Who Pay Bribes and How Much? Gender and Firm-Level Corruption in MENA and Egypt

Amira El-Shal

2023

May 4 - 6,
Cairo Egypt

ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية

ERF 29th Annual Conference

(Work in Progress)

Who Pay Bribes and How Much? Gender and Firm-Level Corruption in MENA and Egypt

Amira El-Shal

Assistant Professor, Faculty of Economics and Political Science, Cairo University, Egypt
E-mail address: amira.elshal@feps.edu.eg

Abstract

Despite its highest rates of entrepreneurial intentions for women worldwide, the MENA region suffers from the largest gender gap in women establishing and owning businesses. This paper incorporates the gender of firm manager in a theoretical framework that explains the incidence, magnitude, and perception of corruption by the control rights and bargaining strength of firms. Using a unique panel data set on corruption in MENA containing quantitative information on bribe payments by firms, we find that a firm's need to pay bribes is explained by the control maintained by public officials over this firm. Firms' "ability to pay" and "refusal power" explain a large part of the variation in bribes' magnitude, with female managers paying lower bribes. Female managers are more likely to be requested or expected to provide a gift/informal payment in the visits or inspections by tax officials. Prior exposure to corruption and more intense exposures, lower time opportunity cost of not engaging in corruption, not affording to pay informal payments, and doubting the rule of law are associated with a higher likelihood of perceiving corruption as a bigger obstacle to the firm's operations. Female managers perceive corruption as a bigger obstacle to their firm operations.

JEL classification: D7; H3; J16.
Keywords: Gender, corruption; bribes; MENA; Egypt.

1. Introduction

I asked my hairdresser's assistant, who is very talented, even more talented than the hairdresser (business owner) himself, "have you considered running your own salon?". *She* replied, "I do not wish to deal with tax officials." Women face significant challenges in the labor markets of the Middle East and North Africa (MENA) region. Research to date has focused on explaining women's persistently low labor force participation rate and high unemployment rate in some countries in MENA (e.g., Assaad et al., 2020; Hayo & Tobias, 2013; Hendy, 2015; Nazier & Ramadan, 2018). There is less evidence on what obstacles women face after joining the labor force, in the workplace and as entrepreneurs.

Strengthening women's entrepreneurship can improve female labor force participation directly and indirectly and in the short and long term (Pignatti, 2020). MENA suffers from the largest gender gap worldwide with respect to women establishing and owning businesses, estimated at more than 40 percent, despite having some of the highest rates of entrepreneurial intentions for women (GEM, 2022). This contradiction suggests that significant barriers impede women's entrepreneurship in MENA, making it harder for them to translate high intentions into new businesses. These barriers include discriminatory gender norms (Bursztyn et al., 2020), lack of knowledge, skills, and networks to start a business (Bouguerra, 2015), and restricted access to financial resources and low levels of integration into the formal banking systems (International Finance Corporation, 2017). The barrier that this study focuses on is women entrepreneurs experiencing, suffering from, and perceiving corruption differently than men, after joining the labor force, due to existing imbalances in the power dynamics between the two.

This paper incorporates the gender of firm manager in a theoretical framework that explains the incidence, magnitude, and perception of corruption. Extending the framework of Svensson (2003), we argue that the incidence and magnitude of corruption can be explained by the control maintained by public officials over firms "the control rights hypothesis" and the bargaining strength of firms "the bargaining hypothesis", which, in the context of MENA, is a function of the gender of firm managers. The hypothesis of this study is that corruption is a gender-specific obstacle to entrepreneurship in MENA, where female managers have lower bargaining power and, hence, are more likely to experience corruption than their male counterparts but that the former respond more fairly to corruption requests and less perceive corruption as an obstacle to their business operations.

Despite the recent advances in research on corruption, we know relatively little about whether the determinants of firm corrupt behavior are uniformly influential, and how, after controlling for these determinants, the gender of agents—firm managers—affects the propensity of their respective firms to engage in and perceive corrupt behavior, and the magnitude of this behavior, if any.

A stream of studies has documented systematic gender differences in corrupt behavior. Female entrepreneurs have a lower propensity to let their respective firms engage in corrupt behavior than their male counterparts and are more willing to sacrifice private gains or profits for their respective firms for the public good. There is evidence that firms run by a female CEO may be especially reluctant to engage in criminal activities such as bribery (Dollar et al., 2001; Swamy et al., 2001) because of higher risk-aversion (Faccio et al., 2016; Charness & Gneezy, 2012; Marianne, 2011), less overconfidence (Deaux & Farris, 1977; Lundeberg et al., 1994; Barber & Odean, 2001), and more pro-social attitudes (Eckel & Grossman, 1998; Alesina & Giuliano, 2011) than those run by a male CEO.

Most studies show that males are more likely to offer bribes (Trentini & Koparanova, 2013). Females have greater aversion to corruption and tax evasion (Torgler & Valev, 2010). There is strong empirical evidence that not only are males more likely to offer bribes, but also the value of bribes offered by males is higher than that offered by females. Moreover, male entrepreneurs have higher exposure to corruption as they are generally more active than female entrepreneurs in the labor market. In parallel, males have higher tolerance for illegal activity (Mocan & Rees, 1999).

A growing body of literature has recently explored the dependence of women's attitudes and behaviors related to corruption on institutional and cultural contexts, and detected a significant association. Examining if males are more tolerant of bribery than females at different levels of institutionalized democracy/autocracy, a gender gap in corruption attitudes and behaviors was reported in democracies but was weaker or absent in autocracies (Esarey & Chirillo, 2013). Females were less tolerant of corruption in Australia, but no gender differences were observed in India, Indonesia, nor Singapore (Alatas et al., 2009). Experimental evidence confirms that women's attitudes and behaviors regarding corruption depend on institutional and cultural contexts, attesting that women are more sensitive to social signals (Armantier & Boly, 2008; Alhassan-Alolo, 2007; Schulze & Frank, 2003).

This paper is organized as follows. In section 2, we outline the three key hypotheses on the incidence, magnitude, and perception of corruption and introduce the empirical specification. Section 3 presents the data. In section 5, we discuss the results. Section 6 concludes.

2. Framework and model specification

The MENA Enterprise Survey panel dataset is designed to represent the population of firms in selected MENA countries in the main manufacturing and services industries. We would expect some of these firms to pay bribes or informal payments to public officials while others to not. Some firms would be directly requested by tax officials to provide a gift or informal payment in the visits or inspections by these officials. Following a positive corruption incidence, we would expect the magnitude of bribes or informal payments paid by firms to vary. In addition, based on prior exposure to corruption among other factors, firms would differently perceive the degree to which corruption is an obstacle to their current operations.

We build on the theoretical framework laid out by Svensson's (2003) and initially assume a unique set of variables determining the incidence of corruption and another (unique) set of variables determining the magnitude of corruption. First, we hypothesize that a firm's need to pay bribes can be explained by the control maintained by public officials over this firm "the control rights hypothesis", specifically their opportunity to affect the firm's business operations and cash flows. These control rights arise from the regulatory system and from the discretion that public officials have in enforcing regulations related to customs, taxes, licenses, services, etc. If a firm manager has full control rights and officials maintain no control over her/his firm, s/he will not need to pay any bribes. If officials maintain some control over a firm, the firm will need to either pay the bribe required by officials or exit the market, which is costly to the firm. We do not explicitly observe the control of public officials over firms, but we observe a firm's required interaction with the public sector. For firm i at year t, the equation of the control rights hypothesis or the corruption incidence can be formulated as a logit model:

$$(1) \qquad \Pr(c\_dum_{it} = 1 \mid \mathrm{X}_{it}) = \Phi(\alpha'_W \mathbf{W_{it}} + \alpha'_Z \mathbf{Z_{it}} + \alpha_f \mathrm{f}_{it} + \mu_i),$$

where $c\_dum_{it} = 1$ ($c\_dum_{it} = 0$) denotes the event that a firm needs (does not need) to pay bribes, X_{it} is a set of all the observed explanatory variables included in the right-hand side of the equation, and $\Phi(.)$ is the logit link function. W_{it} is a vector proxying a firm's required interaction with the public sector. For W_{it}, we use a measure of the extent to which the firm receives public services (*public services*); a dummy indicating whether the firm is engaged in

trade (*trade*); a dummy indicating whether the firm is inspected by tax officials (*tax*); and a dummy indicating whether the firm secured (or attempted to secure) a government contract (*gov contract*). The respective four estimates are reported separately in addition to the estimate of a composite "formal sector index" combining the four (*formal sector*) to attenuate any multicollinearity concerns.

In an additional model specification, we replace *formal sector* by a measure of the percent of senior management time spent in dealing with government regulations (*regulations*). Regulations constitute the base from which the control rights stem, where spending more time dealing with government regulations imposes additional cost on the firm and, thus, incentivizes it to pay a bribe. Transnational comparisons show that an inordinate amount of time is taken away from doing business when dealing with authorities, causing welfare diminishing effects. These effects can be diminished by paying bribes (Tanzi, 1998). Hence, from an economic perspective, bribe-paying behavior by firms can be considered as a rational market response aiming to adjust government failure or weak institutional structures which hamper entrepreneurship (Meon & Sekkat, 2005). Recent research has supported this hypothesis, indicating that the complexity in the system—be it policy or bureaucratic—tends to raise the probability of paying bribes (Sharma & Mitra, 2015). Having trust in the legal system is associated with a lower probability of being asked for a bribe (Lee & Guven, 2013).

We also include employment size (*employment*) as a proxy for firm visibility. Larger firms are presumably more visible to and prone to be detected by public authorities. Industry dummies are included in all model specifications. μ_i is a set of panel-level random effects that are i.i.d. and $N(0, \sigma_\mu^2)$.

Our hypothesis is that the probability that firm *i* needs to pay bribes is mainly affected by W_{it} and is not or is less affected by its bargaining strength "the bargaining hypothesis", Z_{it}, or the bargaining strength of its manager, f_{it} (Z_{it} and f_{it} to be discussed shortly). However, we include all vectors (W_{it}, Z_{it}) and f_{it} in the baseline specification (equation (1)) to account for the possibility that, in reality, some of the factors determining the incidence of corruption can also affect (even if less significantly) the magnitude of corruption. In the results section, before reporting the estimates of the baseline regression, we separately report the estimates of more parsimonious model specifications that capture the partial effects of each of the control rights measures, the effect of a composite index of these measures, and the effect of a measure of government regulations.

The MENA Enterprise Survey panel dataset allows us to additionally explore the negotiation between public *tax* officials in particular and firms, where the opportunity of officials to extract bribes and affects firms' cash flows can be more pronounced. For firm i at year t, the equation of the incidence of a gift/informal payment being requested or expected in any of the visits or inspections by tax officials can be formulated as a logit model:

$$(2) \qquad \Pr(c\_req_{it} = 1 \mid \mathrm{X}_{it}) = \Psi(\beta_I' \mathbf{I_{it}} + \beta_Z' \mathbf{Z_{it}} + \beta_f \mathrm{f}_{it} + \nu_i),$$

where $c\_req_{it} = 1$ (c_req_{it}=0) denotes the event that a firm is (not) requested or expected to provide a gift/informal payment in any of the visits or inspections by tax officials. $\Psi(.)$ is the logit link function. I_{it} proxies the intensity of the firm interaction with public tax officials in particular, captured by the frequency of visits or inspections by tax officials for the firm (*tax inspections*). f_{it} is a dummy indicating whether the firm manager is a female (*female manager*). We hypothesize that, due to the pronounced barriers to women's entrepreneurship in MENA and to public tax officials presumably being aware of this situation, female managers would be more likely to be requested to pay bribes to continue their business operations, supporting the "greasing the wheels" effect of corruption (Moustafa, 2021). ν_i is a set of panel-level random effects that are i.i.d. and $N(0, \sigma_\nu^2)$. We discuss later how the gender of the manager is expected to affect as well the bargaining power of the firm. We recognize that an incidence of requesting or expecting a gift/informal payment does not necessarily imply an incidence of paying bribes. However, we assume that firms requested to pay bribes to tax officials are the ones that those officials' actions directly and significantly affect their business operations and, hence, are forced to make informal payments at some stage.

Second, we hypothesize that how much a bribe-paying firm pays is firm specific and can be explained by the bargaining strength of this firm "the bargaining hypothesis". Two features are proposed by Svensson's (2003): the firm's ability to pay the bribe and the firm's refusal power, i.e., the cost of not paying. The former can be proxied by the firm's current flow of profits. The higher the profits, the weaker the firm's bargaining position, as the public official can demand a higher bribe for a given service knowing that the firm can afford to pay it. The firm's refusal power can be proxied by the alternative return on the firm's capital stock that the firm will obtain if it refuses to pay the bribe and is forced to exit the market. The lower the sunk cost of capital, the stronger the firm's bargaining position, as exiting and/or reallocating its production to another activity become more profitable and the public official will be forced to demand a lower bribe. We assume that, in MENA, the firm bargaining strength is also a function of the

gender of firm manager, where a corrupt public official will try to extort as high a bribe as possible if the manager is a female knowing that she has a lower refusal power, i.e., facing a higher cost of reallocating her business elsewhere.

The MENA Enterprise Survey panel dataset provides a measure of informal payments as a percent of total sales rather than a measure of total informal payments. We rescale the measures of a firm's bargaining position (Z) with sales, which also ensures that the results are not driven by spurious correlation (all variables are correlated with sales, a proxy for firm size). For firm i at year t, the equation of the bargaining hypothesis or the corruption magnitude becomes:

$$\overline{c\_mgn}_{it} = \gamma_0 + \gamma_\pi \bar{\pi}_{it} + \gamma_k \bar{k}_{it} + \gamma'_W \mathbf{W_{it}} + \gamma_f \mathrm{f}_{it} + \epsilon_{it}, \quad (3)$$

where $\overline{c\_mgn}_{it}$ is informal payments paid to public officials per sales, $\bar{\pi}_{it}$ is current profit per sales (*profit per sales*), $\bar{k}_{it}$ is the capital-labor ratio per sales (*alternative return per sales*), and γ_0, γ_π, and γ_k are coefficients. We expect that $\gamma_\pi > 0$ and $\gamma_k < 0$. ϵ_{it} is the error term. The definitions of other variables remain the same. We also re-estimate equation (3) with the degree of competition (number competitors the firm's main product face) (*competition*) as an additional control to attenuate the concern that other variables confounded with the formal sector index, the current profit, or the alternative return on capital may affect the magnitude of informal payments firms need to pay. Firms facing low product market competition are high rent firms or earn relatively higher profits, which would weaken their bargaining position. Counteracting this effect, with a high market share, these firms have a weaker "grease the wheels" motivation.

As a robustness check, we allow firm-specific components to be correlated with the independent variables (a less restrictive approach) and report the results of the conditional fixed-effects regression model below in the Appendix:

$$\overline{c\_mgn}_{it} = \gamma_\pi \bar{\pi}_{it} + \gamma_k \bar{k}_{it} + \gamma'_W \mathbf{W_{it}} + \gamma_f \mathrm{f}_{it} + \gamma_i + \epsilon_{it}, \quad (4)$$

where γ_i is the firm fixed effects.

Our point of departure is to estimate the two equations (1) and (3) separately assuming that the error terms in the two equations are uncorrelated. We later allow the errors to be correlated and alternatively estimate the model as a censored regression model, capturing the magnitude of informal payments to public officials conditional on the decision whether to pay. This model

takes into account the "unobservable" potential amount of bribes that non-paying firms would pay if they would decide to pay. The equations of the incidence and magnitude of corruption can be formulated as a tobit model for firm i at year t:

$$c\_mgn_{it}^{*} = \gamma_0 + \gamma_\pi \bar{\pi}_{it} + \gamma_k \bar{k}_{it} + \gamma_W' \mathbf{W_{it}} + \gamma_f f_{it} + \epsilon_{it} \quad (5)$$

$$c\_mgn_{it} = \begin{cases} c\_mgn_{it}^{*} & \text{if } c\_mag_{it}^{*} > 0 \\ 0 & \text{if } c\_mag_{it}^{*} \leq 0 \end{cases} \quad (6)$$

$c\_mgn_{it}^{*}$ is an unobserved "latent" variable, and 0 is the lower limit. The other variables are as defined before.

Once more, as a robustness check, we allow firm-specific components to be correlated with the independent variables and report in the Appendix the results of the tobit model with firm fixed-effects[1].

Third, we build on the argument by Friesenbichler et al. (2017) that perceptions of corruption are shaped by prior exposure to corruption and work engagement. In this study, we hypothesize that the firm's perception of the degree to which corruption is an obstacle to its operations can be mainly explained by prior exposure to corruption, opportunity cost of no corruption, ability to meet corruption demands, and perception of the rule of law. Prior exposure to corruption and more intense exposures, lower time opportunity cost of not engaging in corruption, hardly or not affording to pay informal payments when requested/needed, and doubting the rule of law would increase the likelihood of perceiving corruption as a bigger obstacle to the firm's operations.

The gender of firm manager is another important factor and can affect corruption perceptions in two opposite directions. On the one hand, there is strong evidence that women maintain higher ethical standards, suggesting that female managers would be more ethically obliged not to pay bribes and generally have a lower tolerance towards corrupt behaviors (see section 1). By not paying bribes, such managers may be subjected to greater harassment by public officials and, thus, their perception of corruption can be higher. On the other hand, there is evidence that individuals who are more work engaged tend to report corruption as a bigger obstacle (Friesenbichler et al., 2017). If so and if it is easier for men to be engaged than women in the

[1] We use the Stata procedure *pantob* to estimate this model (Honore, 1992; Honore et al., 2000).

MENA region, we would expect female managers to report corruption as a smaller obstacle. In the same vein, if there are greater barriers to women entrepreneurship compared to men, as it is the case in MENA, informal payments may "grease the wheels" of a firm that is female managed and, thus, corruption would be perceived as a smaller obstacle.

For firm i at year t, the equation of corruption perception can be formulated as an ordered logit model:

$$(7) \quad \Pr(c\_prc_{it} > k \mid \kappa, \mathrm{X}_{it}, \xi_i) = H(\delta_c c\_dum_{it} + \delta_t \mathrm{t}_{it} + \delta_\pi \pi_{it} + \delta_l \mathrm{l}_{it} + \delta_f \mathrm{f}_{it} + \xi_i - \kappa_k),$$

where c_prc_{it} is an ordinal variable that indicates the severity of corruption as an obstacle to the firm's current operations (values 0-4); κ is a set of cutpoints, where k is the number of possible outcomes; ξ_i is a set of panel-level random effects; and $H(.)$ is the logistic cumulative distribution function. Prior exposure to corruption is proxied by previous corruption incidence c_dum_{it} (*corruption incidence*). In additional model specifications, we replace *corruption incidence* by $\overline{c\_mgn}_{it}$ (*corruption magnitude*) and by c_req_{it} (*corruption requested*). t_{it} proxies the time opportunity cost for managers of not engaging in corruption, measured by the percent of senior management time spent in dealing with government regulations (*regulations*). The ability to meet corruption demands is proxied by the firm's current *profit* (π_{it}). l_{it} proxies the perception of the rule of law, captured by an ordinal measure of whether the court system is perceived as fair, impartial, and uncorrupted (*rule of law*). We control for the size of the firm (*employment*) and include industry dummies in all model specifications.

3. Data

We exploit a recently released and harmonized panel dataset for MENA from the World Bank Enterprise Survey. The dataset encompasses more than 13,000 observations of firms that were interviewed from Egypt, Jordan, Lebanon, Morocco, Tunisia, and West Bank and Gaza over three waves between the years 2013 and 2020. More than 50 percent of the observations belong to Egypt's sample (see Table A.1 in the Appendix). Panel observations of responses on the corruption questions of interest are available for all three waves in all countries. The Enterprise Survey covers firms in the manufacturing and services sectors.[2] One advantage of this data is that it is comparable across countries. Another advantage of this specific dataset we use is that it is a panel one unlike most of the datasets of the Enterprise Survey. Information on the sunk

[2] A comprehensive description of the data and survey methodology is provided online at: www.enterprisesurveys.org.

cost, however, is available for manufacturing firms only. Hence, our working sample consists of 8,063 firms in the manufacturing sector, out of which 5,220 firms are for Egypt.

Corruption. The Enterprise Survey is consistent across the six countries and includes a series of questions on corruption that are phrased indirectly to avoid implying that the respondent is engaged in an "illicit" behavior, which could result in attrition or reporting bias. We construct four dependent variables based on the Survey that reflect the (1) incidence of corruption, the (2) incidence of a corruption payment being requested or expected, the (3) magnitude of corruption, and the (4) perception of corruption as an obstacle to firm operations. The Survey carefully asks the respondent the following: *"It is said that establishments are sometimes required to make gifts or informal payments to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose?"* Following Svensson (2003), the key question on bribe payments is reported under this question. For the incidence of corruption, we construct a dummy variable denoting the event that a firm needs (does not need) to pay bribes based on whether the respondent specified a non-zero (zero) percentage or value in response to the previous question. If a non-zero response is reported, we use the indicated percentage of total annual sales paid in informal payments or gifts to public officials as a measure of the magnitude of corruption.

The Enterprise Survey also allows us to observe the negotiation between public *tax* officials in particular and firms, where the opportunity of officials to extract bribes and affects firms' cash flows can be more pronounced. The Survey asks the respondent the following: *"Over the last year, how many times was this establishment visited or inspected by tax officials or required to meet with them? In any of these inspections or meetings was a gift or informal payment expected or requested?"* We use the response to this question to construct a dummy variable denoting the event that a firm is (not) requested or expected to provide a gift/informal payment in any of the visits or inspections by tax officials. We include this question in the analysis for two main reasons. First, it accounts for the fact that the amount of informal payments actually *paid* does not necessarily correspond to the amount *requested*. Second, beyond the control rights/bargaining hypothesis, this question provides explicit evidence on whether women managers are more prone to pressure from public officials to engage in corrupt behavior. This query can be taken one step further: are public officials aware and take advantage of the lower bargaining power of female managers in a specific context? Or are public officials reluctant to

ask women entrepreneurs for bribes, given their lower tolerance towards corrupt behaviors and their tendency to offer lower value of bribes?

To capture to what extent corruption is perceived as an obstacle to firm operations, we rely on the following question in the Enterprise Survey: *"To what degree are each of the following an obstacle to the current operations of this establishment? Corruption?"* We use the response to this question to construct an ordinal variable, ranging from 0 (no obstacle) to 4 (very severe obstacle).

Control rights. To measure the extent to which a firm receives public services, we construct an index (0-5) as the sum of five dummy variables indicating if an application was submitted to obtain an electrical connection, a water connection, an import license, an operating license, and a construction-related permit. To indicate whether a firm is engaged in trade, we construct a dummy variable taking the value 1 if the firm either exports or imports by itself and zero otherwise. To indicate the presence of interactions with tax authorities, we construct a dummy variable taking the value 1 if the firm was inspected by tax officials over the last 12 months and zero otherwise. To indicate the presence of interactions in the context of a government contract, we construct a dummy variable taking the value 1 if the firm has secured or attempted to secure a government contract over the last year and zero otherwise. Moreover, we construct a composite "formal sector index" as the first principal component derived from a principal components analysis of the previous four control rights' variables to capture different aspects of a firm's dealings with the public sector. As regulations constitute the base from which the control rights of public officials stem, we also include a measure of the percent of senior management time spent in dealing with government regulations. We include employment size as well as a proxy for a firm's visibility. In the model specification that has as its dependent variable the incidence of a corruption payment being requested or expected in any of the visits or inspections by tax officials, the main explanatory variable used is the frequency of visits or inspections by tax officials for the firm, which proxies the intensity of the firm interaction with public tax officials in particular.

Bargaining strength. We use the firm's current profit as a proxy for its ability to pay the bribe. We calculate the profits as the total annual sales for all products and services less the total annual cost of labor (including wages, salaries, bonuses, and social security payments), raw materials and intermediate goods used in production, electricity, and fuel. To proxy the firm's refusal power, we calculate the capital-labor ratio to reflect the alternative return on the firm's capital stock, as the capital is at least partly sunk. This is the return the firm will obtain if it

refuses to pay the bribe and is forced to exit the market. We include a dummy variable taking the value 1 if the firm's top manager is a female. We also include a measure of the degree of competition, which equals the number competitors the firm's main product face.

In the model specification that has as its dependent variable the perception of corruption as an obstacle to firm operations, we include as an explanatory variable an ordinal measure of whether the court system is perceived as fair, impartial, and uncorrupted, ranging from 1 (strongly disagree) to 4 (strongly agree), as a proxy of perception of the rule of law.

4. Results

Who pay bribes? In Tables 1 and 2, we report the logit regression estimates of the incidence of corruption in MENA and Egypt, respectively. In line with the control rights hypothesis, firms requesting or receiving public services face a higher probability of having to pay bribes both in MENA and in Egypt. Firms engaged in trade in Egypt face a higher probability of having to pay bribes. No specific effects are observed neither in MENA not in Egypt for firm interaction with tax officials nor securing or attempting to secure a government contract. In column 5 in both Tables 1 and 2, we report the results of the baseline regression with the "formal sector index" and the bargaining strength variables as regressors. There are two main findings. First, a firm under a high aggregate "control" by public officials is more likely to have to pay bribes in MENA and in Egypt. Second, diverging from Svensonn (2003)'s results, the refusal power a firm has in MENA and in Egypt affects the likelihood of having to pay bribes. But there is no evidence that the firm's profitability affects the likelihood of having to pay bribes.

We report the logit regression estimates of the incidence of corruption being requested in tax officials' visits in MENA and Egypt in Tables 3 and 4, respectively. Two main findings are worth noting. First, firms experiencing a higher frequency of tax inspections face a higher probability of having to pay bribes. The effect is more significant in Egypt compared to that in the pooled sample. Second, female managers are significantly more likely to be requested or expected to provide a gift/informal payment in the visits or inspections by tax officials. Again, the effect appears to be more significant in Egypt compared to that in the pooled sample. This result is consistent with our hypothesis that, as a result of the pronounced barriers to women's entrepreneurship in MENA and to public tax officials presumably being aware of this situation, female managers are more likely to be requested to pay bribes to continue their business operations, supporting the "greasing the wheels" effect of corruption.

How much bribes have to be paid? We report the regression estimates of the magnitude of corruption in MENA and Egypt in Table 5. We report also the tobit regression estimates of the incidence and magnitude of corruption in Table 6. There are two main findings. First, in line with the bargaining hypothesis, the magnitude of bribes is positively and significantly correlated with the firm's current profits and is negatively and significantly correlated with the firm's alternative return to capital. Second, firms with a female top manager pay lower bribes, especially in Egypt.

In Table 7, we report the ordered logit regression estimates of the perception of corruption as an obstacle to the firm's current operation in MENA and in Egypt. Consistent with our hypothesis on what shapes corruption perceptions (see section 2), prior exposure to corruption and more intense exposures, lower time opportunity cost of not engaging in corruption, hardly or not affording to pay informal payments when requested/needed, and doubting the rule of law are associated with a higher likelihood of perceiving corruption as a bigger obstacle to the firm's operations.

TABLE 1
LOGIT REGRESSIONS ON THE INCIDENCE OF CORRUPTION IN MENA

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Employment	0.159***	0.165***	0.173***	0.173***	0.180***	0.458***	0.176***	0.226***	0.461***	0.223***
	(0.031)	(0.035)	(0.031)	(0.031)	(0.042)	(0.096)	(0.042)	(0.039)	(0.113)	(0.039)
Public requests	0.226***									
	(0.058)									
Trade		0.168								
		(0.116)								
Tax			0.081							
			(0.101)							
Gov contract				0.083						
				(0.133)						
Formal sector					0.216***	-0.101	0.223***			
					(0.060)	(0.116)	(0.061)			
Regulations								0.007***	0.007	0.007***
								(0.002)	(0.005)	(0.002)
Profit					0.185	-0.653	0.173	0.146	-0.762	0.134
					(0.346)	(0.582)	(0.342)	(0.355)	(0.587)	(0.352)
Alternative return					-0.160***	-0.243***	-0.162***	-0.149***	-0.259***	-0.151***
					(0.028)	(0.063)	(0.028)	(0.028)	(0.067)	(0.027)
Competition						0.013***			0.016***	
						(0.005)			(0.006)	
Female manager							-0.457			-0.403
							(0.315)			(0.315)
Constant	-2.065*	-1.733	-2.017*	-2.015*	-6.630	13.382	-6.321	-5.286	15.517	-4.987
	(1.201)	(1.169)	(1.164)	(1.144)	(8.714)	(14.357)	(8.616)	(8.921)	(14.461)	(8.841)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,903	6,598	6,853	6,865	4,880	1,330	4,873	4,783	1,292	4,776

Dependent variable "incidence of corruption" takes the value 1 if the firm reported positive informal payments and 0 otherwise. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Public requests refer to infrastructure services, licenses, and permits requests.

TABLE 2
LOGIT REGRESSIONS ON THE INCIDENCE OF CORRUPTION IN EGYPT

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Employment	0.154***	0.141***	0.178***	0.174***	0.177***	0.536***	0.174***	0.257***	0.550***	0.255***
	(0.037)	(0.044)	(0.037)	(0.039)	(0.053)	(0.128)	(0.054)	(0.048)	(0.132)	(0.048)
Public requests	0.373***									
	(0.079)									
Trade		0.394***								
		(0.147)								
Tax			0.151							
			(0.146)							
Gov contract				0.137						
				(0.171)						
Formal sector					0.413***	0.087	0.420***			
					(0.080)	(0.160)	(0.081)			
Regulations								0.011***	0.006	0.011***
								(0.003)	(0.006)	(0.003)
Profit					-26.069	-13.548	-25.546	-22.395	-12.257	-21.759
					(36.179)	(33.692)	(35.193)	(35.876)	(32.845)	(34.820)
Alternative return					-0.201***	-0.175**	-0.201***	-0.181***	-0.180**	-0.181***
					(0.035)	(0.081)	(0.035)	(0.036)	(0.076)	(0.036)
Competition						0.021***			0.028***	
						(0.008)			(0.010)	
Female manager							-0.209			-0.136
							(0.333)			(0.346)
Constant	-3.631***	-3.639***	-3.717***	-3.602***	650.501	335.421	637.374	558.460	302.877	542.508
	(0.298)	(0.312)	(0.322)	(0.303)	(908.271)	(845.618)	(883.522)	(900.665)	(824.402)	(874.142)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,638	4,620	4,622	4,620	3,664	892	3,657	3,632	883	3,625

Dependent variable "incidence of corruption" takes the value 1 if the firm reported positive informal payments and 0 otherwise. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Public requests refer to infrastructure services, licenses, and permits requests.

TABLE 3
LOGIT REGRESSIONS ON THE INCIDENCE OF CORRUPTION REQUESTED DURING TAX OFFICIALS VISITS IN MENA

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	0.116***	0.185***	0.405**	0.185***	0.116***	0.165***	0.441***	0.167***
	(0.038)	(0.044)	(0.161)	(0.044)	(0.038)	(0.043)	(0.165)	(0.043)
Tax inspections	0.008*	0.007*	0.044	0.006*	0.008*	0.008*	0.054	0.008*
	(0.005)	(0.004)	(0.038)	(0.004)	(0.005)	(0.005)	(0.040)	(0.004)
Profit		0.361	-0.029	0.381		0.418	0.140	0.438
		(0.413)	(0.557)	(0.416)		(0.468)	(0.671)	(0.472)
Alternative return		0.120***	0.042	0.121***				
		(0.045)	(0.109)	(0.045)				
Competition			0.008				0.005	
			(0.009)				(0.008)	
Female manager				0.665***				0.622**
				(0.248)				(0.257)
Constant	-3.364***	-12.863	-5.682	-13.404	-3.364***	-14.112	-9.872	-14.645
	(0.290)	(10.440)	(14.265)	(10.544)	(0.290)	(11.795)	(17.273)	(11.916)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,809	3,468	934	3,463	4,809	3,829	1,044	3,824

Dependent variable "incidence of corruption requested" takes the value 1 if the firm reported that a gift/informal payment was requested in any of the visits or inspections by tax officials and 0 otherwise. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 4
LOGIT REGRESSIONS ON THE INCIDENCE OF CORRUPTION REQUESTED DURING TAX OFFICIALS VISITS IN EGYPT

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	0.152***	0.220***	0.528***	0.219***	0.152***	0.200***	0.578***	0.201***
	(0.042)	(0.049)	(0.182)	(0.048)	(0.042)	(0.045)	(0.193)	(0.045)
Tax inspections	0.021***	0.017**	0.043	0.016**	0.021***	0.019**	0.063	0.018**
	(0.008)	(0.008)	(0.039)	(0.008)	(0.008)	(0.008)	(0.045)	(0.008)
Profit		1.918	-56.685	2.144		3.770	-18.694	3.798
		(10.493)	(65.538)	(10.326)		(10.037)	(19.230)	(10.042)
Alternative return		0.150***	0.142	0.150***				
		(0.041)	(0.107)	(0.041)				
Competition			0.005				-0.001	
			(0.010)				(0.012)	
Female manager				0.755***				0.717***
				(0.262)				(0.261)
Constant	-3.522***	-52.154	1,416.395	-57.852	-3.522***	-98.308	462.196	-99.039
	(0.320)	(263.471)	(1,644.936)	(259.313)	(0.320)	(252.000)	(482.301)	(252.134)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,671	2,902	701	2,897	3,671	3,139	757	3,134

Dependent variable "incidence of corruption requested" takes the value 1 if the firm reported that a gift/informal payment was requested in any of the visits or inspections by tax officials and 0 otherwise. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 5
REGRESSIONS ON THE MAGNITUDE OF CORRUPTION

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MENA				Egypt			
Profit per sales	0.189***	0.347***	0.191***	0.117*	0.178***	0.055	0.178***	0.051
	(0.053)	(0.123)	(0.054)	(0.061)	(0.042)	(0.065)	(0.042)	(0.047)
Alternative	-0.231***	-0.395***	-0.231***	-0.223***	-0.150***	-0.077*	-0.145***	-0.127***
return per sales	(0.053)	(0.120)	(0.053)	(0.053)	(0.033)	(0.045)	(0.033)	(0.031)
Formal sector	0.189**	-0.044	0.195**	0.151	0.452***	0.394**	0.461***	0.402***
	(0.092)	(0.157)	(0.092)	(0.095)	(0.090)	(0.174)	(0.091)	(0.084)
Competition		0.064				0.048		
		(0.054)				(0.032)		
Female			-0.597***				-0.493***	
manager			(0.145)				(0.092)	
Employment				0.085				0.193***
per sales				(0.052)				(0.057)
Constant	-5.521***	-9.548***	-5.563***	-3.842***	-4.350***	-2.427*	-4.319***	-1.340
	(1.281)	(3.018)	(1.290)	(1.420)	(0.946)	(1.285)	(0.948)	(1.125)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dummies								
Observations	4,920	1,350	4,913	4,914	3,700	901	3,693	3,696

Dependent variable is the percentage of total annual sales establishments pay in informal payments or gifts to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 6
TOBIT REGRESSIONS ON THE INCIDENCE AND MAGNITUDE OF CORRUPTION

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MENA				Egypt			
Profit per sales	0.189***	0.386***	0.191***	0.117**	0.178***	0.053	0.178***	0.051
	(0.040)	(0.104)	(0.039)	(0.057)	(0.039)	(0.079)	(0.038)	(0.050)
Alternative	-0.231***	-0.450***	-0.231***	-0.223***	-0.150***	-0.077	-0.145***	-0.127***
return per sales	(0.031)	(0.079)	(0.031)	(0.031)	(0.030)	(0.061)	(0.030)	(0.030)
Formal sector	0.189***	-0.169	0.195***	0.151**	0.452***	0.382***	0.461***	0.402***
	(0.067)	(0.175)	(0.066)	(0.067)	(0.064)	(0.126)	(0.063)	(0.062)
Competition		0.024**				0.039***		
		(0.011)				(0.007)		
Female			-0.597**				-0.493*	
manager			(0.302)				(0.260)	
Employment				0.085				0.193***
per sales				(0.055)				(0.056)
Constant	-5.520	-9.980	-5.563	-3.842	-4.105***	-1.637	-4.051***	-0.514
	(4.325)	(6.529)	(4.289)	(4.372)	(0.819)	(1.661)	(0.803)	(1.234)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dummies								
Observations	4,920	1,350	4,913	4,914	3,700	901	3,693	3,696

Dependent variable is the percentage of total annual sales establishments pay in informal payments or gifts to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. Standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 7
ORDERED LOGIT REGRESSIONS ON THE PERCEPTION OF CORRUPTION AS AN OBSTACLE TO FIRM OPERATIONS IN MENA AND EGYPT

Specification	(1)	(2)	(3)	(4)	(5)	(6)
	MENA			Egypt		
Corruption incidence	0.414***			0.516***		
	(0.117)			(0.152)		
Corruption magnitude		0.009			0.033***	
		(0.007)			(0.011)	
Corruption requested			0.471***			0.347***
			(0.114)			(0.121)
Regulations	-0.005***	-0.005***	-0.006***	-0.003	-0.003	-0.005*
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Female manager	0.240*	0.247*	0.200	0.180	0.174	0.052
	(0.137)	(0.137)	(0.153)	(0.170)	(0.173)	(0.162)
Profit	0.459*	-0.014	0.347	-7.683	0.110***	-8.513
	(0.266)	(0.012)	(0.255)	(5.981)	(0.017)	(5.345)
Rule of law	-0.336***	-0.336***	-0.423***	-0.344***	-0.344***	-0.415***
	(0.033)	(0.033)	(0.041)	(0.039)	(0.039)	(0.044)
Employment	-0.054***		-0.044*	-0.075***		-0.047*
	(0.021)		(0.024)	(0.024)		(0.025)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,722	4,731	3,463	3,467	3,471	2,851

Dependent variable is the ordinal degree corruption is an obstacle to the current operations of the responding firm. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Profit in columns (2) and (4) is profit per sales.

5. Conclusion

We develop a framework of corrupt behavior at the firm level, identifying the determinants of the incidence, magnitude, and perception of such behavior in the MENA region, with special focus on the gender of the entrepreneur as a determinant. The aim is to explain within-country variation in firms' corrupt behavior, specifically why firms facing similar institutions and policies may end up making different decisions about engaging in corrupt behavior and paying different amounts as informal payments.

Our examination of whether there are gender differences in corrupt behavior at the firm level is unpacked into four issues: (1) being requested to provide informal payments, (2) providing informal payments, (3) the magnitude of informal payments provided, and (4) perceptions of how much of an obstacle corruption is to firm operations.

We find that a firm's need to pay bribes is explained by the control maintained by public officials over this firm. Firms' "ability to pay" and "refusal power" explain a large part of the variation in bribes' magnitude, with female managers paying lower bribes. Female managers are more likely to be requested or expected to provide a gift/informal payment in the visits or inspections by tax officials. Prior exposure to corruption and more intense exposures, lower time opportunity cost of not engaging in corruption, not affording to pay informal payments, and doubting the rule of law are associated with a higher likelihood of perceiving corruption

as a bigger obstacle to the firm's operations. Female managers perceives corruption as a bigger obstacle to their firm operations.

References

Alesina, A., & Giuliano, P. (2011). Preferences for Redistribution. *Handbook of Social Economics*, 93–131. https://doi.org/10.1016/b978-0-444-53187-2.00004-8

Alatas, V., Cameron, L., Chaudhuri, A., Erkal, N., & Gangadharan, L. (2009). Gender, Culture, and Corruption: Insights from an Experimental Analysis. *Southern Economic Journal*, *75*(3), 663–680. https://doi.org/10.1002/j.2325-8012.2009.tb00925.x

Alhassan-Alolo, N. (2007). Gender and corruption: testing the new consensus. *Public Administration and Development*, *27*(3), 227–237. https://doi.org/10.1002/pad.455

Armantier, O., & Boly, A. (2008). Can Corruption be Studied in the Lab? Comparing a Field and a Lab Experiment. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1324120

Assaad, R., Hendy, R., Lassassi, M., & Yassin, S. (2020). Explaining the MENA Paradox: Rising Educational Attainment yet Stagnant Female Labor Force Participation. *Demographic Research*, *43*, 817–850. https://doi.org/10.4054/demres.2020.43.28

Barber, B. M., & Odean, T. (2001). Boys will be Boys: Gender, Overconfidence, and Common Stock Investment. *Quarterly Journal of Economics*, *116*(1), 261–292. https://doi.org/10.1162/003355301556400

Bouguerra, N. (2015). An Investigation of Women Entrepreneurship: Motives and Barriers to Business Start Up in the Arab World. *Journal of Women's Entrepreneurship and Education.* No. 1–2, 86–104

Bursztyn, L., González, A. L., & Yanagizawa-Drott, D. (2020). Misperceived Social Norms: Women Working Outside the Home in Saudi Arabia. *American Economic Review*, *110*(10), 2997–3029. https://doi.org/10.1257/aer.20180975

Charness, G., & Gneezy, U. (2012). Strong Evidence for Gender Differences in Risk Taking. *Journal of Economic Behavior and Organization*, *83*(1), 50–58. https://doi.org/10.1016/j.jebo.2011.06.007

Deaux, K., & Farris, E. (1977). Attributing Causes for One's Own Performance: The Effects of Sex, Norms, and Outcome. *Journal of Research in Personality*, *11*(1), 59–72. https://doi.org/10.1016/0092-6566(77)90029-0

Dollar, D., Fisman, R., & Gatti, R. (2001). Are Women Really the "Fairer" Sex? Corruption and Women in Government. *Journal of Economic Behavior and Organization*, *46*(4), 423–429. https://doi.org/10.1016/S0167-2681(01)00169-X

Eckel, C. C., & Grossman, P. J. (1998). Are Women Less Selfish than Men? Evidence from Dictator Experiments. *Economic Journal*, *108*(448), 726–735. https://doi.org/10.1111/1468-0297.00311

Esarey, J., & Chirillo, G. (2013). 'Fairer Sex' or Purity Myth? Corruption, Gender, and Institutional Context. *Politics & Gender* 9: 361–389.

Faccio, M., Marchica, M. -., & Mura, R. (2016). CEO Gender, Corporate Risk-Taking, and the Efficiency of Capital Allocation. *Journal of Corporate Finance*, *39*, 193–209. https://doi.org/10.1016/j.jcorpfin.2016.02.008

Friesenbichler, K. S., Selenko, E., & Clarke, G. (2017). Perceptions of Corruption: An Empirical Study Controlling for Survey Bias. *Journal of Interdisciplinary Economics*, *30*(1), 55–77. https://doi.org/10.1177/0260107917723787

GEM (Global Entrepreneurship Monitor) (2022). *Global Entrepreneurship Monitor 2021/2022 Global Report: Opportunity Amid Disruption.* London: GEM.

Hayo, B., & Tobias, C. (2013). Female Labour Force Participation in the MENA Region: The Role of Identity. *Review of Middle East Economics and Finance*, *9*(3). https://doi.org/10.1515/rmeef-2013-0021

Hendy, R. (2015). Women's Participation in the Egyptian Labor Market. In *The Egyptian Labor Market in an Era of Revolution*, 147–161. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198737254.003.0008

Honore, B. E. (1992). Trimmed Lad and Least Squares Estimation of Truncated and Censored Regression Models with Fixed Effects. *Econometrica*, *60*(3), 533. https://doi.org/10.2307/2951583

Honore, B. E., Kyriazidou, E., & Powell, J. L. (2000). Estimation of Tobit-Type Models with Individual Specific Effects. *Econometric Reviews*, *19*(3), 341–366. https://doi.org/10.1080/07474930008800476

International Finance Corporation (2017). MSME Finance Gap: Assessment of the Shortfalls and Opportunities in Financing Micro, Small, and Medium Enterprises in Emerging Markets. Washington, D.C.: International Finance Corporation. https://openknowledge.worldbank.org/handle/10986/28881

Lundeberg, M. A., Fox, P. W., & Punćochaŕ, J. (1994). Highly Confident but Wrong: Gender Differences and Similarities in Confidence Judgments. *Journal of Educational Psychology*, *86*(1), 114–121. https://doi.org/10.1037/0022-0663.86.1.114

Marianne, B. (2011). New Perspectives on Gender. *Handbook of Labor Economics*, *4*, 1543–1590. https://doi.org/10.1016/s0169-7218(11)02415-4

Mocan, N. (2008). What Determines Corruption? International Evidence from Microdata. *Economic Inquiry*, *46*(4), 493–510. https://doi.org/10.1111/j.1465-7295.2007.00107.x

Moustafa, E. (2021). The Relationship between Perceived Corruption and FDI: A Longitudinal Study in the Context of Egypt. *Transnational Corporations*, *28*(2), 97–129. https://doi.org/10.18356/2076099x-28-2-4

Nazier, H., & Ramadan, R. (2018). Ever Married Women's Participation in Labor Market in Egypt: Constraints and Opportunities. *Middle East Development Journal*, *10*(1), 119–151. https://doi.org/10.1080/17938120.2018.1443605

Pignatti, N. (2020). Encouraging Women's Labor Force Participation in Transition Countries. *IZA World of Labor*. https://doi.org/10.15185/izawol.264.v2

Schulze, G. G., & Frank, B. (2003). Deterrence versus intrinsic motivation: Experimental evidence on the determinants of corruptibility. *Economics of Governance*, *4*(2), 143–160. https://doi.org/10.1007/s101010200059

Svensson, J. (2003). Who Must Pay Bribes and How Much? Evidence from a Cross Section of Firms. *The Quarterly Journal of Economics*, *118*(1), 207–230. https://doi.org/10.1162/00335530360535180

Swamy, A., Knack, S., Lee, Y., & Azfar, O. (2001). Gender and Corruption. *Journal of Development Economics*, *64*(1), 25–55. https://doi.org/10.1016/S0304-3878(00)00123-1

Torgler, B., & Valev, N. T. (2010). Gender and Public Attitudes toward Corruption and Tax Evasion. *Contemporary Economic Policy*, *28*(4), 554–568. https://doi.org/10.1111/j.1465-7287.2009.00188.x

Trentini, C., & Koparanova, M. (2017). Corruption and Entrepreneurship: Does Gender Matter? In *Gender and Entrepreneurial Activity*, by Albert Link. Edward Elgar Publishing.

Appendix A

TABLE A.1
RESPONDING FIRMS PER WAVE

Country/Survey wave	2013	2016	2019	2020	Total
Egypt	2,897	1,814	0	3,075	7,786
Jordan	573	0	601	0	1,174
Lebanon	561	0	532	0	1,093
Morocco	407	0	1,096	0	1,503
Tunisia	592	0	0	615	1,207
West Bank and Gaza	434	0	365	0	799
Total	5,464	1,814	2,594	3,690	13,562

TABLE A.2
FIXED EFFECTS REGRESSIONS ON THE MAGNITUDE OF CORRUPTION

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MENA				Egypt			
Profit per sales	0.192	0.091	0.203	-0.219	0.282*	0.044	0.290*	-0.115
	(0.153)	(0.240)	(0.155)	(0.284)	(0.160)	(0.262)	(0.163)	(0.297)
Alternative	-0.271**	-0.101	-0.267**	-0.256**	-0.371***	0.298	-0.360***	-0.356***
return per sales	(0.115)	(0.171)	(0.116)	(0.110)	(0.132)	(0.187)	(0.134)	(0.127)
Formal sector	0.474*	0.178	0.497**	0.483*	0.664**	-0.055	0.699**	0.673**
	(0.253)	(0.315)	(0.249)	(0.253)	(0.305)	(0.342)	(0.299)	(0.304)
Competition		0.209***				0.237***		
		(0.059)				(0.048)		
Female			-1.813*				-2.073	
manager			(1.098)				(1.286)	
Employment				0.478				0.472
per sales				(0.332)				(0.362)
Constant	-8.180***	-4.843	-8.316***	2.963	-6.187*	0.386	-5.281	2.796
	(3.157)	(4.441)	(3.172)	(7.147)	(3.432)	(4.911)	(3.528)	(6.204)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dummies								
Observations	4,920	1,350	4,913	4,914	3,700	901	3,693	3,696

Dependent variable is the percentage of total annual sales establishments pay in informal payments or gifts to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE A.3
TOBIT REGRESSIONS WITH FIXED EFFECTS ON THE INCIDENCE AND MAGNITUDE OF CORRUPTION

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MENA				Egypt			
Profit per sales	0.189***	0.386***	0.191***	0.117**	0.178***	0.053	0.178***	0.051
	(0.040)	(0.104)	(0.039)	(0.057)	(0.039)	(0.079)	(0.038)	(0.050)
Alternative	-0.231***	-0.450***	-0.231***	-0.223***	-0.150***	-0.077	-0.145***	-0.127***
return per sales	(0.031)	(0.079)	(0.031)	(0.031)	(0.030)	(0.061)	(0.030)	(0.030)
Formal sector	0.189***	-0.169	0.195***	0.151**	0.452***	0.382***	0.461***	0.402***
	(0.067)	(0.175)	(0.066)	(0.067)	(0.064)	(0.126)	(0.063)	(0.062)
Competition		0.024**				0.039***		
		(0.011)				(0.007)		
Female			-0.597**				-0.493*	
manager			(0.302)				(0.260)	
Employment				0.085				0.193***
per sales				(0.055)				(0.056)
Constant	-5.520	-9.980	-5.563	-3.842	-4.105***	-1.637	-4.051***	-0.514
	(4.325)	(6.529)	(4.289)	(4.372)	(0.819)	(1.661)	(0.803)	(1.234)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dummies								
Observations	4,920	1,350	4,913	4,914	3,700	901	3,693	3,696

Dependent variable is the percentage of total annual sales establishments pay in informal payments or gifts to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. Standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.