

Determinants of Corporate Tax Evasion in Latin America

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Abstract

This paper investigates the determinants of tax evasion by exporting firms in a sample of Latin American countries. After a review of the selected literature, the paper presents the results of the estimation of equations that explain this type of tax evasion in terms of variables related to corruption and business climate. Among the most outstanding results are that tax evasion decreases with the government's capacity to control corruption and with economic growth, while it increases with the opening of the economy, inflation, and the expansion of credit to the private sector. The paper also discusses other aspects of tax evasion, such as its role in the homicide rate and remittances. The paper concludes with a series of conclusions and recommendations.

Keywords: corruption, economic stagnation, fiscal policy, inequality

JEL classification: H25, H30, H83, E62.

1. Introduction

Since colonial times, Latin American economies have been characterized by low taxation rates, which has had negative repercussions on their development process. Engerman and Sokolff (2005) have explained Latin American underdevelopment on the basis of high inequality and low taxation, while Sokolff and Zolt (2004) have argued that a consequence of low taxation is the low level of human capital prevailing in the countries of the region. Several authors have pointed out that the ratio of tax revenues to GDP of Latin American countries is, on average, four percentage points below what it should be, given their levels of development (Saavedra & Tommasi, 2007). ECLAC (2018) has placed the low tax rate in the framework of the tradition of privilege that has prevailed in the region (Note 1).

Evasion of income and value-added taxes have been estimated for 2017 by ECLAC (2019) at 6.3 percent of regional GDP; it can be inferred that the "allergy" to taxation that Tanzi (2000) diagnosed, continues without cure and without remedy.

This paper analyzes the determinants of tax evasion by samples of firms in 16 Latin American countries. Given the historical reluctance to pay taxes, one might expect tax evasion by firms to be high; the results of this paper show that tax evasion is due to the behavior of institutional, economic, and social variables that induce firms to pay, or evade, taxes. These variables fall into two groups: one, the perception by the company that tax evasion will not be detected by the authorities; and the other, the financial weakness of the company that leads it to engage in tax evasion to alleviate situations of financial hardship.

The following section presents a review of selected literature on tax evasion. The model and data used are then presented, and the results of the estimation of equations to identify the determinants of corporate tax evasion are presented. Specific issues of taxation and tax evasion, as well as violence, and remittances, are then discussed. The paper ends with a series of conclusions.

2. Literature Review

2.1 Tax Morality and Social Cohesion

The seminal work on tax evasion was developed by Allingham and Sadmo (1972), who resorted to the economics of crime to postulate that an individual chooses to evade taxes if he considers that such action will not be detected by the respective authorities, and also when the amount of the fine incurred is low. The empirical analyses of this model with data from several countries showed that, although the probabilities of detection were low, evasion was not high, i.e. there was no correspondence between the probability of detection and evasion itself.

This gave rise to the search for other explanations for tax evasion, from which emerged the proposal that people pay taxes in response to their feeling of “tax morale”, which manifests itself in the individual’s conviction that he or she should pay the full amount of taxes under all circumstances. Another line of research has focused on the applications of behavioral economics.

There are many studies on the determinants of tax morale. This variable has been framed in terms of an implicit contract between taxpayers and the state, which translates into a feeling of trust on the part of the population towards public institutions. The more evidence the individual perceives that the “fiscal contract” is valid and operative, that is, that he/she receives tangible benefits in exchange for his/her taxes, the more willing he/she will be to pay them; in other words, this model of taxation obeys a cost-benefit exercise. Empirical studies have presented results that support the theory (Ross, 2004; Timmons, 2005; Heroldnic, 2018). Tax morality indicators for Latin American countries have been computed by Torgler (2003) using data from the 1998 Latinbarometro, shown below:

Table 1. Tax morale

Pais	Percentage of people that has the opinion that tax evasion is never justified	Percentage of people that indicated that they know people who evade taxes
Argentina	66.3	34.2
Bolivia	49.2	34.8
Brasil	65.1	37.8
Colombia	65.3	26.8
Costa Rica	63.2	23
Chile	60.4	22.2
Ecuador	52.6	43
El Salvador	61.4	28.2
Guatemala	78.7	17.7
Honduras	79.6	24.9
Mexico	50.2	42.2
Nicaragua	74.2	42.2
Panama	66.7	24.7
Paraguay	68.5	34.6
Peru	53.1	33.6
Uruguay	50.8	31.7
Venezuela	68.8	35

Source: Torgler (2003).

Torgler (2003) points out that in Latin American countries, individuals who express that they have confidence in the government and in other people, and respect for the law, tend to have high tax morality, which is also observed in the cases of women, married people, the elderly, those who support democracy, and who practice their religion.

There is evidence from the U.S. that as people’s age increases so does their tax morale, and that women tend to fulfill their tax obligations at a higher rate than men (Title, 1988). Tax morale also increases with people’s level of education (Lewis, 1982), and is high for people who attend religious services frequently, (a point also found by Torgler (2003) in Latin American countries), and who work part-time, and decreases when the person is self-employed (Taylor, 2003).

It is worth noting that Martínez Vázquez (2001) reported in the case of Mexico, that tax collection fell after the tax administration system was improved, because tax payers became aware that there were no changes regarding the destination of fiscal resources.

Another strand of the theory of tax ethics postulates that the individual recognizes that his taxes benefit other members of the social conglomerate, and his solidarity with them leads him not to engage in tax evasion. The implication at the aggregate level is that social cohesion plays a role in tax evasion, as well as the importance of territorial political organization, i.e., whether the individual considers paying taxes for local or national works (Lieberman, 2003; Persson, 2008).

Another theory related to tax evasion rests on the hypothesis that the individual’s willingness to pay taxes depends not only on the benefits he receives from the state and his feeling of solidarity with other members of

the community, but also on his perception of the way in which the state treats him in tax matters in comparison with other members of society. In other words, the individual perceives taxation as legitimate when he believes that the state acts impartially in its treatment of taxpayers. If the individual perceives that certain groups of people or companies, either because of their geographic location or economic power, are subject to favoritism from the public sector, his or her inclination to pay taxes will be low (Rothstein, 2005; Rothstein & Teorell, 2008). In the same vein, Feld and Frey (2002) have reported that taxpayers' civility and honesty increase when they perceive that tax authorities treat them with respect.

Evans and Rauch (2000) have argued in the framework of tax morality that the existence of an established merit-based bureaucracy plays an important role in articulating state management in an impartial manner and, therefore, in imparting legitimacy to taxation in the eyes of the citizenry.

In the case of Mexico, Flores Macias (2016) showed that taxpayers who received letters from the tax authorities indicating that their taxes would be directed to public security activities showed high increases in compliance with their obligations to the tax authorities.

Alm and Torgler (2006) analyzed differences in tax morale between the U.S. and 14 European countries using data from the 2000-2003 wave of the World Values Survey. These authors estimated equations with the dependent variable equal to the percentage of positive responses to the question that tax evasion was not justified under any circumstances, which was interpreted as an indicator of tax morale. This indicator was expressed in terms of demographic, social, and institutional variables. The results showed that the USA, followed by Switzerland and Austria, had higher tax morale than the other countries, which was interpreted as a manifestation of the tradition of democracy that characterizes these nations. Variables that showed positive impacts on tax morale were being married, being a woman, being retired, being elderly, and participating in religious events, while variables with negative impacts were being a student, being unemployed, being self-employed, and being separated from one's spouse.

In an application of behavioral economics, Castro and Scartascini (2013) conducted an experiment in the municipality of Junín, Argentina, in which the authorities sent missives about the payment of property taxes, attaching the missive to the payment slip. A quarter of the taxpayers were made aware of the penalties applied to those who incurred in evasion; another quarter received texts pointing out that the taxes paid in the past had been used to improve public lighting, drinking water, and sewage services. Another quarter received a text stating that only 30 percent of potential taxpayers evaded the tax, and the rest did not receive any text.

The results showed that the message that gave the greatest increase in tax collection was the one describing punitive actions against tax evasion; in this group tax evasion decreased by 10 percent, while in the other groups no improvement was observed.

2.2 Citizen Participation and Tax Evasion

Within the framework of the tax contract or exchange, research has shown that citizen participation in the destination of taxes collected and, particularly, the prerogative of citizens to vote on taxation matters, leads to an increase in their sense of civic responsibility and reduces tax evasion (Feld & Frey, 2002; Torgler, 2004).

Erand and Feinstein (1994) argue that tax evasion is a way in which taxpayers express their dissatisfaction with the destination of tax revenues; for their part, Gneezy, Gneezy, Nelson, and Brown (2010) have shown that the amount paid to the treasury by the population increases when they have opportunities to influence the increase in the financing of certain public goods. Vihauto (2003) has reported that when taxpayers express their opinions on the destination of the resources collected, tax evasion is more likely to decrease.

Likewise, citizens' perception of the government's impartiality increases when taxpayers have the opportunity to express their opinion on the destination of the resources collected (McCoan, 2005; Tyler, 2006).

Kirchler, Hoelzl, and Ywaha (2001) reported that trust in government increased with citizen participation, while Torgler (2003) indicated that in Latin America 32.4 percent of individuals believe that the population evades taxes because the use of taxes is not related to their needs.

There is evidence that citizen participation and public discussion of the proposed annual budget contribute to an increased sense of civic-mindedness (Togler & Schaltegger, 2005).

Data for some Latin American countries on the degree of citizen participation in budget preparation, corresponding to 2017, taken from International Budget Partnership, Open Budget Survey 2017, are presented below:

Table 2. Indexes of the degree of citizen participation in the preparation of the budget

Country	Index
Mexico	35
Guatemala	30
Dominican Republic	17
Nicaragua	11
Costa Rica	7
Honduras	7
El Salvador	6
World Average	11

3. The Model

Of relevance to this paper, is the study by Kouame and Goyette (2018) in which they analyzed tax evasion by firms in a sample of African countries and 16 Latin American countries, with a view to identifying its determinants.

The authors defined tax evasion as the percentage of sales not included by firms in their tax returns, and used data, mainly from 2006, from a total of 19,490 firms from 30 countries in both regions, taken from the World Bank's World Enterprise Survey. The authors postulated that tax evasion is due to two causes: firms' belief that the government has low institutional capacity and therefore they could engage in tax evasion without being detected. In the estimation of cross-sectional equations in relation to this cause, the authors used the countries' institutional quality index as an independent variable, with results that showed that as the government's institutional capacity increased, tax evasion fell. The other variable used as a determinant of tax evasion was distortions in the business climate resulting mainly from poor quality infrastructure. The authors constructed an aggregate index of these distortions, which in the estimated equations showed a positive and significant coefficient. This index, together with that of institutional quality, explained 35 percent of the variance of tax avoidance by firms on the two continents.

The authors presented an annex with average data on the percentage of sales that were not declared at the country level, which were interpreted as indicators of tax evasion. These data are used in this paper to investigate the determinants of corporate tax evasion in Latin American countries. This paper uses independent variables that were not employed by Kouame and Goyette (2018) and considers the possible impacts of business-type tax morale aspects.

The source of data for the variables used in this paper is the World Bank's World Development Indicators, except in the case of variables for which specific sources are indicated. Annex 1 shows that Nicaragua has the highest percentage of corporate tax evasion (40.85%), followed by Panama (36.99%), Brazil (32.70%), and Honduras (31.66%). The lowest values correspond to Chile (2.17%), Peru (10.53%), Uruguay (14.85%), and Colombia (17.1%).

The model to estimate is as follows:

$$Vi = a + \sum WbhZhi + ei$$

Where \sum is the sign of summation, Vi is the tax evasion of country i , bh is the coefficient of variable h , Zhi is the variable h of country i , and ei is an error term.

This equation was estimated using cross-sectional data from 16 countries of the region, mostly corresponding to 2006 (see Annex 1). Given the small number of data, there may be problems with the robustness of the estimates, so the results should be interpreted with caution.

All variables were subjected to unit root tests using the extended ADF test. At a confidence level of 1 percent, the following variables were found to be integrated of order one: control of corruption, trust in government, inflation rate, the ratio of the sum of exports and imports to GDP, and human opportunity index, while at the same level the variables economic growth, credit to the private sector and the Gini coefficient were found to be integrated of order zero. Given the presence of stationary and non-stationary variables in the estimations, the estimations were carried out using the "Fully Modified Least Squares" methodology of Phillips and Hansen (1990).

4. Estimation Results

In the first set of estimates, the independent variables are related to disrespect for the law, i.e. the assumption by

firms that their evasion will go unnoticed by the authorities. Figure 1 shows that the corruption control index, taken from the World Bank database, has a negative relationship with tax evasion in the sample of Latin American companies (Note 2).

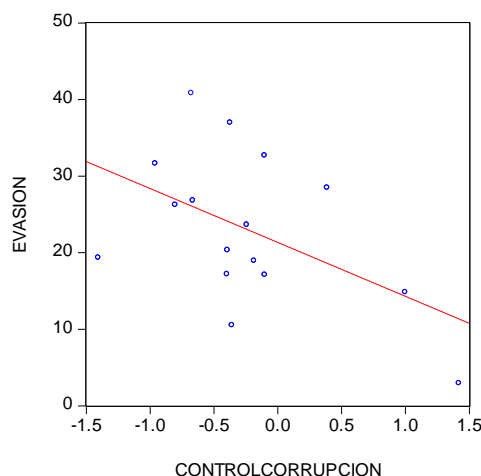


Figure 1. Control of corruption and tax evasion

This is corroborated in equation (1) of Table 3, where the control of corruption variable has a negative and significant coefficient (Note 3) and, together with the qualitative variable *Cualich* (Note 4), which takes the value of 1 in the case of Chile, and zero in the cases of the other countries explains 42 percent of the variance of tax evasion in Latin American countries (Note 5). In other words, almost half of the variance of tax evasion is due to the state's capacity to fight corruption. This result agrees with the theory of Allingham and Sadmo (1972), and with other studies that have found that a high probability of detection discourages the motivation to engage in tax evasion (Note 6). Ha, Haider, Khan, and Zhueng (2015) have reported that countries with better control of corruption indicators have higher economic growth rates than countries with low control of corruption.

The magnitude of the coefficient of control of corruption implies that if this index were to increase by one percentage point, which is equivalent to moving from Honduras to Costa Rica, tax evasion would fall by about 10 percentage points.

When other governance indicators, such as the indices of government effectiveness and the rule of law, were used as independent variables, the results showed that the coefficients of these variables were insignificant. This would indicate that a strong rule of law is not enough, nor an outstanding institutional capacity of the government, to discourage tax evasion, but that the specific capacity of the government to fight corruption is of utmost importance, and that this capacity is palpable to taxpayers.

It should be noted that, in Latin American countries, government corruption deters people from paying taxes. Toggler (2003) has reported, based on 2003 Latinbarometro data, that 44.2 percent of the people surveyed said that the population evaded taxes because they were aware of government corruption.

In equation (2) the independent variable is the ratio of total exports to GDP, which has a positive and significant coefficient. This implies that exporting offers ways to hide income, either by under-invoicing exports or by withholding income in the importing country. It should be mentioned that foreign trade has traditionally been a common source of tax evasion, particularly through the overvaluation of exports and under-invoicing of imports (Note 7).

This result is replicated in equation (3), where the independent variable is the sum of the ratios of exports and imports to GDP, *Openness*, which shows a positive and significant coefficient. This would imply that the more open an economy is the weaker its public finances would be. The argument to promote openness has been that companies would improve their "efficiency"; this brings out the irony that in an open economy the respective government would have the less fiscal capacity to face crises derived from the vicissitudes of the international economy. In this way, the vicious cycle of openness, tax evasion, fiscal weakness, crisis, stagnation and evasion, and so on, could be observed in Latin American countries.

In equation (4) the independent variable is the annual credit allocated to the private sector as a percentage of GDP, which has a positive and significant coefficient. This contradicts the result obtained by Kouame and

Goyette (2018) that credit supply reduced tax evasion. The explanation could lie in the fact that firms experiencing liquidity difficulties choose to access credit from the banking system and opt also, for tax evasion. Reference should be made to the study by Rice (1992) which showed that low-profit U.S. companies resorted to tax evasion to reduce costs.

Equation (5) shows that the coefficient of the economic growth rate is negative and significant, i.e., economic dynamism deters firms from engaging in tax evasion. This equation also includes the qualitative variable Cualini which takes the value of unity in the case of Nicaragua. The explanation could lie in the fact that, in the face of falling economic growth, companies' sales and income fall, and, consequently, they opt for tax evasion to cope with such a situation. The magnitude of the coefficient indicates that a drop in the economic growth rate by one percentage point would result in an increase in tax evasion by two percentage points. One implication is that in times of economic recession, tax evasion would increase, thus exacerbating the weakness of public finances, which could hinder the recovery of economic growth, exacerbating evasion and imparting persistence to economic stagnation.

Table 3. Dependent variable: Tax evasion

Variable	Equation numbers:				
	(1)	(2)	(3)	(4)	(5)
independent					
Constant	21.7038 (21.83)	16.0945 (5.73)	14.6544 (4.79)	15.9408 (4.42)	32.6477 (6.19)
Cualich	-16.2796 (3.88)	-20.188 (4.21)	-18.8426 (3.86)		-16.5545 (2.63)
Corruption control	-9.649 (6.44)	-9.1708 (5.75)	-8.2081 (4.69)		
Export/GDP		0.1658 (2.17)			
Openness			0.1006 (2.52)		
Credit/GDP				0.2436 (2.48)	
Growth					-2.0765 (2.88)
CualiNi					15.2781 (3.21)
R2	0.42	0.47	0.52	0.55	0.66

The second set of equations is presented in Table 4 where the independent variables are related to distortions in the business environment, which negatively affect the profitability of firms, and could lead them to evade taxes.

In equation (1) the inflation rate has a positive and significant coefficient, and together with the control of corruption index and the qualitative variable Cualich, explains 60 percent of the variance of tax evasion, implying that a high inflation rate motivates firms to evade taxes. This equation indicates that increasing the inflation rate by 2 percentage points would lead to an increase in tax evasion by 1.6 percentage points. Falling tax revenues in the face of inflation would lead to increased fiscal fragility and, therefore, could fuel inflationary pressures, leading to a vicious circle of inflation, tax evasion, fiscal weakness, and inflation.

In equation (2) the Gini coefficient has a positive and significant coefficient and, together with the qualitative variables Cualich and Cualipe, which denote respectively the cases of Chile and Peru, explain 50 percent of the variance of tax evasion. Extensive literature has shown that income concentration undermines institutions (Chong & Calderon, 2000; Chong & Gradstein, 2007); in this case, it can be inferred that inequality weakens the control of corruption. It can also be argued that high inequality leads to government capture, resulting in certain groups of individuals and firms receiving "special" treatment in relation to not paying full taxes. This could be perceived by the population as government bias, thus motivating citizens to evade taxation, exacerbating tax evasion, which would limit the amount of resources allocated to the social sector, creating the basis for economic stagnation and violence.

In view of the evidence that inequality falls with increasing public spending on education (Gonzalez & Martner, 2012), the economy can remain in a vicious circle of high inequality, high tax evasion, low public spending on

education, and thus high inequality, tax evasion, and low growth. This supports the evidence presented by ECLAC (2018) that inequality imparts inefficiency to the economy.

Equation (3) in Table 3 shows that trust in government, taken from the Latin barometer, has a negative and significant coefficient and the equation explains 40 percent of the variance of tax evasion (Note 8). Caceres (2019) showed that in Latin American countries trust in government increases as poverty and inequality fall, which is associated with increases in social spending.

This result can also be interpreted in the sense that tax evasion falls as recognition by businesses of a government that executes policies favorable to the interests of the low-income population. Hardin (1998) and Torgler (2003) have shown that trust in the government resulting from public policies that promote the welfare of the population leads to an increase in the tax morale of individuals, which could exert a “contagion” on businesses.

On the other hand, low social mobility reduces the size of the national market, which is not conducive to the business climate. Therefore, it is valid to postulate a negative relationship between the human opportunity index, IOH, which is a measure of social mobility (Note 9), and tax evasion. This relationship is presented in equation (4) of Table 4, in which the IOH shows a negative and significant coefficient. It can be argued that equality of opportunities strengthens the demands of the population to fight corruption; another interpretation is that the existence of a regime of opportunities, represented by the IOH, constitutes the concretization of the reciprocity pact between the citizenry and the state, which gives rise to prosperity and increased tax morale.

It should be noted that there is a close association between the control of Corruption Index and the IOH, as shown in Figure 2. It is observed that as the IOH increases, which is an indicator of equality of opportunities, the corruption control indicator also increases; that is, a regime of equality of opportunities empowers citizens to demand greater governance. In other words, governance is endogenous to social spending, which imparts the capacity to citizens to act in concert.

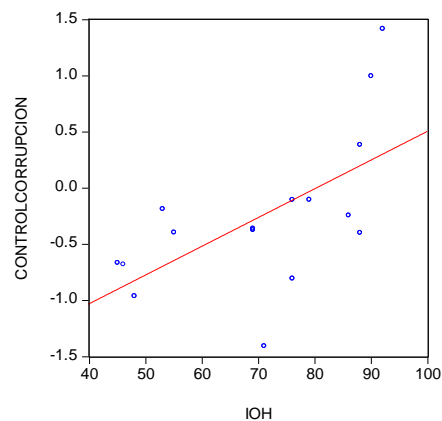


Figure 2. IOH and corruption control

Another variable that undermines the business climate and the financial situation of companies is a country’s low schooling rate, represented by the average years of education of the population, since a labor force with few skills has a negative impact on the profitability of companies. This is shown in equation (5) in Table 3, where the independent variable is the schooling rate in the year 1950, which shows a negative and significant coefficient and the equation explains, together with the qualitative variable corresponding to the cases of Panama and Nicaragua, 58 percent of the variance. This equation indicates that the adverse impacts of educational deficiencies are persistent and reproduced over time.

It can be postulated that there is a vicious cycle driven by deficiencies in education, which has a negative impact on the profitability of companies and leads to tax evasion, which limits the resources allocated to the education sector, so the weaknesses of this sector continue, maintaining the weakness of public finances and poor education.

Table 4. Dependent variable: Tax evasion

Independent variable	Equationnumber:				
	(1)	(2)	(3)	(4)	(5)
Constant	17.0663 (6.85)	-9.7321 (0.55)	33.427 (6.23)	37.387 (6.21)	22.1282 (5.98)
Cualich	-17.1461 (3.68)	-21.03 (3.76)	-15.6795 (2.00)	-17.3025 (3.12)	
Corruption control	-9.0488 (5.53)				
Inflation	0.7931 (2.82)				
Gini		0.6772 (2.00)			
Cualipe		-14.327 (2.62)		-16.2955 (2.98)	
Trust			-0.3521 (1.8512)		
IOH				-0.1765 (2.04)	
Schooling1950					-3.100 (2.01)
CualiHonNiPa					14.800 (3.31)
R square	0.60	0.50	0.40	0.55	0.58

4.1 The Trapped Economy

Reference should be made to equation (2) in Table 4 which showed that the Gini coefficient exerts a positive impact on tax evasion. This is discussed in detail below.

First, we bring into account the result of Caceres (2017) that the ratio of tax revenue to GDP, Tax, is determined by the Gini coefficient. This is shown in quadrant (1) of Figure 3. The implication is that increases in taxation and social spending are determined by progress toward equity (quadrant 2).

Quadrant (3) shows that the shadow economy, (Shadow), falls with the increase in social spending, as has been shown by Caceres (2017) and other authors. Thus, quadrant (4) constructs the positive relationship between inequality and the size of the shadow economy, as evidenced by Caceres (2017).

Quadrant (5) shows the positive relationship between the shadow economy and violence (Caceres, 2017), and using the 45-degree line of quadrant (6), we obtain in quadrant (7) the positive relationship between inequality and violence, while quadrant (8) shows that violence falls with increased social spending.

Thus, it can be argued that inequality, insofar as it limits taxation and social spending, imparts to the respective country a tendency towards violence and, therefore, towards emigration, inflation, economic stagnation, increasing public debt, institutional weakness, and open or latent crisis. In other words, inequality traps the economy and determines its evolution.

It is, therefore, valid to postulate that the first “fundamental” that should be addressed in the agenda of economic and social priorities of Latin American countries, and in the agenda of the international financial institutions, is to reduce inequality and increase tax collection and social spending. Otherwise, the economy, the population, and especially the youth will continue to be trapped by inequality.

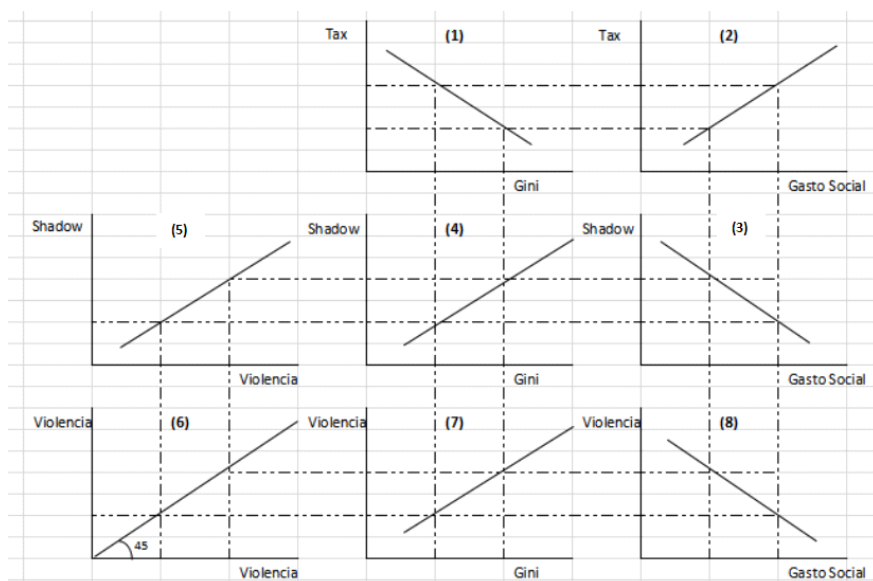


Figure 3. The trapped economy

The implication is that the cap that inequality imposes on tax collection endows the economy with vulnerability to the international economy, Caceres (2019) has shown, in the case of Latin American countries, that the greater the tax effort corresponds to the greater international reserves per capita, and therefore, less vulnerability to the international economy. This relationship, taken from Caceres (2017), is shown in Figure 4, constructed with 2015 data from 17 Latin American countries.

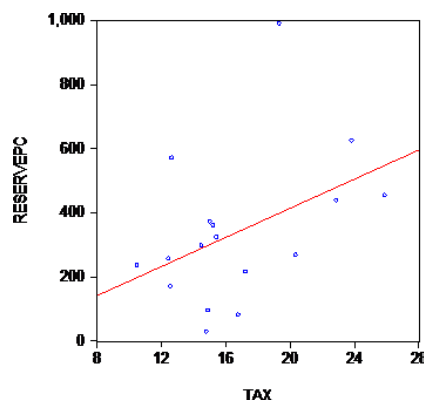


Figure 4. Ratio of tax collection to GDP, Tax, and international reserves per capita, RESERVEPC

5. Tax Effort and Corporate Tax Evasion

It is valid to argue that the fiscal weakness of a government, insofar as it does not generate an appropriate supply of public goods required to solve the low profitability of businesses resulting from deficient physical and social infrastructure, is a determinant of business tax evasion. Therefore, it can be expected that as the tax burden increases, public services will increase in quantity and quality, thus improving the business climate and consolidating the tax reciprocity contract, so that corporate tax evasion will fall.

This is analyzed in Figure 5. Quadrant (1) presents the relationships between tax revenues as a percentage of GDP, tributacion, and social spending, Gasto Social, while quadrant (2) shows the positive association between social spending and the IOH. Quadrant (3) presents the negative relationship between the IOH and tax evasion, shown in equation (4) of Table 6. On this basis, the negative relationship between taxation and tax evasion is constructed in quadrant (4) and is shown in figure 6. This quadrant suggests that current tax evasion is associated with past low tax collection.

In other words, tax evasion will fall as tax revenues increase and are earmarked for investment in physical and social infrastructure. One implication is that the reduction of public sector personnel does not necessarily lead to

an improvement in the fiscal situation, since the decline in the capacity of the government apparatus to provide public goods, may exacerbate tax evasion. An implication is that adjustment programs should prioritize combating tax evasion, instead of reducing public sector personnel.

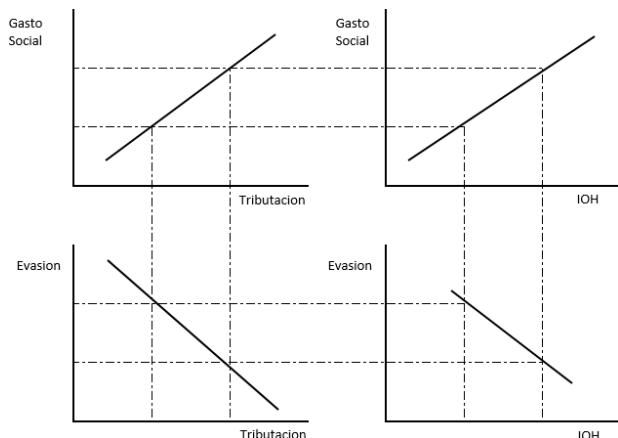


Figure 5. Taxation and tax evasion

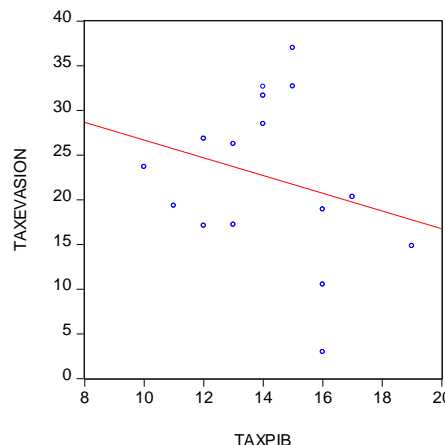


Figure 6. Tax revenues and tax evasion

6. Violence and Tax Evasion

Below, based on Figure 7, we analyze the role of tax evasion on violence in Latin American countries.

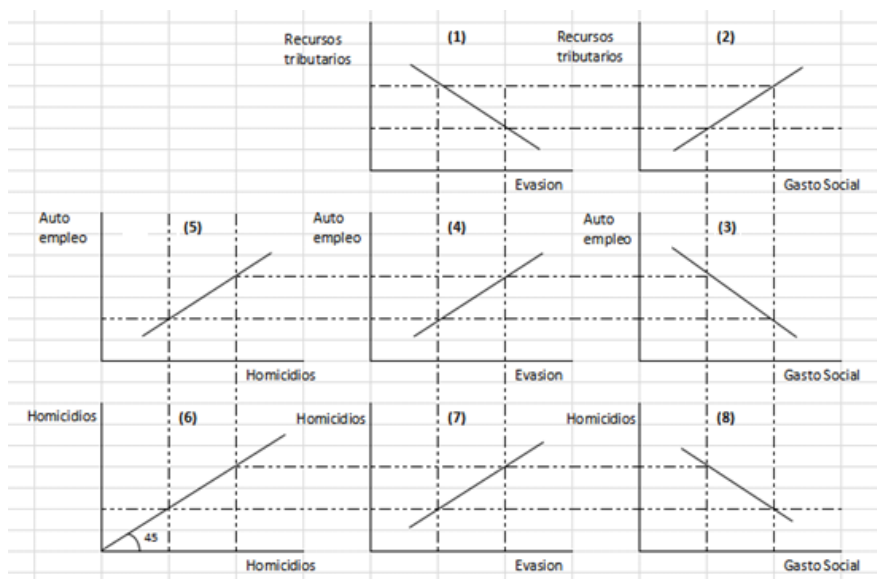


Figure 7. Violence and tax evasion in Latin America

Quadrant (1) presents the negative relationship between tax evasion and tax collection, Recursos tributarios, which was presented in Figure 6, while quadrant (2) presents the positive relationship between tax collection and social spending, indicating that the greater the mobilization of tax resources the greater the number of resources allocated to social spending. Quadrant (3) shows that self-employment decreases as social spending increases (Caceres, 2017). Thus, in quadrant (4) the positive relationship between tax evasion and self-employment is obtained. This relationship is presented in the following equation:

$$\text{Male self-employment} = 29.3228 + 0.4898 * (\text{Evasion}) + 1.7242 * (\text{Cualiautoempl}) * (\text{Evasion})$$

(4.60) (6.12) (2.68)

R-squared = 0.15

where the qualitative variable cualiautoempl takes the value of 1 when evasion is greater than 14 percent.

Quadrant (5) indicates that violence, measured as the number of homicides per 100,000 population, increases

with self-employment, as Caceres (2017) has shown for Latin American countries.

Using the 45-degree line of the quadrant (6) we obtain in quadrant (7) the positive relationship between tax evasion and violence, which indicates that, in the face of tax evasion, the respective government does not have enough resources to decisively address the social sectors, thus giving rise to a large segment of the population with low level of human capital that has to work in underemployment, and could resort to violence to survive. This relationship is shown in Figure 8 with data from 2006.

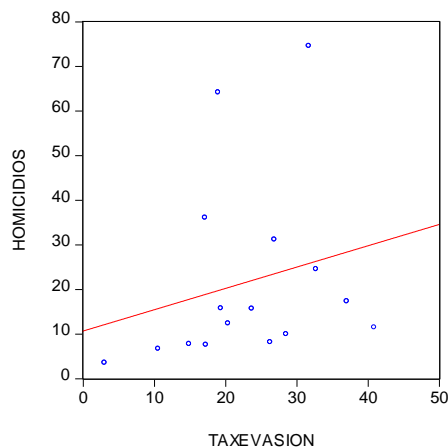


Figure 8. Tax evasion and violence

This gives rise to a vicious circle in that homicides are not conducive to the business climate, and thus incentivize tax evasion, giving continuity to violence. Arguably, this vicious circle has been in operation in the region for many decades and is manifested by the perverse persistence of fiscal weakness over time, as pointed out by several authors (Engerman & Sokoloff, 2005; Sokoloff & Zolt, 2004). Caceres (2017) has presented evidence of a negative association between per capita tax amounts paid in 1870 and the 2006 homicide rate (Note 10).

Since the homicide rate undermines both the business climate and tax morale, it turns out that the 2006 tax evasion rate is related to the per capita tax payment in 1870. The estimated equation is as follows:

$$\text{Tax evasion} = 3.3357 + 0.8617 \text{ High homicides} - 0.4454 \text{ Tax1870}$$

$$(4.58) \quad (3.01) \quad (1.48)$$

$$R\text{-squared} = 0.32$$

This equation shows that the tax per capita of 10 Latin American countries in 1870, and the qualitative variable High homicides, which takes the value of unity when the homicide rate exceeds 28, explain one-third of the variance of 2006 tax evasion, although it should be noted that the coefficient on the Tax1870 variable is significant at the 17 percent level.

This equation suggests that the low taxation that has existed for 150 years has given persistence and continuity to current tax evasion, and thus the historical weakness of public finances is reproduced over time.

It is ironic that the most palpable fiscal policy measures of the last decades in Latin America were associated with the reduction of income tax rates and the introduction of the VAT, as means to improve “resource allocation” and promote investment; yet productivity has remained constant for the aggregate of Latin America over the last four decades, and has declined in many countries after de middle 1980’s, while investment and national savings have fallen in many countries, while human resources have been “allocated” to irregular migration and violence.

7. Remittances and Tax Evasion

Caceres (2017) has shown that remittances are an indicator of social exclusion and that they reflect the low taxation existing in a country, which limits the supply of public goods and services, mainly health and education, so that large sectors of the population incur in unemployment and underemployment, and thus have to resort to emigration to survive. Thus, it can be postulated that tax evasion, due to its role in weakening public finances and social spending, is associated with emigration and therefore with remittances. This is shown in Figure 9.

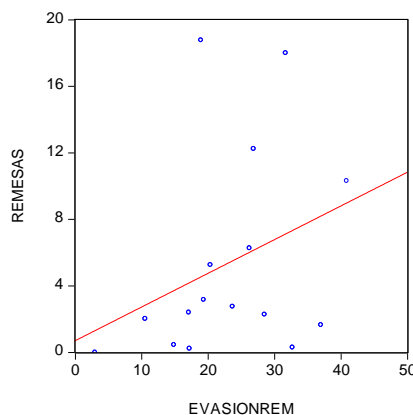


Figure 9. Tax evasion and remittances as a percentage of GDP

The corresponding equation is as follows:

$$\text{Remittances} = -0.1055 + 13.4261\text{Cualiremesas} + 0.1250\text{FiscalEvasion}$$

(0.01) (8.80) (2.00)

R-squared = 0.82

It can be seen that the tax evasion variable, together with the qualitative variable Cualiremesas, which takes the value of unity in the cases of El Salvador and Honduras, explain 82 percent of the variance of remittances as a percentage of GDP in Latin American countries.

It is important to recognize the role of fiscal policy and taxation efforts in containing irregular migration; that is, curbing irregular migration requires increasing social spending, by reducing tax evasion and increasing taxation.

8. Tax Evasion as a Latent Variable

There is a diversity of ways to quantify tax evasion, as shown by ECLAC (2010). Another approach based on the theory of latent variables is proposed below, which could have advantages over currently existing methodologies since it includes among its determinants, variables that could hardly be used in current methodologies. In the proposed methodology, causal variables would include inflation and economic growth rates, control of corruption, and trust in government indices; indicator variables could include those such as the public debt to GDP ratio, remittances, homicide, and investment rates (Figure 10).

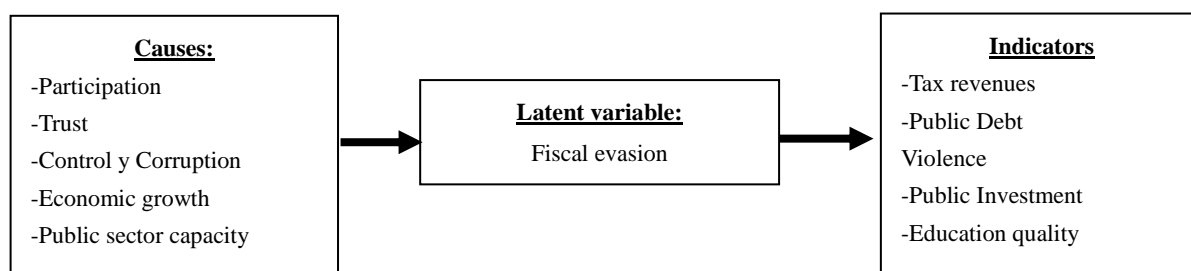


Figure 10. Representation of tax evasion as a latent variable

Another analytical application of great value could be the design of statistical tools of discriminant analysis or probit analysis, among others, to detect, ex-ante, the tax declarations that represent high probabilities of tax evasion. In this field, it could be of particular importance to introduce artificial intelligence techniques.

9. Fiscal Indicators

The reduction of tax evasion in a given country makes it possible to increase public spending on the promotion of human capital, which would lead to an increase in its economic growth rate. This economic dynamism would translate into an increase in its imports from neighboring countries, thus increasing its growth rate. It can be postulated that there is a relationship between the reduction of tax evasion in a country and the economic dynamism of its trading partners, especially when they belong to an economic integration scheme. Hence the

importance of combating tax evasion in a regional framework.

Therefore, it would be beneficial for Latin American countries to undertake a regional program to combat tax evasion by disseminating and adopting best practices, adopting common indicators, offering technical cooperation among countries, and encouraging the adoption of national plans and goals to reduce tax evasion.

Within the framework of the regional program to combat tax evasion, civil society organizations and the government in each country should adopt a set of tax indicators, the variation of which would be monitored and evaluated periodically. On this basis, civil society will have a solid basis for dialogue with governments on the improvements that should be sought in tax administration and, in particular, in combating tax evasion.

The following indicators can be included in the set of national and regional indicators:

Regarding the Fight Against Corruption/Evasion:

- Alert the public that there would be a greater number and rigor of the audits.
- Number of annual audits, by type of taxpayer and economic sector.
- Resources obtained by audit.
- Administrative cost per audit.
- Number of situations of bribe payments.
- New requirements regarding the presentation of documentation.
- Number of new self-employed taxpayers.
- Number of self-employed who present documentation.
- Additional tax income earned from self-employment.
- Number of investigation situations of under-invoicing of exports and sales. Resources obtained.
- Number of investigation situations of overvaluation of imports and overestimation of costs/expenses.

Regarding Tax Efficiency:

- Administrative cost per \$1,000 collected.
- VAT efficiency.
- Origin of tax resources by income segments of individuals and companies, and by geographic area.
- Losses due to exemptions to companies.
- Advances in eliminating tax exemptions and “incentives”.
- Ratio of tax revenues from income tax to VAT income.

Regarding citizens’ participation:

- Origin of tax resources by income segments of individuals and companies, and by geographic area.
- Ratio of income tax from personal income to VAT income. Indicators related to citizen participation:
- Disclosure of national budget projects before being known by Congress.
- Number of chat sessions for citizens to discuss the budget.
- Disclosure of the percentage structure of the destination of tax resources.
- Increase in resources allocated to important sectors (health, education, security).
- Survey of citizen opinion on the structure of the budget by sector.
- Reduction/elimination of superfluous expenses (travel, representation, per diem, insurance, cars, advertising).
- Sending letters to taxpayers thanking them for paying taxes.

Indicators Related to Results:

- Student dropout rates.
- Scores in education quality tests.
- Coverage of prenatal care.
- Number of children cared for in nursery schools.
- Coverage of preschool education.

- Homicide rate.
- Suicide rate.
- Number of cases of violence against women.
- Number of human trafficking cases
- Number of events of violence against LBTG people.
- Infant and maternal mortality rates.
- Care for people with disabilities.
- Care for the elderly.
- Coverage of psychology services to students in public schools.
- Tax evasion, by type of tax, type of taxpayer, income.
- Tax revenues as a percentage of GDP versus comparators.
- Estimation of irregular emigration.
- Amounts of remittances received as a percentage of GDP.

Of particular importance is the monitoring of the effectiveness of policies that have been implemented to improve service delivery by the public sector.

Government Effectiveness Indicators:

- Promote taxpayer education about the tax system and its benefits, and support taxpayers in preparing returns and paying taxes.
- Dissemination of the links between payment of taxes and benefits for the population.
- Reduction of declaration costs.
- Simplification of the structure of taxes and their payment.
- Promotion of a feeling of morality and ethics in the taxpayer, and in the government.
- Promotion of citizens' participation in the destination of budgetary resources.
- Dissemination of amounts of taxes paid by income strata.

10. Conclusions

One result that should be emphasized is the importance of the control of corruption by the tax authorities in reducing evasion, as can be deduced from equation(1) in Table 3. This equation explains half of the variance of tax evasion. Hence the convenience of increasing the number of annual audits by the competent authorities, and of making the population aware that tax evasion will not go unnoticed. Alm and Vázquez (2007) have warned that audits must have credibility to be effective. Gómez Sabaini and Mora (2016) have pointed out that the fall in VAT evasion in the countries of the region has been achieved by greater auditing by the tax authority.

However, it should be noted that, in Latin American countries, only 2.8 percent of registered taxpayers experience an audit per year, of which only 0.2 are in-depth audits (Corbacho, Cibils, & Lora, 2012). In addition, in the case of fraud, sentences are not rigorous; on average in the region, there are 3 sentences for evasion per year. Audits only collect 1.6 percent of GDP on average.

This also implies the importance of combating corruption within the public sector, which in Latin American countries is a motivation for tax evasion, as reported by Togler (2003).

Evidence has also been found in this work that taxpayers “reward” the public sector by placing their trust in it and complying with their fiscal obligation when they recognize that public spending contributes to their welfare and that of the population, from which one can deduce the importance of governments implementing policies that benefit the bulk of the population with the highest priority, and of disseminating the results of such policies.

Given that self-employed individuals have high evasion rates (Slemrod, 2007), it is important to make the submission of supporting documents on expenses and income mandatory. Slemrod (2007) has presented evidence that strictness in the submission of supporting documents on expenses and income is a valuable means of combating evasion by the self-employed.

The results show that there is a certain tacit “fiscal audit” on the part of the population regarding the use of tax resources and the impartiality with which the tax authorities treat taxpayers, from which “rewards” or

“punishments” are derived. The fall in tax revenues in Mexico should be taken into account again when the population noted that despite an ambitious investment in improving tax administration, the use of resources had not changed. Likewise, Alm (2006) has argued that the fall in tax revenues in Puerto Rico could be explained in part by the deterioration of public health, education and security services.

The above indicates that an implicit fiscal contract is prevalent in Latin American countries and, therefore, the fight against tax evasion requires that the government fully complies with its part, in the sense of exercising its fiscal management with impartiality, attending with the resources collected the most felt needs of the population, eliminating superfluous expenses, and applying the law to tax evaders. In other words, the appropriate thing to do is to make such a contract explicit and reach agreements specifying the responsibilities of both parties: to increase collection by reducing tax evasion and tax “incentives”, and introducing new taxes when required, and, on the other hand, significantly expanding the supply of quality social services.

Also, in relation to the promotion of tax contracts, it is advisable to institutionalize the annual calculation of tax evasion and its implications by the tax authorities, as well as to establish goals on the matter, and to disseminate the results each year, making society aware of the cost of evasion. Multilateral financial organizations should include in their member countries’ adjustment programs, goals related to tax evasion, as well as the preparation by the respective country of strategies to combat evasion.

Likewise, with a view to measuring tax morale, it would be advisable for the multipurpose household surveys that are periodically conducted in the countries of the region to include aspects of tax morale, for example, the head of household’s commitment to pay taxes under any circumstances, and his or her perception of the tax contract, among others.

There is evidence that tax evasion can be interpreted as a manifestation of citizens’ rejection of the actual use of budgetary resources. In this sense, it is especially important to carry out public sector consultations with citizens on the destination or use of budgetary resources and to promote their participation in this matter, before the budget is submitted to the national congress. There is evidence that citizen participation and public discussion of the proposed budget contribute to an increased sense of civic mindedness (Togler and Schaltegger, 2005).

It follows from the results of this work that low taxation leads to inadequate attention to investments in human capital (which represents an investment in security), and in physical and social infrastructure. In other words, low taxation is a drag on the economy and the “ideas” that promulgate low taxation and tax reduction actually represent a real dead weight for the development of a country, which makes it necessary to dismantle and eradicate the “theories” that taxation punishes investment and growth.

In this sense, fiscal responsibility should be seen beyond fiscal indicators and ratios, but first, as the responsibility to increase public spending to fully meet the needs of the population, which would imply changes in the structure of the budget by items and, in some situations, could require a fiscal pact leading to an increase in taxation to meet the most important items for development. These measures would result in an increase in fiscal morality, in compliance with the fiscal contract by both parties, and therefore, reducing tax evasion and boosting the economy along the path of development, apart from the myths that have demonized taxation.

This also suggests that the plethora of tax incentives and exemptions granted to companies may actually represent a means to deteriorate the business climate, with perverse impacts on the companies themselves. On the contrary, it should be instilled that the payment of taxes is an excellent business for companies since such payment leads to improving the physical and social infrastructure that sustains the business climate and result in increasing the profitability of firms. It should be noted that ECLAC (2018) has pointed out that in the region large companies pay in income taxes, on average, only 8 percent of their net income. At the income tax level, 90 percent of the collection originates in the richest 10 percent stratum, whose effective rate is only 4 percent (IDB, 2012).

In this context, the special treatment of large companies has, in addition to a negative impact on the amounts of resources collected by the Treasury, generated a perverse “contagion” impact on citizens’ motivation to evade taxes as a protest against the government’s impartiality in favor of large companies. Recent data from Latinbarometro show that 50 percent of the people surveyed admitted that they had no problem with the practice of tax evasion.

It should be emphasized that the more open the economies are, the greater the evasion tends to be. This implies that fiscal weakness makes economies subject to continuous threats of vicious circles of tax weakness, evasion, recession, and crisis, which are exacerbated by the extreme and useless openness of Latin American economies. The solution to this situation only requires putting into effect the “fundamental” of substantially increasing

taxation.

It is necessary to emphasize the finding that tax evasion is associated with the homicide rate (Figure 8). That is, it leads to people dying prematurely. This is a violation of Article number three of the Universal Declaration of Human Rights, which stipulates that:

Everyone has the right to life, liberty, and security of person.

Likewise, in view of the positive relationship between tax evasion and the size of the underground economy, which represents the most precarious employment, it is valid to infer that tax evasion violates Article 23 of the Universal Declaration of Human Rights, which states that:

Everyone has the right to work, to free choice of employment, to just and fair conditions of work, and to protection against unemployment.

Therefore, tax evasion is much more than an accounting figure, more than a macroeconomic variable, and it permeates the most sacred aspect of human life: human dignity. This shows that citizens have grounds to resort to national and international courts to demand protection in situations of tax evasion and deficient tax collection.

In memory of Enrique Garc ía Ayaviri, my friend.

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Notes

Note 1. The historical opposition of elites to paying taxes has been described by McCoon (2011).

Note 2. [Worldbankgovernanceindicators.org](http://worldbankgovernanceindicators.org). This, and other World Bank governance indices, are calculated based on surveys of public and private sector experts and NGOs on their perception of corruption in the country in question. Kaufmann et al. (2006) define corruption in these terms: “the extent to which public power is exercised for private gain, including both grand forms of corruption, as well as capture of the state by elites and private interests”.

In an evaluation of this database, Kaufmann, Kraay and Mastruzzi (2011) concluded that despite the margins of error, the indicators allow comparisons between countries over time.

Note 3. The t-statistics are shown below the respective coefficients.

Note 4. The variable *cualich* represents the low value of tax evasion in Chile.

Note 5. See the value of R-squared in equation (1) of Table 2.

Note 6. Torgler (2003) has reported evidence that as the frequency of tax audits increases, evasion decreases.

Note 7. Boyrie, Pak and Zdanowicz (2005) reported that the motivation for import overvaluation and import under-invoicing is tax evasion and money laundering.

Note 8. The level of trust in government used in this work is “Somewhat”; *Latinbarometro* also reports the degree of trust as “Very much” but the results obtained using this indicator were not satisfactory.

Note 9. The IOH was developed by the World Bank (Molinas et al., 2011) and is defined as the degree to which girls and boys in a given country have access to drinking water, electricity, education, housing, health, and to complete the sixth grade in the statutory time, regardless of their parent’s income and place of residence.

Note 10. Per capita tax data for 1870 were taken from Sokoloff and Zolt (2004).

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