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Democratic Accountability and the Relative Obstacles to Foreign Investment

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June 29, 2011

Abstract

This paper considers the relationship between democratic accountability in developing countries and the policies they use to attract foreign direct investment (FDI). We isolate two policy areas that governments of developing countries use to attract FDI: the tax burden on firms and the regulatory standards within which they operate. Countries that maintain high business taxes can only attract FDI by offering a less regulated business environment, which may have associated political costs. The extent to which democratic accountability constrains leaders in their tax/regulatory policy choices is our main line of analysis. The novelty of the paper is that it endogenously determines policy choices within a political economy framework that recognizes the trade-offs between attracting FDI and maintaining political control. Examination of firm-level survey data from foreign firms operating in eastern Europe and central Asian economies confirms our model's main conclusion: regulation is seen to be a relatively larger obstacle to doing business in countries with greater democratic accountability.

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In Thailand, new private development requires environmental impact reports and hearings with local residents, obstacles that have snarled a number of high-profile projects.

In Dawei, the government simply told local residents to leave.

– New York Times, November, 28, 2010.

1 Introduction

On September 29th, 2009, a Thai court ordered the suspension of 76 operations worth \$12 billion at an industrial complex in Map Ta Phut due to their breach of environmental provisions in the country's new constitution. The following year, plans emerged for the construction of a new Thai industrial project expected to be ten times bigger - in Dawei, Burma.¹

This paper analyses the effect of domestic politics on the instruments used to attract foreign direct investment (FDI). We set up a two-period political-economy model in which a leader chooses the combination of tax and regulatory levels that maximises his revenue. We define regulation as legally enforced obstacles to profit-maximising behaviour that are likely to be popular with the median voter, such as employment protection policies or environmental regulation.² In choosing his policy bundle, the leader must take into account his political survival, which is an increasing function of regulation, and his likelihood of attracting foreign investment, which is decreasing in both tax and regulation. A specific innovation in our model is the introduction of political accountability. We argue that the elasticity of the survival function to regulation is greater in more developed democracies. It follows that the autocratic leader can discount citizens' preferences for regulation to a larger extent than his democratic counterpart.

The model predicts that more democratic governments will attract FDI by offering relatively lower tax burdens due to the political sensitivity of inadequate regulation. Conversely, in less democratically developed countries, governments will attract FDI

¹This case study is presented in more detail in Appendix 1. Figures taken from *Financial Times*, "Thai Court Rules 65 Projects Remain Suspended," December 2, 2009 (available at The Financial Times online), and *New York Times*, "An Industrial Project That Could Change Myanmar," November 26, 2010 (available at The New York Times online). Both articles were accessed on February 10th, 2011.

²While acknowledging that regulation will also affect the fixed costs of a prospective foreign investor, the regulations we focus on in the paper are those that will also lead to higher per-unit costs.

revenues via lighter regulatory standards, while collecting higher tax revenues from the business sector. Thus, in equilibrium, it is the *composition* of each government’s package that will vary with their level of democratic development.

This is a finding that does not lend itself to empirical testing with typical FDI location choice or gravity frameworks, as it does not explicitly predict the direction of inflows. Moreover, the considerable omitted variable and reverse causality bias associated with such country-level studies also poses concerns. We mitigate both limitations by turning to the Business Environment and Enterprise Performance Survey (BEEPS) firm-level survey of 30,000 firms across 30 eastern European and central Asian countries conducted in 2002, 2005, 2007, 2008 and 2009. We address potential endogeneity problems by combining these firm-level survey responses with country-level data on democracy and business conditions. Our model predicts that in a democracy, foreign firms will be more heavily burdened by regulation relative to taxation. The BEEPS offers a unique way to test this. Firms are asked to evaluate, on separate five-point scales, the extent to which they consider labour regulations and tax rates to be “obstacles.” This allows us to create a scale based on the differences between these two answers, which we refer to as the *relative obstacle scale (ROS)*. We use the *ROS* as our dependant variable, and find compelling results: using the World Bank’s Voice and Accountability score to measure democracy, and limiting our sample to foreign firms only ($n \approx 2000$), we find that firms’ perception of the regulatory burden relative to the tax burden - i.e. the *ROS* - is significantly higher in countries with stronger democratic institutions.

We make specific contributions to the literatures on (i) firm location choice, (ii) democracy and FDI, and (iii) leader behaviour.

That foreign investors prefer both lower tax rates and lighter regulation is a well-established fact. The classic tax competition framework explains that governments competing in a Nash game in tax rates will engage in a “race to the bottom” to attract foreign capital.³ Baldwin and Krugman [2004] nuance this result by showing that, in the presence of agglomeration rents, a country need not set the minimum possible tax rate and still attract FDI. More recent advances include the methodology of Davies and Voget [2008], which models firms as taking the market potential as well as the tax rate of each country into account when choosing location. On regulation, Javorcik and Spatareanu [2005] show that foreign investors are more likely to locate in countries with more flexible labour markets. Focusing on environmental regulation, Cole et al. [2006]

³See Wilson [1999] for a survey of this literature.

show that, not only do foreign firms choose countries where regulation is lighter, but once implanted, they influence policymakers through lobbying, creating “endogenous pollution havens”. Our study is in keeping with these results - firms prefer both lower tax and lower regulation. We extend this, however, by showing that the level of democracy in the host country will determine which of the two will be used more intensively to attract the investor.

Second, we contribute to heretofore inconclusive literature on the effect of democracy on FDI inflows. Perhaps surprisingly, there is no clear evidence showing that democracies receive significantly more FDI than more autocratic countries. For example, Yang [2007] finds no discernible positive relationship between democracy and FDI, whereas Busse [2003], using panel data, in some cases finds a negative effect, though it should be noted that a positive relationship is identified using cross-sectional data for observations taken after the 1970s. The political science literature also sheds ambiguity on the nature of the causal relationship.⁴ Mathur and Singh [2007] observe that “while democratic countries ensure provision of political and civil rights for citizens, these are not an automatic guarantee of economic freedom. The correlation between the democracy index and [...] indices of economic freedom is surprisingly low. Hence more democratic countries may receive less FDI flows if economic freedoms are not guaranteed”. The key point is that it is erroneous to think of democratic institutions and pro-business policies as synonymous. Li and Resnick [2003] show that democracy has a negative effect on FDI once property rights are controlled for, a finding that gives credence to the idea that there may be little else inherently attractive about a democracy for foreign investors. We offer an explanation for these observations: democracy per se means neither more nor less FDI, but rather a different method of attracting a certain type of it. Autocracies can offer a lower regulatory burden, whereas democracies are more constrained, and must use an alternative channel.

A further innovation of the paper is our explicit and endogenous treatment of the domestic political considerations of the leader in the FDI-competing country, which are treated as exogenous in the tax literature mentioned above. In our model, certain combinations of tax and regulation levels are inadmissible due to the negative effect they will have on the probability of the leader’s re-election. Beyond this, our modeling of democratic development, or accountability, as a determinant of the channel along which governments compete for non-value-adding FDI represents a contribution to the

⁴Jensen [2003] finds a robust positive significant effect of democracy on FDI inflows; Li and Resnick [2003] find that, once property rights are controlled for, democracy has a negative effect on FDI inflows. Choi and Samy [2008] find that democracy is at best weakly associated with increases in FDI inflows.

literature’s understanding of the role of domestic institutions in the FDI location choice process.

Our findings have obvious welfare implications. We suggest that competition for FDI has the capacity to represent a threat to the welfare of citizens of autocratic countries, as foreign firms are more likely to be offered a regulatory “carte blanche” when operating there - an important discovery that, to our knowledge, the literature has not examined. The paper can also be interpreted as an explanation for why countries with seemingly adverse political conditions and even political instability continue to receive foreign investment.⁵ It also sheds light on why tax competition is particularly prevalent in more developed democracies such as those in the European Union.

The paper proceeds as follows: we present our theoretical model in the next section, before providing an empirical investigation of our main theoretical propositions and finally offering some concluding remarks.

2 Model

We set up a simple two-country model in which a country South (S) can attract FDI from an industry monopolist in the country North (N). The important facet of this FDI is that it does *not* add value to the local economy beyond the wages paid to labour. These countries differ in their wage levels (which we consider exogenous) in that $w_N > w_S$. Given the basic nature of the task to be carried out by the workers in the new plant, firm N considers all labour to be homogeneous when deciding upon the location of its investment. Moreover, the market size of S does not influence the firm’s decision, as we assume that firm N is not engaging in horizontal FDI; firm N is not selling in S . The alternative to investing in S is carrying out the activity at home in N at the higher wage level. If firm N invests in S , a fixed cost V will also be undergone.

Throughout we assume the S government is Leviathan and has the objective of maximizing lifetime expected government revenues. Attracting FDI increases the tax base available for the S government and so we take as given that the S government sets policy so as to attract FDI. The government S has two policy choices which will affect the location choice of firm N : the ad valorem tax rate τ_S , and the regulation, ϑ_S , where $\tau, \vartheta \in [0, 1]$. We assume that the northern equivalents, τ_N and ϑ_N , are fixed.

We treat the N government as exogenous: w_N, τ_N and ϑ_N , along with the fixed cost

⁵Azzimonti and Sarte [2007] show that in politically unstable countries, both direct and indirect forms of expropriation cannot be ruled out *ex-post* by a firm making an investment.

V , simply act as a bound on the behaviour of the S government. The activity will not take place in S if it sets τ_S and ϑ_S at levels that override its wage cost advantage, net of V .

The timing in the model is as follows: In the first period, there is production in the S domestic economy and the collection of τy by the government of S , where y is output in the economy. The S government then chooses its bundles of τ_S and ϑ_S for period 2. Firm N then reacts to these choices by deciding its location for production in period 2. An election takes place between period 1 and 2, at which the leader of country S remains in power with survival probability ρ . Finally in period 2 there is again production and the imposition of τ_S on foreign firm profits π , earning $\tau(y + \pi)$ for the S leader.

We will first solve for the firm N 's optimal location choice, and then model the interaction between firm and government.

2.1 Firms

There is a firm N with headquarters in country N . This firm can carry out the least skill-intensive part of its production process at home, or move it to S . The rest of the production process, along with sales of the final good, occur in N . For this reason, the market size and technology levels of S are irrelevant in N 's location decision. Given that the task to be carried out requires no particular skill levels, N is also indifferent to the productivity and skills of the workforce in S and N when choosing where to carry out this task.

The firm faces demand of the form

$$p = a - bX. \tag{1}$$

The firm's profit function is given as

$$\pi = X(p - w_j - \tau_j - \vartheta_j) - V, \quad j \in (S, N), \tag{2}$$

where X is units of output, p is price, which is not conditional on the choice of country, but is given by conditions in country N , and j can be N or S , and V is the fixed cost of setting up operations in S .

The firm maximizes profits, (2), with respect to output:

$$\frac{\partial \pi}{\partial X} = a - 2bX - w_j - \tau_j - \vartheta_j = 0 \quad (3)$$

i.e.

$$X^* = \frac{a - w - \tau - \vartheta}{2b} \quad (4)$$

In this type of model it can be shown trivially that $\pi = X^2$, i.e. profits are a monotonically increasing function of output. In this case, we can think about X^* and profits as synonymous. From (4) we see that optimal output is decreasing in wages, taxes and regulatory burden.

The firm's location choice is given as follows: the firm will choose the country S if

$$\frac{a - w_S - \tau_S - \vartheta_S}{2b} - V > \frac{a - w_N - \tau_N - \vartheta_N}{2b} \quad (5)$$

Given that a and b are not N or S -specific, 5 can be written as

$$w_S + \tau_S + \vartheta_S + 2bV < w_N + \tau_N + \vartheta_N \quad (6)$$

Proposition 1. *S attracts the investment if its wage, tax and regulation advantage can offset the fixed cost of firm N setting up operations there.*

This can also be stated in the following way in terms of S leaders' choice variables: S will attract FDI as long as its tax and regulation is lower than its wage advantage plus N 's tax and regulation levels:

$$\tau_S + \vartheta_S \leq F \equiv w_N - w_S + \tau_N + \vartheta_N - 2bV \quad (7)$$

2.2 Domestic political economy and FDI

There are two policy dimensions along which S can satisfy the FDI constraint in equation (7), tax policy (τ) and regulation (ϑ). Leaders (or the elite political class) are constrained by domestic political considerations in their policy choices to attract FDI. We capture the domestic political constraint by assuming that the probability the leadership stays in power is a function of the regulatory policy.⁶ In other words, we assume

⁶A note on leaving out τ . It would leave qualitative results unchanged.

a reduced-form political survival function, $\rho(\vartheta) \in [0, 1]$, where

$$\rho'(\vartheta) > 0 \quad \text{and} \quad \rho''(\vartheta) < 0. \quad (8)$$

The assumptions on $\rho(\vartheta)$ are intuitive if we think of political survival as a function of policy choices.⁷ Political support is an increasing, concave function of the degree of regulation on firms in the productive sector.⁸ This domestic political constraint limits the extent to which the leader can lower regulatory standards with a view to attracting FDI.⁹

2.3 Leader's problem in a Southern country, S :

We assume that the leadership of country S maximizes (lifetime expected) public revenues.¹⁰ The government must spend some minimum amount of its tax revenues (G) to cover the operating costs and to provide the minimum amount of public services that prevents rebellion. The leader's problem is given by:

$$\max_{\tau, \vartheta} \quad \tau y + \rho(\vartheta)[\tau(y + \Pi)] \quad \text{subject to} \quad (9)$$

$$\tau y \geq G \quad (10)$$

$$\tau + \vartheta \leq F, \quad (11)$$

where y is output and Π is foreign firm profit. The leader chooses the tax rate (τ) and the degree of regulation on firms (ϑ) to maximize lifetime expected consumption subject to the constraints. The first constraint is the leader's budget constraint. We do not consider the case where the leaders can run deficits, therefore the leader cannot

⁷Barro [1973] and Ferejohn [1986] were among the first papers to use such a reduced-form political survival function. Caselli and Cunningham [2009] apply this framework to leader behaviour in resource-rich countries. Besley [2006] provides an overview of political economy models that make use of reduced-form political survival functions.

⁸A further typical benefit of attracting FDI is that the arrival of foreign firms provide jobs and technology transfer to the local economy. These two phenomena might well be expected to increase the popularity of the politician involved in attracting the FDI. However given that the aim of this paper is to model how the politician faces trade-offs between attracting FDI via tax incentives or via regulatory incentives, we abstract from these potential effects which would involve modeling a richer political survival function and more than two time periods. Note, however, that if the cumulative political survival function is additive across policies, incorporating other policy choices into the survival function would not alter our main results.

⁹Readers may be concerned that the tax rate does not affect political survival. Our main results are robust to including τ in the survival function as well. The analogues of propositions 2 and 3, with political survival a function of ϑ and τ are presented in an appendix.

¹⁰We abstract from time discounting of income flows.

spend more on public goods provision than he collects through taxation. Since the leader's objective is to graft, the budget constraint will never bind (so that $\tau y > G$). The second constraint describes the policy combination that the leader must attain to attract the FDI. Given the leader's preference for higher τ and ϑ , for graft and survival, the second constraint will always bind ($\tau + \vartheta = F$). The Lagrangian for the problem is:

$$L = \tau y + \rho(\vartheta)[\tau(y + \Pi)] + \lambda_1[\tau y - G] + \lambda_2[F - \tau - \vartheta]. \quad (12)$$

The first order condition for τ ($\frac{\partial L}{\partial \tau} = 0$) is given by the following:

$$y + \rho(\vartheta)[y + \Pi] + \lambda_1 y = \lambda_2 \quad (13)$$

The first order conditions for ϑ ($\frac{\partial L}{\partial \vartheta} = 0$) is given by the following:

$$\rho'(\vartheta)[\tau(y + \Pi)] = \lambda_2 \quad (14)$$

The FDI constraint will bind, so that $\lambda_2 > 0$, but the budget constraint will not, so that $\lambda_1 = 0$. Equations (13) and (14) imply that, at optimal levels, the marginal benefits from higher regulation equal their marginal costs, which is the foregone marginal benefit from higher taxation. In other words,

$$MB(\vartheta) = \rho'(\vartheta)[\tau(y + \Pi)] = MC(\vartheta) = MB(\tau) = y + \rho(\vartheta)[y + \Pi] \quad (15)$$

The marginal benefit from increasing regulation on firms is the increased expected value of future grafting income, as the probability of staying in power is an increasing function of the degree of regulation. Of course, due to the FDI constraint, if the leader increases regulation, then the tax rate must be lowered to meet the FDI constraint (recall that τ and ϑ are traded one-for-one along the FDI constraint). The leader will continue to increase regulation to the point where the increased expected value associated with the higher probability of staying in power no longer exceeds the revenue he must forgo when lowering the tax rate to maintain a competitive policy combination.

Together with the FDI constraint ($\tau + \vartheta = F$), equation (15) defines the optimal choices of τ and ϑ . Substitute the (binding) FDI constraint into (15) to get

$$\rho'(\vartheta)[(F - \vartheta)(y + \Pi)] = y + \rho(\vartheta)[y + \Pi] \quad (16)$$

Differentiation of (16) w.r.t. ϑ gives

$$\rho''(\vartheta)[(F - \vartheta)(y + \Pi)] - \rho'(\vartheta)[y + \Pi] = \rho'(\vartheta)[y + \Pi], \quad (17)$$

Note that the LHS of (16) is decreasing in ϑ while the RHS of (16) is increasing in ϑ due to the assumptions on the derivatives of $\rho(\vartheta)$. Since the survival function is concave, as $\vartheta \rightarrow \vartheta^{min}$, $\rho'(\vartheta) \rightarrow \infty$ and as $\vartheta \rightarrow \vartheta^{max}$, $\rho'(\vartheta) \rightarrow 0$. Therefore, there must exist a fixed point in the ϑ space, ϑ^* , that solves (16) internally. The optimal level of regulation on firms that meet the FDI constraint is given by ϑ^* :

$$\vartheta^* = F - \frac{1}{\rho'(\vartheta)} \left[\rho(\vartheta) + \frac{y}{y + \Pi} \right]. \quad (18)$$

Plugging ϑ^* into the FDI constraint, the solution for τ is residually determined.

$$\tau^* = F - \vartheta^* = \frac{1}{\rho'(\vartheta)} \left[\rho(\vartheta) + \frac{y}{y + \Pi} \right]. \quad (19)$$

We have established the following.

Proposition 2. *When behaving optimally, leaders set strictly positive tax rates and strictly positive degrees of regulation on firms.*

2.4 FDI attraction and heterogeneous political accountability

Consider two S -type countries, A and B ($w_S = w_A = w_B$) that differ in their level of democratic development. Assume that country A has a greater degree of democratic accountability than country B . We associate greater democratic accountability with political survival functions that are *more elastic* to changes in regulation policy (ϑ). If country A has a higher degree of political accountability than country B , then for any given ϑ , $\rho'_A(\vartheta) > \rho'_B(\vartheta)$.

The shape of the ρ function affects the leader's optimal policy choices: a steeper function implies lower taxes and higher regulation. The more democratically developed country should have more stringent regulation, i.e.,

$$\vartheta_A^* = F - \frac{1}{\rho'_A(\vartheta)} \left[\rho(\vartheta) + \frac{y}{y + \Pi} \right] > F - \frac{1}{\rho'_B(\vartheta)} \left[\rho(\vartheta) + \frac{y}{y + \Pi} \right] = \vartheta_B^* \quad (20)$$

All else equal, the leader of country A chooses higher regulation than the leader of country B because the political cost of lax regulation is greater in country A . Since

$\vartheta_A^* > \vartheta_B^*$, equation (19) implies that $\tau_A^* < \tau_B^*$. In other words, given that regulation and tax are substitutes within the FDI constraint, country A must offer lower levels of taxation to offset the more regulated business environment. The following proposition summarizes the discussion.

Proposition 3. *Greater political accountability induces an optimal policy bundle that is composed of relatively higher regulation and lower taxation.*

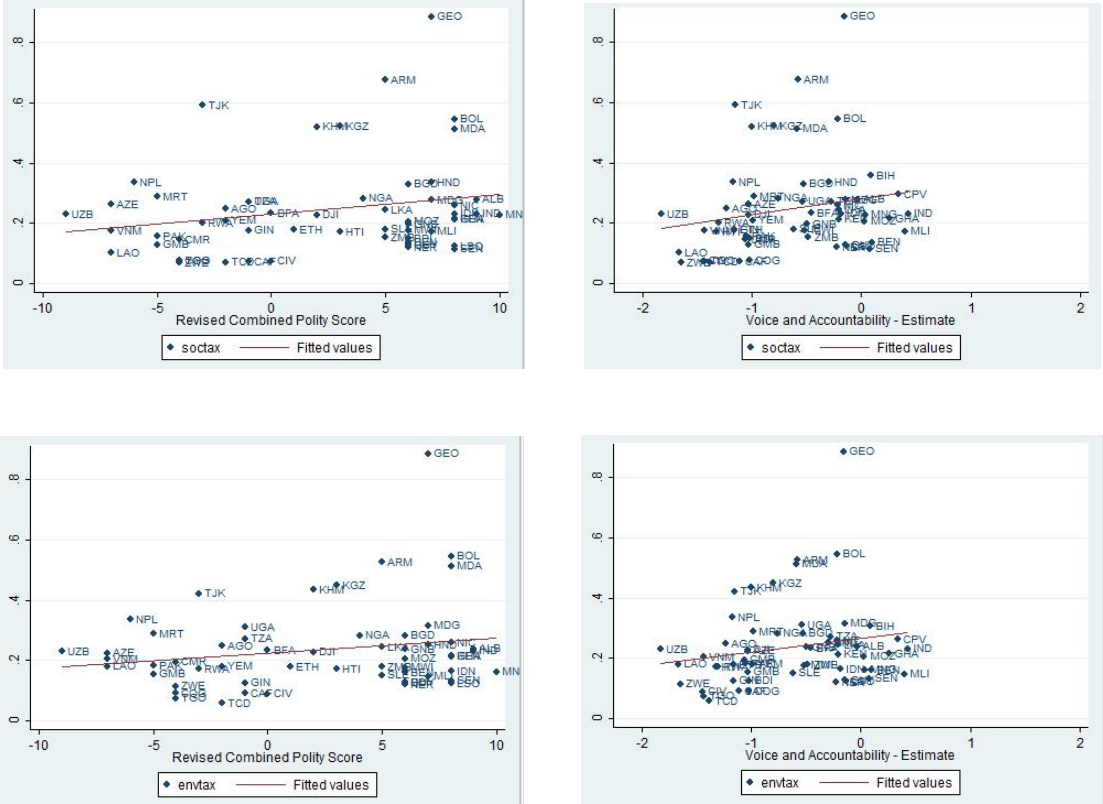
3 Empirical investigation

To examine the model’s main conclusion, we undertake two empirical exercises. The first subsection below considers simple correlations using cross-country data and is meant to be merely descriptive. The second subsection considers firm-level survey data combined with country-level characteristics to investigate how managers of foreign firms operating in eastern Europe and central Asia view regulation as an obstacle to doing business relative to taxation. The relationship we estimate in the second subsection supports the model’s main hypothesis and is shown to be robust to a thorough battery of checks. Moreover, obtaining the same empirical result using several different data sets increases our confidence in the result.

3.1 Descriptive corroboration

Due to the fact that the most appropriate country-level proxies for regulation are only available for 2005, we first turn to cross-country data. As a first proxy for the regulatory burden ϑ we take the variable *Social Protection and Labour* from the World Bank’s IDA Resource Allocation Index (IRAI). This index measures how policies “ensure a minimal level of welfare to all people” and is composed of five categories, taking into account social safety net programs, protection of basic labor standards, labor market regulations, community driven initiatives and pension and old age savings programs. Our second proxy for regulation, also from the IRAI, is *Policies and Institutions for Environmental Sustainability*, which measures the extent to which policies foster environmental protection, sustainability of natural resources, and pollution control. These are highly suitable proxies, in that they each capture measures that force firms to internalise social costs. Both of these variables run on a scale of 1 to 6, increasing in the degree of regulation. The IRAI data are collected for 97 countries which comprise low, lower middle and some upper middle income countries. These countries, lacking developed local markets,

Figure 1: In the top row, the ratio of “Social Protection and Labour” to fiscal burden is measured on the y -axis. In the bottom row, the y -axis measures the ratio of “Policies and Institutions for Environmental Sustainability” to fiscal burden.



technology and infrastructure, are more likely to rely on tax and regulation to attract foreign investors. We thus believe this sample better suits our model than a sample of all countries of the world.

Our measure of the tax burden comes from the Heritage Foundation’s *Fiscal Freedom* variable, which runs from 0 (lowest tax burden) to 100 (highest tax burden). It comprises a combination of the top tax rate on individuals and corporations, and the overall tax revenue share in GDP. We calculate “tax burden” as $(100 - \text{FiscalFreedom})$. Our empirical proxy for the relative burden of regulation to tax is then given by the regulation index divided by the tax burden score.

To measure democracy we use both the World Bank’s *Voice and Accountability* score, increasing in accountability from -3 to 3, and the *Polity IV* score, which increases in democracy from -10 to 10. To corroborate the predictions of the model, the relative regulatory burden should be increasing with democracy.

The top row of Figure 1 shows that when we proxy regulation using *Social Protection*

and Labour, the relative burden of regulation to tax does indeed increase with the *Voice and Accountability* (left-hand panel) and *Polity* (right-hand panel) score. The bottom row of Figure 1 shows that if we consider *Policies and Institutions for Environmental Sustainability* as our measure of regulation, we again see that the regulation to tax burden ratio is increasing in democracy, both for *Voice and Accountability* and for *Polity*.¹¹ We remind the reader that a country-level measure of FDI is not used in this section as our model makes no prediction on the amount of FDI flowing into a country. Figure 1 merely shows an association at the country level between democracy and the ratio of regulatory to tax burdens. To capture our model’s predictions on the relative regulatory and tax burdens experienced by foreign firms, we must turn to micro-level data.

3.2 Regression analysis

Moving beyond the descriptive corroboration offered in Section 3.1, we turn to firm-level data to more formally validate our predictions. Our firm-level data offers numerous advantages over country-level data in this context: we are concerned with foreign firms’ relative regulatory and tax burdens, which cannot be accurately measured at the country level; furthermore, standard country-level measures of FDI flows, regulatory conditions and tax rates do not enable us to test the model’s predictions, given that the model makes no prediction about the effect of either regulation or tax on the *location choice* of FDI. The firm-level survey responses used here can help us circumvent both of these issues - they will give us a direct measure of the relative intensity with which foreign firms are burdened by regulation and tax.

The data used come from the Business Environment and Enterprise Performance Survey (BEEPS), collected by The European Bank for Reconstruction and Development (EBRD) and The World Bank. The surveys use sampling stratification at the level of industry, establishment size and region. This database provides information on firms’ sales, exports, foreign ownership, imports, employment structures etc. The data is uniquely appropriate in this context as it collects information on managers’ perceptions of regulation and tax as obstacles to doing business. Data are collected for 28 Eastern European and Central Asian countries in 2002, 2005, 2007, 2008 and 2009. The authors (EBRD and World Bank, 2010) state that “the survey universe was

¹¹One may be concerned that Georgia (GEO) could drive the results of this section, in that it has an extremely fiscally free regime (a *Fiscal Freedom* score of 97). We mitigate this by excluding the Georgian data, finding that the pattern remains unchanged.

defined as commercial, service or industrial business establishments with at least five full-time employees”. Table 1 (all tables are in the appendix) gives a description of the sample size per country year and the mean value per country for our main variables of interest. We see from this Table that there is wide variation in democratic accountability (measured by the World Bank’s *Voice and Accountability*) across the sample - ranging from countries with a VA score of over 1 (Poland, Hungary, Slovenia, Estonia) to countries below minus 1 (Azerbaijan, Belarus, Kazakstan, Tajikistan, Uzbekistan).

Figures for monetary variables are given in local currency units. We normalize these variables by converting them to US dollar figures using the mean yearly exchange rate from the IMF *International Financial Statistics* database.

The main dependent variable is the *ROS* (*Relative Obstacle Scale*). Firms are asked the following question:

As I list some factors that can affect the current operations of a business, please look at this card and tell me if you think that each factor is No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle.

The two factors of interest to us are labour regulations and taxes. We recode the above answers from 1 to 5, with 5 being a Very Severe Obstacle. The *ROS* is constructed as the firm’s response to labour regulations minus the response to taxes.

$$ROS_{ij} = R_{ij}^{\vartheta} - R_{ij}^{\tau} \tag{21}$$

where ROS_{ij} is the Relative Obstacle Scale of firm i in country j , R_{ij}^{ϑ} is the firm’s response from 1 to 5 for labour regulations, and R_{ij}^{τ} the firm’s response for taxes. The *ROS* takes on higher values when regulations present a relatively greater obstacle to doing business in the host country than taxation on businesses.

Table 2 gives the breakdown of the *ROS* variable. Here we report statistics for the sample of foreign firms only which will be used in the regressions. We see that there are a total of 2401 foreign affiliates in our regression sample. Columns (1) and (2) show that more firms have a negative *ROS* than a positive one, indicating that more firms are relatively more burdened by tax than by regulation. Columns (3)-(5) tell us that larger firms, in terms of employment and sales, and older firms are relatively more burdened by regulation than by tax, although without a strict monotonic pattern. One might think that perhaps the minimization of a firm’s tax bill is easier for larger, more complex firms, who can engage in transfer pricing and the use of the most skilled tax consultants.

Crucially from the point of view of our model, the mean Voice and Accountability score at the country level is higher for firms with a higher *ROS* - multinational firms who are relatively more burdened by regulation than by tax are located more often in countries with higher democratic accountability.¹²

Our main specification relates the firm's *ROS* to the level of democracy in its host country:

$$ROS_{ij} = \beta_0 + \beta_1 Democ_j + X_i + X_j \quad (22)$$

where $Democ_j$ is measured by the World Bank's Voice and Accountability (VA) score, X_i and X_j are vectors of firm-level and country-level controls respectively.

Table 3 presents our baseline results. In all cases we control for year and NACE 2 industry fixed effects. Controlling for NACE2 sectors is crucial as this sweeps away many characteristics that might be associated with the firm's propensity to be burdened by regulation, such as the labour or technology intensity of the firm or the level of unionisation or other organised protections which impose costs on firms. The first column shows the regression with only the VA score, which takes on higher values for countries with stronger democratic accountability. As expected, foreign business people perceive regulation to be a greater obstacle relative to taxation in more democratic countries. The second column controls for various country and firm level effects that are common in the empirical FDI literature. *Age* is the length of time the firm has been in operation, $\ln(Size)$ is the natural logarithm of the number of employees of the firm, $\ln(Sales)$ is the log of the firm's sales in US Dollars, while $\ln(GDP)$ is the natural logarithm of the GDP of the FDI-receiving country, which is included as a standard country-level control for income and agglomeration rents, despite our lack of a theoretical prior on its sign. The introduction of firm-level controls in Column (2) decreases slightly the coefficient on VA, which remains significant. We see that the coefficient on VA actually rises after the introduction of GDP, while GDP has a negative sign, indicating that in wealthier economies firms are relatively more burdened by tax than regulation. Column (4) omits the NACE2 dummies and includes broader industry fixed effects. The coefficients tell us that in the services sector, firms are more burdened by regulation than by tax. Again, controlling for these sectoral dummies does not change the significant effect of democracy on our dependent variable. On the economic significance of the coefficient, a 1 unit increase in VA will move a firm a quarter of a point along the *ROS* scale. Given that VA ranges between -3 and 3, but

¹²As a corollary, we should observe more resource-intensive industries (extraction and assembly) operating in autocracies and more service-intensive industries operating in democracies.

in practice ranges mostly between -1 and 1 for our sample, this is not a seismic shift, nor however is it negligible, given that most firms have an *ROS* score between -3 and 1.¹³

We now move on to test the robustness of our results. One potential concern is with the construction of the *ROS*. Rather than subtracting the perceived tax obstacle from the perceived regulation obstacle, we re-run the regressions of Table 3 with a new dependent variable: the ratio of the perceived labour to tax obstacles, as in Equation (23).

$$ROS_{ij}^R = \frac{R_{ij}^\theta}{R_{ij}^\tau} \quad (23)$$

The results using this ratio version of the *ROS*, presented in Table 4, show that all results are robust to this alternative calculation of our dependent variable.

Table 5 is more a re-interpretation of our model than a robustness check. In our theory, τ is modeled as the tax rate on firms. In a developing or transition country setting, however, τ can be thought to include *all* payments to the government that the firm expects to make, including unofficial bribery and corruption expenses that are required for doing business abroad. Re-interpreting τ in this way does not change any prediction of our model. Empirically, to test this altered version of the model, we re-calculate the *ROS* as in Equation (2), replacing R_{ij}^τ with an average of the firm's response to the obstacle question of both "taxes" and "corruption". This new τ now captures both official and unofficial monetary payments which must be transferred from the firm to the local administration. R_{ij}^θ remains as it was in Equation (2), i.e. the firm's perceived regulation obstacle. Table 5 reports the results using this new dependent variable. The results show that in more democratic countries, firms are relatively more burdened by regulation than by taxes, even when taxes includes both official and unofficial payments. This confirms that τ in the model can be thought of to include both official taxes and unofficial corruption payments without changing the pattern of results presented in Table 3.

One issue readers may have is with the ordinal nature of our dependent variable, which we treat as cardinal in OLS regressions. As a robustness check we construct a dummy variable with firms above the median *ROS* taking a one and firms below the median taking a zero. We then run the same specification as Table 3, using a probit rather than OLS. The results of Table 6 tell us that the key finding of the paper is robust to this re-formulation of the dependent variable. Additionally, we re-

¹³Indeed, the Beta coefficient on the regression in Column (3) is 0.16.

estimate the models from Table 3 using an ordered probit. These coefficient estimates are qualitatively and quantitatively similar and are given in Table 7.

Another concern relating to the dependent variable is that a country in which a firm experiences very high obstacles in terms of both regulation and tax (say $R_{ij}^{\theta} = R_{ij}^{\tau} = 4$) is very different from a country where firms experience minimal obstacles ($R_{ij}^{\theta} = R_{ij}^{\tau} = 0$). Our empirics treat both of these scenarios in the exact same fashion, i.e. $ROS = 0$. We argue that this is of no real concern to the interpretation of our results as confirming our theory, due to the fact that the theory's predictions are purely on the *relative* burden. Regardless, we construct a new dependent variable which takes a 0 if $ROS < -1$ and a 1 if $ROS > 1$. The intuition here is that firms with an ROS of -1, 0 or 1 are potentially coming from countries with very different absolute levels of regulation or tax, while firms with more extreme ROS have a very clear and unambiguous ranking of one of the two as a more important obstacle. Table 8 confirms that our principal finding is robust to this way of defining the dependent variable for the more full specifications in Columns (3) and (4), with very similar coefficients to those presented for the probit regressions in Table 6.

The robustness of our results to alternative measures of democracy is also important. In Columns (1) and (2) of Table 9, we run the same regressions as Columns (3) and (4) of Table 3. Here we see that *PolityIV* does have the same effect on ROS as Voice and Accountability, but that this effect is not statistically significant if one includes the log of firm sales. We run a regression from each of our robustness tables on the set of covariates without sales included in Columns (3) to (6). We see that *PolityIV* is a reasonably robust alternative measure of democracy, with positive coefficients, which are statistically significant or very close (as in the case of Column (4)), in each case apart from Column (6), where we create a binary variable that does not include firms with an ROS of -1, 0 or 1.

The wide range of approaches we have taken to check the robustness of our primary finding gives us confidence that the pattern is a strong one - in countries where democratic accountability is higher, foreign firms are relatively more burdened by regulation than they are by tax. This confirms the chief prediction of our political economy model introduced in Section 2.

4 Conclusion

In this paper we look at leader behaviour and FDI location choice. In designing policy to attract investment, leaders face a trade off between lowering taxes, which reduces rents, and lowering regulation, which diminishes popular support. We find that the policy outcome is determined by the level of political accountability - autocrats can afford to offer firms low levels of regulation, whereas the more constrained democratic leader must offer lower taxes to attract FDI. We corroborate this using firm level data from eastern European and central Asian countries. The paper contributes to the literature on FDI location choice, on democracy and foreign investment, and on the political economy of industrial policy. Our results have clear implications: competition for FDI leads to relatively low environmental and labour market regulations in autocracies, which can lead to deleterious social outcomes. Our paper also explains how autocracies still attract FDI, shedding light on an otherwise inconclusive literature. For obvious reasons, the potential of policy prescriptions for the autocracy is limited. The same is not the case, however, for the democratic countries: might the same standards demanded of firms at home be extended to their foreign expeditions? We believe that such a step could decrease suboptimal environmental and labour market outcomes in autocratic countries.

References

- Marina Azzimonti and Pierre-Daniel G. Sarte. Barriers to foreign direct investment under political instability. *Economic Quarterly*, (Sum):287–315, 2007.
- Richard E. Baldwin and Paul Krugman. Agglomeration, integration and tax harmonisation. *European Economic Review*, 48(1):1–23, February 2004.
- Robert Barro. The control of politicians: An economic model. *Public Choice*, 14:19–42, 1973.
- Timothy Besley. *Principled Agents? The Political Economy of Good Government*. Oxford University Press, Oxford, 2006.
- Matthias Busse. Democracy and FDI. Technical report, 2003.
- Francesco Caselli and Tom Cunningham. Leader behavior and the natural resource curse. *Oxford Economic Papers*, 61:628–650, 2009.

- Seung-Whan Choi and Yiagadeesen Samy. Reexamining the effect of democratic institutions on inflows of foreign direct investment in developing countries. *Foreign Policy Analysis*, 4:83–103, 2008.
- Matthew A. Cole, Robert J. R. Elliott, and Per G. Fredriksson. Endogenous pollution havens: Does FDI influence environmental regulations? *Scandinavian Journal of Economics*, 108(1):157–178, 03 2006.
- Ronald B. Davies and Johannes Voget. Tax competition in an expanding European Union. Technical report, 2008.
- John Ferejohn. Incumbent performance and electoral control. *Public Choice*, 50:5–25, 1986.
- Beata Smarzynska Javorcik and Mariana Spatareanu. Do foreign investors care about labor market regulations? *Review of World Economics (Weltwirtschaftliches Archiv)*, 141(3):375–403, October 2005.
- Nathan M. Jensen. Democratic governance and multinational corporations: Political regimes and inflows of foreign direct investment. *International Organization*, 57:587–616, 2003.
- Quan Li and Adam Resnick. Reversal of fortunes: Democratic institutions and foreign direct investment flows to developing countries. *International Organization*, 57:175–211, 2003.
- Aparna Mathur and Kartikeya Singh. Foreign direct investment, corruption and democracy. Working Papers 135, American Enterprise Institute for Public Policy Research, May 2007.
- Marco Peluso, Petcharin Srivatanakul, Armell Munnia, Adisorn Jedpiyawongse, Aurelie Meunier, Suleeporn Sangrajrang, Sara Piro, Marcello Ceppi, and Paolo Boffetta. DNA adduct formation among workers in a Thai industrial estate and nearby residences. *Science of the Total Environment*, 383:283–288, 2008.
- John D. Wilson. Theories of tax competition. *National Tax Journal*, 52(2):269–304, 1999.
- Benhua Yang. Autocracy, democracy, and FDI inflows to the developing countries. *International Economic Journal*, 21(3):419–439, 2007.

A Appendix

A.1 An Illustration: Indochina

A series of court cases and investment decisions in Southeast Asia illustrates our theory vividly. The first centres on a major industrial facility at Map Ta Phut, Thailand, where an injunction against 76 operations was ordered in view of environmental breaches. The order was seen as a progression of an earlier court decision declaring the area a 'pollution control zone' following a civil lawsuit filed by 27 villagers complaining of health grievances. Subsequent studies revealed that the industrial activity was likely to be causing negative health externalities: Peluso et al. [2008] found that people living near Map Ta Phut had 65% higher levels of genetic damage to blood cells than others in the same province. The figure was 120% for refinery workers. This type of damage is considered a possible precursor to cancer, and Thailand's National Cancer Institute found in 2003 that rates of cervical, bladder, breast, liver nasal, stomach, throat and blood cancers were highest in Rayong Province, where Map Ta Phut and other industrial zones are located.¹⁴

The decision to suspend operations at Map Ta Phut was seen as a blow to investor confidence. The Financial Times speculated that it could add a "toxic element of regulatory risk" to Thailand's investment climate¹⁵, while share prices at major Thai industrial conglomerates were significantly affected on the announcement of a decision to largely uphold the order two months later: stock prices at Siam Cement, PTT (energy) and PTT Chemical fell 5.5%, 3.8% and 5.6% respectively.¹⁶

It was against this backdrop that, in October 2010, Thai Prime Minister Abhisit Vejjajiva agreed a deal with the ruling junta in neighbouring Burma to proceed with a major industrial project in Dawei. Earlier that day, Prime Minister Abhisit had explained to the Bangkok Post that Thailand had to reduce its reliance on domestic heavy industry: "I don't think the people want it in their backyard."¹⁷ A subsequent feature in the New York Times further clarified the strategy:¹⁸

¹⁴Facts presented in this paragraph are taken from *New York Times*, "In Industrial Thailand, Health and Business Concerns Collide," December 18, 2009. Available at The New York Times online. All newspaper articles in this Appendix were accessed on February 15th, 2011.

¹⁵*Financial Times*, "Environmental Ruling Threatens Thai Growth," October 3, 2009. Available at The Financial Times online.

¹⁶*Financial Times*, "Thai Court Rules 65 Projects Remain Suspended," December 2, 2009. Available at The Financial Times online.

¹⁷*Bangkok Post*, "Diversity Holds Key to Success," October 11, 2010. Available at The Bangkok Post online.

¹⁸*New York Times*, "In Industrial Thailand, Health and Business Concerns Collide," December 18,

Foreign companies building plants here would be freed from the restraints of increasingly strict antipollution laws elsewhere in the region. For Thailand, the project would be a cheap and convenient way to export its dirty refineries across the border.

“Some industries are not suitable to be located in Thailand,” Abhisit Vejjajiva, the Thai prime minister, said in explaining the project to viewers of his weekly television address recently. “This is why they decided to set up there,” he said, referring to Dawei.

The perceived advantage is put more bluntly by Anan Amarapala, vice president of the marine division of Italian-Thai Development Plc, the Thai group awarded the contract to construct the infrastructure for the 250 square kilometre project. On the issue of displacement,¹⁹ he said:

We are still in the process of negotiating with the villagers [...] It’s totally different from Thailand [...] Thais would argue and go to court. That’s not the case with this project.

Recalling our theory, it is interesting to note three other features of the Dawei project: first, that the project includes a profit-sharing agreement with the Burmese junta, on which Italian-Thai executives “could not divulge details.” Second, Siam Cement and the PTT group - who were both affected by the ruling in Mah Ta Phut - are among the many heavy industry conglomerates looking to move operations to Dawei in light of stricter regulations in Thailand.²⁰ Finally, a note must go to a port project at Pak Bara, southern Thailand, which has been scaled down due to local environmental concerns. The Dawei project is now expected to take on many of its intended functions.²¹

The relocation of Thai operations to Dawei is not the only example of Asian democracies’ exploitation of regulatory conditions in autocratic Burma. India’s state-run energy group, NHPC Ltd, is expanding operations there on account of slow progress on domestic projects caused by “environmental concerns” and issues related to the reset-

2009. Available at The New York Times online.

¹⁹Local residents estimate that the inhabitants of 19 villages, each home to around 5,000 people, will be forced to move. Italian-Thai put the figure at 3,800 households, according to The New York Times online.

²⁰*Bangkok Post*, “Big Shift to Dawei Predicted, Map Ta Phut and South Lose Appeal,” November 14, 2010. Available at The Bangkok Post online.

²¹*The Nation*, “Pak Bara Project Set to Go Ahead,” October 10th, 2010. Available at The Nation online.

tlement of people displaced by the construction of dams.²² This will add to an existing project at Tamanthi Dam, an investment that is expected to displace 30,000 people and flood 17,000 acres of fertile farmland, according to the Burma Rivers Network, a coalition of dam-affected communities. Eighty percent of the power generated by the dam will go to India.²³

We believe these stories present a salient manifestation of our model's predictions. In each case, democratic expression has led to more regulation, and the firms who have a high relative exposure to this obstacle relocated to a more autocratic host country.

A.2 Alternative political survival function

Imagine that the leader's political survival depends on the tax rate as well as the regulatory standards. While it is not clear empirically if this is the case, we assume that $\rho_\tau(\vartheta, \tau) < 0$. The Lagrangian for the problem is:

$$L = \tau y + \rho(\vartheta, \tau)[\tau(y + \Pi)] + \lambda_1[\tau y - G] + \lambda_2[F - \tau - \vartheta]. \quad (24)$$

The first order condition for τ ($\frac{\partial L}{\partial \tau} = 0$) is given by the following:

$$y + \rho_\tau(\vartheta, \tau)[\tau(y + \Pi)] + \rho(\vartheta, \tau)[y + \Pi] + \lambda_1 y = \lambda_2 \quad (25)$$

The first order conditions for ϑ ($\frac{\partial L}{\partial \vartheta} = 0$) is given by the following:

$$\rho_\vartheta(\vartheta, \tau)[\tau(y + \Pi)] = \lambda_2 \quad (26)$$

The FDI constraint will bind, so that $\lambda_2 > 0$, but the budget constraint will not, so that $\lambda_1 = 0$. Therefore

$$\rho_\vartheta(\vartheta, \tau)[(F - \vartheta)(y + \Pi)] = y + \rho_\tau(\vartheta, \tau)[(F - \vartheta)(y + \Pi)] + \rho(\vartheta, \tau)[y + \Pi] \quad (27)$$

Differentiation of (27) w.r.t. ϑ gives

$$\rho_{\vartheta\vartheta}[(F - \vartheta)(y + \Pi)] - \rho_\vartheta[y + \Pi] = \rho_{\tau\vartheta}[(F - \vartheta)(y + \Pi)] - \rho_\tau[y + \Pi] + \rho_\vartheta[y + \Pi], \quad (28)$$

²² *Wall Street Journal*, "NHPC May Build Power Projects in Myanmar," April 21st, 2010. Available at Wall Street Journal online. For confirmation of the plan, see the NHPC Ltd. press release published on their website.

²³ *Democratic Voice of Burma*, "Not in My Backyard," October 21st, 2010. Available at Democratic Voice of Burma's website.

where the arguments of ρ have been suppressed for legibility. Therefore, the RHS of (27) is unambiguously increasing when $\rho_{\tau\vartheta} > 0$ and the LHS is decreasing so an internal solution for ϑ exists. Solving (27) for ϑ^* yields

$$\vartheta^* = F - \frac{1}{\rho_{\vartheta}(\vartheta, \tau) - \rho_{\tau}(\vartheta, \tau)} \left[\rho(\vartheta, \tau) + \frac{y}{y + \Pi} \right]. \quad (29)$$

Inspection of (29) proves the analogue of proposition 3.

A.3 Tables

Table 1: Sample Size by Country Year, Summary Statistics

iso3						Mean value per country			
	2002	2005	2007	2008	2009	VA	ln(GDP)	ROS	Employment
ALB	170	204	304		54	-.0067	22.83	-1.03	61.8
ARM	171	351			374	-.6616	22.41	-1.22	67.03
AZE	170	350			380	-1.0592	23.662	-1.30	105.81
BGR	250	300	1,015		288	.5997	24.29	-0.685	93.82
BIH	182	200			361	-.0512	23.20	-0.91	94.81
BLR	250	325		273		-1.554	24.14	-1.17	110.3
CZE	268	343			250	.9999	25.51	-0.83	132.2
EST	170	219			273	1.0622	23.32	0.022	129.9
GEO	174	200		373		-.2959	22.77	-1.21	91.28
HRV	187	236	633		104	.5096	24.61	-0.880	118.88
HUN	250	610			291	1.122	25.35	-1.21	133.66
KAZ	250	585			544	-1.021	24.89	-1.20	109.17
KGZ	173	202			235	-.9177	21.74	-1.33	84.35
LTU	200	205			276	.9037	23.94	-1.09	99.71
LVA	176	205			271	.8015	23.55	-1.17	127.0
MDA	174	350			363	-.4772	21.94	-1.14	91.41
MKD	170	200			366	-.0126	22.61	-0.71	98.37
MNE	20	18			116		21.92	-0.58	57.55
POL	500	975			455	1.0178	26.41	-0.89	77.51
ROU	255	600			541	.422	25.36	-0.85	128.5
RUS	506	601			1,004	-.6282	27.39	-1.24	211.2
SRB	230	282			388		24.04	-0.77	150.6
SVK	170	220			275	.9225	24.84	-0.55	134.40
SVN	188	223			276	1.0457	24.30	-0.38	108.55
TJK	176	200		360		-1.246	21.79	-1.62	83.19
TUR		1,323		1,152		-.1123	27.09	-1.11	110.60
UKR	463	594		851		-.3713	25.33	-1.37	128.63
UZB	260	300		366		-1.796	23.53	-0.95	119.02

Relative Obstacle Scale (*ROS*) is increasing in the obstacle of regulation relative to taxation.

Table 2: Sample Size by Country Year, Summary Statistics

<i>ROS</i>	No.	%	Employment	ln(Sales)	Age	VA
-4	37	1.5	145	14.48	10.86	-0.23
-3	219	9.1	147	13.81	13.85	-0.09
-2	480	20	281	13.95	14.09	-0.01
-1	628	26.2	193	14.31	15.45	0.1
0	738	30.7	233	14.55	14.67	0.22
1	199	8.3	368	15.08	13.83	0.37
2	80	3.3	247	15.34	12.81	0.43
3	16	0.7	162	14.79	13.81	0.45
4	4	0.2	216	15.96	31.25	0.7
Total	2401	100				

Table 3: Baseline empirical results, OLS. Dependent variable: *ROS*

	(1)	(2)	(3)	(4)
Voice and Accountability	0.223** (2.27)	0.192* (1.87)	0.252** (2.44)	0.252** (2.50)
ln(Employment)		0.0933*** (3.22)	0.104*** (3.47)	0.103*** (3.47)
Age		-0.00353*** (-3.00)	-0.00350** (-2.76)	-0.00363*** (-2.93)
ln(Sales)		0.0224 (1.00)	0.0152 (0.59)	0.0140 (0.54)
ln(GDP)			-0.0921** (-2.38)	-0.0924** (-2.33)
<i>Sectoral Dummies (Base: Services Sector)</i>				
Manufacturing				-0.192** (-2.22)
Construction				-0.330*** (-3.21)
Retail and Sales				-0.263*** (-3.19)
Constant	-0.332 (-1.02)	-1.125*** (-2.86)	1.108 (1.20)	1.232 (1.24)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	2401	2401	2401	2401
R ²	0.0539	0.0702	0.0788	0.0735

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 4: Robustness Checks 1, OLS. Dependent variable: ROS^R (Ratio)

	(1)	(2)	(3)	(4)
Voice and Accountability	0.104** (2.17)	0.0934* (1.90)	0.119** (2.21)	0.117** (2.23)
ln(Employment)		0.0381*** (2.82)	0.0425*** (3.04)	0.0420*** (2.91)
Age		-0.00178*** (-4.29)	-0.00177*** (-3.82)	-0.00175*** (-3.78)
ln(Sales)		0.00817 (0.88)	0.00512 (0.51)	0.00503 (0.48)
ln(GDP)			-0.0392* (-1.80)	-0.0393* (-1.75)
<i>Sectoral Dummies (Base: Services Sector)</i>				
Manufacturing				-0.0850** (-2.14)
Construction				-0.167*** (-3.16)
Retail and Sales				-0.111*** (-3.21)
Constant	0.915*** (6.95)	0.613*** (4.04)	1.564*** (3.24)	1.726*** (3.18)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	2401	2401	2401	2401
R ²	0.0452	0.0582	0.0658	0.0617

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 5: Robustness Checks 2, OLS. Dependent variable: ROS (Corruption included in τ)

	(1)	(2)	(3)	(4)
Voice and Accountability	0.351*** (3.32)	0.333*** (2.97)	0.354*** (3.07)	0.349*** (3.06)
ln(Employment)		0.116*** (3.87)	0.120*** (3.94)	0.120*** (3.84)
Age		-0.00157* (-1.79)	-0.00156* (-1.72)	-0.00152* (-1.79)
ln(Sales)		0.00365 (0.16)	0.00109 (0.04)	0.000981 (0.04)
ln(GDP)			-0.0330 (-0.90)	-0.0360 (-0.94)
<i>Sectoral Dummies (Base: Services Sector)</i>				
Manufacturing				-0.0308 (-0.51)
Construction				-0.265*** (-3.58)
Retail and Sales				-0.126* (-1.88)
Constant	-0.712*** (-3.76)	-1.284*** (-5.54)	-0.471 (-0.53)	-0.178 (-0.19)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	2280	2280	2280	2280
R ²	0.0962	0.117	0.118	0.108
<i>t</i> statistics in parentheses				
* $p < .1$, ** $p < .05$, *** $p < .01$				

Table 6: Robustness Checks 3, Probit. Dependent variable: Dummy for above or below median *ROS*

	(1)	(2)	(3)	(4)
Voice and Accountability	0.209*** (2.85)	0.203*** (2.63)	0.261*** (3.44)	0.253*** (3.40)
ln(Employment)		0.0992*** (4.50)	0.109*** (5.25)	0.108*** (5.05)
ln(Sales)		0.00373 (0.22)	-0.00275 (-0.15)	-0.00154 (-0.08)
Age		-0.00465*** (-3.70)	-0.00466*** (-3.57)	-0.00460*** (-3.65)
ln(GDP)			-0.0863*** (-2.84)	-0.0882*** (-2.89)
<i>Sectoral Dummies (Base: Manufacturing Sector)</i>				
Construction				-0.138 (-1.05)
Sales				-0.154** (-2.31)
Services				0.107 (1.37)
Constant	-0.213 (-1.25)	-0.604** (-2.40)	1.582** (2.00)	1.616** (1.97)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	2401	2401	2401	2401
pseudo-R ²	0.0290	0.0394	0.0451	0.0402

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 7: Robustness Checks 4, Ordered Probit.

	(1)	(2)	(3)	(4)
Voice and Accountability	0.177** (2.31)	0.155* (1.89)	0.203** (2.48)	0.202** (2.54)
ln(Employment)		0.0755*** (3.26)	0.0841*** (3.53)	0.0829*** (3.50)
Age		-0.00285*** (-3.00)	-0.00284*** (-2.77)	-0.00293*** (-2.93)
ln(Sales)		0.0179 (1.00)	0.0122 (0.59)	0.0115 (0.55)
ln(GDP)			-0.0741** (-2.44)	-0.0740** (-2.38)
<i>Sectoral Dummies (Base: Services)</i>				
Manufacturing				-0.150** (-2.17)
Construction				-0.256*** (-3.13)
Retail and Sales				-0.206*** (-3.10)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	2401	2401	2401	2401

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 8: Robustness Checks 5, Probit. $Y = 0$ if $ROS < -1$, $Y = 1$ if $ROS > 1$

	(1)	(2)	(3)	(4)
Voice and Accountability	0.250 (1.55)	0.201 (1.25)	0.279* (1.66)	0.277* (1.67)
ln(Employment)		0.0745* (1.73)	0.0793* (1.70)	0.0757 (1.49)
Age		-0.00268 (-0.87)	-0.00190 (-0.61)	-0.00139 (-0.46)
ln(Sales)		0.0572* (1.89)	0.0551 (1.57)	0.0515 (1.43)
ln(GDP)			-0.152** (-2.04)	-0.135* (-1.81)
<i>Sectoral Dummies (Base: Manufacturing Sector)</i>				
Sales				0.0495 (0.37)
Services				0.325*** (2.62)
Constant	-0.902*** (-3.92)	-2.009*** (-4.61)	1.779 (0.97)	1.285 (0.69)
Year Dummies	Yes	Yes	Yes	Yes
NACE2 Dummies	Yes	Yes	Yes	No
N	830	830	830	834
pseudo-R ²	0.0796	0.0991	0.116	0.0944

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 9: Robustness Checks 6 - *PolityIV* as an alternative measure of democracy.

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>ROS</i>	<i>ROS</i>	<i>ROS</i> Ratio	<i>ROS</i> (Corruption)	Probit	Probit (T8)
<i>PolityIV</i>	0.0158 (1.35)	0.0211** (2.17)	0.0110** (2.15)	0.0203 (1.58)	0.0214** (2.54)	0.0150 (0.89)
ln(Employment)	0.101** (2.70)	0.117*** (5.20)	0.0479*** (4.88)	0.122*** (6.02)	0.0914*** (5.23)	0.123*** (3.14)
Age	-0.00206 (-1.64)	-0.00118 (-0.87)	-0.000781 (-1.53)	0.000299 (0.22)	-0.00187 (-1.37)	-0.00263 (-0.80)
ln(Sales)	0.0274 (0.88)					
ln(GDP)	-0.0875 (-1.67)	-0.0632 (-1.36)	-0.0276 (-1.18)	0.00184 (0.03)	-0.0470 (-1.21)	-0.120* (-1.68)
Constant	-0.415 (-0.31)	0.520 (0.46)	1.283** (2.43)	-1.784 (-1.25)	0.476 (0.48)	1.541 (0.88)
Year Dummies	Yes	Yes	Yes	Yes		
NACE2 Dummies	Yes	Yes	Yes	No		
N	1947	2652	2652	2517	2652	975
R ²	0.0827	0.0667	0.0542	0.0778		
pseudo-R ²					0.0312	0.0887

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$