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The relation between national cultural dimensions and tax evasion

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Abstract

Although penalties and audits exist, tax evasion is a widespread phenomenon and continues to be a problem for many countries. National culture may contribute to a further understanding of intentional noncompliance across countries. In this study, we investigate the influence of national culture on tax compliance levels across 50 countries. Using Hofstede's (1980) cultural framework as a basis for our hypotheses, we find that a noncompliant country's profile is characterized by high uncertainty avoidance, low individualism, low masculinity, and high power distance. Our results have implications for both research and practice. This is the first study to employ Hofstede's cultural framework as an explainer of international tax compliance diversity and serves as the starting point for the development of an international tax compliance framework. Tax policy implications also are addressed.

Keywords: Hofstede; national culture; tax compliance; tax evasion

1. Introduction

Tax evasion¹ is a widespread phenomenon and continues to be a problem for many countries.

For example, Greece's underground economy is estimated to equal approximately 40% of GDP – the largest in the European Union (“Athens” 1997). Italian tax authorities estimate that 15% of all economic activity goes unreported (“Rome” 1997). In the United States, estimates of lost tax revenues for 2001 were as high as \$353 billion.² Of this \$353 billion, intentional underreporting of income represented anywhere from \$250 to \$292 billion (IRS 2005).

Some form of penalty usually is used as a means to control tax evasion within countries. The penalties most commonly used in the United States include fines and imprisonment. Even though penalties and audits exist, tax evasion continues to pose a significant threat to countries' economies by placing a strain on a country's budget through lost revenues. Many studies have examined the effects of varying penalties, audit rates, and other variables on tax evasion (e.g., Porcano 1988, White, Harrison, and Harrell 1993, and Porcano and Price 1993); fewer empirical studies have examined tax compliance levels from an international perspective (e.g., Alm, Bahl, and Murray 1990; Riahi-Belkaoui 2004; Alm and Torgler 2005; Picur and Riahi-Belkaoui 2006; Richardson 2006). Only Alm and Torgler (2006) investigates the relation of culture to tax morale for a “large” number (16) of countries.

¹ As noted by Sandmo (2005), tax evasion is a violation of tax law whereby the taxpayer refrains from reporting income which is, in principle, taxable. Tax avoidance is within the legal framework whereby the taxpayer takes advantage of tax provisions to minimize the tax liability. Also, it is important to distinguish between tax evasion and corruption, which are very different concepts. Tax evasion involves hiding the real value of a legal transaction to avoid fiscal (i.e., tax) liability, while corruption involves a transaction in which one agent typically pays a sum of money or performs a service in exchange for an illicit act by a public official (Andreoni, Erard, and Feinstein 1998).

² The IRS (2005) updated its estimates of the tax gap for 2001 to \$343 billion as the difference between what taxpayers should have paid and what they actually paid on a timely basis. This revised figure falls at the high end of the range of \$312 to \$353 billion per year. (IR 2006-28)

This study further explores the role that national culture might play in explaining countries' tax evasion behavior. Culture is a multivariate concept, and this is the first study to use Hofstede's (1980) cultural framework as an explainer of international tax compliance diversity; that is, it uses Hofstede's four cultural dimensions as measures of culture and analyzes their relation to tax evasion for 50 countries in various geographic areas.

Therefore, the purpose of this study is to explore the extent to which international differences in tax evasion can be explained by differences in national culture, as proposed by Hofstede (1980). Hofstede identifies four cultural dimensions, which identify core values that attempt to explain general similarities and differences in cultures around the world. These four cultural dimensions are uncertainty avoidance, individualism, masculinity, and power distance.³ This paper links Hofstede's (1980; 2001) notion of culture with tax compliance levels across countries.

The results suggest that Hofstede's cultural dimensions appear to be relevant in explaining international tax evasion levels. Specifically, higher (lower) uncertainty avoidance and power distance are associated with higher (lower) tax evasion levels across countries. We also find support for higher (lower) individualism being associated with lower (higher) tax evasion across countries. We also find that higher masculinity is associated with lower tax evasion levels across countries.

³ These dimensions are: *uncertainty avoidance (UA)*, the degree to which individuals in a society feel uncomfortable with uncertainty and ambiguity; *individualism (IND)*, relates to people's self-concept of "I" or "we," or a society's preference for a loosely knit social fabric or a more interdependent, tightly knit social fabric; *masculinity (MASC)*, the extent to which gender roles are differentiated within a society and the extent to which traditional masculine values of performance and visible achievement are emphasized relative to traditional feminine values of relationships, caring, and nurturing; and *power distance (PD)*, the extent to which hierarchy and unequal power distribution in institutions and organizations are accepted. They are discussed further in section 2.2.

Our results have implications for both research and practice. By using Hofstede's cultural framework to investigate international tax compliance diversity, this study adds to the development of an international tax compliance framework. In addition, from a tax policy standpoint, the results suggest that policymakers should consider the possible role that national culture plays in minimizing the effectiveness of tax evasion penalties.

Further, Joulfaian (2000) found that corporate tax evasion is higher when managed by executives who have understated their personal taxes. This dysfunctional tax compliance behavior becomes more troublesome as corporations conduct business in more than one country, subjecting them to various countries' tax laws. Predispositions to comply with or evade taxes are likely to influence whether a company complies, partially complies, or fails to comply with tax laws both within and across countries. Thus, policymakers also should consider culture ("home country") in improving audit-selection models.

Finally, the results have implications on the outsourcing decision regarding accounting and tax work. If such work is outsourced to "low compliance" countries, countries where it is culturally accepted to evade taxes, then the quality of the prepared tax return may reflect the preparer's predispositions and thereby require additional scrutiny upon completion by the outsourcing company. Similarly, an additional variable in the audit-selection models would address if tax return preparation was outsourced, and if so, to which country it was outsourced.

The rest of the paper is organized as follows. The next section discusses the relevant theoretical background and hypotheses. This is followed by a description of the data and presentation of the results. The final section offers implications and conclusions.

2. Theoretical background and hypotheses

2.1. Tax compliance from an international perspective

Several studies analyze tax compliance behavior in an international setting. Alm, Sanchez, and De Juan (1990) test a model of tax compliance/evasion behavior using Jamaican data, but they do not conduct cross-country comparisons. Frey and Weck-Hannenmann (1984), using inter-country survey results, find significant differences in countries' tax immorality. Alm et al. (1995) use an experimental approach to compare tax compliant behavior in Spain and the U.S. Cummings, Martinez-Vanquez, McKee, and Johnson (2004) use experimental and survey data to investigate tax compliance behavior in Botswana, South Africa and the United States. These studies find country differences regarding tax compliance levels and attribute these differences primarily to differences in: fairness of tax administration; perceived equity of the fiscal exchange; and overall attitude toward the government.

Riahi-Belkaoui (2004) looks at the relation of four variables to tax compliance in 30 countries (although he uses tax morale and tax compliance interchangeably). Tax compliance is based on views and perceptions of corporate employees who were surveyed for the Global Competitiveness Report by the World Economic Forum (1996). Riahi-Belkaoui finds that competition laws, economic freedom, importance of equity market, and incidence of violent crimes are related to tax compliance. Picur and Riahi-Belkaoui (2006) extend Riahi-Belkaoui's

(2004) study by finding that bureaucracy levels, corruption control and tax morale also are related to tax compliance in 30 countries.

Alm and Torgler (2006) explore the differences in tax morale and tax compliance between the United States and 15 European countries. Tax morale is based on responses to the World Values Survey question dealing with beliefs on whether “cheating on tax is justified if you have the chance.” They do not explore different aspects of culture per se: they use country as a generic measure of culture. In general, they find that tax morale was higher in the United States than Spain and higher in Northern European countries than Romanic countries. Finally, the simple correlation between tax morale and the size of the shadow economy (as a percent of GDP) was negative – i.e., countries high in tax morale exhibited smaller tax evasion.

Richardson (2006) expands on Riahi-Belkaoui’s (2004) study by analyzing the effects of non-economic determinants on tax evasion in 45 countries. Like Riahi-Belkaoui (2004), he also uses Global Competitiveness Reports (for years 2002-2004) to obtain measures of tax evasion. His results indicate that tax law complexity, general education level, income source, perceived fairness, and tax morale are significantly related to tax evasion across countries.

2.2. National cultural dimensions

The research discussed in the previous section generally views culture as an individual’s national membership and does not consider the complexity and potential multidimensionality of a country’s national culture. Hofstede (1980) presents a multidimensional view of national culture and identifies a limited set of societal values which he terms “dimensions” of culture. These

dimensions are determined empirically from a large research project (116,000 surveys) examining work-related values of matched samples of employees of a multinational company (IBM) in 50 countries and 3 regions. Hofstede (1980) finds that half of the variance in the countries' mean scores can be explained by four work-related cultural dimensions (determined through factor analysis) along which countries differ, and suggests that specific relationships exist between these cultural dimensions and individuals' preferences and actions. These dimensions are strong versus weak *uncertainty avoidance*, *individualism* versus collectivism, *masculinity* versus femininity, and large versus small *power distance*.⁴ These cultural dimension scores normally have a value between 0 and 100, but values below 0 and above 100 are technically possible (Hofstede 1994).⁵ The dimension scores are discussed in more detail below. Table 1 reports Hofstede's index scores for the 50 countries used in this study.

[Insert Table 1 here]

The four cultural dimensions identify core values that attempt to explain general similarities and differences in cultures around the world. Hofstede's (1980) framework is used extensively in management and other disciplines to examine the influence of culture on organizational performance and individual decision making (e.g., Lu, Rose, and Blodgett 1999; Ryan, Horvath, Ployhart, Schmitt, and Slade 2000; Thomas and Bendixen 2000). In addition, numerous accounting studies in auditing (e.g., Cohen, Pant, and Sharp 1995; Chan, Lin, and Mo 2003) and management accounting (see Harrison and McKinnon 1999 for a review of this literature) show that Hofstede's (1980) dimensions appear to capture the essence of national culture in a way that

⁴ Hofstede and Bond (1988) present a fifth dimension, Long-/Short-Term Orientation (LTST), or the extent to which value is placed on a short-term versus long-term orientation. The current study excludes LTST because scores are not available for a large number of the countries examined in this study. When included in the model, LTST was not significant ($p > .90$).

⁵ Thus, the range of scores is quite broad and the scores tend to be viewed as interval data, as evidenced by their frequent use as independent variables in regression analyses (see Douplik and Tsakumis 2004 for a review).

is useful in academic research. The dimensions provide explicit constructs that also can be used in considering the impact of culture on countries' tax evasion levels.⁶

Hofstede (2001, 34-40) indicates that his cultural values remain relatively stable over time. Specifically, he notes that the correlations of his cultural value scores (Hofstede 1980) with related variables show no weakening over time. For example, for life satisfaction data (for the years 1982-1998) from 10 European countries, Hofstede shows that, on a year-by-year basis, the correlations with the Uncertainty Avoidance Index fluctuate between -.70 and -.87 without any trend effects or any changes in the relative rankings of the countries in the dataset. He makes similar observations for his other cultural dimensions.

More importantly, while a country's dimension score could change, the reliability, validity, applicability, and direction of differences of Hofstede's scores across countries have been documented in a number of studies, including: (1) Hoppe (1990) – 17 European countries, Turkey and the United States, (2) Merritt (2000) – 19 countries from Asia, Europe, the Middle East, North America, and South America, and (3) De Mooij (1998a, 1998b, 2001), who validates all four of Hofstede's dimensions in market research data obtained from consumer surveys distributed to 16 European countries. Recent accounting studies (e.g., Patel 2003; Douppnik and Riccio 2006; Tsakumis 2007) have confirmed that even accountant subgroups in countries such as Australia, Brazil, Greece, India, Malaysia, and the United States are representative of their

⁶ Hofstede's cultural dimensions are related to variables that have been found to significantly influence tax evasion (e.g., institutional confidence and the level of corruption in a society). However, these variables are products of countries' cultural dimensions, which are influenced by *outside influences* such as nature and trade and *origins* such as geography and history (Hofstede 2001, 12). Therefore, these variables that have been found to be significantly related to tax evasion are not proxies for cultural dimensions but rather attitudes, beliefs, or behaviors that arise as a result of a country's cultural profile, as posited by Hofstede (1980; 2001).

national culture, as posited by Hofstede. Taken together, these studies tend to confirm Hofstede's cultural dimensions across several countries from different geographic regions.

2.3. National culture and tax evasion

2.3.1. Uncertainty Avoidance

Hofstede (1991, 113) defines uncertainty avoidance as “the extent to which members of a culture feel threatened by uncertainty or unknown situations.” High UA cultures tend to shy away from uncertain and ambiguous situations, which can lead to higher levels of anxiety. It is, however, important to note that uncertainty avoidance does not equate to risk avoidance. Interestingly, high UA cultures often are prepared to engage in risky behavior to reduce ambiguities – like starting a fight as a preemptive measure or speeding on the highway to save time – if the risky action will reduce their anxiety with regard to a specific situation. Conversely, low UA cultures are better able to handle uncertain and ambiguous situations, resulting in lower anxiety levels. As a result of these lowered anxiety levels, individuals in low UA societies are not as inclined to engage in riskier behavior(s). Out of 50 countries examined in this study, Greece, Portugal and Guatemala rank highest on the UA dimension while Singapore, Jamaica and Denmark score lowest on this dimension (see Table 1).

In addition, Hofstede (2001, 171) indicates that peoples' confidence in their country's government institutions is negatively correlated with uncertainty avoidance. That is, low UA countries are more trusting of their country's government institutions while individuals in high UA countries tend to feel alienated from the government systems that affect their lives. Further, individuals in high UA countries often feel that the legal system is against them and are not

opposed to breaking an “unjust” law (Hofstede 2001, 174). Contributing to this view is the finding that higher UA countries have lower economic freedom, or higher taxes (Johnson and Lenartowicz 1998). Thus, individuals in a high UA society should be expected to view tax evasion as a means of reducing ambiguity. For example, a lack of trust in their institutions encourages tax noncompliance as a means of minimizing the likelihood that the state and its politicians misuse the treasury funds. While tax noncompliance might increase anxiety because of fear of being caught, this increased anxiety should be offset by the belief that many in the country are doing the same thing and the potentially stronger belief regarding government misuse of funds. Conversely, individuals in a low UA society, where institutions are viewed as more trustworthy, will be less likely to view tax noncompliance as a viable option. Therefore, countries high (low) in UA should be more (less) tolerant of corrupt (and riskier) activities, which is supported by Vitell, Nwachukwu, and Barnes (1993) and Husted (1999).⁷ This leads to the following hypothesis:

Hypothesis 1: The higher the UA in a country, the higher the level of tax evasion in that country.

2.3.2. Individualism

The cultural dimension of *individualism* (IND) relates to people’s self-concept of “I” or “we.” Hofstede suggests that individualism is a preference for a loosely-knit social fabric as opposed to collectivism, which suggests an interdependent, tightly-knit social fabric. The fundamental issue is the degree of interdependence a society maintains among individuals. Under a high IND

⁷ Vitell, Nwachukwu, and Barnes (1993, 757) support this hypothesized relationship because, “...business practitioners in countries that are high in uncertainty avoidance ... will be less likely to perceive ethical problems than business practitioners in countries that are low in uncertainty avoidance,” while Husted (1999) shows that countries higher in uncertainty avoidance have higher levels of corruption. These studies support Hofstede’s (1991; 2001) observations that individuals in higher UA countries are often prepared to engage in riskier behavior(s), if they deem it justifiable (i.e., uncertainty avoidance does not equate to risk avoidance).

perspective, an individual is seen as unique and whole, or having a self-identity which is separable from and does not depend on group affiliation. Conversely, the person seen as a whole only when considered in terms of an in-group affiliation characterizes a low score on the IND dimension. It is the group, not the individual, which is seen as the basic unit of society. Table 1 shows that countries such as the United States, Australia and the United Kingdom exhibit the highest individualism scores while countries like Guatemala, Ecuador and Venezuela score lowest (i.e., collectivist) on the IND dimension.

Husted (1999) proposes a connection between collectivism and corruption (bribery and extortion). Specifically, he suggests that collectivist (low IND) societies' concern for the in group – a person's circle of family, friends, and/or peers – can override written laws, particularly if they run counter to a more powerful group code. Further, Hofstede (2001, 247) notes that collectivist societies do not view legal norms as universal and are characterized by the view that laws and rights should differ by group, while individualist societies (i.e., high IND) hold the view that laws and rights should be equal for all people within a country. Higher IND countries, therefore, tend to have stronger economies (Hofstede 2001, 519), and countries with stronger economies usually have stricter regulatory systems. Tax revenues generated in these countries will be higher as people will be less inclined to cheat on their taxes (because of better regulatory systems) and have the means to pay their taxes (Braun, Putnam, and Bagchi 2006). Thus, people in a high (low) IND culture should be less (more) tolerant of tax evasion than would people from high IND countries. This leads to the following hypothesis:

Hypothesis 2: The higher the IND in a country, the lower the level of tax evasion in a country.

2.3.3. Masculinity

Masculinity (MASC) refers to the extent to which gender roles are differentiated and the extent to which traditional masculine values of performance and visible achievement are emphasized relative to traditional feminine values of relationships, caring, and nurturing. A high score on the MASC dimension is characterized by competition and achieving material success. Conversely, a lower score is considered “feminine” and is characterized by mentoring and attaining a higher quality of life.⁸ The highest MASC scores are for Japan, Austria and Venezuela while Sweden, Norway and the Netherlands score lowest on the masculinity dimension (see Table 1).

According to Hofstede (1991), high MASC cultures strive for a performance society, which focuses on the pursuit of material success in an “unjust world” (Hofstede 2001, 321). On the other hand, low MASC cultures focus on caring for others, the preservation of nurturing values, and generally view the world as a “just” place that should provide a minimum quality of life for everybody through higher taxes, which are used to subsidize the lower classes (Hofstede 2001, 317-318). Husted (1999) finds that the greater the masculinity in a culture, the higher the level of corruption (bribery and extortion) within that country. A similar relationship may be expected between tax evasion and MASC. High MASC countries’ emphasis on material success and achievement will contribute to a greater acceptance of tax evasion than in low MASC countries, where more emphasis is given to quality of life, people, and the environment.

On the other hand, one could just as easily make a case for a hypothesis in the opposite direction.

⁸ There has been some criticism of Hofstede’s (1980) use of the terms “masculinity” and “femininity.” Roberts and Salter (1999) rename Hofstede’s (1980) masculinity dimension “achievement orientation,” which is a more accurate description of this cultural dimension.

For example, the financial reporting literature indicates that the results between MASC and disclosure are consistently mixed. Of the studies that have found a relation, a majority (5 out of 9) find a positive relation between MASC and disclosure (Doupnik and Tsakumis 2004, 23-24), indicating that countries with higher MASC are more likely to disclose information to parties outside the firm. This is consistent with higher MASC cultures' desire for performance, material success, and visible achievement. A "bragging" culture (Wingate 1997) may be more conscious of its tax compliance responsibilities because more visibility (combined with more material success) may lead to more scrutiny (e.g., increased probability of a tax audit) by the tax authorities. This is supported by Hofstede (2001, 319), who notes a significant negative correlation between MASC and the national Permissiveness Index, indicating that countries with higher MASC are less permissive, particularly in dealing with lawbreakers. Countries with higher MASC focus more on punishment, while countries with lower MASC tend to be more lenient and focus more on correction and rehabilitation. Therefore, we present the following nondirectional hypothesis:

Hypothesis 3: There will be a significant relation between MASC and the level of tax evasion in a country.

2.3.4. Power Distance

Power distance (PD) refers to the extent to which hierarchy and unequal power distribution in institutions and organizations are accepted. The main concern is the way in which societies handle the problem of human inequality. High PD societies are characterized by the acceptance of inequality and its institutionalization in hierarchies, which locate people in their "rightful" places. Conversely, low PD societies are characterized by a norm value that inequalities between people should be minimized, and to the extent that hierarchies exist within a society and its

organizations, they exist only for administrative convenience. Table 1 shows that Malaysia, Guatemala and Panama score highest on PD while Austria, Israel and Denmark score the lowest on the PD dimension.

In high PD countries, Hofstede (1991) suggests the existence of an implied consensus where there is an order of inequality in which everybody has his or her place. This consensus is accompanied by a certain level of leniency toward rules of civil morality (Hofstede 2001, 99). For example, high PD countries are characterized by an acceptance that those in power are entitled to privileges, which they are expected to use in enhancing their wealth. Also, scandals involving persons in power are expected, and so is the fact that they will be covered up. Further, wage differentials in high PD countries are large, resulting in a major income gap between the upper and lower classes (Hofstede 1991, 39; Hofstede 2001, 112). These large income differentials are further increased by the tax system (Begue 1976), potentially creating more of a tax evasion incentive. By contrast, individuals in low PD cultures view inequality as undesirable and believe that power and wealth do not necessarily go together. In addition, low PD societies are not tolerant of political scandals, which usually signify the end of a political career. Unlike high PD countries, low PD countries exhibit lower income differentials, which are further reduced by more progressive tax rate systems. Husted (1999) supports this argument by showing that increased PD in a country is associated with higher corruption. Accordingly, we posit that high PD countries should tolerate corrupt activities such as tax evasion more than would low PD countries. This leads to the following hypothesis:

Hypothesis 4: The higher the PD in a country, the higher the level of tax evasion in a country.

2.3.5. Control Variable

The level of economic development in a country may influence its level of tax evasion. For example, Treisman (2000) found that rich countries generally have less corruption than poor countries, with as much as 50 to 73 percent of the variations in corruption indices being explained by variations in per capita income levels. We expect a similar relationship between countries' levels of economic development and their tax evasion levels. Also, while the four cultural variables represent independent dimensions and should not be systematically correlated, Hofstede (2001, 63) notes that there is a significant relation between IND and PD, which becomes insignificant when controlling for level of economic development (i.e., GNP per capita). Thus, we include the level of economic development in a country, measured as the natural log of GNP per capita (LNGNP), as a control variable in this study. We expect a negative relation between the level of economic development and the level of tax evasion in a country.

3. Research design

Hofstede (1980) provides index scores for the four national cultural dimensions for the 50 countries. Thus, this study investigates tax evasion levels across the same 50 countries. It analyzes the relation of the four dimensions to tax evasion.

3.1. Dependent Variable

Our hypotheses relate to the impact of national cultural dimensions on tax evasion levels across countries. Actual evasion is unknown and impossible to determine; thus, studies on tax evasion (tax compliance) use surrogate measures for actual evasion. Many studies use hypothetical

evasion or perceptions of evasion. Some use government estimates of evasion. No single measure has been shown to be better than any other measure.

Previous research examining international tax evasion (e.g., Riahi-Belkaoui 2004, Alm & Torgler 2005) uses individuals' perceptions about tax evasion as a proxy for a country's tax evasion. We follow this line of research by using an economic estimate of actual unreported income within a country as a proxy for tax evasion. Specifically, a country's shadow economy divided by its GDP serves as our proxy for tax evasion (TXEVAS). It is taken from Schneider (2004). Schneider estimates the shadow economy (estimates of all market-based legal production of goods and services that are deliberately concealed from public authorities) for 145 developing, transition, and developed countries. He also reports the shadow economy variable as a percentage of official GDP in each country for the years 2000-2002. Countries with larger shadow economies (as a percentage of GDP) are viewed as less tax compliant countries (i.e., higher (lower) underreporting of income equates to more (less) tax evasion). Therefore, the larger the value of TXEVAS, the greater is the extent of tax evasion in a country.

Table 2 lists the sample countries along with their mean tax evasion scores across the years 2000-2002. These countries are located in all parts of the globe, range from large to small, and include both developed and developing nations. The three highest scores (i.e., the least tax compliant countries) are Panama, Peru and Thailand. The United States, Switzerland, and Austria are the most tax compliant. The sample countries' tax evasion rankings are consistent for the years 2000-2002.

[Insert Table 2 here]

3.2. Independent Variables

Measures for the independent variables UA, IND, MASC, and PD are shown in Table 1 and are taken from Hofstede (1980). In addition, a control variable, LNGNP, was included in the multivariate analysis. LNGNP was measured as the natural logarithm of country GNP, which was obtained from the World Bank (2002).⁹

3.3. Model Specification

To test our hypotheses, we estimate the following model:

$$\text{TXEVAS}_i = a_0 + a_1\text{UA}_i + a_2\text{IND}_i + a_3\text{MASC}_i + a_4\text{PD}_i + a_5\text{LNGNP}_i + e_i \quad (1)$$

Expected Sign (+) (-) (NA) (+) (-)

The primary variables of interest are UA, IND, MASC, and PD. Our hypotheses predict a positive sign on UA (higher UA leads to higher tax evasion in a country), a negative sign on IND (higher IND leads to lower tax evasion in a country), no direction on MASC, and a positive sign on PD (higher PD leads to higher tax evasion in a country). Also, we expect a negative sign on our control variable, LNGNP, with more economically-developed countries experiencing lower levels of tax evasion. The results discussed in the next section are stable (i.e., not significantly different) for the time period 2000-2002. Therefore, we pooled the data for hypothesis testing purposes.

4. Results

4.1. Descriptive Statistics

⁹ A similar measure, GDP per capita, also was obtained from the International Monetary Fund (2002). The model was run with this variable and the results were similar to those reported in the next section.

Table 3 presents descriptive statistics for the full sample of 50 countries for the years 2000-2002. Considerable diversity exists with regard to tax evasion levels across countries. The estimated shadow economy in a country (as a percentage of GDP) ranges from 8.40% to 65.30% with a mean of 27.22% during the three-year period. At the extremes, these figures indicate that one country's estimated shadow economy represents only 8.40% of its GDP, whereas another country's estimated shadow economy represents approximately 65% of GDP. There is considerable variability in the independent variables of primary interest. UA ranges from 8 to 112 (mean = 65.90), IND ranges from 6 to 91 (mean = 43.94), MASC ranges from 5 to 95 (mean = 48.92), and PD ranges from 11 to 104, with a mean of 55.82.¹⁰ There is also considerable variability in the control variable; GNP per capita ranges from \$420 to \$38,730 with a mean of \$13,095 per country.¹¹

[Insert Table 3 here]

4.2. Hypothesis Testing

Table 4 reports the results from estimating the multiple regression model specified in equation 1. The model is highly significant ($F = 43.056$, $p < .0001$) and the independent variables explain a relatively high percentage of variation in the dependent variable (adjusted R^2 of .585). The

¹⁰ It is important to note that there are no countries that exhibit high or low cultural dimension scores “across the board.” However, countries in the same cultural area (Hofstede 1980) can exhibit similar patterns across the four cultural dimensions. For example, the Anglo cultural group (e.g., Australia, Canada, United States, and United Kingdom) tends to exhibit lower UA, higher IND, higher MASC, lower PD, and lower tax evasion levels, which is consistent with our findings. Conversely, the Near Eastern (e.g., Greece, Iran, Turkey, and Yugoslavia) and Less Developed Latin (e.g., Costa Rica, Ecuador, El Salvador, and Uruguay) cultural areas tend to exhibit higher UA, lower IND, lower MASC, higher PD, and higher tax evasion levels, which is also consistent with our findings.

¹¹ The impact of variable correlations on the regression results was examined by computing variance inflation factors (VIF). Within this study's data, the largest VIF was 2.55, which is well below the criterion value of 10.0 suggested by Neter, Wasserman, and Kutner (1985) and the 5.3 cutoff proposed by Hair, Anderson, Tatham, and Black (1992) for signifying severe multicollinearity. We also ran interactive models. The inclusion of interaction terms (for the four dimensions) results in significant variability in the collinearity diagnostics (i.e., VIFs well above the acceptable limits), only one interaction term was significant and the results did not change with respect to the four dimensions. As such, we use the model presented in the paper.

results for the primary variables of interest are the same both with and without the inclusion of the control variable (GNP per capita) in the model.

[Insert Table 4 here]

Hypothesis 1 predicted that higher UA is related to higher tax evasion levels across countries. Even after controlling for the level of economic development across countries, the regression coefficient for UA is positive and significant ($p < .0001$). Thus, we conclude that higher UA is related to higher tax evasion levels across countries, supporting hypothesis 1.

Hypothesis 2 predicted that lower IND is related to higher tax evasion levels across countries. The regression coefficient of IND is negative and significant ($p = .005$). This result suggests that lower (higher) IND is related to higher (lower) tax evasion, providing support for hypothesis 2.

Although a direction was not hypothesized, hypothesis 3 predicted that MASC is related to tax evasion levels across countries. As expected, a significant relation was found. MASC is moderately significant and negatively related with tax evasion levels across countries. Therefore, Hypothesis 3 is supported.

Hypothesis 4 predicted that higher PD is related to higher tax evasion levels across countries. As expected, the regression coefficient for PD is positive and significant ($p = .014$). Higher PD is related to higher tax evasion levels across countries, supporting hypothesis 4.

4.3. Control Variable

Table 4 also reports a significant relation between the level of economic development (LNGNP) and tax evasion levels across countries. The regression coefficient for LNGNP is negative and highly significant ($p < .0001$). Thus, as expected, higher (lower) levels of economic development are associated with lower (higher) levels of tax evasion across countries.

5. Implications and conclusions

In this study, we investigated the influence of Hofstede's (1980) cultural dimensions on tax compliance levels across 50 countries. Taken as a whole, our results support the general proposition that national culture, as proposed by Hofstede, is a significant factor in explaining tax evasion levels across countries. The results of the proposed model (equation 1) show that three of Hofstede's cultural dimensions are related to international tax evasion levels in the expected directions. Specifically, the results indicate that higher (lower) uncertainty avoidance and power distance are associated with higher (lower) tax evasion levels across countries while higher (lower) individualism is associated with lower (higher) tax evasion across countries, as hypothesized. This result is consistent with research examining the relationship between Hofstede's framework and global financial reporting, particularly for uncertainty avoidance and individualism (see Douppnik and Tsakumis 2004 for a review of this literature). We also find that higher (lower) masculinity is associated with lower (higher) tax evasion.

This study employed Hofstede's cultural framework as a means to explain international tax compliance diversity. The results suggest that national culture is useful in explaining tax evasion levels across countries. Based on our results, we can describe a tentative cultural profile of a low

tax compliance country (i.e., a high tax evasion country) as one that possesses high UA, low IND, low MASC, and high PD. These results may aid in directing future research by serving as the beginning of a framework for future international tax compliance studies.

Our results should be of interest to policymakers. Specifically, policymakers should consider cultural values when designing tax compliance legislation and investigating possible behavior irregularities. Some of the tax compliance penalties that work well in the U.S. may not work well in countries with different cultural profiles. For example, Porcano and Price (1993) shows that social stigmatization (e.g., announcement of a taxpayer's activities in the newspaper) has a significant deterrent effect on individuals' hypothetical tax evasion. Furthermore, several states in the U.S. have been successful in reducing tax evasion through their social stigmatization programs (Herman 2004a; 2004b). While social stigmatization may be an effective penalty for tax evaders in the U.S. – a country with lower UA, higher IND, lower MASC, and lower PD – it may not have the same deterrent effect in a country with a less tax compliant cultural profile. A less tax compliant country's (higher UA, lower IND, and higher PD) citizens may react differently to a social stigmatization penalty. In a country where tax evasion is common practice, being punished and subsequently disclosed as an offender may not be sufficient to trigger the stigmatization process.

Additionally, the results have implications for audit-selection models and outsourcing of tax return preparation. Firms continue to outsource accounting and tax work (e.g., Engardio, Bernstein, and Kripalani 2003) and research by the McKinsey Global Institute indicates that up to 31 percent of finance and accounting jobs could be exported by 2008 (Thottam 2005). While

India is the leader in outsourcing work, a report from market research firm Gartner, Inc. notes that a host of emerging countries such as the Philippines, Malaysia, Vietnam, and Eastern European nations (including Hungary and Poland) are starting to challenge India's leadership in offshore business process outsourcing (Bhatnaqar 2005). Some of the countries to which work is being outsourced are low tax compliant countries, and these lower compliance levels are due in part to their cultural profiles. If this behavior transfers to their accounting and tax return preparation work then such tax returns would have higher noncompliant rates. As such, the efficacy of audit-selection models might be improved if they incorporate an additional variable (if return preparation was outsourced, and if so, then to which country it was outsourced).

Audit selection models by their nature use profiling; the selection variables are used because in the aggregate they help develop a profile of each tax filer as one with “good” or “poor” audit potential. The results suggest that a country’s audit program should take nationality into consideration. That is, when examining corporate returns and nonresident returns, an additional variable used for audit selection should be home country. Given the large number of multinational corporations (MNCs) conducting business in many countries and foreign nationals working in many countries, using such a variable might reduce tax evasion by foreign MNCs and individuals. For example, if tax evasion is high in Greece and accepted, then perhaps Greek companies and citizens working abroad tend to be more noncompliant than other companies and individuals. Using home country as an additional selection variable might better identify evaders.

Some limitations of the current study also should be addressed. First, Hofstede's cultural dimensions were developed over 20 years ago, which may make them appear outdated. However, it is important to note that several studies (e.g., Hoppe 1990; Merritt 2000) confirm the reliability, validity, applicability, and direction of differences of Hofstede's scores over time and across countries. Second, the current study focuses on national cultural dimensions as the primary explanators of tax evasion levels across countries. To develop a more complete international tax compliance model, future research should examine other variables (e.g., countries' legal systems) in conjunction with national culture. Third, this study's sample consisted of 50 countries. Therefore, additional research may be needed to ensure that the results are generalizable to other countries. In addition, future research should examine the role of national culture in mitigating the efficacy of tax evasion penalties within and across countries. It also should explore the use of "home country" and "tax return preparation outsourced" as additional variables in audit-selection models.

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References

- Alm, J., Bahl, R. & Murray, M.N. (1990). Tax structure and tax compliance. *The Review of Economics and Statistics*. 72, 603-613.
- Alm, J., Sanchez, I., & De Juan, A. (1995). Economic and noneconomic factors in tax compliance. *KYKLOS*, 48,141-171.
- Alm, J. & Torgler, B., (2006). Culture differences and tax morale in the United States and in Europe. *Journal of Economic Psychology*. 27, 224-246.
- Andreoni J., Erard, B., & Feinstein, J. (1998), Tax compliance. *Journal of Economic Literature*. 36, 818-860.
- Athens. 1997. *Europe* (April): 365.
- Begue, J. (1976). On culture and tax. *Economie et Statistique*, 84, 97-104.
- Bhatnagar, P. (2005). Surprise! India's reign as the world's "Outsourcing King" may be slipping, even with its rock-bottom call center costs. *CNN Money*, August 24. (http://money.cnn.com/2005/08/23/news/international/india_outsourcing/index.htm).
- Braun, G.P., Putnam, K., & Bagchi, K. (2006). Culture and international tax rates: An empirical investigation. University of Texas – El Paso. Working Paper.
- Chan, K.H., Lin, K.Z., & Mo, P.L.L. (2003). An empirical study on the impact of culture on audit-detected accounting errors. *Auditing: A Journal of Practice and Theory*, 22, 281-295.
- Cohen, J.R., Pant, L.W., & Sharp, D.J. (1995). An exploratory examination of international differences in auditors' ethical perceptions. *Behavioral Research in Accounting*. 7, 37-64.
- Cummings, R.G., Martinez-Vanquez, J., McKee, M., & Johnson, E.J. (2004). Effects of culture on tax compliance: A cross check of experimental and survey evidence. *CREMA WorkingPaper Series, 2004-13*. Basel, Switzerland.
- De Mooij, M. (1998a). *Global marketing and advertising: Understanding cultural paradoxes*. Thousand Oaks, CA: Sage.
- De Mooij, M. (1998b). *Masculinity/femininity and consumer behavior*. In G. Hofstede and Associates, *Masculinity and femininity: The taboo dimension of national cultures* (pp. 55-73). Thousand Oaks, CA: Sage.
- De Mooij, M. (2001). *Convergence-divergence*. Unpublished doctoral dissertation, Universidad de Navarra.

- Doupnik, T.S., & Tsakumis, G.T. (2004). A critical review of tests of Gray's theory of cultural relevance and suggestions for future research. *Journal of Accounting Literature*, 23, 1-48.
- Doupnik, T.S., & Riccio, E. (2006). The influence of conservatism and secrecy on the interpretation of verbal probability expressions between countries in the Anglo and Latin cultural areas. *The International Journal of Accounting*, 41, 237-261.
- Engardio, P., Bernstein, A., & Kripalani, M. (2003). Is your job next? *Business Week*, February 3, 50-60.
- Frey, B.S. & Weck-Hannemann, H. (1984). The hidden economy as an "unobserved" variable. *European Economic Review*, 26, 33-53.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1992). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Harrison, G.L., & McKinnon, L.L. (1999). Cross-cultural research in management control systems design: A review of the current state. *Accounting, Organizations and Society*, 24, 483-506.
- Herman, T. (2004a). States publicize late taxpayers' names online – strapped states collect millions in back taxes by subjecting deadbeats to public humiliation, *The Wall Street Journal*, January 8, D1.
- Herman, T. (2004b). Hall of Shame: Georgia posts names of tax debtors on its Web site, *The Wall Street Journal*, March 18, D1.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. London: Sage Publications.
- Hofstede, G., & Bond, M.H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, 16, 4-22.
- Hofstede, G. (1991). *Cultures and organizations: Software of the mind*. London: McGraw-Hill Book Company (UK) Limited.
- Hofstede, G. (1994). *Values Survey Module 1994 Questionnaire (VSM 94)*. Tilburg, Netherlands: Institute for Research on Intercultural Cooperation (IRIC).
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks: Sage Publications.
- Hoppe, M.H. (1990). *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.

- Husted, B.W. (1999). Wealth, culture, and corruption. *Journal of International Business Studies*, 30, 339-359.
- Internal Revenue Service (IRS). (2005). *Individual income tax gap estimates for 2001*. Washington D.C.: U.S. Department of Treasury.
- IRS News Release IR 2006-28, February 14, 2006
(<http://www.irs.gov/newsroom/article/0,,id=154496,00.html>)
- International Monetary Fund (2002). World Economic Outlook Reports.
(<http://www.imf.org/external/pubs/ft/weo/weorepts.htm>)
- Johnson, J. & Lenartowicz, T. (1998). Culture, freedom, and economic growth: do cultural values explain economic growth? *Journal of World Business*, 33, 332-356.
- Joulfaian, D. (2000). Corporate income tax evasion and managerial preferences. *The Review of Economics and Statistics*, 82, 698-701.
- Lu, L.-C., Rose, G.M, & Blodgett, J.G. (1999). The effects of cultural dimensions on ethical decision making in marketing: An exploratory study. *Journal of Business Ethics*, 18, 91-105.
- Merritt, A.C. (2000). Culture in the cockpit: Do Hofstede's dimensions replicate? *Journal of Cross-Cultural Psychology*, 31, 283-301.
- Neter, J., Wasserman, W. & Kutner, M.H. (1985). *Applied Statistical Linear Models: Regression, Analysis of Variance, and Experimental Designs*. Homewood, IL: Richard D. Irwin.
- Patel, C. (2003). Some cross cultural evidence on whistle-blowing as an internal control mechanism. *Journal of International Accounting Research*, 2, 69-96.
- Picur, R.D. & Riahi-Belkaoui, A. (2006). The impact of bureaucracy, corruption and tax compliance. *Review of Accounting and Finance*, 5, 174-180.
- Porcano, T.M. (1988). Correlates of Tax Evasion, *Journal of Economic Psychology*. 9, 47-67.
- Porcano, T.M. & Price, C.E. (1993). The effects of social stigmatization on tax evasion. *Advances in Taxation*, 5, 197-217.
- Riahi-Belkaoui, A. (2004). Relationship between tax compliance internationally and selected determinants of tax morale. *Journal of International Accounting, Auditing and Taxation*, 13, 135-143.
- Richardson, G. (2006). Determinants of tax evasion: A cross-country investigation. *Journal of International Accounting, Auditing and Taxation*, 15, 150-169.

- Roberts, C.B. & Salter, S.B. (1999). Attitudes towards uniform accounting: cultural or economic phenomena? *Journal of International Financial Management and Accounting*, 10, 121-142.
- Rome. 1997. Europe (April): 365.
- Ryan, A.M., Horvath, M., Ployhart, R.E., Schmitt, N., & Slade, L.A. (2000). Hypothesizing differential item functioning in global employee surveys. *Personnel Psychology*, 53, 531-562.
- Sandmo, A. (2005). The theory of tax evasion: A retrospective view. *National Tax Journal*, 63, 643-663.
- Schneider, F. (2004). The Size of the Shadow Economies of 145 countries all over the world: First results over the period 1999-2003. *IZA Discussion Paper No. 143*. Forschungsinstitut zur Zukunft der Arbeit (Institute for the Study of Labor (IZA)). Bonn, Germany.
- Tsakumis, G.T. (2007). The influence of culture on accountants' application of financial reporting rules. *Abacus*, 43 (1), 27-48.
- Thomas, A., & Bendixen, M. (2000). The management implications of ethnicity in South Africa. *Journal of International Business Studies*, 31, 507-519.
- Thottam, J. (2005). Offshore job myths. *Time Inside Business Bonus Section*. July 3. (<http://www.time.com/time/insidebiz/article/0,9171,1079495,00.html>)
- Treisman, D. (2000). The causes of corruption: A cross-national study. *Journal of Public Economics* 76, 399-457.
- Vitell, S.J., Nwachukwu, S.L., & Barnes, J.H. (1993). The effects of culture on ethical decision making: An application of Hofstede's typology. *Journal of Business Ethics*, 12 (10), 753-760.
- White, R.A., Harrison, P.D., & Harrell, A. (1993). The impact of income tax withholding on taxpayer compliance: Further empirical evidence. *Journal of the American Taxation Association*, Fall, 63-78.
- Wingate, M.L. (1997). An examination of cultural influence on audit environments. *Research in Accounting Regulation*, Supp. 1, 129-148.
- World Bank (2002). Data and Research. (<http://econ.worldbank.org>).
- World Economic Forum (1996). *Global Competitiveness Report 1996*. New York: Oxford University Press.

Table 1
Cultural dimension scores for sample countries

Country	UA	IND	MASC	PD	Country	UA	IND	MASC	PD
Argentina	86	46	56	49	Japan	92	46	95	54
Australia	51	90	61	36	Malaysia	36	26	50	104
Austria	70	55	79	11	Mexico	82	30	69	81
Belgium	94	75	54	65	Netherlands	53	80	14	38
Brazil	76	38	49	69	New Zealand	49	79	58	22
Canada	48	80	52	39	Norway	50	69	8	31
Chile	86	23	28	63	Pakistan	70	14	50	55
Colombia	80	13	64	67	Panama	86	11	44	95
Costa Rica	86	15	21	35	Peru	87	16	45	64
Denmark	23	74	16	18	Philippines	44	32	64	94
Ecuador	67	8	63	78	Portugal	104	27	31	63
El Salvador	94	19	40	66	Singapore	8	20	48	74
Finland	59	63	26	33	South Africa	49	65	63	49
France	86	71	43	68	South Korea	85	18	39	60
Germany	65	67	66	35	Spain	86	51	42	57
Greece	112	35	57	60	Sweden	29	71	5	31
Guatemala	101	6	37	95	Switzerland	58	68	70	34
Hong Kong	29	25	57	68	Taiwan	69	17	45	58
India	40	48	56	77	Thailand	64	20	34	64
Indonesia	48	14	46	78	Turkey	85	37	45	66
Iran	59	41	43	58	United Kingdom	35	89	66	35
Ireland	35	70	68	28	United States	46	91	62	40
Israel	81	54	47	13	Uruguay	100	36	38	61
Italy	75	76	70	50	Venezuela	76	12	73	81
Jamaica	13	39	68	45	Yugoslavia	88	27	21	76

UA = Hofstede suggests that societies high on the UA dimension prefer to reduce uncertainty or ambiguity by relying on written or unwritten rules of behavior, formalization of organizational structure, and standardization of procedures. By contrast, societies low on the UA dimension, are more flexible and tolerant of behavior and opinions that differ from their own.

IND = People focusing on themselves rather than on the group(s) to which they may belong characterize a high score on the IND index. Conversely, the person seen as a whole only when considered in terms of an in-group affiliation characterizes a low score on the IND index. It is the group, not the individual that is seen as the basic unit of society.

MASC = A high score on the MASC dimension is characterized by competition and achieving material success. Conversely, a lower score is considered "feminine" and is characterized by mentoring and attaining a higher quality of life.

PD = High PD societies are characterized by the acceptance of inequality and its institutionalization in hierarchies, which locate people in their "rightful" places. Conversely, low PD societies are characterized by a norm value that inequalities between people should be minimized, and to the extent that hierarchies exist within a society and its organizations, they exist only for administrative convenience.

Source: Index values originally reported in Hofstede (1980, 315).

Table 2
Tax evasion levels for sample countries*

Country	Tax Evasion Score	Country	Tax Evasion Score
Argentina	27.13	Japan	11.03
Australia	13.97	Malaysia	31.63
Austria	10.43	Mexico	31.70
Belgium	21.73	Netherlands	12.90
Brazil	41.00	New Zealand	12.57
Canada	15.67	Norway	18.83
Chile	20.33	Pakistan	37.80
Colombia	41.27	Panama	64.83
Costa Rica	27.00	Peru	60.37
Denmark	17.73	Philippines	44.50
Ecuador	35.40	Portugal	22.37
El Salvador	47.23	Singapore	13.40
Finland	17.83	South Africa	29.00
France	14.90	South Korea	28.13
Germany	16.37	Spain	22.40
Greece	28.47	Sweden	18.89
Guatemala	51.93	Switzerland	9.13
Hong Kong	16.97	Taiwan	26.57
India	24.30	Thailand	53.34
Indonesia	21.37	Turkey	33.20
Iran	19.40	United Kingdom	12.47
Ireland	15.63	United States	8.60
Israel	22.87	Uruguay	51.47
Italy	26.60	Venezuela	35.13
Jamaica	37.70	Yugoslavia	37.60

* The tax evasion scores are mean estimates of each country's shadow economy (i.e., estimates of all market-based legal production of goods and services that are deliberately concealed from public authorities) as a percentage of GDP for the years 2000-2002 and are taken from Schneider (2004). Countries with larger (smaller) shadow economies (as a percentage of GDP) represent higher (lower) tax evasion countries.

Table 3
Descriptive statistics

Variable*	n	Minimum	Maximum	Mean	Median	SD
<i>Dependent</i>						
TXEVAS	150	8.40	65.30	27.22	23.50	13.81
<i>Independent</i>						
UA	150	8	112	65.90	69.50	24.75
IND	150	6	91	43.94	38.50	25.68
MASC	150	5	95	48.92	49.50	18.69
PD	150	11	104	55.82	59.00	21.84
GNP (in US\$)	150	420	38,730	13,095	10,325	11,551
LNGNP	150	6.04	10.56	8.86	9.24	1.29

*Variable definitions and data sources:

TXEVAS	The tax evasion dependent variable is an estimate of each country's shadow economy (i.e., estimates of all market-based legal production of goods and services that are deliberately concealed from public authorities) as a percentage of GDP for the years 2000-2002; obtained from Schneider (2004). Countries with larger (smaller) shadow economies (as a percentage of GDP) represent higher (lower) tax evasion countries. These statistics are based on absolute amounts for the sample countries over the 2000-2002 time period. Table 2 shows the <i>mean</i> TXEVAS score for each country over the same time period.
UA, IND, MASC, and PD	See Table 1 for variable definitions; obtained from Hofstede (1980).
GNP	GNP per capita by country for the years 2000-2002; obtained from the World Bank (2002).
LNGNP	Natural log of GNP per capita.

Table 4
Regression results*

$$TXEVAS_i = a_0 + a_1UA_i + a_2IND_i + a_3MASC_i + a_4PD_i + a_5LNGNP_i + e_i$$

Independent Variable		(Exp. Sign)	B	t-statistic	Sig.**
UA	(H1)	(Pos.)	.208	3.676	<.0001
IND	(H2)	(Neg.)	-.205	-2.432	0.005
MASC	(H3)	(Pos.)	-.095	-1.780	0.077
PD	(H4)	(Pos.)	.169	2.228	0.014
LNGNP		(Neg.)	-.397	-5.293	<.0001

F = 43.056, p < .0001, Adjusted R² = 0.585

*See Table 3 for variable definitions.

** One-tailed p-values except for MASC, which was a nondirectional hypothesis.