INSTITUTIONS AND TAX EVASION LEVEL ACROSS COUNTRIES

Felippe Clemente[1], Viviani Silva Lírio[2]

Abstract

This paper examines tax evasion in the context of the institutions across countries. We analyze the relationship between cultural, legal and policy variables and tax evasion in several countries. Based on date from 79 countries for 2002 and ordinary least squares (OLS) regressions as research strategy, main results show that high power distance score is associated with high levels of tax evasion, whereas masculinity score and individualism score are associated with low levels of tax evasion. Public transparency score was also important because government confidence with individuals causes a reduction in tax evasion rate across countries. Tax authority, to enforce the taxpayers, was also important to reduce tax evasion across countries. Thus, policies that review the countries' public transparency, modernize tax authority system and emphasize cultural social aspects have positive effects on tax evasion.

---

[1] Felippe Clemente, Postdoctoral fellowship in Economics, Federal University of Viçosa, Brazil, felippe.clemente@ufv.br.

[2] Viviani Silva Lírio, Professor at Federal University of Viçosa, Brazil, vslirio@ufv.br.

INSTITUCIONES Y NIVEL DE EVASIÓN DE IMPUESTOS A TRAVÉS DE LOS PAÍSES

Resumen

Este artículo examina la evasión fiscal en el contexto de las instituciones en todos los países. Analizamos la relación entre variables culturales, legales y políticas y la evasión fiscal en varios países. Según datos de 79 países para 2002 y usando regresiones de mínimos cuadrados ordinarios como estrategia de investigación, encontramos que la alta puntuación de distancia de poder se asocia con altos niveles de evasión fiscal, mientras que la de masculinidad y el individualismo se asocian con bajos niveles de evasión de impuestos. El puntaje de transparencia pública también es significativo porque la confianza del gobierno con los individuos causa una reducción en la tasa de evasión fiscal. La autoridad tributaria, para hacer cumplir a los contribuyentes, también es importante para reducir la evasión fiscal en todos los países. Por lo tanto, las políticas que revisan la transparencia pública de los países, modernizan el sistema de autoridad fiscal y enfatizan los aspectos sociales culturales tienen efectos positivos en la evasión fiscal.

Palabras claves: *Evasión fiscal, instituciones, evidencia internacional.*

JEL*: D02, H26, H40.*

1. Introduction

Tax evasion has been an important research topic in a large number of developed countries over a long period because it is a widespread phenomenon and continues to be a problem for many countries (Jackson and Milliron, 1986; Andreoni Erard and Feinstein, 1998; Richardson and Sawyer, 2001). For example, Tsakumis et al (2007) estimated that tax evasion in Greece in 2006 amounted about 40% of the Gross Domestic Product (GDP), the largest in the European Union. In Italy, that same year, authorities estimated that 15% of all economic activity was underreported. In the United States, estimates show that in 2001 the government lost US$ 353 billion in underreporting (Tsakumis et al, 2007). In Brazil, the last official estimation is about 2014 and indicated values around US$ 1,245 billion of tax evasion (Clemente et al, 2014).

Tax authorities have various forms of penalties to try to control tax evasion. The most common penalties are fines and arrests. Despite this, tax evasion still is a significant threat to countries' economies, putting pressure on the country's budget through lost revenues (REF).

Many studies have examined the effects of penalties on avoidance (Porcano, 1988; Porcano and Price, 1993; White, Harrison and Harrell, 1993), but few empirical studies have examined fiscal problems from an international perspective (Picur and Riahi-Belkaoui, 2006, Riahi-Belkaoui, 2004, Richardson, 2006).

A smaller number of works are found the positive relationship between culture and tax evasion. Roth, Scholz, and Dryden-Witte (1989) have argued that the various cultural contexts shape a person's interpretation and influence the individual's decision to evade taxes. The authors argue that culture reflects in different values and specific behavioral norms, which can increase or decrease tax evasion. In this context, Alm and Torgler (2006) investigate the relationship between culture and fiscal morality for a large number of countries. The study explore the role that national culture can play across countries to illustrate the behavior of tax evasion. Culture is a multivariate concept, and this paper was the first study to use Hofstede's (2001) cultural framework to explain diversity in international tax compliance. Hofstede's (2001) four primary cultural dimensions are summarized as follows:

• Power distance: This dimension focuses on the degree of equality or inequality between people in a country. A high power distance ranking indicates that inequalities of power and wealth have been allowed to grow within the country. These countries generally follow a class system that does not allow significant upward mobility of its citizens. For example, in countries such as Burma (Myanmar), Cambodia, Laos, and Thailand, people are expected to display respect for monks by greeting and taking leave of monks with ritualistic greetings, removing hats in the presence of a monk, dressing modestly, seating monks at a higher level, and using a vocabulary that shows respect. Power distance also refers to the extent to which power, prestige, and wealth are distributed within a culture. Cultures with high power distance have power and influence concentrated in the hands of a few rather than distributed throughout the population. These countries tend to be more authoritarian and may communicate in a way to limit interaction and reinforce the differences between people (Kim, 2005). A low power distance

ranking indicates the country de-emphasizes the differences between citizens' power and wealth. In such countries, equality and opportunity for everyone is stressed.

• Individualism: This dimension refers to how people define themselves and their relationships with others. In an individualist culture, the interest of the individual prevails over the interests of the group. Ties between individuals are loose. People look after themselves and their immediate families. A high individualism ranking indicates that individuality and individual rights are dominant within the country. Individuals in such countries tend to form a larger number of looser relationships. In individualist cultures such as the United States, for example, when meeting a new person, you want to know what that person does. You tend to define people by what they have done, their accomplishments, what kind of car they drive, or where they live (Kim, 2005). A low individualism ranking indicates countries of a more collectivist nature with close ties between individuals. Such countries reinforce extended families and collectives in which everyone takes responsibility for fellow members of their group.

• Uncertainty avoidance: This dimension focuses on the level of tolerance for uncertainty and ambiguity within a country. A high uncertainty avoidance ranking indicates that a country has a low tolerance for uncertainty and ambiguity. This creates a rule-oriented country that institutes laws, rules, and regulations to reduce the amount of uncertainty. For example, students from high uncertainty avoidance cultures expect their teachers to be experts who have all the answers. And in the workplace, there is an inner need to work hard, and there is a need for rules, precision, and punctuality. Students from low uncertainty avoidance cultures accept teachers who admit to not knowing all the answers (Kim, 2005). A low uncertainty avoidance ranking indicates that a country has less concern about ambiguity and uncertainty and has more tolerance for different opinions. This is reflected in a country that is less rule-oriented, more readily accepts change, and takes on more and greater risks.

• Masculinity: This dimension focuses on the degree to which a country supports individual or collective achievement and interpersonal relationships. A high masculinity ranking indicates that a country places more importance on achievement, heroism, assertiveness, and material success. A low masculinity ranking indicates that a country places more emphasis on relationships, modesty, caring for the weak, and the quality of life.

Tsakumis et al (2007) also employed Hofstede (2001) cultural dimensions to analyze tax evasion across countries. They showed the high power distance score and uncertainty avoidance score and the low individualism score and masculinity score affect positively tax evasion level across countries. Richardson (2008) expands Tsakumis et al (2007) for a comprehensive international tax evasion model, including legal, political, and religious variables, in order to reduce the omitted variable econometric bias contained in Tsakumis et al (2007).

Thus, we observed at the literature few studies about tax evasion and cultural dimensions dealing with the institutions and the problem of international tax evasion.

The purpose of this study is to conduct further empirical analysis of the relationship between cultural, legal and political dimensions and tax evasion across countries. In addition,

we analyze these dimensions in the aspect of formal and informal institutions, using concepts of the new institutional economics (NIE).

Based on date from 79 countries for 2002, the ordinary least squares (OLS) regression results show, to informal institutions, the higher power distance score and masculinity score, the higher is tax evasion across countries. For formal institutions, the higher public transparency index and the tax regulation score, the lower is tax evasion across countries. We found robust results to various specifications made. Thus, government policymakers should find the results of this study helpful in considering tax evasion from a cultural, legal and political standpoint, and in developing reform policies designed to minimize tax evasion.

This study contributes to the literature in several ways. First, using the new institutional economics (North, 1990), we discussed the cause and shape of formal and informal institutions, providing specific assumptions about the effects of these institutions on tax evasion. Second, the study extends Tsakumis et al (2007) and Richardson (2008) studies, by adding cultural and legal dimensions at formal and informal institutions, in order to show a model with greater robustness tax evasion levels. Therefore, it fills the gap existing in the literature.

The remainder of the paper is organized as follows: Section 2 briefly describes Hofstede's (2001) concepts of cultural dimensions, considers the relations between cultures, legal enforcement, trust in government and tax evasion. Section 3 explains the research design. Finally, section 4 presents the conclusions, limitations and opportunities for future research.

2.   Institutions and Tax Evasion: Concepts and Hypotheses

According to Crossland and Hambrick (2011), institutional research originates in 20th century in political science, sociology and economics and were a reaction to neoclassical theories. Hence, institutional arguments centered on the importance of social beliefs, values, relationships and expectations.

New institutional economics (NIE), the main research group on institutions, argues that their main purpose is to reduce uncertainty and transaction costs (Coase, 1998; North, 1990). Given interactions between individuals and organizations tend to be complex due to formed expectations, institutions provide the base of trust, thus reducing uncertainties. North (1990) shows institutions are idealized human conceptions that build politics, economics, and social interactions. North (1990) classified institutions as formal or informal. Formal institutions are explicit and codified, imposed by the state, consisting of political and economic rules protecting property rights and transactions in a society (North, 1990). Informal institutions, in turn, are unspoken rules, usually unwritten and exist outside of the legal system, like conventions, norms, and values which shape interactions in a society (Helmke and Levitsky, 2006).

In order to understand and elaborate hypotheses about the relationship between institutions and tax evasion across countries, this section presents two subsections: i) informal intuitions and tax evasion, and ii) formal institutions and tax evasion.

2.1.   Informal Institutions and tax evasion

Crossland and Hmbrick (2011) emphasize about the importance of informal institutions since ancient times individuals have restricted their behavior   to provide an adequate structure for their interactions. Institutions affect behavior through a process based on social problems and limited rationality, as well as rules and conjecture incentives, which serve to solve problems (Mantzavinos, North and Shariq, 2001).

However, how can informal institutions affect the level of tax evasion? The literature shows several ways to analyze   tax evasion in different cultural contexts. Tittle (1980) finds cultural history reports the USA as a deviant of taxpayers. Coleman and Freeman (1997) remark that for Australia, tax compliance is a function of the country's cultural dimension. Thus, the literature has sought to identify how specific cultural dimensions affect tax evasion. Tsakumis et al. (2007) have employed the cultural dimensions employed by Hofstede (2001) to explain countries' tax evasion. The major finding of this study is that culture, represented by power distance, uncertainty avoidance, individualism and masculinity (Hofstede's cultural dimensions) contribute to a better understanding of international tax evasion.

In this context, we present the concepts of cultural dimensions proposed by Hofstede (2001), to define the hypotheses of this study.

Hofstede (2001) defines culture as collective programs able to distinguish members of the most diverse groups. Based on qualitative research developed for over 60 countries in the 1970s, Hofstede (2001) calculated scores corresponding to four cultural dimensions, described below:

Power distance. This dimension focuses on the degree of equality or inequality between people in a country. In this context, countries that are more unequal have a tax system that keeps large differences between individuals' income levels. Hence, people discern the tax system imbalance and seek to evade taxes (Spicer, 1974; Song and Yarbrough, 1978). On the other hand, countries with a higher level of income equality and income redistribution reduce the income differences of citizens and, then, have a fairer tax system. Thus, people observe the balance of tax system and do not evade taxes (Hite and Roberts, 1992). This discussion allows to formulate the following hypothesis:

H1. *Ceteris paribus*, a high *power distance* imply a high tax evasion across countries.

Uncertainty avoidance. This dimension focuses on the level of tolerance for uncertainty and ambiguity within a country. Thus, tax systems with high aversion to uncertainty tend to be more complex, since they require many laws and regulations to reduce ambiguity and uncertainty. In this situation, people tend to view the tax system as complex and end up evading taxes (Clotfelter, 1983; Milliron and Toy, 1988; Richardson, 2006). Alternatively, countries with low uncertainty aversion tend to have a simple tax system and fewer laws and regulations. Therefore, people admit the tax system as being simple in nature, and do not evade taxes (Long and Swingen, 1991). This discussion leads to the following hypothesis:

H2. *Ceteris paribus*, a high level of *uncertainty avoidance* implies a high tax evasion level.

Individualism. This dimension focuses on the degree to which a country supports individual or collective achievement and interpersonal relationships. Thus, tax systems with a high level of individualism tend to be more equitable and, according to the principle of contributing capacity, have a better sharing of the tax burden. People tend to be honest with tax laws because they perceive tax systems are fair (Milliron and Toy, 1988; Sandford, 2000). On the other hand, countries with a low individualism level imply on particular rules and procedures. Thus, tax systems tend to be unequal and violate the principle of contributing capacity. Therefore, people seek to avoid paying taxes because they perceive the tax system as unfair (Surrey and McDanil, 1985; Wearing and Headey, 1997). This discussion elaborates the following hypothesis:

H3. *Ceteris paribus*, a high *individualism index* implies a low tax evasion level.

Masculinity. This dimension focuses on the degree to which a country supports individual or collective achievement and interpersonal relationships. Thus, countries with a high level of masculinity tend to focus only on material success, and this does people to be more willing to engage in corrupt transactions. Thus, it is acceptable to think a high level of masculinity should result in greater acceptance of tax evasion; as well, countries with low masculinity should result in lower acceptance of tax evasion (Husted, 1999).

However, Tsakumis et al (2007) suggest masculinity as the opposite definition. The authors argue countries with high material success (high level of masculinity) result in societies that are proud and may be more aware of their fiscal obligations. This situation may lead to greater control by the tax authorities (e.g. increase of audit probability). This discussion leads to following non-directional hypothesis:

H4. *Ceteris paribus*, there is a relation between *masculinity* and tax evasion in a country.

2.2. Formal Institutions and tax evasion

Helmke and Levitsky (2004) define formal institutions as rules and procedures, which are created, communicated, and executed through channels widely accepted as official. Like informal institutions, they also reduce uncertainty and develop an important role in problem solving. However, the process for formal institutions is more explicit and based on central aspects of state, which has power for lawful coercion (Scott, 2001). State protects property rights and action of individuals, and they observe formal rules to avoid state sanctions (Crossland and Hambrick, 2011).

Nevertheless, how can the formal institutions affect the tax evasion level? The literature has shown some ways of analyzing the evaluation of tax evasion, considering dimensions that do not belong to the cultural context. Riahi-Belkaoiu (2004) constructs a fiscal model of fraud and evasion, including relevant dimensions to legal and political institutions. Richardson (2008) extended the tax evasion model of Tsakumis et al (2007) to examine the impact of legal and political institutions on tax evasion across countries. Their results show lower level of legal enforcement, government trust and religiosity increase tax evasion level, which makes a significant contribution to policy makers and tax authorities.

In this context, we present concepts of dimensions used in the formal institutions performance, as well as hypotheses.

Legal enforcement. This dimension represents law application as a norm to prevent deviant behavior, corruption and tax evasion (Schneider and Enste, 2002; Brunetti and Weder, 2003). We represent these dimensions with Audit and Tax Regulation. Laws presume government authorities can only work out audit and tax regulation power in accordance with the law endorsed through a predetermined procedure (Joireman, 2001). This ensures that legal system main institutions comply with laws effectively and fairly, reducing corruption and tax evasion levels (Schneider and Enste, 2002). These arguments lead to the following hypotheses:

H5. *Ceteris paribus*, a high level of audit implies in a low tax evasion level.

H6. *Ceteris paribus*, a high tax regulations level implies a low tax evasion level across country.

Trust in government. According to Levi (1998), if individuals believe that government will act in favour of their interests, they will be more likely to comply with their tax obligations. Feld and Frey (2002) argue that the relationship between individuals and government is perceived as a social contract that involves strong bonds of loyalty. Since contract preserve positive actions based on trust and confidence, there is a great incentive for individuals to comply with tax laws. Surveys in Australia (Wearing and Headey, 1997) and Germany (Slemrod, 2003) show a negative relationship between trust in government and tax evasion. We represent trust in government in this study by the variable Public Transparency. The argument presented here provides next hypothesis:

H7. *Ceteris paribus*, a high public transparency level implies a low tax evasion level.

3. Empirical Analysis: National Institutions and Tax Evasion

We divided the empirical analysis into two sections. First, we present the OLS regression method used to relate institutions and tax evasion (Hypotheses 1 to 7). Second, we present main results obtained with OLS estimations.

3.1. Method

Hofstede (2001) provides scores for 79 selected countries about cultural dimensions. He uses a mix of countries separated by language, culture and geography. As we incorporate cultural dimensions from Hofstede (2001), we use same countries in the analysis (Table 1). These countries are different aspects as size and economic development. The three largest tax evasion levels belong to Peru, Tanzania and Panama. The three countries with the lowest tax evasion level are Switzerland, Singapore and Saudi Arabia (Schneider, 2004).

Tax evasion is defined as intentional and illegal behavior, or behavior involving a direct violation of tax laws to breakout tax payment (Richardson, 2008). However, tax evasion is

unknown and difficult to calculate, tax evasion studies use alternative measures as proxies for evasion. Some papers use hypothetical evasion or perception of evasion (Porcano, 1988; White, Harrison and Harrell, 1993, Riahi-Belkaoui, 2004; Tsakumis et al., 2007, Richardson, 2008). Other studies use evasion estimates provided by government (Chiarini et al, 2013; Tsakumis et al, 2007). Previous surveys examining international tax evasion (Varma & Doob, 1998; Alm and Torgles, 2006; Tsakumis et al, 2007; Richardson, 2008) have used individuals 'perceptions of tax evasion as a proxy for countries' tax evasion. We follow this latter definition of tax evasion and we estimate undeclared income across country as a proxy for tax evasion. Specifically, shadow economy as a percentage of GDP provides a good proxy for tax evasion level (Chiarini et al, 2013). Thus, we use Schneider (2004), who estimated the shadow economy for 145 different countries. The main results shown countries with shadow economies (as a percentage of GDP) are countries with lower tax compliance, i.e. high (low) underreporting of income and high (low) tax avoidance.

Table 1. Countries selection, based on Hofstede (2001)

Countries			
Argentina	Ghana	Mali	Sierra Leone
Australia	Greece	Mauritania	Singapore
Austria	Guatemala	Mauritius	Slovene
Belgium	Guinea	Mexico	South Africa
Brazil	Hong Kong	Mozambique	Spain
Burkina Faso	India	Netherlands	Sweden
Burundi	Indonesia	New Zealand	Switzerland
Canada	Iran	Nigeria	Taiwan
Cape Verde	Ireland	Norway	Tanzania
Chile	Israel	Pakistan	Thailand
Colombia	Italy	Panama	Turkey
Costa Rica	Jamaica	Peru	Uganda
Croatia	Japan	Philippines	UAE
Denmark	Kenya	Portugal	UK
Ecuador	Korea	Rwanda	United States
Ethiopia	Liberia	Salvador	Uruguay
Finland	Macedonian	Saudi Arabia	Venezuela
France	Madagascar	Senegal	Zambia
Gambia	Malawi	Serbia	Zimbabwe
Germany	Malaysia	Seychelles	

Source: by Authors.

We arranged the variable in two distinct groups: informal institutions and formal institutions.

3.2.   Informal Institutions

We use Hofstede (2001) cultural dimensions *power distance*, *individualism*, *uncertaintly avoidance* and *masculinity*. Hofstede (2001) developed scores through factor analysis at the national level, Hofstede's (2001) dimensions are the most used in literature (Crossland and Hambrick, 2011) and allow comparison of results with others already published.

The scale developed by Hofstede (2001) ranges from 0 to 150, with 50 being the average. Golden rule is that, if the score is less than 75, the dimension is considered lower. If the score is greater than 75, dimension is considered higher. For example, in the case of individualism, the lower scale (below 75) is considered collectivist and higher scale (above 75) is considered individualistic. A country with a 43 score would be collectivist, but less collectivist than country with 28 score, which is moving toward 0 score.

3.3.   Formal Institutions

We use the variable audit index, tax regulation index and public transparency index to determine formal institutions. The Audit and tax regulation indices show control of tax collection across countries. The public transparency index measures the level of individual trust that people place in government (Richardson 2008).

3.4.   Control Variables

We should control the potential cross-country effects (Brunetti & Weder, 2003; Richardson, 2006; Tsakumis, 2007; Richardson, 2008). Development level and economic growth have a significant impact on tax evasion level across countries. Some studies, such as Alm & Martinez-Vazquez (2003) and Quirk (1997), argue that countries at the early economic development stages are particularly more prone to tax evasion. Quirk (1997) shows that in developing countries it is common that evasion is above 50% of GDP. Thus, we control the economic development through the Human Development Index (HDI), and economic growth level through the natural log of Gross National Income per capita (GNI).

To identify the institutions effect on tax evasion level, we used the following specifications:

$$y_i = \alpha + \beta_{1i}X_{1i} + \beta_{2i}X_{2i} + \beta_{3i}X_{3i} + \beta_{4i}X_{4i} + \beta_{5i}X_{5i} + \beta_{6i}X_{6i} + \beta_{7i}X_{7i} \qquad (1)$$
$$+ \ \varepsilon_i$$

$$y_i = \alpha + \beta_{1i}X_{1i} + \beta_{2i}X_{2i} + \beta_{3i}X_{3i} + \beta_{4i}X_{4i} + \beta_{5i}X_{5i} + \beta_{6i}X_{6i} + \beta_{7i}X_{7i} \qquad (2)$$
$$+ \beta_{8i}X_{8i} + \varepsilon_i$$

$$y_i = \alpha + \beta_{1i}X_{1i} + \beta_{2i}X_{2i} + \beta_{3i}X_{3i} + \beta_{4i}X_{4i} + \beta_{5i}X_{5i} + \beta_{6i}X_{6i} + \qquad (3)$$
$$\beta_{7i}X_{7i} + \beta_{8i}X_{8i} + \beta_{9i}X_{9i} + \varepsilon_i,$$

where y = tax evasion score for country i in 2002, X_{1i} = *power distance* score for country i, X_{2i} = *uncertainty avoidance* score for country i, X_{3i} = *individualism* score for country i, X_{4i} = *masculinity* score for country i, X_{5i} audit index for country i, X_{6i} = public transparency index for country i, X_{7i} = tax regulation score for country i e X_{8i} = HDI index for country i and X_{9i} = GNI score for country i.

Specification (1) does not consider any control variable. Specification (2) considers the country's economic development level as a control, and specification (3) includes all controls. The goal of the three different specifications is to verify the robustness of our results.

Hofstede (2001) calculated the cultural dimensions in 1980s. However, Hoppe (1990) and Merritt (2000) confirm applicability of Hofstede scores in different times. The other variables are from 2002.

Since it is a cross-section, we estimate the models using Ordinary Least Squares (OLS) regression. We calculate the variance inflation factor (VIF) to test for multicollinearity, and Breusch-Pagan-Godfrey and White tests to check for heteroscedasticity.

We constructed the database from a wide range of public sources. For tax evasion score across countries, we used data from Schneider (2004). For cultural dimensions, we used Hofstede (2001) database and for formal institutions, we used the Global Competitiveness Report (WEF, 2002). Finally, we collected Gross National Income (GNI) per capita and Human Development Index (HDI) from World Development Indicators (World Bank, 2006).

4. Empirical Results

We subdivided this section into two parts: first descriptive statistics, and second the main results and hypotheses discussion.

4.1.   Descriptive Statistics

Table 2 presents the descriptive statistics by 79 countries for 2002. As we can see, there is considerable variability in the tax evasion level across countries. Tax evasion level (as a percentage of GDP) ranges from 8.5% to 63.5%, (average of 30.9%). At extremes, we have Switzerland that correspond only 8.5% of GDP and Panama whose level of tax evasion represents 63.5 % of GDP.

We analyze considerable variability at informal institutions dimensions. Uncertainty avoidance fluctuates between 8 and 112 for Singapore and Greece, respectively, (average 62.85) and individualism score ranges between 6 and 91, for Guatemala and USA, respectively, (average 37.03). According to individualism score, Guatemala presented a more collectivist country and USA a more individualistic country. Masculinity dimension ranges between 5 and 95, for Sweden and Japan, respectively, (average 46.25) and power distance score ranges between 11 and 104, for Austria and Malaysia, respectively, (average 61.49). For Brazil, we show cultural dimensions by the following values: UA, 76; II, 38; MI, 49; and PD, 69. It is important to note that there are no countries that exhibit high or low scores in all cultural dimensions, which represent informal institutions. However, according to Hofstede (2001), countries with the same cultural extension can present similar patterns across the four dimensions. For example, the group defined as Anglo (Australia, Canada, United States and UK) tends to exhibit low UA and PD and high II and MI, as well as low levels of tax evasion, which is consistent with those found in this paper. On the other hand, the groups of countries considered as Near Eastern (Greece, Iran, Turkey, Croatia and Macedonia) and Less Developed Latin (Costa Rica, Ecuador, El Salvador and Uruguay) tend to exhibit high UA and PD and low II and MI, In addition to high levels of tax evasion, which is also consistent with our results.

We also observe that formal institutions and audit index ranges from 2.6 to 6.6 for Burundi and South Africa, respectively, (average of 4.79); public transparency index ranges from 3 to 6.2 for Madagascar and Singapore, respectively; (average of 4.45) and tax regulation index fluctuates between 0.5 and 18.7, for Zimbabwe and Brazil, respectively, (average of 6.04).

Table 2. Descriptive Statistics

Variables[a]	Mín	Max	Mean	Median	Std. Dev.
Dependent					
Tax Evasion (%GDP)	8,5	63,5	30,93	30,9	13,53
Independents					
Power Distance (PD)	11	104	61,49	64	19,40
Uncertainty Avoidance Index (UA)	8	112	62,85	54	21,25
Individualism Index (II)	6	91	37,03	27	22,63
Masculinity Index (MI)	5	95	46,25	46	16,09
Audit Index (IA)	2.6	6.6	4,79	4,7	0,83
Public Transparency Index (ITP)	3	6.2	4,45	4,4	0,74
Tax Regulation Index (IRT)	0,5	18,7	6,04	6	3,88
Log GNI per capita	5,63	11,49	8,79	9.08	1,69
HDI Index	0,45	0,963	0,748	0,792	0,18

Source: by Authors.

4.2.   OLS regression analysis

Table 3 shows different estimation results with goal to verify robustness at models. In order to identify multicollinearity presence and heteroscedastic in the models, we calculated the variance inflation function (VIF) and Breusch-Pagan-Godfrey and White tests. We did not detect multicollinearity at all estimation regressions. We found heteroscedasticity at estimations, which was corrected with the White's robust correction test.

OLS_1 regression shows an adjusted R^2 of 0.5228. Regarding statistical significance coefficients, we have PD ($p < 0.05$), MI ($p < 0.03$), II ($p < 0.01$) and ITP ($p < 0.10$). These dimensions affect tax evasion level across countries in the predicted directions. Thus, countries with a high inequality degree (PD) impact positively on tax evasion level, and countries with high levels of material success (IM), individualism (II) and public transparency affect negatively tax evasion level. However, we find no significant coefficients for UA, IA and IRT, which shows that these dimensions do not affect tax evasion levels.

OLS_2 regression considers same dimension as OLS_1 but adding economic development level as a cross-country control (GNI per capita). The adjusted R^2 amounts 0.6182, which means there is a significant increase at explanatory power compared to OLS_1. We found significant coefficients for PD ($p < 0.09$), that impact directly on tax evasion, MI ($p < 0.02$), II ($p < 0.02$), AI ($p < 0.1$) and ITP ($p < 0.1$), that impact negatively on tax evasion across selected countries. UA and IRT dimensions are not significant, indicating no impact on tax evasion.

For OLS_3 regression we add HDI cross-country control and we find the adjusted R^2 amounts 0.6322, which was higher than OLS_1 and OLS_2. We analyze the following significant coefficients, PD ($p < 0.1$), MI ($p < 0.04$), II ($p < 0.04$), AI ($p < 0.12$) and ITP ($p < 0.1$), that are related to tax evasion level on theri expected hypotheses. Thus, increases at power distance cultural dimension affect directly tax evasion level and increases at masculinity dimension, audit index and public transparency negatively affect tax evasion across countries. UA dimension has no significance.

Briefly, we show that p*ower distance, masculinity* and *individualism* cultural dimension are significant in all OLS regression. Then, our results support hypotheses H1, H3 and H4. The hypotheses were defined as follows: H1: high level of power distance allows a high level of tax evasion in the country; H2: high level of uncertainty avoidance impacts directly on tax evasion; H3: high level of individualism indicates low level of tax evasion in the country; H4: there is a significant relationship between masculinity and tax evasion; H5: high level of audit score enables low level of tax avoidance; H6: there is a relationship between the level of tax regulation and tax evasion; And H7: high level of public transparency enables low levels of tax evasion in the country. Results are in agreement with Tsakumis et al (2007) and Richardson (2008) that found also a noncompliant country's profile is characterized by high power distance, low individualism and low masculinity. Furthermore, we find that the u*ncertainty avoidance* dimension is not significant in all OLS regression. Then, we reject H2 hypothesis. We observe robust coefficients of all dimensions used, except for UA, and they maintained expected signs according to literature, even after we include cross-country controls.

Regarding formal institutions, we found a significant ITP dimension in all OLS regressions, hence we find support for hypothesis H6. The IA dimension becomes significant in OLS2 and OLS_3 at the expected direction. Thus, we corroborate hypothesis H5. However, IRT dimension is not significant in all OLS regressions; hence, we reject H7 in this study. Here we also observe robust coefficients, because they maintain expected signs at different specifications models.

Table 3. OLS estimations

Variables	MQO_1	MQO_2	MQO_3
Power Distance (PD)	0,1286[*]	0,1087[**]	0,0918[**]
	(1,99)	(1,69)	(1,41)
Uncertainty Avoidance Index (UA)	-0,0201[NS]	0,0768[NS]	0,0978[NS]
	(-0,32)	(1,21)	(1,57)
Individualism Index (II)	-0,2355[*]	-0,1504[*]	-0,1371[*]
	(-3,32)	(-2,27)	(-2,02)
Masculinity Index (MI)	-0,1004[*]	-0,1079[*]	-0,0935[*]
	(-2,14)	(-2,26)	(-2,07)
Audit Index (IA)	-0,5498[NS]	-3,6438[**]	-3,8375[**]
	(-0,22)	(-1,47)	(-1,56)
Public Transparency Index (ITP)	-3,9810[**]	-3,9690[**]	-3,6532[**]
	(-1,62)	(-1,67)	(-1,66)
Tax Regulation Index (IRT)	-0,2419[NS]	-0,1865[NS]	-0,1536[NS]
	(-0,82)	(-0,72)	(-0,61)
Log GNI per capita		-3,9097[*]	-2,3590[**]
		(-3,49)	(-1,41)

HDI index			-20,551[**]
			(-1,28)
Constant	59,45[*]	65,67[*]	63,45[*]
	(5,39)	(6,37)	(6,12)
F Statistic	25,24[*]	33,52[*]	32,24[*]
Adjusted R^2	0,5228	0,6182	0,6322

*significance at 5%, ** significance at 20%, [NS] no significance. (..) t Statistics.

Souce: by Authors.

5. Conclusion

We investigate formal and informal institutions influence on tax evasion across 79 selected countries. As main results, we conclude that government policy makers could check tax evasion from cultural, legal, and political perspectives to develop public policies to combat evasion. We find high power distance Hofstede (2001) dimension is associated with higher tax evasion level and masculinity and individualism dimension are associated with lower tax evasion level. Therefore, we suggest government should seek to emphasize cultural and social aspects on public policies to mitigate tax evasion. Public transparency dimension has also fundamental importance, as greater individual's government confidence impact on tax evasion reduction across countries. Strong tax authority has also showed important, as it reduces tax evasion in countries.

We find some limitations of this study. First, we checked social sciences use more Hofstede (2001) cultural dimensions when they refer culture and tax evasion levels across countries. However, although Hofstede (2001) has critics (such as Schwartz (1994), McSweeney (2002) and Baskerville (2003)), international researchers recognized confidence of Hofstede's (2001) scores (Merritt 2000) and De Mooij (2001)). Second, we used ratings database on formal institutions. However, internationally respected organizations verified these data, as well as they used a variety factors to reduce measurement errors possibility. Third, Hofstede's (2001) database has different year from dependent and independent variable. Nonetheless, we note several researches (e.g., Hoppe, 1990; Merritt, 2000) to certify applicability of Hofstede scores across time and across countries. Finally, potentially, we may have endogeneity problems because of the cross-section nature of this study. Further considerations could be change the research strategy to 2SLS and instrumental variables in order to correct the possible problem of endogeneity bias.

We suggest for future researches to use advanced methodologies to conduct individual countries investigating institutions influence on tax evasion level. We also suggest increase the database size, in order to involve more countries at different times, to verify times influence on cultural, legal and political dimensions and tax evasion levels.

References

Alm, J., & Martinez-Vazquez, J. Institutions, paradigms, and tax evasion in developing and transition countries. In: J. Martinez-Vazquez & J. Alm (Eds.), *Public finance in developing and transitional countries: Essays in honor of Richard Bird* (pp. 146–178). Cheltenham, UK: Edward Elgar, 2003.

Alm, J., & Torgler, B. Culture differences and tax morale in the United States and in Europe. *Journal of Economic Psychology*, *27*, 224–246, 2006.

Andreoni, J., Erard, B., & Feinstein, J. Tax compliance. *Journal of Economic Literature*, *36*, 818–860, 1998.

Baskerville, R. F. Hofstede never studied culture. *Accounting, Organizations and Society*, *28*, 1–14, 2003.

Brunetti, A., & Weder, B. A free press is bad news for corruption. *Journal of Public Economics*, *87*, 1801–1824., 2003.

Chiarini, B.; Marzano, E.; Schneider, F. Tax rates and tax evasion: an empirical analysis of the long-run aspects in Italy. European Journal of Law and Economics, v. 35, n. 2, 23 p., 2013.

Clemente, F.; Lírio, V.S.; Lipatov, V.; Castro, F.A. Corporate Tax Evasion: Evidence to Brazil. In: Proceedings 9th Research Workshop on Institutions and Organizations – RWIO and Center for Organization Studies – CORS, Outubro de 2014, 13p.

Clotfelter, C. Tax evasion and tax rates: An analysis of individual returns. *The Review of Economics and Statistics*, *65*, 363–373, 1983.

Coase, R. The new institutional economics. *American Economic Review* 88: 72–74, 1998.

Coleman, C., & Freeman, L. Cultural foundations of taxpayer attitudes to voluntary compliance. *Australian Tax Forum*, *13*, 311–336, 1997.

Crossland, C.; Hambrick, D. C. Differences in Managerial Discretion across countries: How nation-level Institutions affect the degree to which CEOS matter. *Strategic Management Journal*, 32: 797–819, 2011.

De Mooij, M. *Convergence-divergence*. Unpublished doctoral dissertation, Universidad de Navarra, 2001.

Feld, L. P., & Frey, B. S. Trust breeds trust: How taxpayers are treated. *Economics of Governance*, *3*, 87–99, 2002.

Feld, L. P.; Frey, B. S. Tax compliance as the result of a psychological tax contract: The role of incentives and responsive regulation. Law and Policy, 29, 102-120. 2007.

Helmke, G.; Levitsky, S. Informal institutions and comparative politics: a research agenda. *Perspectives on Politics* 2: 725–740, 2004.

Helmke, G.; Levitsky, S. *Informal Institutions and Democracy: Lessons from Latin America*. Johns Hopkins University Press: Baltimore, MD, 2006.

Hite, A., & Roberts, M. L. An analysis of tax reform based on taxpayers' perceptions of fairness and self-interest. *Advances in Taxation*, *4*, 115–137, 1992.

Hofstede, G. H. *Cultures consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd ed.). London: Sage Publications, 2001.

Hoppe, M. H. A comparative study of country elites: International differences in work-related values and learning and their implications for management training and development. Unpublished doctoral dissertation. University of North Carolina at Chapel Hill, 1990.

Husted, B.W. Wealth, culture, and corruption. *Journal of International Business Studies*, *30*, 339–359, 1999.

Jackson, B. R., & Milliron, V. C. Tax compliance research: Findings, problems and prospects. *Journal of Accounting Literature*, *5*, 125–165, 1986.

Joireman, S. F. Inherited legal systems and effective rule of law: Africa and the colonial legacy. *Journal of Modern African Studies*, *39*, 571–596, 2001.

Kim, Y. Y. Adapting to a new culture: An integrative communication theory. In W. Gudykunst (Ed.), Theorizing about intercultural communication (pp. 375-400). Thousand Oaks, CA: Sage, 2005.

Levi, M. A State of trust. In V. Braithwaite & M. Levi (Eds.), *Trust and governance* (pp. 77–101). New York, NY: Russell Sage Foundation, 1998.

Long, S., & Swingen, J. Taxpayer compliance: Setting new agendas for research. *Law and Society Review*, *25*, 637–683, 1991.

Mantzavinos, C., North, D. C., Shariq, S. Learning, institutions, and economic performance. *Perspectives on Politics* 2: 75–84, 2001.

Milliron, V. C., & TOY, D. R. Tax compliance: An investigation of key features. *Journal of the American Tax Association*, *10*, 84–104, 1988.

Merritt, A. C. Culture in the cockpit: Do Hofstede's dimensions replicate? *Journal of Cross-Cultural Psychology*, *21*, 283–301, 2000.

Mcsweeney, B. Hofstede's model of national culture differences and their consequences: A triumph of faith – a failure of analysis. *Human Relations*, *55*, 89–118, 2002.

North, D. C. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press: New York, 1990.

Picur, R. D., & Riahi-Belkaoui, A. The impact of bureaucracy, corruption and tax compliance. *Reviewof Accounting and Finance*, *5*, 174–180, 2006.

Porcano, T. M. Correlates of Tax Evasion. *Journal of Economic Psychology.*, *9*, 47–67, 1988.

Porcano, T. M., & Price, C. E. The effects of social stigmatization on tax evasion. *Advances in Taxation*, *5*, 197–217, 1993.

Quirk, P. J. Money laundering: Muddying the macro economy. *Finance and Development*, *34*, 7–9, 1997.

Riahi-Belkaoiu, A. Relationship between tax compliance internationally and selected determinants of tax morale. *Journal of International Accounting, Auditing and Taxation*, *13*, 135–143, 2004.

Richardson, G. Determinants of tax evasion: A cross-country investigation. *Journal of International Accounting, Auditing and Taxation*, *15*, 150–169, 2006.

Richardson, G. The relationship between culture and tax evasion across countries: Additional evidence and extensions. Journal of International Accounting, Auditing and Taxation, 17, 67–78, 2008.

Richardson, M., & Sawyer, A. J. A taxonomy of the tax compliance literature: Further findings, problems and prospects. *Australian Tax Forum*, *16*, 137–320, 2001.

Roth, J. A., Scholz, J. T., & Dryden-Witte, A. *Taxpayer compliance volume 1: An agenda for research*. Philadelphia, PN: University of Pennsylvania Press, 1989.

Sandford, C. Why tax systems differ: A comparative study of the political economy of taxation. Bath, The United Kingdom: Fiscal Publications, 2000.

Schwartz, S. H. Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, C. Kagitcibasi, S. C. Choi, & G. Yoon (Eds.), *Individualism and*

collectivism: Theory, method and applications (pp. 85–119). Thousand Oaks, CA: Sage Publications, 1994.

Schneider, F., & Enste, D. Hiding in the shadows: The growth of the shadow economy. *Economic Issues*, 30, 1–12, 2002.

Schneider, F. The size of the Shadow Economies of 145 countries all over the world: First results over the period 1999-2003. Institute for the Study of Labor (IZA) Discussion Paper, n. 143, 17p.; 2004.

Scott, W. R. *Institutions and Organizations* (2nd ed). Sage: Thousand Oaks, CA, 2001.

Slemrod, J. Trust in public finance. In S. Cnossen & H.W. Sinn (Eds.), *Public finance in the new century* (pp. 49–88). Cambridge, MA: MIT Press, 2003.

Song, Y. D., & Yarbrough, T. E. Tax ethics and tax attitudes: A survey. *Public Administration Review*, *38*, 442–452, 1978.

Spicer, M. *A behavioral model of income tax evasion*. Unpublished PhD Thesis. Ohio State University, 1974.

Surrey, S. S., & Mcdaniel, P. R. *Tax expenditures*. Cambridge, MA: Harvard University Press, 1985.

Tanzi, V. The underground economy in the United States: annual estimates, 1930- 1980. *IMF Staff Papers*, 1983.

Tittle, C. *Sanctions and social deviance: The question of deterrence*. New York, NY: Praeger, 1980.

Tsakumis, G. T., Curatola, A. P., & Porcano, T. M. The relation between national cultural dimensions and tax evasion. *Journal of International Accounting, Auditing and Taxation*, *16*, 131–147, 2007.

Varma, K. N., & Doob, A. N. Deterring economic crimes: The case of tax evasion. *Canadian Journal of Criminology*, *40*, 165–184, 1998.

Wearing, A., & Headey, B. The would-be tax evader: A profile. *Australian Tax Forum*, *13*, 3–17, 1997.

WEF - World Economic Forum. The global competitiveness report 2001–2002. Geneva, Switzerland: World Economic Forum, 2002.

White, R. A., Harrison, P. D., & Harrell, A. The impact of income tax withholding on taxpayer compliance: Further empirical evidence. *Journal of the American Taxation Association, Fall*, 63–78, 1993.

Wooldridge, J. M. Introdução à Econometria: uma abordagem moderna. Tradução José Antônio Ferreira. 4. ed. São Paulo: Cengage Learning, 2010. 701 p.

World Bank. *2006 world development indicators*. Washington, DC: World Bank, 2006.