

Tax Administration Practices and Firms' Perceptions of Corruption

Evidence from Europe and Central Asia

B. Ponomariov

O. Balabushko

G. Kisunko



WORLD BANK GROUP

Governance Global Practice Group

June 2017

Abstract

Two competing conceptualizations of corruption in the literature allow viewing it either as efficient or burdensome from firms' perspective. Using data on the prevalence and nature of firms' interactions with tax authorities in 28 countries in Europe and Central Asia, this paper contributes to the evaluation of competing ideas in the literature about firms' experience of corruption in tax administration. The findings presented in the paper provide provisional support for the second line of reasoning, that corruption in taxation

is a burden, rather than a type of efficiency. Special emphasis is given to examination of taxation-related determinants of corruption prevalence (frequency and magnitude of bribery), as well as the effect of the interaction with tax authorities on perception of tax and overall corruption. Regardless of country context, it appears that, more than anything else, perceived corruption in tax administration and actual experiences with bribery during interactions with tax officials, affect the overall perceptions of corruption.

This paper is a product of the Governance Global Practice Group. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at branco.ponomariov@utsa.edu, obalabushko@worldbank.org, gkisunko@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

TAX ADMINISTRATION PRACTICES AND FIRMS' PERCEPTIONS OF CORRUPTION: EVIDENCE FROM EUROPE
AND CENTRAL ASIA

B. Ponomariov, O. Balabushko, G. Kisunko*

Jel classification codes: D73, H26, . Keywords: beeps, corruption, taxation, tax administration, regulatory burden.

Branco Ponomariov is an Associate Prof. at the University of Texas-San Antonio, Department of Public Administration, Oleksii Balaboshko and Gregory Kisunko are Sr. Public Sector Specialists with the World Bank.

* Authors are grateful to the World Bank colleagues: Tuan Minh Le, Steven Knack, Lead Economist, and Daniel Alvarez for reviewing earlier draft of this paper and providing important advices which made the end product better. All errors and omissions are, of course, authors' own.

CONTENTS

1. OVERVIEW	1
2. LITERATURE REVIEW	2
3. DATA AND HYPOTHESES	3
4. ANALYSIS	4
4.1 Bivariate Country level comparisons	4
4.2 multivariate Firm-level analysis (with country controls)	9
5. DISCUSSION	12
REFERENCES	14
APPENDIX	16

1. OVERVIEW

This paper analyzes the relationship between firms' perceptions of corruption and their experience in dealing with tax officials in the countries of Eastern Europe and Central Asia (ECA), using data from the the EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS). The paper investigates the extent to which experiences with corruption while interacting with tax administration affect general perceptions of corruption. Existing studies have mainly focused on the relationship between the quality of institutions and tax morale or tax compliance (e.g., Torgler & Schneider, 2009), rather than on understanding the role of tax administration-related corruption in the overall perceptions of corruption.

The literature suggests two very different readings of the relationship between firms' perceptions of taxation and corruption in tax administration. In some instances, firms may prefer to engage in corrupt activities; therefore, the economic benefit of the extracted "*favours*" may exceed the cost of bribes. For example, bribes could reduce or even help in avoiding altogether paying taxes. From firms' prospective, corruption - in taxation in particular - may become an efficient business mechanism, especially in countries with deficient institutional frameworks or unclear tax policies (Méon & Weill, 2010).

Alternatively, corruption in taxation is harmful to enterprise growth, harmful to firm operations, and a barrier to efficient economic operations (Fisman & Svensson, 2007; Lambsdorff, 2003; Mo, 2001; Salinas-Jiménez & Salinas-Jiménez, 2007). If so, companies would see paying their taxes as the least costly or least burdensome option, and therefore view corruption as a burden.

These two phenomena may interplay differently depending on the country context, i.e. from firms' point of view corruption in tax administration may be either (or perceived as) a substitute or a complement to tax liabilities creating benefits or inefficiencies, i.e. the perceptions of corruption are likely to be contingent on the actual practices of tax administration.

Findings presented in this paper provide a provisional support for the second line of reasoning – corruption in taxation as burden, rather than efficiency. Further, regardless of country context, it appears that perceived corruption in tax administration and actual experiences with bribery during tax inspections more than anything else affect the overall perceptions of corruption.

This paper is organized as follows: section 2 reviews and summarizes literatures on corruption and taxation administration that informed data analyses; section 3 then describes the data and method used; section 4 includes hypotheses used to frame analysis of the country-level data

and systematize findings. Section 5 concludes by discussing what the findings may mean operationally for decision making, at least in the countries included in the analysis¹.

2. LITERATURE REVIEW

While taxation is just one type of transaction that occurs between firms and governments, arguably corruption in taxation may account disproportionately for businesses' experience of dealing with corruption. Taxation, unlike other "one-off" transactions, such as registering a company, obtaining operation licenses, or rarely occurring ones such as connecting to electrical grid or water system, entails *recurrent and regular* interactions between businesses and government entities; and therefore, presents a recurring opportunity for both sides of the transaction to engage in corrupt behavior. Economic agents in general are intrinsically interested in understating tax liabilities (Allingham & Sandmo, 1972), and may resort to collude with government agents who, in exchange for informal payments, may assist them in reduction or complete avoidance of such liabilities (Hindriks, Keen, & Muthoo, 1999; Toye & Moore, 1998).

Earlier studies and theoretical models of corruption in tax administration (e.g. Flatters & Macleod, 1995; Hindriks et al., 1999) offer insights into the logic and consequences of corrupt tax administration. They suggest that government agents are more likely to initiate bribery by using their power and discretion to extract informal payments. Although firms can be presumed interested in minimizing their tax liability and willing to provide informal payments in exchange of lenient treatment in tax inspections, it is unrealistic – on average – to presume that they can identify and approach the appropriate tax officials to collude with. Tax inspections or audits are often difficult to predict, and generally leave most of the initiative with the government agency and officials. This implies that higher discretion of tax administrators and opportunities for frequent interaction with taxpayers may increase incidence of corruption and bribery.

The opposite claim may also be true. In the presence of corruption, tax inspection and audit rates are generally higher than in the absence of corruption (Chander & Wilde, 1992). Some have argued that in low and middle income countries², strengthening the bargaining power of corrupt tax officials may reduce tax evasion and increase tax revenues (Fjeldstad & Tungodden, 2003). Some tolerance of corruption can be a part of an efficient tax collection system (Flatters & Macleod, 1995). Through the possibility of negotiating bribes from evasive taxpayers, which

¹ The BEEPS includes all, but one (Turkmenistan), countries of the Eastern Europe and Central Asia region, as defined by the World Bank.

² Ten of 28 East European and Central Asian (ECA) countries in the BEEPS sample used for this paper are in the low- and low-middle income categories.

may motivate corrupt tax officers to work harder in order to detect evasion – ostensibly an especially likely outcome if an incentive/bonus system is put in place that would mimic or compete with the bribery system already in place (Chand & Moene, 1999). This has possible unanticipated consequences for the behavior of corrupt tax officials: the presence of a bonus system strengthens the position of the tax official in negotiating a bribe, and potentially enables them to extract a larger bribe than otherwise would be the case (e.g. to compensate for the forgone bonus).

Corruption in a country even beyond tax administration has a pervasive negative impact on tax effort. Bird and Martinez-Vaseuqz (2008) argue more legitimate and responsive state is an essential precondition for a more adequate level of tax effort in developing countries and also high-income countries. Besley and Persson (2014) provide empirical evidence of a strong negative correlation between fiscal capacity and corruption.

Thus, recent literature is still contradictory on whether taxpayers view corruption as an obstacle to doing business. According to Torgler and Schneider (2009), in countries where corruption is systemic and the government budget lacks transparency and accountability, the obligation of paying taxes cannot be assumed to be an accepted social norm – i.e. tax morale is lower. They also claim that there might be a crowding-out effect of morality among the tax administrators when there are a great number of corrupt colleagues.

This paper attempts to evaluate competing ideas in the literature about firms' experience of corruption in tax administration, using the empirical data on the prevalence and nature of firms' interactions with tax authorities in 28 ECA countries. Special emphasis is given to examination of taxation-related determinants of corruption prevalence (frequency and magnitude of bribery), as well as the effect of the interaction with tax authorities on perception of tax and overall corruption and reasons behind the situation where firms do not view corruption as an obstacle.

3. DATA AND HYPOTHESES

The paper uses data collected through the EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS).³ The paper uses the results of the most recent wave of the survey; for consistency purposes, the regression analysis presented in this paper excludes

³ The BEEPS is a joint initiative of the European Bank for Reconstruction and Development and the World Bank. The BEEPS has been carried out in five rounds: in 1999, 2002, 2005, 2008, and 2012/13 and covers virtually all former Eastern Bloc countries of Central and Eastern Europe and the former Soviet Union (except Turkmenistan), as well as Turkey. The latest BEEPS in the Russian Federation was conducted in 2011/12.

Turkey, as it was not a part of the former Eastern Bloc. Descriptive statistics for the main variables used in the analysis are in the Appendix. For the country-level analyses, we also use data on country tax rates compiled by the World Bank and Price Waterhouse Cooper for the years closest to the BEEPS 2012/2013 implementation (PricewaterhouseCoopers & World Bank Group, 2013).

This study uses these data to address two key hypotheses:

***H1:** The greater the frequency of interactions between tax authorities and a business, the greater the likelihood of perceived corruption in tax administration.*

***H2:** Corruption in tax administration (experienced and perceived) disproportionately accounts for negative perceptions of corruption in general.*

Hypothesis H1 is a derivation from the Chander and Wilde (1992) model, which suggests that in the presence of corruption, audit rates will be higher. If so, then it is plausible that firms experiencing more interactions with tax officials will also experience a tax-related bribe and/or other corrupt practices in tax administration. Accordingly, H1 is based on the assumption that the greater the number of such interactions, the more opportunities there are for corruption of one sort or another in the administration of taxes. Hypothesis H2 extrapolates the reasoning in H1 by suggesting that tax administration and corruption in tax administration may disproportionately account for overall perceptions of corruption.

4. ANALYSIS

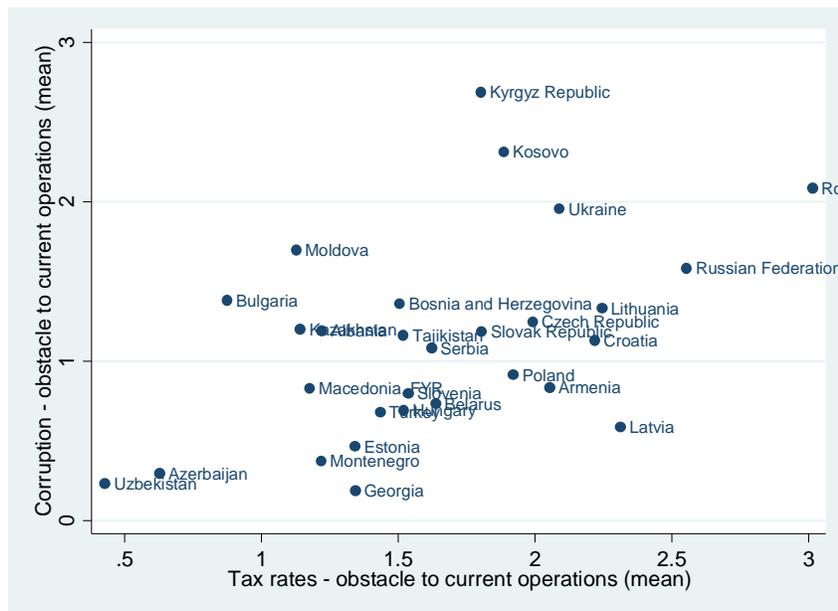
4.1 BIVARIATE COUNTRY-LEVEL COMPARISONS

This section represents a series of bivariate country-level comparisons. Although the study is based on only two related hypotheses (see above), these hypotheses involve analysis of multiple tax-related experiences as well as multiple proxies of the level of corruption. Therefore, the purpose of this section is to 1) establish preliminary support (if any) for the proposed general hypotheses, and 2) introduce and clarify the multiple operationalizations of corruption and tax-related firm experiences used in this paper. Thus, we start with a “snowball” approach at the country level where one relationship is used to formulate and test the next, before formulating multivariate firm-level models. The following bi-variate analysis and scatterplot illustrations serve to introduce the relationship rather than test causalities of

proposed indicator measures, while the firm-level multivariate analyses presented in section 4.2. utilize and test some of the introduced measures.

There is a significant ($p=0.008$) relation between county-level viewing corruption and tax rates as obstacles (Figure 1), i.e. corruption (in general, not tax-related) is perceived as a greater obstacle by firms operating in countries where tax rates are also perceived by them as a greater obstacle. This lends support to past studies (e.g. Torgler and Schneider, 2009) suggesting that tax compliance is not merely a function of institutional quality and corruption, but also of ‘tax morale’. While not a test of H1, Figure 1 suggests a relationship between tax burden and perceptions of corruption. The causal direction is not apparent, but as Figures 1a and 1b (below) suggest, perceptions of corruption may be driven specifically by the nature of the tax administration practices, *irrespective* of the actual tax burden.

Figure 1. Corruption as an obstacle vs. taxation as an obstacle (mean values indicator values)

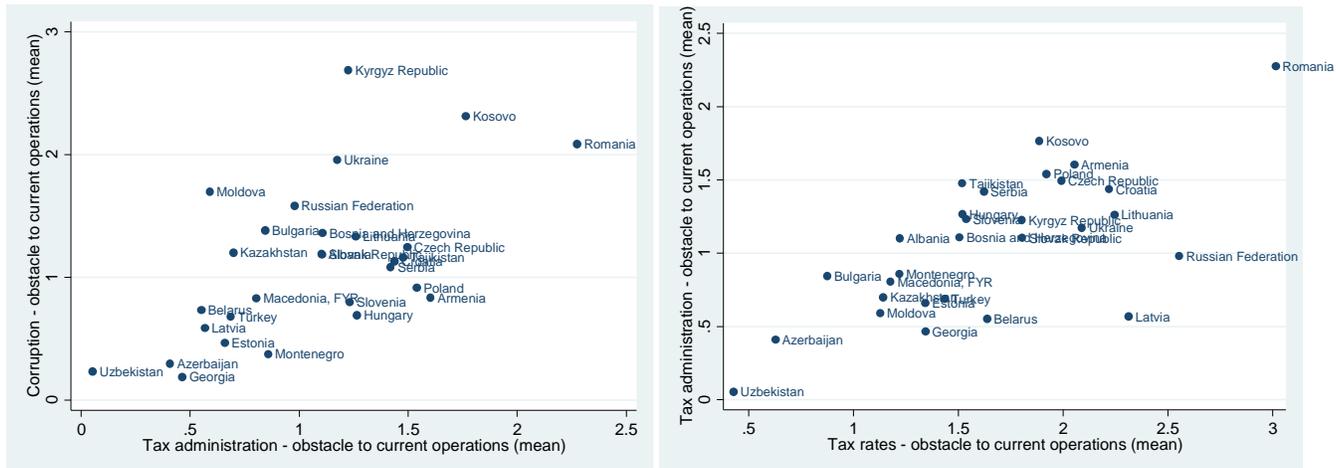


This relationship is even more pronounced in Figure 1a ($p=0.001$). Countries where tax administration is perceived as a greater obstacle are also ones where corruption in general is perceived as an obstacle. While this relationship opens the question of the underlying mechanisms, it provides indirect support to H1 by suggesting that regardless of specific ways obstacles in tax administration are experienced by firms, such perceptions account for heightened perceptions of corruption in general.

There is also a significant positive relationship between perceiving tax administration and tax rates as obstacles (Figure 1b). In countries where tax rates are perceived as a greater obstacle, firms also tend to perceive tax administration as a greater obstacle. It is inherently difficult to

discern the direction of causality is in this case, however in the context of studies of tax morale, it is likely that problems with tax administration are the driver behind perceiving tax rates as an obstacle, as troublesome tax administration can hurt tax morale.

Figures 1.a. and 1.b. Tax administration as an obstacle vs. corruption as an obstacle (left) and tax rates as an obstacle (right) (means of indicator values)



No significant correlations have been found between actual tax rates (PricewaterhouseCoopers & World Bank Group, 2013) in a country and the average perceptions of either tax rates or tax administration as obstacles to current operations (scatterplots not shown, see Figure 1 and Figure 2 in the Appendix). There are also no significant correlations between tax rates and level of tax scrutiny (e.g. percentage of firms reporting tax inspections); see Figure 3 in the Appendix.

These observations have important implications for further analysis. If the perception of tax rates as an obstacle is insensitive to the actual tax rates, then firms might be confounding general difficulties associated with tax administration (tax compliance cost) with actual costs of taxes (the number of taxes and tax rates). In particular, tax administration may be perceived as an obstacle when and because it involves bribes or the level of discretion of tax administration leads to ambiguity in compliance rules and practices.

Analysis of determinants of perceptions of tax rates and tax administration at the firm level supports this supposition (see Table 2 in the Appendix). Being tax-inspected predictably reduces the likelihood that firms will agree that tax rates and tax administration are not an obstacle (see Appendix Table 2, models 1 and 4). However, intensity of tax scrutiny (e.g. number of tax inspections), and also paying a bribe in the context of a tax inspection (Table 2 Models 3 and 6) have no effect on perceptions of tax rates as an obstacle, but increase the probability of companies perceiving tax administration as an obstacle. This suggests a distinction between

incidence (whether a firm was inspected) and intensity (how many times a firm was inspected) of tax scrutiny (see firm-level analysis).

It appears that tax scrutiny incidence (i.e. percentage of firms that were visited by a tax official) at the country level is positively correlated with perceiving bribery as frequent in tax administration ($p=0.002$) – see Figure 2. This is unsurprising: bribe taking is implausible unless there is a context for occurrence (e.g. an inspection). This relationship is potentially interesting only in the sense that the responses to the question regarding frequency of bribery in tax administration include firms that were not inspected. In other words, the survey responses at the firm level may be able to capture important country-level structural features, beyond firms' individual experiences. This relationship also reinforces the point made earlier that although it may be in the interest of firms to collude with tax officials, the initiative for engaging in corrupt behavior in tax administration belongs to the tax inspectors/officials.

Figure 2. Bribery is frequent when dealing with taxes vs tax inspected firms (percentage)

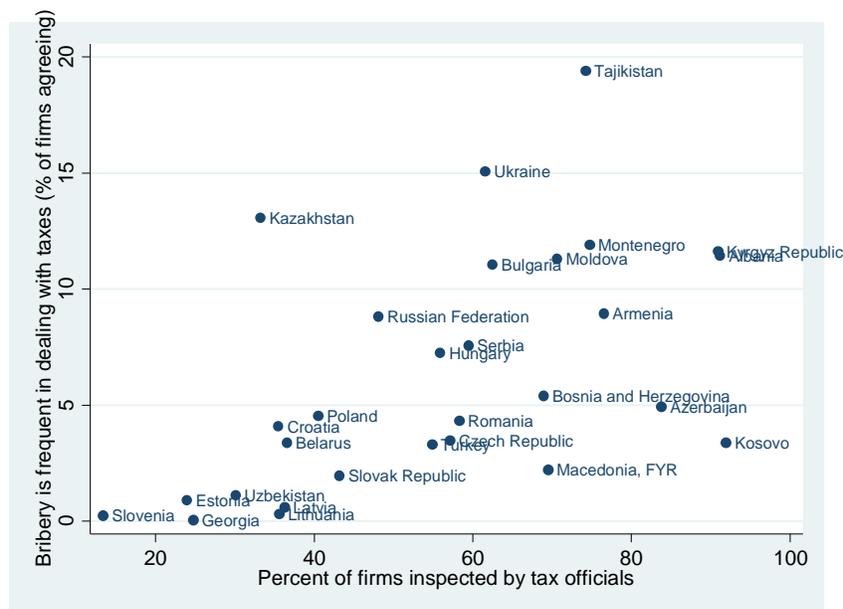


Figure 3 shows a positive and significant ($p=0.027$) relation between average cost of bribery (measured as percentage of annual sales), and average perceptions of corruption as an obstacle. This result suggests that perceptions of corruption are substantially driven by actual experiences with bribery. If so, then one of the plausible mechanisms underlying the positive relationship between perceiving tax administration as an obstacle and corruption as an obstacle is likely to be actual bribe incidence in the context of tax administration.

Corruption (bribery) in tax administration appears to have a role ($p=0.00$) in perceptions in the frequency of bribery in tax administration (Figure 3a). In countries where a larger portion of the

subset of inspected firm reported a bribe in the context of tax administration, all firms tend to perceive bribery as more frequent in taxation.

Figure 3. Bribery as a share of annual sales and perception of corruption as an obstacle (percentage vs. mean value of indicator)

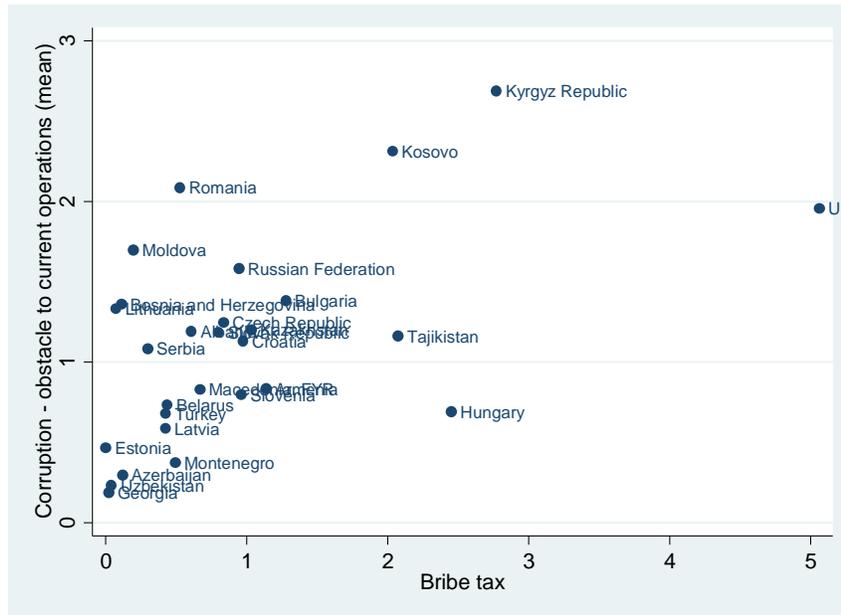
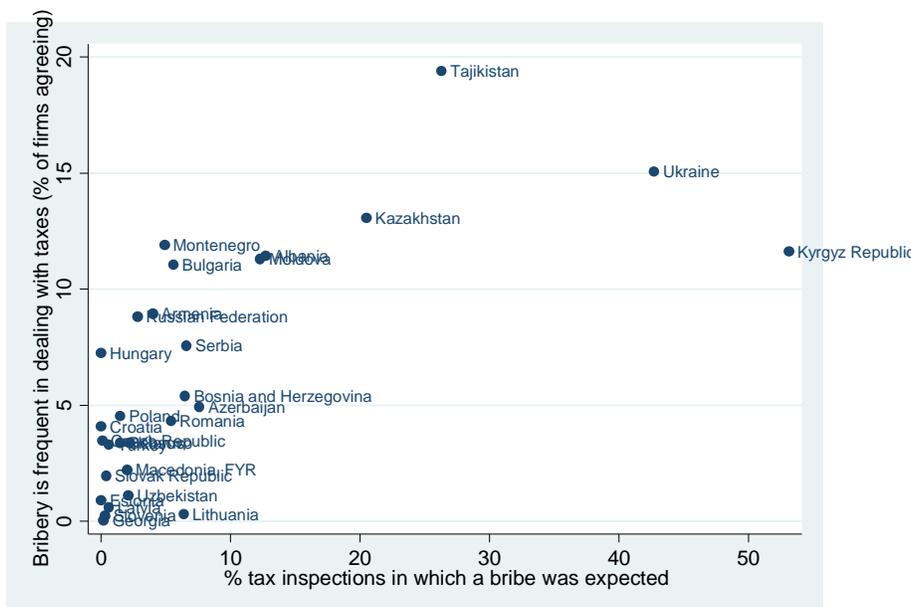


Figure 3.a. Percentage of firms perceiving bribes in taxation as frequent vs. percentage of inspected firms who reported a bribe



The above illustrations indirectly support the hypotheses that perceptions of corruption may be substantially accounted for by problems with tax administration (including bribery).

4.2 MULTIVARIATE FIRM-LEVEL ANALYSIS

The analysis in this section explores the relationships described in section 4.1, controlling for country effects, to better understand how corruption in tax administration varies across countries in ECA at the firm level.

Table 1 presents abbreviated results of logit models explaining firms' perception of corruption as an obstacle to current operations as a function of bribes as a percentage of annual sales (bribe tax) and tax official's visits, along with size, sector, and country controls (country controls omitted from the table). For the full table, including controls (other than country controls), see the Appendix. The dependent variable - perceived corruption - is binary, coded "1" if respondents indicated that corruption is "not an obstacle" to current operations, zero otherwise; therefore, a negative coefficient indicates higher perceptions of corruption. For full names of variables see Appendix Table 1.

The bribe tax is positively associated with perceiving corruption as an obstacle (Models 1 & 2). Firms reporting paying bribes are less likely to agree that corruption is *not* an obstacle to their current operations, although the effect appears discrete, rather than continuous. Specifically, the effect seems to be accounted by the dichotomy between paying and non-paying firms in the country (Model 3), rather than by the relative size of the bribe (Model 4): once any bribe is paid, its relative size has no statistically significant impact on perceptions of corruption.

As a broad measure of paying bribes, "bribe tax" appears to be of peripheral importance for this study and mainly useful as a benchmark for the effect of tax-related experiences and perceptions on corruption. The fact of being inspected by tax authorities has no apparent effect on overall perceptions of corruption (Model 1), while the level or intensity of tax scrutiny (i.e. number of inspections or meetings) does. The more inspections a firm is subjected to, the less likely it is to agree that corruption is 'Not an obstacle' (Models 2 & 3). However, for bribe paying firms (any bribes), this effect no longer applies (Model 4).

Within the subset of tax-inspected firms, the number of tax visits is positively and significantly associated with the likelihood that a tax-related bribe was paid (Model 5). This may be attributed to the fact that a larger number of tax visits increases the likelihood that a bribe is paid: once both number of tax visits and whether or not a tax-related bribe was paid are factored in (Model 7), the number of tax visits no longer has a significant effect.

Table 1. Logit models of perceptions of corruption as an obstacle and of likelihood of paying tax-related bribe (country and sector controls omitted from output)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: Corruption - not an obstacle to current operations (binary)								
Bribe tax (all firms)	-0.145*** (1.02e-06)	-0.142*** (1.44e-06)			0.0734*** (0.00354)	-0.104*** (0.000220)	-0.117*** (0.00265)	
Number of tax inspections (all firms)		-0.0284** (0.0465)	-0.0241* (0.0665)	-0.00929 (0.831)		-0.0237* (0.0926)		-0.0219 (0.108)
Bribe tax (incidence - % firms reporting non-zero payment)			-1.827*** (0)					-1.522*** (0)
Firm was visited/inspected by a tax official in the last year	-0.110 (0.256)							
Number of tax inspections (inspected firms only)					0.0238*** (0.00920)		-0.0170 (0.171)	
Bribe was expected during tax inspection							-1.243*** (0.000625)	
Bribe tax (firms reporting non-zero percentage)				0.0143 (0.341)				
Bribery is frequent in tax administration						-0.417*** (1.18e-05)	-0.284** (0.0453)	-0.363*** (0.000285)
Bribery is frequent in customs						-0.0977 (0.424)	-0.323** (0.0187)	-0.139 (0.269)
Bribery is frequent in courts						-0.0883 (0.354)	-0.152 (0.269)	-0.0870 (0.368)
Firm size: medium (20-99 employees)	-0.173 (0.103)	-0.164 (0.123)	-0.165 (0.123)	-0.301 (0.399)	-0.0965 (0.733)	-0.172 (0.140)	-0.131 (0.435)	-0.179 (0.128)
Firm size: large (>100 employees)	-0.145 (0.379)	-0.143 (0.394)	-0.159 (0.340)	-0.380 (0.439)	0.337 (0.316)	-0.0250 (0.893)	0.168 (0.473)	-0.0402 (0.826)
Constant	-0.131 (0.506)	-0.155 (0.429)	-0.0543 (0.777)	- 2.993** *	- 3.452*** (0)	0.963*** (7.48e-06)	1.314*** (8.25e-05)	1.019*** (1.78e-06)
Observations	10,292	10,080	10,166	1,234	5,133	8,959	4,778	9,043

Models 6 through 8 add information on the perception of bribe frequency in tax authorities, courts, and customs. Perceptions of bribery in courts and customs have no apparent effect on overall perceptions of corruption as an obstacle (except for firms that paid a tax-related bribe and for which perception of corruption in customs is associated with general perceptions of corruption – Model 7). However, perceptions of a corrupt tax system significantly and

negatively influence perceptions of overall corruption as an obstacle to current operations, thereby supporting H2.

Examination of the effect of interactions with the tax authorities on the perceptions of bribe frequency in tax administration suggests that similarly to the findings on general perceptions of corruption as an obstacle, the mere fact of undergoing tax inspection has no apparent impact on perceptions of bribery (Table 2, Model 1). Neither does the intensity of tax scrutiny, approximated by the number of inspections (Table 2, Models 2 & 3). However, for inspected firms, number of inspections is significantly and positively associated with perceptions of bribery in tax administration (Model 1). The perception that bribery is frequent in tax administration is driven primarily by actual experiences of paying bribes – either general (Models, 1, 2&3), or tax-related (Model 3). In particular, “bribe tax” (referring to paying any bribes in general) and having been expected to pay a bribe in the context of a tax inspection specifically are both positive and significant predictors of the perception that “bribery is frequent in dealing with taxes.”

Bribe tax remains a significant predictor of perceived bribery in dealing with taxes for the subset of tax-inspected firms only (Model 4). However, for tax-inspected firms reporting non-zero bribe tax (Model 5), the size of the bribe has no effect on perceptions of bribery in dealing with taxes, while bribe requests in the context of tax inspection do, suggesting *indirectly* that most of the general experience with bribery may be through tax-related bribes.

For bribe paying firms, the relative size of the bribe no longer relates to perceptions of bribery in tax administration, but the number of tax visits does (Model 4). The same connection persists if the subset of firms is limited to those who paid a tax-related bribe specifically (Model 5).

In summary, it appears that tax scrutiny by itself is associated with heightened perceptions of corruption in general (Table 1), and perceptions of bribe frequency when dealing with tax administration, even when controlling for actual tax-related bribe incidence (Table 2). Further, actual experiences of paying bribes, whether tax-related or not, affect perceptions of overall and tax-related corruption. Within the subset of bribe-paying firms, a tax-related bribe still has a positive (meaning higher perception) significant effect on perception of bribery in tax administration (Table 2, Model 5).

While these findings may be ambiguous regarding the effects of bribery on perception of corruption, there is a clear dichotomy between bribe paying and non-bribe paying firms, where the latter clearly rank corruption as a lesser problem than bribe paying firms do. Moreover, within the bribe paying firms, the relative size of bribes appears to have no apparent effect on perceptions of corruption.

Table 2. Ordered logit models of perceptions of bribe frequency in tax administration (country and sector controls omitted from output)

	(1)	(2)	(3)	(4)	(5)
Dependent variable: Bribery is frequent in tax administration					
Firm was visited/inspected by a tax official in the last year	-0.0213 (0.855)				
Bribe tax (all firms)	0.0775*** (0.00213)	0.0770*** (0.00233)	0.0420** (0.0317)		
Number of tax inspections (all firms)		0.00884 (0.371)			
Number of tax inspections (inspected firms only)			0.00136 (0.885)	0.119*** (0.00752)	0.0658** (0.0384)
Bribe was expected during tax inspection			1.898*** (0)		1.346*** (0.00142)
Bribe tax (firms reporting non-zero percentage)				0.0887 (0.264)	-0.0111 (0.422)
Firm size: medium (20-99 employees)	-0.0486 (0.739)	-0.0585 (0.689)	-0.208 (0.238)	-0.509 (0.439)	-0.104 (0.777)
Firm size: large (>100 employees)	0.274 (0.126)	0.291 (0.110)	0.0470 (0.877)	0.323 (0.797)	0.0503 (0.925)
Constant	0.519** (0.0278)	0.526** (0.0237)	0.827*** (0.00168)	-1.489 (0.373)	-0.156 (0.800)
Constant	1.407*** (1.19e-08)	1.419*** (4.77e-09)	1.764*** (1.48e-10)	-0.184 (0.902)	0.608 (0.333)
Constant	2.524*** (0)	2.531*** (0)	2.871*** (0)	2.559* (0.0656)	2.438*** (0.000354)
Constant	3.598*** (0)	3.601*** (0)	4.023*** (0)	3.853*** (0.00513)	3.598*** (7.89e-08)
Constant	4.260*** (0)	4.265*** (0)	4.986*** (0)	5.666*** (2.55e-05)	5.041*** (7.74e-11)
Observations	9,811	9,613	5,097	263	678

The combination of findings suggests that simultaneously two theories of business corruption are plausible – corruption as a distortion and an obstacle, and corruption as an efficient mechanism to secure valued services.

The finding that more intense tax scrutiny tends to be associated, albeit tentatively, with heightened general perceptions of corruption as well as with the perception of bribery in tax administration also suggests that the practices of tax administration in relation to corruption may go beyond efficient arrangements for both firms and tax officials, and may be evidence of rent-seeking behavior from the side of government officials.

The extent to which tax scrutiny is associated with corruption appears conditional on factors *not* clearly captured by country dummies.

5. DISCUSSION

The analysis of firm-level data across 28 countries showed a significant correlation between frequency of tax-related interactions between government agents and a particular firm and this firm's perception of tax administration as corrupt. This measure gets beyond self-reports of tax morale (e.g., attitudes towards tax evasion, see Torgler & Schneider, 2009) to more discrete and non-cognitive operationalization. Though our measure is still self-reported, the likelihood of social desirability bias is lower than is the case with affective measures like tax morale.

Based on the correlations observed in the data, the following storyline seems to emerge. Where businesses view the tax system as corrupt, perception of overall corruption as an obstacle to firms' operation is high. At the same time, the mere fact of undergoing tax inspection has no apparent impact on perceptions of bribery, but with frequency of inspection increasing, the positive correlation with corruption is observed. The relative size of the bribe does not influence perceptions of bribery in dealing with taxes, while bribe requests in the context of tax inspection do. This suggests that the theory that corruption may be an efficient substitute for the formal systems may not hold: distortions from bribery regardless of its size are viewed by the private sector as an obstacle.

The analysis indicates that frequency of interaction is associated with higher corruption, but it cannot account for the notion that frequency can be interpreted differently depending on context. Governments could regularize and/or reduce the number of tax-related (and other) interactions they have with private enterprises, but the mode of interaction and institutional strength of tax administration in a country may play a role. The recent rise of e-services in tax administration may or may not help to improve these interactions. Looking at different ways of providing such e-services could shed light on their effectiveness. It is not possible to examine these based on the available data.

At a minimum, pursuing tax collection strategies involving minimum friction (e.g., easy to use and monitor electronic tax collection mechanisms) in addition to appearing desirable on its own terms, may also result in the added benefit of driving down overall perceptions of corruption in a country. To be clear, while the correlational analyses above are suggestive that frequency means something different in the latter than the former, our data do not speak specifically to this sort of interpretation. This calls for future research on interconnectedness between corruption in tax administration and modes of intervention as well as interpretation of frequency of tax inspections in different country and governance contexts.

This paper only touched upon one area of tax administration – tax inspections – which may impact the perceptions of corruption. Going forward, including variables on tax regime complexity, clarity of tax legislation or lack of thereof, and existence of transparency mechanisms such as internal audit and dispute resolution systems can also have an impact on the perception of corruption in tax administration during inspection as well as in other cases, such as arrears collection or refunds.

REFERENCES

- Allingham, M. G., & Sandmo, A. (1972). Income tax evasion: a theoretical analysis. *Journal of Public Economics*, 1(3-4), 323-338.
- Besley, T., & Persson, T. (2014). Why do developing countries tax so little? *The Journal of Economic Perspectives*, 28(4), 99-120.
- Bird, R., & Martinez-Vazquez, J. (2008). *ax Effort in Developing Countries and High Income Countries: The Impact of Corruption, Voice and Accountability*: Economics Faculty Publications.
- Bose, P., & Echazu, L. (2007). Corruption with heterogeneous enforcement agents in the shadow economy. *Journal of Institutional and Theoretical Economics JITE*, 163(2), 285-296.
- Buehn, A. & Schneider, F. (2009). Corruption and the shadow economy: like oil and vinegar, like water and fire? *International Tax and Public Finance*, 19(1), 172-194.
- Chand, S. K., & Moene, K. O. (1999). Controlling Fiscal Corruption. *World Development*, 27(7), 1129-1140. doi: [http://dx.doi.org/10.1016/S0305-750X\(99\)00050-9](http://dx.doi.org/10.1016/S0305-750X(99)00050-9)
- Chander, P., & Wilde, L. (1992). Corruption in tax administration. *Journal of Public Economics*, 49(3), 333-349. doi: [http://dx.doi.org/10.1016/0047-2727\(92\)90072-N](http://dx.doi.org/10.1016/0047-2727(92)90072-N)
- Choi, J. P., & Thum, M. (2005). CORRUPTION AND THE SHADOW ECONOMY*. *International Economic Review*, 46(3), 817-836. doi: 10.1111/j.1468-2354.2005.00347.x
- Fisman, R., & Svensson, J. (2007). Are corruption and taxation really harmful to growth? Firm level evidence. *Journal of Development Economics*, 83(1), 63-75. doi: <http://dx.doi.org/10.1016/j.jdeveco.2005.09.009>
- Fjeldstad, O.-H., & Tungodden, B. (2003). Fiscal Corruption: A Vice or a Virtue? *World Development*, 31(8), 1459-1467. doi: [http://dx.doi.org/10.1016/S0305-750X\(03\)00089-5](http://dx.doi.org/10.1016/S0305-750X(03)00089-5)
- Flatters, F., & Macleod, W. B. (1995). Administrative corruption and taxation. *International Tax and Public Finance*, 2(3), 397-417. doi: 10.1007/BF00872774
- Hindriks, J., Keen, M., & Muthoo, A. (1999). Corruption, extortion and evasion. *Journal of Public Economics*, 74(3), 395-430. doi: [http://dx.doi.org/10.1016/S0047-2727\(99\)00030-4](http://dx.doi.org/10.1016/S0047-2727(99)00030-4)
- Méon, P.-G., & Weill, L. (2010). Is Corruption an Efficient Grease? *World Development*, 38(3), 244-259. doi: <http://dx.doi.org/10.1016/j.worlddev.2009.06.004>
- Mo, P. H. (2001). Corruption and Economic Growth. *Journal of Comparative Economics*, 29(1), 66-79. doi: <http://dx.doi.org/10.1006/jcec.2000.1703>

PricewaterhouseCoopers; World Bank Group. 2013. Paying Taxes 2014 : The Global Picture. World Bank Group, Washington, DC. World Bank.
<https://openknowledge.worldbank.org/handle/10986/18969> License: CC BY 3.0 IGO

Salinas-Jiménez, M. d. M., & Salinas-Jiménez, J. (2007). Corruption, efficiency and productivity in OECD countries. *Journal of Policy Modeling*, 29(6), 903-915. doi:
<http://dx.doi.org/10.1016/j.jpolmod.2007.07.002>

Torgler, B., & Schneider, F. (2009). The impact of tax morale and institutional quality on the shadow economy. *Journal of Economic Psychology*, 30(2), 228-245. doi:
<http://dx.doi.org/10.1016/j.joep.2008.08.004>

Toye, J., & Moore, M. (1998). Taxation, corruption and reform. *The European Journal of Development Research*, 10(1), 60-84. doi: 10.1080/09578819808426702

Wallerstein, I. M. (2004). *World-systems analysis : an introduction*. Durham: Duke University Press.

APPENDIX

Table 1. Descriptive statistics

Description	Variable name	Mean / %	SD	Range	Valid N
Corruption - not an obstacle to current operations (binary)	J30noob	46%	-	-	13,600
Corruption perceived as an obstacle to operations (ordinal)	J30f	1.28	1.42	0-4	13,600
Tax rates – obstacle to current operations					
Tax administration – obstacle to current operations					
Firm was visited/inspected by a tax official in the last year	J3				
Number of tax inspections (all firms)	J4_all	1.15	3.38	0-150	13,668
Number of tax inspections (inspected firms only)	J4	2.43	4.58		7,394
Bribe was expected during tax inspection	J5	6%	-	-	7,210
Bribe tax (all firms)	J7_full	0.71	3.77	0 - 99	10,736
Bribe tax (firms reporting non-zero percentage)	J7_paymen t_happene d	5.9	10.4	3.14e-08 - 99	1,304
Bribe tax (incidence - % firms reporting non-zero payment)	J7_paymen t_fact	14%	-	-	10,825
Bribery is frequent in tax administration	ECAq41c				
Bribery is frequent in customs	ECAq41b				
Bribery is frequent in courts	ECAq41a				
Sector: Construction	Sector_1	15%	-	-	14,187
Sector: Hotels and restaurants	Sector_2	5%	-	-	14,187
Sector: Manufacturing	Sector_3	31%	-	-	14,187
Sector: Wholesale and retail	Sector_4	39%	-	-	14,187
Sector: Transport and communications	Sector_5	7%	-	-	14,187
Sector: Other services / IT	Sector_6	3%	-	-	14,187
Firm size: small (<19 employees)	Size_1	648%	-	-	14,187
Firm size: medium (20-99 employees)	Size_2	29%	-	-	14,187
Firm size: large (>100 employees)	Size_3	7%	-	-	14,187

Figure 1. Total tax rate vs. perceptions of tax rates as an obstacle

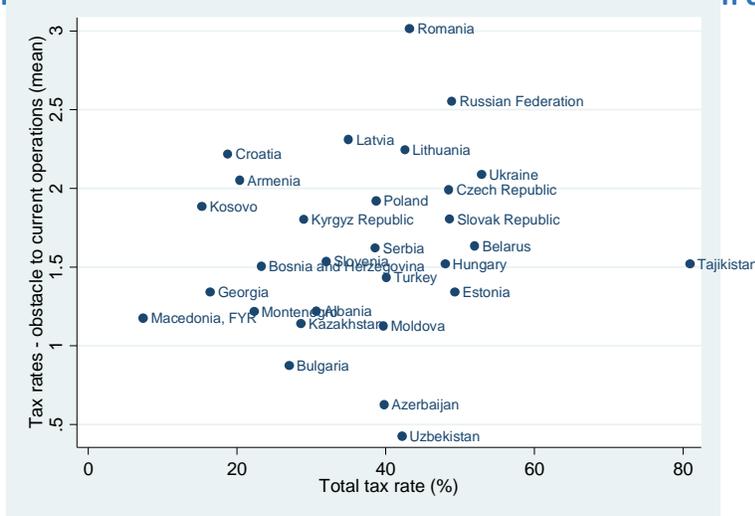


Figure 2. Total tax rates vs. perceptions of tax administration as an obstacle

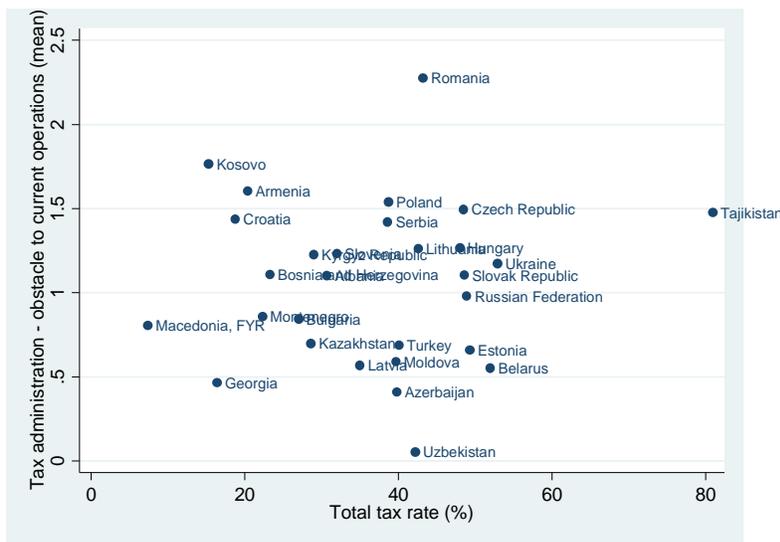


Figure 3. Total tax rate vs. percentage of tax-inspected firms

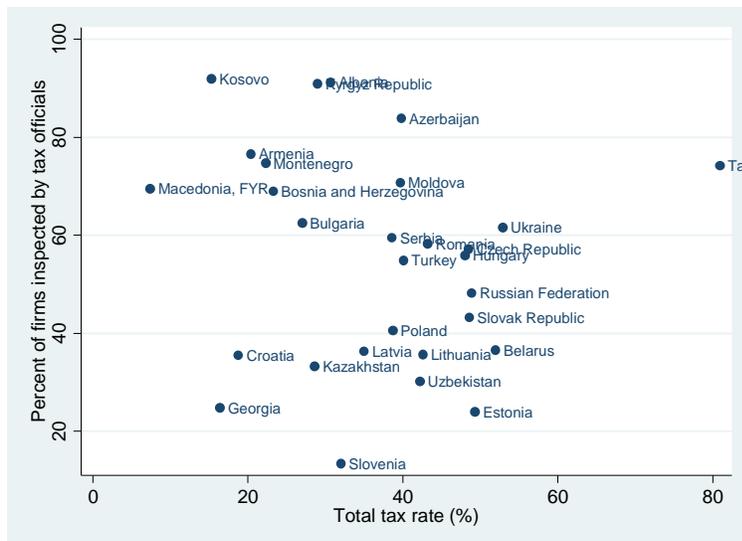


Table 2. Logit models, determinants of tax administration and tax rates as “no obstacle”, country controls omitted⁴

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	j30anoob	j30anoob	j30anoob	j30bnoob	j30bnoob	j30bnoob
Firm was visited/inspected by a tax official in the last year	-0.202** (0.0378)			-0.307*** (0.00019)		
Number of tax inspections (all firms)		-0.0171 (0.248)			-0.0652*** (0.00024)	
j4			-0.00662 -0.567			-0.0276* (0.0664)
j5			-0.337 -0.351			-1.415*** -9.02E-08
medium	-0.133 (0.224)	-0.135 (0.219)	-0.111 (0.48)	-0.129 (0.158)	-0.13 (0.159)	-0.078 (0.551)
large	0.0889 (0.581)	0.124 (0.445)	-0.0488 (0.806)	-0.0213 (0.879)	0.0124 (0.932)	0.0807 (0.668)
sector_2	0.414 (0.115)	0.379 (0.155)	0.517 (0.13)	0.126 (0.58)	0.14 (0.541)	0.333 (0.292)
sector_3	0.134	0.144	0.0975	0.0241	0.0732	-0.0721

⁴ For the list of variable names, see Table 1 in the Appendix.

	(0.459)	(0.433)	(0.706)	(0.868)	(0.623)	(0.721)
sector_4	0.0455	0.0218	0.141	-0.0943	-0.0778	-0.0978
	(0.808)	(0.909)	(0.575)	(0.516)	(0.605)	(0.627)
sector_5	0.196	0.195	0.124	0.137	0.171	0.123
	(0.416)	(0.422)	(0.71)	(0.493)	(0.399)	(0.671)
sector_6	0.519	0.494	0.538	-0.12	-0.0787	-0.268
	(0.158)	(0.187)	(0.375)	(0.665)	(0.782)	(0.559)
Constant	-1.890***	-1.948***	-2.093***	0.273	0.167	-0.0301
	(0)	(0)	(0)	(0.118)	(0.342)	(0.887)
Observations	13,879	13,551	6,887	13,832	13,501	6,864