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DO POLITICALLY CONNECTED FIRMS UNDERMINE THEIR OWN COMPETITIVENESS?

EVIDENCE FROM DEVELOPING COUNTRIES

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ABSTRACT

This paper is about cronyism, or the arrangements by which influential firms receive economic favors. This phenomenon has been documented in numerous case studies, but rarely formalized or analyzed quantitatively. We offer a formal voting model in which cronyism is modeled as a contract where politicians deliver a better business climate to favored firms who, in exchange, protect politicians from the political consequences of high unemployment. From this perspective, cronyism simultaneously lowers the firm's fixed costs of doing business while raising its variable costs by tying the extent of extra employment to the size of the firm, and thus to the level of capital investments. We test several of the implications of the model using a cross-country firm-level database generated from the World Bank's Enterprise Surveys. In accordance with the theory, we find that more influential firms indeed face fewer administrative and regulatory obstacles, and carry bloated payrolls, but they also invest and innovate less. All these results hold up when we use propensity score matching models to adjust for the fact that influence is not randomly assigned.

INTRODUCTION

Cronyism–defined as the arrangements by which firms, groups, or individuals with close ties to incumbent political authorities receive favors that have economic value–is a pervasive feature of business-government relationships in countries around the world. These favors typically take the form of privileges enshrined in formal policies, discriminatory enforcement of formal rules, or rewards and/or sanctions granted informally. Economic policy-making generates numerous opportunities for politicians and bureaucrats to reward favored firms. Governments can suppress competition by conferring monopolies, devising market restrictions, or tolerating cartels. Tax systems, business and labor regulations can become riddled with special exemptions–or, equally important, may be selectively enforced. Government contracts can be awarded on the basis of political connections. Financing can be granted in the form of cheap or publicly-guaranteed credit (preferential credit schemes being an example of cronyism par excellence) to particular firms. In some cases, direct subsidies can be awarded to influential parties. Cronyism also imposes costs on firms excluded from favored circles who may face policy risks, regulatory burdens, and steep administrative barriers that influential firms avoid. Companies that benefit from these arrangements, finally, will typically use their influence to obstruct reforms that would eliminate these advantages.

Despite the prevalence of these arrangements, relatively little is known about the precise form cronyism takes, or its consequences. What characterizes the bargain between the influential firms and governments? How do influential firms compensate governments, if at all, for the benefits they receive? How does the form of cronyism affect the incentives of influential and non-influential firms? The purpose of this paper is to offer some potential answers to these questions.

We present a voting model in which politicians differ in their ability to mitigate economic shocks. In particular, less capable politicians find it harder to limit the adverse effects on aggregate employment. A politician's "ability" is private information, so less capable politicians face incentives to boost employment levels through other means in order to conceal their type, and thereby increase their chances of being returned to power. This is achieved through an "influence contract" whereby a firm keeps extra labor in exchange for special privileges or favors. Our contribution is twofold. We suggest a specific channel (employment) through which politicians benefit from engaging in cronyism, and we offer an explanation for the political salience of employment, something that is typically just assumed (e.g. Shleifer and Vishny, 1994). Additionally, we highlight the mechanism by which the exchange of favors between firms and politicians affects firm productivity. In the corridors of some economic ministries, cronyism is occasionally defended as a crude form of industrial policy that boosts enterprise performance. We demonstrate, however, that where cronyism lowers the fixed (rather than variable) costs of doing business, the incentives for firms to innovate and invest may be diluted. This is particularly the case if firms, in exchange for lowered administrative and regulatory barriers, are overstaffed. If the number of extra employees required is in proportion to firm size, then the requirement effectively functions as an implicit capital tax.

We derive three separate but related implications for politically influential firms; they should encounter fewer administrative and regulatory burdens; they should carry excess labor; and they should invest and innovate less. We test these predictions using firm-level data from the World Bank's Enterprise Surveys, covering more than 50,000 firms in 60 countries. We find that politically influential firms do indeed face a more favorable business environment than their non-

influential counterparts. Influential firms also tend to carry bloated payrolls and report more (hide less?) of their sales to tax authorities. Influential firms, finally, are also less likely to open new product lines or production facilities, or to close obsolete ones, and they report lower real growth in sales, suggesting that cronyism hurts rather than helps firm productivity. These results hold up to different specifications of our empirical model, including propensity-score matching to adjust for the fact that influence is not randomly assigned.

Country case studies from around the world have documented the private benefits, public costs and prevalence of cronyism. The specific nature of cronyism varies from country to country. In the US, for example, the political weight of firms and industries using campaign finance, political action committees, and the "revolving door" between lobbying firms and congressional staff offices has been extensively examined (Agrawal and Knoeber 2001; Ang and Boyer 2000, Krozner and Stratmann 1998). An analysis of the benefits to firms from the seniority system in the US Senate showed that the sudden death of Senator Henry "Scoop" Jackson in 1983 lead to an abnormal drop in stock prices of firms contributing to his re-election campaign (Roberts, 1990). At the same time, firms connected to his successor as ranking member of the Senate Armed Services Committee, Senator Sam Nunn, benefited from an unexpected rise in stock prices. Similarly, in Brazil, Claessens, Feijen, and Laeven (2007) found that firms that provided contributions to (elected) federal deputies experienced higher stock returns around election years.

In other developing nations, political influence is usually obtained through a combination of kinship ties, political alliances, ethnic solidarity, or financial dealings between owners and political elites. Fisman (2001) showed that firms connected to the Suharto family in Indonesia experienced a negative shock to their stock values when rumors circulated that Suharto was experiencing serious health problems. Similar rewards have also been documented for Malaysia (Johnson and Mitton 2003), and Pakistan, where Khwaja and Mian (2005) estimate that the cost of politically-motivated lending amounts to 0.3 to 1.9 percent of GDP. Around the world, finally, cronyism is often supported by the absence of conflict-of-interest laws. Sitting in the Ukrainian Duma in the 1990s, for example, were the heads of several major (formerly state-owned) privatized companies (Aslund et al. 2001). Faccio (2006) found that the phenomenon of current and former controlling shareholders holding seats in legislatures or positions in national government is not confined to the developing world; in OECD countries politically-connected firms often represent significant portions of market capitalization.

The literature, both in economics and political science, also discusses the nature of the connections between firms and public agents. One argument characterizes cronyism as "state-capture," by which firms or individuals manipulate policies and shape legislation in order to give themselves long-term material benefits (e.g. Hellman et al. 2003, Slinko et al. 2005). It is important to emphasize that, although cronyism is often considered a form of corruption, there are two important differences. First, unlike "administrative" corruption, cronyism does not typically involve bribe-taking by public officials. In fact, enterprises or individuals that are involved in cronyistic relationships may actually be shielded from predatory public officials. Second, unlike corruption, cronyism is perfectly legal–obtained through political financing or lobbying, through forbearance or favoritism on the part of regulators, through laws or statutes granting special favors, or just selective implementation of existing

rules. The economic benefits that firms receive can take different forms. Hellman and Kaufmann (2003), using data from the "transition" economies of Eastern Europe and the former Soviet Union find that firms who perceive themselves as being more influential are less likely to comply with taxes and more likely to pay bribes. Faccio (2006) finds that firms whose controlling shareholders or top managers are members of legislatures or national governments enjoy easier access to debt financing, lower taxation, and greater market power. Chong and Gradstein (2007) find that managers who rate their firm's influence over laws, rules and regulations to be high also consider the judicial system and tax regulations to be less constraining for the firm's growth.

State-capture models, however, can convey the mistaken impression that governments and policy-makers are unwitting victims of this behavior rather than willing participants in a relationship that is mutually beneficial to politicians and firms. Evidence from the transition economies, for example, suggests that cronyism was better characterized as an "elite exchange," whereby economic and political elites traded specific rewards and politically-valuable benefits (Frye 2002; Stoner-Weiss 2006). Frye (2002) finds that influential Russian businesses, for example, were more likely to be subject to price controls, more frequent inspections, and a higher regulatory burden–things that provided significant electoral rewards to politicians. Shleifer and Vishny (1994) argue that influential firms receiving public subsidies, in return, would cede part of their control rights over employment decisions to politicians benefiting politically from low unemployment rates. Robinson and Verdier (2002) also emphasize the political benefit of having control over employment decisions. They argue that politicians can create political support groups by selective job offers that are contingent on the regime's survival. As long as these jobs pay better than the market rate, these groups have a joint stake in keeping the current regime in power. Choi and Thum (2007) offer a similar model in which politicians offer selected firms economic benefits, while the firms in exchange invest in some generic way in stabilizing the regime.

The paper is organized as follows. In Section 2 we present our model, and in Section 3 we characterize a partially pooling equilibrium of the game. In Section 4 we present the data and the empirical strategy. In Section 5 we present our results, and we conclude in Section 6.

THE MODEL

We develop a simple two-period private information voting model with three sets of players; politicians, firms and voters. There is a continuum of firms of measure one selling to export markets. They all face the following firm-specific (subscript j) downward sloping demand curves

$$p(Q) = \varphi - \gamma_j Q, \quad (1)$$

where $\gamma \in [\underline{\gamma}, \bar{\gamma}]$ with $\hat{\gamma}$ being the average value. Peak demand, φ, depends on an exogenous factor $\psi \in \{d, D\}$ (world market conditions), where $d < D$, and the ability of the incumbent government to deal with unfavorable market conditions at the macro level. We assume that there are two types of politicians, a more competent one ($\lambda = 1$) and a less competent one ($\lambda = \delta$, where $\delta < 1$).

Overall peak demand is

$$\varphi = \begin{cases} D & if\ \psi = D \\ d\lambda & if\ \psi = d \end{cases} \quad (2)$$

The probability that $\psi = d$ is given by $\eta \in (0, 1)$ in both periods.

Firms produce using capital (k) and labor (l) in a Leontief production function where

$$Q = \min\{k, l\}. \quad (3)$$

The unit costs of capital and labor are assumed to be fixed and given by r and w respectively. In addition to the variable costs of the inputs, the firms also face a fixed administrative and regulatory cost of doing business, corresponding to the costs associated with onerous start-up procedures and other barriers, delays in being granted licenses and permits, corruption or harassment by police or inspectors, and other methods potentially used by public officials to extract rents from businesses.[1] This cost is set to $c \in [0, A]$, and it depends on government action and may vary across different firms.

Voters care about consumption. We abstract from saving and borrowing, so utility depends only on current income. Income, in turn, is earned through an inelastic supply of labor in case of employment, while income is normalized to zero in case of unemployment. A voter's expected income thus depends on the probability of her holding a job (since wages are fixed), something we assume to depend on the total demand for labor in the economy, given by L. We therefore use the following indirect expected utility function[2]

$$u(L), \quad (4)$$

where $u'(L) > 0$. Note that the demand for labor will depend on φ which in turn depends on the type of the politician. The voters may therefore base their voting on their perceptions of the incumbent's type. However, to capture other dimensions of voting behavior, we also include a valence characteristic capturing ideology, or charisma, into voters' preferences. That is, we use a probabilistic voting model in which we assume that each voter's relative preference for the current incumbent also depends on an individual specific term, b_i, distributed across the population according to a uniform density function $f(b)$ with support on [-1, 1], and a common factor, z, drawn from a uniform distribution $g(z)$ with support on [-½, ½].

As mentioned above, politicians can be of two types, $\lambda \in \{1, \delta\}$, differing in their ability to keep up demand in the presence of a negative economic shock. We assume that all politicians are drawn from a common pool, with the probability p of getting $\lambda = 1$. Politicians care about the rents from being in office, R. These rents are assumed to be increasing with the total fixed

costs of doing business, denoted by $\bar{c}$, i.e. $R(\bar{c})$ with $R'(\bar{c}) > 0$ and $R''(\bar{c}) < 0$. There are two ways to motivate this assumption. The first interpretation is to think of the costs of doing business as being the costs of bribes, something that directly benefits the politician. The second interpretation is that providing high quality public services and properly regulated markets requires effort, time and funds on behalf of the government, all which have an opportunity cost. The preferences of the political incumbent can therefore be represented by

$$R(\bar{c}_1) + \mu(\cdot) R(\bar{c}_2), \quad (5)$$

where subscripts stand for periods 1 and 2, and $\mu(\cdot)$ is the endogenously determined probability of getting reelected. To simplify the model, we also follow the assumption of Besley and Burgess (2002) and assume that the more competent politicians do not act strategically but always set $c = A$ for all firms. This means that we are exclusively focusing on the incentives of the less competent politician to mimic the behavior of the more competent type, disregarding the incentives of the more competent type to separate himself. Note though, that incorporating those incentives would not alter the main result of the model. It would only imply that there may also exist separating equilibria in which it is the more competent, rather than the less competent, type that boosts employment levels to increase her chances of reelection.

There are several sources of incomplete information in the model. The incumbent government does not know the realization of the common shock to the preferences of the voting population. It follows that the government faces uncertainty with respect to the mapping between its actions and the outcome of the election, it only knows in which direction an action influences its probability of winning. More importantly, though, the incumbent government's type is private information. Voters can only observe the realization of ψ and the aggregate employment level, L. This would be enough, though, to tell the type if the government had no ability to affect firms' employment decisions, since firms' optimal employment levels will depend on aggregate demand which, in turn, depends on ψ and λ. However, a key assumption in the model is that the government can offer a subset (Γ) of firms a lower fixed cost of doing business, i.e. $c_j < A$, in exchange for the firm carrying a larger than optimal workforce. More specifically, we assume that these firms have to carry an additional workforce proportional to their optimal level of employees. The Leontief technology suggests that $k^* = l^*$, but under the influence contract, firms need to employ a proportion of $(1 + \alpha_j)$ l for every k, where $\alpha_j > 0$.[3] We think of this deal as an "influence contract" where the firms' costs of additional employees are compensated for by a lower burden of regulation, better provision of public services, and lower levels of required bribes.[4] The more firms that are under this contract, the higher is the level of employment. If these contracts are unobservable by voters, then less competent governments will have incentives to use this tool to mimic the outcome of a highly competent government, and thereby increase its chances of reelection. We follow the assumptions of Besley and Burgess (2002) that only a share of the voters observe the employment level. These voters will update their beliefs according to $\tilde{p} = 0$ whenever $L(\cdot) \neq L(\lambda = 1)$. As in Besley and Burgess (2002), we also assume that the size of informed voters is increasing as the gap between the current employment level, and that expected from a highly competent politician is increasing.[5] To be more specific, we assume that the share of informed voters is $\sigma(L(\lambda = 1) - L(\cdot))$, where $L(\lambda = 1)$ is the employment level expected when a highly competent politician is in office, while L $(\cdot)$ is the observed employment

level. We also assume that $\sigma(\cdot \mid L(\cdot) \leq L(\lambda = \delta, \bar{c} = A)) = 1$, $\sigma(\cdot \mid L(\cdot) \geq L(\lambda = 1)) = 0$, $\frac{\partial\sigma(\cdot)}{\partial L(\cdot)} \leq 0$, and that $\frac{\partial^2\sigma(\cdot)}{\partial^2 L(\cdot)} \geq 0$. Note that the share of informed voters is equal to zero when $L(\cdot) = L(\lambda = 1)$, so we do not need to specify expectations of informed voters in this case. However, we need to specify that uninformed voters base their decisions on their priors, so $\tilde{p} = p$ in this case.

The politician's strategy is thus a vector, $\{\Gamma, \alpha_j, c_j\}$. In principle a certain level of employment can be achieved through an infinite number of variations of firms and extra labor requirements, giving rise to many potential equilibria. To get a unique equilibrium we assume that there is a fixed cost for the politician of writing a contract, and that this cost is large. More specifically, we assume that the cost is high enough to make the politician prefer to sign contracts with as few firms as possible, given the level of employment she wants to achieve. It follows that all contracts will specify an α that maximizes employment within each firm and that the politician will target the firms in the order of their size, starting with the largest firm (smallest γ_i). This assumption is in line with empirical studies showing that more influential firms also tend to be larger (Campos and Giovannoni 2006, Chong and Gradstein 2007). This is also what we find in our paper, and we can use this assumption and the following result from the theoretical model to help us with the empirical specification.

The timing of events is as follows. In the beginning of period 1, nature draws the demand for the firms' products, $\psi \in \{D, d\}$. After that the incumbent determines the terms and coverage of the influence contract, $\{\Gamma, \alpha_j, c_j\}$. Then firms set production quantities, and the mix of inputs of capital and labor, $\{Q_j, k_j, l_j\}$. Informed voters then update their beliefs about the type of the incumbent based on ψ and L, and cast their vote sincerely. In the second period there is no election, so only the three first events are repeated before utility is realized. We solve the game for a perfect Bayesian equilibrium.

A PARTIALLY POOLING EQUILIBRIUM

In this section we characterize an equilibrium of the game in which a less competent period 1 incumbent offer influence-contracts to reduce the unemployment level and thereby increase his chances of reelection. The environment we focus on is therefore one in which $\psi_1 = d$ and $\lambda_1 = \delta$. We refer to this equilibrium as partially pooling since, following our assumptions of voters' information, the less competent type will not necessarily fully mimic the employment level of the more competent type.[6]

Proposition. There exists a partially pooling perfect Bayesian equilibrium with a set of strategies and a set of beliefs such that:

i) Firms maximize their profits by setting

$$k^*_{jt} = \begin{cases} \frac{\delta d-(w(1+\alpha)+r)}{2\gamma_j} & \text{if } \gamma_j \in \Gamma \text{ and } t = 1 \\ \frac{\varphi_t-(w+r)}{2\gamma_j} & \text{otherwise} \end{cases}$$

$$l^*_{jt} = \begin{cases} (1+\alpha)\ \frac{\delta d-(w(1+\alpha)+r)}{2\gamma_j} & \text{if } \gamma_j \in \Gamma \text{ and } t = 1 \\ \frac{\varphi_t-(w+r)}{2\gamma_j} & \text{otherwise} \end{cases}$$

$$Q^*_{jt} = \begin{cases} \frac{\delta d-(w(1+\alpha)+r)}{2\gamma_j} & \text{if } \gamma_j \in \Gamma \text{ and } t = 1 \\ \frac{\varphi_t-(w+r)}{2\gamma_j} & \text{otherwise} \end{cases}$$

ii) The politicians choose their policy vectors according to

$$\alpha^*_t = \begin{cases} \frac{\delta d - r - 2w}{2w} & \text{if } \lambda = \delta \text{ and } t = 1 \\ 0 & \text{otherwise} \end{cases}$$

$$c^*_{jt} = \begin{cases} A - \frac{(\delta d - r - 2w)}{16\gamma_j}\ (3(\delta d - r - 2w) + 4w) & \text{if } \lambda = \delta \text{ and } t = 1 \\ 0 & \text{otherwise} \end{cases}$$

$$\Gamma^* = \begin{cases} \{\gamma \mid \gamma \in [\underline{\gamma}, \tilde{\gamma}]\} & \text{if } \lambda = \delta \text{ and } t = 1 \\ \emptyset & \text{otherwise} \end{cases} \quad \text{where}$$

$$\tilde{\gamma} = \arg\max_{\gamma} R \left(\int_{\underline{\gamma}}^{\gamma} c^*(\gamma)\, f(\gamma)\, d\gamma + \int_{\gamma}^{\bar{\gamma}} A f(\gamma)\, d\gamma \right) +$$

$$\left(\frac{1}{2} - \eta p \Delta_L \sigma \left(\frac{d - (w + r)}{2\hat{\gamma}} - \left(\int_{\underline{\gamma}}^{\gamma} \frac{(\delta d - r)^2}{8w\gamma}\, f(\gamma)\, d\gamma + \int_{\gamma}^{\bar{\gamma}} \frac{\delta d - (r + w)}{2\gamma} f(\gamma)\, d\gamma \right) \right) \right) R(A)$$

iii) Voters vote to reelect the incumbent if

$$b_i \geq \eta p \left(u \left(\frac{d - (w + r)}{2\hat{\gamma}} \right) - u \left(\frac{\delta d - (w + r)}{2\hat{\gamma}} \right) \right) - z \quad \text{if informed}$$

$$b_i \geq - z \quad \text{if uniformed}$$

iv) The voters update their beliefs according to

$$\tilde{p} = \begin{cases} 0 & \text{if } L(\cdot) \neq L(\lambda = 1) \text{ is observed} \\ p & \text{otherwise} \end{cases}$$

To see why this is an equilibrium, we solve the model by backward induction. The purpose of the influence contracts is to boost employment prior to elections. There are no elections in period 2, so irrespective of the type of government, the share of firms offered influence contracts (Γ) is set to zero and $c = A$ for all firms.

It follows from the Leontief production technology, that the firms' cost functions can be represented by

$$C(Q) = (w + r) Q + A. \tag{6}$$

A firm's optimization problem can therefore be represented as

$$\underset{Q}{Max} (\varphi_2 - \gamma_j Q_2) Q_2 - (w + r) Q_2 - A. \tag{7}$$

This yields the following results

$$\begin{aligned} Q^*_{j2} = k^*_{j2} = l^*_{j2} &= \frac{\varphi_2 - (w+r)}{2\gamma_j} \\ \pi^*_{j2} &= \frac{(\varphi_2 - (w+r))^2}{4\gamma_j} - A \\ u(L) &= u \left(\frac{\varphi_2 - (w+r)}{2\hat{\gamma}} \right) \end{aligned} \tag{8}$$

What can be noted from these results are that the expected quantities produced as well as the expected level of employment, and thereby consumer utility, depend on the type of the politician through its impact on φ. The result that the expected employment level will be lower in period 2 in case of a less competent politician is what drives forward-looking voters in period 1 to condition their voting behavior on their perceptions of the type of the period 1 incumbent.

There are two groups of voters in period 1, informed and uninformed. Informed voters observe the actual employment level and realize that any $L(\cdot) \neq L(\lambda = 1)$ implies that $\tilde{p} = 0$. It follows that an informed voter will vote to reelect the current incumbent if and only if

$$(1-\eta)\,u\left(\frac{D-(w+r)}{2\hat{\gamma}}\right)+\eta u\left(\frac{\delta d-(w+r)}{2\hat{\gamma}}\right)+b_i+z \tag{9}$$
$$\geq (1-\eta)\,u\left(\frac{D-(w+r)}{2\hat{\gamma}}\right)+\eta\left(pu\left(\frac{d-(w+r)}{2\hat{\gamma}}\right)+(1-p)\,u\left(\frac{\delta d-(w+r)}{2\hat{\gamma}}\right)\right)$$

This can be simplified as

$$b_i \geq \eta p\left(u\left(\frac{d-(w+r)}{2\hat{\gamma}}\right)-u\left(\frac{\delta d-(w+r)}{2\hat{\gamma}}\right)\right)-z \tag{10}$$

To simplify the exposition further we state the following definition.

$$\Delta L \equiv u\left(\frac{d-(w+r)}{2\hat{\gamma}}\right)-u\left(\frac{\delta d-(w+r)}{2\hat{\gamma}}\right) \tag{11}$$

It follows that the share of informed voters supporting the current incumbent is given by[7]

$$\frac{1-\eta p\Delta_L+z}{2} \tag{12}$$

Uninformed voters do not have any information on which to update their beliefs about the period 1 incumbent, so the incumbent and the opponent are expected to generate the same level of employment in period 2. The uninformed will thus base their voting only on the valence characteristics. The share of uninformed voters that support the less competent incumbent is therefore

$$\frac{1+z}{2} \tag{13}$$

The total support is thus

$$\sigma\left(L\left(\lambda=1\right)-L\left(\cdot\right)\right)\frac{1-\eta p\Delta_L+z}{2}+\left(1-\sigma\left(L\left(\lambda=1\right)-L\left(\cdot\right)\right)\right)\frac{1+z}{2} \tag{14}$$

which can be simplified as

$$\frac{1+z}{2}-\sigma\left(L\left(\lambda=1\right)-L\left(\cdot\right)\right)\frac{\eta p\Delta_L}{2} \tag{15}$$

The probability that the incumbent wins the election is then given by the probability that this vote

share is greater than ½, which is

$$\mu\left(\cdot\right)=\frac{1}{2}-\sigma\left(L\left(\lambda=1\right)-L\left(\cdot\right)\right)\eta p\Delta_L \tag{16}$$

Note that the probability of winning the election is increasing in $L\left(\cdot\right)$.

Firms maximize profits based on the constraints they face. Firms that are not bounded by an influence contract will solve the same problem as all firms face in period 2. That is, we get once again the outcomes shown in equation (8), except that φ can be replaced by δd since we are looking at that particular case. Firms bounded by an influence contract benefit from low fixed costs of doing business, but on the other hand have to take on a sub-optimal number of employees. The specification outlined in the previous section implies that the cost function now becomes

$$C(Q) = ((1+\alpha)\, w + r)\, Q. \tag{17}$$

Based on this cost function, profit maximization implies the following results.

$$\begin{aligned} Q^*_{j1} = k^*_{j1} &= \frac{\delta d - (w(1+\alpha) + r)}{2\gamma_j} \\ l^*_{j1} &= (1+\alpha)\ \frac{\delta d - (w(1+\alpha) + r)}{2\gamma_j} \\ \pi^*_{j1} &= \frac{(\delta d - (w(1+\alpha) + r))^2}{4\gamma_j} - c_{j1} \end{aligned} \tag{18}$$

Note that an increase in α leads to a lower production level by imposing a higher marginal cost of production. The number of employees at the firm level therefore depends on the level of α in a way akin to the Laffer curve effect of an increase in the tax rate. However, it is possible to show that the employment level in an influential firm is higher than that in a non-influential firm as long as

$$\alpha < \frac{\delta d - r - 2w}{w} \tag{19}$$

In the first stage, the incumbent sets the terms of the influence contract $\{\alpha_{j1}, c_{j1}\}$ and also the set of firms to be offered the contract, Γ. The value of c_{j1} is pinned down by the assumption that the government has all the bargaining power, so c_{j1} will be set just so that

$$\frac{(\delta d - (w + r))^2}{4\gamma_j} - A = \frac{(\delta d - (w(1+\alpha_{j1}) + r))^2}{4\gamma_j} - c_{j1} \tag{20}$$

Solving for c_{j1} yields

$$c_{j1}(\alpha_{j1}) = A - \frac{w\alpha}{4\gamma_j}\ (2\delta d - w(2 + \alpha_{j1}) - 2r). \tag{21}$$

It is straightforward to show that $c'_{j1}(\alpha) < 0$ while $c''_{j1}(\alpha) > 0$. The government thus effectively has two available instruments to increase the aggregate employment level, the share of extra employees within any given firm (α_{j1}) and the set of firms with extra employment (Γ). The assumption of a high cost of writing an influence contract implies, though, that it is optimal for the government to always minimize the set of influential firms necessary to achieve a certain level of aggregate employment. It follows that the government will always pick to offer con-

tracts to the larger firms, those with small γ_j, and they will set the α_{j1} that maximizes the number of employees within each of these firms. This α_{j1} can be derived by maximizing $l^*_{j1}(\cdot)$, which yields

$$\alpha^*_1 = \frac{\delta d - r - 2w}{2w} \tag{22}$$

Note that this α^*_1 is independent of the size of the firm, so subscript j is dropped. It follows that equation (21) can be rewritten as

$$c^*_{j1}(\gamma_j) = A - \frac{(\delta d - r - 2w)}{16\gamma_j}(3(\delta d - r - 2w) + 4w \tag{23}$$

We can now specify the incumbent's optimal share of influential firms as the set of firms with $\gamma \in [\underline{\gamma}, \tilde{\gamma}]$, where $\tilde{\gamma}$ is defined as

$$\tilde{\gamma} = \arg\max_{\gamma} R\left(\int_{\underline{\gamma}}^{\gamma} c^*(\gamma) f(\gamma)\, d\gamma + \int_{\gamma}^{\bar{\gamma}} A f(\gamma)\, d\gamma\right) + \left(\frac{1}{2} - \eta p \Delta_L \sigma\left(\frac{d - (w + r)}{2\hat{\gamma}} - \left(\int_{\underline{\gamma}}^{\gamma} \frac{(\delta d - r)^2}{8w\gamma} f(\gamma)\, d\gamma + \int_{\gamma}^{\bar{\gamma}} \frac{\delta d - (w + r)}{2\gamma} f(\gamma)\, d\gamma\right)\right)\right) R(A) \tag{24}$$

It is straightforward to see that first period rents are decreasing while the probability of winning reelection is increasing as the share of influential firms is increasing. Concavity of $R(\cdot)$ and convexity of $\sigma(\cdot)$ guarantees that the problem is well-defined and that we are indeed looking at a max-point. We also assume that the range of γ is sufficiently wide to guarantee that the max-point is internal. It follows that the optimal set is given by

$$\Gamma = \{\gamma \mid \gamma \in [\underline{\gamma}, \tilde{\gamma}]\}$$

This concludes the proof of the proposition above.

The game we have presented offers a potential theory of cronyism, providing several implications that can be tested against data. Our main purpose is to understand the consequences of cronyism, and the nature of the elite exchange involved. In these areas, our model suggests the following three main hypotheses. More influential firms will; i) face a better business climate, ii) enroll an excessive number of employees, iii) invest and innovate less. In addition the model suggests that larger firms are more likely to be influential. We are not here primarily focusing on this question, this has been tested elsewhere (e.g. Campos and Giovannoni 2006, Chong and Gradstein 2007). However, an econometric challenge we face is that influence is not randomly assigned, which makes inference about its effects uncertain. To deal with this problem, we use propensity score matching to reduce the heterogeneity across the sub-samples of influential and non-influential firms. This requires that we regress influence on potential explanatory factors, and our model suggests that firm size should be one of them.

DATA AND METHODOLOGY

The preceding section hypothesized that greater political influence among firms should produce three outcomes of interest. First, influential firms are less likely to face the types of constraints to, and costs of, doing business that their less-influential counterparts would normally face. Second, influential firms are more likely to serve as a source of politically valuable benefits, in particular in the form of employment. Third, influential firms are less likely to invest and innovate than non-influential firms.

To determine whether these hypotheses are empirically justified we rely on the World Bank's Enterprise Surveys (formerly the Productivity and Investment Climate Surveys), which in total has collected data from approximately 50,000 manufacturing and service firms in over 60 developing countries conducted since 2000. This data set, expansive in its cross-country coverage, does not contain the type of information that would allow us to measure actual political connections, namely, detailed information on owners or officers that could be used to assess their political identities. Instead, the Enterprise Surveys contain several perception-based questions about the political influence of firms in shaping national policies affecting their businesses. Moreover, questions on political influence were dropped from the core questionnaire after 2005. The subset of this total sample of firms who have coded responses for questions of political influence, therefore, is smaller–less than 10,000 firms surveyed in approximately 40 developing countries between 2000 and 2005.

Measuring firm-level characteristics with subjective data

The problems of comparability when respondents are asked to use ordinal response categories are well known. Different respondents may interpret concepts such as "influence" in vastly different ways based on unobservable characteristics ("culture," socialization, etc.). Ordinal scales may mean different things to different respondents based on idiosyncratic factors such as mood or overall optimism. Sometimes referred to in educational testing as "differential item functioning" (DIF), the problem is particularly acute in measurements of political efficacy, where the actual level of efficacy may differ from the reported level due to individual-specific proclivities (King and Wand 2007). Firm-level perceptions of influence would similarly be affected by DIF where identical firms may have unequal probabilities of answering questions about their own political influence in the same way.

Explicit "anchoring vignettes" or other hypothetical questions to establish baselines that could normally correct survey responses for inter-firm incomparability, however, are not included in the Enterprise Surveys core questionnaire. We rely, then, on two corrections. First, to measure influence we use four related categories of a perception-based question from the core questionnaire:

> How much influence do you think the following groups actually had on recently enacted national laws and regulations that have a substantial impact on your business? A: your firm; B: other domestic firms; C: dominant firms or conglomerates in key sectors of the economy; D: individuals or firms with close personal ties to political leaders.

Each answer ranges from 0 (no impact) to 4 (decisive influence). We take the sum of the differences between the self-assessment A and the assessments of other groups, i.e., $A - (B + C + D)/3$, which yields a measure of the perceived influence "gap" between

the responding firm and other types of firms.[8] Our measure of influence ranges from -4 to +4. As with survey "anchors," assessments of others are subject to less inter-firm variation than self-assessments, and thus we use responses to questions about other groups to subtract off the DIF from the self-assessment question.

This is, of course, an imperfect solution to the problem of potential incomparability when other variables with ordinal-response categories are being regressed on our measure of influence. In cases where our outcome of interest is perception-based, our second solution is to include among the regressors a proxy for firm-specific systematic bias. Previous analyses of business environment constraints using Enterprise Surveys data have shown that the interpretation of (subjective) outcomes is complicated by the fact that some managers simply tend to have a high propensity to complain, regardless of the actual constraints their businesses may face (Carlin, Shaffer, and Seabright 2006). Inclusion of a variable among regressors that proxies this propensity, then, can correct for incomparability in perception-based outcomes. For this purpose we use responses by managers to questions about the degree to which their firms' activity is constrained by two things: the macroeconomic environment and economic policy uncertainty. We assume that firms within the same country and the same industry are likely to face, objectively, a very similar macroeconomic environment as well as policy uncertainty. The distribution of responses to these questions should therefore closely proxy the distribution of the propensity to complain among the management within our sample. The range for each question is 0 (no obstacle) to 4 (very severe obstacle). Our proxy for firm-specific systemic bias is the sum of these responses.

Specification and methods

Our basic specifications take the following form:

$$R_j = f\left(\hat{\chi}_\omega \omega_j, \hat{\chi}_\theta \theta_j, \hat{\chi}_x x_j, \hat{\chi}_z z_j\right) \qquad (25)$$

where R is the hypothesized "crony" outcome for firm j specified in the preceding section (firm j faces better investment climate; firm j provides politically valuable benefits; firm j invest less), ω is our measure of the relative influence of firm j, θ is the firm-specific systematic bias of firm j as described above, and x and z are vectors of firm-specific indicators and fixed effects, respectively. The firm-specific characteristics we include are: the age of the firm in years and the number of permanent employees (log scale), lagged one year. We also include dummy variables identifying whether the firm is an exporter, whether the firm is majority owned by a domestic company or individual (vs. a foreign entity), and whether the firm is a state-owned enterprise.

In addition, we include the following sets of dummies in all specifications: a legal-status effect (identifying whether the firm is publicly listed, privately held, a cooperative, sole proprietorship, or partnership), a location effect (identifying whether the firm is located in the capital city, in a city with more than 1 million, 250,000 to 1 million, 50,000 to 250,000, or less than 50,000 in resident population), industry dummies (ISIC 2-digit), survey-year dummies, and country dummies. All estimations also include a trend. Summary statistics for all variables used in our analysis are in table 1.[9]

Our basic specifications are estimated using OLS or logit regressions depending on whether the outcome of interest is continuous or binary. Estimates of the causal effects of firm-level political influence, however, may be affected by selection bias due to the non-

Table 1: Summary statistics (unmatched sample)

Variable	N	Mean	Std. Dev.	Min.	Max.
Influence	8,501	-1.02	1.243	-4	4
Age of firm (years)	8,501	19.54	17.70	3	206
Exporter	8,501	0.20	0.40	0	1
Domestically-owned firm	8,501	0.86	0.35	0	1
State-owned firm	8,501	0.07	0.25	0	1
Firm-specific systematic basis	8,501	4.23	2.29	0	8
Lobbied government	6,968	0.23	0.2	0	1
Permanent workers (log, t - 1)	8,501	3.44	1.64	0	9.21
Capacity utilization (% of total capacity)	8,110	76.53	20.27	3	120
Total bribes (% sales)	6,272	1.82	3.79	0	50
Bribes for govt. contracts (% of value)	6,630	3.96	8.40	0	100
Overdue receivables (% of sales)	3,022	15.51	22.22	0	100
Losses due to crime (% sales)	7,871	0.94	3.79	0	95
Infrastructure	8,423	0.09	0.28	0	1
Taxation	8,501	0.43	0.49	0	1
Regulation	7,742	0.18	0.39	0	1
Finance	8,119	0.38	0.48	0	1
Legal system	7,571	0.24	0.43	0	1
Monopoly pricing	7,860	0.17	0.37	0	1
Excess labor	8,283	0.22	0.41	0	1
Tax compliance (% of sales reported)	7,581	77.51	27.73	0	100
Opened new plant or facility (past 3 years)	8,000	0.15	0.35	0	1
Opened new product link (past 3 years)	8,008	0.46	0.50	0	1
Closed old plant or facility (past 3 years)	7,995	0.10	0.30	0	1
Closed obsolete product line (past 3 years)	8,001	0.26	0.44	0	1
Sales growth (log, 3-year)	2,612	0.24	0.58	-5.99	7.15
Investment horizon (months)	2,653	9.21	11.13	0	120

random character of "influential" vs. "non-influential" firms, whereby the distribution of covariates ω, θ, x, and z may be very different for firms depending on their level of political influence. We therefore correct for observable differences between influential/non-influential firms by pre-processing our data with matching methods, then re-running our parametric analyses on the matched sub-sample of the data as recommended by Ho et al. (2007), and similar to the parametric bias-adjustment for matching by Abadie and Imbens (2006). We compute coefficients on all independent variables after matching rather than reporting the simple difference in means without controlling for potential confounding variables. The purpose of matching here, of course, is to ensure that influential firms are as close as possible to non-influential firms in terms of relevant covariates, a method analogous to severing the links between explanatory covariates and likelihood of "treatment" in observational data.

We rely on exact matching based on the following model

$$\Pr(Influence = 1) = \Phi(\hat{\beta}_\theta \theta_j + \hat{\beta}_x x_j + \hat{\beta}_L Lobby_j), \quad (26)$$

where *Influence* = 1 [*Influence* = 0] occurs when a firm

Table 2: Balance-testing for matched and unmatched covariates

	Unmatched		Matched	
	Mean	T-test	Mean	T-test
Age	19.905	0.000	22.681	0.893
	22.337		*22.830*	
Exporter	0.187	0.505	0.257	0.700
	0.215		*0.266*	
Domestic	0.879	0.004	0.819	0.296
	0.852		*0.798*	
State-owned	0.054	0.013	0.165	0.683
	0.091		*0.146*	
Bias	4.441	0.000	3.541	0.878
	4.395		*3.496*	
Lobby	0.184	0.000	0.515	0.322
	0.520		*0.511*	
Workers	3.431	0.000	3.868	0.658
	3.886		*3.911*	

Notes: Results generated from exact propensity score matching using logit regression. Figures in italics are for influential firms. T-tests are of equality of means between non-influential and influential firms.

is [is not] able to influence national policies affecting its business. We designate firms as influential if their influence score as calculated above is greater than zero. Φ is the standard normal distribution function, θ is the firm-specific bias, and x is a vector of firm-specific indicators. Our model suggests that larger firms should be more influential, so we include the number of permanent workers in x. Based on the findings of previous papers (e.g. Chong and Gradstein 2007, Campos and Giovannoni 2006), we also include the age of the firm, and dummies depending on whether the firm is an exporter, domestically-owned, or state-owned. To this we add an additional dummy not used in our other regressions: whether, in the past two years, the firm has sought to lobby the government or otherwise influence the content of laws or regulations affecting the firm's business. We do not include fixed effects in the selection model, although including them does not alter any of our subsequent results.

Tests of matching balance are shown in table 2. We perform exact matching using a propensity score derived from a logit regression of (26), which generates a conditional "treatment" probability–in this case, the conditional probability of being an influential firm. As mentioned above, propensity score matching adjusts for pre-treatment observable differences between treated and control samples. Without matching, the means of influential and non-influential samples of firms are distinct as seen in T-tests. After matching, however, we can no longer reject the null hypothesis of equality of means between influential and non-influential firms, suggesting that propensity-score matching reduces imbalance between these samples.

As an alternative to matching, for dependent variables that are continuous, we also use threestage least squares (3SLS) to estimate the selection model (26) and the basic specification (25) as a system of

simultaneous equations.[10] 3SLS, a systems equivalent of two-stage least squares (2SLS) but which takes into account covariances across equation disturbances, is asymptotically more efficient than 2SLS when cross-equation disturbances are correlated. 3SLS also allows us to deal with potential endogeneity between some of the outcomes in (25) and influence, given the possibility than the costs and benefits firms obtain may boost the influence of firms rather than the other way around. For example, it is possible that firms with bloated payrolls are more likely to have the ear of politicians, or that firms who are able to reduce the costs of navigating regulatory barriers are also better at bringing pressure to bear on lawmakers.

RESULTS

Is life easier for influential firms?

Table 3 examines three costs typically imposed on businesses in developing countries: bribes, nonpayment, and theft. Columns (1) to (6) examine bribes, both in total as a percentage of sales, and specifically for government contracts as a percentage of contract value.[11] For each outcome we present, in order, the results from basic OLS regressions, 3SLS regressions in which equations (25) and (26) are estimated as a system (we do not report results from equation 26), and basic OLS regression using only the matched sample of observations. In each specification, influential firms pay less in bribes both in general and for government contracts. With less consistency, we also find that older firms, state-owned companies, and foreign companies are better protected from bribe collectors. We also include workers in quadratic form, and find that firms with more employees pay more in bribes (for government contracts) but the effect is diminishing. We include, but do not report legal status, location, industry, time, or country dummies. From a simple stochastic simulation of columns (3) and (6), setting all variables at their sample means, an average firm pays 1.8% of sales in bribes, and 2.5% of the value of a government contract in bribes. But for the most influential firms, the amounts drop to 1% and 0.7%, respectively. Meanwhile firms that score below the bottom quintile in influence pay 2% of sales and 3% of contract value in bribes to public officials.

Columns (7) to (9) estimate the percent of sales that are left unpaid. Firms were asked to report the percent of sales to private customers that involve overdue payments. Firms in developing nations–particularly in the former Soviet-bloc countries–typically suffer from significant unpaid bills from customers, and have often responded by non-payments of their own to creditors, suppliers, tax collectors, and even workers (Desai and Idson 2000, Pinto et al. 2000). In all three equations, we find that politically influential firms are less likely to be trapped in these circles of non-payment. Finally, in columns (10) to (12) we examine the effect of political influence on losses from theft, robbery, arson, or vandalism. Although in simultaneous regressions and in regression on the matched sub-sample, political influence does reduce sales losses from crime, the differences are relatively small, indicating that crime take a toll on the politically-connected and ordinary in roughly similar ways.

In table 4 we turn to firms' subjective rankings of business constraints. Our dependent variables are averages of responses to questions about the severity of six categories of constraints: infrastructure (telecommunications, electricity, and transportation), taxation (both rates and the administration of), regulations (including customs, licensing, and permits), finance (cost and access), and the legal system (anti-competitive practices, crime, and the efficacy of the legal system). In each case we coded these variables 1 if the obstacle was considered "major" or "severe," 0 otherwise. To these six indicators we add a seventh, based on firm responses to a question of how customers would respond were the firm to raise prices of their main product or service by 10%. We code this outcome 1 if firms state that there would be no change in customer behavior, 0 otherwise.[12] The results of logit regressions are summarized in table 4. For simplicity we only report the coefficient on influence across estimations. All outcomes, however, were estimated using the full specification in (25), including firm-specific systematic bias, on both unmatched and matched samples. We also report pseudo R_2 and *prob.* $> \chi_2$ values from the full estimations. Infrastructural constraints affect both influential and non-influential firms alike. But all other constraints are decidedly more severe for non-

Table 3: Firm influence and the costs of doing business

	Total bribes (% of sales)			Bribes for government contracts (% of contract value)			Overdue receivables (% sales)			Losses from crime (% of sales)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Influence	-0.184***	-0.710***	-0.183***	-0.384***	-0.963***	-0.407***	-0.724***	-6.897**	-1.342**	-0.057	-0.387*	-0.075*
	(0.039)	(0.186)	(0.040)	(0.076)	(0.329)	(0.067)	(0.276)	(3.005)	(0.524)	(0.035)	(0.207)	(0.045)
Age	-0.006*	-0.004	-0.005*	-0.013**	-0.009*	-0.010*	0.024	0.055	0.021	-0.003	-0.003	-0.003
	(0.003)	(0.003)	(0.003)	(0.006)	(0.005)	(0.005)	(0.023)	(0.044)	(0.042)	(0.003)	(0.003)	(0.003)
Exporter	-0.042	-0.068	-0.046	-0.015	0.038	0.060	-1.779*	-1.782	-3.000*	0.009	0.052	0.060
	(0.128)	(0.131)	(0.129)	(0.259)	(0.219)	(0.219)	(1.003)	(1.831)	(1.684)	(0.119)	(0.143)	(0.143)
Domestic	0.327**	0.320**	0.339**	0.266	0.143	0.149	1.908	0.659	1.058	0.237*	0.217	0.228
	(0.134)	(0.138)	(0.136)	(0.279)	(0.227)	(0.226)	(1.254)	(1.927)	(1.857)	(0.133)	(0.151)	(0.151)
State Owned	-0.643***	-0.525**	-0.717***	-0.699	-0.628	-0.846**	4.491	8.939	6.741	0.070	0.181	0.062
	(0.243)	(0.251)	(0.248)	(0.536)	(0.430)	(0.430)	(4.837)	(6.463)	(6.244)	(0.251)	(0.279)	(0.278)
Workers	0.062	0.061	0.036	0.719***	0.528***	0.502***	2.661**	3.263*	2.952*	-0.044	-0.056	-0.068
	(0.107)	(0.108)	(0.110)	(0.226)	(0.182)	(0.184)	(1.189)	(1.684)	(1.697)	(0.108)	(0.122)	(0.123)
$Workers^2$	-0.021	-0.017	-0.018	-0.114***	-0.068***	-0.070***	-0.377***	-0.500**	-0.485**	-0.001	0.004	0.003
	(0.013)	(0.013)	(0.014)	(0.028)	(0.023)	(0.023)	(0.138)	(0.199)	(0.201)	(0.013)	(0.015)	(0.015)
Trend	-0.956*	-0.000	-1.187*	-3.135***	-0.001	-2.991***	-7.769***	-0.010	-7.431***	-0.072	0.000	-0.216
	(0.492)	(0.000)	(0.658)	(1.003)	(0.001)	(0.795)	(1.762)	(0.006)	(2.311)	(0.571)	(0.001)	(0.630)
N	6,531	6,377	6,371	6,879	5,747	5,742	3,090	1,618	1,618	8,136	6,464	6,457
R^2, Adj. R^2	0.113	0.097	0.113	0.223	0.104	0.104	0.262	0.175	0.237	0.023	0.026	0.022
$p > F, \chi^2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*Notes: Results from OLS and 3SLS regressions, with legal-status, location, industry, time, and country dummies (not reported). Columns (1), (4), (7), and (10) are OLS regressions on the unmatched sample. Column (2), (5), (8), and (11), are 3SLS with each equation estimated simultaneously with an equation estimating influence (results not reported). Columns (3), (6), (9), and (12) are OLS regressions on the matched sample of observations. Exact matching is performed using a conditional propensity score. *** implies p < 0.01, ** implies p < 0.05, and * implies p < 0.10.*

Table 4: Political influence and business constraints, logit regressions

Constraint	Eq.	Coeff.	S.E.	N	Pseudo R^2	$p > \chi^2$
Infrastructure	(1)	0.017	0.033	8,290	0.161	0.000
	(2)	*-0.006*	*0.043*	*6,747*	*0.193*	*0.000*
Taxation	(3)	-0.186***	0.023	8,501	0.249	0.000
	(4)	*-0.197****	*0.026*	*6,961*	*0.179*	*0.000*
Regulation	(5)	-0.218***	0.028	7,660	0.188	0.000
	(6)	*-0.257****	*0.035*	*6,457*	*0.178*	*0.000*
Finance	(7)	-0.103***	0.024	8,213	0.248	0.000
	(8)	*-0.103****	*0.027*	*6,695*	*0.174*	*0.000*
Legal system	(9)	-0.161***	0.027	7,586	0.278	0.000
	(10)	*-0.181****	*0.037*	*6,061*	*0.239*	*0.000*
Monopoly pricing	(11)	0.113***	0.027	7,975	0.091	0.000
	(12)	*0.131****	*0.030*	*6,455*	*0.078*	*0.000*

*Notes: Coefficients and standard errors on "influence" are reported. All regressions include, in addition to influence, the following variables: age of firm, exporter dummy, domestic dummy, workers (linear and quadratic), firm-specific bias, time trend, legal-status, location, industry, time, and country dummies. Figures in italics are for matched data using propensity-score matching based on logit model. *** implies $p < 0.01$, ** implies $p < 0.05$, and * implies $p < 0.10$.*

influential firms, which are five to eight times more likely to consider tax, regulatory, financial, and legal constraints to be major or severe obstacles than influential firms. Influential firms are also more likely to face a situation where price hikes do not change their customers' behavior. This suggests that another benefit of influence over laws and regulations is that influential firms get exposed to less competition.

Do politicians benefit from cronyism?

As mentioned in the introduction, an inordinate amount of attention has focused on the benefits of cronyism that accrue to the firms themselves, while far less is understood in terms of the specific types of rents or political rewards politicians can extract from cronyism. In table 5 we examine evidence of the high-employment guarantees implicit in the firm-politician relationship. Recall that in the partially-pooling equilibrium, political leaders who are less able to handle negative economic shocks rely instead on influence contracts, a component of which involves firms keepingexcess labor in exchange for lowered costs of business. Columns (1) and (2) present logit results for unmatched and matched samples, respectively, of estimating the effect of political influence on excess employment. Firms were asked, if they could change the number of full-time workers without restriction or punishment, whether they would shrink their payrolls. We code responses 1 or 0 depending on whether firms reported they would lay off workers. In columns (1) and (2), in addition to the variables included in the basic specification, we also include firms' capacity utilization, on the assumption that use of installed productive capacity can affect firm managers' preferences regarding optimal employment levels. We find that influential firms are more likely to maintain excess labor than non-influential firms.

We also examine a second political benefit of cronyism: revenue. Tax compliance, of course, is often en-

Table 5: Political influence, excess labor, and tax compliance

	Excess labor		Tax compliance (% of sales)	
	(1)	(2)	(3)	(4)
Influence	0.091***	0.089***	0.616***	0.683**
	(0.024)	(0.027)	(0.231)	(0.269)
Age	-0.003	-0.001	0.052***	0.037*
	(0.002)	(0.002)	(0.018)	(0.020)
Exporter	0.059	0.061	0.407	-0.733
	(0.079)	(0.087)	(0.778)	(0.866)
Domestic	0.181**	0.115	-3.777***	-3.396***
	(0.085)	(0.089)	(0.856)	(0.902)
State-owned	0.214	0.175	3.622**	4.059**
	(0.179)	(0.182)	(1.631)	(1.676)
Bias	0.027*	0.014		
	(0.014)	(0.015)		
Workers	0.188***	0.123*	2.106***	2.594***
	(0.071)	(0.074)	(0.696)	(0.734)
Workers^2	-0.030***	-0.019*	-0.042	-0.119
	(0.009)	(0.009)	(0.085)	(0.091)
Capacity utilization	-0.002*	-0.001		
	(0.001)	(0.002)		
Trend	-0.001**	-0.001*	14.623***	8.905**
	(0.000)	(0.000)	(2.784)	(3.513)
N	8,050	6,509	7,831	6,271
Pseudo R^2, R^2	0.109	0.089	0.259	0.269
$p > \chi^2$, *F*	0.000	0.000	0.000	0.000

*Notes: Results from OLS regressions, with legal-status, location, industry, time, and country dummies (not reported). Columns (1) and (3) are OLS regressions on the unmatched sample, (2) and (4) are on the matched sample. Exact matching is performed using a conditional propensity score. *** implies p < 0.01, ** implies p < 0.05, and * implies p < 0.10.*

demically weak in countries where tax administrations suffer from limited capacity, or where the interpretation of tax rules is inconsistently applied. Columns (3) and (4) examine tax compliance. Firms were asked to state the percentage of sales they had reported for tax purposes. Unmatched and matched results show that influential firms actually comply with tax reporting rules to a greater extent than non-influential firms. We do not, in this instance, report 3SLS results, although these are similar to our OLS results. Our results give reason to believe that both full employment and revenue may be components of influence contracts in cronyistic relationships.

Do influential firms invest and innovate less?

Our last set of results addresses the question, indirectly, of enterprise dynamism and performance. Rewards in the form of lowered costs of business, monopoly rents, and other benefits are often justified by developing country governments as a de facto form of targeted industrial policy, on the assumption that most politically-connected firms use these benefits to invest and innovate, and that these influential firms are also the most dynamic. However, our model suggests that the opposite may be true, if we think of

Table 6: Political influence and firm innovation and performance

Outcome	Eq.	Coeff.	S.E.	N	Pseudo R^2, R^2	$p > \chi^2$
Opened new product line	(1)	-0.052**	0.021	7,884	0.102	0.000
	(2)	-0.081***	0.025	6,341	0.135	0.000
Opened new plant or facility	(3)	-0.141	0.029	7,891	0.123	0.000
	(4)	-0.184***	0.035	6,348	0.109	0.000
Closed obsolete product line	(5)	-0.084***	0.023	7,879	0.113	0.000
	(6)	-0.067**	0.029	6,336	0.136	0.000
Closed old plant facility	(7)	-0.067**	0.033	7,885	0.077	0.000
	(8)	-0.066*	0.038	6,342	0.100	0.000
Sales growth (log)	(9)	-0.017*	0.009	2,487	0.069	0.000
	(10)	-0.030*	0.018	1,221	0.089	0.000
Investment horizon (months)	(11)	-0.055***	0.005	2,514	--	0.000
	(12)	-0.059***	0.008	1,144	--	0.000

*Notes: Coefficients and standard errors on "influence" are reported. All regressions include, in addition to influence, the following variables: age of firm, exporter dummy, domestic dummy, workers (linear and quadratic), time trend, legal-status, location, industry, time, and country dummies. Equations (1) – (8) also include firm-specific systemic bias. Figures in italics are for matched data using propensity-score matching based on a logit model. Equations (1) – (7) are logit regressions. Equations (9) and (10) are estimated with OLS, and equations (11) and (12) with a Poisson event-count model. *** implies $p < 0.01$, ** implies $p < 0.05$, and * implies $p < 0.10$.*

production quantities as being static versions of the incentives to invest and innovate. We examine this relationship in table 6.

Firms were asked a series of questions on their restructuring activities and innovation. Table 6 shows the results of estimations in which the dependent variables are a set of innovation/restructuring outcomes: whether, in the past three years, the firm opened a new plant, introduced a new product line, closed an old plant, or closed an obsolete product line. In addition to these binary outcomes (which we estimated with logit regressions), we also examined the real growth in sales over the past three years (log scale), and the investment planning horizon in months (the latter of which is estimated with a Poisson event-count model). While there are valid concerns regarding the comparability of "newness" or "obsolescence" across firms in different countries and in different industries, the inclusion of industry and country dummies should correct for these differences. As in table 4, we only report coefficients and standard errors for the influence variable, for estimations using both unmatched and matched samples.

Once again, despite the reductions in sample size from matching, influential firms display a certain consistency: they are less likely to open or close facilities, introduce or close out product lines. Sales growth is also lower for influential firms. Their investment planning time horizon is also more myopic than that of non-influential firms.

CONCLUSIONS

The theory and empirical evidence presented in this paper suggests that cronyism takes the form of an elite exchange in which firms concede part of their control rights over employment (and thereby end up with bloated payrolls), in exchange for a more favorable business climate. This exchange also affects the decisions firms make. In particular, our model suggests that more influential firms may be less productive than less influential firms if the benefits of influence come in the form of lower fixed costs of doing business whereas the costs (the compensation to the politicians) come as higher variable costs. This result was also borne out by the empirical results, showing that more influential firms report lower real growth in sales and are less likely to open new product lines or production facilities, or to close out-dated ones.

That more influential firms invest and innovate less than non-influential firms refutes the argument that cronyism is a benevolent form of industrial policy that helps promising firms increase their productivity. This argument has previously been criticized from the stand point that markets should be better than governments at identifying promising firms. What we offer is an additional criticism grounded in a model of elite exchange in which influential firms not only obtain benefits from cronyism, but also pay political dues in the form of excessive employment levels.

We do not argue that the particular form of elite exchange we suggest is the only one that exists, or that more influential firms always are offered deals that create disincentives for investment and innovation. Cronyism sometimes takes the form of preferential credit schemes, which may lower the cost of capital, thereby counteracting the disincentives from other requirements (though this of course may have other negative effects as well). Our results do suggest, however, that on average the negative effects seem to dominate.

We also find, finally, that more influential firms pay less in bribes than the more politically connected. This suggests that bribes, rather than being a tool for influence peddling used by private sector elites, may actually be a public sector mechanism to extort weak and vulnerable firms. This is consistent with a bargaining framework of bribe paying, as presented in Svensson (2003), if high-level political connections increase firms' bargaining power against lower level public agents. Influence seems to be driven more by personal connections, age and sheer size of the firm, and having to pay less in bribes becomes part of the benefit of influence. These findings underlie the importance of making a distinction between cronyism and administrative corruption, each of which serve different purposes and involve different segments of the public and private sectors.

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ENDNOTES

1. Since 2004, the World Bank has benchmarked these costs in its annual series of Doing Business reports.
2. We implicitly assume that the number of capital owners is small enough relative to the number of workers in order to disregard the capital owners' votes when calculating the outcome of the elections. Think of a small number of capital owners each controlling a fraction of the measure of firms and employing a large number of workers.
3. The results do not depend on the assumption of a Leontief production function, though this simplifies the exposition substantially. The extra labor requirement would have the same effect, i.e. increasing the marginal cost of capital, in a Cobb-Douglas production function, though the magnitude of the effect would be smaller since the extra workers would be productive.
4. We are giving the government all the bargaining power here, but in principle one could think of a bargaining game between the firms and the government determining the allocation of the common surplus from the deal. This would not change any of the results, though.
5. This can be motivated by the increased publicity given to unemployment figures when they are perceived as high relative to expectations.
6. It should be noted that as in most signaling games, there may also exist other equilibria.
7. We do throughout assume that parameter values are such that any expressions of probabilities fall within the open set (0, 1), i.e. that $\eta p \Delta_L < 1/2$.
8. We difference firms' self perceptions with their average perceptions regarding three other groups (other firms, other conglomerates, and other politically-connected firms) rather than simply "other domestic firms" to reduce the effect of biased perceptions towards any particular category of firms.
9. We have also tested if including a dummy specifying whether the firms have ever been publicly owned makes a difference. The motivation is that newly privatized firms may maintain close political connections, while struggling with the legacy of public ownership in terms of bloated payrolls and inefficient business practices. Including this dummy does not change any of our results, though.
10. In the 3SLS setup, instead of the logit format in (26) with a binary outcome, we use the regular influence measure.
11. We use these numbers on corruption rather than firms' perceptions of corruption as an obstacle to their business based on the findings in Gonzalez et al, 2007.
12. Firms were given four choices of responses: A: customers would continue to buy at the same quantities; B: customers would continue to buy but at slightly lower quantities; C: customers would continue to buy but at much lower quantities; and D: customers would stop buying.

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