an environment would also be more

---

<sup>1</sup> United Nations Conference on Trade and Development.

<sup>2</sup> United Nations Economic Commission for Europe.

conducive to the development of small enterprises which is important for poverty alleviation and sustainable growth in many countries. According to recent statistics, about a fifth to a third of all small entrepreneurs in the world are women.

Corruption is a significant factor which determines the quality of the “doing business” environment at large. Corrupt public practices as illegal activities decrease the economic efficiency of governments, reduce incentives for public and private investment, and weaken the institutional foundation of development. Seeking economic rents by creating artificial limitations reduces economic activity and limits the number of entrepreneurs through creating barriers in sectors and regions. It is often the new comers, who would like to move into another sector, or start up a new business, and/or have innovative ideas and want to register or get licenses for new products and services who are the most penalized by a corrupt environment. In many cases women starting small businesses or trying to expand existing activity are particularly affected by corrupt business practices as their initial capital is often limited; as result investments are lost, and opportunities for women – missed. Corruption can limit the effects of special programmes in support to women entrepreneurship because of its widespread and pervasive character.

In the so-called countries with economies in transition , mostly in Eastern Europe and Central Asia, the process of establishing new governance institutions has been accompanied by high levels of corruption which has adversely affected the development of an inclusive private sector (EBRD, 2005). In such an environment, the evolution of small and medium enterprises is sluggish, high levels of unemployment persist, and poverty and income inequalities rise. . Although women account for the majority of the unemployed and the poor in many of those countries, female-owned companies are rare.

Given its negative impact, much stands to be gained from a better understanding of corruption and how it relates to women entrepreneurship. This paper contributes to the understanding of corrupt behavior of entrepreneurs by looking at two questions: (1) does gender influence the degree of corrupt behavior, and (2) can corruption be an explanatory factor for observed gender gaps in firm growth. While it is often argued that female entrepreneurs face gender-specific challenges and might have different behaviors based on different ethical and moral standards, it is crucial to support this proposition with empirical evidence at the microeconomic level.

We concentrate on the impact of corruption in order to draw conclusions on possible corrective policy responses. Recent research has pointed out that since women are less prone to corruption, increasing their participation in politics and in the labour force could reduce the overall level of government corruption and improve the business environment by increasing business trust (Dollar et al. 2001 and Swamy et al. 2001, Michailova and Melnykovska 2009). However, no paper to our knowledge has yet analysed the differential impact of corruption on women entrepreneurs.

In Europe and Central Asia, firms owned by women are smaller, concentrate in different sectors and perform less well than firms owned by men. The economic and institutional explanations for these patterns have focused on discrimination in credit markets (Murayev et al., 2009 and Aidis et al. 2007), on the access to capital and business services, and on women’s concentration in sectors with less growth

opportunities (Verheul and Thurik 2001, Sabarwal and Terrell, 2008, World Bank 2012). A few studies have analyzed the differential impact of institutional factors on women entrepreneurs. For example, Estrin and Mickiewicz (2011) find that women are less likely to undertake entrepreneurial activity in countries where the state sector is larger, and Van der Zwan et al. (2011) find that the perceived environmental constraints which hinder entrepreneurial progress are more prevalent in the (former) European transition economies than in other economies.

Of particular concern are the discouraging effects of informal payments and bribe extortion on entrepreneurial activity. The literature based on cross country datasets finds convincing evidence of a negative relationship between levels of corruption and entrepreneurship.<sup>3</sup> Also, it is a common practice for international donors and development agencies to devote some of their economic assistance towards improving transparency and governance as they are viewed as essential ingredients for achieving sustainable development.

This paper uses World Bank and EBRD firm level data for 31 countries in Europe and Central Asia to explore the corrupt behaviour of entrepreneurs; in particular, we investigate if corruption differs across genders and if this difference is able to explain the gender gap in firm growth. We first investigate the behaviour of women entrepreneurs which have received requests for bribes, and verify the hypothesis that the different genders might have different propensities towards corruption. We then look at the impact of informal payments on firm employment growth and analyse if corruption can be a gender specific factor hampering entrepreneurship.

Having a cross-country dataset with individual firm information allows us to analyse firm characteristics in determining corrupt behaviour. At the country level, firms facing the same set of rules and institutions can still end up facing different probabilities to pay bribes and different graft amounts.

Our results indicate that women entrepreneurs do have a significantly lower propensity to bribe as compared to men entrepreneurs. However, we question whether this is due to their different ethical and moral standards or to the smaller size of their firms. Smaller companies are less likely to be requested to pay bribes to corrupt public officials due to their constrained revenues and limited activities as well as to their higher risk aversion. The fact that men entrepreneurs have a higher probability of paying a graft might be simply due to the fact that their larger firms have more interactions with public officials during the course of their business activities (Svensson 2003). If women entrepreneurs are more likely to operate in smaller firms, mainly active on the local market and not needing permits and certificates, they will be less exposed to corruption and this could explain the difference in bribing behavior as compared to men entrepreneurs. We observe these specificities in the dataset for women and men entrepreneurs at firm level in Europe and Central Asia. Looking at gender behavior for different firms size, a clear pattern emerges where for micro firms (with less than 10 employees) women entrepreneurs do have a significantly lower propensity to bribe, while for larger companies this difference does not exist, and in some cases women are even more prone than men to informal payments.

---

<sup>3</sup> In particular there is growing literature on the negative impact of bribery on firm's sales growth: Seker and Yang (2012), Fisman and Svensson (2007), Francisco and Pontara (2007), Halward-Driemeier et al (2006), Honarati and Mengistae (2005)

On the other hand, the amount paid as bribery is the same across gender, while there is some indication that women entrepreneurs have higher risk aversion and prefer to maintain their activity in the formal sector declaring higher percentages of sales and wage bill for tax purposes.

Looking at the impact of corruption on employment growth, we do find a general negative impact of administrative corruption especially for micro enterprise but a positive one for women entrepreneurs. This is consistent with the fact that the majority of women are micro entrepreneurs; for them it is easier to escape the attention of corrupt officials, but greasing the wheels of state bureaucracy might become necessary and facilitate their firm's growth.<sup>4</sup> This evidence could thus provide an additional explanation for the performance gap of women entrepreneurs in transition economies.

The paper is organized as follows. In Section II we describe the data and the key measures of corruption we use in the study. In Section III we present the econometric models of determinants of corruption and discuss the empirical results. In Section IV we outline the analytical framework of the impact of informal payments on firm growth and provide empirical evidence on gender differentials. In Section V, we summarize our empirical findings and conclude.

## II. Data

In this paper we use the 2005 *Business Environment and Enterprise Performance Survey* (BEEPS) data, produced by the World Bank and the European Bank for Reconstruction and Development (EBRD). This dataset provides detailed firm level data for 31 countries in Europe and Central Asia: 5 old EU members, Germany, Ireland, Greece, Portugal and Spain, 8 New Member States: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia,<sup>5</sup> 8 South-Eastern European states: Albania, Bosnia, Croatia, The former Yugoslav Republic of Macedonia, Turkey, Serbia and Montenegro, and 10 Commonwealth of Independent States (CIS) countries Armenia, Georgia, Kyrgyzstan, Moldova, Tajikistan, Uzbekistan, Belarus, Kazakhstan, Russia and Ukraine.

The sample was constructed by stratified random sampling from a national registry of firms. In each country, the industry composition of the sample in terms of manufacturing versus services was determined by their relative contribution to GDP. Firms that operate in sectors subject to government price regulation and prudential supervision, such as banking, electric power, rail transport, and water and waste water, were excluded from the sample. The sample includes only registered firms (i.e., not informal firms), and their size varies from as few as 2 employees to as many as 9,999 employees. However, most of the firms sampled are small and medium sized

---

<sup>4</sup> Aterido et al. (2007) find non linear effects of corruption on firms' growth with micro and small firms growing faster in a more corrupt environment while this creates bottlenecks for medium and large firms.

<sup>5</sup> Bulgaria and Romania are included in the New Member State group even if they accessed to the EU only in 2007. However, Steve and Rousso (2003) and Budak and Goel (2006) show that for transition economies a near-term prospect to access EU has a positive effect on corruption fighting. On the other hand we left Croatia in the South-Eastern European group as it only accessed in 2013.

enterprises and at least 10% of them are in a small city or the countryside (i.e., population under 50,000 inhabitants).<sup>6</sup>

We define as entrepreneur the principal owner of individual or family owned firms who is also the manager and for which we know the gender. We discard data from state-owned, stock-exchange listed corporations and cooperatives where it is not possible to identify the main owner/manager. There are about 9900 such firms in the database, with 150-600 firms per country. Excluding firms that did not provide information about their capital stock and their sales, we end up with a sample of 5,471 enterprises.

Regarding firm growth, the dataset contains retrospective information for employment for three periods before the year of reference of the survey. Our outcome variable of interest is a measure of total employment growth. This measure includes permanent employment which is likely to reflect the long-run performance of the firm as well as temporary workers that are indicative of short run dynamics potentially very important for micro enterprises usually more constrained by legislative measures. Our measure of employment growth refers to the change of employment during the period  $t$  and three years before, divided by the firm's simple average of total employment during the same period, divided by three.

Since the sample size is small for many countries, we define three sector groups: manufacturing (ISIC 15-37), trade and transport (ISIC 50-52 and 60-64) and services including hotels and restaurants (ISIC 45, 55, 70-74, 93) and other service sectors like real estate, renting and business services, and construction services.

Table 1 shows the composition of the sample by region and by gender and the incidence of bribing behaviour. More than 40 per cent of the firms in the sample come from the old EU members, more than 32 per cent are from the countries which joined the EU in or after 2004, only about 10 per cent are from South Eastern Europe and the remaining 17 per cent are from the Commonwealth of Independent States (CIS). Female ownership and bribing behaviour varies drastically across groups of countries. While female ownership is about 30 per cent in old and new EU countries, but it only 23 per cent in the CIS and 17 per cent in SEE.

## Corruption

The BEEP surveys are consistent across countries and include a number of questions on the firms' characteristics. The questions on corruption were phrased indirectly to avoid implying that the respondent is engaged in any wrongdoing. Moreover, information about the confidentiality of the survey was explicitly communicated and repeated before all the questions on corruption. The main question on bribes payment was "On average, what percent of total annual sales do firms like yours typically pay in unofficial payments/gifts to public officials?" We analyse the responses to this question: both the incidence of corruption as well as the amount paid for administrative corruption and for obtaining a contract. Note that the questions refer to practices in their entrepreneurial industry, not to their own behaviour; this is likely to

---

<sup>6</sup> Unfortunately the survey changes between 2005 and 2009, dropping the relevant questions on the property structure of the firm used to identify female owners and changing most of the questions related to corruption.

provide a more accurate answer since the entrepreneur need not refer to their own behaviour but this does introduce possible distortions on the reliability of data. Based on the data in the questionnaire, we capture corruption in four different ways, or measures, described further in this section.

We identify four measures of corruption. The first measure captures all additional payments/gifts that firms have to pay "to get things done" including informal payments to customs, for taxes, licenses, regulations, services, inspections, as well as to deal with courts, obtain government contracts, and influence the content of new legislation, rules and decrees. Hence, we name it "*overall measure of corruption*" and it is shown in column 4 of table 1. The variable is equal to 1 if the entrepreneurs declare that for "firms like theirs" it is common to pay a bribe. According to the data, the percentage of firms which usually are required to pay a graft in any of the previous circumstances is quite high and ranges from 35 per cent in the old EU members to more than half of NMS firms and goes further to 60 and 65 per cent of all firms in SEE and CIS respectively. These percentages are higher than the incidence of what is called administrative corruption shown in the next column.

The second measure of corruption is related to administrative corruption. *Administrative corruption* refers to the illicit and non-transparent provision of payments or other benefits to public officials in exchange for illicit and non-transparent preferential treatment in the "implementation" of prescribed administrative regulations, rules and policies imposed by the state on the activities of firms and individuals. We relate this measure of corruption to the entrepreneurs' motivation to get preferential treatment for their companies from the administration. However, more typically this form of corruption is associated with the "grabbing hand" of the state – public officials who exact unofficial payments from firms and individuals in exchange for favoritism in the allocation of licenses, permits, public services, customs clearances, and relief from taxes, fees, fines and penalties (Hellman et al 2000). This kind of informal payments has an incidence across the firms of about 23 per cent in the old EU countries, 36 per cent in the New Member States, 49 in the SEE and 54 in the CIS (column 5 of table 1). The columns 6 of table 1 show the amount of informal payments paid for administrative corruption in terms of the percentage of sales. These informal payments vary considerably across the sub-regions we study, with the old CIS countries leading with the value of bribes (in percentage of the firm's sales) of more than 3 per cent about twice the percentage paid (1.6 per cent) in the old EU.

The third measure of corruption is related to the motivation to obtain a government contract. In the paper we call it a *gift to obtain a contract* and it refers to the payments entrepreneurs make with the objective of obtaining an advantage in winning a government contract. These kind of payments are more frequent for larger enterprises and can be considered similar to the last form of corruption considered called State capture, as entrepreneurs engaging in this form of bribing are able to bend public rules to their own private benefit. Here the percentages of incidence are rather similar across country groups involving about 30 per cent of the entrepreneurs; the exception is represented by the SEE where the incidence is around 38 per cent (column 7 Table1).

We have two additional measures of corruption, called *State capture* describing the behavior of entrepreneurs in order to capture their motivation to influence legislators either at the local or national level.<sup>7</sup> Since our dataset focuses on small family or individually owned companies, it is not surprising that the incidence of state capture involves only 10 % of the sample. However, also in this case variations across country groups are huge and while this kind of influence is not very common in the EU countries it involves up to 20 per cent of the entrepreneurs in the SEE and just a little bit less in CIS.

### *Gender differentials*

We present some descriptive statistics of the variables used in the analysis and their gender differentials in table 2. The first set of variables describe the size of the firm by employment, followed by other characteristics, such as sales, profits, capital, ownership, rural/urban location, sector affiliation, concentration, export-orientation of the output, imports, and affiliation to a business association. The data show that in 2002 companies owned by women are smaller in terms of number of full-time permanent employees in 2002 as compared to companies owned by men (only 34.9 on average versus 49.5 employees). Firms owned by women are smaller in terms of sales and capital as well. Having a closer look at the firm's size, over two thirds of women own firms employ less than 10 workers; this compares with little more than a half of men's. In spite of these differences the percentage of men and women reporting positive profits in 2003 (90%), the level of competition in their industry, and the rate of employment growth over the last 3 years are similar. Entrepreneurs are highly concentrated in a core product with more than 95 per cent of their sales coming from their main good / service. More than a third of entrepreneurs are established in rural areas; this is similar for both women- and men-owned firms.

Enterprises owned and run by men are more likely to be a member of a business association and to be in co-ownership with foreigners (at least 10 % control of foreigners) than firms owned by women. Another distinctive difference is that firms owned by men are more often active in the manufacturing sector than those run by women. Conversely, women concentrate in the services and are less engaged in external trade activities.

The next block of variables is related to the relation of entrepreneurs with the institutions and bureaucracy: probability to interact with public officials, attitudes towards the State, graft payments, incidence of corrupt behaviour, and tax evasion. Public services interruptions, trade propensity, attitude towards the local bureaucracy and number of inspections during the past year are directly related to the probability of an entrepreneur to engage in administrative corruption: companies which need to interact with public officials the most (for customs, permits, and public services) are those most likely to be extorted informal payments. These variables are summarized in the variable Formal Sector.<sup>8</sup> Women are less likely to sell to the government,

<sup>7</sup> State capture refers to the illicit activities on the part of enterprises and individuals to purchase preferential advantages directly from the state by subverting the formation of laws, rules, regulations and decrees (Hellman et al 2000).

<sup>8</sup> Following Svensson (2003) we construct a variable called Formal Sector capturing the probability to engage in administrative corruption. This variable is the principal component of infrastructures, trade, attitude towards the bureaucracy, number of inspections by public officials.

experience more often interruptions in public services, use less the email in their relations with the customers and are slightly less often inspected by public officials. Accordingly, the Formal Sector variable shows a big gap between genders.

Men and women do not differ much in their opinion of the State protection of their rights: less than half of all the entrepreneurs interviewed thought that bureaucracy was fair and that they could act against any government agent breaking the rules.<sup>9</sup> Similarly, about two thirds of the interviewed thought that property or contract rights were well enforced and were confident that the legal system could uphold their rights in a business dispute.<sup>10</sup>

According to the descriptive statistics of the data in table 3 women are less likely to make informal payments for administrative corruption or to obtain a contract. However, there is no significant gender difference when considering the amount paid, or the incidence of state capture.

The last three variables describe attitudes of businesspeople towards the state and describe what percentage of sales, workforce and wage bill would the entrepreneur be willing to report for tax purposes. Women show a tendency to declare higher percentages to the tax authorities than their male counterparts.

### **III. Econometric models of determinants of corruption and results**

#### *Specification*

In this section we investigate how gender is related to the corrupt behaviour of entrepreneurs. For this purpose, we adopt Svensson's (2003) framework for analyzing the determinants of bribing incidence and of the amount paid. In his model, the extent to which bribes can be collected depends on public officials' "control rights" over firms' business operations and the ability of companies to pay. Public officials can extract bribes from firms as long as firms cannot easily change their line of business and the probability of being caught and punished is low. It follows that firms which require permits and certificates to operate, or trade abroad and are therefore reliant on infrastructure services are more likely to pay bribes as they need to interact more with public officials. At the same time the amount paid should increase if a firm's profitability, i.e. its ability to pay, goes up and should decrease if the firm could easily change sector or location.

We use the following basic econometric model to investigate the link between the gender of owners/managers and their corrupt behaviour:

$$p_i = \alpha_0 + \alpha_1 Female_i + \alpha_2 X_i + v_i \tag{1}$$

$$g_i = \gamma_0 + \gamma_1 Female_i + \gamma_2 X_i + \varepsilon_i \tag{2}$$

where  $p_i$  is a binary variable equal to 1 if the firm is engaged in paying bribes and 0 otherwise (paying bribes includes any type of informal payment, administrative

<sup>9</sup> See table 3 for description of the variables.

<sup>10</sup> See table 3 for description of the variables.

corruption, gift for obtaining a contract, influence on national or local laws/regulations),  $g_i$  is a variable measuring the amount paid as graft in terms of percentage of total sales or of the public contract,  $X_i$  is a vector of variables introducing the bargaining power of each entrepreneur  $i$ , *Female* is a dummy variable which equals 1 if the principal owner and manager of the firm is a female and 0 otherwise and  $v_i$  and  $\varepsilon_i$  are the respective error terms.

The vector of variables  $X_i$  includes all the relevant firm's characteristics capturing the bargaining power of each entrepreneur  $i$  facing a corrupt public officer and includes the following characteristics of the firm: the age of the company (*age*) as longer established firms could have better access to official contacts,<sup>11</sup> an indicator if the entrepreneur is a member of a business association to capture their connection to business networks (*member BA*), a dummy variable equal to 1 if the firm had positive profits in 2003 (*Profits 2003*), the natural logarithm of the capital stock ( $\ln K$ ), the size of the enterprise measured on the basis of the employment level in 2002 (*micro 1-10, small 11-49, medium 50-200, large 200 and more employees*, the omitted category is *micro* enterprises), a measure of concentration (*concentration*) indicating how much of the sales come from its principal product; this variable proxies the ability of the firm to exit the sector/market.

In addition, we include a set of dummy variables to account for possible characteristics of the firm and its owner that influence the pattern of behaviour along with the variables in the models (1) and (2). They are as follows:

The ownership and origin of the firm potentially determine the way and extent of interactions between firm managers and public officials. The regressions include a dummy variable for privatized firms (*privatization*) as these might be expected to maintain ties and access to public officials and for foreign owned ones (*foreign own*) as foreigners might have more difficulties to interact with local bureaucracies.

A dummy variable (*property*) accounts for a firm's security of property and contract rights. Firms insecure of their property rights might be tempted to seek individualized protection through informal payments. *Fair\_bureauc* is a dummy variable taking the value of 1 if the respondent thinks he is able to get fair treatment from public officials without recourse to unofficial payments. This variable clearly reflects entrepreneurs' trust into bureaucrats.

Following Svensson (2003) we construct a measure of the extent to which entrepreneurs have to deal with public officials (*FormalSector*); this variable is the principal component of 3 other variables: the number of public services – telephone, water connection, electricity and email – a firm is using without interruptions, if the firm is engaged in external trade, and the number of inspections by public officials during the past year. We prefer to combine the explanatory variables into a "formal sector index" to avoid multicollinearity problems and have a measure of the control public officials maintain over a firm.

---

<sup>11</sup> Since the age of a company is not expected to influence corruption in a linear manner, both the age and the age squared (*age2*) are included as variables.

To account for differences in economic conditions and productive structure, the regressions also include a full set of sector-location-country dummies. Our results confirm that the country specific component is very strong, and corruption levels and practices change considerably across countries. Thus, our focus is on within-country rather than across country variation.

In addition, the location dummies control for potential omitted variables at the country level.

When estimating equations (1) and (2) the question arises as how to best control for the potential endogeneity related to some of the explanatory variables as well as the reverse causation. In fact, bribe payments might affect the firm's profitability and its ability to grow (Fisman and Svensson 2007), as we will analyze in the next section. We use lagged values of profitability and employment to mitigate the problem of endogeneity and reverse causation.

The equation (1) is estimated using a probit model, while equation (2) is estimated by OLS, allowing for heteroskedasticity and clustering errors by country.

### *Analysis of results*

We interpret the results of the two models on gender differences in the corrupt behaviour of entrepreneurs based on the bargaining theory of corruption. It hypothesizes that the extraction of bribes is a two stage game: in the first stage corrupt bureaucrats are matched to firms, while in the second stage a bargaining process between entrepreneurs and public officials start to determine the amount extracted. Public officials select potential entrepreneurs on the basis of their "control" over firms, where the more firms need public administration services the more are they subject to control by public officials. In the bargaining stage, targeted firms will be extracted the most on the basis of their ability to "contribute" (their profitability). Bigger companies and those that can easily escape from the bureaucrats' control by moving into another sector have some margin of "refusal power" and will thus pay a lower graft (Svensson, 2003).

The results of the estimated models are presented in table 4. The coefficients show the marginal effects of the probit model (1) estimating the determinants of the various measures of corruption incidence; columns 1 estimates the probability of firms to make any informal payment<sup>12</sup>, column 2 – to make payments to public officials "to have things done" (administrative corruption), column 3 – of making any gift to secure government contracts, and columns 4 and 5 report the estimates of the probability of seeking to influence the content of laws or regulations at the local and national level respectively (State Capture).

According to the presented results, female-owned firms are less likely to make informal payments in total as compared to firms owned by men of about 3.8 per cent

---

<sup>12</sup> For ease of reference we repeat here all the instances where entrepreneurs can be requested informal payments: to get connected to and maintain public services, to obtain business licences, government contracts, to deal with occupational health and safety, fire and building, environment inspections, with taxes and tax collection, with customs/imports, with courts, to influence the content of new legislation, rules and decrees.

less for administrative corruption and up to 7.2 per cent less to obtain a contract. The pattern about influencing laws' content does not reveal any significant difference across genders as reflected in the last column.

Our findings reveal that the size of the firm has a different impact on the corrupt behaviour of entrepreneurs. As expected, medium and large firms are more likely to influence legislators (in which case also capital size matters) while such companies are less likely to pay to obtain a government contract. This is most probably related to their established networks with public managers and their market leading position. For administrative corruption, small and medium enterprises, but not micro firms are the most targeted from public officials.

The variable capturing the extent to which firms need to interact with public officials (*Formal Sect*) is positively correlated with corruption in all its measures and is highly significant, which is in line with our expectation. A firm dealing extensively with the public sector faces a higher probability of being under bureaucratic control and thus to pay bribes. Managers secure of their property and contract rights (*Property*) and able to secure fair treatment by public officials (*Fair\_bureaucracy*) are less prone to administrative corruption and thus less likely to seek individual protection buying bureaucrats' favours.

The coefficient on the age of the company suggests the idea that younger and smaller firms are more likely to be extorted informal payments. Concentration is relevant only for administrative corruption thereby supporting the theory that less "mobile" companies are not able to escape public officials' pressure.

An interesting finding of our results is the positive and significant impact of being a member of a business association on corruption. The coefficient of the variable "member of a business association" supports the idea that good networks facilitate the entrepreneurs' lobbying work on legislators and public contractors. Entrepreneurs who are members of business associations are more prone to pay informal payments in general. Men entrepreneurs are more willing engage in networking than women entrepreneurs and thus they exchange information more often on how to go about various problems including through informal payments. The lack of such specific information about the possible options for corruption could be the reason for women entrepreneurs to be less likely to pay informal payments than men entrepreneurs.

Sector specificities seem to be an important determinant of the corrupt behaviour of entrepreneurs. Firms in services, trade and transport are affected by all forms of corruption with services being the sector highly impacted by administrative corruption.

There does not seem to be much differentiation among the location of the firm for administrative corruption while smaller towns and rural areas are clearly negatively related to public contracts' irregularities and State capture practices. The form of ownership does not seem to affect a company's bribing behaviour either with the exception of influences on local laws and regulations

In sum, the results from table 1 reveal that a combination of different factors impacts corruption. Factors affecting one measure of corruption do not necessarily affect the

other and not in the same way. Variables reflecting a firm's business environment as well as its specificities (size, sector) determine the extent to which it has to deal with the state authorities and its flexibility to adapt to it (through age, or mobility); they also influence a firm's ability to avoid undue payments. At the same time, variables capturing a firm's networking capacity and its size positively affect the probability of engaging in state capture activities or trying to win a public contract.

As a second step, we extend the analysis on corruption by looking at the bribe incidence at different firm's sizes and analyse the gender differentials. The results are reported in table 5. As size effects on administrative corruption are not linear, we investigate if gender propensities to bribe change with the size of their company as well. This is because a lower propensity of women to bribe public officers might be related to the fact that the majority of them runs a micro enterprise, lacks a network of contacts, or has fewer occasions to meet with public officials.<sup>13</sup> In this case, the gap in moral standards could be different in larger enterprises where women entrepreneurs need to interact more with government bureaucracy and fellow businesspeople to survive the competition. This is indeed the case for gifts to obtain a public contract where in large enterprises women entrepreneurs have a higher probability than men entrepreneurs to bribe officials.

Corruption is often very much related to that part of the economy which is called informal being all the activities not formally registered/ recorded, totally or partially.<sup>14</sup> In the following we extend the previous analysis by exploring this idea; namely if the same gender differentials in corrupt behaviour are also reflected in different tax evasion propensities. For this reason we replicate the same econometric model used for bribing propensities to analyse the actual percentage of taxes, wage bill and workforce reported to authorities for taxes purposes. These variables can be interpreted as attitudes towards the state as well as risk aversion measures. Entrepreneurs who under-report on these measures are evading taxes and are, thus, if detected by the authorities, subject to fines. Hence, tax evaders should have a high propensity to take risk in the sense that they believe detection is unlikely.

The results presented in table 6 show that women entrepreneurs are more risk averse and declare a higher wage bill and work force to the authorities than men. This could provide a possible interpretation for the lower propensity to engage in corrupt behaviour as observed in the previous model.

Another important result that we obtain in our analysis, although not surprising, is that a higher confidence in the rule of law (*Property*) and administrative infrastructures (*Fair\_bureauc*) are correlated with lower tax evasion whereas bad infrastructures and a high number of interactions with public officials (*FormalSect*) encourage the informal economy.

---

<sup>13</sup> Almost half of the women in the sample run micro enterprises with 5 or less employees compared with a third of their male counterparts. It is plausible that these micro companies are just at the threshold of the "grey/informal" area, relatively invisible to the State.

<sup>14</sup> Informal firms can be totally invisible to the State because they are not registered or only partially, when they avoid declaring certain inputs or outputs of the activity such as employees' social security payments, revenues, secondary activities.

Bigger firms, privatized or foreign owned are more likely to report any of the above measures, while firms in the services sector are more likely to evade taxes.

We will use these results for the estimation of our second model of corrupt behaviour (2). The model identifies the determinants of the amount paid for administrative corruption and for obtaining a public contract in terms of percentages of the sales and of the desired contract respectively.

To correct for selection bias, we estimate Heckman-type selection models. The results are presented in columns 3 and 4 of table 7. The selection bias arises if the error terms  $v_i$  and  $\varepsilon_i$  are correlated.<sup>15</sup> Identification of the selection equation requires a variable that determines the probability to pay bribes, but is irrelevant in the main equation of interest; in other words, it does not affect the amount paid. As instrument for the identification of the selection equation we use the variable indicating the percentage of the actual workforce a firm reports to authorities (*Workforce*). As we already discussed, we interpret this variable as a measure of risk aversion. More risk adverse entrepreneurs are less willing to operate in the shadow economy and engage in either tax evasion or bribing activities. However, once firms select into the informal economy, the bargaining process over the amount paid is not determined by their risk aversion but rather by their refusal power.

In table 7 we do not report the selection equation as this is very similar to the results in table 6. However, we report the coefficients on the instrument chosen which is highly significant in both regressions. We find evidence of selection in both equations; however, estimates do not change substantially from the ones shown in columns 1 and 2.<sup>16</sup>

In line with the bargaining theory of corruption, the results show that bigger firms do pay smaller bribes. In particular, firms' size both in terms of employment and capital is negatively correlated with payments expressed as percentage of sales. Conversely, the idea that firms with more refusal power pay less is not supported by the data. The concentration rate proxies for the diversification of a firm's business where more concentrated businesses are believed to have less mobility across sectors and have therefore less refusal power. This variable is negatively, but insignificantly correlated with payments. On the other hand, a firm's refusal power seems to be better captured by the entrepreneurs' consciousness of their property rights (*Property*) or their ability to defend themselves from a corrupt bureaucrat (*Fair\_bureauc*).

The formal sector index has positive explanatory power thereby suggesting that the "degree of formality" is of importance also once the firm has been matched with a corrupt bureaucrat with the power to extract bribes.

---

<sup>15</sup> As in standard bivariate models we assume that the errors are distributed bivariate normal with mean zero and correlation rho.

<sup>16</sup> Estimates of equations (1) and (2) have been estimated also using more variables than the ones identified in the results. Such variables include the share of university-educated employment, an indicator to reflect if the company is selling to the government, and an indicator for receiving any subsidy. We also include a countrywide measure of gender equality (in this case controlling for country groupings) without observing significant differences in the results. The estimates are available from the authors on request.

Female ownership has not been found to have any significant effect on the amount paid in the current framework.

Having determined the main factors influencing corrupt behavior of entrepreneurs and the gender differentials, we next turn to the consequences of corruption on firm growth with a special focus on gender differences.

#### **IV. Econometric model of the impact of corruption on firm growth**

##### ***Specification***

A growing body of literature is using enterprise surveys to investigate the impact of the “business climate” on firms’ performance often including corruption in the factors shaping the operating environment of firms. This literature identifies bribery, and corruption as major problems for enterprises especially in middle-income countries (Gelb et al. 2007) and finds a negative impact of corruption on firms’ productivity (Escribano and Guasch 2005), sales growth (Fisman and Svensson 2007, Ayyagari, Demirguc-Kunt, and Maksimovic 2008), or employment growth (Aterido, Hallward-Driemeier, and Pages 2007).

From the bargaining theory analysed in the previous section, it is easy to derive support for a negative relationship between administrative corruption and firms’ growth. Managers spending longer time in dealing with bureaucrats penalize their enterprise development, informal payments reduce companies’ profits and the incentives to increase profitability. Further, bribing can subtract important resources from the young and small companies.

On the other hand, when analyzing corruption by measuring state capture, one would expect that engaging in this activity will lead to significant competitive advantages to enterprises which are big enough to be able to change or bend rules.

We add a gender dimension to the existing literature on the impact of corruption on firm growth. In this study, we analyse individual firms’ characteristics and in particular, we look into the gender differentials in growth and corruption. As shown in the previous section there are gender differences in the propensity to bribe. In this section, we investigate if these differences are important for the economic performance of firms.

The evidence on the effect of gender on firm performance are mixed. Some results are pointing to the underperformance of women entrepreneurs while others do not find any evidence of gender differentials; these different results largely depend on the measure of performance and the factors that are being controlled for.<sup>17</sup> A significant gender gap has been found in the scale of operations as measured by sales of revenues and in total factor productivity (Sabarwal and Terrell, 2008).

---

<sup>17</sup> For a review of the literature on the relative performance of women and men entrepreneurs see Sabarwal and Terrell (2008).

To measure firm growth we use a three year change in total employment including non-permanent employment, such as contract labor or temporary workers.<sup>18</sup> This is because we focus on SME and in particular on micro enterprises where permanent employment might not be a good proxy for growth. Given the fragility and uncertainty that very young or micro enterprises face, most of them might not use permanent contracts until they are well established. For the same reason in many countries, labor regulations are not applied to micro enterprises. We thus consider using total employment growth to be a better measure to capture growth variations for small companies.

The specification used for the empirical estimation of the impact of corruption on firm growth is common in the above-cited literature and is the following:

$$\Delta L_i = \lambda_0 + \lambda_1 g_i + \lambda_2 g_i * Female_i + \lambda_3 Female_i + \lambda_4 X_i + \xi_i \quad (3)$$

where  $L_i$  is annual employment growth for firm  $i$ ,  $g$  is a variable to reflect the corruption measure - the incidence of bribery or the amount paid averaged over all observations (not payers are assigned a zero);  $g*Female$  is the interaction term of the corruption measure and the indicator for female-owned and managed companies,  $X_i$  is a vector of control variables which include dummy variables for the following variables: foreign ownership, privatisation, if the firm is involved in trade either importing or exporting, if the company was privatized, if in 2002 was small (11-49 employees), medium (50- 199 employees), or large (over 200 employees). Company's age and its squared term are continuous variables. Finally, a full set of sector, geographic location, and country interaction dummy variables are included in all regressions to control for local and sector demand and business environments alleviate the problem of omitted variables. Also in these regressions we allow for heteroskedasticity and cluster errors by country.

In estimating equation (3) the natural question that arises is how to best control for possible endogeneity related with the independent variables and reverse causality. In particular, the relation between bribery and growth can go two ways depending on the type of corrupt behaviour. On the one hand, public officials can assess and select firms better suited, hence with better performance and growth potential to carry the financial burden of a bribe. On the other hand, successful entrepreneurs can buy their market advantage from public workers or regulators and hence bribery can become a factor for firm growth.

To account for firm's bribery – as incidence or as amount paid with sector – we use as instrumental variable country averages of responses excluding the respective firm. Several studies have used average answers to identify the impact of the business climate - among which corruption - on firm performance measures.<sup>19</sup> This strategy assumes that a cluster's average level of bribery is uncorrelated to a firm's

<sup>18</sup> In contrast, Aterido et al. (2011) follow Davis and Haltiwanger (1992, 1999) using a measure of only permanent employment growth.

<sup>19</sup> Fisman and Svensson (2007) and Seker and Yang (2012) use industry-location averages to show that bribes negatively impact firm growth. There is then a range of studies including Aterido, Hallward-Driemeier, and Pages (2011), Commander and Svejnar (2007), Hallward-Driemeier, Wallsten, and Xu (2006) and others which use location averages to examine the impact of business environment on firm performance. For an extensive overview of this literature see Dethier, Hirn, and Straub (2011).

unobservable characteristics that affect the probability of paying grafts. Countries have very different corruption levels and this is uncorrelated to unobservable firm characteristics. Also, sectors have different propensities to interact with corrupt officials depending on factors like international engagement while, within a country, rural or remote villages can be more dependent on publicly provided infrastructure services. The cluster average assigned to each firm excludes a firm's own answer; thus, while sector-location averages impact a firm's performance, the single firm characteristics do not influence the cluster average. To ensure adequate numbers of firms in each cell, we drop one dimension of the cell until an adequate number is reached.<sup>20</sup> Also, using grouped averages allows us to mitigate the effects of measurement error, a likely concern for bribery data given their secretive nature.

As additional instrument we use a measure of the control public officials maintain over the firms: the percentage of time managers (*timeReg*) devote to dealing with authorities.<sup>21</sup> To the extent that *timeReg* has no direct effect on growth and since it influences the public officials' bargaining power vis-à-vis the firms, it is a valid instrument.

The instruments are interacted with the dummy *Female* to estimate the differential impact of corruption on genders.

### *Analysis of results*

In Table 8 we report the results from the OLS estimates of equation (3) controlling for sector, location and countries interaction dummies. The impact of administrative corruption or to obtain a contract on firm growth seems to follow similar pattern with significant and similar in size coefficients. This leads to the conclusion that bribing has a negative impact on firm growth. However, the positive coefficient of the interaction with the female dummy suggests that for women entrepreneurs informal payments could contribute to their companies' growth. This conclusion could support the idea that for women entrepreneurs - often operating micro enterprises - bureaucracy is a too heavy burden in general and informal payments could represent a means to simplify their management and contribute to firm growth. This positive effect for women-owned or managed firms is in fact limited: it refers to columns 2 to 5 where administrative corruption (incidence or amount paid) and gifts to obtain a contract are analyzed but not to column 1 (any type of informal payments) nor for the influence on local or national laws (cols 6 and 7). Adding to this hypothesis, the coefficient on the Female dummy indicates that women-owned firms have a growth rate on average 1 per cent lower than men-owned companies.

The effects of administrative corruption in terms of amount paid on firm growth as reported in column 3 provide a clear picture of the very different impact they have on women's owned as oppose to men's owned companies. While for men paying 1 per cent of bribes leads to a 0.4 percent drop in firm growth rate, for female-owned

<sup>20</sup> The minimum size of each cell is 15. The principal results are obtained using 3 sectors-country averages; when the cell is smaller than 15 we compute 2 sectors (just manufacturing and services) – country averages if the problem persists we just compute country averages. This happens only in 1 case. We provide results also with location (rural-urban) – country averages. In this case there are no cells smaller than 15.

<sup>21</sup> This instrument is proposed and used also by Fisman and Svensson (2007).

companies this would actually imply a higher growth rate of 0.6 per cent. This could be consistent with the scenario described by Wang and You (2012) in China where corruption can be positive for firms' growth in presence of underdeveloped financial markets. Hence, the differential and positive impact of corruption on women entrepreneurs could be linked to their difficulties in accessing credit.<sup>22</sup>

The rest of the coefficients indicate that micro, younger, trading firms as well as those with a higher capital stock are those growing faster. The negative relationship between growth and age and size is a well established result ( see for example Mansfield (1962), Evans (1987), Hall (1987) and Dunne and Hughes (1994), more recently and for developing countries Mead and Liedholm (1998) and Nichter, S., and L. Goldmark, (2009)).

Also, trading companies are more dynamic, have higher productivity and grow faster as shown in a number of studies such as Pavcnik (2002), Van Biesebroeck (2005), Lileeva & Trefler (2010) and Aw et al. (2011). Foreign ownership has been found to have no effect on growth, while privatized companies grow on average 3 per cent less.

We report the results of the two stage regressions using the sector-country averages of reported bribes and the measure of time spent in dealing with regulations (*timeReg*) in Table 9. The coefficients and their significance are surprisingly similar to the OLS results and confirm the findings. In fact, the endogeneity C- test cannot reject the null hypothesis that the various corruption measures can be treated as exogenous. The *F*-statistics of our instruments (sector-country averages and *timeReg*) joint significance in the first-stage regression are usually above 20 and are highly significant.

The validity of the instruments (whether they are uncorrelated with the error process in equation 3) is tested, and the null hypothesis that the instruments are valid cannot be rejected by the Hansen J statistic. In table 10 we report the regressions using location-country averages without any significant change in the results.

### *Robustness tests*

Some of the explanatory variable in equation (3) could potentially be endogenous. In particular, the effect of inputs might be related to possible unobserved heterogeneity. In Table 11 we treat capital (*lnK*) and the measure indicating if a firm is engaged in trade (*trade*) as endogenous. Following Commander and Svejnar (2007) we use as instruments for the capital input and the trade orientation of the firm the percentage change in fixed assets and in exports in the previous 3 years (*changeA*, *changeE*).<sup>23</sup> The endogeneity test confirms that capital stock and engagement in foreign trade activities cannot be treated as exogenous and their coefficients increase several times. Also the estimates for the corruption measures roughly double.<sup>24</sup>

<sup>22</sup> For the same region and on the same data Murayev et al (2009) find significant differences across genders in accessing credit.

<sup>23</sup> Commander and Svejnar (2007) also instrument labor input; to construct our size variable we use the lagged value of permanent employment minimizing in this way any possible endogeneity problem. They also treat as endogenous the ownership status of the company, we also do it instrumenting privatization with the year of privatization, and the results do not change significantly.

<sup>24</sup> Results treating the corruption measures as exogenous are hardly different from the ones shown in table 10.

Another source of potential endogeneity is self selection with better performing firms choosing locations based on the quality of the business environment. We verify this by restricting the sample to micro and SME's who are least likely to be footloose and where the location tends to be associated with the places of birth or residence of the principal owner. Table 12 shows that the negative impact of corruption is even stronger for this group of enterprises.

The results so far have pooled countries together but it could be that the effects vary by the degree of institutional transition to market economies of these countries. To verify this, in Table 13 we drop the old EU countries. Contrary to Aterido et al. (2009) we find that results are stronger for transition economies where corruption is more widespread and the rule of law weaker. Also, for this group of countries the measure of corruption capturing the influence of companies on local or national law is positive and marginally significant, while the interaction with Female is significant and negative.

## V. Conclusions

In this paper we analyse corrupt behavior of entrepreneurs, focusing on gender differentials in the determinants of firms behavior and in the impact of corruption on firm growth. Using data relating to responses from 5471 firms across 31 countries in Europe and Central Asia in the 2005 wave of the BEEPS, we bring empirical evidences to the hypothesis that genders have different propensities to corruption. We also estimate the impact of informal payments on firm employment growth and analyze if corruption is a gender specific obstacle to entrepreneurship development. When estimating the econometric equations on the determinants of corrupt behavior and on the impact of corruption on firm growth, we make use of four measures of corruption. These measures include: overall corruption, administrative corruption, informal payments for obtaining a contract, and for influencing the regulators (state capture). The last three measures reflect different motivation of the entrepreneurs. We analyze both the incidence and the amount paid as bribes for each of the cases.

Our findings confirm that female-owned firms are less prone than male-owned to make informal payments for the first three measures of corruption we analyse: overall measure, administrative corruption, gift for contract. In contrast, we do not find any gender difference in State capture behaviour or in the amount paid. Analyzing the determinants of corruption we find support for Svensson (2003) idea that companies dealing extensively with the public sector face higher probabilities of being extorted undue payments.

Further findings suggest that factors affecting corruption in its various measures, and hence motivation, could differ. The results highlight that there is a specific combination of variables reflecting firm's characteristics (size, sector, rural), its business environment and flexibility to adjust (age, mobility) that determines the ways and extent of a firm's engagement in corruption. Among these variables, firm's networking capacity and firm size affect positively the probability of engaging in state capture activities or trying to win a public contract. In particular, we find some supporting evidence that these gender bribing differentials are correlated with firm size and gender gaps in risk attitudes. In fact, when we study gender differentials by firm size, we find that women leading big enterprises are actually more likely to offer gifts to public officials to obtain a public contract. At the same time, women are also less likely to engage in tax evasion, showing lower risk propensities.

In a second group of findings, we provide new evidence on the role of corruption in explaining employment growth. While results confirm that bribing has a negative impact on firm growth in general, significant gender differentials are found in terms of a positive growth impact of bribing on female-owned firms. Starting from lower growth rates, for female-owned firms informal payment could represent a means to smooth management and improve performance.

In sum, we find significant differences across genders moral standards possibly motivated by different risk attitudes and firm sizes. Moreover, the differential impact of grafting on firms' growth, provide a new interpretation of corruption as an explanatory factor for existing gender gaps in entrepreneurship.

The contribution of our paper therefore consists in identifying gender differentials in firms' behavior regarding various measures and motivations of corruption as well as in the different role of corruption on employment growth of female-owned firms versus male-owned ones.

Our results could be used to identify priorities in economic policies specifically targeting corruption. For the emerging markets in Eastern Europe and Central Asia these measures and policies are crucial to build the fundamentals of a strong middle class of both women and men-owned and managed companies. Inclusive growth requires increasing the potential of women and men to sustain the private sector performance through building a friendly and less corrupt administration, efficient system of regulation, licenses and taxes that is not a burden and an environment where corruption cannot thrive. Strengthening property rights and security to perform fair business is another area where policies could directly contribute to mitigate the adverse effects of corruption on growth and gender gaps.

## References

- Aidis, R., F. Welter, and Smallbone D. and N. Isakova. 2007. 'Female entrepreneurship in transition economies: The case of Lithuania and Ukraine'. *Feminist Economics*, Vol. 13( 2), pp:157-183.
- Aw, B.Y., M.J. Roberts, and D.Y. Xu, (2011), 'R&D Investment, Exporting, and Productivity Dynamics', in *American Economic Review*. Vol. 101 (4), pp 1312-44.
- Aterido, R., M. Hallward-Driemeier, and C. Pages, (2011), 'Big Constraints to Small Firms' Growth? Business Environment and Employment Growth across Firms', *Economic Development and Cultural Change*, vol. 59(3), pages 609 - 647.
- Belousova, V., R. K. Goel, and I. Korhonen, (2011), 'Causes of Corruption in Russia: A Disaggregated Analysis', BOFIT Discussion Papers 31/2011.
- Budak, J., Goel, R. K., (2006), 'Corruption in transition economies: Effects of government size, country size and economic reforms', in *Journal Of Economics And Finance*, Volume 30, Number 2 (2006), 240-250
- Commander, S., and J. Svejnar, (2007), 'Do Institutions, Ownership, Exporting and Competition Explain Firm Performance? Evidence from 26 Transition Countries.' Institute for the Study of Labor (IZA) Discussion Paper 2637.
- Dethier, J., Hirn, M., and Straub, S., (2011), 'Explaining Enterprise Performance in Developing Countries with Business Climate Survey Data', in *The World Bank Research Observer*, vol. 26, no. 2 (August 2011)
- Dollar, D., Fisman, R., Gatti, R., (2001), 'Are women really the "fairer" sex? Corruption and women in government', in *Journal of Economic Behaviour and Organization*, Vol. 46., pp. 423-429.
- Dunne, T., and A. Hughes, (1994) 'Age, size, growth, and survival: UK companies in the 1980s', in *Journal of Industrial Economics*, Vol. 42, pp. 115–140
- Estrin S., and T. Mickiewicz, (2011), 'Institutions and female entrepreneurship', in *Small Business Economics*, vol. 37(4), pp 397-415.
- European Bank for Reconstruction and Development (2005). *Transition report 2005*. London: European Bank for Reconstruction and Development.
- Evans D.S., (1987) 'The relationship between firm growth, size, and age: estimates for 100 manufacturing industries' in *Journal of Industrial Economics*, Vol. 35, pp. 567–581
- Fisman, R. and J. Svensson (2007), 'Are Corruption and Taxation Really Harmful to Growth? Firm Level Evidence', in *Journal of Development Economics*, Vol 83, pp. 63-75.

- Francisco, M. and N. Pontara (2007), 'Does Corruption Impact on Firms' Ability to Conduct Business in Mauritania? Evidence from Investment Climate Survey Data', World Bank Policy Research paper 4439.
- Gelb, A., V. Ramachandran, M. Kedia-Shah, and G. Turner. (2007). 'What Matters to African Firms? The Relevance of Perceptions Data.' Policy Research Working Paper 4446. World Bank, Washington.
- Goetz, A. M., (2007), 'Political Cleaners: Women as the New Anti-Corruption Force?', in *Development and Change* 38(1), pp 87-105.
- Hall, B.H., 'The relationship between firm size and firm growth in the us manufacturing sector' in *Journal of Industrial Economics*, 35 (1987), pp. 583–606
- Hallward-Driemeier, M., S. Wallsten, and L. C. Xu. (2006). 'Ownership, investment climate and firm performance. Evidence from Chinese firms,' in *Economics of Transition* 14(4): pp. 629-647.
- Hellman, J., G. Jones, and D. Kaufmann (2000), 'Seize the State, Seize the Day: State Capture, Corruption, and Influence in Transition', Policy Research Working Paper 2444, World Bank and EBRD (September 2000)
- Honorati, M., and T. Mengistae. (2007). 'Corruption, the Business Environment, and Small Business Growth in India,' World Bank Policy Research paper 4338.
- Lileeva A, and D. Trefler (2010). 'Improved Access to Foreign Markets Raises Plant-Level Productivity . . . for Some Plants', in *Quarterly Journal of Economics*. Vol 125(3), pp 1051-99.
- Mansfield, E., (1962), 'Entry, Gibrat's law, innovation, and the growth of firms', in *American Economic Review*, 52, pp. 1023–1051
- Mead, D.C., and C. Liedholm, (1998), 'The dynamics of micro and small enterprises in developing countries', in *World Development*, 26 (1), pp. 61–74
- Michailova, J. and I. Melnykovska, (2009), 'Gender, Corruption And Sustainable Growth In Transition Countries', MPRA Paper No. 17074.
- Murayev, A., O. Talavera, and D. Schäfer, (2009), 'Entrepreneurs' Gender And Financial Constraints: Evidence From International Data', in *Journal of Comparative Economics*, Vol 37 pp.270-286.
- Nichter, S., and L. Goldmark, (2009), 'Small Firm Growth in Developing Countries', in *World Development*, Vol 37, Issue 9, pp. 1453–1464
- Pavcnik N. (2002), 'Trade Liberalization, Exit, and Productivity Improvement: Evidence from Chilean Plants', in *Review of Economic Studies*. Vol 69(1), pp. 245-76.

Sabarwal, S. and K. Terrell, (2008), 'Does Gender Matter for Firm Performance? Evidence from Eastern Europe and Central Asia', The World Bank, Policy Research Working Paper 4705.

Steves, F., and A. Rousso, (2003), 'Anti-Corruption Programmes In Post-Communist Transition Countries And Changes In The Business Environment, 1999-2002.' European Bank for Reconstruction and Development. Working paper No. 85.

Svensson, J., (2003), 'Who Must Pay Bribes And How Much? Evidence From A Cross Section Of Firms', in *The Quarterly Journal of Economics*, Vol 118, No. 1, pp. 207-230.

Swamy, A., Knack, S., Lee, Y., Azfar, O., (2001), 'Gender and Corruption', in *Journal of Development Economics*. Vol. 64(1), pp. 25-55.

Van Biesebroeck, J., (2005), 'Exporting Raises Productivity in Sub-Saharan African Manufacturing Firms', in *Journal of International Economics*. Vol. 67(2), pp. 373-91.

van der Zwan, P., I. Verheul, and R. Thurik, (2011) 'The Entrepreneurial Ladder in Transition and Non-Transition Economies,' in *Entrepreneurship Research Journal*: Vol. 1(2), Article 4.

Verheul, I. and R. Thurik. (2001). 'Start-Up Capital: "Does Gender Matter?"', in *Small Business Economics* 16, 329-345.

Wang, Y. and J. You (2012), 'Corruption and firm growth: Evidence from China', in *China Economic Review*, Vol. 23 (2), pp. 415–433.

Annex

Table 1 Descriptive statistics by group of countries

<i>country</i>	<i>Female</i>		<i>overall</i>	<i>Administrat</i>	<i>Admin.</i>	<i>gift to</i>	<i>State</i>	<i>State</i>
<i>group</i>	<i>obs</i>	<i>owned</i>	<i>measure</i>	<i>ive</i>	<i>corr % of</i>	<i>obtain a</i>	<i>Capture</i>	<i>Capture</i>
			<i>corruption</i>	<i>corruption</i>	<i>sales</i>	<i>contract</i>	<i>local</i>	<i>national</i>
old EU	2,244	30.5%	35.2%	23.3%	1.64	29.5%	9.0%	5.9%
NMS	1,763	30.9%	52.5%	36.1%	2.74	27.8%	8.7%	10.5%
SEE	535	16.6%	59.6%	49.2%	2.62	38.2%	21.5%	18.1%
CIS	929	23.7%	65.6%	54.3%	3.20	29.6%	13.6%	14.4%

Note: old EU: Germany, Greece, Ireland, Portugal, Spain; New Member States (NMS): Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia; South East Europe (SEE): Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, Turkey; CIS: Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, Uzbekistan.

Table 2 Descriptive statistics by gender

	MEN			WOMEN		
	<i>obs</i>	<i>mean</i>	<i>sd</i>	<i>obs</i>	<i>mean</i>	<i>sd</i>
Permanent Employment 2002	3934	49.5	216.6	1537	34.9	167.1
		<i>% of total</i>			<i>% of total</i>	
small entrepr 1-10 permanent employees	2092	53.2		1016	66.1	
small medium entr 11-49 permanent employees	1119	28.4		341	22.2	
medium entr. 50-199 permanent employees	505	12.8		124	8.1	
large entr. 200 and more employees	218	5.5		56	3.6	
<i>characteristics of the firm</i>						
Profits 2003 (1= had positive profits)	3934	0.902	0.297	1537	0.892	0.310
Sales in USD	3934	3994.4	25157.7	1537	2849.6	24123.2
total Employment growth	3934	0.035	0.140	1537	0.024	0.126
capital K	3934	1637.5	14128.0	1537	1020.1	6770.3
age of the company in 2005	3934	16.06	15.47	1537	15.30	15.33
foreign own (=1 if >= 10 % of capital)	3934	0.065	0.247	1537	0.031	0.174
Privatisation	3934	0.080	0.271	1537	0.069	0.253
Rural	3934	0.362	0.481	1537	0.352	0.478
Capital or big city (> 250 K inhabitants)	1,696	43.1		635	41.3	
manufacturing	1,418	36.0		460	29.9	
Trade & Transport	1,195	30.4		497	32.3	
services	1,321	33.6		580	37.7	
concentration	3934	95.7	10.2	1537	96.4	9.7
exports =1	3919	0.215	0.411	1532	0.175	0.380
imports =1	3934	0.259	0.438	1537	0.224	0.417
yearly assets growth between 2002 and 2005	3870	0.050	0.145	1510	0.040	0.150
yearly export growth between 2002 and 2005	3934	0.013	0.096	1537	0.006	0.069
member business association	3934	0.560	0.496	1537	0.502	0.500
<i>relations with the State</i>						
no interruption in electricity =1	3934	0.601	0.490	1537	0.561	0.496
no interruption in water =1	3934	0.865	0.342	1537	0.851	0.356
no interruption in telephone =1	3934	0.811	0.392	1537	0.780	0.414
using email in relations with clients	3934	0.709	0.454	1537	0.632	0.482
No. Inspections by public officials	3934	5.708	11.77	1537	5.330	16.90
Formal Sector	3934	0.022	1.042	1537	-0.056	1.166
Property rights well enforced =1	3934	0.651	0.477	1537	0.631	0.483
Bureaucracy is fair =1	3934	0.484	0.500	1537	0.483	0.500
all sort of informal payments	3934	0.507	0.500	1537	0.424	0.494
Administrative corruption (incidence)	3575	0.370	0.483	1368	0.304	0.460
Adm. Corr. payment as % of Sales	1209	2.504	3.149	367	2.593	3.250
gift to obtain a contract	3001	0.330	0.470	1174	0.213	0.410
payment as % of contract	990	5.369	4.491	250	5.308	5.081
State capture national law / reg.	3933	0.100	0.300	1535	0.101	0.301
State capture local law / reg.	3932	0.114	0.318	1536	0.097	0.296
time spent dealing with regulations	3717	4.273	7.297	1443	4.071	7.948
% of sales reported for Taxes	3829	89.24	17.57	1493	90.14	16.32
% of Workforce reported	3833	90.35	17.34	1499	92.00	15.40
% of wage bill reported	2771	85.98	21.31	1116	88.26	19.09

Table 3 definition of variables

Property rights well enforced =1	Firms were asked 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: strongly disagree (1), disagree in most cases (2), tend to disagree (3), tend to agree (4), agree in most cases (5), strongly agree (7). Answers 4 to 7 were assigned a 1
Bureaucracy is fair =1	Firms were asked How often is the following statement true? "If a government agent acts against the rules I can usually go to another official or to his superior and get the correct treatment without recourse to unofficial payments/gifts." "never" (1), "seldom" (2), "sometimes" (3), "frequently" (4), "usually" (5), "always" (6). Answers 4 to 6 were assigned a 1.
Formal Sector	First principal component of the following variables: trade (exports + imports), Nr of inspections, bad infrastructure (Number of services suffering interruptions: water, electricity, telephone, emails)
all sort of informal payments	Firms were asked 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: never (1), seldom (2), sometimes (3) frequently (4), usually (5), always (6), do not know (7). Answers 3 to 6 were assigned a 1. The list of informal payments motives include: to get connected to and maintain public services, to obtain business licenses and permits, to obtain government contracts, to deal with occupational health and safety inspections, to deal with fire and building inspections, to deal with environmental inspections, to deal with taxes and tax collection, to deal with customs/imports, to deal with courts, to influence the content of new legislation rules decrees etc.
Administrative corruption (incidence)	Firms were assigned a 1 if they reported a positive amount of payment to the following question: On average, what percent of total annual sales do firm's like yours typically pay in unofficial payments/gifts to public
Adm. Corr. payment as % of Sales	average amount paid for firm that declare bribing behaviour
gift to obtain a contract	Firms were assigned a 1 if they reported a positive amount of payment to the following question: When firms in your industry do business with the government, what percent of the contract value would be typically paid in additional or unofficial payments/gifts to secure the contract?
payment as % of contract	average amount paid for firm that declare bribing behaviour
influenced national law / reg.	Firms were asked. Thinking about national laws and regulations enacted over the last 12 months that had a substantial impact on your business, did your firm seek to influence the content of laws or regulations affecting it? Yes=1, NO=0
influenced local law / reg.	Firms were asked. Thinking about local laws and regulations enacted over the last 12 months that had a substantial impact on your business, did your firm seek to influence the content of laws or regulations affecting it? Yes=1, NO=0
time spent dealing with regulations	percent of senior management's time spent over the last 12 months in dealing with public officials about the application and interpretation of laws and regulations and to get or to maintain access to public services
No. Inspections by public officials	Number of times in the past 12 months the establishment either inspected or required to meet with officials from these agencies: Tax inspectorate, Labor and social security, Fire & building safety, Sanitation/ Epidemiology, Municipal police, Environmental, Customs agency
% of sales reported for Taxes	firms were asked "what percentage of total annual sales would you estimate the typical firm in your area of business reports for tax purposes?"
% of Workforce reported	firms were asked "what percentage of total workforce would you estimate the typical firm in your area of business reports for tax purposes?"
% of wage bill reported	firms were asked "what percentage of total wage bill would you estimate the typical firm in your area of business reports for tax purposes?"

Table 4 Determinants of corruption

	all informal payments	Administrative corruption	gifts to obtain contract	Local LAW	National LAW
	(1)	(2)	(3)	(4)	(5)
Female owned	-0.051 [0.023]**	-0.038 [0.017]**	-0.072 [0.012]***	0 [0.010]	0.009 [0.007]
small entr	0.034 [0.025]	0.086 [0.021]***	0.021 [0.026]	0.015 [0.016]	0.019 [0.011]*
medium entr	-0.013 [0.040]	0.047 [0.031]	-0.052 [0.027]*	0.029 [0.018]	0.055 [0.018]***
large entr	-0.092 [0.042]**	0.028 [0.047]	-0.072 [0.033]**	0.052 [0.033]	0.071 [0.026]***
FormalSect	0.032 [0.011]***	0.035 [0.010]***	0.019 [0.009]**	0.012 [0.005]**	0.006 [0.003]**
Property	-0.11 [0.022]***	-0.092 [0.017]***	-0.085 [0.015]***	-0.015 [0.010]	-0.013 [0.008]
Fair_bureauc	-0.084 [0.015]***	-0.062 [0.016]***	-0.026 [0.018]	-0.014 [0.010]	-0.003 [0.010]
Profits2003	0.018 [0.019]	-0.003 [0.018]	0.026 [0.022]	-0.012 [0.014]	0.004 [0.010]
lnK	0.015 [0.008]*	0.014 [0.010]	0.009 [0.006]	0.011 [0.003]***	0.007 [0.003]**
concentration	-0.001 [0.001]*	-0.002 [0.001]***	-0.002 [0.000]***	0 [0.000]	0 [0.000]
memberBA	0.04 [0.017]**	0.014 [0.031]	0.026 [0.015]*	0.079 [0.009]***	0.093 [0.008]***
privatisation	-0.011 [0.033]	-0.036 [0.026]	-0.025 [0.030]	0.04 [0.018]**	0.012 [0.017]
foreign_own	0.012 [0.041]	-0.02 [0.032]	0.016 [0.026]	0.002 [0.018]	0.025 [0.015]
ageCompany	-0.004 [0.001]***	-0.002 [0.001]**	-0.001 [0.001]	0 [0.001]	0 [0.000]
ageComp2	0.002 [0.001]***	0.001 [0.001]**	0 [0.001]	0 [0.000]	0 [0.000]
small city/rural	-0.025 [0.024]	-0.036 [0.025]	-0.064 [0.024]***	0.013 [0.010]	-0.016 [0.006]**
trade and transport	0.009 [0.023]	0.057 [0.021]***	0.045 [0.016]***	0.012 [0.016]	0.026 [0.011]**
services	0.074 [0.020]***	0.132 [0.024]***	0.083 [0.021]***	0.043 [0.019]**	0.05 [0.013]***
Observations	5471	4966	3862	5468	5468

Note: Columns 1 to 5 show marginal effects after probit estimation evaluated at the mean. The dependent variables are dummy variables denoting the incidence of: all forms of informal payments (column 1); administrative corruption (col. 2); payments to obtain a contract (col 3.); influence on local (col 4) or national (col 5) regulators and/or legislators. The regressions include country dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

Table 5 determinants of corruption size interactions

	all informal payments (1)	Administrative corruption (2)	gifts to obtain contract (3)	Local LAW (4)	National LAW (5)
Female owned	-0.06 [0.028]**	-0.05 [0.022]**	-0.086 [0.016]***	0.008 [0.014]	0.014 [0.011]
Fem X SE	0.024 [0.040]	0.024 [0.043]	0.031 [0.040]	-0.018 [0.017]	-0.013 [0.016]
Fem X ME	-0.02 [0.048]	-0.003 [0.058]	-0.031 [0.070]	-0.027 [0.025]	-0.017 [0.019]
Fem X LE	0.133 [0.074]*	0.152 [0.098]	0.277 [0.083]***	0.018 [0.035]	0.023 [0.031]
small entr	0.028 [0.029]	0.08 [0.026]***	0.014 [0.027]	0.02 [0.018]	0.023 [0.014]*
medium entr	-0.01 [0.041]	0.047 [0.029]*	-0.05 [0.027]*	0.037 [0.021]*	0.061 [0.022]***
large entr	-0.117 [0.046]**	0.001 [0.042]	-0.111 [0.029]***	0.047 [0.032]	0.064 [0.028]**
Observations	5471	4966	3862	5468	5468

*Note:* Columns 1 to 5 show marginal effects after probit estimation evaluated at the mean. The regressions include industry dummies. The specification is the same as in table 4 coefficients are not reported as they are basically unchanged. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. \*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

Table 6 Female attitudes towards the State

	% Taxes	% wage bill	% work force
	(1)	(2)	(3)
Female owned	0.752 [0.480]	1.591 [0.709]**	1.099 [0.500]**
small entr	1.219 [0.642]*	0.232 [1.119]	0.778 [0.719]
medium entr	2.136 [0.783]**	2.091 [1.029]*	1.471 [0.948]
large entr	1.84 [1.346]	2.165 [2.325]	0.257 [1.320]
FormalSect	-0.977 [0.280]***	-1.12 [0.306]***	-0.707 [0.273]**
Property	2.164 [0.564]***	2.006 [0.697]***	1.817 [0.567]***
Fair_bureauc	1.661 [0.664]**	1.572 [0.827]*	1.104 [0.490]**
Profits2003	-1.467 [0.983]	-1.065 [1.196]	-0.428 [0.767]
lnK	0.576 [0.207]***	0.463 [0.225]**	0.428 [0.190]**
concentration	0.026 [0.033]	0.051 [0.032]	0.031 [0.029]
memberBA	0.844 [0.551]	-0.011 [0.807]	0.502 [0.579]
privatisation	2.086 [1.219]*	2.9 [1.579]*	2.516 [1.126]**
foreign_own	1.911 [1.001]*	2.761 [1.133]**	1.055 [0.912]
ageCompany	0.023 [0.030]	0.051 [0.048]	0.03 [0.022]
ageComp2	-0.014 [0.020]	-0.021 [0.028]	-0.014 [0.013]
small city/rural	-0.052 [0.749]	1.757 [1.169]	0.114 [0.782]
trade and transport	0.938 [0.623]	-0.396 [0.891]	1.146 [0.582]*
services	-1.131 [0.532]**	-2.445 [0.964]**	-1.955 [0.635]***
Constant	66.392 [3.165]***	58.284 [3.840]***	62.814 [2.908]***
Observations	5322	3887	5332
R-squared	0.15	0.15	0.15

Note: Columns 1 to 3 show OLS regressions. The regressions include country dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

Table 7 determinants of the amount paid

	Administrative corruption	gifts to obtain contract	Administrative corruption	gifts to obtain contract
			<i>Heckman</i>	<i>Heckman</i>
	(1)	(2)	(3)	(4)
Female owned	-0.017 [0.246]	-0.017 [0.428]	-0.055 [0.235]	-0.08 [0.407]
small entr	-0.134 [0.169]	0.248 [0.352]	-0.152 [0.169]	0.273 [0.341]
medium entr	-0.645 [0.273]**	-0.067 [0.495]	-0.64 [0.265]**	-0.01 [0.479]
large entr	-0.703 [0.362]*	-0.721 [0.904]	-0.701 [0.354]**	-0.653 [0.876]
FormalSect	0.092 [0.096]	0.19 [0.063]***	0.09 [0.098]	0.179 [0.060]***
Property	-0.532 [0.135]***	-0.752 [0.205]***	-0.535 [0.138]***	-0.745 [0.202]***
Fair_bureauc	-0.285 [0.154]*	-0.421 [0.346]	-0.329 [0.143]**	-0.456 [0.322]
Profits2003	0.165 [0.209]	-0.373 [0.315]	0.137 [0.201]	-0.395 [0.307]
lnK	-0.147 [0.061]**	-0.17 [0.096]*	-0.144 [0.059]**	-0.166 [0.097]*
concentration	-0.001 [0.007]	-0.005 [0.013]	-0.001 [0.007]	-0.006 [0.013]
memberBA	-0.308 [0.175]*	-0.127 [0.266]	-0.272 [0.171]	-0.12 [0.258]
privatisation	0.068 [0.306]	-0.241 [0.650]	0.028 [0.308]	-0.259 [0.623]
foreign_own	-0.228 [0.305]	0.285 [0.435]	-0.212 [0.301]	0.294 [0.433]
ageCompany	-0.005 [0.011]	-0.016 [0.021]	-0.005 [0.011]	-0.015 [0.021]
ageComp2	0.004 [0.008]	0.018 [0.016]	0.004 [0.008]	0.018 [0.016]
small city/rural	-0.159 [0.155]	-0.405 [0.252]	-0.162 [0.150]	-0.452 [0.258]*
trade and transport	-0.413 [0.271]	-0.598 [0.322]*	-0.424 [0.263]	-0.566 [0.320]*
services	0.018 [0.238]	0.37 [0.222]	-0.017 [0.239]	0.344 [0.209]
constant	3.747 [0.862]***	11.142 [1.371]***		
percWorkforce			-0.017 [0.003]***	-0.014 [0.003]***
rho			-0.158 [0.088]*	-0.275 [0.011]**
Observations	1576	1240	5332	5332
R-squared	0.15	0.32		

Note: Columns 1 and 2 show OLS regressions of the amount of informal payment done expressed in percentage of sales and of contract value. Columns 3 and 4 show regressions adjusted for selection bias with Heckman correction. The regressions include country dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

Table 8 Total Employment growth regressions FE (country, sector, rural – urban).  
Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.002 [0.004]						
FemXAll forms	0.004 [0.007]						
Admin. Corr.(dummy)		-0.016 [0.004]***					
FemXAdmCorr(dummy)		0.033 [0.008]***					
Admin. Corr (amount)			-0.004 [0.001]***				
FemXAdmCorr (amount)			0.006 [0.002]***				
Gift for Contract (dummy)				-0.013 [0.007]*			
FemXGift4Cont (dummy)				0.033 [0.009]***			
Gift for Contract (amount)					-0.002 [0.001]**		
FemXGift4Cont (amount)					0.004 [0.001]**		
influence local Law						0.005 [0.007]	
influence nat Law							-0.006 [0.008]
FemXinfluence						-0.002 [0.014]	0.01 [0.016]
Female	-0.007 [0.004]	-0.014 [0.005]***	-0.009 [0.004]**	-0.013 [0.005]**	-0.011 [0.005]*	-0.005 [0.004]	-0.006 [0.004]
small entr	-0.041 [0.008]***	-0.041 [0.008]***	-0.041 [0.008]***	-0.041 [0.009]***	-0.041 [0.009]***	-0.041 [0.008]***	-0.041 [0.008]***
medium entr	-0.083 [0.016]***	-0.084 [0.018]***	-0.085 [0.018]***	-0.093 [0.017]***	-0.093 [0.017]***	-0.084 [0.016]***	-0.083 [0.016]***
large entr	-0.105 [0.022]***	-0.106 [0.023]***	-0.107 [0.023]***	-0.117 [0.022]***	-0.117 [0.022]***	-0.106 [0.022]***	-0.105 [0.022]***
lnK	0.018 [0.003]***	0.018 [0.003]***	0.018 [0.003]***	0.019 [0.003]***	0.019 [0.003]***	0.018 [0.003]***	0.018 [0.003]***
foreign_own	0.004 [0.009]	0.006 [0.009]	0.005 [0.009]	0.008 [0.011]	0.008 [0.011]	0.004 [0.009]	0.004 [0.009]
privatisation	-0.029 [0.009]***	-0.03 [0.010]***	-0.03 [0.010]***	-0.026 [0.009]***	-0.026 [0.009]***	-0.029 [0.009]***	-0.029 [0.009]***
trade	0.022 [0.005]***	0.024 [0.005]***	0.024 [0.005]***	0.025 [0.005]***	0.025 [0.005]***	0.022 [0.005]***	0.022 [0.005]***
ageCompany	-0.002 [0.000]***						
ageComp2	0.001 [0.000]***						
Constant	-0.014 [0.011]	-0.011 [0.011]	-0.012 [0.011]	-0.012 [0.012]	-0.012 [0.012]	-0.015 [0.011]	-0.015 [0.011]
Observations	5471	4966	4966	4175	4175	5468	5468
R-squared	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

**Corruption and Entrepreneurship: Does Gender Matter?**

Table 9 Total Employment growth IV regressions using sector – country averages and time spent in dealing with regulations as instruments. Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.007 [0.008]						
FemXAll forms	0.013 [0.023]						
Admin. Corr.(dummy)		-0.018 [0.006]***					
FemXAdmCorr(dummy)		0.022 [0.020]					
Admin. Corr (amount)			-0.007 [0.002]***				
FemXAdmCorr (amount)			0.012 [0.007]*				
Gift for Contract (dummy)				-0.021 [0.011]*			
FemXGift4Cont (dummy)				0.083 [0.034]**			
Gift for Contract (amount)					-0.004 [0.001]***		
FemXGift4Cont (amount)					0.012 [0.005]***		
influence local Law						-0.01 [0.023]	
FemXinfluence						0.016 [0.070]	
influence nat Law							-0.004 [0.019]
FemXinfluence							-0.019 [0.048]
Femaleown	-0.011 [0.010]	-0.011 [0.006]**	-0.014 [0.005]***	-0.025 [0.007]***	-0.02 [0.006]***	-0.007 [0.009]	-0.003 [0.007]
small entr	-0.041 [0.008]***	-0.039 [0.008]***	-0.04 [0.008]***	-0.041 [0.009]***	-0.039 [0.009]***	-0.041 [0.008]***	-0.041 [0.008]***
medium entr	-0.085 [0.017]***	-0.085 [0.017]***	-0.086 [0.018]***	-0.092 [0.016]***	-0.092 [0.016]***	-0.084 [0.017]***	-0.085 [0.017]***
large entr	-0.107 [0.022]***	-0.107 [0.024]***	-0.108 [0.024]***	-0.117 [0.022]***	-0.117 [0.022]***	-0.106 [0.022]***	-0.105 [0.022]***
lnK	0.019 [0.003]***	0.019 [0.003]***	0.018 [0.003]***	0.019 [0.003]***	0.019 [0.003]***	0.019 [0.003]***	0.019 [0.003]***
foreign_own	0.006 [0.009]	0.005 [0.010]	0.005 [0.009]	0.011 [0.011]	0.011 [0.011]	0.006 [0.010]	0.006 [0.009]
privatisation	-0.028 [0.009]***	-0.029 [0.010]***	-0.03 [0.010]***	-0.023 [0.008]***	-0.023 [0.008]***	-0.028 [0.009]***	-0.028 [0.009]***
trade	0.022 [0.004]***	0.025 [0.005]***	0.024 [0.005]***	0.024 [0.005]***	0.023 [0.005]***	0.021 [0.004]***	0.022 [0.004]***
ageCompany	-0.002 [0.000]***						
ageComp2	0.001 [0.000]***						
J-Test	2.08	1.636	1.261	3.233	4.114	1.701	3.951
p-value	[0.353]	[0.441]	[0.532]	[0.199]	[0.128]	[0.427]	[0.139]
<i>First stage F-test</i>							
corruption	24.92	23.97	28.1	27.64	49.53	33.53	47.58
corr.Xfemale	65.66	130.51	10.59	21.91	44.75	14.47	18.12
endogeneity test	0.781	0.459	2.767	4.786	3.346	1.109	0.054
p-value	[0.677]	[0.795]	[0.251]	[0.091]	[0.188]	[0.574]	[0.975]
Observations	5158	4713	4713	4056	4056	5156	5157

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% . F-test on instruments is the test statistic on the F-test of the joint significance of the instruments (3- sector – country averages and *timeReg*) in the first-stage regressions, with p-values in brackets. Hansen J-statistic is the test statistic on the overidentification test of the instruments, with p- values in brackets. The endogeneity test is defined as the difference of two Sargan-Hansen statistics: one for the equation with the smaller set of instruments, where the corruption measures (*AdmCorr*, *Gift4Con*, *influence*) are treated as endogenous, and one for the equation with the larger set of instruments, where the corruption measures are treated as exogenous. The endogeneity test statistics is robust to heteroskedasticity.

Table 10 Total Employment growth IV regressions using location – country averages and time spent in dealing with regulations as instruments. Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.008 [0.007]						
FemXAll forms	0.003 [0.023]						
Admin. Corr.(dummy)		-0.022 [0.007]***					
FemXAdmCorr(dummy)		0.025 [0.021]					
Admin. Corr (amount)			-0.005 [0.002]**				
FemXAdmCorr (amount)			0.006 [0.007]				
Gift for Contract (dummy)				-0.003 [0.001]**			
FemXGift4Cont (dummy)				0.009 [0.005]*			
Gift for Contract (amount)					-0.017 [0.009]*		
FemXGift4Cont (amount)					0.066 [0.031]**		
influence local Law						-0.002 [0.022]	
FemXinfluence						0.038 [0.075]	
influence nat Law							-0.003 [0.018]
FemXinfluence							0.013 [0.051]
Femaleown	-0.007 [0.010]	-0.012 [0.006]**	-0.009 [0.005]*	-0.016 [0.006]***	-0.021 [0.006]***	-0.009 [0.009]	-0.007 [0.007]
small entr	-0.041 [0.008]***	-0.039 [0.008]***	-0.04 [0.008]***	-0.039 [0.009]***	-0.04 [0.009]***	-0.041 [0.008]***	-0.041 [0.008]***
medium entr	-0.085 [0.017]***	-0.085 [0.017]***	-0.086 [0.018]***	-0.092 [0.016]***	-0.092 [0.016]***	-0.085 [0.017]***	-0.085 [0.016]***
large entr	-0.107 [0.022]***	-0.107 [0.023]***	-0.108 [0.024]***	-0.117 [0.022]***	-0.117 [0.022]***	-0.107 [0.022]***	-0.106 [0.022]***
lnK	0.019 [0.003]***	0.019 [0.003]***	0.018 [0.003]***	0.019 [0.003]***	0.019 [0.003]***	0.018 [0.003]***	0.018 [0.003]***
foreign_own	0.006 [0.009]	0.005 [0.010]	0.005 [0.009]	0.011 [0.011]	0.011 [0.011]	0.005 [0.010]	0.006 [0.009]
privatisation	-0.028 [0.009]***	-0.029 [0.010]***	-0.029 [0.010]***	-0.023 [0.008]***	-0.023 [0.008]***	-0.029 [0.009]***	-0.028 [0.009]***
trade	0.022 [0.004]***	0.025 [0.005]***	0.024 [0.005]***	0.023 [0.005]***	0.024 [0.005]***	0.021 [0.004]***	0.021 [0.005]***
ageCompany	-0.002 [0.000]***						
ageComp2	0.001 [0.000]***						
J-Test	2.516	1.625	2.149	3.62	4.093	0.705	1.876
p-value	[0.284]	[0.444]	[0.341]	[0.163]	[0.129]	[0.702]	[0.391]
<i>First stage F-test</i>							
corruption	21.48	19.92	20.56	24.24	43.77	34.55	40.45
corr.Xfemale	55.56	132.47	11.14	17.84	31.9	19.77	23.73
endogeneity test	1.92	2.037	1.335	3.172	2.796	1.627	0.751
p-value	[0.383]	[0.361]	[0.513]	[0.204]	[0.247]	[0.443]	[0.686]
Observations	5158	4713	4713	4056	4056	5156	5157

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% . F-test on instruments is the test statistic on the F-test of the joint significance of the instruments (2 location rural/urban – country averages and *timeReg*) in the first-stage regressions, with p-values in brackets. Hansen J-statistic is the test statistic on the overidentification test of the instruments, with p- values in brackets. The endogeneity test is defined as the difference of two Sargan-Hansen statistics: one for the equation with the smaller set of instruments, where the corruption measures (*AdmCorr*, *Gift4Con*, *influence*) are treated as endogenous, and one for the equation with the larger set of instruments, where the corruption measures are treated as exogenous. The endogeneity test statistics is robust to heteroskedasticity.

**Corruption and Entrepreneurship: Does Gender Matter?**

Table 11 Total Employment growth IV regressions using sector – country averages and time spent in dealing with regulations as instruments and instrumenting capital and trade status. Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.032 [0.015]**						
FemXAll forms	0.074 [0.041]*						
Admin. Corr.(dummy)		-0.037 [0.012]***					
FemXAdmCorr(dummy)		0.072 [0.036]**					
Admin. Corr (amount)			-0.01 [0.003]***				
FemXAdmCorr (amount)			0.031 [0.012]***				
Gift for Contract (dummy)				-0.054 [0.018]***			
FemXGift4Cont (dummy)				0.141 [0.061]**			
Gift for Contract (amount)					-0.009 [0.002]***		
FemXGift4Cont (amount)					0.024 [0.007]***		
influence local Law						0.042 [0.056]	
FemXinfluence						-0.341 [0.234]	
influence nat Law							0.035 [0.034]
FemXinfluence							-0.264 [0.125]**
lnK	0.161 [0.029]***	0.151 [0.030]***	0.15 [0.029]***	0.159 [0.030]***	0.156 [0.029]***	0.165 [0.033]***	0.166 [0.034]***
trade	0.122 [0.051]**	0.133 [0.050]***	0.134 [0.048]***	0.115 [0.049]**	0.12 [0.046]***	0.099 [0.056]*	0.107 [0.051]**
Femaleown	0.001 [0.015]	0.01 [0.012]	0.009 [0.012]	-0.008 [0.014]	-0.005 [0.010]	0.064 [0.028]**	0.057 [0.019]**
small entr	-0.223 [0.032]***	-0.208 [0.032]***	-0.21 [0.031]***	-0.218 [0.035]***	-0.213 [0.034]***	-0.224 [0.035]***	-0.228 [0.037]**
medium entr	-0.433 [0.061]***	-0.409 [0.061]***	-0.409 [0.059]***	-0.436 [0.065]***	-0.43 [0.063]***	-0.434 [0.067]***	-0.44 [0.070]**
large entr	-0.656 [0.091]***	-0.614 [0.090]***	-0.613 [0.087]**	-0.661 [0.099]***	-0.654 [0.096]***	-0.649 [0.099]***	-0.66 [0.105]**
foreign_own	-0.043 [0.018]**	-0.038 [0.016]**	-0.039 [0.016]**	-0.028 [0.022]	-0.029 [0.022]	-0.034 [0.019]*	-0.039 [0.018]**
privatisation	-0.03 [0.017]*	-0.031 [0.017]*	-0.031 [0.017]*	-0.028 [0.019]	-0.027 [0.019]	-0.026 [0.016]	-0.027 [0.017]*
ageCompany	-0.004 [0.001]***						
ageComp2	0.002 [0.001]***	0.002 [0.000]***	0.002 [0.001]***	0.002 [0.000]***	0.002 [0.000]***	0.002 [0.001]***	0.002 [0.001]***
<i>First stage F-test</i>							
corruption	24.45	23.13	32.05	27.32	45.99	43.49	46.88
corr.Xfemale	65.99	122.05	9.18	13.22	39.84	14.45	16.04
lnK	13.36	13.64	14.65	15.21	16.33	23.62	16.71
trade	9.73	8.42	9.05	7.21	7.62	9.31	9.8
endogeneity test	18.16	16.90	16.90	16.30	16.40	17.93	18.06
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	5469	4963	4963	4171	4171	5466	5466

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% . F-test on instruments is the test statistic on the F-test of the joint significance of the instruments (3- sector – country averages, *changeA*, *changeE*) in the first-stage regressions, with p-values in brackets. Hansen J-statistic is not shown as the equation is just identified. The endogeneity test is defined as the difference of two Sargan-Hansen statistics: one for the equation with the smaller set of instruments, where capital and trade (*lnK*, *trade*) are treated as endogenous, and one for the equation with the larger set of instruments, where capital and trade are treated as exogenous. The endogeneity test statistics is robust to heteroskedasticity.

Table 12 Total Employment growth IV regressions for only SME using sector – country averages and time spent in dealing with regulations as instruments. Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.041 [0.017]**						
FemXAll forms	0.088 [0.043]**						
Admin. Corr.(dummy)		-0.045 [0.014]***					
FemXAdmCorr(dummy)		0.085 [0.038]**					
Admin. Corr (amount)			-0.01 [0.003]***				
FemXAdmCorr (amount)			0.033 [0.012]***				
Gift for Contract (dummy)				-0.058 [0.019]***			
FemXGift4Cont (dummy)				0.148 [0.057]**			
Gift for Contract (amount)					-0.008 [0.002]***		
FemXGift4Cont (amount)					0.022 [0.007]***		
influence local Law						0.039 [0.052]	
FemXinfluence						-0.316 [0.221]	
influence nat Law							0.037 [0.034]
FemXinfluence							-0.252 [0.124]**
lnK	0.167 [0.030]***	0.158 [0.031]***	0.156 [0.030]***	0.163 [0.031]***	0.16 [0.030]***	0.171 [0.034]***	0.171 [0.035]***
trade	0.119 [0.048]**	0.124 [0.047]***	0.126 [0.045]***	0.11 [0.052]**	0.114 [0.048]**	0.094 [0.051]*	0.102 [0.046]**
Femaleown	-0.004 [0.018]	0.008 [0.013]	0.008 [0.014]	-0.01 [0.014]	-0.002 [0.011]	0.06 [0.027]**	0.054 [0.019]***
small entr	-0.23 [0.034]***	-0.215 [0.034]***	-0.216 [0.032]***	-0.221 [0.035]***	-0.216 [0.034]***	-0.231 [0.036]***	-0.234 [0.039]***
medium entr	-0.447 [0.063]***	-0.424 [0.064]***	-0.423 [0.061]***	-0.443 [0.066]***	-0.436 [0.063]***	-0.448 [0.069]***	-0.452 [0.073]***
large entr							
foreign_own	-0.046 [0.017]***	-0.043 [0.016]***	-0.044 [0.016]***	-0.037 [0.021]*	-0.037 [0.020]*	-0.036 [0.020]*	-0.04 [0.017]**
privatisation	-0.03 [0.017]*	-0.03 [0.016]*	-0.03 [0.016]*	-0.033 [0.019]*	-0.034 [0.019]*	-0.026 [0.016]	-0.027 [0.016]*
ageCompany	-0.004 [0.001]***						
ageComp2	0.002 [0.001]***	0.002 [0.001]***	0.002 [0.001]***	0.002 [0.000]***	0.002 [0.001]***	0.003 [0.001]***	0.002 [0.001]***
<i>First stage F-test</i>							
corruption	26.03	25.7	33.54	28.91	48.47	58.56	61.74
corr.Xfemale	70.6	129.85	8.5	13.89	32.01	15.93	16.1
lnK	12.58	12.48	13.82	14.94	14.98	21.38	16.73
trade	10.33	7.69	8.11	6.5	7.23	10.37	10.49
endogeneity test	18.45	17.24	17.24	16.44	16.57	18.37	18.40
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	5193	4709	4709	3961	3961	5190	5190

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% . F-test on instruments is the test statistic on the F-test of the joint significance of the instruments (3- sector – country averages, *changeA*, *changeE*) in the first-stage regressions, with p-values in brackets. Hansen J-statistic is not shown as the equation is just identified. The endogeneity test is defined as the difference of two Sargan-Hansen statistics: one for the equation with the smaller set of instruments, where capital and trade (*lnK*, *trade*) are treated as endogenous, and one for the equation with the larger set of instruments, where capital and trade are treated as exogenous. The endogeneity test statistics is robust to heteroskedasticity.

**Corruption and Entrepreneurship: Does Gender Matter?**

Table 13 Total Employment growth IV regressions excluding old EU countries – country averages and time spent in dealing with regulations as instruments. Dependent variable annual employment growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All informal payments	-0.034 [0.024]						
FemXAll forms	0.089 [0.076]						
Admin. Corr.(dummy)		-0.036 [0.017]**					
FemXAdmCorr(dummy)		0.075 [0.058]					
Admin. Corr (amount)			-0.012 [0.004]***				
FemXAdmCorr (amount)			0.046 [0.013]***				
Gift for Contract (dummy)				-0.084 [0.028]***			
FemXGift4Cont (dummy)				0.275 [0.105]***			
Gift for Contract (amount)					-0.009 [0.003]***		
FemXGift4Cont (amount)					0.023 [0.008]***		
influence local Law						0.083 [0.075]	
FemXinfluence						-0.542 [0.325]*	
influence nat Law							0.086 [0.046]*
FemXinfluence							-0.477 [0.201]**
lnK	0.167 [0.037]***	0.153 [0.037]***	0.152 [0.034]***	0.151 [0.035]***	0.155 [0.036]***	0.168 [0.041]***	0.175 [0.048]***
trade	0.109 [0.057]*	0.129 [0.055]**	0.129 [0.052]**	0.122 [0.056]**	0.113 [0.052]**	0.077 [0.065]	0.088 [0.059]
Femaleown	-0.008 [0.032]	0.009 [0.022]	-0.011 [0.015]	-0.034 [0.030]	-0.003 [0.017]	0.088 [0.037]**	0.093 [0.032]***
small entr	-0.216 [0.037]***	-0.2 [0.036]***	-0.204 [0.034]***	-0.199 [0.037]***	-0.199 [0.038]***	-0.216 [0.040]***	-0.225 [0.047]***
medium entr	-0.425 [0.071]***	-0.398 [0.071]***	-0.399 [0.066]***	-0.405 [0.069]***	-0.411 [0.071]***	-0.419 [0.076]***	-0.435 [0.089]***
large entr	-0.667 [0.112]***	-0.626 [0.109]***	-0.624 [0.102]***	-0.626 [0.106]***	-0.629 [0.108]***	-0.647 [0.122]***	-0.671 [0.142]***
foreign_own	-0.053 [0.018]***	-0.052 [0.015]***	-0.052 [0.016]***	-0.045 [0.020]**	-0.043 [0.020]**	-0.038 [0.021]*	-0.049 [0.018]***
privatisation	-0.038 [0.016]**	-0.038 [0.016]**	-0.037 [0.016]**	-0.032 [0.017]*	-0.037 [0.017]**	-0.029 [0.016]*	-0.035 [0.018]*
ageCompany	-0.004 [0.001]***						
ageComp2	0.003 [0.001]***	0.002 [0.001]***	0.002 [0.001]***	0.002 [0.001]***	0.002 [0.001]***	0.003 [0.001]***	0.003 [0.001]***
<i>First stage F-test</i>							
corruption	33.91	29.71	24.94	28.12	52.69	64.22	48.18
corr.Xfemale	72.83	66.76	7.68	15.77	38.98	17.19	12.54
lnK	10.03	9.62	12.34	11.65	11.62	18.68	13.48
trade	9.02	7.76	7.79	6.96	7.53	10.7	12.1
endogeneity test	15.68	14.58	14.48	14.34	14.77	14.02	15.17
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	3225	2883	2883	2788	2788	3224	3225

Note: The regressions include sector- location-country interaction dummies. Asymptotic cluster-robust standard errors (clustering by country) are reported in parenthesis. The dependent variable is yearly total employment growth. In each column we analyse the impact of a different form of corruption: (1) incidence of overall corruption, (2) incidence of administrative corruption, (3) amount paid for administrative corruption, (4) incidence of gifts to obtain gov. contracts, (5) amount paid to obtain a contract, (6) incidence of state capture at local level, (7) incidence of state capture at national level.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% . F-test on instruments is the test statistic on the F-test of the joint significance of the instruments (3- sector – country averages, *changeA*, *changeE*) in the first-stage regressions, with p-values in brackets. Hansen J-statistic is not shown as the equation is just identified. The endogeneity test is defined as the difference of two Sargan-Hansen statistics: one for the equation with the smaller set of instruments, where capital and trade (*lnK*, *trade*) are treated as endogenous, and one for the equation with the larger set of instruments, where capital and trade are treated as exogenous. The endogeneity test statistics is robust to heteroskedasticity.