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DOES CORRUPTION INCREASE OR DECREASE EMPLOYMENT IN FIRMS?

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ABSTRACT

We use representative data for firms for Latin American firms and show that corruption decreases employment in firms. This result is robust to changes in specification and also consistent with the use of an instrumental variables approach. Corruption appears to negatively impact the growth and wealth in a country, not by introducing labor distortion in firms, but by keeping them small.

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1. INTRODUCTION

There are two conflicting views that theorize the link between corruption and employment. In one, corruption causes diversion of managerial efforts away from the process of production so that managers hire more employees not for firms to do a better job, but to make their own jobs cushier. Managers do not perceive their rewards to depend on whether the efficiency of the firm, and they find it optimal to reduce their effort overseeing production. Hiring in firms increases as firms dealing with corrupt environments will become more inefficient because managers will exert more effort at lobbying activities, instead of efficient coordination of the use of factors. (Dal Bó and Rossi, 2007). An opposing view argues that entrepreneurs refrain to make firms grow in order to avoid paying bribes and taxes. They do so because the tax administration sends its bureaucrats only to firms above a certain size where tax revenues are expected to be greater than enforcement costs. While hiding in the informal sector, small entrepreneur substitute capital for labor and wait for a sufficient productivity shock to make their firm large. Bribes and taxes act as a selection mechanism, which restricts the growth of all but the most productive firms. Taxation and corruption act as a selection mechanism and entrepreneurs refrain from hiring employees to avoid the regulation burden of medium firms (Gallipoli and Goyette, 2012).

In this paper we empirically test the link between corruption and employment using relatively new data for a Latin American firms. Section 2 presents and describes the data and the methodology. Section 3 presents our findings. Finally, section 4 concludes.

2. DATA AND EMPIRICAL STRATEGY

We employ firm-level surveys of representative samples of the private sector. The surveys are answered by business owners and top managers and include firm characteristics such as gender participation, access to finance, annual sales, costs of inputs, workforce composition,

bribery, competition, informality, performance measures and several others. Our sample includes 14,200 firms from 28 countries in Latin America and the Caribbean[1]. These data are considered to be of very good quality and are nationally representative samples of firms of at least five employees and avoid potential biases or related idiosyncrasies to specific sectors or even specific countries (World Bank, 2014).

We apply ordinary least squares to our pooled firm-level data and apply a basic benchmark specification where the dependent variable is the number of permanent, full-time workers employed by a firm, and the controls include: (i) percentage of foreign ownership, (ii) years of experience of the top manager, (iii) age of the firm, and (iv) years that the firm operated without formal registration. The key variable of interest, is the percentage of total annual sales paid in bribes: *We've heard 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 percent 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?* All our regressions include country-fixed effects and clusters at the industry-level. All the standard errors are robust. Table 1 presents the definitions of variables. Table 2 shows standard summary statistics[2].

3. FINDINGS

Table 3 presents our findings using ordinary least squares. The dependent variable is full-time workers employed by a firm, where firm-level corruption is our key variable of interest. The

1 Countries: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitt and Nevis, Saint Vincent and Grenadines, Suriname, Trinidad and Tobago, Uruguay and Venezuela. All the surveys were performed in 2010 with the exception of Brazil, which was performed in 2009.

2 Table of correlations is available upon request.

first column presents our basic specification, which shows that corruption and employment are negatively associated at statistically significant conventional levels. This is consistent with the view that claims that firms remain small and refrain from employing workers in order to continue their activities "under the radar" and minimize being exposed to the request of bribes by public officials. The results in column 1 of Table 3, which also control for the age of the firm, the percentage of foreign ownership, the percentage of state ownership, years of experience of top manager and the years that the firm was not formally registered, show that a one-percentage point increase in the percentage of total annual sales paid as a request for bribes is associated with a reduction in the number of permanent full-time employees by about 1.8. The rest of variables included in the regression in column 1 yield the expected sign with respect to our dependent variable, and are statistically significant at conventional levels. The other columns show that our key finding is robust to the addition of controls.

In order to deal with endogeneity issues we follow Fisman and Svensson (2007). We use industry location averages as instruments. If endogeneity is specific to firms, but not industries, or locations, then netting out this firm-specific component yields a corruption measure that depends on the underlying characteristics inherent to particular industries and/or locations, only. The average amount of bribes common to industry-location is a function of the underlying characteristics inherent to that particular industry-location, determining the extent in which bureaucrats can extract bribes. It is assumed that industry-specific part of bribery is determined by underlying technologies and the rent-extraction talents and inclinations of bureaucrats, and so this component is thought to be exogenous to the firm. It is expected that rent extraction through bribery to differ across locations simply because some public officials may be more effective at extracting bribes than others. Using industry-location averages as an instrument for firm-level

corruption gets rid of the bias resulting from joint determination, reverse causality, and unobservables that are correlated with bribery at the firm, but not industry-location (Fisman and Svensson, 2007). Results are shown in Table 4. As shown in column 1, a one-percentage point increase in the percentage of total annual sales paid in corruption-related payments will reduce the number of permanent full-time employees by about 4.71. This result is robust regarding of the specification considered. The effect of bribe payments on the size of firms is typically more than 2.5 times higher than in the basic ordinary least squares estimations[3]. As required, F-tests on excluded instruments are higher than 16 for all specifications.

4. CONCLUSION

We provide evidence that corruption contribute to a reduction in employment in firms, along the lines of theories that show that firms have no incentive to pursue additional formal hires when needed, but will seek to replace labor for capital. To do this, we use representative data for firms for Latin American firms. Our findings are robust to changes in specification and also consistent with the use of an instrumental variables approach.

[3] First stages are available upon request.

TABLE 1: DEFINITION OF VARIABLES

Variable	*Definition*
Employment	Number of permanent, full-time workers employed by a firm during the fiscal year. These are defined as all paid employees that are contracted for a term of one or more fiscal years and/or have a guaranteed renewal of their employment contract, and that work 8 or more hours per day.
Foreign	Percentage of foreign ownership of a firm
State	Percentage of state ownership of a firm
Bribe	Percentage of total annual sales paid in informal payments by a firm. It is based in the question: "We've heard 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 percent 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?"
Age	Number of years since a firm began operations in a country
Informality	Percentage of time that a firm operated without formal registration
Manager experience	Years of experience of the top manager of a firm working in a particular sector
Establishments	Number of establishments that form the firm
Female Top Manager	Dummy that takes 1 if the top manager (the CEO of the firm) is a female.
Competitors	Dummy that takes 1 if the numbers of competitors faced by the firm is more than 5.

TABLE 2: SUMMARY STATISTICS

	Observations	Mean	Standard Deviation	Min	Max
Employment	14043	94.62	229.93	1	2000
Bribe	12429	0.55	3.29	0	100
Foreign	13533	6.15	22.88	0	100
State	13545	0.03	1.29	0	100
Manager experience	14031	22.09	12.15	0	70
Age	14003	20.99	15.29	1	110
Informality	13943	4.89	19.08	0	100
Establishments	14199	3.53	30.50	0	3000
Female Top Manager	14199	0.17	0.38	0	1
Competitors	14199	0.36	0.48	0	1

TABLE 3
BRIBES AND EMPLOYMENT IN FIRMS
ORDINARY LEAST SQUARES

Dep Var: Employment	(1)	(2)	(3)	(4)
Bribe	-1.795***	-1.783***	-1.771***	-1.794***
	(0.318)	(0.340)	(0.331)	(0.329)
Age	2.839***	2.850***	2.869***	2.865***
	(0.184)	(0.178)	(0.179)	(0.178)
Foreign	1.599***	1.566***	1.545***	1.522***
	(0.267)	(0.272)	(0.266)	(0.260)
State	2.545**	2.563**	2.555**	2.522**
	(0.912)	(0.916)	(0.911)	(0.877)
Manager Experience	-0.663***	-0.655***	-0.637***	-0.743***
	(0.204)	(0.201)	(0.199)	(0.204)
Informality	-0.553***	-0.547***	-0.530***	-0.531***
	(0.093)	(0.093)	(0.092)	(0.087)
Establishments		0.326***	0.318***	0.317***
		(0.043)	(0.040)	(0.040)
Competitors			-18.023***	-17.687***
			(5.654)	(5.578)
Female Top Manager				-36.663***
				(8.154)
Constant	38.002**	37.162**	43.167**	48.889**
	(17.127)	(17.197)	(17.248)	(17.851)
R-Squared	0.152	0.153	0.156	0.156
Observations	11,356	11,356	11,356	11,356

Robust standard errors in parentheses. We include Huber–White correction for heteroskedasticity, clusters by sector and country fixed-effects. (*) significant at 10 percent; (**) significant at 5 percent; (***) significant at 1 percent

TABLE 4
BRIBES AND FIRMS EMPLOYMENT IN FIRMS
INSTRUMENTAL VARIABLES

Dep Var: Employment	(1)	(2)	(3)	(4)
Bribe	-4.713***	-4.688***	-4.825***	-4.821***
	(1.239)	(1.240)	(1.274)	(1.257)
Age	2.825***	2.836***	2.854***	2.850***
	(0.178)	(0.172)	(0.173)	(0.172)
Foreign	1.595***	1.562***	1.541***	1.518***
	(0.255)	(0.260)	(0.254)	(0.249)
State	2.648***	2.665***	2.663***	2.629***
	(0.936)	(0.940)	(0.938)	(0.902)
Manager Experience	-0.676***	-0.669***	-0.651***	-0.758***
	(0.196)	(0.193)	(0.191)	(0.196)
Informality	-0.542***	-0.536***	-0.519***	-0.519***
	(0.087)	(0.088)	(0.087)	(0.082)
Establishments		0.325***	0.318***	0.316***
		(0.042)	(0.039)	(0.039)
Competitors			-17.897***	-17.561***
			(5.391)	(5.310)
Female Top Manager				-36.842***
				(7.851)
Constant	40.535**	39.685**	45.777***	51.503***
	(16.672)	(16.725)	(16.756)	(17.317)
Observations	11,356	11,356	11,356	11,356
R-Squared	0.165	0.169	0.172	0.172
Kleibergen-Paap Wald F-Stat	70.34	70.56	70.24	70.17

Robust standard errors in parentheses. We include Huber–White correction for heteroskedasticity, clusters by sector and country fixed-effects. (*) significant at 10 percent; (**) significant at 5 percent; (***) significant at 1 percent
***Significance at the 1% level

REFERENCES

Fisman, Raymond & Svensson, Jakob, 2007. "Are Corruption and Taxation Really Harmful to Growth? Firm-Level Evidence" *Journal of Development Economics*, vol. 83(1), pages 63-75, May.

Dal Bó, Ernesto and Martín Rossi, 2013, "Corruption and Inefficiency: Theory and Evidence from Electric Utilities, *Journal of Public Economics,*

Gallipoli, Giovanni and Jonathan Goyette (2012) "Corruption and the Size Distribution of Firms, Manuscript, University of British Columbia.

Reinikka, Ritva and Jakob Svensson, 2005, "Using Micro-Surveys to Measure and Explain Corruption", *World Development*, 34, 2: 359-370.

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.

World Bank (2014) World Bank Enterprise Surveys, http://www.enterprisesurveys.org