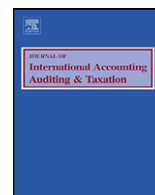




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The relationship between culture and tax evasion across countries: Additional evidence and extensions

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ABSTRACT

This study builds on the work of Tsakumis et al. [Tsakumis, G. T., Curatola, A. P., & Porcano, T. M. (2007). The relation between national cultural dimensions and tax evasion. *Journal of International Accounting, Auditing and Taxation*, 16, 131–147] by conducting further empirical analysis of the relationship between Hofstede's [Hofstede, G. H. (1980). *Cultures consequences: International differences in work-related values*. Beverly Hills, CA: Sage Publications] cultural dimensions and tax evasion across countries using multiple measures of tax evasion to gain additional evidence on the subject. Moreover, this study extends the preliminary international tax evasion model developed by Tsakumis et al. [Tsakumis, G. T., Curatola, A. P., & Porcano, T. M. (2007). The relation between national cultural dimensions and tax evasion. *Journal of International Accounting, Auditing and Taxation*, 16, 131–147] to examine, along with culture, the impact of legal, political, and religious variables on tax evasion across countries. Based on data from 47 countries, and after controlling for economic development, the regression results indicate that the higher the level of uncertainty avoidance and the lower the level of individualism, legal enforcement, trust in government, and religiosity, the higher is the level of tax evasion across countries. These findings remain robust to multiple measures of tax evasion. Government policymakers should find the results of this study useful in assessing the likelihood of tax evasion from cultural, legal, political, and religious perspectives, and in developing tax reform policies to reduce tax evasion.

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1. Introduction

Tax evasion¹ has been an important subject of inquiry in a large number of developed countries over a long period of time (see e.g., Jackson & Milliron, 1986; Long & Swingen, 1991; Andreoni, Erard, & Feinstein, 1998; Richardson & Sawyer, 2001). However, little research has considered the relationship between culture and tax evasion (Andreoni et al., 1998, 818; Alm & Torgler, 2006, 226; Richardson, 2007, 77).

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¹ Tax evasion is characterized as intentional illegal behavior, or as behavior involving a direct violation of tax law to escape the payment of tax. The deliberate under-reporting of income and over-claiming of tax deductions are examples of tax evasion (International Bureau of Fiscal Documentation (IBFD), 2001, 134). In contrast, tax avoidance is a term used to describe taxpayer behavior aimed at reducing a tax liability that falls short of tax evasion. Although tax avoidance may be used to refer to acceptable forms of behavior, such as tax planning, it is more often used to refer to something unacceptable or illegitimate, but generally not illegal. In other words, tax avoidance is often within the letter but not the spirit of the law. Conversion of income to non- or lower-taxed gains or the spreading of income to other taxpayers with lower marginal tax rates are examples of tax avoidance (IBFD, 2001, 26).

Roth, Scholz, & Dryden-Witte (1989, 162) claim that the various cultural contexts which shape a person's interpretation of events may assist in influencing his or her attitude toward tax evasion. They argue that culture is reflected to varying degrees in general values and specific behavioral norms. These values and norms are constantly expressed and reinterpreted during a person's everyday social contact, which can either increase or decrease tax evasion.

Previous research has found diversity in tax evasion patterns in different cultural contexts. For example, Strümpel (1969) compares cultural responses to tax administration styles in several European countries. He stresses the importance of national cultures in understanding tax evasion. Tittle (1980) finds in the U.S. that cultural background is significantly related to the deviant propensities of taxpayers. Coleman & Freeman (1997) observe that voluntary tax compliance is a function of the cultural environment in Australia. Chan, Troutman, & O'Bryan (2000) find that the different cultural environments of Hong Kong and the U.S. have a major impact on tax evasion.

Prior tax research has treated culture as a "black-box" and has thus failed to identify how specific cultural dimensions could be related to tax evasion. Tsakumis, Curatola, & Porcano (2007) employ Hofstede's (1980) cultural framework to explain tax evasion across countries. Specifically, they "unpack" culture in terms of Hofstede's (1980) cultural dimensions of power distance, individualism, uncertainty avoidance, and masculinity, and consider their relationships with tax evasion across 50 countries. The major finding of the study is that culture, as represented by Hofstede's (1980) cultural dimensions, contributes to a better understanding of tax evasion internationally. Tsakumis et al. (2007) show that the higher the level of power distance and uncertainty avoidance and the lower the level of individualism and masculinity, the higher is the level of tax evasion across countries.

Nevertheless, the empirical analysis stemming from the cross-country work of Tsakumis et al. (2007) raises the question of whether their results about culture and tax evasion only reflect characteristics of the underlying data used and are therefore not generalizable. For this reason, the robustness of their results should be tested using multiple measures of tax evasion to obtain further evidence on the subject. Moreover, the international tax evasion model they developed is preliminary, and should be extended to include additional variables that are relevant to legal, political, and religious institutions. This model extension responds to Riahi-Belkaoui (2004, 141–142) and Tsakumis et al. (2007, 145) by building a comprehensive international model of tax evasion including legal, political, and religious variables. In doing so, the model extension should help to reduce omitted variable bias and the potential problem of model misspecification.

The purpose of this study is to conduct further empirical analysis of the relationship between Hofstede's (1980) cultural dimensions and tax evasion across countries, using several measures of tax evasion. Moreover, this study extends the preliminary international tax evasion model of Tsakumis et al. (2007) to examine in conjunction with culture, the impact of legal, political, and religious variables on tax evasion across countries.

Based on data from 47 countries, and after controlling for economic development, the ordinary least squares (OLS) regression results show that the higher the level of uncertainty avoidance and the lower the level of individualism, legal enforcement, trust in government, and religiosity, the higher is the level of tax evasion across countries. These findings remain robust to multiple measures of tax evasion. Government policymakers should find the results of this study helpful in considering the possibility of tax evasion from cultural, legal, political and religious standpoints, and in developing tax reform policies aimed at minimizing tax evasion.

This study contributes to the literature in four ways. First, it shows that Hofstede's (1980) cultural dimensions of individualism and uncertainty avoidance are consistently the most significant cultural explainers of tax evasion across countries based on several tax evasion measures. It seems that Tsakumis et al. (2007) may possibly overstate the importance of Hofstede's (1980) power distance and masculinity cultural dimensions in explaining tax evasion across countries. Second, the study extends the work of Tsakumis et al. (2007) by adding legal, political, and religious variables to their international tax evasion model to present a more complete model of tax evasion. It thereby fills a major gap in the extant literature on this topic. Third, the study shows that models of tax evasion, which apart from culture include legal, political, and religious variables, provide unique insights into our understanding of tax evasion internationally. Fourth, the study also demonstrates that when making cross-country comparisons of tax evasion, government policymakers should consider legal, political, and religious variables alongside cultural variables.

The remainder of the paper is organized as follows. Section 2 briefly describes Hofstede's (1980) concept of culture and cultural dimensions. Section 3 considers theoretical relationships between Hofstede's (1980) cultural dimensions, legal enforcement, trust in government, religiosity and tax evasion, and develops hypotheses. Section 4 explains the research design. Section 5 summarizes and analyzes the empirical results of this study. Section 6 presents the conclusions, limitations, and opportunities for future research.

2. Concept of culture and cultural dimensions

Hofstede (1980, 25) defines culture as: "the collective programming of the mind which distinguishes the members of one human group from another." Based on an attitude survey of IBM employees in 66 countries throughout the 1970s, Hofstede (1980, 1983) developed country-based scores corresponding to four dimensions of culture for each country surveyed: power

distance, individualism, uncertainty avoidance and masculinity.² Hofstede's (1980) 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. 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 focuses on the degree to which a country supports individual or collective achievement and interpersonal relationships. 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. 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. 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 way in which a country allocates social (as opposed to biological) roles to the sexes. 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.

Hofstede's (1980) cultural dimensions are frequently acknowledged as the best known and most recognizable dimensions used in empirical research involving national values in the social sciences (see e.g., Newman & Nollen, 1996; Schuler & Rogovsky, 1998; Doupnik & Tsakumis, 2004). However, a lot of criticism has been aimed at these cultural dimensions and their level of stability over time (see e.g., Smith, Dugan, & Trompenaars, 1996; McSweeney, 2002; Baskerville, 2003). Nevertheless, Hofstede's (2001, 11–13) cultural theory maintains that the cultural dimensions have developed over long periods of time and are reasonably stable. Additionally, Hofstede (1980, 2001) correlates his cultural dimension scores with many related variables existing on a year-by-year basis, and finds no significant weakening of the correlations over time. For example, in terms of the cultural dimension of uncertainty avoidance, Hofstede (2001, 36) shows that it has a strong correlation with life satisfaction data from ten European countries (for 1982–1998), with correlations fluctuating between $-.70$ and $-.87$ without any trend effect. He makes similar observations for the other cultural dimensions.

The reliability and validity of Hofstede's cultural dimension scores have been documented in many independent cross-country studies. For instance, Hoppe (1990) tests the construct validity of Hofstede's (1980) cultural dimensions using survey data of approximately 1600 questionnaires from alumni of the Salzburg Seminar³ in 19 countries (17 European countries, Turkey and the U.S.). Hoppe (1990, 186) is able to fully replicate Hofstede's (1980) cultural dimensions. Comparable replications are made by Merritt (2000) based on data collected from 19 countries (from Asia, Europe, the Middle East, and North and South America), and De Mooij (1998a, 1998b, 2001) based on data gathered from 16 European countries. Overall, these studies appear to validate Hofstede's (1980) cultural dimensions using data collected at different points of time, from diverse groups of respondents, across many countries and geographical regions.

3. Theory and hypotheses

3.1. Culture and tax evasion

Hofstede's (1980) cultural dimensions are represented by power distance, individualism, uncertainty avoidance, and masculinity. Hypotheses are now developed to consider their potential relationships with tax evasion across countries.

Power distance focuses on the degree of equality (or inequality) between people in a country. In high power distance countries, inequalities of power and wealth are allowed to develop, where power holders are entitled to special privileges (Hofstede, 1980, 122). Hence, the tax systems in such countries are likely to be inequitable and protect the wealthy so that the large income differentials in such countries are further increased by tax systems (Hofstede, 1980, 135). In this environment, people tend to perceive tax systems as being unfair, and seek to evade income taxes. For example, Spicer (1974) finds a

² Later, Hofstede (1991) added the cultural dimension of long-term orientation to his framework based on a survey instrument developed with Chinese employees and managers. However, Hofstede & Bond (1988, 19–20) argue that this cultural dimension is not universal because it relates to Asian countries, and as data are limited to a small number of countries, it has been disregarded in this study. When included in the OLS regression models, the long-term orientation cultural dimension is insignificant ($p > .90$).

³ The Salzburg Seminar is a non-profit center for high level inter-cultural and inter-disciplinary dialogue.

significant negative association between fairness and tax evasion levels generally. Song & Yarbrough (1978) also detect a significant negative association between these variables, with 75% of taxpayer subjects claiming that the fairness concept of “ability-to-pay” is more significant for tax evasion than is the benefits concept. Conversely, in low power distance countries, inequalities of power and wealth are not allowed to develop. In fact, equality and opportunity for all people is stressed (Hofstede, 1980, 122). Hence, the tax systems in such countries are likely to be equitable, aim at redistributing wealth and ensure that any minor income differentials that exist are reduced further by tax systems (Hofstede, 1980, 135). In this setting, people tend to perceive tax systems as being fair, and comply with tax laws. Hite & Roberts (1992) find that fairness is significantly associated with perceptions of an unbiased tax system, and fairness and tax evasion are negatively related. This discussion leads to the following hypothesis:

H1. All else being equal, the higher the level of power distance, the higher is the level of tax evasion in a country.

Individualism focuses on the degree to which a country reinforces individual or collective achievement and interpersonal relationships. In high individualism countries, the same value standards should apply to all people (Hofstede, 1980, 235). This means that rules and procedures are applied universally to ensure equity and consistency (Trompenaars & Hampden-Turner, 1998, 44). Hence, the tax systems in such countries are likely to be equitable and conform to the ability-to-pay principle because tax laws apply to people in a similar way, so the distribution of the tax burden is fairly spread (Sandford, 2000, 37). In this setting, people tend to comply with tax laws because they perceive tax systems as being fair (see e.g., Spicer & Lundstedt, 1976; Milliron & Toy, 1988). Conversely, in low individualism countries, value standards differ for in-groups and out-groups (Hofstede, 1980, 235). This implies that flexibility in rules and procedures is encouraged in particular situations (Trompenaars & Hampden-Turner, 1998, 44). Thus, the tax systems in such countries are likely to be inequitable and violate the ability-to-pay principle because tax laws apply to people in a different way, so the tax burden is unfairly spread (Surrey & McDaniel, 1985, 89). In this environment, people tend to evade income taxes because they perceive tax systems as being unfair (see e.g., Wearing & Headey, 1997). This discussion leads to the following hypothesis:

H2. All else being equal, the higher the level of individualism, the lower is the level of tax evasion in a country.

Uncertainty avoidance focuses on the level of tolerance for uncertainty and ambiguity within a country. In high uncertainty avoidance countries, there is low tolerance for uncertainty and ambiguity. This creates rule-orientated societies where many written laws and regulations assist in reducing the amount of uncertainty and ambiguity (Hofstede, 1980, 184). Hence, the tax systems in such countries are likely to be complex because of the need for many written tax laws and regulations to reduce uncertainty and ambiguity. In this situation, people tend to consider tax systems as being complex in nature, and evade income taxes. Previous research utilizing archival data (Clotfelter, 1983; Richardson, 2006) and survey data (Milliron & Toy, 1988; Collins, Milliron, & Toy, 1992) methodologies has provided strong empirical evidence to show that tax complexity has a positive association with tax evasion. Alternatively, in low uncertainty avoidance countries, less concern is shown about uncertainty and ambiguity. In fact, there should be as few written laws and regulations as possible (Hofstede, 1980, 184). Hence, the tax systems in such countries are likely to be simple as there is less need for written tax laws and regulations. In this setting, people tend to recognize tax systems as being simple in nature, and comply with tax laws (Long & Swingen, 1988). This discussion leads to the following hypothesis:

H3. All else being equal, the higher the level of uncertainty avoidance, the higher is the level of tax evasion in a country.

Masculinity focuses on the degree to which a country reinforces the traditional masculine work role model of male achievement, control, and power. In high masculinity countries, people strive for achievement in terms of ego boosting, wealth, and recognition (Hofstede, 1980, 294). They focus on the pursuit of material success in an “unjust world” (Hofstede, 2001, 321). Conversely, in low masculinity countries, people strive for achievement in terms of quality of contacts, life, and the environment (Hofstede, 1980, 294). They focus on caring for others, the preservation of nurturing values, and normally view the world as a “just” place that should offer a minimum quality of life for everybody (Hofstede, 2001, 317–318).

Husted (1999, 344) claims that the focus on material success in high masculinity countries should lead to a greater willingness of people to participate in corrupt transactions in the pursuit of material success. He finds a positive relationship between masculinity and corruption across countries (Husted, 1999, 351). It is thus reasonable to theorize that the emphasis on material success in high masculinity countries should result in a greater acceptance of tax evasion than in low masculinity countries, where more emphasis is placed on the quality of contacts, life, and the environment. However, Tsakumis et al. (2007, 138) suggest that a case could also be made for a hypothesis in the opposite direction. Specifically, they argue that in high masculinity countries material success results in a “bragging” society that may be more conscious of its tax compliance obligations, as more visibility (combined with more material success) may lead to greater scrutiny (e.g., increased probability of audit) by the tax authorities. This is supported by Hofstede (2001, 319), who finds a significant negative correlation between masculinity and the National Permissiveness Index, indicating that high masculinity countries are less tolerant, especially in dealing with lawbreakers (Tsakumis et al., 2007, 138). This discussion leads to the following non-directional hypothesis:

H4. All else being equal, there is a significant relationship between masculinity and the level of tax evasion in a country.

3.2. Legal enforcement, trust in government, religiosity and tax evasion

Apart from culture, there could be other determinants of tax evasion across countries. This study extends the preliminary international tax evasion model of Tsakumis et al. (2007) to consider the impact of legal, political, and religious variables on tax evasion across countries. Specifically, hypotheses are now developed that consider potential relationships between legal enforcement (rule of law), trust in government, religiosity and tax evasion.

Legal enforcement based on the rule of law provides an important foundation for the prevention of deviant forms of behavior, such as corruption and tax evasion (Schneider & Enste, 2000, 2002; Brunetti & Weder, 2003).⁴ The rule of law presumes that government authority may only be exercised in accordance with written laws and regulations that are endorsed through an established procedure (Joireman, 2001). Moreover, the rule of law is intended to be a safeguard against arbitrary rulings by governments in individual cases (Eigen, 2002; Brunetti & Weder, 2003). This ensures that the major institutions of the legal system (e.g., the courts, prosecutors, and police) enforce the law effectively and fairly. Cross-country research by Schneider & Enste (2000, 2002) shows that the weak and arbitrary enforcement of laws and regulations encourages corruption and tax evasion. Specifically, their findings emphasize the importance of the rule of law in reducing the levels of both corruption and tax evasion across countries. This discussion leads to the following hypothesis:

H5. All else being equal, the higher the level of legal enforcement based on the rule of law, the lower is the level of tax evasion in a country.

Trust in government is recognized by Jackson & Milliron (1986, 127) as another determinant of tax evasion. Levi (1998, 91) claims that if individuals believe that the government will act in their interests, that its procedures are fair, and that their trust of government and others is reciprocated, they are more likely to become “contingent consenters” who cooperate in paying taxes. Feld & Frey (2002, 89–90) argue that the relationship between individuals and the government is perceived as a psychological contract that involves strong emotional ties and loyalties. Such a psychological contract can be maintained by positive actions based on trust. More trust in government enhances the incentive for individuals to commit themselves to obedience and comply with tax laws (Feld & Frey, 2002). Early survey research by Vogel (1974) in Sweden and Song & Yarbrough (1978) in the U.S. shows that where individuals have greater trust in government, they are less likely to evade income taxes. Recent survey research by Wearing & Headey (1997) in Australia, and Slemrod (2003) in Germany and the U.S., also supports the negative relationship between trust in government and tax evasion. This discussion leads to the following hypothesis:

H6. All else being equal, the higher the level of trust in government, the lower is the level of tax evasion in a country.

Religion presents an important basis for social integration and the avoidance of deviant forms of behavior such as tax evasion (Tittle, 1980). However, the literature on tax evasion generally neglects religion as a variable that could discourage this kind of behavior (Riahi-Belkaoui, 2004, 141). Religions socialize people in such a way as to restrain deviant beliefs and behavior: they provide negative definitions of deviance (e.g., thou shalt not steal, thou shalt not kill). Moreover, religions often deter deviance and encourage anti-deviant attitudes by way of threats of eternal damnation, time spent in purgatory and so on (see e.g., Tittle & Welch, 1983). In terms of tax evasion, the Christian scriptures openly condemn it (Grasmick, Bursik, & Cochran, 1991, 255). Empirical research by Grasmick et al. (1991) indicates that both church attendance and high levels of individual religiosity (i.e., personal religious beliefs and convictions) have a significant negative relationship with tax evasion. Overall, they find that the effect of individual religiosity on the inclination to evade taxes significantly exceeds that of church attendance (Grasmick et al., 1991, 260). This discussion leads to the following hypothesis:

H7. All else being equal, the higher the level of individual religiosity, the lower is the level of tax evasion in a country.

4. Research design

4.1. Sample

The sample for this study (see Table 1) consists of 47 countries. It encompasses both developed and developing countries, and a mixture of countries distinguished by language, culture, and geography. The countries included in the sample are diverse.

4.2. Data description

Data for this study are collected from a broad range of public sources. Appendix A provides a comprehensive description of the data employed to measure the different variables used and their various sources. A brief discussion of the relevant variables employed in this study follows.

⁴ Legal enforcement based on penalties and the probability of detection are considered to be integral to the theoretical tax evasion literature (Andreoni et al., 1998, 818). However, extensive reviews of the empirical tax evasion literature by Jackson & Milliron (1986) and Richardson & Sawyer (2001) find that these variables provide conflicting and mixed results. In addition, cross-country data for penalties and the probability of detection are currently not available (Richardson, 2006, 152), so this study focuses on a broad indicator of legal enforcement in society: the rule of law.

Table 1List of sample countries ($n = 47$)

Argentina	Hong Kong	Poland
Australia	Hungary	Portugal
Austria	India	Russia
Belgium	Indonesia	Singapore
Brazil	Ireland	Slovakia
Canada	Israel	South Africa
Chile	Italy	Spain
China (PRC)	Japan	Sweden
Colombia	Korea (South)	Switzerland
Czech Republic	Luxembourg	Taiwan
Denmark	Malaysia	Thailand
Estonia	Mexico	Turkey
Finland	Netherlands	United Kingdom
France	New Zealand	United States
Germany	Norway	Venezuela
Greece	Philippines	

4.3. Dependent variable

The dependent variable in this study is represented by tax evasion (TEVA). Ordinarily, tax evasion is defined as intentional illegal behavior, or as behavior involving a direct violation of tax law to escape the payment of tax (IBFD, 2001, 134). Previous research shows that the under-reporting of income is the most common form of tax evasion by individuals (see e.g., Mason & Calvin, 1978, 1984; Feinstein, 1991; Varma & Doob, 1998). This research is supported by detailed estimates of individual tax evasion for 2001, produced by the U.S. Internal Revenue Service (IRS) as part of its National Research Program (IRS, 2006). The IRS estimates that for the 2001 federal individual income tax, the under-reporting of income (as opposed to the over-claiming of tax deductions, exemptions and other adjustments) accounts for over 80% of individual tax evasion (IRS, 2006).

Accordingly, this study uses a specific proxy measure of tax evasion based on country survey ratings of individuals' perceptions about the under-reporting of income, which is often referred to in the literature as the "shadow economy" (see e.g., Frey & Weck, 1983; Schneider, 2004; Slemrod, 2007), as the primary measure. Employing a shadow economy proxy measure of tax evasion is consistent with previous international tax evasion research by Alm & Torgler (2006) and Tsakumis et al. (2007). Data are collected from the *Global Competitiveness Report* which is published by the World Economic Forum (WEF, 2002, 2003, 2004).⁵

To improve the robustness of the empirical results, this study also follows Riahi-Belkhoui (2004) and Richardson (2006), and uses two general proxy measures of tax evasion based on country survey ratings of individuals' perceptions about tax evasion. The first measure is taken from the *Global Competitiveness Report* (WEF, 2002, 2003, 2004). The second measure is gathered from the *World Competitiveness Year Book* which is published by the Institute of Management Development (IMD, 2002, 2003, 2004).⁶ The Pearson pairwise correlation between these WEF and IMD general tax evasion measures is high ($r = .95$; $p < .01$), indicating that they are very consistent.

Even though the *Global Competitiveness Report* and the *World Competitiveness Year Book* represent valuable sources of cross-country tax evasion data, they could be prone to measurement error because they are based on country survey ratings. However, measurement error can be reduced by using average data for several years (Fisman & Gatti, 2002, 331; You & Khagram, 2005, 142).⁷ Consequently, the WEF and IMD tax evasion data are averaged over the 2002–2004 years to reduce the possibility of measurement error.

4.4. Independent variables

The independent variables are denoted in this study by power distance (PD), individualism (IDV), uncertainty avoidance (UA), masculinity (MAS), legal enforcement (LEGAL), trust in government (TGOV), and religiosity (RELIG). Where possible, data for these variables are computed as 3 year averages spanning 2002–2004 to be consistent with the measurement of the dependent variable, and to reduce the possibility of measurement error.

The PD, IDV, UA, and MAS cultural dimensions are all measured in terms of country-based scores computed from attitudinal surveys of IBM employees. The cultural data are collected from Hofstede (2001). LEGAL is measured on the basis of

⁵ The WEF gathers data through its global network of 104 partner institutes that manage an executive opinion survey on its behalf. Survey respondents are CEOs or senior managers in more than 100 countries. All survey questionnaires are gathered and examined centrally. The WEF finds that its survey results are robust, and in those cases where hard data are available, the results strongly validate them.

⁶ The IMD collects data via its official network of 57 partner institutes that administer an executive opinion survey on its behalf. Survey respondents are executives in top or middle management in 55 countries. All survey questionnaires are collected and analyzed centrally. The IMD finds that its survey results are very consistent and reliable.

⁷ Assuming that measurement error has a normal distribution with a mean of zero and a variance of σ^2 , the averaging of n observations will decrease the variance to σ^2/n .

the rule of law indicator produced by Kaufmann, Kraay, & Mastruzzi (2005) for the World Bank. TGOV is measured in terms of a country survey rating of the level of individual trust in the national government, and the data are gathered from the World Values Survey (Inglehart, 2003). RELIG is measured on the basis of a country survey rating of the level of individual religiosity, and the data are taken from the World Values Survey (Inglehart, 2003).

4.5. Control variable

Given that this study is undertaken at the country-level, it is necessary to control for potential cross-country effects (see e.g., La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999; Treisman, 2000; Brunetti & Weder, 2003; Richardson, 2006). Hence, an economic control variable is included in the empirical analysis.

The level of economic development (EDEV) has a major impact on tax evasion across countries (see e.g., Quirk, 1997; De Soto, 2000; Alm & Martinez-Vazquez, 2003). Quirk (1997) argues that countries in the early stages of economic development are especially prone to tax evasion. For instance, in developing countries it is common for 50% or more of potential income tax revenue to go uncollected because of tax evasion (Richupan, 1984; Bird, 1992). EDEV is measured in terms of the natural log of GDP per capita. Data are collected from the 2006 *World Development Indicators* (World Bank, 2006), and are averaged over 2002–2004.

4.6. OLS regression models

To examine potential relationships between culture, legal enforcement, trust in government, religiosity and tax evasion across countries, the following base OLS regression model is estimated:

$$\text{TEVA}_i = \alpha_0 + \beta_1 \text{PD}_i + \beta_2 \text{IDV}_i + \beta_3 \text{UA}_i + \beta_4 \text{MAS}_i + \beta_5 \text{LEGAL}_i + \beta_6 \text{TGOV}_i + \beta_7 \text{RELIG}_i + \varepsilon_i \quad (1)$$

where TEVA_i = tax evasion score for country i ; PD_i = power distance score for country i ; IDV_i = individualism score for country i ; UA_i = uncertainty avoidance score for country i ; MAS_i = masculinity score for country i ; LEGAL_i = legal enforcement score for country i ; TGOV_i = trust in government score for country i ; RELIG_i = religiosity score for country i ; and ε_i = error term for country i .

The base OLS regression model is extended to include the following economic control variable:

$$\text{TEVA}_i = \alpha_0 + \beta_1 \text{PD}_i + \beta_2 \text{IDV}_i + \beta_3 \text{UA}_i + \beta_4 \text{MAS}_i + \beta_5 \text{LEGAL}_i + \beta_6 \text{TGOV}_i + \beta_7 \text{RELIG}_i + \beta_8 \text{EDEV}_i + \varepsilon_i \quad (2)$$

where EDEV_i = economic development score for country i .

5. Empirical results and analysis

5.1. Descriptive statistics

The descriptive statistics are reported in Table 2.

For the dependent variable, TEVA1 has a mean of 2.72 and a range from 1.20 to 5.43, TEVA2 has a mean of 4.33 and a range from 1.80 to 6.10, and TEVA3 has a mean of 5.39 and a range from 1.89 to 8.66, so the variation is acceptable for the dependent variable proxy measures. Regarding the independent variables, PD has a mean of 53.81 and a range from 11 to

Table 2
Descriptive statistics^a

Variable	Number	Mean	Median	S.D.	Minimum	Maximum
TEVA1	47	2.72	2.37	1.19	1.20	5.43
TEVA2	47	4.33	4.50	1.13	1.80	6.10
TEVA3	47	5.39	5.37	1.72	1.89	8.66
PD	47	53.81	57	21.62	11	104
IDV	47	50.19	46	24.39	12	91
UA	47	63.56	65	23.96	8	112
MAS	47	52.35	56	19.78	5	95
LEGAL	47	.87	.97	.79	-.88	1.78
TGOV	47	2.85	2.85	.41	1.88	5.17
RELIG	47	1.45	1.45	.23	1.15	5.39
EDEV	47	9.21	9.57	1.21	6.16	10.82

^a Variable definitions: TEVA1 is a country measure of the shadow economy as reported by the WEF (2002, 2003, 2004); TEVA2 is a country measure of tax evasion as reported by the WEF (2002, 2003, 2004), with data averaged and transformed for 2002–2004; TEVA3 is a country measure of tax evasion as reported by the IMD (2002, 2003, 2004), with data averaged and transformed for 2002–2004; PD is the country power distance score as reported by Hofstede (2001); IDV is the country individualism score as reported by Hofstede (2001); UA is the country uncertainty avoidance score as reported by Hofstede (2001); MAS is the country masculinity score as reported by Hofstede (2001); LEGAL is a country measure of the rule of law as reported by Kaufmann et al. (2005), with data averaged for 2002 and 2004; TGOV is a country measure of the level of individual trust in national government as reported by Inglehart (2003), with data averaged and transformed for the 1981, 1990, and 1995 World Value Surveys; RELIG is a country measure of the level of individual religiosity as reported by Inglehart (2003), with data averaged and transformed for the 1981, 1990, and 1995 World Value Surveys; and EDEV is a country measure of the natural log of GDP per capita as reported by the World Bank (2006), with data averaged over 2002–2004.

Table 3
OLS regression results^a

Independent variables	Predicted sign	Dependent variable					
		TEVA1		TEVA2		TEVA3	
		OLS1	OLS2	OLS3	OLS4	OLS5	OLS6
Constant		6.45 (8.05)***	8.43 (7.11)**	9.34 (5.44)***	6.80 (7.07)***	7.40 (4.69)***	10.96 (3.59)***
PD	+	.13 (.97)	.15 (1.29)	.03 (.22)	.01 (.09)	.01 (.02)	.03 (.25)
IDV	–	–.19 (–2.37)**	–.18 (–2.69)***	–.52 (–4.78)***	–.53 (–4.70)***	–.35 (–2.93)***	–.35 (–2.83)***
UA	+	.21 (3.10)***	.22 (3.73)***	.39 (4.20)***	.37 (3.65)***	.37 (3.19)***	.38 (3.62)***
MAS	+/–	–.10 (–1.71)	–.10 (–1.05)	–.10 (–1.00)	–.11 (–1.09)	–.05 (–.47)	–.04 (–.37)
LEGAL	–	–.81 (–8.91)***	–.81 (–5.26)***	–.62 (–2.64)***	–.89 (–6.19)***	–.82 (–4.94)***	–.57 (–2.18)**
TGOV	–	–.09 (–2.18)**	–.07 (–2.06)**	–.26 (–4.41)***	–.28 (–4.65)***	–.14 (–2.24)**	–.12 (–1.91)**
RELIG	–	–.28 (–4.98)***	–.28 (–5.12)**	–.17 (–2.58)***	–.17 (–2.35)**	–.14 (–1.77)**	–.14 (–1.81)**
EDEV	–		–.26 (–2.30)**		–.35 (–2.00)**		–.32 (–1.58)*
N		47	47	47	47	47	47
Adjusted R ²		.79	.80	.68	.65	.58	.60
F-statistic		27.82	28.15	29.14	21.44	11.70	12.37
p-value (two-tailed)		.01	.01	.01	.01	.01	.01

*, **, *** Significant at the .10, .05 and .01 levels, respectively. The *p*-values are one-tailed for directional hypotheses and two-tailed otherwise.

^a See Table 2 for variable definitions. The *t*-statistics are shown in parentheses, and regression estimates are based on White (1980) corrected standard errors.

104, IDV has a mean of 50.19 and a range from 12 to 91, UA has a mean of 63.56 and a range from 8 to 112, MAS has a mean of 52.35 and a range from 5 to 95, LEGAL has a mean of .87 and a range from –.88 to 1.78, TGOV has a mean of 2.85 and a range from 1.88 to 5.17, and RELIG has a mean of 1.45 and a range from 1.15 to 5.39. Accordingly, there is sufficient variation in the independent variables. The control variable EDEV also has an adequate amount of variation. Specifically, EDEV has a mean of 9.21 and a range from 6.16 to 10.82. A reasonable range of variation and consistency between the mean and median is observed for all variables.

5.2. OLS regressions for hypotheses testing

Table 3 reports the OLS regression results for TEVA1 (OLS1 and OLS2), TEVA2 (OLS3 and OLS4) and TEVA3 (OLS5 and OLS6), respectively. The *t*-statistics are shown in parentheses, and regression estimates are based on White (1980) corrected standard errors.⁸

In terms of TEVA1, Table 3 (OLS1) shows that the base regression model is significant at the $p < .01$ level (F -statistic = 27.82), and the adjusted R^2 is .79. Concerning the significance of coefficients for the independent variables, IDV ($p < .05$), UA ($p < .01$), LEGAL ($p < .01$), TGOV ($p < .05$), and RELIG ($p < .01$) have significant relationships with TEVA1 in the hypothesized directions. However, no significant relationships are found for PD and MAS.

Table 3 (OLS2) also reports the results of the extended OLS regression model for TEVA1, which includes the EDEV control variable. This OLS regression model is significant at the $p < .01$ level (F -statistic = 28.15), and the adjusted R^2 is .80. There is a slight improvement in the explanatory power of the base regression model for TEVA1 after including the EDEV control variable. In terms of the significance of the coefficients for the independent variables, IDV ($p < .01$), UA ($p < .01$), LEGAL ($p < .01$), TGOV ($p < .05$), and RELIG ($p < .05$) have significant relationships with TEVA1 in the directions hypothesized. However, insignificant relationships are found for PD and MAS. Finally, the control variable coefficient for EDEV is significant ($p < .05$).

For TEVA2, Table 3 (OLS3) indicates that the base regression model is significant at the $p < .01$ level (F -statistic = 29.14), and the adjusted R^2 is .68. Regarding the significance of coefficients for the independent variables, IDV ($p < .01$), UA ($p < .01$), LEGAL ($p < .01$), TGOV ($p < .01$) and RELIG ($p < .01$) have significant relationships with TEVA2 in the hypothesized directions. However, no significant relationships are detected for PD or MAS.

The extended OLS regression model results for TEVA2 are summarized in Table 3 (OLS4). The OLS regression model is significant at the $p < .01$ level (F -statistic = 21.44), and the adjusted R^2 is .65. There is no improvement in the explanatory power of the base regression model for TEVA2 when the EDEV control variable is included. Concerning the significance of the coefficients for the independent variables, IDV ($p < .01$), UA ($p < .01$), LEGAL ($p < .01$), TGOV ($p < .01$), and RELIG ($p < .05$) have significant relationships with TEVA2 in the directions hypothesized. However, insignificant relationships are found for PD and MAS. Finally, the control variable coefficient for EDEV ($p < .05$) is significant.

Regarding TEVA3, Table 3 (OLS5) shows that the base regression model is significant at the $p < .01$ level (F -statistic = 11.70), and the adjusted R^2 is .58. In terms of the significance of coefficients for the independent variables, IDV ($p < .01$), UA ($p < .01$), LEGAL ($p < .01$), TGOV ($p < .05$), and RELIG ($p < .05$) have significant relationships with TEVA3 in the hypothesized directions. However, no significant relationships are found for PD and MAS.

⁸ Variance inflation factors (VIFs) were also computed when estimating the OLS regression models. None of the VIFs exceeded four, which is satisfactory (Hair, Anderson, Tatham, & Black, 1998, 220).

Table 3 (OLS6) reports the results of the extended OLS regression model for TEVA3 that incorporates the EDEV cross-country control variable. This OLS regression model is significant at the $p < .01$ level (F -statistic = 12.37), and the adjusted R^2 is .60. There is a minor improvement in the explanatory power of the base regression model for TEVA3 after including the EDEV control variable. Concerning the significance of the coefficients for the independent variables, IDV ($p < .01$), UA ($p < .01$), LEGAL ($p < .05$), TGOV ($p < .05$), and RELIG ($p < .05$) have significant relationships with TEVA3 in the directions hypothesized. However, insignificant relationships are found for PD and MAS. Finally, the control variable coefficient for EDEV is also significant ($p < .10$).

In brief, Table 3 shows that the cultural dimensions of individualism and uncertainty avoidance are significant across all OLS regression model specifications in the hypothesized directions. Thus, H2 and H3 are supported by the empirical results. In contrast, the power distance and masculinity cultural dimensions are insignificant across all OLS regression model specifications, so H1 and H4 are rejected. Moreover, Table 3 indicates that legal enforcement, trust in government, and religiosity are significant across all OLS regression model specifications in the directions hypothesized, so H5, H6, and H7 are supported by the empirical findings. Overall, after controlling for economic development, the OLS regression results indicate that the higher the level of uncertainty avoidance and the lower the level of individualism, legal enforcement, trust in government, and religiosity, the higher is the level of tax evasion across countries.

These results confirm those of Tsakumis et al. (2007) for individualism and uncertainty avoidance, but not for power distance and masculinity. Accordingly, the Tsakumis et al. (2007) results appear not to be fully generalizable in terms of Hofstede's (1980) cultural dimensions. Rather, it seems that Hofstede's (1980) individualism and uncertainty avoidance cultural dimensions are the most important cultural explainers of tax evasion across countries based on several measures of tax evasion.

The results of this study also indicate that the preliminary international tax evasion model developed by Tsakumis et al. (2007) could suffer from omitted variable bias, creating a potential problem of model misspecification. Variables relating to legal enforcement, trust in government, and religiosity are statistically significant and improve the explanatory power of the model. This is an important empirical finding because it shows that when examining tax evasion internationally, variables pertaining to legal enforcement, trust in government, and religiosity should be considered together with individualism and uncertainty avoidance.

6. Conclusions, limitations and future research

This study builds on the important findings of Tsakumis et al. (2007) by examining the relationship between Hofstede's (1980) cultural dimensions and tax evasion across countries using multiple measures of tax evasion. Moreover, this study extends the preliminary international tax evasion model of Tsakumis et al. (2007) to examine, along with culture, the impact of legal, political, and religious variables on tax evasion across countries.

The empirical evidence consistently shows that Hofstede's (1980) cultural dimensions of uncertainty avoidance and individualism are the only cultural dimensions significantly related to tax evasion across countries. It seems that the Tsakumis et al. (2007) international tax evasion model could possibly overstate the importance of Hofstede's (1980) power distance and masculinity cultural dimensions in explaining tax evasion across countries. Their cultural results may be inflated due to: (1) the characteristics of their underlying tax evasion data; and/or (2) the omission of other key determinants of tax evasion across countries in their model (i.e., legal enforcement, trust in government, and religiosity), causing a potential problem of model misspecification.

Overall, the regression results in the present study indicate that the higher the level of uncertainty avoidance and the lower the level of individualism, legal enforcement, trust in government, and religiosity, the higher is the level of tax evasion across countries. These findings remain robust to several measures of tax evasion. Government policymakers should find the results useful in assessing the likelihood of tax evasion from cultural, legal, political, and religious perspectives, and in developing tax reform policies to combat tax evasion.

This study could also have implications for governments when considering the goal, design, and implementation of tax reforms directed at producing effective tax administrations, particularly in developing countries. The important finding that high uncertainty avoidance and low individualism are associated with higher levels of tax evasion suggests that efforts should be made by governments to restrain the negative effects of these cultural dimensions. Legal enforcement based on the rule of law represents a major curb on tax evasion. When governments uphold a strong rule of law, this has the additional benefit of reducing tax evasion levels. Moreover, by fostering greater trust in government with individuals, a reduction in tax evasion is also likely to occur. Finally, where individual religiosity is high, lower levels of tax evasion can be expected. This should lead to improvements in tax revenue collection by governments internationally.

Nevertheless, this study has three possible limitations. First, Hofstede's (1980) cultural dimension scores are used to consider the relationship between culture and tax evasion across countries. Hofstede's (1980) research has its critics (see e.g., Schwartz, 1994; Smith et al., 1996; McSweeney, 2002; Baskerville, 2003), yet the reliability and validity of his cultural dimension scores are documented in many independent studies that utilize data gathered at different points of time, from diverse groups of respondents, across many countries and geographical regions (see e.g., Hoppe, 1990; Merritt, 2000; De Mooij, 1998a, 1998b, 2001). Additionally, Hofstede's (1980) cultural dimension scores are the most widely used in the social sciences (Dounnik & Tsakumis, 2004, 6), which attest to their standing. Second, tax evasion, trust in government, and religiosity are measured using country survey ratings. However, these data are collected and verified in a dependable manner

by respected international organizations, and they are also averaged to reduce the possibility of measurement error. Third, the data for Hofstede's (1980) cultural dimensions are drawn from years that are different from those for which data for the dependent variables and other independent variables were collected. Still, as mentioned above, the robustness of Hofstede's (1980) cultural dimension scores are recognized in a number of independent studies. Moreover, it should be noted that in cross-country studies generally (see e.g., Husted, 1999; La Porta et al., 1999; Treisman, 2000; Brunetti & Weder, 2003), there is major difficulty in obtaining data to measure dependent and independent variables for the same year in multivariate analysis, so data from different years are used.

Future research into tax evasion could consider three important issues. First, research could be carried-out using increased country sample sizes, which might improve cross-country comparisons and the generalizability of research findings. Second, depending on data availability, research could develop a greater longitudinal emphasis and study the influence of changes in cultural dimensions, legal enforcement, trust in government, and religiosity on changes in the level of tax evasion across countries. Finally, using appropriate survey methodologies, research could be performed in countries individually to investigate the relationship between culture and tax evasion in more depth.

Appendix A

Data description and sources

Variable	Description	Source
Tax evasion (TEVA)	TEVA1 is a country survey rating about the under-reporting of income and the shadow economy (on a scale from 1, less than 5% of all business, to 9, greater than 70% of all business), averaged for 2002–2004.	<i>Global Competitiveness Report</i> (WEF, 2002, 2003, 2004)
	TEVA2 is a country survey rating that tax evasion is minimal (on a scale from 1, strongly disagree, to 7, strongly agree), averaged for 2002–2004. This variable was transformed by deducting the country survey rating from 8 to obtain an increasing scale of tax evasion.	<i>Global Competitiveness Report</i> (WEF, 2002, 2003, 2004)
	TEVA3 is a country survey rating of tax evasion (on a scale from 0, common, to 10, not common), averaged for 2002–2004. This variable was transformed by deducting the country survey rating from 10 to obtain an increasing scale of tax evasion.	<i>World Competitiveness Year Book</i> (IMD, 2002, 2003, 2004)
Power distance (PD)	This cultural dimension describes the extent to which the less powerful people in a society accept inequality in power and consider it to be normal. It was originally calculated on the basis of survey responses to questions about preferred leadership styles and fear of dissent.	Hofstede (2001)
Individualism (IDV)	This cultural dimension describes the strength of the ties that exist among members of a society. It was originally calculated on the basis of survey responses to questions pertaining to 14 work-related goals.	Hofstede (2001)
Uncertainty avoidance (UA)	This cultural dimension describes the ways in which members of a society have learned to deal with the unknown or ambiguous situations. It was originally calculated on the basis of survey responses to questions dealing with the observance of organizational rules, employment stability, and work-related stress.	Hofstede (2001)
Masculinity (MAS)	This cultural dimension describes the degrees to which cultures use the biological differences of the sexes to define vastly different social roles. It was originally calculated on the basis of survey responses to questions dealing with achievement, recognition and harmony.	Hofstede (2001)
Legal enforcement (LEGAL)	The rule of law indicator produced by Kaufmann et al. (2005) for the World Bank, averaged for 2002 and 2004. This indicator is calculated based on several indexes that measure the extent to which people have confidence in and abide by the rules of society, such as the quality of legal enforcement, the effectiveness, fairness, and predictability of the courts, and the likelihood of crime. Country scores lie between –2.5 and 2.5, with higher scores corresponding to better outcomes.	Kaufmann et al. (2005). http://www.worldbank.org/wbi/governance/govdata
Trust in government (TGOV)	Country survey rating of the level of individual trust in national government (on a scale from 1, a great deal of trust, to 9, none at all), averaged for the 1981, 1990, and 1995 World Value Surveys. This variable was transformed by deducting the country survey rating from 10 to obtain an increasing scale of trust in government.	Inglehart (2003). http://nds.umdl.umich.edu/cgi/s/sda/hsda?harcWEVS+wevs
Religiosity (RELIG)	Country survey rating of the importance of religion to an individual based on the question: "independently of whether you go to church or not, would you say you are: (1) a religious person . . . (9) don't know," averaged for the 1981, 1990, and 1995 World Value Surveys. This variable was transformed by deducting the country survey rating from 10 to obtain an increasing scale of religiosity.	Inglehart (2003). http://nds.umdl.umich.edu/cgi/s/sda/hsda?harcWEVS+wevs
Economic development (EDEV)	Natural log of GDP per capita, averaged for 2002–2004.	<i>2006 World Development Indicators</i> (World Bank, 2006)

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