

# Protection not for Sale, but for Tax Compliance

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## Abstract

How do rulers raise taxes when the fiscal capacity of the state is weak? This paper argues that, in conditions of low fiscal capacity, rulers might secure high tax yields by granting protection from competition to key domestic producers. This paper offers qualitative evidence of this exchange in the developing world today, and test the theory against a sample of 32 developing states in Latin American, Eastern Europe and the Former Soviet Union circa 2005. Results indicate that, conditional on poor fiscal capacity, declining industries pay higher taxes (or evade less) if they are granted tariff protection from international competitors. The results add to recent scholarship studying the conditions under which entry barriers, otherwise inefficient institutions, result in second-best solutions for states whose capabilities are still consolidating. Results suggest too that trade protection does not always result from rent-seeking by government, thus offering a novel, alternative hypothesis to canonical models in International Political Economy.

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## Introduction

How do rulers raise taxes when the fiscal capacity of the state is weak? Rulers can *invest* in expanding fiscal capacity, which involves improving the capacity of the state to assess wealth and monitor compliance as well as enhancing the material capabilities of the tax administration. This strategy, however, is risky and slow-moving. It is politically risky because bureaucratic investment reduces current spending on roads, hospitals or schools, which is often crucial for political survival. It is slow-moving because investment in fiscal capacity frequently stumbles against the opposition of the very same group that will pay higher taxes if fiscal capacity is expanded: the rich (Levi, 1988).

As an alternative to fiscal capacity investment, rulers may devise an incentive system of sticks-and-carrots to induce tax abidance by wealthier constituents, the so-called *quasi-voluntary compliance* (ibid.). Drawing from European trade history, Queralt (2015) formalizes one such institutional solution: the exchange of protection from competition for higher tax compliance by domestic producers. This strategy achieves two goals: First, protectionist policy artificially reduces the number of producers. The lower number of market operators mechanically facilitates tax collection, as oligopolies are easier to monitor than competitive markets (Musgrave, 1969). Second, it allows the ruler to punish non-compliers by withdrawing protection, thus alleviating non-contractibility issues of taxation. The heyday of this exchange occurred during in the mercantilist era in Western Europe (Ekelund and Tollison, 1981; Heckscher, 1931), when trade monopolies were sold to selected firms as a means of guaranteeing a stable stream of revenue. Far from disappearing, the creation of artificial monopolies for fiscal motives persisted across Western Europe well into the nineteenth century (Bastable, 1891).

This paper shows that this mercantilist logic, to which I generically refer to as *protection for tax compliance*, is still in place in the developing world, where the capacity to raise taxes by coercive means remains limited. Various country-specific accounts support this claim. For instance, China's urban economic expansion throughout the 1980s and 1990s relied on protection for tax compliance. Local authorities raised internal entry barriers to favor local industry, while the latter abided by high tax rates that financed the local economy (Young, 2000). Well until the mid-1990s, large industrial conglomerates in Korea paid *quasi-taxes* —formally, “voluntary” massive donations to

quasi-public welfare organizations—in order to secure cheap loans from government-owned banks (Chang and Chang, 1994). Importantly, refusal to abide by quasi-taxes led to a firm’s immediate termination (Kang, 2002, p.103). More recently, oligopolistic industries in the former Soviet Union have been created —sometimes even from scratch—under the expectation of abidance by high tax rates (Easter, 2011; Gehlbach, 2008a). In Latin America, uncompetitive firms in Bolivia and Chile are more tax abiding whenever they are granted tariff and non-tariff barriers, respectively (Queralt, 2012). Similarly, politically influential firms in the developing world are exposed to fewer regulatory and financial constraints while are also subject to higher fiscal burden (Desai and Olofsgård, 2011; Menaldo, 2016). All these accounts follow a similar logic: the political authority selects specific producers and protects them from competition (by raising entry barriers of all kind) in return for higher tax compliance.

Building on this work, this paper identifies the conditions under which protection for tax compliance occurs and tests for them *explicitly*. The theoretical corpus is borrowed from Queralt (2015), who advances two necessary conditions for protection for tax compliance to hold. First, the stock of fiscal capacity (i.e. the capacity to tax private income) must be low. Otherwise the inefficiencies of protectionism do not compensate the surge in tax revenue. Second, domestic industry must be non-competitive. When this is the case, the risk of entry of a superior competitor —namely, being driven out of the market—solves contractibility problems of taxation in scenarios of low fiscal capacity. Together, the theoretical model implies that, when fiscal capacity is low, declining industries pay higher taxes (or evade less) if they are granted protection from superior market competitors.

To test this proposition, this paper draws on data for 32 developing economies across Latin America, Eastern Europe and the Former Soviet Union in 2005/6. The theoretical prediction is evaluated with industry-level data of tax compliance and competitiveness, tariff data as proxy of protectionism, and a novel measure of fiscal capacity: the size of the tax administration relative to total population. Results show that tariff protection makes declining industries more tax abiding, and that this effect accelerates as fiscal capacity becomes weaker. Importantly, results are robust to lower levels of aggregation (i.e. firm-level tax compliance), non-response and firm-idiosyncratic bias (Desai and Olofsgård, 2011), quasi-exogenous measures of protection, and various proxies of fiscal capacity.

The analysis revisits a standard result in International Political Economy, namely, protection

is for sale (Grossman and Helpman, 1994), by showing that trade protection does not necessarily result from rent-seeking by government. Similarly, the findings resonate with the notion of *second-best institutions* under conditions of low state capacity (Rodrik, 2008). Both contributions are re-examined in the Conclusion section.

The remainder of this paper is organized as follows. First, I articulate the logic of protection for tax compliance. Second, I present the research design and data sources. Third, I discuss the empirical results. To conclude, I address the theoretical and policy contributions as well as the welfare implications of protection for tax compliance.

## Protection for Tax Compliance

Queralt (2015) introduces a model in which a mercantilist economy characterized by low fiscal capacity and high levels of trade protection evolves endogenously into a free-trade, high-fiscal capacity economy. This model is divided in two parts: First, a ruler negotiates with the domestic producer over taxation and trade policy, conditioning entry barriers to new competitors on higher tax compliance by incumbent firms. Second, the ruler decides whether to invest in fiscal capacity while protected firms decides whether to adopt higher technologies of production in anticipation of trade liberalization. The protection for tax compliance bargain is a natural spin-off of the first part of Queralt's (2015) model. In this section, I present in a non-technical way the main intuitions of that exchange, referring the interested reader to the original article and the Appendix.

Suppose that there are four actors in the economy: the political authority (or ruler), an incumbent monopolist producer, a potential entrant, and labor.<sup>1</sup> Producers are characterized by the technology that they operate, which might be high or low. Producers seek to maximize profit, which strictly decreases in the tax rate set by the ruler. Labor derives (indirect) utility from private consumption and public good spending: Consumption is financed by wages. These equal the marginal productivity of labor, which is a positive function of the technology vintage operated by the producer. Public spending is financed with taxes paid by the incumbent producer.

The ruler sets the trade regime (or more generally, *entry regulation*), as well as the tax rate levied only on the producer. Tax yields finance public good provision, which labor's value; yet,

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<sup>1</sup>Refer to Appendix E for a relaxation of the monopoly assumption.

an excessively high tax might be detrimental, as taxes increase production costs and final prices, decrease demand and, ultimately, depress market-clearing wages and private consumption. Initially, the tax rate  $t$  is upper bounded by the stock of fiscal capacity,  $t \leq \tau$ ,  $\tau < 1$ . The stock of fiscal capacity determines the maximum share of private income that can be taxed by coercive means only. This share is a reflection of the strength of the administrative apparatus of the state: that is, a weak bureaucratic apparatus maps into weak fiscal capacity.

Along taxes, the ruler sets entry regulation, which consists of allowing or banning entry of a new firm. Entry barriers may take any form of competition or trade policy as long as they grant the incumbent producer monopoly access to the domestic market.<sup>2</sup>

Crucially, the ruler might condition entry barriers and tax rates. In particular, she might raise entry barriers provided that the incumbent firm abides by a tax rate above the stock of fiscal capacity,  $t_p > \tau$ , with subscript  $p$  denoting *protection*. Otherwise, the ruler may opt for *free entry*, in which case a new firm operating a high-technology enters with probability 1. In this case, the ruler sets  $t_e \leq \tau$ , that is, a tax rate constrained by the stock of fiscal capacity. Notice that the new entrant is already competitive, thus uninterested in being protected at a cost  $t_p > t_e$ .

For the sake of generality, the ruler is assumed to maximize a social welfare function, in which both labor's (consumers') and the domestic producer's interests are considered. Higher valuation (weight) of consumer's welfare may signal higher levels of democratization (but also populism), while higher valuations of the producer's welfare might be associated with oligarchic societies, where capital monopolizes political and economic power (Acemoglu, 2008). Initially, the ruler is assumed altruistic, and she does not keep any share of revenue for self-consumption. This assumption serves two purposes: First, it characterizes scenarios in which protection might be socially optimal. Second, it allows us to establish when and to what extent social welfare is affected by political giving.

The *protection for tax compliance* bargain is a one-period static game with an extensive structure: First, the ruler sets entry and tax policy. If barriers are adopted, the incumbent producer stays in and complies with  $t_p > \tau$ . If barriers are not raised, entry takes place, intermediate good

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<sup>2</sup>See Hoekman and Hostecki (2000) and Scherer (1994) for the functional equivalence of competition policy (e.g. licenses) and trade policy (e.g. import quotas).

producers compete, and the winner abides by  $t_e \leq \tau$ . Given entry and tax policy, tax revenue, wages and profit follow. The game is solved by backwards induction.

Queralt (2015) shows that protection for tax compliance is an equilibrium provided that: (1) the incumbent producer operates an outdated technology compared to the would-be entrant, and the economy is Schumpeterian: that is, the most productive firm drives every other competitor out of business;<sup>3</sup> and (2), initial fiscal capacity is low enough,  $\tau \leq \hat{\tau}$ . If both conditions are simultaneously met, the producer has a vested interest in being sheltered from competition, and the ruler maximizes social utility by blocking newer competitors in exchange for tax compliance with a tax rate above the stock of fiscal capacity,  $t_p^* > \tau$ .<sup>4</sup>

The logic of the equilibrium is as follows: First, the expected outcomes of *creative destruction* solves non-contractibility issues in taxation in low fiscal capacity settings. That is, the outdated incumbent producer's fear of extinction makes protection for tax compliance self-enforcing.<sup>5</sup> Second, when fiscal capacity is limited, the ruler faces a *trade-off*: if she protects, tax revenue increases (and public spending expands) but wages (thus private consumption) decrease, as labor productivity is stuck with the low technology operated by the incumbent producer. If the ruler opens the economy, wages increase thanks to the technology-boost of the new firm, but tax revenue remains upper bounded by the stock of fiscal capacity.<sup>6</sup> There exists a unique value in the stock of fiscal capacity,  $\hat{\tau}$ , at which the marginal gain of protection for tax compliance (*high revenue, low wages*) equals the marginal gain of free entry (*low revenue, high wages*). For lower values of fiscal capacity,  $\tau \leq \hat{\tau}$ , the marginal gain from a unit increase in tax revenue is greater than the marginal loss in

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<sup>3</sup>Technically, the protection for tax compliance equilibrium may only arise when the technology differential between the incumbent and would-be entrant is not *too large*. When the benefits of a new technology are huge, no barrier can prevent it from entering. Statistically, these circumstances are exceptional (Comin and Hobijn, 2009).

<sup>4</sup>The resulting tax rate,  $t_p^*$ , is set in equilibrium.

<sup>5</sup>Notice that protectionist policy such as licenses, quotas, or subsidies can easily be declined, while compliance can be assessed on a regular basis too. For instance, value added tax, the most popular tax in developing countries nowadays, is usually collected on a monthly basis. Such flexibility, combined with the incumbent's payoffs upon entry (i.e. eventual extinction) should prevent major deviations by the incumbent producer. That is precisely the beauty of *creative destruction* once applied to fiscal policy.

<sup>6</sup>At the risk of stating the obvious, protection for tax compliance unravels in presence of competitive firms, as these cannot be threatened with dropping protection that they do not need.

wages, and protection for tax compliance is preferred.<sup>7</sup> For higher values of fiscal capacity,  $\tau > \hat{\tau}$ , the relative magnitude of these marginal effects flip, and *free entry* is then preferred.

To sum up, the protection for tax compliance game states that a social welfare-maximizing ruler finds protection for tax compliance preferable to free entry when fiscal capacity endowment is *sufficiently low* despite obvious costs: namely, protection blocks the entry of superior technology and brings wages and consumption down. In exchange, tax yields derived from protection for tax compliance finance levels of public spending otherwise unfeasible. The result is grounded on the power of regulation once combined with the logic of Schumpeterian market competition. That is, protection for tax compliance offers a unique mechanism of institutional extortion of uncompetitive producers inasmuch as it alleviates the non-contractibility problems of taxation in scenarios of low fiscal capacity. When domestic producers are uncompetitive, revenue-thirsty rulers may exploit the domestic producer's vulnerability for tax purposes.

The basic set up presented in this section allows for multiple extensions. The Appendix materials evaluate several of them: imperfect monopoly enforcement, oligopoly competition, technological unemployment following entry, or inefficiencies in the provisions of public goods. Importantly, Appendix B also investigates whether political contributions unravel the protection for tax compliance equilibrium. One may imagine inefficient producers making contributions to the ruler as a means of preventing entry *while keeping taxes low*. This can be incorporated into the model by assuming, first, a ruler who is no longer purely altruistic but who also values private-consumption, thus making her responsive to bribing or political giving; and second, by allowing the incumbent producer to give the ruler a share of his profit in return for protection without higher taxation, while making a bigger profit this way than by sticking to *protection for tax compliance*. The result of this extension shows that protection for tax compliance resists political giving provided that the incumbent producer is obsolete relative the would-be entrant, fiscal capacity is low, *and* the ruler minimally advances the interest of labor. If any of these three conditions is not met, protection is then for sale, much in line with the canonical result in Grossman and Helpman (1994). By the same token, if the three conditions are simultaneously satisfied, not even contributions prevent taxes from being

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<sup>7</sup>Technically, for  $\tau = \hat{\tau}$  the ruler is indifferent between protection for tax compliance and free entry. Indifference is assumed to be solved in favor of protection for tax compliance. Refer to Proposition 1 in Appendix A for further details.

set above the stock of fiscal capacity in return for protection from competition.

## Empirical Design

The main empirical implication of the theoretical discussion reads as follows: when fiscal capacity is low, non-competitive producers pay higher taxes in return for protection from superior competitors. In this section, I evaluate this untested prediction with observational data for the contemporary developing world. Specifically, I investigate the incidence of protection for tax compliance in 2005/6 across 32 developing economies in Latin America (LA), Eastern Europe (EE) and the Former Soviet Union (FSU). These countries are particularly suitable for this test because they have weaker fiscal capacity than Western economies, and all but two (Belarus and Kazakhstan) have some form of democratic institutional setting, which should guarantee a minimum preference alignment between rulers and labor, a precondition for the ruler being interested in providing tax-financed public goods.

Hoekman and Hostecki (2000) extensively document the functional equivalence of competition policy (e.g. licenses, markups) and trade policy (e.g. tariff, non-tariff barriers) in restricting access to the domestic market. In this analysis, I investigate the effect of one of these instruments on tax compliance: namely, import tariff protection, indexed at the two-digit *industry*-level, as defined by the International Standard Industry Classification (ISIC), Rev.3.<sup>8</sup>

The analysis assumes that industry-level tariff protection is negotiated at the industry level, and that industries have mechanisms (e.g. business' organizations or peer-monitoring) to enforce tax compliance by their members.<sup>9</sup> Accordingly, I expect governments to grant tariff protection based

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<sup>8</sup>Only tariff protection data is available on a systematic, cross-national basis. The only licensing data available that I am aware of, as disseminated by the WBES, indicates which firm is granted a license, but not which firm applied for one and did not get it (i.e. the counterfactual). Importantly, based on the functional equivalence of competition and trade policy (Hoekman and Hostecki, 2000; Scherer, 1994), one should not expect different results from licensure data.

<sup>9</sup>Business' organizations in LA, EE and the FSU have strengthened since the early 1990s. Schneider (2004, ch.8) shows various examples of the capacity of encompassing and sectoral business' organizations in Chile, Mexico and Brazil to internalize the costs of stabilization programs, tax hikes and trade agreements. Flores-Macías (2014) documents the capacity of Colombian business' associations to internalize tax hikes. For Russia, Pyle (2011) shows the



on industry-level tax compliance, and not on individual firm behavior. Based on this assumption, industries, not firms, are the appropriate unit of analysis for this test. Correspondingly, I work with two-digit industry averages of tax compliance, obsolescence, and remaining controls. In total, the sample includes 26 two-digit mining and manufacturing industries, which are nested within 32 countries, making a total of 378 industry-country observations.

It might be argued, on the contrary, that industry-level tariffs are negotiated at the firm level, or that within-industry tax compliance variation should also be modeled. In order to address these concerns, a battery of three-level hierarchical tests can be found in Appendix L. In those models, firms are nested within industries, industries within countries, and the dependent variable is the tax compliance of firm  $i$  in industry  $j$  in country  $k$  ( $N=7,334$ ). The results of the firm-level tax compliance analysis replicate those in the main text, being consistent with the assumption that industries organize internally to monitor tax compliance by their members. Those models also fit additional country-level confounders as well as joint sector-country fixed effects to address unobserved heterogeneity issues. Firm-level tax compliance models are also appropriate to examine non-response issues (7.6% of the sample) and control for potential firm-specific biases (Desai and Olofsgård, 2011; Hallward-Driemeier and Aterido, 2009; Jensen, Li and Rahman, 2010). Altogether, the firm-level analyses in Appendix L suggest that industry-level results reported in the main text are not driven by ecological fallacies, non-response bias, firm-level systematic error, or unobserved heterogeneity.

To estimate the theoretical prediction at the two-digit industry level, I examine whether “obsolete” *industries* in “low fiscal capacity” economies are more “tax compliant” (i.e. evade less) once they are granted “protection”. That is, three conditions must be simultaneously met for tax compliance to increase: fiscal capacity must be low, incumbent industries uncompetitive, and protection positive. In order to test this prediction a three-way interaction is in order. Specifically, for

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strong incentives that firms have to join business associations: namely, together they better secure property rights (vis-à-vis predatory government and bureaucracy) than on their own. Importantly, in the absence of non-market institutions of information transfer, quality control, and standard setting and enforcement, Duvanova (2013) argues that business’ associations in the FSUR evolve as “regulatory substitutes” of the state, thus adopting mechanisms of self-regulation. This is the kind of coordination capacity assumed in the test.

two-digit industry  $j$  in country  $k$ ,

$$\begin{aligned}
tax\_compliance_{jk} &= \beta_0 + \beta_1 Low\_Fiscal\_Capacity_k + \beta_2 Protection_{jk} + \beta_3 Obsolete_{jk} \\
&+ \beta_4 (Obsolete_{jk} \times Protection_{jk}) + \beta_5 (Low\_Fiscal\_Capacity_k \times Protection_{jk}) \\
&+ \beta_6 (Low\_Fiscal\_Capacity_k \times Obsolete_{jk}) \\
&+ \beta_7 (Low\_Fiscal\_Capacity_k \times Obsolete_{jk} \times Protection_{jk}) \\
&+ \mathbf{Z}_{jk}\beta_8 + \mathbf{X}_k\beta_9 + \alpha_\delta + \alpha_\kappa + \epsilon_{jk}
\end{aligned} \tag{1}$$

where  $Z_{jk}$  denote industry-level controls,  $X_k$  country-level controls,  $\alpha_\delta$  a region fixed effect,  $\alpha_\kappa$  a battery of sector fixed effects, and  $\epsilon_{jk}$  the disturbance term. The main coefficient of interest is  $\beta_7$ . This coefficient should be positive if, conditional on low fiscal capacity, obsolete industries are more tax abiding once protected from international competition.<sup>10</sup> Next, I briefly describe how the four key magnitudes in the research hypothesis are measured. Further data details and summary statistics can be found in Appendices G and H.

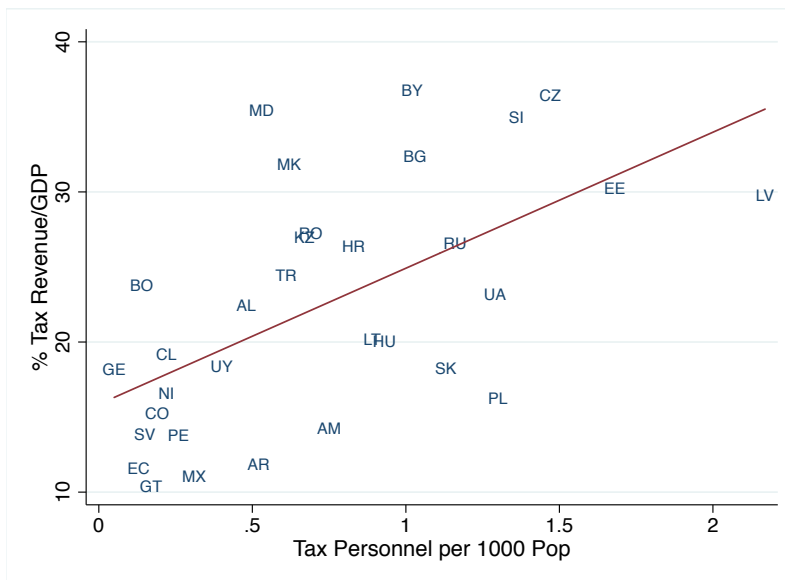
**Fiscal capacity.** This variable varies by country, not industry. It is approximated by the total number of staff of the tax administration per 1,000 residents. This information is made available by the *USAID Fiscal Reform and Economic Governance Project*. The values in this analysis are recorded circa 2007. As Figure 1 indicates, the number of staff working for the fiscal administration relative to the total population is strongly correlated to the ratio of national government revenue to GDP, the standard proxy for fiscal capacity (Besley and Persson, 2011; Hendrix, 2010). However, as opposed to the latter variable, tax personnel is a lumpy magnitude that the ruler cannot easily modify in the short run—public servants usually have enhanced employment protection to secure their independence vis-à-vis elected officials—and it does not mechanically change with the economic cycle. For this very reason, it genuinely reflects the structural capacity of the state to tax private income.

One might suspect that the tax administration might be used as a form of patronage (e.g.

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<sup>10</sup> $\beta_6$  accounts for the taxes paid by an obsolete industry in a low fiscal capacity economy when it is *not* protected. According to the theoretical model, I expect this coefficient not to significantly differ from the sample average tax compliance.  $\beta_4$  represents an off-the-equilibrium path outcome: obsolete industries in high fiscal capacity economies being protected. The same applies to  $\beta_5$ : competitive industries being protected when fiscal capacity is low. The theoretical model offers no *a priori* expectation for these two coefficients.

Figure 1: **Share of Tax Revenue over GDP vs. Personnel Working for Tax Administration per 1,000 national Population.**  $R^2 = .58$ . Data source: US AID Fiscal Reform and Economic Governance Project.



public employment). To address this possibility, Appendix I shows tax staff correlates with income tax ratios, the WGI government effectiveness index, the size of the shadow economy (negatively), and the country-average tax compliance in the *World Business Environment Surveys* (WBES). These results are hardly reconcilable with the tax administration being used for patronage, while suggesting the tax staff is a good proxy of the extractive capacity of the state.

Notice that expression (1) refers to *low* fiscal capacity instead of fiscal capacity. I define the former as follows,

$$\text{low fiscal capacity} \equiv -1 \times \text{fiscal capacity}$$

This switch aligns the three variables in the three-way interaction, simplifying the interpretation of the statistical test. Lastly, it has been argued that the size of the tax administration follows economies of scale (Gehlbach, 2008b). To adjust for it, all models include the size of total population, measured as of 2006 (World Bank's *World Development Indicators*).

**Protection.** Entry barriers are proxied by import tariffs, the paradigm of protectionism.<sup>11</sup> Three coding decisions are required to build a meaningful measure of protection: First, I work only

<sup>11</sup>For alternative measures of protection, refer to ft. 8.

with ad-valorem equivalent (AVE) tariffs, which guarantee comparability across different industries. Second, attention is restricted to *effective* tariff measures only (*statuary* lines are disregarded). This implies that when a similar product has different tariffs (they might vary by trade partner), only the lowest value is considered. Third, within each two-digit industry there are multiple tariff lines. To cope with within-industry variation, each tariff line is weighed by its trade volume. Altogether, the tariff measure used in the analysis is effective, representative and ad-valorem. All tariff data is drawn from the *UNCATD's TRAINS data system*.

The rest of covariates in expression (1) are two-digit industry aggregates (either means, proportions or totals). These aggregates are drawn from the 2005/2006 World Bank's WBES, which offer a representative sample of extractive and manufacturing firms in each of the 32 countries. For each firm, the WBES provides information on tax compliance, obsolescence and other covariates, including the two-digit industry the firm classifies as. Next, I describe how these aggregates are created.

**Tax Compliance.** The WBES inquires firms about their tax compliance, not tax payments. This is methodologically convenient because responses automatically factor out idiosyncratic tax treatments across industries. Information on tax compliance is sensitive for obvious reasons. The WBES questionnaire retrieves this information in the following terms:

*Recognizing the difficulties that many firms face in fully complying with taxes and regulations, what percentage of total annual sales would you estimate the typical firm in your area of business reports for tax purposes?*

This wording is purposively chosen to elicit more candid responses than if respondents were asked directly (Knack, 2007). Crucially, the reliability of these responses is confirmed by Gehlbach (2006) and Desai and Olofsgård (2011). These works show that the distribution of this variable satisfies the main predictions of taxation theory: that is, self-reported tax compliance is greater for larger firms, monopolies, state-owned and resource-extractive enterprises. Additionally, using firm-level data, Appendix L.1 and L.2 investigate issues of non-response and firm-specific bias, which could be related to repressive political conditions (Hollyer, Rosendorff and Vreeland, 2011; Jensen, Li

and Rahman, 2010), and idiosyncratic perceptions of contextual factors (Desai and Olofsgård, 2011; Hallward-Driemeier and Aterido, 2009), respectively. Those analyses suggest the dependent variable captures genuine trends in tax compliance while showing that results are not driven by non-response or firm-specific bias.

Political conditions have been said to shape firms' responses to sensitive topics too. Jensen, Li and Rahman (2010) show that firms managers' perceptions of corruption reflect levels of free speech protection, approximated in their work by the *Free Media Index* of the Freedom House. Since tax compliance is a sensitive topic too, I expect it to be influenced by similar considerations. Accordingly, all models include a control of Free Media, which is reversed so that higher values indicate freer speech.

For the sake of representativeness, industry average tax compliance is weighed by the size of the firm. Under this premise, the responses of big firms weigh more than those of smaller competitors. Specifically, I use the share of firm's employees to total industry's labor as the weighting factor. Robustness tests below show that results hold (even strengthen) when the unweighted average is used.

**Obsolescence.** I seek to obtain a meaningful indicator of the technological distance between domestic and foreign industries. This measure would indicate how exposed domestic firms are to foreign competitors and how interested they might be in tariff protection. The WBES includes a variable indicating whether the firm has *recently* obtained a new internationally-recognized quality accreditation (ISO 9000, 9002 or 14,000, AGCCP, etc). Besides being a reasonable proxy for the technological distance with foreign competitors, this item establishes an objective, international standard of quality common to all countries. This variable correlates positively with other practices that are generally associated with competitive firms: recent adoption of a new technology (.17 Pearson) or engagement in costly R&D activity (.23 Pearson). Yet, these other proxies of competitiveness lack the crucial reference to technological distance with respect to foreign competitors required to test the theory at play.<sup>12</sup>

For each two-level industry, *Obsolete* measures the *proportion* of firms holding an international quality-accreditation. An industry is considered obsolete (or declining) when this proportion ap-

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<sup>12</sup>Price data, which could also proxy firm competitiveness, is not available in the WBES.

proaches 0, and competitive when it approaches 1. For clarification purposes, all industries in the sample qualify for such international accreditations.

**Controls.** Besides the four key variables in Expression 1, I add five potential confounders as identified in the literature: First, export oriented industries are said to be technologically advanced (Melitz, 2003), but exports are also easily taxed (Musgrave, 1969). Accordingly, I control for the export intensity of each two-digit industry. Second, monopolies are easy to tax (Gehlbach, 2008*a*), but they also have higher capacity to lobby for low taxes *and* high protection (Richter, Samphantharak and Timmons (2009), and Grossman and Helpman (1994), respectively). Accordingly, I control for the number of competitors in each each two-digit industry. Interestingly, Duvanova (2007) shows that, in an effort to solve collective action problems, business' associations are more likely to appear in sectors without oligarchic interests, while big firms negotiate on a bilateral basis with government. One way or another, business finds a way to elevate their demands. Third, Desai and Olofsgård (2011), Easter (2011) and Gehlbach (2006) find that old-regime firms in the FSU are heavily taxed but have strong connections too, which might be seized to lobby for protection. Thus, I control for the *average firm age* and *public ownership share* of each two-digit industry. I also include total industry employment, as it is a predictor of tax compliance (Gehlbach, 2008*a*), as well as protection (Parente and Prescott, 2000).<sup>13</sup>

Finally, to capture any remaining cross-region and cross-industry unobserved heterogeneity, the models include region- and sector-fixed effects. In order to create the latter variable, I collapse the 26 two-digit ISIC industries into 8 categories, or *sectors*.<sup>14</sup> The eight-category variable seeks to capture unobserved heterogeneity across industries which could bias the estimates of interest while absorbing fewer degrees of freedom. To fully address omitted variable bias, the firm-level analysis in Appendix L.2 and L.3 fits two-digit industry- and sector-country fixed effects, and results hold.

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<sup>13</sup>Industry-level capital is a potential confounder but it is not included in the analysis because of its high degree of missingness. To maximize the N, I stick to industry-level employment, as both variables are strongly correlated.

<sup>14</sup>These are: (i) Mining and quarrying; (ii) food processing, beverages and tobacco; (iii) textiles; (iv) wood processing; (v) pulp and printing; (vi) chemicals, petroleum, rubber and plastics; (vii) non-metal minerals and basic metals; and (viii) metal products and machinery equipment.

## Empirical Analysis

Table 1 shows the estimates of the three-way interaction model as defined in Expression 1. Recall, the unit of observation is the two-digit industry, and the dependent variable is the two-digit industry weighted average tax compliance. All models in Table 1 are OLS, except column 6.

Column 1 reports the result for a specification with no fixed effect other than *region*.  $\hat{\beta}_7$ , the main coefficient of interest, moves in the expected direction. That is, conditional on low fiscal capacity, obsolete industries tend to be more tax compliant if protected. In order to account for unobserved heterogeneity, column 2 adds an indicator variable for all two-digit industries within the *mining and quarrying sector*. Resource-extractive industries tend to be oligopolistic and capital-intensive, characteristics usually associated with high lobbying capacity (Gupta and Newberry, 1997). Nevertheless, the sign and magnitude of the three-way interaction  $\hat{\beta}_7$  remains unchanged when I include this additional fixed effect.

Column 3 adds a full battery of sector fixed effects (*Mining and Quarrying* being one of the eight categories). The magnitude of  $\hat{\beta}_7$  is only slightly smaller than those reported in columns 1 and 2. In column 4 I check for influential outliers. The sample size is relatively small and the three-way interaction might be driven by some abnormal value. Based on a Cook's distance test, I drop two potential outliers.<sup>15</sup> In the absence of potential outliers, the point estimate of the three-way interaction grows in the expected direction and gains precision.

Figure 2 plots the marginal effect of obsolescence on tax compliance as derived from column 4. To examine the effect of obsolescence on tax compliance, I fix fiscal capacity at two representative values (lower and higher quartile of its distribution on the left panel; 1st and 9th decile on the right panel), and allow tariff protection to vary along its observational range.<sup>16</sup>

Both figures show the same patterns, these being slightly exacerbated when I compare the 1st and 9th fiscal capacity deciles. When fiscal capacity is high (pale grey), tax compliance does not

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<sup>15</sup>The outliers are the Ukrainian basic metals industry and the Russian electrical machinery industry. These industries combine a relatively low level of tax compliance with a relatively high level of tariff protection. I believe that it is this combination what makes them influential, not any extreme value in any of the variables. The Cook's distances are plotted in Appendix H.

<sup>16</sup>Importantly, that both curves overlap is not a problem. They should not be compared one with another, but with respect to the 0-line.

Table 1: Cross-National Test of Protection for Tax Compliance. Dependent Variable: Average Tax Compliance at Two-digit Industry Level

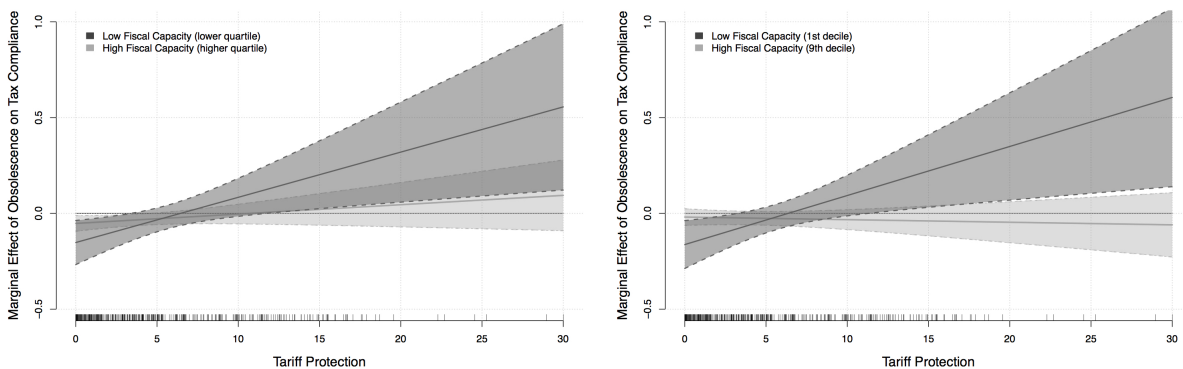
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	HLM
$\hat{\beta}_1$ : Low Fiscal Capacity	0.090 (0.068)	0.092 (0.070)	0.062 (0.069)	0.046 (0.070)	-0.172* (0.090)	0.119 (0.084)
$\hat{\beta}_2$ : Tariff	-0.034** (0.013)	-0.034** (0.013)	-0.028** (0.013)	-0.029** (0.013)	-0.032*** (0.010)	-0.047*** (0.015)
$\hat{\beta}_3$ : Obsolete	-0.233*** (0.078)	-0.234*** (0.079)	-0.179** (0.087)	-0.181** (0.086)	-0.182** (0.087)	-0.227** (0.092)
$\hat{\beta}_4$ : Obsolete×Tariff	0.033** (0.013)	0.033** (0.013)	0.028** (0.012)	0.029** (0.013)	0.029*** (0.010)	0.040*** (0.015)
$\hat{\beta}_5$ : Low Fiscal Capacity×Tariff	-0.023** (0.010)	-0.023** (0.010)	-0.018* (0.010)	-0.023** (0.010)	-0.025*** (0.008)	-0.034** (0.014)
$\hat{\beta}_6$ : Low Fiscal Capacity × Obsolete	-0.155** (0.063)	-0.156** (0.063)	-0.126* (0.068)	-0.119* (0.069)	-0.144** (0.059)	-0.165* (0.081)
$\hat{\beta}_7$ : Low Fiscal Capacity×Obsolete×Tariff	0.020** (0.009)	0.020** (0.009)	0.016* (0.009)	0.022** (0.010)	0.020*** (0.007)	0.028* (0.014)
$\hat{Z}_1$ : ln(1+Export Share)	-0.004 (0.005)	-0.004 (0.005)	-0.002 (0.005)	-0.003 (0.005)	-0.000 (0.006)	-0.004 (0.005)
$\hat{Z}_2$ : Competitors	-0.022* (0.011)	-0.021* (0.011)	-0.021* (0.011)	-0.014 (0.009)	-0.022 (0.013)	-0.019* (0.011)
$\hat{Z}_3$ : ln(Age)	0.008 (0.012)	0.008 (0.012)	0.007 (0.013)	0.007 (0.012)	0.010 (0.015)	0.008 (0.013)
$\hat{Z}_4$ : ln(Labor)	0.014** (0.006)	0.014** (0.006)	0.015** (0.007)	0.015** (0.007)	0.011* (0.006)	0.011** (0.005)
$\hat{Z}_5$ : State-Owned Share	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
$\hat{Z}_6$ : ln(Population)	-0.015 (0.012)	-0.015 (0.012)	-0.015 (0.012)	-0.013 (0.012)	0.084*** (0.029)	-0.012 (0.011)
$\hat{Z}_7$ : Free Media	-0.038 (0.057)	-0.037 (0.058)	-0.035 (0.055)	-0.055 (0.050)	0.996*** (0.192)	-0.046 (0.081)
$\hat{\beta}_0$ : Intercept	1.391*** (0.182)	1.391*** (0.182)	1.312*** (0.182)	1.266*** (0.171)	-1.471* (0.736)	1.312*** (0.213)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Mining FE	No	Yes	No	No	No	Yes
Sector FE	No	No	Yes	Yes	Yes	No
Country FE	No	No	No	No	Yes	No
Outliers Dropped	No	No	No	Yes	No	No
Observations	378	378	378	376	378	378
R-squared	0.189	0.190	0.203	0.220	0.404	.

Country-clustered standard errors in parentheses except column 6, in which p-values are computed based on Likelihood Ratio Tests. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



increase in obsolescence, not even if protection is granted. The marginal effect falls over the 0 line along the entire range of tariff protection. Importantly, based on the theoretical model, the null effect of protection among obsolete industries that we observe in Figure 2 is to be expected. That is, when fiscal capacity is high, protection is given for reasons other than tax compliance (e.g. political giving).

Figure 2: **Marginal Effect of Obsolescence on Tax Compliance as a function of Tariff Protection and Fiscal Capacity.** The left panels plots marginal effects for the lower and higher fiscal capacity quartiles. The right panel plots marginal effects for the 1st and 9th fiscal capacity decile. 90% CI.



The dark grey curve superimposed in Figure 2 represents the opposite state of the world: one of low fiscal capacity (lower quartile on the left panel, 1st decile on the right panel). Now, obsolescence seems to push up tax compliance as long as tariff protection is positive. When protection is sufficiently large ( $\geq 10$  AVE tariff), the effect becomes statistically significant. That is, an obsolete industry operating in a low fiscal capacity country pays higher taxes if it is protected with an AVE tariff of 10 or more points. 20% of the observations have values of tariff protection above this cutoff. The behavior of this marginal effect is consistent with the theoretical prediction: when fiscal capacity is low, protection of obsolete industries induces higher tax compliance. Moreover, the estimated effect of protection-induced compliance is powerful. When fiscal capacity is low, an obsolete industry protected with a 15 AVE tariff would raise its compliance by 25 points, all else constant.

Column 5 fits a battery of *Country FE* to fully address unobserved heterogeneity across panels.<sup>17</sup> These are collinear with the *Region FE* and with *Tax Staff* —meaning that two *Country FE* are not estimated—, but the coefficient of theoretical interest,  $\beta_7$ , can be estimated. In particular,  $\hat{\beta}_7$  remains positive and statistically significant in the presence of sector and country fixed effects, that is, keeping unobserved characteristics across sectors and countries constant.<sup>18</sup>

The OLS models in columns 1 to 5 do not account for the nested structure of the data. However, industries are nested within countries. In column 6, I run a two-level hierarchical linear model (HLM) which allows the coefficient of protection and obsolescence and their interaction (all three industry-level covariates) to vary by the level of fiscal capacity (a country-level covariate).<sup>19</sup> The three-way coefficient  $\hat{\beta}_7$  in column 6 remains positive and statistically significant once I account for the hierarchical structure of the data. Importantly, an anova test of the random-coefficients indicates that the latter are not jointly different from zero ( $\chi^2(9) = 12.7$ , p.18), meaning that the OLS models are already appropriate to fit these data.<sup>20</sup> Figure 3 plots the three-way interaction coefficient by the level of fiscal capacity as drawn from the HLM model in column 6. Consistent with the theoretical prediction, the effect of protection among obsolete industries is positive only for sufficiently low values of fiscal capacity.

## Robustness Checks

In this section I run various sensitivity tests to assess the robustness of results in Table 1. As a first check, I replace the *weighted* average tax compliance (the dependent variable) for its unweighted version. If larger firms are politically connected, they might have a stronger incentive to

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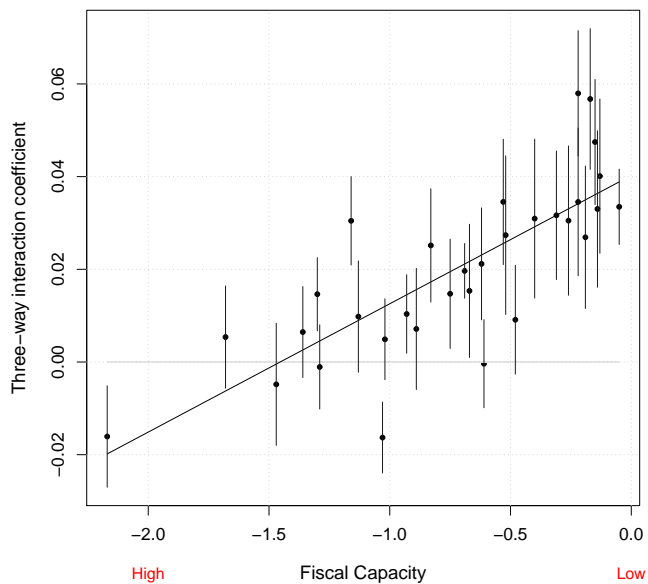
<sup>17</sup>Appendix J goes in a different direction: instead of fitting country fixed effects, I control for country-level economic and institutional characteristics that might simultaneously correlate with tax compliance, protection, fiscal capacity, and/or productivity.

<sup>18</sup>Refer to Appendix L.3 for firm-level models of tax compliance with joint country-sector fixed effects.

<sup>19</sup>The algebra for the random-intercept, random-coefficient model can be found in Appendix K.

<sup>20</sup>For country  $k$  and industry  $j$ , the random errors in column 6 are:  $\sigma_{k(tariff)} = .02$ ,  $\sigma_{k(obsolescence)} = .04$ ,  $\sigma_{k(tariff \times obsolescence)} = .02$ ,  $\sigma_{k(intercept)} = .09$ , and  $\sigma_{j(residual)} = .12$ .

Figure 3: **Three-Way Cross-level Interaction Coefficient  $\hat{\beta}_7$  by Level of Fiscal Capacity.** Estimates drawn from the HLM in column 6 of Table 1. The horizontal axis is reversed: highest values of Fiscal Capacity are on the left; lowest values on the right.



appear more tax compliant than they truly are. The unweighted industry average tax compliance, which gives the same weight to all firms irrespective of their size, should minimize this potential bias. Column 7 indicates that results with the unweighted dependent variable remain virtually unchanged. That is, the three-way interaction coefficient  $\hat{\beta}_7$  is still positive and statistically significant. In column 8, still using the unweighted industry-average tax compliance as dependent variable, I fit a random-intercept, random-slope hierarchical linear model to account for the nested data structure. Results remain unchanged. The three-way interaction coefficient is plotted in Figure 4. If any, the unweighted model reinforces previous findings: as fiscal capacity weakens, the effect of protection on compliance for obsolete industries turns stronger —consistent with the perils of creative destruction.

Column 9 replaces the proxy of fiscal capacity (so far, the number of tax staff per 1,000 inhabitants) with a conventional measure in the literature: the % of total tax revenue to GDP, or *Tax Ratio* (Besley and Persson, 2011; Hendrix, 2010). This should correct for any economy of scale in the size of the tax administration (Brown, Earle and Gehlbach, 2009). As I did earlier, I reverse this variable to account for *Low Fiscal Capacity* (i.e.  $LFC = 1 - Tax Ratio$ ). The results are similar to

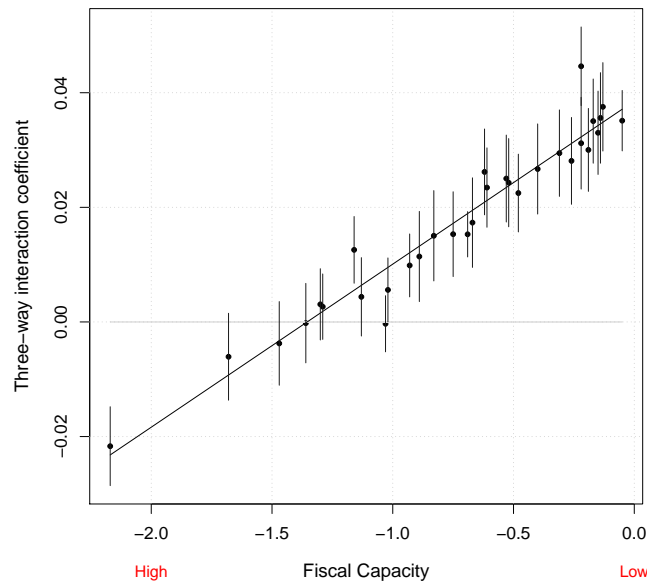
Table 2: **Robustness Test for Cross-National Test of Protection-for-Tax-Compliance.**  
**Dependent Variable: Average Tax Compliance at Two-digit Industry Level**

	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Weighted Tax Compliance	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Capacity Proxy	Staff	Staff	Tax Ratio	VAT Ratio	Staff	Staff	Staff
Tariff	Domestic	Domestic	Domestic	Domestic	Foreign	Domestic	Domestic
Democracies	Yes	Yes	Yes	Yes	Yes	Yes	No
Autocracies	Yes	Yes	Yes	Yes	Yes	No	Yes
Model	OLS	HLM	OLS	OLS	OLS	OLS	OLS
$\hat{\beta}_1$ : Low Fiscal Capacity	0.060 (0.063)	0.103 (0.076)	0.786*** (0.231)	1.065 (1.284)	0.118 (0.085)	0.074 (0.064)	0.379 (0.502)
$\hat{\beta}_2$ : Tariff	-0.028** (0.013)	-0.038*** (0.012)	0.113*** (0.035)	0.660*** (0.231)	-0.028** (0.012)	-0.027* (0.014)	0.072 (0.108)
$\hat{\beta}_3$ : Obsolete	-0.226*** (0.082)	-0.267*** (0.083)	0.332* (0.176)	0.690 (1.183)	-0.187** (0.090)	-0.157 (0.093)	-0.581 (0.498)
$\hat{\beta}_4$ : Obsolete×Tariff	0.031** (0.014)	0.039*** (0.013)	-0.089** (0.041)	-0.704*** (0.252)	0.032** (0.012)	0.027** (0.013)	-0.050 (0.110)
$\hat{\beta}_5$ : Low Fiscal Capacity×Tariff	-0.019* (0.010)	-0.028** (0.011)	-0.166*** (0.052)	-0.730*** (0.255)	-0.033*** (0.012)	-0.021** (0.009)	0.064 (0.112)
$\hat{\beta}_6$ : Low Fiscal Capacity × Obsolete	-0.156** (0.070)	-0.191*** (0.074)	-0.523** (0.251)	-0.810 (1.297)	-0.208** (0.088)	-0.110 (0.066)	-0.774 (0.565)
$\hat{\beta}_7$ : Low Fiscal Capacity×Obsolete×Tariff	0.021* (0.011)	0.028** (0.012)	0.135** (0.059)	0.779*** (0.278)	0.036*** (0.012)	0.020** (0.009)	-0.038 (0.114)
$\hat{Z}_1$ : ln(1+Export Share)	-0.005 (0.006)	-0.004 (0.005)	-0.002 (0.006)	-0.001 (0.006)	-0.003 (0.006)	-0.008 (0.006)	0.006 (0.007)
$\hat{Z}_2$ : Competitors	-0.021* (0.011)	-0.021** (0.010)	-0.022* (0.012)	-0.019 (0.012)	-0.016 (0.011)	-0.018 (0.011)	-0.012 (0.025)
$\hat{Z}_3$ : ln(Age)	0.005 (0.013)	0.007 (0.012)	0.004 (0.015)	0.011 (0.013)	0.007 (0.013)	0.012 (0.015)	-0.016 (0.026)
$\hat{Z}_4$ : ln(Labor)	0.012* (0.006)	0.007* (0.004)	0.016** (0.007)	0.014** (0.007)	0.016** (0.007)	0.016* (0.008)	0.013 (0.014)
$\hat{Z}_5$ : State-Owned Share	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.001)	0.001 (0.000)
$\hat{Z}_6$ : ln(Population)	-0.019 (0.013)	-0.011 (0.012)	-0.011 (0.011)	-0.009 (0.013)	-0.012 (0.011)	-0.011 (0.013)	-0.025* (0.009)
$\hat{Z}_7$ : Free Media	-0.060 (0.052)	-0.065 (0.082)	0.040 (0.047)	0.014 (0.056)	-0.035 (0.059)	0.124* (0.071)	-0.197* (0.081)
$\hat{\beta}_0$ : Intercept	1.413*** (0.196)	1.354*** (0.221)	0.620*** (0.169)	0.191 (1.178)	1.247*** (0.166)	1.125*** (0.174)	1.656* (0.626)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mining FE	No	Yes	No	No	No	No	No
Sector FE	Yes	No	Yes	Yes	Yes	Yes	Yes
Observations	378	378	378	378	377	308	70
R-squared	0.240	0.000	0.189	0.181	0.194	0.225	0.471

Country-clustered standard errors in parentheses except column 2, in which p-values are computed based on Likelihood Ratio Tests. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

the previous specifications. When fiscal capacity is low, obsolete industries are more tax compliant if they are protected from foreign competitors.

Figure 4: **Three-way cross-level interaction coefficient  $\hat{\beta}_7$  by level of fiscal capacity.** Estimates drawn from the HLM in column 2 of Table 2. The horizontal axis is reversed: highest values of Fiscal Capacity are on the left; lowest values on the right.



Total taxation in column 9 might confound tax-handles with non-tax handles. To minimize noise, in column 10 I use the share of Value-Added Tax (VAT) as percentage of GDP as a proxy of fiscal capacity, or *VAT Ratio*. This tax has gained popularity over the last twenty years: if only 47 countries had a VAT by 1990, over 140 have it today (Bird and Gendron, 2007). The VAT is said to be a money machine because the paper trail up the production chain reduces the opportunity of evasion. Practitioners, however, suggest that an effective VAT implementation does not stop *per se* fraudulent production of fake input receipts or duplications. For this not to happen, firms must anticipate a high probability of being audited and punished in case of proven fraud (Pomeranz, 2015). That is, an *effective* VAT requires an *effective* tax administration, or high fiscal capacity. Again, I reverse this variable (i.e.  $LFC = 1 - VAT\ Ratio$ ) so that higher values indicate weaker fiscal capacity. Results do not change: In countries in which VAT performance is poor, tax compliance

of obsolete industries might be incentivized by granting protection from competition.

Column 11 addresses theoretically-driven endogeneity between tax compliance and tariff protection: that is, based on the theoretical model, both variables increase and decrease together. Since tariff protection is interacted with two covariates, an IV strategy is hardly implementable. Alternatively, tariff protection of industry  $j$  in country  $k$  can be exogenized by using the mean tariff of industry  $j$  in all remaining  $(-k)$  countries. Based on Johnson (1953) and Kennan and Riezman (1988), we can expect countries to adjust tariffs based on what others do. The cooperation/retaliation logic that arises from this scholarship implies that foreign and domestic tariffs correlate. Yet, foreign tariffs are not expected to correlate with the domestic industry's characteristics included on the right hand side of Expression 1. All in all, instead of using a pure IV strategy, I employ an alternative measure of domestic protection that would potentially satisfy the exclusion restriction. This is how, even if only imperfectly, domestic tariff protection is exogenized. Accordingly, column 11 replaces domestic tariff protection for the average tariff set by all other countries for the very same industry.<sup>21</sup> Results are still consistent with the theoretical prediction: the estimate of the three-way interaction is still positive and statistically significant at 95% meaning that, provided that fiscal capacity is low, non-competitive industries pay higher taxes if they are granted protection from competition.

Lastly, the theoretical discussion identifies an additional condition for protection to be traded for tax abidance and not for sale: a *sufficiently strong* preference alignment between labor and ruler.<sup>22</sup> All but two countries in the sample (Kazakhstan and Belarus) regularly hold elections and constitutionally limit executive powers. If democratic institutions can be assumed to secure a minimum alignment between the interests of the ruler and labor, the sample should, on average, met the minimum preference alignment condition. Nevertheless, I can further explore this requirement with the data at hand. To do that, I test the three-way interaction model for democracies and non-democracies separately.<sup>23</sup> In order to classify countries in both groups I rely on Boix, Miller and Rosato's (2013) democracy classification. Accordingly, along with Kazakhstan and Belarus,

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<sup>21</sup>One case drops because there is a two-digit industry that only operates in one of the countries in the sample. Thus, I can not replace its tariff protection by others'.

<sup>22</sup>Refer to Appendix B for technical details.

<sup>23</sup>For the sake of interpretation, I consider that splitting the sample is preferable to a four-way interaction.

Armenia and Russia fail to qualify as democracies.

Columns 12 and 13 in Table 2 report the OLS estimates of the three-way interaction model for democracies and autocracies, respectively. The coefficient for the three-way interaction coefficient  $\hat{\beta}_7$  in column 12 is positive and strongly significant for the democracy subsample. The coefficient for the non-democracy subsample in column 13 is not statistically different from zero. The coefficient is negative but the standard error is three times larger than the point estimate. Combined, these results are consistent with the theoretical prediction by which rulers only seek to raise revenue through protection for tax compliance if they minimally advance the interest of labor. Democratic rule seems to satisfy this requirement.

## Conclusion

This paper examines a fiscal mechanism by which rulers might raise tax revenue without actually investing in fiscal capacity: protection for tax compliance. When the fiscal capacity of the state is weak and incumbent producers are uncompetitive, entry barriers to technologically advanced competitors firms might effectively induce higher tax abidance by domestic producers. The contractarian approach to tax compliance moves along the notion of quasi-voluntary compliance advanced by Levi (1988), while identifying the logic of Schumpeterian market competition as a necessary condition for this bargain to be self-enforcing.

The results speaks to two literatures: First, protection might not necessarily be for sale. When fiscal capacity is sufficiently low, *even a welfare-utility maximizing ruler* might opt for blocking entry of new competitors in the interest of higher tax compliance by incumbent producers. Importantly, protection for tax compliance is not fully incompatible with some degree of political giving. Bribes do push down the equilibrium tax rate but, consistent with the definition of protection for tax compliance, the final rate might still remain *above* the stock of fiscal capacity. This result only requires a minimum level of alignment between ruler's and labor's preferences (e.g. democratic system as compared to autocracy) in addition to the other two scope conditions identified in the theoretical section: a Schumpeterian economy in which the incumbent producer operates an outdated technology, and a low stock of fiscal capacity. Provided that the three conditions are simultaneously met, protection may be adopted for fiscal reasons and not purely on rent-seeking

grounds. Additionally, the theoretical discussion implies that optimal market regulation might be endogenous to the evolution of the stock of fiscal capacity. When states are weak, the financial gain of limiting competition might be socially beneficial. As fiscal capacity expands, the loss of real wages resulting from protection outweighs the fiscal gain, and free trade becomes socially optimal. In other words, protection is for tax compliance only if fiscal capacity is low; otherwise, it is for sale, as advanced by the canonical result in Grossman and Helpman (1994).

Second, results suggests that developing economies today are resorting to the same fiscal strategies that developed economies used to implement while consolidating their state capacities: namely, pseudo-mercantilist practices in which key producers pay higher taxes in exchange for market protection. This finding speaks to the growing literature that assesses the costs and benefits of institutions as a function of the constraints that they face. From this perspective, protection for tax compliance might qualify as a “second-best” solution for states who have limited fiscal capacity (Rodrik, 2008). Despite its obvious inefficiencies (depressing wages and consumption), the final balance might be positive if this policy secures enough tax revenue to finance public spending in the absence of enough bureaucratic means. This result adds to the flourishing work on second-best institutions: Greenwald and Stiglitz (2006) argue that sustained tariff protection of infant industry might eventually change the comparative advantage of countries throughout human capital accumulation around the new sector. Similarly, Acemoglu, Aghion and Zilibotti (2006) argue in favor of temporary entry barriers to stimulate technology adoption by incumbent producers followed by market liberalization once domestic industry is ready to compete in the open market.

Specific to the realm of taxation, the benefits of seemingly inefficient institutions are acknowledged by Charles Tilly (1975), who interpret pre-modern tax systems —inefficient in endless dimensions—as “intermediate institutions which were *crucial* to the emergence of the states we know” (p.48, italics added). One of those institutions was the old cabal tax farm, which laid the foundations of the modern state in England and France by changing the rulers’ incentives to invest in standardization and in fiscal capacity (Johnson and Koyama, 2014). In the same vein, Queralt (2015) argues that mercantilism was necessary to finance state-building in Western Europe, eventually making modern forms of taxation feasible. Similarly, Menaldo (2016) suggests that credit rationing might work as a substitute of fiscal capacity when rulers need to secure spending but lack the capacity to raise taxes by coercive means. All in all, this paper contributes to the literature



that questions the *one-policy-fits-all* dictum by evaluating both the costs *and* benefits of seemingly inefficient and distortionary policy.

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