

The Enforcement of Labor Law in the Developing World: Some Stylized Facts from Labor Inspections

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This paper empirically explores the incidence of labor inspections across firms in 72 developing countries. Given the relatively little knowledge on the behavior of labor inspection agencies, our objective is to present a collection of stylized facts on the incidence of enforcement. Our findings consistently show that larger firms are more likely to be inspected than smaller firms. Interestingly, inspections are less likely to occur among firms with a larger share of low-skilled workers, and that operate in industries with more tax evasion. Furthermore, we do not find evidence that the firm's market power is correlated with inspections. We explore the heterogeneity of these findings across income and geographic groups, and conclude by briefly discussing the consistency of the stylized facts with competing theories of inspection agencies behavior. Overall, the evidence suggests that inspection agencies in the developing world usually have low levels of efficiency and effectiveness.

Keywords: Enforcement, Labor Inspections, Regulations, Firm Level Data.

JEL Classification codes: H00; H26; J20; J30; K31; O17; O41

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1. Introduction

In developing countries, the size of the informal sector suggests that enforcement of labor regulations is weak and evasion of the labor law is large (Schneider and Enste, 2000). The large gap between the regulations stated in the books (*de jure*) and their effective implementation (*de facto*) is also a reflection of this. This gap is relevant for social development and economic growth. Noncompliance with labor regulations mainly affects low-wage workers. It can produce workplace accidents and affects the notion that the law applies equally to all. Furthermore, it distorts the allocation of resources because it provides an unfair advantage to firms that evade regulations.

While the lack of compliance with labor regulations, and their effects on labor market outcomes, is starting to receive great attention in the large literature on informality and labor regulations (see e.g., Almeida and Carneiro 2009 and 2012, and Pires 2008 for Brazil; Gindling and Terrell 2007 for Costa Rica; Ronconi 2010 for Argentina; Gimpelson et al. 2010 for Russia; and Borat et al. 2011 for South Africa), an analysis of the performance of the enforcement agencies has yet received little attention (Basu et al., 2010).

This paper is to our knowledge the first consistent analysis of the main patterns of enforcement of labor regulations across firms in 72 developing countries all around the world.¹ Using an objective measure of labor inspections, we provide a number of stylized facts across firms and countries using a harmonized firm level survey collected by the World Bank (Enterprise Surveys). In addition, we present and discuss the empirical relevance of alternative objectives that could be guiding the behavior of inspection agencies.

The topic is important for different reasons. First, all around the world laws are defined to be complied with. The role of enforcement is crucial to establish the right incentives for firms to comply. Second, the economic effects of labor laws depend on how the laws are actually implemented and enforced. While most of the literature looking at the effects of labor regulations explores cross country variation in *de jure* regulations,

¹ There is a growing literature that analyzes enforcement in Latin America (Piores and Schrank, 2008). See Amengual (2010) for the Dominican Republic and Pires (2008) for Brazil. Murillo et al. (2011) and Ronconi (2012) analyze labor inspection resources and activities in 18 Latin American countries.

more recent work has emphasized the importance of enforcement (e.g., Boeri and Jimeno 2005; Caballero et al. 2004; Albrecht et al. 2009, Ronconi 2010; and Almeida and Carneiro 2009 and 2012). Third, labor market regulations – and thus their enforcement - focus on features of jobs that are usually desirable to workers. Fourth, in many countries labor regulations are criticized for being restrictive and their enforcement may create constraints to economic activity. Some firms may be more affected than others so a better understanding of this incidence within countries is important for efficiency. Fifth, there is theoretical debate over the objectives of labor inspection agencies but little empirical knowledge on their actual behavior.

One shortcoming of our data that unfortunately we cannot address is that we only observe a sample of registered firms. Our sample does not include unregistered firms and therefore leaves out the majority of the firms in many countries. This is probably a minor issue for our main topic of interest since most of the labor inspections are *de facto* focused on registered firms.

Our empirical strategy is very simple. We explore variation in the incidence of labor inspections across firms within countries, and also analyze differences in the level of enforcement across countries. The data we use is particularly useful for several reasons. First, the data is harmonized and comparable across countries. Second, the survey informs whether the firm was inspected by the labor agency during the previous year. This is an objective and comparable indicator of enforcement of labor law that is usually not available in other studies.² Third, the survey collects detailed information on a large set of firm's characteristics including, among others, location, size, sector of activity, skills of the workforce, degree of unionization, market power, and participation in a business association. This information allows determining the characteristics of inspected firms, and hence, permits analyzing the objectives of inspections agencies. Do

² Actually, in most of the cross country work, the indicators of enforcement of labor laws tend to be subjective. For example, Caballero et al. (2004) use perceptions-based measures of “government effectiveness” and an indicator of the “rule of law”, which are only crude proxies for the labor law enforcement. In addition, Botero et al. (2004) simply assume that labor laws are more likely to be enforced in countries with a more educated workforce without providing further justification for this. Almeida and Susanli, *forthcoming*, and Almeida and Aterido (2011) use Enterprise Survey data but investigate the link between *de facto* labor regulations and firm size, and between *de facto* labor regulations and the investment of firms in job training.

agencies mainly worry about reducing labor violations? Or are they mainly concern about collecting revenues? Do agencies care about the potential job destruction that enforcement could produce? Are they captured by lobby groups?

Our paper shows that, in almost all countries, larger firms are more likely to be inspected than smaller firms. Given that larger firms are more likely to comply with labor regulations, it appears that reducing noncompliance is not the main objective of inspection agencies. Furthermore, we do not observe more inspections among firms with a larger share of low-skilled workers (i.e., where violations are arguably more likely). In addition, we also find that firms that operate in sectors of activity with less compliance are less likely to be inspected.

The paper proceeds as follows. Section 2 proposes a simple model of enforcement of labor regulations and discusses implications for the distribution of labor inspections across firms. Section 3 describes the data and provides descriptive statistics for the main variables used in the empirical analysis. Section 4 proposes a simple empirical approach and presents the main findings. Section 5 explores heterogeneity across regions and income levels. Section 6 concludes by briefly discussing the consistency of the stylized facts with competing theories of inspection agencies behavior.

2. Models of Enforcement of Labor Regulations

We are interested in understanding the behavior of labor inspection agencies in the developing countries. To our knowledge there is yet little formal modeling of enforcement agency's behavior. Key ingredients of any model of public enforcement of the law include the objective function of the enforcement agency and the information available to the agency when identifying firms to inspect and accomplish its objectives. In this section we briefly review alternative models.

2.1 The Agency Objective Function

There are alternative theories about the behavior of public enforcement agencies. First, the economic theory of public enforcement of the law is based on the assumption that public enforcers act so as to maximize social welfare (Polinsky and Shavell, 2000). A

second approach, more dominant in public administration, tends to explain enforcement agencies' behavior in terms of idiosyncratic aspects of inspectors and the nature of the task (Bardach and Kagan, 1982). Third, is the capture theory, which emphasizes the importance of elected officials and lobby groups in determining agency structure, tasks and budgets (Calvert et al., 1989).

In this paper we present a fourth approach that assumes that the objective of the agency is to maximize the net monetary benefits with the inspection activity. We present a very simple and static model where the agency maximizes the net difference between the agency's revenues and costs of labor inspections.³ The cost variables are the wages of inspectors (w) and transportation cost from the inspection agency to the firm (d). The monetary benefits of conducting inspections are fines collected and tax compliance per violation (t). We assume the government has an estimate of the probability that a firm violates a labor and social security regulation (θ) and an estimate of whether the firm would react to enforcement via compliance (δ) or via job destruction. We also assume that firms are more likely to react to enforcement via job destruction when fines and taxes are higher (i.e., $d\delta/dt < 0$). Therefore, the net monetary benefit (B) of inspecting firm i is: $B_i = \theta_i * \delta(t)_i * t * S_i - w_i - d_i$, where S is the number of employees.

This extremely simple model suggests that a firm is more likely to be inspected when it is located near the agency, when it takes less of the inspector's time to conduct the inspection, when the firm has more employees, when the firm is more likely to be a non-complier and when the firm is more likely to react to inspection via formalization. The effect of taxes and fines is ambiguous because they have a positive direct effect on revenues but also a negative indirect effect since they reduce the probability that a firm would react to enforcement via formalization.

It is worth noting that, if the objective of the agency is to maximize revenues, then the costs factors would not matter. If the objective is mainly legalistic (i.e., minimize violations), then the agency would ignore the variable δ . That is, the agency would not

³ Assuming a static model makes more sense when the inspection agency has a very short term horizon. We think that this is a reasonable assumption because in developing countries the inspection agency is usually not in the hands of an independent civil service but controlled by the executive power (see Ronconi 2012 for Latin America).

care about enforcing regulations in firms that would become bankrupt if forced to comply with the law. Finally, according to capture theory the quantity and distribution of inspections depends on the interests and power of lobby groups. For example, firms that are members of a business association would be less likely to be inspected if the group is powerful. Similarly, unionized firms would be more likely to be inspected if unions are powerful.⁴

2.2 The Agency Information Set

A key issue is that the inspection agency usually neither knows which firms are complying nor which firms would react to enforcement via formalization. Agencies can obtain information about violations by providing a toll-free number to make complaints. However, this information is usually not conclusive, because some workers simply ignore their rights. Furthermore, the information obtained via complaints does not tell much to determine whether enforcement would produce formalization or job destruction. Therefore, it is reasonable to assume that the agency uses observable characteristics of the firm as proxies for θ and δ . But, which characteristics of the firm the agency actually observes?

It is likely that the agency knows the main line of business of each firm in the economy and that the agency has an estimate of the rate of noncompliance across sectors of activity (E). The agency might also know whether the firm intensively uses low skilled labor (L) and that violations are more prevalent among these workers. That is, we expect that θ is a positive function of both E and L.

As proxies for δ , the agency would like to have information about the market power (P) of firms. That is, the agency would like to know if the firm can translate the increase in labor costs produced by inspections into higher prices. Because a direct measure of firm's market power is usually not available, the agency could use observable characteristics as proxies. We expect that, as proxies for market power, the agency takes into account the size of the firm (S), exports (X), sales to the government (G), and market

⁴ Unionization is also likely to be influential when agencies maximize net revenues for several reasons. First, unionized workers are presumably more aware of their rights and more confident that they would not be fired if they denounce violations. Second, because in some countries labor unions are more likely to organize in more profitable firms, the agency could take unionization as an indicator that the firm would react to enforcement via formalization and not via job destruction.

share (M). We assume that δ is a positive function of each of these variables. In the next section we test the predictions of this simple model.

3. Data and Descriptive Statistics

3.1 Data

We use the Enterprise Survey which provides information on labor inspections at the firm-level for a representative sample of registered firms in the private sector in a large number of countries. The Enterprise Survey is a stratified random sample with replacement. The survey is answered by business owners and top managers, and it usually includes 1,500 firms in large countries, 360 firms in medium-sized economies, and 150 interviews in small economies.⁵

The survey has been conducted since 2002 in almost every country of the world. In some countries the survey included a question about labor and social security inspections. More specifically, it asked whether the establishment was inspected during the last year by labor and social security officials. We restrict the analysis to firms located in developing countries where the survey included this question. This resulted in a total of 46,719 firms located in 72 countries (19 in Africa, 11 in Latin America, 26 in Asia, and 16 in Europe).⁶ When we restrict the analysis to firms with non-missing data on size, location, foreign ownership, sector of activity, and exports, the resulting sample is 44,545 firms located in 72 countries. This will be our main sample which we name as sample A.

Regrettably, due to changes in the questionnaire across countries and years, many important variables that could affect inspections according to the discussion in section 2 are only available for a fraction of the countries and firms in sample A. Therefore, we create three alternative samples, B, C, and F.

⁵ For more details see the website <https://www.enterprisesurveys.org/>

⁶ Albania, Armenia, Azerbaijan, Bangladesh, Belarus, Benin, Bhutan, Bosnia, Brazil, Bulgaria, Burkina Faso, Cambodia, Cameroon, Cape Verde, Chile, China, Costa Rica, Croatia, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, Georgia, Guatemala, Guyana, Honduras, Hungary, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Lao, Latvia, Lebanon, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritius, Moldova, Montenegro, Morocco, Nicaragua, Niger, Oman, Pakistan, Peru, Philippines, Poland, Romania, Russia, Saudi Arabia, Senegal, Serbia, South Africa, Sri Lanka, Syria, Tajikistan, Tanzania, Thailand, Turkey, Uganda, Ukraine, Uzbekistan, Vietnam, Yemen, and Zambia.

Sample B includes firms in sample A with information on all of the following three proxies of θ : Share of workers with temporary contracts, share of workers with five or less years of schooling, and percentage of sales reported for tax purposes by the typical firm in the same line of business.⁷ Sample B includes 27,575 firms located in 60 countries. In sample C, we restrict firms in sample A to those with information on unionization and participation in a business association. The sample shrinks to 21,002 firms located in 39 countries, mainly because of lack of unionization data. Finally, the number of firms with information for all of the analyzed variables is only 9,802 firms located in 30 countries (Sample F).

3.2 Main patterns of Labor Inspections

This section presents basic statistics for labor inspections. We first present some cross-country patterns using our main sample and relate it with country variables. Then, we explore the incidence of inspections across firm's characteristics.

3.2.1 Labor inspections across countries

The mean value of labor inspections across countries is 0.51, meaning that slightly more than half of registered firms are inspected by labor and social security officials per year. More than 85% of registered firms are inspected in Albania, Egypt and Morocco, and less than 20% in Georgia, Indonesia and Cambodia.

Table 1 presents the mean value of labor inspections across regions. The MENA region has the highest level of inspections and Central Asia the lowest. Furthermore, there is heterogeneity within regions as shown by the relatively high standard deviation.

<Table 1 here>

We observe that richer countries are more likely to conduct inspections, but the correlation is very weak. Figure 1 is a scatterplot between (log) GDP per capita and the share of firms that report being inspected in each of the 72 analyzed developing countries. The pairwise correlation coefficient is 0.1 and statistically insignificant.

<Figure 1 here>

⁷ We assume that tax evasion is closely correlated with labor law violations and evasion of social security taxes.

There is, however, a stronger correlation between inspections and the size of the informal economy (Figure 2),⁸ and between inspections and a rule of law index (Figure 3).⁹ Countries with more inspections have less informality (pairwise correlation equal to -0.21 and significant at the 10% level), and countries with a higher value in the rule of law index have more enforcement (pairwise correlation equal to 0.22 and significant at the 10% level). Although these simple correlations do not imply causality, they are consistent with the hypothesis that more inspections increase compliance.

<Figure 2 here>

<Figure 3 here>

3.2.2 *Labor inspections across several firm's characteristics*

Table 2 provides the mean value of a set of firm's characteristics for those that have and have not been inspected by the labor and social security agency during the previous year. The statistics suggest that inspected firms (compared to those that were not inspected) are more likely to be located in the capital city, to be foreign, to export and import, to sell to the government, and to have a larger proportion of their workforce unionized. More surprisingly, is the finding that inspected firms are more likely to be members of a business association, to have a more educated workforce, to operate in industries with higher tax compliance, and that inspected firms have, on average, a smaller market share compared to firms that have not been inspected.

<Table 2 here>

Figure 4 shows the incidence of labor inspections across firm size and region. Larger firms (i.e., with more employees) are more likely to be inspected compared to smaller firms in the seven groups. Furthermore, in 66 out of the 72 analyzed countries, the average size of inspected firms is larger than the average size of non-inspected

⁸ The measure of the informal economy, as a percentage of GDP, is from Schneider (2002).

⁹ The rule of law index captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence (Kaufmann et al., 2010). The index is constructed by averaging data from different sources, and varies between -2.5 and 2.5, with higher values corresponding to better outcomes. The data is available in the WGI website together with details on the aggregation procedure. http://info.worldbank.org/governance/wgi/sc_country.asp

firms,¹⁰ and the econometric evidence below shows that this is a very robust relationship and quantitatively the most important determinant of inspections.

<Figure 4 here>

Figure 5 shows the incidence of labor inspections across firm's market power.¹¹ A firm is assumed to have more market power if quantities sold decrease little after increasing prices (and assuming that competitors keep prices constant). Firms with greater market power can translate the increase in labor costs produced by inspections into higher prices, and hence, are more likely to react to enforcement via formalization rather than job destruction. Interestingly, we find that firms that have more market power are less likely to be inspected compared to firms that expect a sharp reduction in sales. This result, along with the finding that firms that have a larger share of the national market are actually less likely to be inspected compared with firms with smaller market shares, is at odds with the assumption that inspection agencies have the willingness (or ability) to focus on firms that are more likely to react to inspection via formalization and not via job destruction.

<Figure 5 here>

4. Econometric Model and Main Findings

In this section we estimate at the firm level the relationship between the incidence of labor inspections and several firm characteristics. In particular, we assume that:

$$Inspection_{ij} = \alpha_j + \psi X_{ij} + \varepsilon_{ij} \quad (1)$$

where $Inspection_{ij}$ is an indicator equal to 1 if firm i in country j was inspected by labor and social security officials during the previous year and 0 otherwise, X is a vector of explanatory variables of the incidence of labor inspections, and α_j is a set of country fixed effects. We assume that ε_{ij} is normally distributed and estimate equation (1) with a probit model. Standard errors are clustered at the country level.

¹⁰ The six exceptions are Azerbaijan, Egypt, Montenegro, Morocco, Peru and Saudi Arabia.

¹¹ Information about firm's market power is only available in 39 out of the 72 countries in the main sample. Given the small sample, we do not disaggregate by region.

Table 3 presents the results for different specifications depending on the firm characteristics included. In column (1) we include the set of baseline firm characteristics that are observable in the main sample (i.e., firm size, location, foreign ownership, sector of activity, and exports). In columns 2 to 10 we add several other characteristics of the firm proxying the net benefits of inspections. As discussed above, unfortunately, these characteristics are only available for a subset of firms in sample A. All specifications include country fixed effects.

<Table 3 here>

The findings in table 3 show that few variables are consistently strong predictors of the incidence of inspections. In particular, larger firms are more likely to be inspected than smaller firms. Across specifications the magnitude of the effect is also reasonably constant. The main differences are between firms with 1 to 10 employees and firms with 11 to 50 employees (15 percent increase in the probability of being inspected), and between with firms with 51 to 200 employees (an additional 10 percent increase). Firms that export are also more likely to be inspected.

There is some evidence that inspections are more likely among firms with a high skilled workforce, with less market power, with higher unionization, and among firms that are members of a business association and that operate in sectors of activity with higher tax compliance. However, these results are not always robust across specifications. A number of other firm characteristics, including location, foreign ownership, sales to the government and other traits not included in the table (i.e., age, imports, technology, and changes in employment) are usually not correlated with inspections.

There are several explanations for the robust correlation between labor inspections and firm size. First, it is plausible that enforcement agencies want to maximize revenues but have little capacity to discriminate firms with and without market power. Therefore, they may use firm size as a proxy. Second, most of the inspections have lower costs in larger firms because documentation is organized and is easier to follow the process. In small or middle sized firms information is not so structured and inspectors would probably lose more time without a final “payoff” of having many fines. Third, the positive correlation could be driven by corruption: because larger firms tend to

be more productive they have the resources to pay higher bribes. Forth, there could be reverse causality if labor inspections increases firm efficiency (Piore and Schrank, 2008). This in turn may promote higher exports, technological adoption and ultimately firm size.

5. Heterogeneity of the Main Findings across Income and Region

In this section we investigate the heterogeneity of our baseline findings across income groups and regions. In particular, we are interested in analyzing whether the objective functions of enforcement agencies differ by levels of economic development or by region. We categorize countries in three income groups (low-income, lower-middle income, and upper-middle income or more) following the World Bank classification. In tables 4 and 5 we replicate the main specifications for the different income groups and regions.

<Table 4 here>

The estimates are quite similar across income groups. Inspection agencies focus on firms that have more employees, export, and participate in a business association. Location, ownership and market power are usually not significantly correlated with the incidence of inspections. The main difference across income groups appears to be related to the skills of the workforce and their participation in a labor union. In low and lower-middle income countries the agency is less likely to inspect firms with low skilled workers and more likely to inspect unionized firms, but that relationship is not observed in upper-middle income countries. One plausible interpretation of this result is that inspection agencies in poorer countries have lower technical capacities to detect violations, and hence, rely more on complaints, which are more likely among workers who are aware of their rights (that is, unionized workers and those that have more education).

The regional estimates show some interesting patterns. In particular, inspection agencies in the Middle East and North Africa appear to focus their efforts differently compared to agencies in other regions: First, while larger firms are more likely to be inspected in all regions this is not the case in MENA. Second, agencies in MENA are less

likely to inspect foreign firms while a positive correlation is usually observed in other regions (developing countries in Europe are another exception). Third, MENA is the only region where firms with more market power are less likely to be inspected; no significant correlation is observed in other regions. Fourth, firms with a larger share of low skilled workers are more likely to be inspected in MENA (as well as in Latin America), but the opposite occurs in the other regions.

<Table 5 here>

6. Conclusion

This paper empirically explores the incidence of labor inspections across firms that operate in 72 developing countries. Given the relatively little knowledge on the behavior of inspection agencies, our objective is to present a collection of stylized facts. Pooling firms across countries we find that firms with more employees are more likely to be inspected and the result is robust to the inclusion of several controls. Few other variables are statistically correlated with inspections. Exporting firms, members of a business association, firms that have a larger share of high-skilled and unionized workers, and that operate in sectors of activity with more compliance are more likely to be inspected, although these results are not as robust as the effect of firm size. Other characteristics of the firm, such as location, foreign ownership, market power, share of sales to the government, imports, and recent changes in employment are not correlated with inspections.

We group countries by the level of economic development and by region to explore whether there is heterogeneity across these categories. Although we find some heterogeneity, most of the results obtained using the pooled sample hold. The most salient exceptions are: First, the higher incidence of inspections among firms with a more skilled and unionized workforce is only observed in the low and lower-middle income groups. Second, inspection agencies in the Middle East and North Africa present some anomalies, such as being less likely to inspect firms that are foreign, larger and with more market power.

Are these results consistent with any particular theory of inspection agencies behavior? Answering this question is complex because the behavior of enforcement agencies not only depends on their objectives but also on their capacity to access and process information about firm's characteristics. The finding that the incidence of inspections is lower among firms that operate in industries with more tax evasion and that have a larger share of low skilled workers goes against the predictions of a legalistic approach. If agencies were mainly concerned about ensuring compliance, then, they should focus their efforts on firms with low skilled workers (because, this is where violations usually occur) and in sectors with more evasion. This information is usually easily available to the agency, and hence, it is unlikely that the problem is lack of technical capacity to pursue a legalistic objective.

The finding that larger firms and members of business associations are more likely to be inspected is at odds with the capture theory. However, there are other results, such as the evidence for the MENA region and the lack of a correlation between inspections and market power, which suggest that agencies are in some cases captured by lobby groups. The fact that firms with a unionized workforce are more likely to be inspected could be interpreted as evidence of capture by labor unions, but could also indicate that inspections agencies mainly react to complaints and have little capacity to be proactive.

Some results are consistent with the idea that agencies attempt to maximize net revenues (such as the finding that larger firms are more likely to be inspected), however, the findings that inspections are more likely among firms in industries with low tax evasion and that firm's market power is not correlated with inspections are at odds with this approach.

Summing up, the inspections agencies we study are presumably driven by a number of objectives (which sometimes are in conflict), and have little capacity to obtain and process the necessary information to achieve those objectives. The result is that inspected firms are not systematically different from those that are not inspected in a large number of characteristics, which suggest that inspection agencies have low levels of

efficiency. More importantly, they also have low effectiveness as shown by the large number of labor violations in the developing world.

Tables

Table 1 – Labor Inspections across Regions

	Share of firms Inspected by Labor and Social Security Agency	Standard deviation
Central Asia	0.35	0.17
East Asia	0.56	0.18
Europe	0.45	0.12
Latin America and Caribbean	0.48	0.07
Middle East and North Africa	0.67	0.24
South Asia	0.64	0.10
Sub Saharan Africa	0.49	0.19

Note: Regional estimates are computed weighting the country values by the population

Table 2 – Characteristics of inspected and not inspected firms

Variable	Not Inspected	Inspected	t-value
Located in Capital City	0.44	0.47	-4.70
Foreign Ownership	0.10	0.15	-12.20
% Workforce with 5 or less years schooling	12.33	11.70	1.93
% Workforce Temporary Contract	10.05	9.38	2.78
% Sales reported for tax purpose in industry	80.01	82.27	-6.59
% Sales Exported	14.16	21.28	-16.90
% Inputs Imported	26.81	33.30	-11.78
% Sales to Government	5.64	7.50	-6.31
Market Share	24.78	18.95	8.89
Unionization Rate	22.11	25.85	-5.78
Participation in Business Association	0.52	0.62	-14.87

Note: Table reports the mean value of the variables for the sample of firms that during the last year were inspected by the labor and social security inspectors and the sample of firms that were not inspected. In column (3) we report the t-value of the test of equality of means between the two samples.

Table 3 – Estimates of the Incidence of Labor Inspections across firms' characteristics

Variable	1	2	3	4	5	6	7	8	9	10
Firm Size 11 to 50 employees	0.16***	0.16***	0.16***	0.15***	0.12***	0.18***	0.14***	0.08***	0.10†	0.10**
Size 51 to 200 employees	0.25***	0.25***	0.24***	0.24***	0.21***	0.29***	0.26***	0.18***	0.22***	0.23***
Size 201 to 500 employees	0.27***	0.27***	0.26***	0.25***	0.22***	0.32***	0.26***	0.18***	0.21***	0.22***
Size +500 employees	0.27***	0.28***	0.25***	0.24***	0.23***	0.36***	0.28***	0.18***	0.26***	0.24***
City location	-0.03†	-0.03**	-0.04**	-0.04**	-0.02	-0.03	0.01	-0.03	0.07**	0.05
Foreign ownership	0.01	0.01	-0.01	-0.01	0.03†	0.01	0.04**	0.01	0.03	0.02
% Sales Exported	0.01***	0.01***	0.01**	0.01***	0.01**	0.01**	0.01***	0.01***	0.01†	0.01
% Sales Government	-	0.01	-	-	-	-	-	-	-	-
% Temporary workers	-	-	-0.01	-0.01	-	-	-	-0.01	-0.01**	-0.01**
% Low-skilled workers	-	-	-0.01†	-0.01†	-	-	-	-0.01†	-0.01	-0.01
% Tax compliance	-	-	-	0.01**	-	-	-	0.01	0.01**	0.01
% Workers unionized	-	-	-	-	0.01**	-	-	0.01**	0.01	0.01
Participates in business association	-	-	-	-	0.06***	-	-	0.05**	0.08***	0.05**
Market Power	-	-	-	-	-	-0.01	-	-	-0.02†	-
Market Share	-	-	-	-	-	-	-0.01	-	-	-0.01
Observations	44,545	41,094	33,511	27,575	21,002	16,854	15,028	9,802	4,600	5,041

Note: The dependent variable is a binary indicator equal to 1 if the firm was inspected and 0 otherwise. All models include country fixed effects and are computed using a probit model. The table reports the marginal effects. Standard errors are clustered at the country level (omitted). The omitted firm size category is 1 to 10 employees. † Significant at the 0.1, ** 0.05, and *** 0.001 level.

Table 4 – Estimates of the Incidence of Labor Inspections across firms' characteristics by income group

Variable	Low income			Lower-middle income			Upper-middle income		
	1	2	3	4	5	6	7	8	9
Firm Size 11 to 50 employees	0.22***	0.12***	0.26***	0.11***	0.13***	0.19***	0.15***	0.07**	0.16***
Size 51 to 200 employees	0.29***	0.21***	0.32***	0.17***	0.20***	0.32***	0.28***	0.19***	0.26***
Size 201 to 500 employees	0.34***	0.24***	0.37***	0.15**	0.18***	0.29***	0.32***	0.20***	0.32***
Size +500 employees	0.30***	0.31***	0.35***	0.14	0.18**	0.36***	0.33***	0.20***	0.35***
City location	0.01	-0.03	0.02	-0.04**	-0.01	0.01	-0.05†	-0.02	-0.06
Foreign ownership	0.08	0.06	0.11***	-0.01	0.04	0.03	-0.03	0.01	-0.02
% Sales Exported	0.01†	0.01**	0.01	0.01***	0.01	0.01**	0.01†	0.01**	0.01
% Temporary workers	-0.01	-	-	-0.01	-	-	-0.01	-	-
% Low skilled workers	-0.01**	-	-	-0.01**	-	-	0.01	-	-
% Tax compliance	0.01	-	-	0.01**	-	-	0.01	-	-
% Workers unionized	-	0.01†	-	-	0.01***	-	-	0.01	-
Participates in business association	-	0.07**	-	-	0.08***	-	-	0.04**	-
Market Power	-	-	0.01	-	-	-0.01	-	-	-0.01
Observations	2,165	3,679	1,481	12,867	7,968	6,118	12,543	9,355	9,255

Note: The dependent variable is a binary indicator equal to 1 if the firm was inspected and 0 otherwise. All models include country fixed effects and are computed using a probit model. The table reports the marginal effects. Standard errors are clustered at the country level (omitted). The omitted firm size category is 1 to 10 employees. † Significant at the 0.1, ** 0.05, and *** 0.001 level.

Table 5 – Estimates of the Incidence of Labor Inspections across firms' characteristics by region

Variable	Central Asia			East Asia			Europe			Latin America		
	1	2	3	4	5	6	7	8	9	10	11	12
Firm Size 11 to 50 employees	0.20***	0.20***	0.21***	0.15***	0.11**	0.08***	0.18***	0.06	0.19***	0.11***	0.13***	0.16***
Size 51 to 200 employees	0.28***	0.28***	0.28***	0.40***	0.20***	0.22***	0.26***	0.16†	0.27***	0.30***	0.28***	0.35***
Size 201 to 500 employees	0.30***	0.31***	0.32***	0.45***	0.22***	0.24***	0.31***	0.03	0.31***	0.37***	0.34***	0.36***
Size +500 employees	0.35***	0.34***	0.34***	0.48***	0.21***	0.30***	0.34***	0.24***	0.35***	0.37***	0.33***	0.41***
City location	0.01	-0.02	-0.01	-0.01	-0.03	0.08†	-0.10***	-0.05	-0.11***	-0.04	0.01	0.05
Foreign ownership	0.06**	0.06	0.06†	0.01	0.03**	0.05***	-0.03†	-0.05	-0.04†	0.02	0.03	0.05
% Sales Exported	0.01	0.01	0.01	0.01	0.01***	0.01	0.01	0.01	0.01	0.01	0.01	0.01
% Temporary workers	0.01	-	-	-0.01***	-	-	-0.01†	-	-	-0.01	-	-
% Low skilled workers	0.01	-	-	-0.01	-	-	0.01	-	-	0.01†	-	-
% Tax compliance	0.01	-	-	0.01	-	-	0.01†	-	-	-0.01	-	-
% Workers unionized	-	-	-	-	0.01**	-	-	-0.01***	-	-	0.01†	-
Participates in business association	-	0.07***	-	-	0.03	-	-	0.11***	-	-	0.08***	-
Market Power	-	-	0.01	-	-	-0.01	-	-	-0.01	-	-	-0.01
Observations	2,385	2,497	2,457	2,942	6,247	1,637	6,457	685	6,460	3,425	5,258	3,831

Note: The dependent variable is a binary indicator equal to 1 if the firm was inspected and 0 otherwise. All models include country fixed effects and are computed using a probit model. The table reports the marginal effects. Standard errors are clustered at the country level (omitted). The omitted firm size category is 1 to 10 employees. Information about unionization and market power is not available for any of the firms in Central Asia and South Asia respectively. † Significant at the 0.1, ** 0.05, and *** 0.001 level.

Table 5 (continuation) – Estimates of the Incidence of Labor Inspections across firms' characteristics by region

Variable	MENA			South Asia			Sub-Saharan Africa		
	13	14	15	16	17	18	19	20	21
Firm Size 11 to 50 employees	0.10***	0.05	0.13***	0.05***	0.09†	-	0.17***	0.12***	0.25**
Size 51 to 200 employees	0.12**	0.09	0.16***	0.04	0.13†	-	0.28***	0.22***	0.32***
Size 201 to 500 employees	0.10	0.07	0.17	0.08***	0.12**	-	0.24***	0.20***	0.27***
Size +500 employees	0.02	-0.01	0.06	0.07***	0.18†	-	0.24**	0.21***	0.33***
City location	-0.02	0.06**	-0.05	-0.08**	-0.02	-	0.01	-0.06	0.03
Foreign ownership	-0.09**	-0.12***	-0.05	-0.05	0.03	-	0.05	0.03	0.05
% Sales Exported	0.01***	0.01	0.01	0.01**	0.01	-	0.01	0.01	0.01
% Temporary workers	0.01**	-	-	0.01	-	-	-0.01	-	-
% Low skilled workers	-0.01	-	-	-0.01***	-	-	-0.01***	-	-
% Tax compliance	0.01	-	-	-0.01***	-	-	0.01	-	-
% Workers unionized	-	-0.01	-	-	0.01†	-	-	0.01***	-
Participates in business association	-	0.02	-	-	0.10***	-	-	0.06***	-
Market Power	-	-	-0.04***	-	-	-	-	-	0.01
Observations	8,076	1,156	1,685	2,199	4,275	-	2,091	3,381	784

Figures

Figure 1 – Labor Inspections and GDP per capita across countries

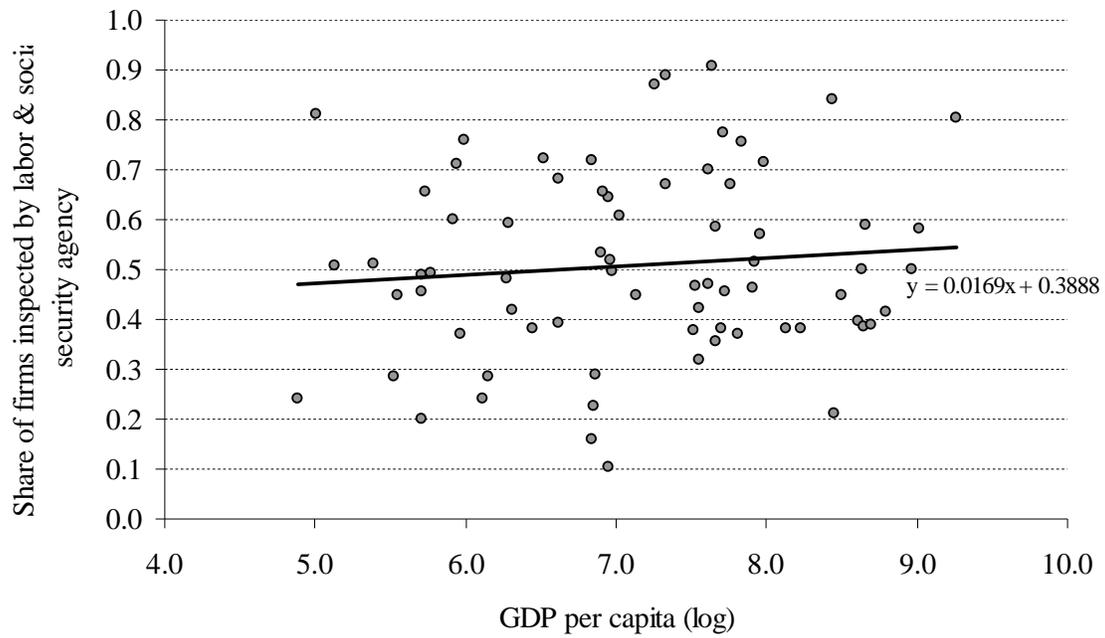


Figure 2 – Labor Inspection and Informality across countries

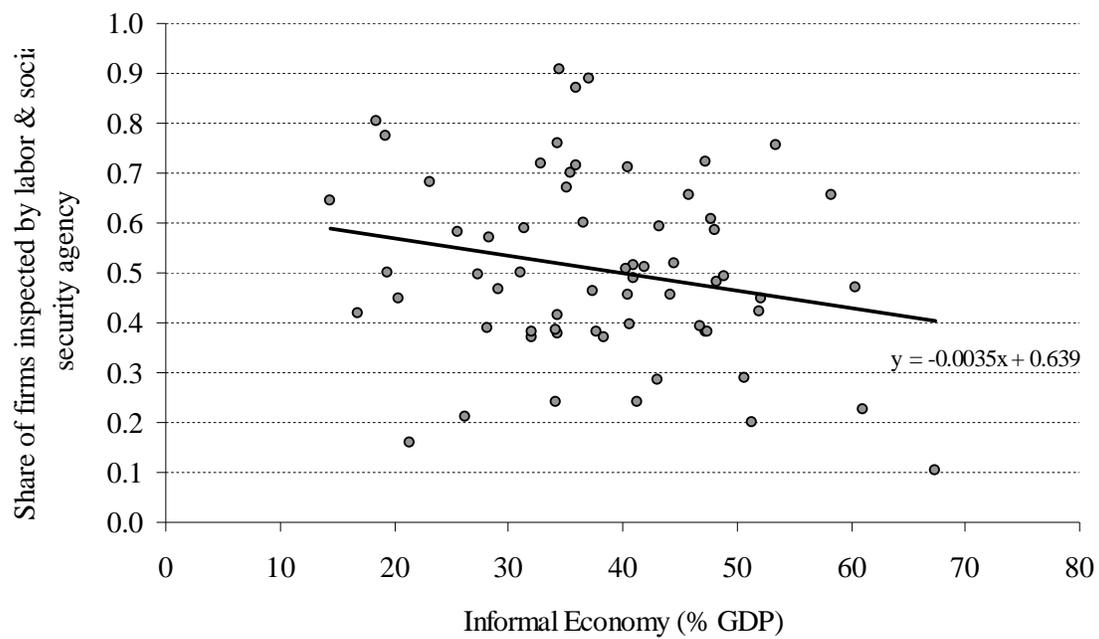


Figure 3 – Labor Inspections and Rule of Law across countries

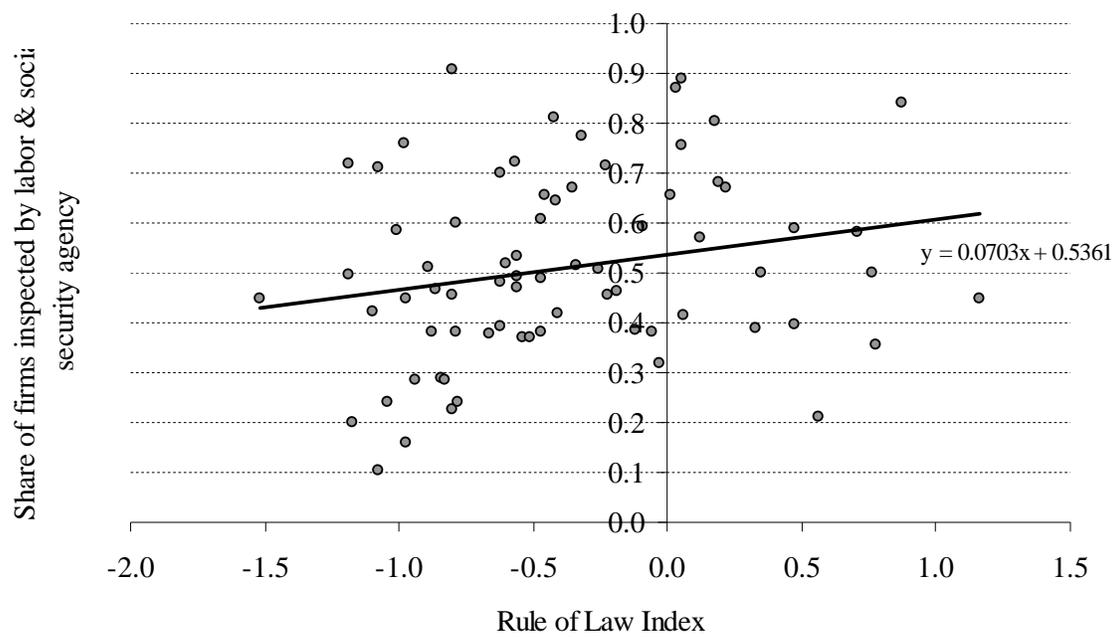


Figure 4 – Labor Inspections and Firm Size

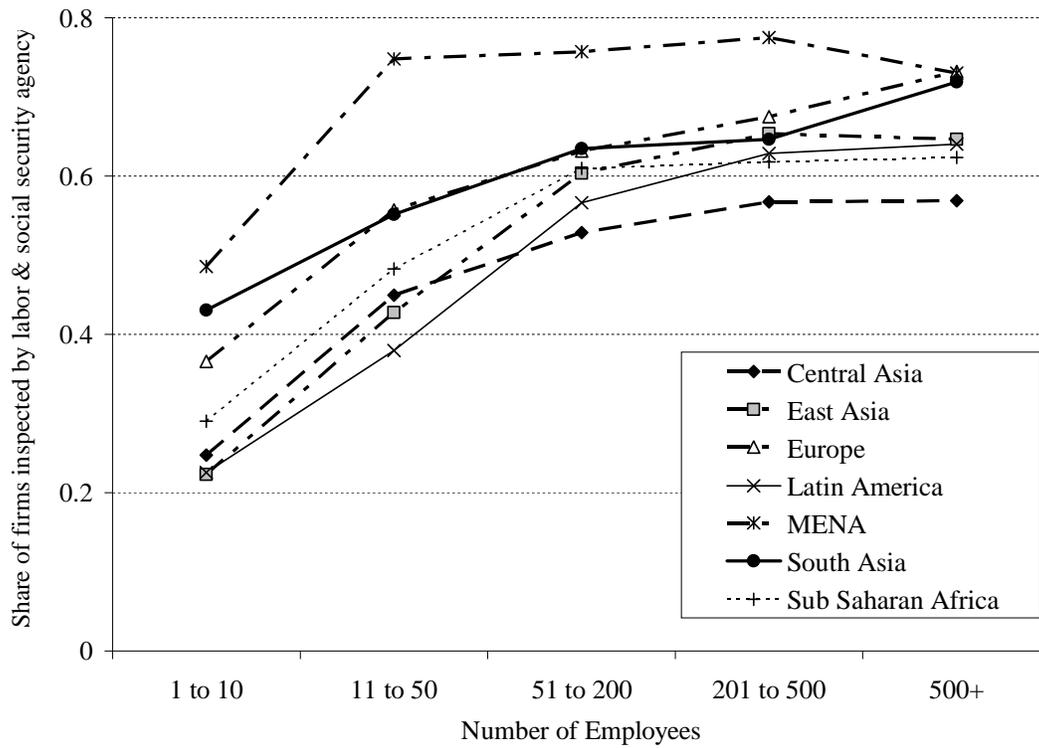
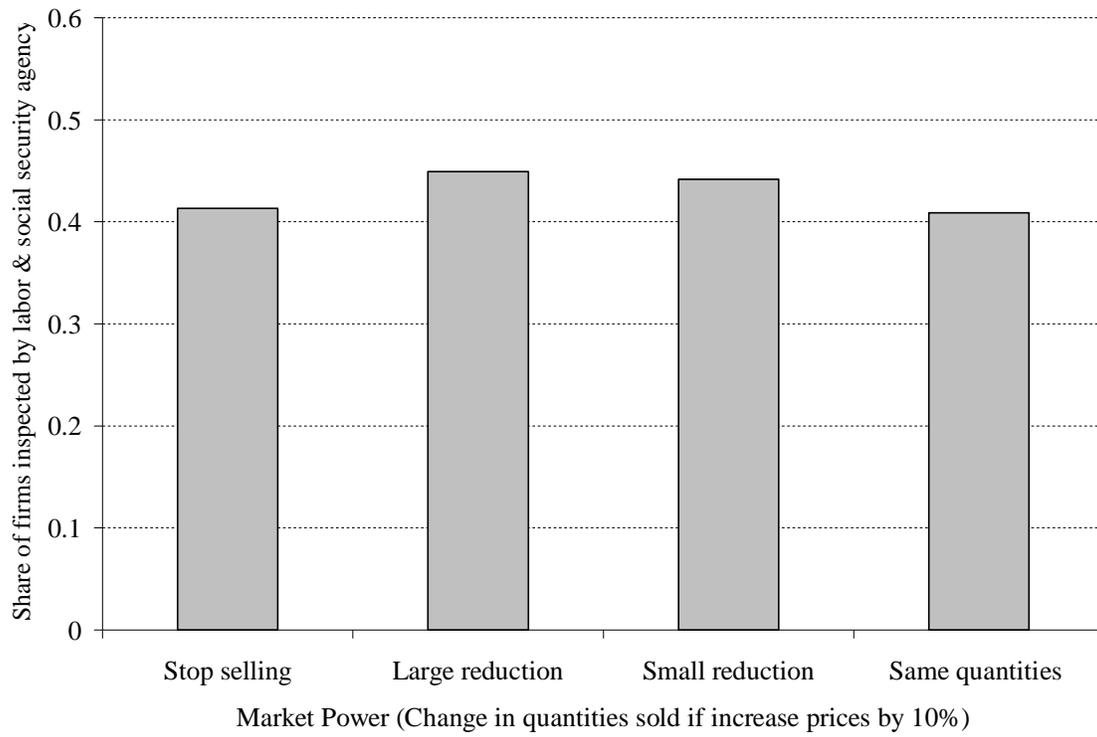


Figure 5 – Labor Inspections and Firm's Market Power



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