Quality of Tax Administration

How Relevant Is Country Size?

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Abstract

Repeated attempts at uncovering the relevance of country size for various economic factors have produced discouraging results. The present paper sheds new light on the relevance of country size using micro or firm-level data on firms' experience with the quality of tax administration, an important but neglected element of the business climate. The analysis finds that the quality of tax administration is significantly better for

small compared with large countries. The instrumental variables regression method confirms that this finding is robust to various endogeneity concerns. The paper also finds some evidence that the country size and tax administration relationship is non-linear, and much stronger for small than large countries. Implications of these findings for the broader literature on country size are discussed.

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Quality of Tax Administration: How Relevant Is Country Size?

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1. Introduction

A striking feature of the limited literature that exists on country size is that country size does not seem to matter much for various social and economic variables. For example, a recent study by Rose (2006) uses panel data for 200 countries and for over 40 years for a large number of socio-economic variables. However, the study fails to find any significant impact of country size on for example, income level, inflation, material wellbeing, health, education, quality of a country's institutions and a number of different indices and rankings. The only exception is the volume of international trade (exports plus imports as a percentage of GDP) with small countries showing higher trade volumes than large countries. The present paper takes a novel approach towards uncovering the relevance of country size by using micro or firm-level data on firms' experience with tax administration, an important but neglected aspect of the business environment. The results show that country size matters and in a robust way for the quality of tax administration. Implications of our findings for the broader literature are discussed.

Empirical work on the effect of country size on various social and economic variables is rather limited. However, theoretical studies suggest a number of channels through which country size may matter. For example Alesina and Spolaore (2003) list a number of country size related benefits that include lower per capita costs of public goods (monetary and financial institutions, judicial system, communication infrastructure, police and crime prevention, public health, etc.) and more efficient tax systems; cheaper per capita defense and military costs; greater productivity due to specialization (though access to international markets may reduce this effect); greater ability to provide regional insurance; and greater ability to redistribute income within the country. Against these potential benefits, there are some disadvantages of being large. For example, it is argued that larger countries have more diverse preferences, cultures and languages

and this greater heterogeneity of preferences may make it more difficult to reach consensus on growth enhancing reforms. Another potential problem with large countries is congestion or administrative costs that may escalate with country size.

Our focus on tax administration is motivated by two factors. First, as mentioned above, scale effects suggest that the cost of providing public goods may depend significantly on country size. However, it is also possible that congestion costs may lead to more complicated, inefficient and unwieldy tax systems among the relatively larger countries. Given these contrasting scale and congestion effects, what can we say about the quality of tax administration in small vs. large countries? The present paper attempts to answer this question. Second, anecdotal evidence suggests that tax administration is an important element of the business climate. However, very little is known about the quality of tax administration and the sorts of factors that determine it. For example, in the survey of over 11,000 firms in 30 countries in Eastern Europe and Central Asia conducted by the World Bank in 2008 that we use for the present study, more than 20 percent of the firms reported tax administration as a major or a very severe obstacle for their business and another 24 percent as a moderate obstacle. For a comparison, the corresponding figures for obtaining licenses and permits as reported in the survey are 17 and 18 percent, respectively.

The use of micro data complements existing studies that are exclusively focused on macro or country level data. Specifically, we use a survey of non-agricultural firms in 30 countries in Eastern Europe and Central Asia conducted by the World Bank in 2008. The survey reports firms' experience with the quality of tax administration as measured by how severe is tax administration (on a 0 to 4 scale) as an obstacle to the current operations of the firm. Use of such experienced based measures is becoming increasingly popular in the literature. For example,

Beck et al. (2005) use the severity of access to finance as an obstacle to firms' operations as perceived by the firms and show that the severity level is inversely correlated with firm growth; Djankov et al. (2003) show that a higher degree of judicial formalism is associated with lower perceptions of enterprises of courts' fairness, honesty and consistency; Beck, Demirguc-Kunt and Levine (2006) and Barth et al. (2009) show that a more market-based supervisory approach and more efficient systems of credit information sharing are associated with lower financing constraints as perceived by the firms. Also see for example, Beck et al. (2010) and Safavian and Sharma (2007).

There are a number of advantages of using micro over macro data. First and at a broad level, using micro data provides an additional layer of robustness check for the existing results based on macro data. Qualitatively, are the findings based on macro data similar to the ones based on micro data? Second, the experience based measure we use is an overall summary measure of the quality of tax administration. That is, by its very nature, the measure covers all possible features of the tax administration system that may affect firms. In contrast, macro-level measures typically capture at best a few aspects of the phenomena under study. For example, the World Bank's Doing Business project reports on the time it takes to prepare, file and pay three major types of taxes and contributions. We use this measure below to check the robustness of our main results. However, this macro-level measure is at best a partial measure as it does not include for example, the monetary cost or the hassle of complying with tax procedures. It is possible that two agents may take the same amount of time in complying with tax procedures but they may experience different levels of difficulty and costs in doing so. Our experience based measure picks up any such difference. Third and somewhat related to the previous point, macro datasets have by and large failed to capture the enforcement of existing laws and barriers to

businesses. Typically, they capture laws on the books that are only part of the story. Beyond the enforcement issue, macro datasets offer little information on how binding are for example, tax administration procedures on the private agents. A simple count of the number of tax procedures or the time it takes to comply with all tax procedures may not portray the full picture as to the sorts of countries that have more burdensome tax administration – it may depend on for example, the opportunity cost of time to the firms. We believe that our micro measure captures not just laws on the books but also their enforcement and how binding they are on the firms. Fourth, recent firm-level surveys such as the one used in the present paper offer a rich set of information about various economic phenomena that is typically not available in macro data. For example, the firm-level data we use contains detailed information about various firm characteristics such as age, size, ownership structure, gender of the owner, years of managerial experience and the quality of the broader business environment as experienced by the firm. Fifth, by utilizing firm-level data, we are able to control for cross-country differences in for example, the composition of corporate sector and firm-size, which might cause spurious correlation in aggregate regressions.

Another novelty of the present paper is in exploring the possible non-linear effect of country size on the quality of tax administration. Specifically, we check if the strength of the proposed relationship between country size and tax administration is the same or does it vary across small vs. large countries. While there is little theoretical work on the issue, it is entirely possible that there could be increasing or decreasing returns to country-size. For example, if being large leads to more complicated tax rules and more wieldy tax administration (congestion costs), this effect may kick in only after a critical country size is reached or it may cease to matter at the margin once a country crosses a critical level in size. We treat the possibility of a non-linear effect of country size on tax administration as a purely empirical issue.

We would like to point out that while our main focus is on micro-level data as mentioned above, we check our main results using macro or country-level data on a measure of the quality of tax administration which is the time it takes to prepare, file and pay three major types of taxes and contributions – corporate income tax, value added or sales tax and labor taxes, including payroll taxes and social contributions. The data for the variable come from the World Bank’s Doing Business project.

The plan of the remaining sections is as follows. In section 2 we describe the data and the empirical methodology. Estimation results for the linear specification using the ordinary least squares, ordered logit and the instrumental variables estimation method are provided in Section 3. Results for the non-linear specification are provided in Section 4. Regression results using macro-level data are provided in Section 5. The concluding section summarizes the main results and suggests scope for future work.

2. Data and methodology

Our main data source is the survey of over 11,000 firms in 30 countries in Eastern Europe and Central Asia conducted by the World Bank in 2008 (Business Environment and Enterprise Performance Survey (BEEPS, 2009), Enterprise Surveys). The countries covered by the survey include Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine and Uzbekistan. The survey is designed to be representative of the non-agricultural private economy at the country level and contains a mixture of manufacturing and service firms, small and large firms and young and old firms.

The survey provides information on a wide range of firm characteristics and firm performance measures. It also reports on firm's experience with various aspects of the business climate such as infrastructure availability, access to finance, corruption, tax rates, inspections by government officials and tax administration. We complement these data with country level data from various sources including World Development Indicators (World Bank) and Heritage Foundation (discussed below).

A formal definition of all the variables used in the regressions is provided in Table 1. Summary statistics of all the variables is contained in Table 2 and the correlation between the explanatory variables is provided in Table 3A and Table 3B. All regression results discussed below are based on Huber-White robust standard errors and clustered on the country. For estimation, we use the ordinary least squares, ordered logit and instrumental variables regression methods.

2.1 *Dependent variable*

Our dependent variable is a measure of the quality of tax administration as experienced by the firms. In one question in the survey, firms were asked how severe tax administration is as an obstacle to their current operations. Response of firms was recorded on a 0-4 scale: no obstacle (0), minor obstacle (1), moderate obstacle (2), major obstacle (3) and very severe obstacle (4). These responses constitute our dependent variable, *Tax Administration*. Note that higher values of the dependent variable imply worse (more burdensome to firms) tax administration.

The mean value of the dependent variable equals 1.4 and the standard deviation is 1.3. In terms of the distribution, about 33 percent of the firms selected no obstacle, 22 percent selected

minor obstacle, 24 percent selected moderate obstacle, 13 percent selected major obstacle and 8 percent selected very severe obstacle.

2.2 Explanatory variables

Our main explanatory variable is a measure of country size. We follow the literature in using total population of the country as a proxy for country size. Specifically, we use (log of) the average level of population over 2001-2005 period (*Population*). Lagged values of population are used to avoid simultaneity problem. In our sample, the mean value of *Population* equals 15.7 (16.8 million without logs) and standard deviation is 1.3 (28.5 million without logs). The smallest country in the sample is Montenegro (0.64 million without logs) and the largest country is Russia (145 million without logs).

It is unlikely that the current (2007-2008) severity of tax administration as an obstacle to firm-growth could have affected the level of population in the past (2001-2005). Apart from the fact that lagged values of population are used, it is difficult to see how tax administration which varies at the firm level could affect the level of population which varies at the country level. In short, reverse causality from tax administration to the level of population is highly unlikely. However, our estimation results could still suffer from spurious correlation or the omitted variable bias problem. To guard against this potential problem, we control for a number of variables at the country and the firm-level.

First, we control for (log of) GDP per capita, PPP adjusted and at constant International Dollars, average values over 2001-2005 (*Income*). We use income as a broad measure of the level of overall economic development. It is natural to expect countries at higher income levels to have better or less burdensome tax administration. If income level also varies systematically

across small and large countries then the possibility of spurious correlation with our main results cannot be ruled out; hence, the need to control for income level.

We had mentioned above that trade openness is one of the few variables that shows a strong correlation with country size. Small countries tend to be more open to trade than large countries. There is also some hint in the literature that the more open economies tend to have a better business environment. If tax administration specifically or as part of the broader business climate is also correlated with trade openness then failure to control for trade openness can lead to an upward bias in our estimate of the tax administration and country-size relationship. We counter such possibility by controlling for trade openness defined as (log of) merchandise exports plus imports as a percentage of country's GDP, average values over 2001-2005. Data source for the variable is World Development Indicators, World Bank.

Our next control is the overall quality of the business environment as measured by the Business Freedom sub-component of the Index of Economic Freedom, Heritage Foundation. As for the other country-level variables, we use average values of the sub-index taken over 2001-2005. Higher values of the Business Freedom index imply less burdensome regulation of the private businesses. Controlling for the index allows us to guard against the possibility that country size could be correlated with the overall quality of the business environment and this correlation is spuriously picked by tax administration.

Next, we control for the level of corporate tax rate (average values over 2001-2005). The data source for the variable is Doing Business, World Bank. One might expect that countries with low tax rates are conscious of imposing as little burden as possible on the tax payers. Hence, such countries are likely to have better tax administration too. Further, low tax rates could also be a proxy for less reliance on taxes and hence a less cumbersome tax administration. However,

these arguments are in the nature of conjectures and there is no strong theoretical reason that tax rates and tax administration ought to be correlated one way or the other. Similarly, there is little in the literature to suggest that country size and tax rates are strongly correlated. We treat our control for tax rates as a robustness check.

One argument often given against large countries is that large countries tend to be more diverse than small countries. Diversity for example, along ethnic or linguistic lines can make it difficult for society to reach a consensus on reforms, implying more burdensome tax administration. Given our maintained hypothesis of better tax administration in the relatively smaller countries and the stated correlation between diversity and the quality of tax administration, failure to control for diversity can lead to an upward bias in the estimated country size and tax administration relationship. To counter this problem, we control for diversity at the country using the average value of ethnic, linguistic and religious fractionalization index (*Diversity*) proposed by Alesina et al. (2003).

Cumbersome regulations and tax procedures have long been suspected to aid corruption or rent seeking by government officials. If corruption also happens to vary systematically across small and large countries, our regression results for tax administration and country size relationship could still suffer from spurious correlation. Hence, we control for the level of corruption using average value over 2001-2005 of the “freedom from corruption” sub-component of the Index of Economic Freedom, Heritage Foundation.

Our last country-level control is the index of political rights (average values over 2001-2005) from Freedom House. Higher values of the index imply greater political security of the private agents. It is plausible that countries that are conscious of the political freedom of their citizens may invest more in an efficient tax system. This could lead to a bias in our estimation

results for the country size and tax administration relationship if country size also happens to be correlated with the quality of political rights.

Next, we exploit the micro nature of the data by controlling for a number of firm-characteristics that could potentially be correlated with the severity of tax administration as experienced by the firms and also country size. With the possible exception of firm-size, there is little in the formal or anecdotal literature to guide our selection of firm-level controls. Hence, we control for basic firm attributes that include firm-size as measured by the (log of) number of employees working at the firm (lagged values of permanent employees for fiscal year 2004), age of the firm (logs), a dummy variable equal to 1 if a firm has a female owner and 0 otherwise, a dummy variable equal to 1 if a firm has a female top manager and 0 otherwise, percentage of firm owned by private domestic agents, percentage of firm owned by private foreign agents, percentage of firm owned by the government, a dummy variable equal to 1 if the firm was registered when it started operations and 0 otherwise, a dummy variable equal to 1 if a firm is part of a larger firm and 0 otherwise, sector fixed effects (dummy variables for 17 sectors to which a firm belongs; listed in Table 1), city-size fixed effects (defined in Table 1) to partly control for possible differences in the level of enforcement by tax authorities, percentage of firm's annual sales that are made domestically and the percentage of firm's annual sales that are exported indirectly (sold to domestic agents that export).

2.3 Area of the country as an instrument

To further boost our confidence against potential endogeneity problems with our estimation, we provide estimation results using the instrumental variables (IV) regression method. The IV method requires generating truly exogenous variation across countries in the level of population

and then using this exogenous variation to assess the impact of population on the dependent variable. To this end, a variable or instrument is needed that is well correlated with population but does not have any (independent or direct) effect on the quality of tax administration except through the level of population.

We follow the literature in using the (log of) total land area of the country (as in 2005, lagged values), *Area*, as the instrument for population.¹ While land area is likely to be highly correlated with the total population of a country (confirmed below), there is no reason why land area should have any effect on the quality of tax administration except through its impact on country size or population.

3. Estimation

In this section, we discuss the estimation results for the linear model. That is, we assume that the strength of the relationship between tax administration and population is same for all values of population. The results discussed in this section are obtained from the ordinary least squares (OLS) estimation method, ordered logit specification and instrumental variable (IV) method. Our results are qualitatively similar across all these estimation methods and hence we focus mostly on the OLS method. Regression results using the ordered logit and IV estimation method are discussed briefly.

3.1 Estimation results using the OLS method

Regression results for the base specification using the OLS estimation method are provided in Table 4. Without any additional control, the relationship between population and tax

¹ See for example, Rose (2006) for using land area as an instrument for country size measured by total population of the country.

administration is positive, economically large and statistically significant at less than the 1 percent level (column 1). That is, the quality of tax administration as perceived on average by the firms becomes worse as country size increases. In terms of the magnitude, moving from the smallest to the largest country in our sample increases the value of the dependent variable by 1 unit or 71 percent of the mean value of the dependent variable. This is an economically large effect.

Controlling for income level, the estimated coefficient value of *Population* decreases somewhat in magnitude from .187 above to .172 (column 2) but remains significant at the 1 percent level. Somewhat surprisingly, we find no significant impact of income level on the dependent variable.

The estimated coefficient value of *Population* remains significant at less than the 1 percent level when we control for the remaining country-level variables. It shows some fluctuation in magnitude increasing from .172 above to .193 when we control for trade openness (column 3), decreasing marginally to .189 when we control for business freedom index (column 4) and increasing again to .196 when we control for tax rates (column 5). The largest decrease in the estimated coefficient value of *Population* occurs when we control for the remaining country-level variables that include corruption, political rights and diversity. Adding these controls to the specification causes the estimated coefficient value of *Population* to decline from .196 above to .137 (column 6), significant at less than the 1 percent level. However, the bulk of this decline in the estimated coefficient value of *Population* is because of the change in sample size due to missing values for diversity and political rights. Restricting the sample size to only those countries that have data on all the variables mentioned above, the estimated coefficient value of *Population* changes only marginally from .141 (significant at less than the 1 percent level) to

.137 (column 6) when we add corruption, diversity and the political rights index to the specification. For the same sample and without any other controls, the estimated coefficient value of *Population* equals .156, significant at less than the 5 percent level (p-value of .031).

Regression results with firm-level controls included in the specification are provided in columns 7 and 8 of Table 4. We begin by first controlling for firm-size or employment as firm-size is an important summary measure of a number of firm characteristics. Controlling for employment causes the estimated coefficient value of *Population* to remain unchanged from above at .137 (column 7), and this holds even if we control for the change in sample size due to missing observations for employment.² In column 8, we add all the remaining firm-level controls to the specification above. These additional controls only marginally affect the estimated coefficient value of *Population* increasing it from .137 above to .140, significant at less than the 1 percent level (column 8). We note that the corresponding increase in the estimated coefficient value of *Population* is from .138 to .140 if the sample size is restricted to only those observations that have data on all the firm-level variables included in the regressions. Further, the qualitative nature of the results discussed above for *Population* does not change if the firm-level variables were added sequentially to the specification.

For the various controls discussed above, we find little effect of these on the dependent variable. Countries with better or more secure political rights show significantly less burdensome tax administration with the relationship. Similarly, countries with more freedom for businesses (less regulation of businesses) also have less burdensome tax administration but this association

² Restricting the sample size to only those observations that have data on employment and all other variables discussed above, the estimated coefficient value of *Population* changes only marginally from .140 (p-value of .005) to .137 when we add the control for employment to the specification with all country-level controls discussed above in place.

is significant at the 10 percent level or less in some specifications and not in others. None of the remaining controls show any significant association with the dependent variable.

3.2 Instrumental variables regression results

Regression results using the instrumental variables regression method are provided in Table 5 and Table 6. The first stage of the estimation involves regressing *Population* on the instrument, *Area*, with and without the various controls discussed above. Regression results from this first stage are provided in Table 5. These results clearly show a large and statistically significant positive relationship between population and area of the country and this holds irrespective of the set of controls. For example, without any other controls, close to 62 percent of the variation in population can be explained by the variation in the area of the country (column 1, Table 5).

The second stage of the estimation involves taking the predicted values of population from the first stage regressions ($Population^{IV}$) and regressing *Tax Administration* on these predicted values along with the various controls. Note that the specification (controls) in the first and second stage of the estimation is same; that is, the various controls in the specification are treated as included instruments.

Regression results for the second stage are provided in Table 6. These results confirm the findings discussed above in that they show a large, positive and statistically significant impact of population on the dependent variable. Further, the estimated coefficient value of the instrumented values of population does not change much as the various controls are added to the specification (columns 1-8, Table 6).

3.3 Ordered logit specification

We confirm that the qualitative nature of the results discussed above for the population and tax administration relationship continues to hold for the ordered logit specification. That is, for all the specifications discussed above, estimation results for the ordered logit model show that the estimated coefficient value (log odds ratio) of *Population* is always positive, economically large and statistically significant at less than the 5 percent level.

4. Non-linear effect of country size

As mentioned in the introduction, we now explore the possibility of a non-linear impact of country-size on tax administration. We do so by adding the square of *Population* to the various specifications discussed above. Regression results for the non-linear model using the OLS estimation method are provided in Table 7. These results clearly show that irrespective of the set of controls, the estimated coefficient value of the square of population is negative and significant at less than the 5 percent level and the estimated coefficient value of population is positive and significant at less than the 5 percent level. That is, while the dependent variable increases as country size increases at all values of population in the sample, the increase is significantly and economically bigger at small values of population than at large values of population.

In other words, the country size and tax administration relationship is stronger for countries that are relatively smaller in size. For example, with all the controls discussed above in place (column 8, Table 7), the estimated coefficient values of *Population* and square of *Population* imply that a unit increase in *Population* increases the value of the dependent variable by 1.8 for the smallest country in the sample and by a much lower 1.4 for the largest country in

the sample. Note that the latter is about 78 percent of the former. The non-linear effect of population on tax administration is also confirmed using the ordered logit specification.

Instrumental variables regression results for the non-linear model are provided in Table 8. The estimation method involves taking the predicted values of population from Table 5 (first stage IV regression results discussed above) and using these predicted values and their square in place of population and the square of population respectively. Note that the specification or the set of controls used in the first stage (Table 5) and second stage (Table 8) is same; that is, the various controls are treated as included instruments.

Regression results in Table 8 confirm the non-linear relationship between country size and the dependent variable, although the relationship is somewhat weak (significant at the 10 percent level) when we include the various firm-level variables in the specification (columns 7 and 8, Table 8). To be on the conservative side, we suggest that our results for the non-linear specification be treated with due caution, requiring more work in the future to ascertain or reject the broader issue of non-linearity in the effect of country size on socio-economic variables.

5. Evidence using macro-level data

We now extend our sample to 180 countries using macro or country-level data on a measure of the quality of tax administration. The measure equals the time (hours per year) it takes to prepare, file and pay three major types of taxes and contributions: the corporate income tax, value added or sales tax and labor taxes, including payroll taxes and social contributions (*Tax Time*). We use average values of the variable over all years for which data are available (2005-2010). A more detailed definition of the variable is provided in Table 1. Much like the micro-level measure used above, the macro-level measure, *Tax Time*, is also an outcome based

measure; it captures the outcome of policy measures and structural features of the economy to the extent that they affect the time cost of paying taxes.³

Regression results with *Tax Time* as the dependent variable are provided in Table 9 to Table 11. These regression results follow the same specifications or set of controls as above except that the firm-level controls are excluded. Our main regressions results for the linear specification discussed above continue to hold with *Tax Time* as the dependent variable. This holds for OLS and IV estimation method (Tables 9-11). For the non-linear specification, we do not find any significant difference in the effect of country size on *Tax Time* at different levels of country size. One possibility is that the non-linear effect of country size on the quality of tax administration holds for the overall quality of tax administration but not necessarily for each of the individual dimensions of tax administration such as *Tax Time*. We suggest that our results for the non-linear specification should be treated with due caution. More work is needed to establish or reject their robustness to alternative measures of tax administration and country coverage.

6. Conclusion

Despite numerous attempts, the relevance of country-size for various economic and social phenomena has remained elusive. The present paper attempts to shed new light on the importance of country size using micro or firm-level data on the quality of tax administration as experienced by firms. The results show that country-size does matter, with small countries having less burdensome (to firms) tax administration than large countries. We also find some evidence that the relationship between country size and the quality of tax administration is

³ Doing Business also provides data on the total number of taxes and contributions paid, the method of payment, the frequency of payment, the frequency of filing and the number of agencies involved (Tax Payment). Our results do not hold for this measure of tax administration. That is, the Tax Payment measure captures features of tax administration that are independent of country size.

stronger among small countries compared with large countries. At a broader level, our findings suggest that allowing for a possible non-linear effect of country size and using micro data may help uncover the otherwise undetected effect of country size for various economic and social phenomena. We hope that the present work inspires more work in a similar direction.

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Table 1: Description of variables	
Variable	Description
<i>Tax Administration</i>	Response of firms on a 0-4 scale on how severe tax administration is an obstacle to their operations: no obstacle (0), minor obstacle (1), moderate obstacle (2), major obstacle (3) and very severe obstacle (4). <i>Source:</i> www.enterprisesurveys.org .
<i>Tax Time</i>	Time is recorded in hours per year. The variable measures the time taken to prepare, file and pay 3 major types of taxes and contributions: the corporate income tax, value added or sales tax and labor taxes, including payroll taxes and social contributions. Preparation time includes the time to collect all information necessary to compute the tax payable and to calculate the amount payable. If separate accounting books must be kept for tax purposes – or separate calculations made – the time associated with these processes is included. This extra time is included only if the regular accounting work is not enough to fulfill the tax accounting requirements. Filing time includes the time complete all necessary tax return forms and file the relevant returns at the tax authority. Payment time considers the hours needed to make the payment online or at the tax authorities. Where taxes and contributions are paid in person, the time includes delays while waiting. <i>Source:</i> Doing Business , World Bank.
<i>Population</i>	Log of the average level of total population of a country, where the average is taken over 2001-2005. <i>Source:</i> World Development Indicators, World Bank.
<i>Income</i>	Log of the average level of GDP per capita (PPP adjusted and at constant 2005 International \$), where the average is taken over 2001-2005. <i>Source:</i> World Development Indicators, World Bank.
Trade to GDP ratio	Log of the average level of trade (exports plus imports) to GDP ratio, where the average is taken over 2001-2005. <i>Source:</i> World Development Indicators, World Bank.
<i>Business Freedom index</i>	Log of the average level of the “business freedom” score of economic freedom as measured by the Heritage Foundation’s Index of Economic Freedom, where the average is taken over 2001-2005 values. <i>Source:</i> Heritage Foundation .
<i>Tax rate (logs)</i>	Log of the average level of the total tax rate where the average is taken over all years for which data are available (2006-2010). The total tax rate measures the amount of taxes and mandatory contributions borne by the business in the second year of operation, expressed as share of commercial profit. The Total amount of taxes borne is the sum of all the different taxes and contributions payable after accounting for allowable deductions and exemptions. The taxes withheld (such as value added tax, sales tax or goods and service tax) but not borne by the company are excluded. The taxes included can be divided into 5 categories: profit or corporate income tax, social contributions and labor taxes paid by the employer, property taxes, turnover taxes and other taxes (such as municipal fees and vehicle and fuel taxes). <i>Source:</i> Doing Business , World Bank.
<i>Corruption</i>	Average level of the “freedom from corruption” score as measured by the Heritage Foundation’s Index of Economic Freedom, where the average is taken over 2001-2005 values. <i>Source:</i> Heritage Foundation .
<i>Political rights index</i>	An index of the quality of political rights with higher values of the index implying worse political rights. The index is the average of the “political rights” index from Freedom House with the average taken over 2001-2005 values of the index. <i>Source:</i> Freedom House.
<i>Diversity</i>	Average value of the ethnic, linguistic and religious fractionalization scores as reported in Alesina et al. (2003), <i>Journal of Economic Growth</i> , June 2003; Table A1. Higher values imply more fractionalization or diversity.
<i>Area</i>	Log of total land area of the country in square kilometer as of 2005. <i>Source:</i> World Development Indicators, World Bank.
Number of employees (logs, lagged)	Total number of permanent full time employees working at the firm in the fiscal year 2004 (three years prior to the year of the survey). <i>Source:</i> www.enterprisesurveys.org .
Age of the firm (logs)	Log of 2009 minus the year firm began operations. <i>Source:</i> www.enterprisesurveys.org .
Firm has female owner	A dummy variable equal to 1 if the firm has one or more of the owner(s) is a female at the time of the survey and 0 otherwise. <i>Source:</i> www.enterprisesurveys.org .
Top manager is female	A dummy variable equal to 1 if the top manager of the firm is a female at the time of the survey and 0 otherwise. <i>Source:</i> www.enterprisesurveys.org .
% of firm owned by private domestic agents	Percentage of firm owned by private domestic individuals, companies or organizations at the time of the survey. <i>Source:</i> www.enterprisesurveys.org .

% of firm owned by private foreign agents	Percentage of firm owned by private foreign individuals, companies or organizations at the time of the survey. <i>Source:</i> www.enterprisesurveys.org .
% of firm owned by the government	Percentage of firm owned by the government at the time of the survey. <i>Source:</i> www.enterprisesurveys.org .
Firm registered when started operating	A dummy variable equal to 1 if the firm was registered when it began operations and 0 otherwise. <i>Source:</i> www.enterprisesurveys.org .
Establishment part of a larger firm	A dummy variable equal to 1 if the firm is part of a larger firm and 0 otherwise at the time of the survey. <i>Source:</i> www.enterprisesurveys.org .
Sector fixed effects	Dummy variables that capture the sector within manufacturing, service and construction to which a firm belongs. All surveyed firms are grouped into 11 manufacturing sectors, 6 service sectors and construction. Manufacturing sectors include: Food, Textiles, Garments, Chemicals, Plastics & rubber, Non-metallic mineral products, Machinery and equipment, Electronics and Other manufacturing. Service sectors include: Retail, Wholesale, Information Technology, Hotel and restaurants, Services of motor vehicles and Transport. <i>Source:</i> www.enterprisesurveys.org
City-size fixed effects	Dummy variables that capture the size of the city. All surveyed firms belong to one of the 5 type of city: Capital city, City with population over 1 million (other than capital city), city with a population between 250,000 and 1 million, city with a population between 50,000 and 250,000 and the remaining cities with a population less than 50,000. <i>Source:</i> www.enterprisesurveys.org
% of sales made domestically	Sales of the firm made domestically in the fiscal year 2007 as a percentage of firms' total sales during the year. <i>Source:</i> www.enterprisesurveys.org .
% of sales exported indirectly	Value of indirect exports (output sold domestically to third parties that export products) of the firm in the fiscal year 2007 as a percentage of firms' total sales during the year. <i>Source:</i> www.enterprisesurveys.org .

Table 2: Summary statistics					
Variable	Mean	Standard deviation	Minimum	Maximum	Observations (countries)
<i>Tax Administration</i>	1.4	1.3	0	4	(30)
<i>Population</i>	15.7	1.2	13.4	18.8	(30)
<i>Income</i>	8.8	0.76	7.2	10.0	(29)
Trade to GDP (% , logs)	4.3	0.33	3.7	4.9	(29)
<i>Business Freedom index</i>	57.9	12	40	85	(29)
<i>Tax rate (logs)</i>	48.1	19.8	18.4	115.6	(29)
<i>Corruption</i>	30.6	12.8	10	57.2	(29)
<i>Political rights index</i>	3.2	2	1	7	(28)
<i>Diversity</i>	0.39	0.15	0.11	0.66	(27)
Number of employees (logs, lagged)	2.66	1.2	0	10.8	10053
Age of the firm (logs)	2.43	0.65	0	5.2	11268
Firm has female owner	0.37	0.48	0	1	11206
Top manager is female	0.20	0.40	0	1	11426
% of firm owned by private domestic agents	91.4	25.6	0	100	11339
% of firm owned by private foreign agents	6.2	22.5	0	100	11339
% of firm owned by the government	1.1	8.2	0	99	11339
Firm registered when started	1	0.18	0	1	11281
Establishment part of a larger firm	0.08	0.27	0	1	11460
% of sales made domestically	91	23.6	0	100	11420
% of sales exported indirectly	2	10.4	0	100	11418
<i>Tax Time</i>	5.4	0.68	2.5	6.8	(180)

Table 3A: Correlation between country level explanatory variables							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) <i>Population</i>	1						
(2) <i>Income</i>	0.04	1					
(3) <i>Trade to GDP (% logs)</i>	-0.37	0.14	1				
(4) <i>Business Freedom index</i>	-0.13	0.55	0.32	1			
(5) <i>Tax rate (logs)</i>	0.36	-0.29	0.19	-0.22	1		
(6) <i>Corruption</i>	-0.08	0.59	0.44	0.75	0.01	1	
(7) <i>Political rights index</i>	0.31	-0.67	-0.25	-0.70	0.53	-0.64	1
(8) <i>Diversity</i>	-0.29	-0.28	0.30	-0.25	0.02	-0.33	0.27

Table 3B: Correlations for firm-level variables											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Number of employees (logs, lagged)	1	0.304	0.055	-0.097	-0.206	0.166	0.164	0.003	0.134	-0.204	0.061
(2) Age of the firm (logs)		1	0.100	-0.028	-0.018	-0.028	0.103	-0.035	0.004	-0.061	0.029
(3) Firm has female owner			1	0.455	0.014	-0.028	0.033	0.020	-0.003	0.009	0.009
(4) Top manager is female				1	0.015	-0.002	-0.015	0.014	0.014	0.028	0.005
(5) % of firm owned by private domestic agents					1	-0.864	-0.321	0.013	-0.242	0.179	-0.043
(6) % of firm owned by private foreign agents						1	-0.010	0.011	0.233	-0.179	0.032
(7) % of firm owned by the government							1	-0.002	0.093	-0.006	0.014
(8) Firm registered when started								1	0.024	0.016	-0.019
(9) Establishment part of a larger firm									1	-0.040	0.007
(10) % of sales made domestically										1	-0.459
(11) % of sales exported indirectly											1
(12) <i>Population</i>	0.139	0.058	0.047	-0.010	0.030	-0.040	0.028	0.006	0.061	0.058	-0.018
(13) <i>Income</i>	-0.029	0.113	-0.035	0.026	-0.007	0.005	-0.027	0.077	0.003	-0.118	0.070
(14) <i>Trade to GDP (% logs)</i>	-0.006	-0.004	0.035	0.032	-0.016	0.012	0.047	0.019	0.019	-0.042	-0.006
(15) <i>Business Freedom index</i>	-0.031	0.025	0.011	0.026	-0.020	0.041	-0.079	0.036	0.011	-0.099	0.060
(16) <i>Tax rate (logs)</i>	0.107	0.014	0.076	-0.011	-0.048	0.015	0.147	0.027	0.089	0.057	-0.035
(17) <i>Corruption</i>	-0.009	0.063	0.075	0.045	-0.026	0.030	-0.006	0.065	0.011	-0.109	0.071
(18) <i>Political rights index</i>	0.115	-0.072	-0.012	-0.075	0.011	-0.032	0.102	-0.065	0.045	0.118	-0.055
(19) <i>Diversity</i>	0.018	-0.054	0.030	0.025	0.004	-0.002	0.025	0.033	0.014	0.008	-0.040

Table 4: Base regression results (OLS)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: <i>Tax Administration</i>								
<i>Population</i>	0.187*** [0.004]	0.172*** [0.010]	0.193*** [0.002]	0.189*** [0.003]	0.196*** [0.006]	0.137*** [0.007]	0.137*** [0.006]	0.140*** [0.008]
<i>Income</i>		0.04 [0.680]	0.026 [0.794]	0.082 [0.469]	0.075 [0.480]	0.177 [0.193]	0.199 [0.151]	0.202 [0.142]
Trade to GDP (% , logs)			0.204 [0.316]	0.258 [0.147]	0.283 [0.144]	0.31 [0.263]	0.338 [0.238]	0.343 [0.223]
<i>Business Freedom index</i>				-0.007 [0.359]	-0.007 [0.367]	-0.021** [0.029]	-0.022** [0.027]	-0.021** [0.036]
<i>Tax rate (logs)</i>					-0.001 [0.737]	0.003 [0.353]	0.003 [0.331]	0.003 [0.270]
<i>Corruption</i>						-0.014 [0.116]	-0.016* [0.084]	-0.015 [0.100]
<i>Political rights index</i>						-0.118** [0.025]	-0.117** [0.036]	-0.116** [0.035]
<i>Diversity</i>						-0.162 [0.798]	-0.2 [0.754]	-0.109 [0.865]
Number of employees (logs, lagged)							0.031 [0.118]	0.038 [0.128]
Age of the firm (logs)								0.007 [0.897]
Firm has female owner								0.035 [0.457]
Top manager is female								-0.002 [0.969]
% of firm owned by private domestic agents								0.002 [0.349]
% of firm owned by private foreign agents								0.001 [0.558]
% of firm owned by the government								-0.002 [0.462]
Firm registered when started operating								0.054 [0.513]
Establishment part of a larger firm								0.072 [0.459]
Sector fixed effects								Yes
City size fixed effects								Yes
% of sales made domestically								-0.002 [0.266]
% of sales exported indirectly								0.002 [0.464]
R-squared	0.032	0.028	0.03	0.033	0.033	0.046	0.052	0.062
Observations	11460	11190	11190	11190	11190	10690	9350	8856
p-values in brackets. Estimation method used is ordinary least squares (OLS). All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.								

Table 5: First stage IV regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: <i>Population</i>								
<i>Area</i>	0.594*** [0.000]	0.610*** [0.000]	0.571*** [0.000]	0.570*** [0.000]	0.506*** [0.000]	0.503*** [0.000]	0.494*** [0.000]	0.478*** [0.000]
<i>Income</i>		0.209 [0.252]	0.246 [0.190]	0.273 [0.216]	0.374* [0.078]	0.647** [0.019]	0.663** [0.012]	0.592** [0.014]
Trade to GDP (% , logs)			-0.754* [0.095]	-0.726* [0.092]	-1.104** [0.027]	-0.206 [0.661]	-0.235 [0.607]	-0.171 [0.686]
<i>Business Freedom index</i>				-0.003 [0.789]	0.002 [0.886]	-0.002 [0.845]	-0.001 [0.923]	0 [0.981]
<i>Tax rate (logs)</i>					0.018** [0.025]	0.020*** [0.010]	0.021*** [0.006]	0.020*** [0.005]
<i>Corruption</i>						-0.055*** [0.006]	-0.057*** [0.004]	-0.056*** [0.004]
<i>Political rights index</i>						-0.113 [0.223]	-0.114 [0.206]	-0.109 [0.213]
<i>Diversity</i>						-1.891** [0.012]	-1.867** [0.014]	-1.868** [0.012]
Number of employees (logs, lagged)							-0.008 [0.371]	-0.02 [0.106]
Age of the firm (logs)								0.076** [0.032]
Firm has female owner								0.051 [0.144]
Top manager is female								-0.102*** [0.007]
% of firm owned by private domestic agents								0 [0.787]
% of firm owned by private foreign agents								-0.001 [0.637]
% of firm owned by the government								-0.002 [0.166]
Firm registered when started operating								0.157* [0.078]
Establishment part of a larger firm								-0.027 [0.548]
Sector fixed effects								Yes
City size fixed effects								Yes
% of sales made domestically								0 [0.745]
% of sales exported indirectly								-0.001 [0.445]
R-squared	0.618	0.618	0.659	0.659	0.731	0.811	0.812	0.825
Observations	11647	11377	11377	11377	11377	10873	9496	8988

p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.

Table 6: Second stage IV regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: <i>Tax Administration</i>								
<i>Population</i> ^{IV}	0.165***	0.142**	0.155***	0.150**	0.146**	0.140**	0.147**	0.156***
	[0.008]	[0.016]	[0.007]	[0.012]	[0.024]	[0.019]	[0.015]	[0.010]
<i>Income</i>		0.042	0.031	0.091	0.095	0.175	0.191	0.193
		[0.662]	[0.742]	[0.415]	[0.374]	[0.175]	[0.138]	[0.132]
Trade to GDP (% , logs)			0.15	0.207	0.191	0.312	0.344	0.349
			[0.473]	[0.227]	[0.292]	[0.247]	[0.218]	[0.198]
<i>Business Freedom index</i>				-0.007	-0.007	-0.021**	-0.022**	-0.021**
				[0.354]	[0.381]	[0.020]	[0.018]	[0.025]
<i>Tax rate</i> (logs)					0.001	0.003	0.003	0.003
					[0.795]	[0.363]	[0.373]	[0.308]
<i>Corruption</i>						-0.014*	-0.015*	-0.014*
						[0.092]	[0.067]	[0.084]
<i>Political rights index</i>						-0.119**	-0.119**	-0.118**
						[0.015]	[0.021]	[0.020]
<i>Diversity</i>						-0.154	-0.174	-0.068
						[0.805]	[0.783]	[0.914]
Number of employees (logs, lagged)							0.031	0.037
							[0.117]	[0.131]
Age of the firm (logs)								0.008
								[0.885]
Firm has female owner								0.034
								[0.463]
Top manager is female								-0.002
								[0.969]
% of firm owned by private domestic agents								0.002
								[0.335]
% of firm owned by private foreign agents								0.001
								[0.544]
% of firm owned by the government								-0.002
								[0.471]
Firm registered when started operating								0.055
								[0.492]
Establishment part of a larger firm								0.071
								[0.454]
Sector fixed effects								Yes
City size fixed effects								Yes
% of sales made domestically								-0.002
								[0.230]
% of sales exported indirectly								0.002
								[0.440]
Observations	11460	11190	11190	11190	11190	10690	9350	8856
p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.								

Table 7: Non-linear regression results (OLS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: <i>Tax Administration</i>								
<i>Population</i>	2.761*** [0.003]	2.817*** [0.002]	2.717*** [0.007]	2.774*** [0.002]	2.861*** [0.003]	2.944** [0.021]	2.873** [0.034]	2.982** [0.033]
<i>Population</i> ²	-0.080*** [0.005]	-0.082*** [0.003]	-0.079** [0.011]	-0.081*** [0.004]	-0.083*** [0.005]	-0.086** [0.026]	-0.083** [0.042]	-0.087** [0.040]
<i>Income</i>		0.082 [0.367]	0.074 [0.416]	0.138 [0.230]	0.123 [0.245]	0.164 [0.194]	0.185 [0.156]	0.19 [0.138]
Trade to GDP (% , logs)			0.085 [0.689]	0.142 [0.446]	0.195 [0.311]	0.185 [0.564]	0.22 [0.515]	0.229 [0.491]
<i>Business Freedom index</i>				-0.008 [0.269]	-0.008 [0.264]	-0.017* [0.060]	-0.017* [0.062]	-0.016* [0.078]
<i>Tax rate</i> (logs)					-0.002 [0.441]	0 [0.911]	0 [0.888]	0.001 [0.812]
<i>Corruption</i>						-0.009 [0.345]	-0.01 [0.285]	-0.009 [0.333]
<i>Political rights index</i>						-0.088* [0.088]	-0.086 [0.120]	-0.084 [0.142]
<i>Diversity</i>						-0.01 [0.988]	-0.036 [0.957]	0.055 [0.935]
Number of employees (logs, lagged)							0.034 [0.103]	0.042 [0.121]
Age of the firm (logs)								0.006 [0.910]
Firm has female owner								0.037 [0.441]
Top manager is female								0 [0.995]
% of firm owned by private domestic agents								0.002 [0.349]
% of firm owned by private foreign agents								0.001 [0.640]
% of firm owned by the government								-0.002 [0.463]
Firm registered when started operating								0.034 [0.675]
Establishment part of a larger firm								0.072 [0.455]
Sector fixed effects								Yes
City size fixed effects								Yes
% of sales made domestically								-0.002 [0.227]
% of sales exported indirectly								0.002 [0.394]
R-squared	0.047	0.043	0.043	0.046	0.047	0.054	0.059	0.069
Observations	11460	11190	11190	11190	11190	10690	9350	8856

p-values in brackets. Estimation method used is ordinary least squares (OLS). All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.

Table 8: Second IV regression results for the non-linear specification								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Population</i> ^{IV}	4.408***	3.605***	3.584**	3.594**	3.015*	1.913**	1.849*	2.168*
	[0.002]	[0.009]	[0.021]	[0.026]	[0.069]	[0.037]	[0.077]	[0.058]
<i>(Population</i> ^{IV}) ²	-0.130***	-0.106***	-0.104**	-0.105**	-0.087*	-0.054**	-0.052*	-0.061*
	[0.002]	[0.010]	[0.024]	[0.029]	[0.075]	[0.047]	[0.096]	[0.073]
<i>Income</i>		0.051	0.052	0.106	0.098	0.174	0.189	0.192
		[0.621]	[0.606]	[0.384]	[0.457]	[0.299]	[0.252]	[0.228]
Trade to GDP (% , logs)			0.166	0.221	0.259	0.298	0.332	0.327
			[0.521]	[0.318]	[0.341]	[0.292]	[0.256]	[0.250]
<i>Business Freedom index</i>				-0.007	-0.009	-0.019*	-0.019*	-0.017*
				[0.408]	[0.290]	[0.056]	[0.054]	[0.072]
<i>Tax rate</i> (logs)					-0.002	0	0	0
					[0.632]	[0.993]	[0.966]	[0.977]
<i>Corruption</i>						-0.011	-0.012	-0.01
						[0.359]	[0.304]	[0.381]
<i>Political rights index</i>						-0.085*	-0.086	-0.08
						[0.099]	[0.127]	[0.157]
<i>Diversity</i>						-0.035	-0.05	0.082
						[0.954]	[0.936]	[0.894]
Number of employees (logs, lagged)							0.033	0.04
							[0.124]	[0.140]
Age of the firm (logs)								0.006
								[0.916]
Firm has female owner								0.036
								[0.486]
Top manager is female								-0.006
								[0.916]
% of firm owned by private domestic agents								0.002
								[0.322]
% of firm owned by private foreign agents								0.001
								[0.544]
% of firm owned by the government								-0.001
								[0.551]
Firm registered when started operating								0.059
								[0.502]
Establishment part of a larger firm								0.063
								[0.526]
Sector fixed effects								Yes
City size fixed effects								Yes
% of sales made domestically								-0.002
								[0.220]
% of sales exported indirectly								0.002
								[0.447]
Observations	11460	11190	11190	11190	11190	10690	9350	8856

p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations. Values of *Population*^{IV} (and its square) vary across the various columns and they equal the predicted values of the dependent variable in the corresponding columns of Table 5.

Table 9: Base regression results using macro-level data (OLS)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable: <i>Tax Time</i>							
<i>Population</i>	0.139*** [0.000]	0.127*** [0.000]	0.126*** [0.000]	0.101*** [0.001]	0.103*** [0.001]	0.112*** [0.001]	0.100*** [0.005]
<i>Income</i>		-0.163*** [0.000]	-0.157*** [0.000]	-0.086 [0.140]	-0.071 [0.199]	0.035 [0.522]	0.006 [0.923]
Trade to GDP (%; logs)			-0.07 [0.519]	-0.112 [0.277]	-0.067 [0.511]	-0.021 [0.841]	-0.062 [0.573]
<i>Business Freedom index</i>				-0.016*** [0.002]	-0.015*** [0.002]	-0.005 [0.434]	-0.007 [0.315]
<i>Tax rate (logs)</i>					0.004** [0.026]	0.004** [0.028]	0.003** [0.046]
<i>Corruption</i>						-0.016*** [0.000]	-0.016*** [0.000]
<i>Political rights index</i>						-0.083** [0.017]	-0.079** [0.022]
<i>Diversity</i>							-0.365 [0.156]
Observations	180	173	170	148	148	146	140
R-squared	0.166	0.247	0.253	0.301	0.332	0.436	0.458
p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.							

Table 10: First stage IV regression results using macro-level data (Linear specification)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable: <i>Population</i>							
<i>Area</i>	0.679***	0.672***	0.657***	0.541***	0.541***	0.547***	0.541***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
<i>Income</i>		0.052	0.069	0.069	0.065	0.177	0.139
		[0.441]	[0.320]	[0.450]	[0.473]	[0.135]	[0.321]
Trade to GDP (% , logs)			-0.218	-0.392	-0.402	-0.539**	-0.537**
			[0.381]	[0.127]	[0.124]	[0.033]	[0.048]
<i>Business Freedom index</i>				-0.002	-0.002	-0.003	0
				[0.840]	[0.828]	[0.826]	[0.983]
<i>Tax rate (logs)</i>					-0.001	-0.001	-0.001
					[0.715]	[0.563]	[0.565]
<i>Corruption</i>						-0.007	-0.007
						[0.443]	[0.415]
<i>Political rights index</i>						0.031	0.022
						[0.654]	[0.754]
<i>Diversity</i>							-0.491
							[0.390]
Observations	183	176	173	150	150	148	142
R-squared	0.672	0.656	0.654	0.486	0.486	0.512	0.503

p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.

Table 11: Second stage IV regression results using macro-level data (Linear specification)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable: <i>Tax Time</i>							
<i>Population</i> ^{IV}	0.174***	0.154***	0.157***	0.150***	0.152***	0.178***	0.160***
	[0.000]	[0.000]	[0.000]	[0.003]	[0.002]	[0.000]	[0.001]
<i>Income</i>		-0.160***	-0.157***	-0.09	-0.074	0.025	0.001
		[0.000]	[0.000]	[0.111]	[0.163]	[0.661]	[0.990]
Trade to GDP (% , logs)			-0.037	-0.054	-0.009	0.065	0.022
			[0.743]	[0.659]	[0.940]	[0.575]	[0.855]
<i>Business Freedom index</i>				-0.016***	-0.015***	-0.004	-0.007
				[0.002]	[0.002]	[0.524]	[0.309]
<i>Tax rate</i> (logs)					0.004**	0.004**	0.004**
					[0.012]	[0.010]	[0.020]
<i>Corruption</i>						-0.016***	-0.016***
						[0.000]	[0.000]
<i>Political rights index</i>						-0.087***	-0.083**
						[0.007]	[0.011]
<i>Diversity</i>							-0.329
							[0.201]
Observations	180	173	170	148	148	146	140

p-values in brackets. All regressions use a constant term (not shown). All standard errors are Huber-White robust and clustered on the country. Significance level is denoted by *** (1% or less), ** (5% or less) and * (10% or less). Sample size changes due to missing observations.