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Postmaterialism and Corporate Tax Avoidance

Abstract

This paper explores how postmaterialism culture influences corporate tax avoidance behavior. Using a proprietary dataset of China tax audits, we find that firms owned by investors from countries with higher postmaterialism values are less likely to engage in tax avoidance behavior in China. In addition, we find some evidence that the negative association between postmaterialism and tax avoidance is more pronounced when tax enforcement is stronger, indicating that national culture and formal institutions act as complements. To check the external validity of our main results, we further use a cross-country sample from 21 countries over 22 years. The evidence from the cross-country sample is consistent with the findings obtained from the China tax audits setting.

Keywords: Postmaterialism; Culture; Tax Avoidance; Tax Enforcement; China; Cross-country

1. INTRODUCTION

Although corporate tax avoidance is prevalent, the degree of tax avoidance varies across countries. Previous studies suggest that national culture is associated with the level of tax avoidance (e.g., corruption culture in DeBacker, Heim, and Tran 2015; and societal trust in Kanagaretnam, Lee, Lim, and Lobo 2018, among others). Unlike prior studies focusing on long-standing culture factors, this study examines the association between corporate tax avoidance and an important current culture trend, i.e., postmaterialism culture.

Postmaterialism describes an individual's value of freedom, self-expression and quality of life (Inglehart 1971, 1977). It is contrary to materialism, which refers to the pursuit of physical security and economic interests. After the World War II, people in developed Western European countries began to shift from materialists to postmaterialists. Over the past several decades, both materialism and postmaterialism culture have evolved around the world. For example, Switzerland is now a highly postmaterialistic country that appreciates freedom and self-realization, but Indonesia is a materialistic country that still fights for safety and economic growth.

The ways in which postmaterialism affects corporate tax avoidance behavior remain an open question. Kravtsova, Oshchepkov, and Welzel (2017) argue that the various propensities attributed to postmaterialism lead to conflicting expectations of individual behavior. On the one hand, postmaterialists have non-materialistic nature, which suggests they prefer reputation and social status to monetary incentives and economic goals. Therefore, firms with postmaterialism culture are less likely to engage in opportunistic tax avoidance behavior for the purpose of monetary value maximization. On the other hand, the autonomy and self-expression nature of postmaterialists may lead them to deviate from traditional norms. As opportunistic tax avoidance is undesirable from the perspective of government and might be unacceptable to the public, firms with postmaterialism culture may deviate themselves from the social norm and engage in socially unacceptable tax avoidance behavior.

To examine this research question, we use a proprietary dataset of tax audits on foreign-owned firms in China. We obtain the dataset from the China State Taxation Administration (STA). This dataset has two major features. First, it enables us to directly measure the level of tax avoidance by tax audit adjustment. Second, we could explore corporate tax avoidance behavior across cultures in one-country setting while mitigating the noise of country-level confounding factors. Compared with Chinese domestic firms, foreign-owned firms in China are relatively less familiar with the Chinese business environment. Hence, their culture of origin, as an informal institutional factor, might influence their decision-making (Li, Griffin, Yue, and Zhao 2011).

We use the tax deficiency detected by tax auditors as a measure of tax avoidance. Firms are characterized as tax deficient if they are required by tax auditors to adjust their tax liabilities upward after a tax audit (DeBacker et al. 2015). The data of postmaterialism is obtained from the World Values Survey (WVS). Using a sample of foreign-owned firms in China with 5,129 firm-year observations spanning the 2011–2014 period, we show that the level of postmaterialism in a foreign-owned firm's home country is negatively associated with the likelihood and magnitude of tax deficiency in the firm. Therefore, a more postmaterialistic society helps to constrain opportunistic corporate tax avoidance behavior.

In addition, Alesina and Giuliano (2015) argue that "culture and institutions interact and evolve in a complementary way", hence we explore how tax enforcement strength influences the relation between postmaterialism and tax avoidance. We compute tax enforcement strength for each Chinese province and divide our sample into low tax enforcement and high tax enforcement groups. We find some evidence that the negative relation between postmaterialism and tax avoidance is more pronounced in the provinces with stronger tax enforcement. Thus, our results indicate that postmaterialism culture, as an informal governance mechanism, is a complement for formal institutions like tax enforcement.

We further validate our main results in the Chinese sample by using a cross-country sample of 21 countries from 1993 to 2014. Although there is no tax deficiency variable in the cross-country sample,

we use the traditional effective tax rate measures as a proxy for tax avoidance and obtain similar results as that documented in the Chinese sample, indicating that the negative relation between postmaterialism and corporate tax avoidance is not unique to foreign-owned firms in China.

Our study contributes to the literature in two ways. First, it sheds light on corporate tax avoidance behavior from a new cultural perspective. Researchers have documented that culture, as an informal institutional component in our society, has an inescapable effect on corporate behavior. We contribute to this strand of literature by identifying the potential role of an important current culture trend, i.e., postmaterialism culture, in shaping corporate tax avoidance decisions. Also, we discuss the relation between postmaterialism culture and formal institutions, i.e., the enforcement of tax law. When authorities exert great effort in tax enforcement, postmaterialism culture could function as a complement for formal institutions to regulate corporate tax payment.

Postmaterialism is different from the culture factors that have been investigated in prior studies. The cultural indices developed by Hofstede (1980, 2001) are mostly cited in prior studies when explaining economic behaviors. Hofstede (1980, 2001) use four dimensions to characterize the differences in culture across countries: power distance, individualism (collectivism), masculinity (femininity), and uncertainty avoidance. In general, the Hofstede's indices reflect a country's long-standing culture and can be regarded as time-invariant culture factors over a short time horizon. As such, it is typically difficult to disentangle the Hofstede's culture effect from the country effect in empirical analyses since Hofstede's culture dimensions generally remain stable over the sample period. Unlike Hofstede (1980, 2001), Inglehart (1971, 1977) propose the notion of postmaterialism, or "post-bourgeois", to describe the changes in values in the post-industrial era. The notion of postmaterialism captures people's preference for self-esteem, self-expression, and quality of life over economic interests and physical security, a prominent culture transformation after the World War II. As such, our study investigates the impact of an important current culture trend on corporate behaviors. Moreover, people's preferences for postmaterialism are subject to great changes over the past decades. This enables us to disentangle the culture effect from the country effect by controlling for the country fixed effects in the regressions.

Postmaterialism is also different from social capital. Social capital refers to "the set of values and beliefs that help cooperation" (Guiso, Sapienza, and Zingales 2010), which is embedded in civic norms and social networks. Civic norms provide the code of conduct for individuals to judge and regulate their behaviors. Social networks refer to the interaction and communication among people to connect with each other. Therefore, social capital emphasizes the interaction between individuals. In contrast, postmaterialism highlights personal preference for non-material objects, such as freedom, self-expression, and the quality of life. As such, these two notions capture different aspects of people's values and beliefs.[1]

Second, we use a proprietary dataset of foreign-owned firms operating in China to alleviate country-level omitted variable concerns in cross-country tax avoidance studies. We also construct a direct measure of tax avoidance using the tax deficiency detected by China STA. Compared with traditional tax avoidance measures based on effective tax rates and book-tax differences, our tax deficiency measure can directly capture tax avoidance activities.

Our study also complements DeBacker et al. (2015), which find that U.S. corporations with owners from countries with higher corruption norms evade more taxes. DeBacker et al. (2015) use Internal Revenue Service (IRS) tax audit data to define tax deficiency. Unlike in DeBacker et al. (2015), China STA tax audit data reflects the actual amount of tax deficiency. In addition, we find that the postmaterialism effect is still significant after controlling for corruption. Therefore, the postmaterialism effect captures a culture effect that is different from the corruption effect.

The rest of the paper is organized as follows. In Section 2, we review the literature and develop our hypothesis. In Section 3, we describe the research design, including sample and model specification. In Section 4, we present the empirical results using the Chinese sample. In Section 5, we report the results of the moderating effect of tax enforcement. In Section 6, we analyze the empirical

[1] Untabulated correlation analyses reveal that none of the Pearson coefficients between postmaterialism and the Hofstede's culture dimensions as well as social capital are greater than 0.35, suggesting that postmaterialism captures a distinct dimension of a country's culture. We have also conducted a factor analysis and the results show that 83.4% of the variance in postmaterialism measure is not correlated with other cultural variables.

results in the cross-country sample, and in Section 7, we conclude.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Literature Review

Studies have shown that national culture plays an important role in corporate behavior and decisions. To characterize culture in different societies, some researchers have proposed the concept of cultural dimensions (e.g., Hofstede 1980, 2001; Schwartz 1994, 2004). In Hofstede's cultural framework, there are four dimensions that describe a society's culture: power distance, uncertainty avoidance, masculinity, and individualism. In contrast, Schwartz's culture values include seven aspects: affective autonomy, egalitarianism, embeddedness, harmony, hierarchy, intellectual autonomy, and mastery. Using those cultural dimensions to represent national culture, some studies have examined the influence of culture on corporate finance and accounting. Chui, Lloyd, and Kwok (2002) and Li et al. (2011) show the importance of cultural values on capital structure decisions. Countries with high mastery and conservatism value have low corporate leverage ratios. Hilary and Hui (2009) use religiosity to explain the variance of corporate risk exposure and investment rate across countries. Firms in high religiosity countries are unwilling to undergo risk exposure and therefore invest less. Shao, Kwok, and Guedhami (2010) use two of Schwartz's culture dimensions, conservatism and mastery, to study corporate dividend payout policies. They find firms with high conservatism and low mastery culture pay more dividends. Using uncertainty avoidance to measure risk tolerance among different nations, Frijns, Gilbert, Lehner, and Tourani-Rad (2013) propose that low risk tolerance causes CEOs to demand high premiums on takeover decisions. Li, Griffin, Yue, and Zhao (2013) and Kanagaretnam, Lim, and Lobo (2014) interpret firm's risk-taking or conservative behavior from a cultural perspective. Individualism culture leads to risk-taking behavior, while uncertainty avoidance and harmony culture are related to conservative behavior. Han, Kang, Salter, and Yoo (2010)'s cross-country study verifies that managers' cultural value affects their earnings discretion—uncertainty avoidance culture inhibits earnings management, while individualism culture promotes it.

Researchers have also attempted to examine the impact of culture on corporate tax issues, such as tax systems (Richardson 2007), tax structure (Koenig and Wagener 2012), and tax avoidance behavior. Several studies in early years find that under different cultural contexts, diversity exists in tax avoidance patterns (e.g., Chan, Troutman, and O'Bryan 2000; Coleman and Freeman 1997; Frey and Weck-Hannemann 1984; Richardson 2005; Strümpel 1969). However, these studies have not examined the effects of specific cultural dimensions. In recent decades, several papers focus on how specific cultural dimensions relate to tax avoidance. Tsakumis, Curatola, and Porcano (2007) develop an international tax compliance framework with cultural explanations. Using tax data from 50 countries and Hofstede's cultural values, they characterize a country that is tax non-compliant as having high uncertainty avoidance culture, low individualism culture, low masculinity culture, and high power distance culture. Bame-Aldred, Cullen, Martin, and Parboteeah (2013) identify specific cultural values that influence tax avoidance—individualism and humane orientation. DeBacker et al. (2015) investigate corruption culture and its impact on tax-sheltering behavior and show that corporations with foreign owners from more corrupt countries have more tax non-compliance activities in the United States. Kanagaretnam et al. (2018) document that societal trust is negatively related to tax avoidance.

A novel and interesting aspect of cultural value identified as postmaterialism has received recent attention in the accounting and finance research fields. Developed by Inglehart (1971, 1977), postmaterialism characterizes the tendency of individuals to place less value on material goals, such as economic and physical security, and more value on non-material goals, such as autonomy and self-expression. Postmaterialism is characterized as the transformation from materialism, a way of life in which an individual displays an attachment to worldly possessions and material needs and desires (Belk 1985; Richins and Rudmin 1994). Hence, we treat postmaterialism as an opposite value to materialism.

Existing literature has shown that postmaterialism plays a significant role in explaining economic behavior and outcomes. For example, Uhlaner and Thurik (2007) find that entrepreneurial activity is negatively influenced by the value of postmaterialism across countries. Koenig and Wagener (2012)

argue that the postmaterialistic lifestyle contributes to the tax structure of a society, as more people pay personal income taxes rather than corporate taxes. Jordaan, Dima, and Golet (2016) present a positive association between postmaterialism and the size of stock markets. Using CEOs' ownership of luxury assets to measure their materialism, Davidson, Dey, and Smith (2015) find that materialistic or unfrugal CEOs increase the probability of insiders engaging in fraud and financial misreporting behaviors. Davidson, Dey, and Smith (2018) further provide evidence that firms led by materialistic CEOs have lower corporate social responsibility (CSR) scores, fewer strengths, and more weaknesses. Bushman, Davidson, Dey, and Smith (2018) show that when bank CEOs are materialists, there are weaker risk management policies, more aggressive insider trading by non-CEO executives, and more downside tail risk in the banks. In summary, although it is clear that postmaterialism culture influences the economy and corporate behavior, the question of how it affects corporate tax reporting has remained unanswered.

2.2 Hypothesis Development

Researchers from such disciplines as philosophy, psychology, anthropology, and political economy have shown that postmaterialism is a fundamental aspect of an individual's value system. According to Inglehart (1997), nowadays the whole world exhibits a transformation of individual values from emphasizing on material goods (such as consumption, wealth, and income) to emphasizing on immaterial goods (such as belongingness, sense of community, and social equity). However, the level of postmaterialism has great cross-country heterogeneity, even among developed OECD countries (Koenig and Wagener 2012). The extent to which people evaluate non-material goods varies substantially across regions with some individuals prioritizing non-material goods, others with moderate views, and the rest less concerned about them.

Postmaterialists are less sensitive to monetary incentives, including changes in prices, wages, and taxes. Their behaviors are less likely driven by achievement motivation and less responsive to economic rewards (Inglehart 1990, 1997). Postmaterialistic individuals are also characterized as more generous and show concern for others and the environment (Davidson et al. 2018). Moreover, in frugal

(non-materialistic) firms, Anderson and Lillis (2011) show that managers are more disciplined to spend money in the way consistent with long-term corporate goals. Postmaterialistic CEOs are not only concerned about shareholders, but also other stakeholders such as employees, customers, and external communities (Davidson et al. 2018). Therefore, we propose that firms with owners from countries with a high degree of postmaterialism may pursue more non-material goals, such as social status and responsibility, and are less concerned about maximizing firm profits. Such firms are more disciplined, more likely to obey tax rules and regulations, and therefore less interested in tax-sheltering activities.

In contrast to postmaterialists, materialistic individuals prefer possessions and material needs and are more likely to bend moral rules and engage in unethical behaviors to fulfill their desires (Muncy and Eastman 1998). Richins and Rudmin (1994) characterize materialism as a single-minded pursuit of happiness through acquisition or possession. Strong materialism also implies lacking a sense of community, which could in turn make people less sensitive to behaviors that negatively affect others (Belk 1988). Similarly, in firms with materialist owners or managers, they tend to be less generous, have less concern for others, and are less sensitive as to how their actions affect the community and environment. As Davidson et al. (2018) argue, materialistic CEOs pursue profits at the expense of the environment and other elements of corporate social responsibility. Moreover, CEO materialism increases a firm's fraudulent financial reporting risk (Davidson et al. 2015). We thus conjecture that for firms with a high level of materialism culture, corporate behaviors are more likely to be driven by monetary motivations. Such firms are less willing to share their possessions and wealth, and they behave more aggressively in tax reporting with a greater tendency to act dishonestly. In order to save more cash, materialistic firms are more likely to engage in a high level of tax avoidance. Accordingly, we hypothesize a negative (positive) association between postmaterialism (materialism) and corporate tax avoidance.

However, postmaterialism may also positively impact corporate tax avoidance. Kravtsova et al. (2017) suggest a positive effect of postmaterialism on corruption. They argue that postmaterialists might be less sensitive to bribery because they are more emancipated, individualistic, and likely to

deviate from traditional social norms (Inglehart 1997). Postmaterialists tend to be more individualistic and hence could also be more tolerant towards socially unacceptable activities such as bribery because it helps to fulfill personal aspirations (Bauman 2009). As tax avoidance is also considered as a socially unacceptable behavior, we expect that postmaterialism may also promote tax avoidance.

Corporate culture typically is a top-down corporate policy and a firm's top managers set the tone for corporate culture. In addition, Schein (1992) proposes the theory of internal integration suggesting that employees try to develop values and beliefs consistent with corporate culture through daily socialization. Thereby, the culture of a firm's home country should have an overwhelming influence on the culture of its overseas branches. Moreover, corporate tax planning, as a critical corporate decision, is determined by a firm's top executives (Dyreng, Hanlon, and Maydew 2010). As such, the tax avoidance activities in foreign-owned firms are more likely to be shaped by the culture of these firms' home countries than local Chinese culture.

Based on the aforementioned competing views about the effects of postmaterialism on tax avoidance, we propose the following null hypothesis:

H1: *There is no association between postmaterialism culture and corporate tax avoidance.*

3. RESEARCH DESIGN

3.1 Data and Sample

The China STA implements an annual tax audit in selected firms.[2] Tax auditors examine the tax returns of selected firms and verify the accuracy of tax items. A tax adjustment occurs when the tax

[2] Determining the target firms of tax audit is an important part of the audit process. The tax authorities choose target firms based on manual selection, computer-aided selection, and whistle-blowing. The tax authorities may use some models to help select target firms, for example, comparing the key financial ratios between a firm and its industry peers. However, the selection models used by the tax authorities are confidential and the variables the tax authorities use to choose target firms are unavailable to us. In addition, we have no information which firms are audited by the tax authorities. We could only observe those firms which are audited *and* required to make audit adjustments by the tax authorities. As such, a selection model is not feasible in this case. To alleviate the potential selection bias concern, we control for those variables that may be used by the tax authorities to select target firms, such as lower ROA and lower ETR relative to industry peers. Untabulated results suggest that our findings are robust to the inclusion of these variables. We acknowledge the sample selection issue as a caveat.

auditors detect a misstatement (usually an understatement) in the tax returns and require the misstated firms to correct the misreporting and underpayment. In general, misstatements include errors or irregularities resulting from noncompliance with tax rules and regulations. When firms are required by the tax auditors to make upward adjustments to their tax liabilities, we refer to these firms as tax deficient firms (Chan, Lin, and Mo 2010; Chan and Mo 2000). China STA provides us the tax audit data of foreign-owned firms in China for academic research. Prior studies typically use effective tax rate (ETR), i.e., the ratio of income tax expense over pre-tax book income, as a proxy for tax avoidance (Hanlon and Heitzman 2010). However, effective tax rate is also influenced by a firm's business model, the difference between book income and taxable income, and the favorable tax treatments a firm receives. Our measure of tax avoidance, provided by China STA, captures the occurrence and magnitude of upward adjustment to tax liability requested by a tax auditor, and thus provides a direct measure of tax avoidance.

We collect postmaterialism data from the World Values Survey (WVS). The World Values Survey (www.worldvaluessurvey.org) is a worldwide questionnaire survey for studying individuals' changing attitudes and values in about 100 countries. The survey is conducted by a team of social scientists from all over the world, with its association and secretariat headquartered in Vienna, Austria. The team conducts surveys in non-continuous waves, with every wave covering a 4-year or 5-year period. Specifically, the waves include Wave 1 (1981-1984), Wave 2 (1990-1994), Wave 3 (1995-1998), Wave 4 (1999-2004), Wave 5 (2005-2009), Wave 6 (2010-2014), and Wave 7 (2017-2020). We utilize six questions in the questionnaire regarding people's attitudes towards material and non-material values to construct the postmaterialism index, which will be discussed in detail in Section 3.2.

We obtain the firm-level Chinese data from the China STA. More specifically, we obtain firm-level control variables from the financial statements reported to the China STA by firms. Country-level control variables such as GDP per capita, GDP growth, inflation, and unemployment rate are obtained from the World Bank. The rule of law, geographic distance, cultural indices, corruption index, education level, and political ideology are obtained from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), CEPII database, Hofstede (1980, 2001), Transparency International, Human

Development Index (HDI), and the World Values Survey, respectively.

The initial sample contains 8,023 firm-year observations of foreign-owned firms operating in China for the 2011–2014 period. We exclude observations with missing variables and obtain a final sample of 5,129 firm-year observations, which represent 1,812 unique foreign-owned firms in China. We do not delete loss firms in the Chinese sample because even firms reporting an accounting loss may still have to pay income tax due to the book-tax differences in China. To alleviate the impact of outliers, all continuous variables are winsorized at both 1% and 99% levels.

3.2 Model Specification

In order to investigate the relationship between postmaterialism and corporate tax avoidance behavior, we employ the following regression models:

$$Income\ tax\ deficiency_{i,t}\ (Turnover\ tax\ deficiency_{i,t}) = \alpha_0 + \beta_1 * Postmaterialism_s + \Sigma\beta_j * (Control_{i,t}) + Year + Industry + Province + \varepsilon_{i,t}, \quad (1)$$

where *i, s,* and *t* are subscripts for firm, country, and year, respectively. We investigate the effect of postmaterialism on tax avoidance by types of tax deficiency. Specifically, we focus on two types of tax deficiency: *Income tax deficiency* and *Turnover tax deficiency*. *Income tax deficiency* is an indicator variable that equals 1 if a firm has an income tax deficiency, i.e., the firm makes an upward adjustment to its corporate income tax liabilities required by the tax auditors, and 0 otherwise.[3] *Turnover tax deficiency* is an indicator variable that equals 1 if a firm has a turnover tax deficiency and 0 otherwise. Turnover tax refers to the taxes levied on sales revenues, including value-added tax, consumption tax, and business tax. In 2018, turnover tax accounts for 52.6% of China's total tax revenues, and corporate income tax accounts for 20.9% (China Taxation Yearbook 2019). Typically, corporate income tax is an accrual-based tax because the calculation of income tax liabilities involves lots of accounting estimations and discretion, while turnover tax is a cash-based tax because turnover tax is levied on

[3] We alternatively construct an indicator variable, which takes the value of 1 if the magnitude of audit adjustment is in the top decile of the sample and 0 otherwise. Our results are robust to this alternative measure of tax deficiency indicator.

sales revenues which is determined by a firm's invoiced amounts. We also follow Chan et al. (2000) and Chan et al. (2010) to use the magnitude of tax audit adjustment scaled by total assets at year-end (*Income tax deficiency_asset* and *Turnover tax deficiency_asset*) or sales revenue (*Income tax deficiency_sale* and *Turnover tax deficiency_sale*) to represent the degree of tax avoidance.[4]

Our key independent variable, *Postmaterialism*, is a 12-item postmaterialism index proposed by Inglehart (1977). Inglehart (1971) first proposes a 4-item postmaterialism index, which is built on two WVS questions (E003 and E004 in Appendix I) about people's perception of materialism or postmaterialism. Then Inglehart (1977) improves the measurement and proposes a more comprehensive 12-item postmaterialism index, which is built on six WVS questions (E001-E006 in Appendix I).[5] To illustrate our coding scheme, we use the respondents' answers to the questions E003 and E004 as an example. E003 and E004 ask: "*If you had to choose, which one of the things would you say is most important? And which would be the next most important?*" The four choices are "*maintaining order in the nation*", "*giving people more say in important government decisions*", "*fighting rising prices*", and "*protecting freedom of speech*", respectively. We assign a score of "1" to the answer which chooses "*giving people more say in important government decisions*" or "*protecting freedom of speech*" as the most important thing, and add another "1" to the answer which chooses either of the above two items as the next most important thing; and "0" otherwise. Other questions are coded similarly. Then in each wave and each country, we average the scores to get a "country-wave mean" (*Postmaterialism(raw)*), and use this mean value to represent the level of postmaterialism in the country. This raw postmaterialism score ranges from 0 (pure materialist) to 6 (pure postmaterialist) with an interval of 1. Then, scores between 0 and 3 are classified as having a materialistic tendency

[4] We also use ETR as a dependent variable in the Chinese sample. The coefficient on *Postmaterialism* is negative and insignificant. The results are reasonable because the Chinese sample firms are non-listed firms, which do not have financial reporting pressure to report a high accounting profit number. Thereby, these firms tend to report a lower accounting profit when engaging in tax avoidance activities, to camouflage their tax avoidance behavior by maintaining a normal level of ETR. As such, we could not identify tax misreporting firms based on their ETR levels. That is the reason we use the tax adjustment data obtained from the tax authority to measure tax avoidance. In fact, in untabulated results we find that tax misreporting firms actually have a higher ETR in the Chinese sample, suggesting that tax misreporting firms even report a high ETR to avoid being noticed by tax authorities. In contrast, the cross-country sample firms are listed firms, which suggests that those firms, when engaging in tax avoidance, will try to maintain a high accounting profit due to their financial reporting pressure. As such, a low ETR indicates a high likelihood of tax avoidance for these firms. Thereby, we use ETR to measure tax avoidance in the cross-country sample.

[5] We provide the six WVS questions and how we construct the postmaterialism measure in Appendix I. In untabulated results, we alternatively use Inglehart's (1971) 4-item postmaterialism index and our results remain robust.

and scores between 3 and 6 are classified as having a postmaterialistic tendency. Appendix I illustrates in detail how we construct the postmaterialism index.

We also construct a modified postmaterialism index by considering the difference between a respondent's first and second choices (Kravtsova et al. 2017). Specifically, if a respondent chooses a postmaterialistic item (e.g., self-expression, environmental protection, humanity, and creativity) as his/her first choice, we assign a score of "1". If the respondent chooses a postmaterialistic item as his/her second choice, we assign a score of "0.5"; and "0" otherwise. In such way, we give a weight to the first-choice postmaterialism item twice as large as that to the second-choice postmaterialism item. We average the scores by country and wave and obtain a modified postmaterialism score (*Postmaterialism(modified)*) ranging from 0 (pure materialist) to 4.5 (pure postmaterialist) with an interval of 0.5.[6]

Furthermore, following Koenig and Wagener (2012), we consider removing the influence of individual respondents' demographic and socio-economic characteristics on their choice. We thus regress the postmaterialism value on individual characteristics (including gender, age, education, income, employment status, religiosity, and political orientation) and country fixed effects in the following model:

$$\begin{aligned} Postmaterialism(raw) = {} & \gamma_0 + \gamma_1 * Male + \gamma_2 * Age + \gamma_3 * Age^2 + \gamma_4 * Educationlevel \\ & + \gamma_5 * Unemployed + \gamma_6 * Medianincome + \gamma_7 * Highincome + \gamma_8 * Left \\ & + \gamma_9 * Right + \gamma_{10} * Noreligiousaffliation + Country + \varepsilon, \end{aligned} \quad (2)$$

where we use the country fixed effects (*Country*) as the residual postmaterialism value (*Postmaterialism(residual)*).[7] Boone, Khurana, and Raman (2013) find that firms in more religious

[6] To check the sensitivity of our results to alternative measures of the postmaterialism index, we also use the "country-wave median" of the scores. In addition, we measure postmaterialism based on the percentage of people in a country preferring postmaterialism (whose raw postmaterialism score is greater than 3, or whose modified postmaterialism score is greater than 2). Our results are robust when using these two alternative measures of postmaterialism index.

[7] Chen, Hribar, and Melessa (2018) suggest to include first-stage independent variables in the second stage when using first-stage residuals as a *dependent* variable in the second stage. We, however, use first-stage residuals as an *independent* variable in the second stage. According to the footnote 4 in Chen et al. (2018), "When residuals are used as an independent variable in a second-step regression, the coefficient estimate on the residuals in the second regression is the same as would be obtained if the first-step dependent variable and all the first-step regressors were included as independent variables in the second

U.S. counties are less likely to avoid taxes. Their main argument is that people with religious affiliation tends to be more risk averse and hence they are less likely to avoid taxes which involves significant uncertainty and possible penalties and damage to reputation. By introducing the religiosity indicator in Model (2), we also aim to filter out any potential impact of religiosity on firms' tax avoidance behavior.

In Appendix III, we report the regression results. We find that personal characteristics such as education level, income class, political and religious belief influence people's attitudes towards postmaterialism. Specifically, people who are highly educated, being political "left", and have no religious affiliation are more of a postmaterialist, while people who are in the middle-income class are more materialistic. These results are similar to Koenig and Wagener (2012)'s findings. Using the residual value of postmaterialism can better capture a country's attitudes towards postmaterialism by removing the impacts of individual characteristics. In all the following empirical tests, we report the results of the raw, modified, and residual postmaterialism value for robustness.

Following prior tax avoidance studies (e.g., Atwood, Drake, Myers, and Myers 2012; Dyreng, Hanlon, and Maydew 2010; Hoi, Wu, and Zhang 2013; Kubick, Lynch, Mayberry, and Omer 2015; McGuire, Wang, and Wilson 2014), we include several firm-level characteristics that influence corporate tax avoidance. We control for firm size (*Size*), leverage (*Lev*), and tangible assets (*PPE*). We also control for financial performance, including return on assets (*ROA*), net operating loss (*NOL*), change in net operating loss (*DNOL*), and revenue growth (*Salesgrowth*). In addition, we control for cross-border business proxied by whether or not the firm exports (*Export*). We further control for country-level characteristics including: legal enforcement (*Ruleoflaw*), GDP per capita (*GDP*), the geographical distance between the foreign country and China (*Distance*), GDP growth (*GDPgrowth*), inflation rate (*Inflation*), unemployment rate (*Unemployment*), education level (*Education*) and political ideology (*Politicalright*).[8]

regression."

[8] Kim, McGuire, Savoy, Wilson (2018) use a lead-lag model to test and find that expected GDP growth has a significant effect on tax reporting. However, the Chinese sample in our study covers a relatively short period of 2011-2014. As such, a lead-lag

In addition, we consider some cultural confounding factors at country level. First, a country's corruption level is strongly associated with social values (Husted 1999). Particularly, researchers find that corruption levels are lower in countries with higher scores of postmaterialism (O'Connor and Fisher 2011; Sandholz and Taagepera 2005; Welzel, Inglehart, and Kligemann 2003), although Kravtsova et al. (2017) document an inverted U-shaped relationship between postmaterialism and corruption. Since DeBacker et al. (2015) argue that corruption culture has a positive impact on corporate tax noncompliance activities, we control for corruption perception index (*CPI*).

Next, Hasan, Hoi, Wu, and Zhang (2017) show that social capital discourages tax avoidance. To control for the potential influence of social capital, following Knack and Keefer (1997) and Kanagaretnam, Lee, Lim, and Lobo (2018), we include social trust variable (*Trust*), which is measured by employing the responses to the question in the World Values Survey: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" We measure the level of social trust as the percentage of respondents who agree that "most people can be trusted" in their country. Lastly, we control for the cultural indices developed by Hofstede (1980, 2001): power distance (*PD*), individualism (*IDV*), masculinity (*MASC*), and uncertainty avoidance (*UA*). Power distance measures how people in a society expect and accept the inequality of hierarchy and power distribution. Individualism (collectivism) and masculinity (femininity) relate to people's preference for independence (interdependence) and achievement (caring). Uncertainty avoidance captures individual's feeling of being threatened by uncertainty or unknown situations. Appendix II provides detailed definitions for these variables.

To control for unobservable year-specific, industry-specific, and province-specific factors, we include year, industry, and province fixed effects in the regressions. We include province fixed effects because in China, the tax administration is organized by the State Tax Administration (STA) and the Provincial Tax Administration (PTA). STA and PTA are separately in charge of different types of tax. For example, value-added tax and consumption tax are collected by the STA, while business tax and

model will result in a significant attrition in sample size. We control for the expected GDP growth in the cross-country sample and our results remain valid.

income tax are collected by the PTA. Although the national and sub-national tax authorities have different functions, they all need to obey the policies set by the national tax bureau, i.e., STA.[9] We use a linear probability model (LPM) when the dependent variables are indicator variables (i.e. *Income tax deficiency* and *Turnover tax deficiency*), and use an OLS model when the dependent variables are continuous variables (i.e. *Income tax deficiency_asset, Turnover tax deficiency_asset, Income tax deficiency_sale,* and *Turnover tax deficiency_sale*). We cluster standard errors by firm to correct for time-serial correlation (Peterson 2009).

4. MAIN EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 1, Panel A presents the descriptive statistics of variables used in Model (1). There are 7.2% (14.7%) of firms which are requested by tax auditors to make upward adjustment to their income (turnover) tax liabilities in our sample, suggesting a substantial proportion of firms understate their tax liabilities in tax returns. Table 1, Panel B shows that firms from Thailand have the highest percentage (27.3%) of income tax adjustment, followed by Netherlands (20.8%), South Korea (14.5%), and Malaysia (13.3%), while none of Swedish firms are requested to adjust their tax liabilities. Turnover tax adjustments exhibit a similar pattern.

Table 1, Panel A also shows that the mean (median) raw postmaterialism score is 2.560 (2.661), which suggests that the materialists slightly outweigh postmaterialists in the sample.[10] The mean (median) modified postmaterialism score is 1.804 (1.879), and the mean (median) residual postmaterialism score is 0.173 (0.271). Table 1, Panel C presents the raw postmaterialism score by country. Sweden has the highest score of postmaterialism values (3.147) during the period of 2010-2014 (Wave 6), whereas the United States has the lowest score (2.049), suggesting that Americans are more concerned with monetary and economic goals.

[9] Our key findings are robust when controlling for the province-by-year fixed effects in the regressions.
[10] The raw postmaterialism score ranges from 0 to 6. Hence, a score of 3+ indicates postmaterialists whereas a score of 3- indicates materialists.

Table 1, Panel D presents the sample by industry. About half of the sample firms come from the manufacturing industry. Firms in the manufacturing and mining industries have the highest likelihood of income tax deficiency, while firms in the accommodation and catering, and software and information technology industries have a lower likelihood of income tax deficiency. Firms in administration of water, environment and public facilities as well as culture, sports, and entertainment industries have zero likelihood of income tax deficiency. Turnover tax deficiency exhibits a similar pattern.

4.2 Main Regression Results

Table 2 presents the results of estimating Model (1). Panel A reports the results using income tax deficiency as the dependent variable. The dependent variables in Columns (1)-(3), (4)-(6), and (7)-(9) are *Income tax deficiency*, *Income tax deficiency_asset*, and *Income tax deficiency_sale*, respectively. We use the raw, modified, and residual postmaterialism values as the key independent variables, respectively. We find the coefficients on *Postmaterialism* in Columns (1)-(9) are all significantly negative at the 5% level or above, suggesting that home country's attitudes towards material and post-material life goals have a significant effect on corporate tax avoidance activities. Specifically, if a firm comes from a country attaching a higher value to immaterial goals, this firm is less likely to engage in tax avoidance activities. The results are not only statistically significant but also economically significant: for example, a one standard deviation increase in the raw postmaterialism score is associated with a 0.26 standard deviation decrease in income tax deficiency as a percentage of sales (0.255*(-0.394)/0.393=0.26). Panel B reports the results using turnover tax deficiency as the dependent variable. *Postmaterialism* is negatively but statistically insignificantly correlated with turnover tax deficiency. This suggests that accrual-based income tax avoidance (cash-based turnover tax avoidance) is more (less) sensitive to our culture factor. In summary, our results reveal that when a firm's owner coming from a country with a higher score of postmaterialism, the firm is less likely to engage in income tax avoidance behavior.[11]

[11] The results are robust to removing each country (or region) at a time from the sample and the removal of loss firms.

Turning to the control variables, we find that firms with large size and low leverage tend to avoid more tax, consistent with Hoi et al. (2013). In addition, we find firms from countries with high social trust avoid more tax, consistent with the view that lower agency conflicts promote value-added tax planning activities (Dyreng et al. 2008; Atwood et al. 2012). Firms from countries with high GDP growth, high unemployment rate, and low education level also engage in more tax avoidance activities.[12]

5. THE MODERATING EFFECT OF TAX ENFORCEMENT

In this section, we investigate how the level of tax enforcement strength moderates the relation between postmaterialism and tax avoidance. Studies have documented an interactive relationship between culture and formal institutions (Alesina and Giuliano 2015). Tax enforcement as a formal institution may moderate the relation between postmaterialism culture and tax avoidance positively or negatively. On the one hand, tax enforcement may enhance the postmaterialism effect on tax avoidance. Prior studies suggest that culture and institutions can be complements (Bisin and Verdier 2017; Carlin, Dorobantu, and Viswanathan 2009). For example, Alesina and Giuliano (2015) believe a high level of trust in the society helps legal institution to work better. Bisin and Verdier (2017) develop a theoretical framework which characterizes conditions on the socio-economic environment such that culture and institutions complement each other to spur economic growth. Similarly, strong tax enforcement may help the postmaterialism effect work better, because in strong tax enforcement provinces firms engaging in tax avoidance are facing higher punishment risks. As postmaterialists

[12] We also try to investigate the mechanisms through which the postmaterialism culture affects tax avoidance behavior. Postmaterialism could discourage tax avoidance by reducing managers' utility from monetary gain or increasing managers' sensitivity to reputation/social status. We use firm size as a partitioning variable to disentangle the monetary utility mechanism from the social status mechanism. Managers in larger firms typically receive higher compensation compared to those in smaller firms. The diminishing marginal utility of monetary gain suggests that managers in larger firms (and thus with higher compensation) derive less utility from a marginal dollar gain compared to those in smaller firms. In other words, managers in smaller firms derive more utility from monetary gain, and thereby have a stronger incentive to engage in tax avoidance. If postmaterialism limits tax avoidance through the mechanism of reducing managers' utility from monetary gain, we should observe that the postmaterialism effect is more pronounced in smaller firms (*the monetary utility mechanism*). In contrast, managers in larger firms tend to attach greater importance to their reputation and social status than those in smaller firms, because they receive more attention from the media and their misbehaviors will be quickly publicized by the media. As such, if postmaterialism limits tax avoidance through the mechanism of increasing managers' sensitivity to social status, we should observe that the postmaterialism effect is more pronounced in larger firms (*the social status mechanism*). Untabulated results suggest that the postmaterialism effect is significant in the small firm group but insignificant in the large firm group. The coefficient on postmaterialism is also larger in magnitude in the small firm group compared to that in the large firm group, although the difference between these two coefficients is not statistically significant. Taken together, we find some evidence supporting the monetary utility mechanism.

attach a higher value to reputation and social status, they tend to reduce tax avoidance activities in strong-tax-enforcement regions to avoid the loss of reputation and social status when caught by tax authorities. On the other hand, tax enforcement may mitigate the postmaterialism effect on tax avoidance. Postmaterialism represents an idiosyncratic preference away from material gain. As such, enforcement may have a stronger effect on materialists' tax avoidance behavior as materialists are more sensitive to the monetary losses arising from tax penalties. Therefore, it is unclear whether and how tax enforcement moderates the relationship between postmaterialism and tax avoidance.

We use the concept of "tax effort" as developed by Lotz and Morss (1967), Newlyn (2002), Mertens (2003), and Xu, Zeng, and Zhang (2011) to depict tax enforcement. Tax effort refers to the amount of effort tax authorities exert when they collect tax revenues in one region or country (Lotz and Morss 1967). It is calculated as the ratio of actual tax collection to the predicted tax collection. Predicted tax shares are the fitted value of estimating the following Model (3) at the provincial level:

$$T/GDP_{j,t} = \theta_0 + \theta_1 * IND1/GDP_{j,t} + \theta_2 * IND2/GDP_{j,t} + \theta_3 * OPENNESS/GDP_{j,t} + \varepsilon_{j,t}\,, \quad (3)$$

where j and t are subscripts for province and year, respectively. *T/GDP* is the tax revenue of province j at year t scaled by the province j's GDP at year t, *IND1/GDP* is the primary sector's GDP of province j divided by province j's GDP at year t, *IND2/GDP* is the secondary sector's GDP of province j divided by province j's GDP at year t, and *OPENNESS/GDP* is the sum amount of import and export of province j at year t scaled by province j's GDP, multiplied by 1000. Chinese National Statistics Bureau classifies all industries into three sectors. The primary sector includes agriculture, forestry, animal husbandry, and fishing industries. The secondary sector refers to the manufacturing industries; and the tertiary sector denotes the services industries. Tax enforcement (*TE*) equals the ratio of actual and predicted value of *T/GDP*. We report the results of estimating Model (3) in Appendix IV. We find that, a province has lower tax revenues if its GDP is mainly generated from the primary and secondary sectors, and has higher tax revenues if the province has a greater level of economic openness. These results are consistent with Xu (2010).

We divide our sample into two equal groups based on the median value of *TE*. We then re-run Model (1) within the high tax enforcement (high *TE*) group and the low tax enforcement (low *TE*) group. The regression results are presented in Table 3. The results show that the estimated coefficient on *Postmaterialism* is significantly negative for the high tax enforcement group (Columns (2), (4), and (6)), while the coefficient is negative but statistically insignificant for the low tax enforcement group, suggesting a complementary effect between postmaterialism and tax enforcement. Nevertheless, the results should be interpreted with caution, since the difference in the coefficient on *Postmaterialism* between the two groups is statistically significant merely at the 10% level. In summary, we find some evidence that the association between postmaterialism and tax avoidance is more pronounced when tax enforcement is high.

6. EXTERNAL VALIDITY: EVIDENCE FROM THE CROSS-COUNTRY SAMPLE

In this section, we follow Jacob, Michaely, and Müller (2019) to extend the sample to an international dataset that includes data from 21 countries over 22 years. Since the Chinese sample has a limited range of data, the results from our cross-country sample are valuable in assessing how people's postmaterialism beliefs affect corporate tax avoidance and add external validity when combined with the results from the Chinese sample.

We collect corporate tax and financial data in 21 countries from the Compustat North America and Global database over the 1993–2014 period. The sample begins in 1993 because it is the first year that corporate statutory tax rate information was made available. The postmaterialism data is still obtained from the World Values Survey, including the period of Wave 2 to Wave 6. Similar to the Chinese sample, we also use data from OECD database, the World Bank, Hofstede (1980, 2001), Transparency International, Human Development Index (HDI), and World Values Survey to control for country-level differences among sample countries. After excluding firm-years with negative pre-tax income, firms in the financial and utility industries, and variables with missing values, we finally obtain 94,062 firm-year observations. We delete firm-year observations with negative pre-tax income here because we measure effective tax rate (ETR) as the ratio of income tax to pre-tax income and it is

meaningless to calculate ETR when pre-tax income is negative. The model we use to test the hypothesis is shown below:

$$Tax\ Avoidance_{i,t} = \alpha_0 + \beta_1 * Postmaterialism_{s,k} + \Sigma\beta_j * (Control_{i,t}) + Year + Industry + \varepsilon_{i,t}, \quad (4)$$

where *i, s, k*, and *t* are subscripts for firm, country, wave, and year, respectively. As we could not obtain the proprietary tax adjustment data for the cross-country sample firms, we use the traditional proxies for tax avoidance (*Tax Avoidance*) in Model (4): *NGAAPETR*, *ATA_GAAP*, and *ATA_GAAP**. *NGAAPETR* is (-1) * effective tax rate. Effective tax rate (*GAAPETR*) is computed as total income tax expenses divided by pre-tax book income (excluding special items). *ATA_GAAP* is the corporate statutory income tax rate in one country minus a firm's effective tax rate (Li, Maydew, Willis, and Xu 2019). We further scale *ATA_GAAP* by the country statutory income tax rate, which is denoted as *ATA_GAAP**. Higher level of *NGAAPETR*, *ATA_GAAP*, and *ATA_GAAP** indicates more tax avoidance. Similarly, we construct *NCASHETR*, *ATA_CASH*, and *ATA_CASH** using cash income tax paid to calculate effective tax rate.

The independent variable *Postmaterialism* is the same as that in Model (1), which includes the raw, modified, and residual values. Firm-level control variables include firm size (*Size*), leverage (*Lev*), property, plant, and equipment scaled by total assets (*PPE*), return on assets (*ROA*), sales growth rate (*Salesgrowth*), R&D expenses scaled by total assets (*RD*), and international operations indicator (*International*). On the country level, we control for the statutory corporate tax rate in the home country (*Taxrate*), the country's log of GDP per capita (*GDP*), the strength of tax enforcement in the country (*Taxenf*), the country's legal origin (*Commonlaw*), the cross-sectional, pre-tax earnings volatility by country-year (*Earnvol*), GDP growth (*GDPgrowth*), inflation rate (*Inflation*), unemployment rate (*Unemployment*), education level (*Education*) and political ideology (*Politicalright*). Similar to the Chinese sample, we include corruption level (*CPI*), social trust (*Trust*), power distance (*PD*), individualism (*IDV*), masculinity (*MASC*), and uncertainty avoidance (*UA*) to disentangle postmaterialism with other cultural factors.[13] Detailed variable definitions are provided in

[13] In untabulated results, we further follow Kim et al. (2018) and control for expected GDP growth in a lead-lag model. Our

Appendix II. We also include year and industry fixed effects in the regressions, and cluster standard errors by firm.

In Table 4, Panel A, we present the descriptive statistics of variables used in Model (4). The mean value is 0.321 for *GAAPETR*, and 0.057 (0.160) for *ATA_GAAP* (*ATA_GAAP**). This implies that a typical firm pays taxes at a lower rate than the statutory income tax rate. The mean value for *CASHETR*, *ATA_CASH*, and *ATA_CASH** are 0.238, 0.115, and 0.305, respectively. Note that the sample size is substantially reduced for those cash-based ETR measures, because many firm-year observations lack sufficient information to calculate cash ETR. As for the raw postmaterialism score, the whole sample exhibits a small tendency toward a materialistic attitude (the mean score is 2.556) and differs substantially among countries (the minimum is 1.974 and the maximum 3.606). Table 4, Panel B reports tax avoidance by country. Based on our tax avoidance measures, firms in Japan, Italy, and Finland exhibit a large degree of tax compliance, with a negative value of *ATA_GAAP* (and *ATA_GAAP**). Indian, American, and Canadian firms, however, engage in substantive tax avoidance, as they have large positive differences between the statutory tax rate and the effective tax rate.

Table 5 presents the regression results from estimating Model (4). Panel A reports the results using *NGAAPETR*, *ATA_GAAP*, and *ATA_GAAP** as dependent variables. The key independent variables are raw, modified, and residual postmaterialism values, respectively. We find a negative coefficient on *Postmaterialism* significant at 1% level throughout all the nine columns. A higher score of postmaterialism results in a larger effective tax rate and a smaller difference between the effective tax rate and the statutory tax rate, indicating that a high degree of postmaterialistic belief discourages corporate tax avoidance behaviors. Panel B reports the results using *NCASHETR*, *ATA_CASH*, and *ATA_CASH** as dependent variables. We get similar results as those reported in Panel A.

To further disentangle the postmaterialism culture effect from the time-invariant unobservable country/firm factors, we control for country/firm fixed effects. Untabulated results reveal that our

main findings remain robust.

findings are robust to the inclusion of country/firm fixed effects.

The results in cross-country sample are essential for validating that our Chinese sample results are not unique. Both samples of foreign-owned firms in China and firms from 21 different countries reveal a negative relationship between people's preference for postmaterialism and corporate tax avoidance.

7. CONCLUSION

This study investigates the link between postmaterialism culture and corporate tax avoidance in China and across countries. We use a proprietary dataset of tax audits of foreign-owned firms in China and find that a high level of postmaterialism in a firm's home country relates to less tax avoidance in the firm. We also find some evidence that the negative association between postmaterialism and tax avoidance is more pronounced when regional tax enforcement is stronger. In addition to the Chinese sample, we obtain consistent results when we use a larger cross-country sample to test the external validity of our results.

We alleviate the concern of country-level omitted institutional variables by using the setting of foreign-owned firms in China, where decision makers are influenced by foreign culture, but the corporate operations are located in China. In other words, foreign-owned firms face similar institutional environment in China, while make corporate tax planning decisions under the influence of foreign culture. We also improve the measurement of tax avoidance by using the occurrence and magnitude of upward adjustment to tax liabilities requested by the tax auditors, which provides a direct measure of tax avoidance. Overall, our findings add to the literature of international tax avoidance from the perspective of national culture of postmaterialism.

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Appendix I Using the WVS Questions to Construct the Postmaterialism Index

This Appendix presents the WVS questions we use to construct the postmaterialism index.

The WVS questions and choices	Classification	Raw/modified score if people choose this item as the first choice	Raw score if people choose this item as the second choice	Modified score if people choose this item as the second choice
E001 and E002: People sometimes talk what the aims of this country should be for the next ten years. On this card are listed some of the goals which different people will give top priority. Would you please say which one of these you, yourself, consider the most important?				
A high level of economic growth	Materialism	0	0	0
Strong defense forces	Materialism	0	0	0
People have more say about how things are done	Postmaterialism	1	1	0.5
Trying to make our cities and countryside more beautiful	Postmaterialism	1	1	0.5
E003 and E004: If you had to choose, which one of the things would you say is most important? And which would be the next most important?				
Maintaining order in the nation	Materialism	0	0	0
Giving people more say in important government decisions	Postmaterialism	1	1	0.5
Fighting rising prices	Materialism	0	0	0
Protecting freedom of speech	Postmaterialism	1	1	0.5
E005 and E006: In your opinion, which one of these is most important?				
A stable economy	Materialism	0	0	0
Progress toward a less impersonal and more humane society	Postmaterialism	1	1	0.5
Progress toward a society in which ideas count more than money	Postmaterialism	1	1	0.5
The fight against crime	Materialism	0	0	0

Appendix II Variable Definitions

Variable	Definition
Chinese sample:	
Income tax deficiency	An indicator variable, equal to 1 if a firm has an income tax deficiency, i.e., the firm makes an upward adjustment to its income tax liabilities requested by the tax auditor, and 0 otherwise. Source: China STA.
Income tax deficiency_asset	The amount of a firm's upward adjustment to its income tax liabilities requested by the tax auditor, scaled by total assets at year-end. Source: China STA.
Income tax deficiency_sale	The amount of a firm's upward adjustment to its income tax liabilities requested by the tax auditor, scaled by sales revenues. Source: China STA.
Turnover tax deficiency	An indicator variable, equal to 1 if a firm has a turnover tax deficiency, i.e., the firm makes an upward adjustment to its turnover tax liabilities requested by the tax auditor, and 0 otherwise. Turnover taxes refer to value-added tax, consumption tax, and business tax. Source: China STA.
Turnover tax deficiency_asset	The amount of a firm's upward adjustment to its turnover tax liabilities requested by the tax auditor, scaled by total assets at year-end. Source: China STA.
Turnover tax deficiency_sale	The amount of a firm's upward adjustment to its turnover tax liabilities requested by the tax auditor, scaled by sales revenues. Source: China STA.
Postmaterialism(raw)	The raw postmaterialism index constructed based on six World Values Surveys (WVS) questions. See Appendix I for details. We use the country-wave mean of respondents' scores as the raw postmaterialism value, which ranges from 0-6. Source: World Values Survey.
Postmaterialism(modified)	The modified postmaterialism index constructed based on six World Values Surveys (WVS) questions. See Appendix I for details. We use the country-wave mean of respondents' scores as the modified postmaterialism value, which ranges from 0-4.5 (Kravtsova et al., 2017). Source: World Values Survey.
Postmaterialism(residual)	The residual postmaterialism index. We regress the raw postmaterialism index on individual characteristics including gender, age, education, income, employment status, religiosity, political orientation, and the country fixed effects. We use the estimated country fixed effects as the residual postmaterialism value (Koenig and Wagener, 2012). Source: Estimated by the authors.
Size	Natural logarithm of total assets. Source: China STA.
Lev	Total debts divided by total assets at year-end. Source: China STA.
PPE	Property, plant, and equipment scaled by total assets at year-end. Source: China STA.
ROA	Return on assets, calculated as net income divided by total assets at year-end. Source: China STA.
NOL	An indicator variable, equal to 1 if the firm reports a negative pre-tax income and 0 otherwise. Source: China STA.
DNOL	Change in *NOL*. Source: China STA.
Salesgrowth	Sales growth, computed as the yearly change in sales revenue divided by lagged sales revenue. Source: China STA.

Export	An indicator variable, equal to 1 if the firm has exports and 0 otherwise. Source: China STA.
GDP	Natural logarithm of a country's GDP per capita. Source: World Bank.
Ruleoflaw	A country's score of rule of law. Source: La Porta et al. (1998).
Distance	The distance between the largest city of a country and Beijing. Source: CEPII database.
CPI	Corruption Perception Index. Source: Transparency International.
PD	Power distance. Source: Hofstede (1980, 2001).
IDV	Individualism. Source: Hofstede (1980, 2001).
MASC	Masculinity. Source: Hofstede (1980, 2001).
UA	Uncertainty avoidance. Source: Hofstede (1980, 2001).
Trust	Social trust. We measure social trust by employing the responses to the question in the World Values Survey: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" Source: World Values Survey.
GDPgrowth	GDP growth rate. Source: World Bank.
Inflation	Inflation rate. Source: World Bank.
Unemployment	Unemployment rate. Source: World Bank.
Education	The percentage of people receiving college education in a country. Source: Human Development Index (HDI).
Politicalright	The percentage of people being political right in a country. Source: World Values Survey.
T/GDP	The tax revenue of province *j* at year *t* scaled by the province *j*'s GDP at year *t*. Source: National Bureau of Statistics of China.
IND1/GDP	The primary sector's GDP of province *j* divided by province *j*'s GDP at year *t*. Source: National Bureau of Statistics of China.
IND2/GDP	The secondary sector's GDP of province *j* divided by province *j*'s GDP at year *t*. Source: National Bureau of Statistics of China.
OPENNESS/GDP	The sum amount of imports and exports of province *j* at year *t* scaled by province *j*'s GDP, multiplied by 1000. Source: National Bureau of Statistics of China.
Cross-country sample:	
NGAAPETR	(-1) * effective tax rate. Effective tax rate (*GAAPETR*) is computed as income tax expense divided by pre-tax book income (excluding special items). Source: Compustat.
ATA_GAAP	A country's corporate statutory income tax rate minus a firm's effective tax rate (Li et al., 2019). Source: OECD website and Compustat.
*ATA_GAAP**	*ATA_GAAP* scaled by a country's statutory income tax rate. Source: OECD website and Compustat.
NCASHETR	(-1) * cash effective tax rate (*CASHETR*). Cash effective tax rate is computed as cash income tax paid divided by pre-tax book income (excluding special items). Source: Compustat.
ATA_CASH	A country's corporate statutory income tax rate minus a firm's cash effective tax rate (Li et al., 2019). Source: OECD website and Compustat.
*ATA_CASH**	*ATA_CASH* scaled by a country's statutory income tax rate.

	Source: OECD website and Compustat.
Size	Natural logarithm of total assets at year-end. Source: Compustat.
Lev	Leverage, computed as the sum of long-term and short-term debts divided by total assets at year-end. Source: Compustat.
PPE	Property, plant, and equipment scaled by total assets at year-end. Source: Compustat.
ROA	Return on assets. Source: Compustat.
RD	R&D expenses scaled by total assets at year-end. Source: Compustat.
Salesgrowth	Sales growth rate. Source: Compustat.
International	An indicator variable, equal to 1 if the firm has international operations and 0 otherwise. Source: Compustat.
Earnvol	Cross-sectional pre-tax earnings volatility by country-year (Atwood et al., 2012). Source: Compustat.
Taxrate	A country's statutory corporate income tax rate. Source: OECD website.
GDP	Natural logarithm of a country's GDP per capita. Source: World Bank.
Taxenf	Managers' perception of the strength of tax enforcement in a country. Source: 1996 World Competitiveness Report.
Commonlaw	An indicator variable, equal to 1 if the country has a legal origin of common law and 0 otherwise. Source: La Porta et al. (1998).
PD	Power distance. Source: Hofstede (1980, 2001).
IDV	Individualism. Source: Hofstede (1980, 2001).
MASC	Masculinity. Source: Hofstede (1980, 2001).
UA	Uncertainty avoidance. Source: Hofstede (1980, 2001).
Trust	Social trust. We measure social trust by employing the responses to the question in the World Values Survey: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" Source: World Values Survey.
GDPgrowth	GDP growth rate. Source: World Bank.
Inflation	Inflation rate. Source: World Bank.
Unemployment	Unemployment rate. Source: World Bank.
Education	The percentage of people receiving college education in a country. Source: Human Development Index (HDI).
Politicalright	The percentage of people being political right in a country. Source: World Values Survey.
The World Values Survey respondents' personal characteristics:	
Male	An indicator variable, equal to 1 if the respondent is a male and 0 otherwise. Source: World Values Survey.
Age	The respondent's age. Source: World Values Survey.
Educationlevel	The respondent's education level. Source: World Values Survey.
Unemployed	An indicator variable, equal to 1 if the respondent is unemployed and 0 otherwise. Source: World Values Survey.
Medianincome	An indicator variable, equal to 1 if the respondent is in the middle-income class and 0 otherwise. Source: World Values Survey.
Highincome	An indicator variable, equal to 1 if the respondent is in the high-income class and 0 otherwise. Source: World Values Survey.

Left	An indicator variable, equal to 1 if the respondent is a political leftist and 0 otherwise. Source: World Values Survey.
Right	An indicator variable, equal to 1 if the respondent is a political rightist and 0 otherwise. Source: World Values Survey.
Noreligiousaffiliation	An indicator variable, equal to 1 if the respondent has no religious belief and 0 otherwise. Source: World Values Survey.

Appendix III Regression Results of Model (2)

This table presents the results of estimating Model (2). The dependent variable is *Postmaterialism(raw).* The independent variables are respondent's personal characteristics. *z*-statistics (*t*-statistics) are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. See Appendix II for variable definitions.

	Postmaterialism(raw)
	(1)
Male	-0.023
	(-1.493)
Age	-0.004
	(-1.210)
*Age*Age*	-0.007
	(-0.252)
Educationlevel	0.034***
	(4.118)
Unemployed	-0.023
	(-1.269)
Medianincome	-0.034*
	(-1.756)
Highincome	0.055
	(1.226)
Left	0.195***
	(4.167)
Right	-0.043
	(-1.412)
Noreligiousaffiliation	0.122***
	(3.679)
Constant	2.299***
	(31.806)
Country	Yes
Observations	59,214
R2	0.106

Appendix IV Regression Results of Model (3)

This table presents the results of estimating Model (3). The dependent variable is *T/GDP*. *z*-statistics (*t*-statistics) are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. See Appendix II for variable definitions.

	T/GDP
	(1)
IND1/GDP	-0.141***
	(-3.043)
IND2/GDP	-0.207***
	(-8.130)
OPENNESS/GDP	0.002***
	(3.454)
Constant	0.189***
	(10.346)
Year	Yes
Observations	124
R2	0.740

Table 1 Descriptive Statistics, Chinese Sample

This table presents descriptive statistics of variables we used in Model (1). Panel A reports the descriptive statistics in the Chinese sample, Panel B reports tax adjustments by country or region, and Panel C reports the raw postmaterialism index by country or region. In Panel C, the "." denotes the country or region is not covered by WVS for a certain wave. Panel D reports sample distribution by industry. See Appendix II for variable definitions.

Panel A: Descriptive statistics

Variable	N	Mean	Min	P25	P50	P75	Max	Std
Income tax deficiency	5,129	0.072	0.000	0.000	0.000	0.000	1.000	0.258
Income tax deficiency_asset	5,129	0.070	0.000	0.000	0.000	0.000	3.632	0.431
Income tax deficiency_sale	5,124	0.066	0.000	0.000	0.000	0.000	3.306	0.393
Turnover tax deficiency	5,155	0.147	0.000	0.000	0.000	0.000	1.000	0.355
Turnover tax deficiency_asset	5,155	0.078	0.000	0.000	0.000	0.000	3.725	0.452
Turnover tax deficiency_sale	5,150	0.082	0.000	0.000	0.000	0.000	3.993	0.477
Postmaterialism(raw)	5,129	2.560	2.049	2.505	2.661	2.661	3.147	0.255
Postmaterialism(modified)	5,129	1.804	1.399	1.751	1.879	1.879	2.270	0.199
Postmaterialism(residual)	5,129	0.173	-0.343	0.109	0.271	0.271	0.787	0.263
Size	5,129	11.620	7.080	10.500	11.510	12.790	15.710	1.699
Lev	5,129	0.574	0.000	0.344	0.559	0.763	2.036	0.331
ROA	5,129	0.106	-0.405	0.011	0.056	0.134	1.691	0.242
PPE	5,129	0.339	0.000	0.060	0.242	0.554	1.577	0.329
Salesgrowth	5,129	0.215	-0.876	-0.074	0.053	0.193	8.770	1.066
Export	5,129	0.113	0.000	0.000	0.000	0.000	1.000	0.316
NOL	5,129	0.173	0.000	0.000	0.000	0.000	1.000	0.378
DNOL	5,129	0.042	-1.000	0.000	0.000	0.000	1.000	0.372
GDP	5,129	8.560	5.350	8.220	8.220	8.980	10.000	0.905
Ruleoflaw	5,129	10.600	10.090	10.510	10.560	10.730	10.900	0.163
Distance (in 1,000 km)	5,129	3.806	0.956	1.976	1.976	2.098	10.990	3.484
PD	5,129	5.985	3.100	5.400	6.800	6.800	10.000	1.239
IDV	5,129	4.043	1.800	2.500	2.500	4.600	9.100	2.551
MASC	5,129	6.102	0.500	5.700	5.700	6.200	9.500	1.252
UA	5,129	4.173	2.900	2.900	2.900	4.600	9.200	2.094
CPI	5,129	0.757	0.340	0.740	0.750	0.770	0.930	0.058

Trust	5,129	0.449	0.085	0.388	0.483	0.483	0.674	0.058
GDPgrowth	5,129	2.629	-0.115	1.700	2.762	3.102	4.815	1.229
Inflation	5,129	2.384	-1.674	1.812	2.850	3.545	3.898	1.251
Unemployment	5,129	4.234	3.100	3.300	3.400	4.300	8.949	1.629
Education	5,129	6.955	3.600	6.100	6.700	6.900	12.000	1.192
Politicalright	5,129	0.063	0.028	0.047	0.047	0.083	0.177	0.030

Panel B: Tax adjustments by country or region

Country/Region	N	*Income tax deficiency*	*Income tax deficiency_asset*	*Income tax deficiency_sale*	*Turnover tax deficiency*	*Turnover tax deficiency_asset*	*Turnover tax deficiency_sale*
Australia	40	0.100	0.012	0.013	0.150	0.187	0.204
Germany	254	0.055	0.042	0.039	0.178	0.036	0.037
Hong Kong	3,290	0.067	0.057	0.060	0.142	0.083	0.095
Japan	495	0.065	0.070	0.059	0.154	0.070	0.047
Malaysia	15	0.133	0.031	0.070	0.333	0.261	0.277
Netherlands	24	0.208	0.164	0.148	0.250	0.019	0.011
South Korea	159	0.145	0.131	0.094	0.190	0.028	0.012
Sweden	10	0.000	0.000	0.000	0.000	0.000	0.000
Thailand	11	0.273	0.588	0.593	0.364	0.189	0.376
United States	831	0.078	0.111	0.088	0.106	0.080	0.070
Total	5,129						

Panel C: Raw postmaterialism index by country or region

Country/Region	Wave 2 (1990-1994)	Wave 3 (1995-1998)	Wave4 (1999-2004)	Wave 5 (2005-2009)	Wave 6 (2010-2014)
Australia	.	3.057	.	2.622	2.171
Canada	.	.	2.955	2.836	.
Chile	.	2.745	2.584	2.611	2.871
Finland	.	3.048	.	2.724	.
France	.	.	.	2.994	.
Germany	.	3.031	.	2.893	3.082
Hong Kong	.	.	.	.	2.661
India	2.211	1.729	2.056	2.246	2.513
Indonesia	.	.	1.974	1.940	.
Italy	.	.	.	2.791	.
Japan	.	.	2.923	2.529	2.505
Malaysia	.	.	.	.	2.162
Mexico	.	2.713	2.588	2.667	2.585
Netherlands	.	.	.	2.893	2.667
New Zealand	.	2.727	.	2.544	2.516
Norway	.	2.672	.	2.948	.
Philippines	.	.	2.132	.	2.525
South Korea	.	2.569	2.472	2.278	2.565
Spain	.	2.901	2.857	2.631	2.408
Sweden	.	2.840	.	2.991	3.147
Switzerland	3.606	3.150	.	3.338	.
Thailand	.	.	.	2.202	2.336
United Kingdom	.	.	.	2.816	.
United States	.	2.476	2.673	2.094	2.049

Panel D: Sample distribution by industry

Industry	N (%)	*Income tax deficiency* = 1 (%)	*Turnover tax deficiency* = 1 (%)
Mining	63 (1.23)	10 (15.87)	21 (33.87)
Manufacturing	2,509 (48.92)	249 (9.92)	495 (19.73)
Utilities	411 (8.01)	31 (7.54)	61 (14.88)
Construction	19 (0.37)	1 (5.26)	4 (21.05)
Wholesale and Retail	580 (11.31)	21 (3.62)	53 (9.14)
Transport, Storage, and Postal Services	134 (2.61)	4 (2.99)	15 (11.28)
Accommodation and Catering	156 (3.04)	4 (2.56)	10 (6.45)
Software and Information Technology Services	683 (13.32)	12 (1.76)	35 (5.12)
Finance	196 (3.82)	13 (6.63)	17 (8.67)
Real Estate	262 (5.11)	17 (6.49)	10 (3.82)
Leasing and Commercial Services	56 (1.09)	2 (3.57)	2 (3.57)
Research and Development	22 (0.43)	2 (9.09)	2 (9.09)
Administration of Water, Environment and Public facilities	6 (0.12)	0 (0.00)	1 (16.67)
Community Living Services	20 (0.39)	1 (5.00)	1 (5.00)
Culture, Sports and Entertainment	12(0.23)	0 (0.00)	0 (0.00)
Total	5,129 (100)	367 (7.16)	727 (14.17)

Table 2 Regression Results of Tax Deficiency, Chinese Sample

This table presents the results of estimating Model (1) using the Chinese sample. The dependent variables in Panel A are *Income tax deficiency*, *Income tax deficiency_asset*, and *Income tax deficiency_sale,* respectively. The dependent variables in Panel B are *Turnover tax deficiency*, *Turnover tax deficiency_asset*, and *Turnover tax deficiency_sale,* respectively. The key independent variables are *Postmaterialism(raw, modified, and residual)*. *Controls* in Panel B represent the control variables used in Panel A. *z*-statistics (*t*-statistics) reported in parentheses are robust to firm clustering. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. See Appendix II for variable definitions.

Panel A: Results on income tax deficiency

	Income tax deficiency			*Income tax deficiency_asset*			*Income tax deficiency_sale*		
	Postmaterialism (raw)	*Postmaterialism (modified)*	*Postmaterialism (residual)*	*Postmaterialism (raw)*	*Postmaterialism (modified)*	*Postmaterialism (residual)*	*Postmaterialism (raw)*	*Postmaterialism (modified)*	*Postmaterialism (residual)*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Postmaterialism	**-0.351*** **	**-0.446*** **	**-0.271*** **	**-0.485** **	**-0.616** **	**-0.375** **	**-0.394** **	**-0.501** **	**-0.305** **
	(-2.888)	**(-2.888)**	**(-2.888)**	**(-2.417)**	**(-2.417)**	**(-2.417)**	**(-2.155)**	**(-2.155)**	**(-2.155)**
Size	0.006**	0.006**	0.006**	0.001	0.001	0.001	0.000	0.000	0.000
	(1.964)	(1.964)	(1.964)	(0.202)	(0.202)	(0.202)	(0.049)	(0.049)	(0.049)
Lev	-0.022*	-0.022*	-0.022*	0.000	0.000	0.000	-0.024	-0.024	-0.024
	(-1.871)	(-1.871)	(-1.871)	(0.020)	(0.020)	(0.020)	(-1.398)	(-1.398)	(-1.398)
PPE	0.006	0.006	0.006	0.023	0.023	0.023	0.001	0.001	0.001
	(0.375)	(0.375)	(0.375)	(0.703)	(0.703)	(0.703)	(0.041)	(0.041)	(0.041)
ROA	-0.015	-0.015	-0.015	-0.007	-0.007	-0.007	-0.025	-0.025	-0.025
	(-0.974)	(-0.974)	(-0.974)	(-0.188)	(-0.188)	(-0.188)	(-1.079)	(-1.079)	(-1.079)
NOL	-0.019	-0.019	-0.019	-0.020	-0.020	-0.020	-0.006	-0.006	-0.006
	(-1.587)	(-1.587)	(-1.587)	(-0.826)	(-0.826)	(-0.826)	(-0.295)	(-0.295)	(-0.295)
DNOL	0.013	0.013	0.013	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000
	(1.075)	(1.075)	(1.075)	(-0.055)	(-0.055)	(-0.055)	(-0.003)	(-0.003)	(-0.003)
Salesgrowth	0.001	0.001	0.001	-0.003	-0.003	-0.003	-0.012***	-0.012***	-0.012***
	(0.270)	(0.270)	(0.270)	(-0.537)	(-0.537)	(-0.537)	(-4.126)	(-4.126)	(-4.126)
Export	0.004	0.004	0.004	0.029	0.029	0.029	0.004	0.004	0.004
	(0.266)	(0.266)	(0.266)	(1.008)	(1.008)	(1.008)	(0.174)	(0.174)	(0.174)
Ruleoflaw	-0.303	-0.302	-0.339*	0.033	0.035	-0.016	0.142	0.143	0.101
	(-1.610)	(-1.604)	(-1.786)	(0.110)	(0.116)	(-0.051)	(0.603)	(0.609)	(0.428)

GDP	-0.072	-0.072	-0.072	0.182	0.182	0.182	0.098	0.098	0.098
	(-0.514)	(-0.514)	(-0.514)	(0.715)	(0.715)	(0.715)	(0.473)	(0.473)	(0.473)
Distance	-0.013	-0.004	0.001	0.091	0.105	0.112	0.114	0.125	0.131
	(-0.199)	(-0.060)	(0.019)	(0.649)	(0.759)	(0.821)	(0.918)	(1.023)	(1.083)
GDPgrowth	0.014**	0.014**	0.014**	0.016	0.016	0.016	0.007	0.007	0.007
	(2.520)	(2.520)	(2.520)	(1.585)	(1.585)	(1.585)	(0.794)	(0.794)	(0.794)
Inflation	0.004	0.004	0.004	0.027	0.027	0.027	0.026	0.026	0.026
	(0.277)	(0.277)	(0.277)	(1.148)	(1.148)	(1.148)	(1.322)	(1.322)	(1.322)
Unemployment	0.036*	0.036*	0.036*	0.007	0.007	0.007	-0.005	-0.005	-0.005
	(1.863)	(1.863)	(1.863)	(0.188)	(0.188)	(0.188)	(-0.168)	(-0.168)	(-0.168)
Education	-0.081**	-0.081**	-0.081**	-0.037	-0.037	-0.037	-0.011	-0.011	-0.011
	(-2.046)	(-2.046)	(-2.046)	(-0.538)	(-0.538)	(-0.538)	(-0.215)	(-0.215)	(-0.215)
Politicalright	-0.762	-0.666	-0.325	0.025	0.158	0.629	0.408	0.516	0.898
	(-0.633)	(-0.564)	(-0.295)	(0.010)	(0.060)	(0.253)	(0.165)	(0.211)	(0.387)
CPI	0.107	0.107	0.107	-0.276	-0.276	-0.276	-0.197	-0.197	-0.197
	(0.292)	(0.292)	(0.292)	(-0.378)	(-0.378)	(-0.378)	(-0.313)	(-0.313)	(-0.313)
Trust	1.846**	1.912**	2.274**	1.213	1.305	1.805	0.782	0.856	1.263
	(1.988)	(2.071)	(2.518)	(0.871)	(0.943)	(1.338)	(0.630)	(0.697)	(1.075)
PD	0.000	-0.012	0.030	-0.079	-0.096	-0.038	-0.077	-0.092	-0.044
	(0.002)	(-0.234)	(0.701)	(-1.116)	(-1.268)	(-0.629)	(-1.125)	(-1.240)	(-0.755)
IDV	0.122	0.105	0.131	-0.195	-0.219	-0.183	-0.261	-0.280	-0.251
	(0.832)	(0.722)	(0.886)	(-0.689)	(-0.786)	(-0.642)	(-1.086)	(-1.183)	(-1.038)
MASC	0.045	0.050	0.057	-0.015	-0.008	0.001	-0.031	-0.025	-0.017
	(1.164)	(1.305)	(1.485)	(-0.248)	(-0.132)	(0.019)	(-0.591)	(-0.484)	(-0.340)
UA	-0.012	-0.012	-0.006	0.071	0.070	0.080	0.082	0.082	0.089
	(-0.258)	(-0.268)	(-0.125)	(0.763)	(0.754)	(0.872)	(1.032)	(1.024)	(1.140)
Constant	3.102	3.040	1.969	-0.334	-0.420	-1.901	-0.266	-0.336	-1.539
	(1.316)	(1.297)	(0.926)	(-0.074)	(-0.093)	(-0.459)	(-0.071)	(-0.090)	(-0.447)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Observations	5,129	5,129	5,129	5,129	5,129	5,129	5,124	5,124	5,124
R2	0.074	0.074	0.074	0.037	0.037	0.037	0.044	0.044	0.044

Panel B: Results on turnover tax deficiency

	Turnover tax deficiency			*Turnover tax deficiency_asset*			*Turnover tax deficiency_sale*		
	Postmaterialism (raw)	*Postmaterialism (modified)*	*Postmaterialism (residual)*	*Postmaterialism (raw)*	*Postmaterialism (modified)*	*Postmaterialism (residual)*	*Postmaterialism (raw)*	*Postmaterialism (modified)*	*Postmaterialism (residual)*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Postmaterialism	**-0.062**	**-0.079**	**-0.048**	**0.305**	**0.388**	**0.236**	**0.311**	**0.396**	**0.241**
	(-0.422)	**(-0.422)**	**(-0.422)**	**(1.108)**	**(1.108)**	**(1.108)**	**(1.024)**	**(1.024)**	**(1.024)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,155	5,155	5,155	5,155	5,155	5,155	5,150	5,150	5,150
R2	0.223	0.223	0.223	0.044	0.044	0.044	0.047	0.047	0.047

Table 3 The Moderating Effect of Tax Enforcement, Chinese Sample

This table presents the results of estimating Model (1) when we consider the moderating effect of tax enforcement. We divide the sample into low tax enforcement and high tax enforcement groups, and estimate Model (1) for each group. The dependent variable is *Income tax deficiency*, and the key independent variable is *Postmaterialism(raw)*. *Controls* represent the control variables used in Model (1). *z*-statistics (*t*-statistics) reported in parentheses are robust to firm clustering. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. See Appendix II for variable definitions.

	Income tax deficiency					
	Postmaterialism(raw)		*Postmaterialism(modified)*		*Postmaterialism(residual)*	
	Low tax enforcement	High tax enforcement	Low tax enforcement	High tax enforcement	Low tax enforcement	High tax enforcement
	(1)	(2)	(3)	(4)	(5)	(6)
Postmaterialism	**-0.161**	**-0.541*** **	**-0.205**	**-0.688*** **	**-0.125**	**-0.419*** **
	(-0.863)	**(-4.119)**	**(-0.863)**	**(-4.119)**	**(-0.863)**	**(-4.119)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes
p-value (Low tax enforcement = High tax enforcement)	0.091		0.091		0.091	
Observations	2,638	2,491	2,638	2,491	2,638	2,491
R2	0.066	0.101	0.066	0.101	0.066	0.101

Table 4 Descriptive Statistics, Cross-Country Sample

This table presents the descriptive statistics of variables used in Model (4). Panel A reports the descriptive statistics. Panel B reports tax avoidance by country. See Appendix II for variable definitions.

Panel A: Descriptive statistics

Variable	N	Mean	Min	P25	P50	P75	Max	Std
GAAPETR	94,009	0.321	0.000	0.202	0.326	0.419	1.000	0.205
ATA_GAAP	94,009	0.057	-1.624	-0.039	0.024	0.145	1.634	0.339
*ATA_GAAP**	94,009	0.160	-4.491	-0.107	0.069	0.406	4.687	0.957
CASHETR	42,504	0.238	0.000	0.070	0.216	0.333	1.000	0.211
ATA_CASH	42,504	0.115	-1.473	0.015	0.134	0.284	0.934	0.292
*ATA_CASH**	42,504	0.305	-4.532	0.044	0.379	0.802	2.570	0.855
Postmaterialism(raw)	94,062	2.556	1.974	2.171	2.529	2.893	3.606	0.341
Postmaterialism(modified)	94,062	1.843	1.125	1.530	1.857	2.081	2.651	0.279
Postmaterialism(residual)	94,062	-0.204	-0.840	-0.402	-0.116	-0.001	1.214	0.375
Size	94,062	8.133	1.465	5.559	8.296	10.590	15.070	3.169
Lev	94,062	0.204	0.000	0.039	0.175	0.320	0.773	0.181
ROA	94,062	0.083	0.002	0.032	0.062	0.108	0.422	0.075
RD	94,062	0.016	0.000	0.000	0.000	0.016	0.196	0.034
PPE	94,062	0.284	0.004	0.108	0.246	0.409	0.888	0.214
Salesgrowth	94,062	0.143	-0.480	-0.008	0.065	0.177	2.559	0.374
International	94,062	0.467	0.000	0.000	0.000	1.000	1.000	0.499
Earnvol	94,062	0.613	0.100	0.300	0.700	0.900	1.000	0.314
GDP	94,062	10.630	7.670	10.650	10.710	10.790	11.200	0.413
Taxenf	94,062	4.149	1.770	3.860	4.410	4.470	5.000	0.602
Commonlaw	94,062	0.409	0.000	0.000	0.000	1.000	1.000	0.492
Taxrate	94,062	0.362	0.150	0.309	0.392	0.395	0.568	0.057
PD	94,062	4.671	2.200	3.900	4.000	5.400	9.400	1.071
IDV	94,062	6.485	1.400	4.600	6.700	9.100	9.100	2.284
MASC	94,062	6.946	0.500	6.100	6.200	9.500	9.500	2.316
UA	94,062	6.783	2.900	4.600	6.500	9.200	9.200	2.227
CPI	94,062	71.460	0.000	71.000	74.000	79.000	96.000	18.800

Trust	94,062	0.395	0.086	0.382	0.391	0.421	0.742	0.086
GDPgrowth	94,062	1.737	-5.416	0.784	1.937	2.855	6.805	2.228
Inflation	94,062	0.942	-1.895	-0.762	1.126	2.089	6.253	1.840
Unemployment	94,062	5.673	2.731	4.300	5.100	7.063	11.250	1.930
Education	94,062	7.043	1.000	5.800	6.200	8.900	12.000	2.024
Politicalright	94,062	0.075	0.018	0.053	0.073	0.083	0.324	0.038

Panel B: Tax avoidance by country

Country	N	*GAAPETR*	*ATA_GAAP*	*ATA_GAAP**	*CASHETR*	*ATA_CASH*	*ATA_CASH**
Australia	5,203	0.243	0.101	0.323	0.252	0.050	0.155
Canada	4,627	0.255	0.138	0.395	0.202	0.150	0.419
Chile	241	0.155	0.005	0.042	0.333	-0.284	-0.938
Finland	550	0.280	-0.001	-0.007	0.254	0.029	0.111
France	1,792	0.275	0.100	0.292	0.280	0.068	0.193
Germany	4,880	0.302	0.097	0.246	0.265	0.054	0.151
India	869	0.145	0.246	0.640	0.228	0.156	0.399
Indonesia	91	0.257	0.113	0.369	0.314	-0.039	-0.124
Italy	633	0.384	-0.030	-0.087	0.389	-0.058	-0.190
Japan	34,521	0.418	-0.029	-0.076	0.082	0.590	1.521
Mexico	1,150	0.286	0.051	0.157	0.272	0.016	0.054
Netherlands	882	0.217	0.066	0.247	0.218	0.044	0.166
New Zealand	792	0.277	0.039	0.123	0.256	0.050	0.160
Norway	674	0.251	0.066	0.235	0.219	0.059	0.216
Philippines	52	0.229	0.101	0.319	0.353	-0.139	-0.425
South Korea	5,034	0.259	0.002	0.021	0.322	-0.080	-0.330
Spain	1,288	0.244	0.112	0.340	0.260	0.054	0.167
Sweden	2,603	0.240	0.054	0.193	0.247	0.005	0.029
Switzerland	1,167	0.225	0.037	0.142	0.216	-0.011	-0.019
United Kingdom	3,176	0.243	0.079	0.270	0.239	0.052	0.180
United States	23,837	0.274	0.148	0.383	0.235	0.156	0.395
Total	94,062						

Table 5 Regression Results of Effective Tax Rate, Cross-Country Sample

This table presents the results of estimating Model (4) using the cross-country sample. The dependent variables in Panel A are *NGAAPETR*, *ATA_GAAP*, and *ATA_GAAP**, respectively. The dependent variables in Panel B are *NCASHETR*, *ATA_CASH*, and *ATA_CASH**, respectively. The key independent variables are *Postmaterialism(raw, modified, and residual)*. *Controls* represent the control variables in Model (4). *z*-statistics (*t*-statistics) reported in parentheses are robust to firm clustering. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. See Appendix II for variable definitions.

Panel A: Tax avoidance measures based on book ETR

	NGAAPETR	*ATA_GAAP*	*ATA_GAAP**	*NGAAPETR*	*ATA_GAAP*	*ATA_GAAP**	*NGAAPETR*	*ATA_GAAP*	*ATA_GAAP**
	Postmaterialism(raw)			*Postmaterialism(modified)*			*Postmaterialism(residual)*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Postmaterialism	**-0.034*** **	**-0.044*** **	**-0.113*** **	**-0.053*** **	**-0.070*** **	**-0.187*** **	**-0.025*** **	**-0.031*** **	**-0.084** **
	(-4.995)	**(-4.232)**	**(-3.558)**	**(-6.597)**	**(-5.601)**	**(-4.833)**	**(-3.523)**	**(-2.752)**	**(-2.466)**
Size	-0.007***	-0.013***	-0.037***	-0.007***	-0.013***	-0.037***	-0.007***	-0.013***	-0.037***
	(-13.530)	(-16.007)	(-16.724)	(-13.637)	(-16.113)	(-16.839)	(-13.433)	(-15.899)	(-16.647)
Lev	0.034***	0.037***	0.093***	0.034***	0.037***	0.093***	0.034***	0.037***	0.093***
	(6.015)	(4.262)	(3.791)	(6.020)	(4.267)	(3.793)	(6.022)	(4.271)	(3.797)
ROA	0.051***	-0.085***	-0.271***	0.051***	-0.085***	-0.271***	0.052***	-0.085***	-0.270***
	(4.076)	(-4.019)	(-4.511)	(4.080)	(-4.014)	(-4.508)	(4.104)	(-3.996)	(-4.491)
RD	0.385***	0.562***	1.529***	0.386***	0.564***	1.533***	0.387***	0.566***	1.537***
	(13.568)	(11.509)	(11.056)	(13.627)	(11.555)	(11.094)	(13.654)	(11.584)	(11.120)
PPE	0.005	-0.000	-0.004	0.004	-0.000	-0.005	0.005	0.000	-0.003
	(0.770)	(-0.010)	(-0.171)	(0.729)	(-0.047)	(-0.210)	(0.825)	(0.043)	(-0.127)
Salesgrowth	0.020***	0.027***	0.075***	0.020***	0.026***	0.075***	0.020***	0.026***	0.075***
	(9.488)	(6.973)	(6.799)	(9.466)	(6.958)	(6.787)	(9.463)	(6.952)	(6.782)
International	0.006***	0.005*	0.013	0.006***	0.005*	0.013	0.005***	0.005*	0.012
	(2.933)	(1.791)	(1.527)	(2.968)	(1.821)	(1.563)	(2.891)	(1.743)	(1.494)
Earnvol	-0.024***	-0.032***	-0.080***	-0.021***	-0.029***	-0.070**	-0.029***	-0.039***	-0.098***
	(-3.910)	(-3.084)	(-2.623)	(-3.557)	(-2.803)	(-2.317)	(-4.906)	(-3.885)	(-3.271)
GDP	-0.028***	-0.010	-0.007	-0.026***	-0.007	0.003	-0.030***	-0.013	-0.013
	(-4.366)	(-1.046)	(-0.236)	(-3.946)	(-0.690)	(0.105)	(-4.641)	(-1.315)	(-0.442)
Taxenf	0.000	-0.002	-0.014	0.001	-0.002	-0.013	-0.001	-0.004	-0.018
	(0.016)	(-0.431)	(-0.889)	(0.160)	(-0.313)	(-0.799)	(-0.326)	(-0.653)	(-1.113)

Commonlaw	0.027***	0.032**	0.104***	0.026***	0.030**	0.096**	0.029***	0.035***	0.110***
	(3.337)	(2.460)	(2.662)	(3.126)	(2.280)	(2.474)	(3.548)	(2.680)	(2.812)
Taxrate	-0.453***	0.488***	0.713***	-0.478***	0.455***	0.614***	-0.442***	0.510***	0.755***
	(-12.835)	(9.562)	(5.057)	(-13.635)	(8.930)	(4.320)	(-11.888)	(9.460)	(5.047)
PD	0.008**	0.010*	0.042***	0.008**	0.010*	0.041***	0.009***	0.011**	0.045***
	(2.465)	(1.927)	(2.715)	(2.432)	(1.901)	(2.679)	(2.651)	(2.144)	(2.831)
IDV	0.004*	-0.001	-0.002	0.005**	0.001	0.003	0.004**	-0.000	-0.000
	(1.763)	(-0.227)	(-0.180)	(2.329)	(0.273)	(0.271)	(1.978)	(-0.053)	(-0.010)
MASC	-0.009***	-0.010***	-0.023***	-0.009***	-0.010***	-0.023***	-0.009***	-0.010***	-0.022***
	(-7.143)	(-5.195)	(-3.726)	(-7.171)	(-5.223)	(-3.780)	(-6.904)	(-4.961)	(-3.556)
UA	-0.004	-0.005	-0.016	-0.003	-0.005	-0.015	-0.003	-0.005	-0.015
	(-1.467)	(-1.428)	(-1.319)	(-1.328)	(-1.304)	(-1.208)	(-1.338)	(-1.337)	(-1.225)
CPI	0.000	-0.000	0.000	0.000	-0.000	0.000	0.000	-0.000	0.000
	(0.224)	(-0.182)	(0.400)	(0.202)	(-0.198)	(0.419)	(0.101)	(-0.333)	(0.306)
Trust	-0.010	-0.016	0.027	-0.015	-0.023	0.004	-0.003	-0.004	0.052
	(-0.452)	(-0.442)	(0.245)	(-0.684)	(-0.636)	(0.036)	(-0.129)	(-0.110)	(0.467)
GDPgrowth	0.007***	0.010***	0.027***	0.007***	0.010***	0.027***	0.007***	0.010***	0.026***
	(10.088)	(7.856)	(6.799)	(10.273)	(7.996)	(6.954)	(9.896)	(7.655)	(6.645)
Inflation	0.003***	0.003**	0.005	0.003***	0.003**	0.005	0.003***	0.003**	0.005
	(4.574)	(2.372)	(1.313)	(4.439)	(2.276)	(1.235)	(4.498)	(2.304)	(1.265)
Unemployment	0.001	0.002	0.004	0.000	0.001	0.003	0.001	0.002	0.004
	(0.853)	(1.484)	(1.126)	(0.536)	(1.229)	(0.876)	(0.838)	(1.513)	(1.116)
Education	-0.007***	-0.007***	-0.019***	-0.008***	-0.008***	-0.022***	-0.006***	-0.007***	-0.017***
	(-5.373)	(-3.630)	(-2.933)	(-5.951)	(-4.118)	(-3.390)	(-4.995)	(-3.261)	(-2.685)
Politicalright	-0.256***	-0.154**	-0.407*	-0.272***	-0.175**	-0.469**	-0.250***	-0.143*	-0.386*
	(-5.450)	(-2.098)	(-1.827)	(-5.772)	(-2.382)	(-2.095)	(-5.282)	(-1.944)	(-1.721)
Constant	0.405***	0.402***	0.933***	0.398***	0.393***	0.926***	0.325***	0.293***	0.662**
	(5.933)	(3.760)	(2.792)	(5.961)	(3.769)	(2.865)	(4.941)	(2.864)	(2.098)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	94,009	94,009	94,009	94,009	94,009	94,009	94,009	94,009	94,009
R2	0.177	0.070	0.063	0.177	0.070	0.063	0.177	0.070	0.063

Panel B: Tax avoidance measures based on cash ETR

	NCASHETR	*ATA_CASH*	*ATA_CASH**	*NCASHETR*	*ATA_CASH*	*ATA_CASH**	*NCASHETR*	*ATA_CASH*	*ATA_CASH**
	Postmaterialism(raw)			*Postmaterialism(modified)*			*Postmaterialism(residual)*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post-materialism	**-0.068*** **	**-0.097*** **	**-0.294*** **	**-0.074*** **	**-0.100*** **	**-0.309*** **	**-0.089*** **	**-0.134*** **	**-0.390*** **
	(-5.279)	**(-5.477)**	**(-5.091)**	**(-4.689)**	**(-4.603)**	**(-4.356)**	**(-6.045)**	**(-6.539)**	**(-5.912)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42,504	42,504	42,504	42,504	42,504	42,504	42,504	42,504	42,504
R2	0.068	0.082	0.067	0.068	0.082	0.066	0.069	0.083	0.067