The Impact of Sin Culture:

Evidence from Earning Management and Alcohol Consumption in China

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Abstract

We study whether culture plays an important role in affecting firm incentives when formal institutions fall short. We link earnings management to the culture of alcohol beverage in China, and find that firms in regions in which alcohol plays a more prominent role are associated with more earnings management. Tests using regional gender ratio and snow/temperature as instruments suggest a causal interpretation. Moreover, alcohol consumption in COEs' region of origin significantly enhance earnings management, suggesting that sin culture can be carried and propagated in the society by corporate leaders. We also find that culture can generate a negative externality by further reducing the likelihood of fraud detection, yet improvements in formal institutions (e.g., the 2012 anticorruption move) can suppress the negative impact of sin culture. Meanwhile, the negative impact of culture is more significant in regions with low social trust. Our results shed new lights on the impact of culture on the real economy.

Key words: Culture, Earnings management, Alcohol, Geographic Shocks

JEL Classification Codes: G30, M14, P48

Introduction

Vast evidence shows that culture, which can be broadly defined as pervasive values and beliefs passed on through generations,[5] plays an important role in shaping our modern economy and the financial markets. Take the two most widely studied components of culture, religion and social trust, as an example. Since the seminal work of Weber (1930) and Landes (1998) showing the critical role played by region in the development of capitalism,[6] religion has been shown to affect, among others, the quality of government (La Porta et al., 1999), economic attitudes (Guiso, Sapienza, and Zingales, 2003), creditors' rights (Stulz and Williamson, 2003), and corporate decisions (Hilary and Hui, 2009). Social trust offers no less fundamental a cornerstone given that "virtually every commercial transaction has within itself an element of trust" (Arrow, 1972). In particular, since trust facilitates collective actions (e.g., Putnam1993; see also Coleman, 1990 and Fukuyama, 1995) and overcomes contracting incompleteness (Arrow, 1972, Williamson, 1993), it appears to enhance economic growth (Knack and Keefer, 1997), international trade (Guiso, Sapienza, and Zingales, 2009), and financial development (Guiso, Sapienza, and Zingales, 2004, 2008a) at the macro level and affect corporate transactions (Bottazzi, Rin, and Hellmann, 2011, Duarte, Siegel, and Young, 2012, Ahern, Daminelli, and Fracassi, 2012), firm size (La Porta et al., 1997, Bloom et al., 2009), and information dissemination (Pevzner, Xie, and Xin, 2014) at the micro level.[7]

Although culture can positively influence many aspects of our economy, it may also lead to negative externalities that have till now received scarce attention in the literature.[8] Our paper aims to fill this gap

[5]Guiso, Sapienza, and Zingales (2006), for instance, define culture "as those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation." In North (1990) and Stulz and Williamson (2003), culture is defined as ''transmission from one generation to the next, via teaching and imitation, of knowledge, values, and other factors that influence behavior." La Porta et al. (1999) also write that "when … beliefs are highly pervasive and persistent, they get to be called 'culture'."

[6] Weber (1930) arguing that religion (the Calvinist Reformation) played a critical role in the development of capitalism, while Landes (1998) explains how Catholic and Muslim countries have acquired cultures that retarded their economic development when Protestant countries took off.

[7]See Guiso, Sapienza, and Zingales (2011) for a survey on civic capital and Algan and Cahuc (2014) for a survey on trust. The editorial comments of Zingales (2015) interpret the recent burgeoning of culture-related studies as a "cultural revolution" in finance.

[8]Fisman and Miguel (2007) and DeBacker, Heim, and Tran (2015) document that parking violations by diplomats in Manhattan and corporate tax evasion by foreign owners in the U.S. can be traced back to the corruption norm in the country of origin. Liu (2015) uses the country of origin of immigrants to construct measures on corporate culture.

by examining the impact of "sin culture" — i.e., social norms involving alcohol, sex, tobacco, and gaming — on earnings management. In particular, we ask whether a more pronounced sin culture also incentivizes firms to be less honest — e.g., to engage more in earnings management that distorts information. If the sin culture can also reduce the cost of information manipulation, a negative externality may arise in which even honest firms have to lie.

To avoid the omitted variable problem typically associated with cross-country studies (i.e., informal culture may correlate with other country characteristics such as formal institutions), we follow Guiso, Sapienza, and Zingales (2004, 2008b) and Putnam (1993) and zoom in on one country — Italy in their cases and China in our paper —to identify the impact of culture based on its regional variations. This identification approach has three advantages. First, formal institutions and country characteristics are automatically controlled for, because all listed firms in China, regardless of their locations are subject to the same regulations and institutions established by China's strong government. Second, since religion has never played as important a role in China's history as it did in western countries (e.g., Weber, 1958), social norms in China appear more secular, with alcohol beverage being one of the most important elements of its traditional culture.[9] Accordingly, we focus on the culture of *alcohol beverage,* which is also often referred to as *the drinking culture* in public media, though we also briefly examine other elements of the sin culture in later sections. Third, since geographic conditions differ drastically across China, which have consequently created vast differences in alcohol related social norms, such regional variations induce exogenous cultural shifts that help us to pin down its influence on firm-level information disclosure.

Our main proxy for the culture of alcohol beverage is the fraction of household income spent on

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The carry-on of negative cultural influence, however, does not necessarily lead to negative externality. Country of origin may also captures both cultural and institutional influences. Mironov (2015) show that in Russia CEOs with worse records of driving violations divert more money from their companies and pay more money under the table. To the extent that their companies are also more profitable, a negative externality may exist in which corrupt environment may reward criminal values.

[9]As Weber (1958) has pointed out, *Confucianism*, the long-term official doctrine of ancient China and the core ethical foundation of the Chinese culture, is more secular than transcendental. Consistent with this view, alcohol and its associated social norms are mentioned several times in Confucius's *Analects*. Alcohol also appears in numerus masterpieces in China's traditional literature. McGovern (2009) shows that, starting from ancient China, the use of alcoholic beverages has been an integral part of many cultures in the history of human beings.

alcohol consumptions in a region (hereafter, "*Alcohol Consumption*" or simply "*Alcohol*"). A higher degree of alcohol consumption proxies for a more prevailing role of alcohol in the local life. As a robustness check to this demand-side variable, we also provide an alternative supply-side proxy, namely the number of famous brand names of distilled liquor (most of them luxury brands, such as "Maotai") close to the location of a firm (hereafter, "*#Famous Brand*"). A third proxy, more related to the social cost of the sin culture, is based on the intensity of alcohol intoxication—i.e., the number of cases of alcohol intoxication scaled by the size of the adult population (hereafter, "*Intoxication*").

We focus on earnings management to understand the impact of sin culture because the former represents one of the "most tangible signs" of distorted information in global markets (e.g., Leuz, Nanda, and Wysocki, 2003). Earnings management also attracts regulatory scrutiny in many countries especially following Regulation Fair Disclosure and the Sarbanes-Oxley Act in the US (Dechow, Ge, and Schrand, 2010). In line with the literature (e.g., Jones, 1991, Dechow, Sloan and Sweeney, 1995, Dechow, Ge, and Schrand, 2010, Hirshleifer, Teoh, and Yu, 2011), we use discretionary accruals as the main proxy for earnings management. More explicitly, we follow Dechow and Dichev (2002) to construct discretionary accruals for our main tests, and use a list of other earnings management measures in robustness checks.

We test the relationship between the culture of alcohol beverage and earnings management based on the sample of all the listed firms in China from 2002 to 2014. We begin by documenting a strong positive relationship between alcohol and earnings management. This effect is both statistically significant and economically relevant. A one-standard-deviation increase in *Alcohol* is associated with 8.4% standard deviation more of earnings management. Our results are robust to the use of the two alternative proxies of alcohol. In particular, a one-standard-deviation increase in the number of nearby famous brand names for luxury alcohol beverage leads to as high as 25.8% standard deviation more of earnings management—this enhanced magnitude stresses the especially important role of expensive liquor in China's political and business life. The impact of *Intoxication*, on the other hand, is similar to that of *Alcohol*. Moreover, our results are robust to alternative measures of earnings management, including not only other discretionary accruals—e.g., Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals and Kothari, Leone and Wasley's (2005) measure—but also target beating measures of Degeorge, Patel, and Zeckhauser (1999) and Burgstahler and Dichev (1997). These findings offer the first evidence that the potential link between sin culture and earnings management is both highly robust and

of sizable economic magnitude.

To address issues of potential endogeneity and spurious correlation, we adopt an instrumental variable approach based on geographic "shocks". The idea that geographic variations affect culture can be dated back to as early as Aristotle.[10] More recent studies show that social capital is heavily influenced by geographic/climate conditions (e.g., Ostrom, 1990 and Durante, 2009) as well as by natural catastrophes (e.g., Castillo and Carter, 2011 and Zylberberg, 2011). Likewise, the culture of alcohol beverage in China has been influenced heavily by geographic variations, including population composition—e.g., males typically consume more alcohol than females,[11] hence a persistent higher ratio of males in population contributes to the establishment of the alcohol culture[12]—and climate conditions—e.g., people tend to consume more and stronger alcohol in regions with more snow coverage and lower temperature. This consideration motivates us to use the gender ratio of regional long-term residence (hereafter "*Gender Ratio*") and the fraction of areas suffering from snow storms and other natural disasters related to low temperature, wind, and hail (hereafter "*Snow*" when there is no confusion) as our main instruments to capture the geographic origin of culture. All these variables should heavily affect the regional alcohol culture (inclusion restriction); yet they are unlikely to directly affect earnings manipulation especially given the presence of strong government rules (exclusion restriction). And indeed, we find that both *Gender ratio* and *Snow* significantly enhance alcohol consumption and that instrumented alcohol consumption significantly enhances earnings manipulation, suggesting that the relationship between the latter two variables is causal. Two alternative specifications of instrumentation deliver the same result. The first alternative specification uses the average *Temperature* in a region to replace *Snow*. The second alternative specification exploits as instruments the time-series shock—the reduction in the tariffs of

[10] According to Aristotle, "The nations that live in cold regions and those of Europe are full of spirit, but somewhat lacking in skill and intellect; for this reason, while remaining relatively free, they lack political cohesion and the ability to rule over their neighbors. On the other hand the Asiatic nations have in their souls both intellect and skill, but are lacking in spirit; so they remain enslaved and subject." (Politics 7.7, 1327b18-1328a21, trans. Sinclair and Saunders).

[11] See, e.g., the "*Global status report on alcohol and health*" of World Health Organization. The 2014 WHO report is available at http://www.who.int/substance_abuse/publications/global_alcohol_report/en/.

[12] Unlike variables related to total population, the gender ratio is more related to geographic/genetic reasons than economic development of a region. Moreover, we focus on the gender ratio of long-term residence of a region for our empirical analysis. Different from the mobile population, long-term residency is strictly controlled by local governments in China. This particular government control is unrelated to firm incentives of earnings management.

imported alcohol—joint with the gender ratio. Analogous results are achieved when these alternative instrumentation is used. Finally, as a robustness check, when we apply our main instruments of *Gender ratio* and *Snow* to aforementioned alternative proxies of alcohol culture as we as alternative earnings management proxies, our conclusion remains the same. These findings support a general and causal interpretation on the relationship between alcohol culture and earnings manipulation.

After addressing the issue of endogeneity, we implement a series of additional tests to further enrich our economic intuition. First of all, we examine how culture transmits in a society. A few recent studies (Guiso, Sapienza, and Zingales, 2006, Fisman and Miguel, 2007, DeBacker, Heim, and Tran, 2015, and Liu, 2015) show that immigrants can bring social beliefs from their country of origin to new countries. Building on this intuition, we hypothesize that corporate leaders can carry on the value of their home-region culture and spread it in a society through their corporate leadership. We conduct two steps of analysis to verify this mechanism. In the first step, we find that, although firms in high-alcohol regions engage more in earnings management, the effect is stronger for firms with their CEOs coming from home-regions that have a more prominent alcohol culture than the region of the firms. In other words, the alcohol culture of the home-region of corporate leaders and that of firm region complement each other in affecting earnings management. In the second step, we use region-fixed-effects to control for the average earnings manipulation incentives for firms located in a same region, and zoom in on the relationship between earnings manipulation and the alcohol culture of the home regions of CEOs. We find a significant positive relationship between the two.

Jointly, the two steps of analysis confirm that, in addition to the general impact of alcohol on corporate manipulation incentives, the culture of corporate leaders' home region has its own influence. This finding not only extends the intuition of the aforementioned literature to sin culture, but also further addresses the issue of endogeneity. Indeed, the focus on regional culture rather than that of the country of origin allows us to rule out the influence of country-level institutions, a benefit that has been explored in Guiso, Sapienza, and Zingales (2004, 2008b) and Putnam (1993). Moreover, in the second step of analysis, all regional characteristics at the locations of firms are controlled for, leaving cultural impact carried by CEOs the only channel to affect earnings management. Similar identification strategies have been employed in Guiso, Sapienza, and Zingales (2006), Fisman and Miguel (2007), DeBacker, Heim, and Tran (2015), and Liu (2015). Building on the strength of both lines of the literature, our tests clearly

identify an important mechanism—corporate elites—through which the impact of the culture of alcohol beverage gets propagated across the whole economy.

In the second additional test, we examine the relationship between informal culture and formal institutions, and document two important findings in this regard. Our first finding is that culture can generate negative externality when formal institutions are weak. More explicitly, we show that alcohol reduces the sensitivity of fraud detection with respect to earnings management. In general, the likelihood of fraud detection increases in earnings management because firms that heavily distort information are likely to conduct corporate fraud that regulars pay attention to, other things being equal. The observation that alcohol reduces this sensitivity, however, implies that the culture of alcohol beverage may also reduce the cost of earnings management, for instance when firms can somehow be connected to local regulators via the lubrication of expensive alcohol consumptions. In this case, a negative externality could arise in which dishonest firms benefit from sin culture, forcing otherwise honest firms to hide their information as well. This negative externality may help explain why sin culture has such a prevailing impact.

The (negative) impact of sin culture, however, should have strong impact only when formal institutions fall short. Consistent with this notion, our second finding demonstrates that improvements in formal institutions following the 2012 anticorruption move of the central government (the most severe anticorruption move in the last three decades) can largely suppress the impact of informal culture especially for state-owned firms (SOEs).

In our third additional test, we link the impact of sin culture to other important elements of culture. Given that region is not as important in China as it is in western countries (e.g., Weber 1958), we focus on trust to explore the potential interaction between different elements of culture. Since trust represents the collaborative value of a culture, we expect that sin culture could be more influential—in terms of enhancing manipulation incentives—in regions with relatively low social trust. Our empirical tests confirm this conjecture. When we divide regions in China into three groups according to the level of social trust proxied by blood donation and two survey-based trust measures, we find that the positive relationship between alcohol and earnings manipulation is significantly higher in low-trust regions than in high-trust regions.

Finally, we explore the impact of other forms of sin culture. We find that sex, proxied by the intensity of illegal pornography publications, also exhibits a positive (although weaker) relationship with earnings

manipulation, whereas the impact of smoking and gaming are largely insignificant. The caveat here is that data on some elements of the above sin culture are indirect. For instance, unlike alcohol consumption which is not only legal but can also be heavily advertised in government-controlled TV channels, pornography remains illegal in China. Hence what we can observe is only detected cases, where the detection itself could be affected by the influence sin culture. We may under-estimate its impact in this case. Nonetheless, our results provide some initial evidence that other elements of sin culture could have their own impact.

Our paper is closely related to the emerging literature on "sin stocks". The focus of this literature has been on the asset pricing implication of being a sin stock. It has shown that firms producing sin products are less favored by institutional investors and that these firms have discounted price (e.g. Hong and Kacperczyk, 2009). We focus on the corporate governance implication of sin instead.

We contribute to different strands of the literature. First, we contribute to the literature on how culture affects economic and financial activities (Weber, 1930; Arrow, 1972; Gambetta,1988; Coleman 1990; Putnam,1993; Williamson, 1993; Fukuyama, 1995; Knack and Keefer, 1997; La Porta et al., 1997,1999; Landes, 1998; Stulz and Williamson, 2003; Guiso, Sapienza, and Zingales2003, 2004, 2008a,b,c, 2009; Bloom et al., 2009; Bottazzi, Da Rin, and Hellmann, 2011; Georgarakos and Inderst 2014; Ahern, Daminelli, and Fracassi, 2012; Duarte, Siegel, and Young, 2012;Sapienza and Zingales, 2012; Gennaioli, Shleifer, and Vishny, 2014a, b; Pevzner, Xie, and Xin, 2015). To the best of our knowledge, we are the first to report a prevailing impact of sin culture—especially that related to alcohol—on earnings management.

Secondly, we also contribute to the literature on the role of country-level institutions (e.g., Doidge, Karolyi, and Stulz, 2004, 2007; Aggarwal et al., 2010). More explicitly, our results show that sin culture may lead to negative externalities when formal institutions fall short, and that such an impact may be suppressed by a stricter formal institutions. Furthermore, we also show that sin culture may achieve its influence partly via corporate leaders. These findings further enrich our knowledge on the prevailing and persistent impact of the corruption culture on human behavior (Fisman and Miguel, 2007; DeBacker, Heim, and Tran, 2015; Mironov, 2015; Liu, 2015). Our findings have significant normative implications. Indeed, our results suggest that sin culture may exert significant negative impact in emerging markets like China and that one remedy to break down this negative externality is to strengthen formal institutions.

This drinking culture-based externality also brings new insight to the corruption literature—it helps to open up the black box of corruption by identifying elements of the culture that contribute to corruption.

Thirdly, our results contribute to the literature on the determinants of earnings management. The literature documents that earnings management can be related to operating and financial characteristics (see DeFond and Park 1997; Watts and Zimmerman 1986; Nissim and Penman 2001), auditing quality and financial reporting practices (DeAngelo 1981; Barth, Landsman, and Lang 2008), market pressure (Das and Zhang 2003; Morsfield and Tan 2006), as well as investor protection and regulations (Leuz, Nanda, and Wysocki 2003; Dechow, Ge, and Schrand 2010). Our evidence provides another explicit cornerstone that may influence managers' incentives to manage accounting earnings—sin culture.

Finally, we extend the emerging literature examining the activities of Chinese firms. The existing literature documents vast evidence on the misbehavior of Chinese firms (see, among others, Jiang, Lee, and Yue, 2010; Fan, Wei, and Xu, 2010; Fisman and Wang, 2015), and typically focuses on the role of formal institutions (e.g., Allen, Qian, and Qian, 2005) and that of the state—through state ownership or political connections—in exploring the incentives of Chinese firms (e.g., Liao, Liu, and Wang 2014; Calomiris, Fisman, and Wang 2010; Megginson and Netter 2001 provide a general survey). Our unique contribution is to demonstrate that culture offers a fundamental cornerstone to explain the economic activities therein. To the extent that culture is among the most prominent differences between China and western countries (e.g., Greif and Tabellini 2010), it may even shed light on the great divergence between the two. Perhaps just as Landes (2000, p. 2) has advocated, ''If we learn anything from the history of economic development, it is that culture makes almost all of the difference.''

The remainder of the paper is organized as follows. Section II presents our variables and summary statistics. Section III reports the relationship between sin culture and earnings management. Section IV explores the endogeneity issue. Section V discusses additional tests. Finally, Section VI concludes.

II. Data and Variable Construction

We now describe the sources of our data and the construction of our main variables.

A. Data Sample and Sources

We collect data from multiple resources. First of all, we collect (in many cases hand collect) regional data related to the culture of alcohol beverage from a list of places. Alcohol consumption data come from *National Bureau of Statistics* (NBS) and *Provincial Statistical Yearbook*. Household income data comes from *China Statistical Yearbook.* More explicitly, *National Bureau of Statistics* provides regional urban residents' alcohol consumption data in China starting from 2002 to 2012. For information in 2013 and 2014, we manually collect alcohol-related information from *Provincial Statistical Yearbook*. If the data is not available in the latter yearbook, we use the 2012 NBS information to proxy for values in 2013 and 2014. Next, to construct the supply side measure on alcohol culture, we hand collect the list of top 200 famous brand names of distilled liquor as published in *China National Association for Liquor and Spirits Circulation*. This information is available from 2009 to 2014. Finally, the *National Ministry of Public Health* conducts surveys on alcohol intoxication in six provinces in three different years (2005, 2011, and 2014), which we will use to construct the third proxy of the alcohol culture.

Regarding the geographic origin of culture, we collect regional data regarding the gender ratio and temperature from *China Statistical Yearbook.* Information regarding snow, wind, and hail is hand collected from *China Civil Affairs' Statistical Yearbook*. Tariff regarding imported alcohol is extracted from *Document of China's General Administration of Customs*.

In addition to the culture of alcohol beverage, we also collect information about three alternative measures of sin culture (i.e., sex, smoking, and gaming) as follows. Sex culture data are hand collected from the *China Yearbook of Eliminating Pornography and Illegal Publications*, which provide detailed information about the provincial cases of pornographic publications (books and periodicals, and videos) from 2006-2013.[13] Data on smoking are obtained from the *National Bureau of Statistics and Provincial Statistical Yearbook*. Data on gaming are manually collected from the *Baidu Map* search engine (http://map.baidu.com/), which shows the number of Mahjong (a popular four-player game in China) rooms across 31 provinces. We also collect development-related information, such as GDP growth and population from the *China Statistical Yearbook* and the *National Bureau of Statistics*. The data sources on social trust come from the *National Health and Family Planning Commission*, from which we collect

[13] For the missing values before 2006 and after 2013, we use the value in the nearest year (2006 and 2013, respectively) to measure those missing values.

blood donation information, and *World Values Survey (2001)*, from which we collect information based on survey questions that allows us to construct the measure of general trust.

Our firm-level data come from two major resources: the *China Stock Market and Accounting Research* (CSMAR) and the *Wind Financial Database* (WIND).[14] More specifically, we obtain financial and stock return data from CSMAR, which we cross-referenced with WIND, and we obtain institutional ownership from WIND. We then match firm-level data with regional information. Our final testing period covers from 2002 to 2014. We start with 2002 because the *National Bureau of Statistics* (NBS) begins to compile regional urban residents' alcohol consumption data in 2002, but our results are quite robust to subsamples analysis. In this testing period, our initial sample is 21,845 firm-year observations. We then exclude financial service firms, as their accounting variables are not comparable to those of non-financial firms. We further exclude firm-year observations without sufficient financial information to calculate related variables. Our final sample consists of 10,985 firm–year observations and 1,339 firms, across 31 provinces in China.

B. Main Variables

We now describe our main variables. To proxy for earnings management, we consider a list of discretionary accrual measures that are widely used in the literature, including Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals ("*Accrual_Jones"*), Kothari, Leone, and Wasley's (2005) residual accruals ("*Accrual_KLW"*), and Dechow and Dichev's (2002) residual accruals ("*Accrual_DD"*). *Accrual_Jones* denotes the residuals obtained by regressing total accruals on fixed assets and revenue growth, excluding growth in credit sales, for each country and year. *Accrual_KLW* further controls for firm fundamentals by matching a firm with another from the same country, industry, and year with the closest ROA; and *Accrual_DD* further controls for operating performance by regressing results on past, current, and future cash flows. Since *Accrual_DD* employs the most complete firm controls among the three measures, we use it as our main proxy of earnings management. Our results are robust when the other two measures are used.

[14]CSMAR is available in the Wharton Research Data Services (WRDS). The Wind Financial Database (WIND) is another leading integrated service provider of financial data, information, and software. It provides Chinese financial market data and information to analysts, fund managers and traders, with full coverage of equities, bonds, funds, indexes, warrants, commodity futures, foreign exchanges, and the economy.

In addition to discretionary accruals, we also consider another type of widely used earnings management practice, "target-beating", in which managers distort information in order to avoid reporting small losses relative to their heuristic target of zero (e.g., Burgstahler and Dichev, 1997; Degeorge, Patel, and Zeckhauser, 1999). Such incentives lead to a well-known "kink" in the distribution of reported earnings near zero—that is, a statistically small number of firms with small losses and a statistically large number of firms with small profits (e.g., Burgstahler and Dichev, 1997). This type of earnings management is especially important when investors are sensitive to losses. We use two proxies to capture such target beating incentives. The first proxy is *target beating on "small positive past-earnings profits"* (*SPDE*) based on Burgstahler and Dichev (1997). This variable is a dummy that equals 1 if the change in net income scaled by lagged total assets is between 0% and 1%. The second proxy is *target beating on small positive profits* (*SPE*). Based on Burgstahler and Dichev (1997), this variable is a dummy that equals 1 if net income scaled by lagged total assets is between 0% and 1%. These two variables proxy for managers' incentives to meet or beat market expectations by a small margin, where market expectations are measured by the previous year's earnings or a general request for firms to not report losses.

Our main proxy of the culture of alcohol beverage comes from the consumption side. More explicitly, we define alcohol consumption of a region (hereafter, "*Alcohol Consumption*" or simply "*Alcohol*" when there is no confusion) as the per capita annual average alcohol consumption of the urban residents of a province divided by the per capita annual wage of the same population, multiplied by 100. Roughly speaking, *Alcohol* measures the percentage household income spent on alcohol consumption. Regional *Alcohol Consumption* is available at annual frequency from 2002 to 2014.

We also construct two alternative proxies of the culture of alcohol beverage. The first alternative proxy aims to capture the impact of culture from the supply side. We therefore count the number of famous brand names of distilled liquor nearby the location of firms, and refer to this variable as "*#Famous Brand*". More explicitly, we hand collect the list of top 200 brand names of distilled liquor as well as the geographic location of their headquarters from the *China National Association for Liquor and Spirits Circulation*. For each firm in our sample, we then count the number of famous liquor brands among the top 200 within a 200-kilometer radius of the firm's headquarter location. Given the popularity of luxury liquor, such as "Maotai", in China's political and business life, this supply side variable is likely to capture important influences of the alcohol culture from the supply side. The limitation with this variable is that

the 200-firm list is available only in the later period of our sample (from 2009 to 2014). Hence, for tests involving early years, we need to extrapolate the value of this variable from later years to early years (i.e., for early years we use the value of this variable as of 2009). To be conservative, therefore, we do not use this variable as our main variable. However, since famous liquor brands as well as their headquarter locations vary slowly over time, this extrapolation is unlikely to generate significant look-ahead bias. Hence, the variable provides a reasonable robustness check to our main results.

The second alternative proxy of the culture of alcohol beverage aims to highlight the social cost of sin culture. We therefore compute the ratio between the number of alcohol intoxication events and adult population in a region, and refer to this variable as "*Intoxication*". A higher value of *Intoxication* depicts a high intensity of alcohol intoxication—and thus a high social cost associated with the culture of alcohol beverage. Again, since we have the information to construct this variable only in limited years (2005, 2011, 2014—we extrapolate values of this variable in 2005, 2011, 2014 to the missing years of 2002-2004, 2006-2010, and 2012-2013, respectively) and limited regions (six regions), we treat this variable as offering a robustness check rather than main results.

We also construct proxies for other elements of the sin culture. More explicitly, the culture of sex (*Sex*) is measured as the detected cases of pornographic publications (books and periodicals, and videos) divided by population aged 15 or elder in a province. We use the provincial tobacco consumption divided by urban employees' per capita GDP to measure the culture of smoking (*Smoking*). Finally, the culture of gaming (*Gaming*) is measured as the number of "Mahjong" rooms divided by population aged 15 or elder in a province, where "Mahjong" is one of the most popular traditional games in China with four players—and "Mahjong" rooms are rooms that people can rent to play not only "Mahjong" but also all other types of games (e.g., cards, chess, etc.).

Our main firm level control variables are the logarithm of firm size (*Size*), financial leverage (*LEV*), return of assets (*ROA*), stock return volatility (*Cret_volatility*), institutional ownership (*Totinsholdper*), the number of analysts following the firm (*Analyst*), the book-to-market ratio (*BM*), annual stock return (*RET*), turnover ratio (*Turnover*), dual role of board chairmen (*Dual*)、ratio of independent directors (*Indir*), and a dummy variable that takes the value of one for state-owned enterprises (*SOE*). Our main regional level control variables are GDP per capita (*GDP_percapita*), natural logarithms of resident consumption per capita (*Consume_percapita*) and the ratio of investment in fixed asset as a fraction of

GDP (*Invfixasset_gdp*). A detailed definition of these variables is provided in Appendix A. Our results are robust to all these control variables. For brevity, we report our main results using firm-level control variables only—the results with regional control variables are tabulated in the Internet Appendix. To avoid extreme values, we winsorize all variables at 1% level in both tails (our results are robust to this threshold).

Table 1 presents summary statistics of our sample. Panel A tabulates the distribution for the main variables. On average, households spend about 0.838% of their income on alcohol consumption. Its standard deviation is 0.175, suggesting that there are significant differences across regions. Indeed, regions at the 75% quantile value (0.971) exhibit 30.32% more alcohol consumption than those at the 25% quantile value. Figure 1 visualizes the distribution of alcohol consumption across different provinces in China. Likewise, the supply side-variable "*#Famous Brand*" has a mean value 1.442 and standard deviation 2.3. The distribution of this variable suggests that the locations of famous luxury liquor brands are not evenly distributed in China. Hence, the supply side of the alcohol culture also varies significantly at the regional level in China.

On the other hand, the main dependent variable, *Accrual_DD*, also exhibits significant cross-sectional variations (with its standard deviation 0.062). Firms located at the 75% quantile distribution more than double their accrual than firms located at the 25% quantile distribution. Other accrual variables as well as target beating variables exhibit similar large variations in the cross section.

In Panel B, we report the correlation matrix of the main variables in Panel A, with Spearman correlation reported in the upper-right part and Pearson correlation reported in the bottom-left part. We can see that sin culture and earnings management is positively correlated. The correlation between *Alcohol* and *Accrual_DD* is around 0.042, which is highly significant at the 1% level. This correlation motivates our paper to examine the cultural origin of corporate incentives. Of course, *Accrual_DD* can be affected by many firm characteristics. Hence, our next task is to use multivariate regressions to highlight the impact of culture after controlling for firm characteristics.

III. The Relationship between Alcohol and Earnings Management

We now investigate the relation between alcohol consumption and earnings management. We rely on the following regression as a baseline model for our multivariate analyses:

$$Accrual_{i,p,t} = \alpha + \beta \times Alcohol_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \qquad (1)$$

where $Accrual_{i,p,t}$ refers to our main proxy of earnings management for firm i located in province p in year t, $Alcohol_{p,t}$ is the alcohol consumption of the region; and $M_{i,p,t-1}$ refers to a list of lagged control variables such as the logarithm of firm size (*Size*), financial leverage (*LEV*), return of assets (*ROA*), stock return volatility (*Cret_volatility*), institutional ownership (*Totinsholdper*), the number of analysts following the firm (*Analyst*), the book-to-market ratio (*BM*), annual stock return (*RET*), turnover ratio (*Turnover*), dual role of board chairmen (*Dual*), the indicator for state-owned enterprises (*SOE*). We also control for industry and year fixed effects and cluster the standard errors at the firm level in all regressions.

The results are tabulated in Table 2. Model (1) presents the baseline regression for all firms in our sample, and Model (4) further controls for development indices at the regional level, including GDP per capita (*GDP_percapita*), natural logarithms of resident consumption per capita (*Consume_percapita*) and the ratio of investment in fixed asset as a fraction of GDP (*Invfixasset_gdp*). We can see that alcohol consumption is positively associated with earnings management. In Models (1) and (4), for instance, a one-standard-deviation increase in *Alcohol* is associated with 4. 80% and 8.40% standard deviation more of earnings management, respectively.[15]

Models (2) and (3) examine the relationship between the alcohol culture and earnings management using two alternative proxies of the drinking culture: the number of nearby famous distilled liquor brand ("*#Famous Brand*") and the intensity of alcohol intoxication ("*Intoxication*"). More explicitly, Models (2) and (5) tabulate the results when we replace *Alcohol* in Equation (1) by "*#Famous Brand*". We can see that using this variable does not change our main result: being closer to more supplies of luxury alcohol brands is in generally associated with a higher degree of earnings management. Indeed, the economic magnitude is even higher for this supply-side proxy. In Model (2) and (5), a one-standard-deviation increase in "*#Famous Brand*" is associated with as high as 25.8% standard deviation more of earnings management (i.e.,$0.007 \times 2.28/0.062 = 25.8\%$). Compared to the aforementioned impact of alcohol consumption, this enhanced magnitude highlights an especially important role of expensive liquor in China's political and business life. Indeed, luxury liquor brands, such as "Maotai", are widely used in

[15] The economic magnitude for the regression model of $y = \alpha + \beta \times x + \epsilon$ is estimated as $\beta \times \sigma_x/\sigma_y$, where y and x are dependent and independent variables, β is the regression coefficient, and σ_y and $\sigma_x$are the standard deviation of the two variables in the sample, respectively. Hence, in Model (1), the economic magnitude is estimated as $0.016 \times 0.186/0.063 = 4.7\%$.

official banquets.[16] Although the information of "*#Famous Brand*" is less complete (its information is available only after 2009), it is likely to capture the most relevant part of the culture of alcohol beverage that could play a role in the business world.

When we replace *Alcohol* in Equation (1) with "*Intoxication*", we see that a higher intensity of alcohol intoxication is in general associated with a higher degree of earnings management. The results are tabulated in Models (3) and (6). In these two models, a one-standard-deviation increase in "*Intoxication*" is associated with 8.50% and 6.87% standard deviation more of earnings management (i.e., in Model 3, the impact is computed as $2.628 \times 0.002/0.062 = 8.5\%$), respectively, which in magnitude is close to that of alcohol consumption. Similar to alcohol consumption, "*Intoxication*" captures the general impact of the alcohol culture—as opposed to the most relevant part as reflected in "*#Famous Brand*"—on business incentives.

Our analysis thus far suggests that culture is associated with firm incentives in conducting earnings management. There are two issues associated with this observation. First, how general is this observation? That is, does this relationship apply to a wide range of earnings management practices? The second issue is about endogeneity: can we assign a causal interpretation to this relationship. We will address the first issues here, and leave the second issue to the next section.

Table 3 examines the robustness of Equation (1) by replacing the dependent variable of *Acrual_DD* with two alternative discretionary accruals (*Accrual_Jones* and *Accrual_KLW*) and two target beating measures (*SPDE* and *SPE*). Note that when target beating measures are used, we use Logistic regression specifications (the two measures are dummy variables). We focus on *Alcohol consumption* as our main proxy for the drinking culture, though using "*#Famous Brand*" and "*Intoxication*" leads to a same conclusion. Models (1) to (4) control for firm characteristics, while Models (5) to (8) further control for regional characteristics. Across all these different specifications, we see that the relationship between alcohol and earnings management remains significantly positive. Jointly, these results suggest the existence of a fairly general relationship between the culture of alcohol beverage and the incentives of not to honestly reporting earnings.

[16] Maotai, for instance, has been used by China's Premier Zhou Enlai to host the U.S. President Richard Nixon during his historical visit to China in 1972 (https://en.wikipedia.org/wiki/Maotai).

IV. Does Culture "Cause" Earning Manipulation: An Instrumental Variable Approach

Although we explicitly control for several variables in the main regression, there is still a possible issue of endogeneity and spurious correlation. To address it, we adopt an instrumental variable approach based on geographic "shocks". The idea that geographic variations affect culture can be dated back to as early as Aristotle, who argued that "The nations that live in cold regions and those of Europe are full of spirit, but somewhat lacking in skill and intellect; for this reason, while remaining relatively free, they lack political cohesion and the ability to rule over their neighbors. On the other hand the Asiatic nations have in their souls both intellect and skill, but are lacking in spirit; so they remain enslaved and subject." (Politics 7.7, 1327b18-1328a21, trans. Sinclair and Saunders). More recent studies show that social capital can be heavily influenced by geographic/climate conditions (e.g., Ostrom, 1990, and Durante, 2009) as well as natural catastrophes (e.g., Castillo and Carter, 2011, and Zylberberg, 2011).

More specifically related to alcohol, we argue that two important geographic "shocks" can significantly impact of the formation of culture without directly affecting firm activities. The first is the gender ratio of the existing population (*GenderRatio*), computed as the ratio between the number of male residence and that of female residence in a province. As evident from the "*Global status report on alcohol and health*" of World Health Organization, all over the world, males consume more alcohol than females.[17] A persistent higher ratio of males in population, will therefore contribute to the establishment of a culture with more intensive alcohol consumption.

The second characteristic is related to the geographic environment. One interesting observation from the aforementioned WHO report is that alcohol consumption is likely to be related to temperature. As observed by the *Economist*, more alcohol consumption per person occurs in Europe and in the former Soviet states.[18] Researchers have also linked alcohol consumption to latitude in the U.S. (e.g., Teague, 1985). Therefore, we use the fraction of areas suffering from snow storms and other natural disasters related to low temperature, wind, and hail as our second instrument for the geographic origin of the culture of alcohol beverage (hereafter "*Snow*"). As a robustness check, we also use the average *Temperature* in a region, which in spirit is close to *Snow*.

We expect these two instruments to be unrelated to earnings management. On the one hand, unlike the total level of population or its aging conditions, the ratio between males and females is less related to the development conditions of a region. Rather, the one-child policy and the relative tight control of cross-

[17] The 2014 edition is available at http://www.who.int/substance_abuse/publications/global_alcohol_report/en/

[18] The Economist, "Drinking habits", 2011, Feb 14.http://www.economist.com/blogs/dailychart/2011/02/global_alcohol_consumption

region mobility in China lead this ratio to be largely independent of firm activities. Especially, we focus on the gender ratio of long-term residence of a region to avoid any issue that may be related to the mobile population. Different from the latter, long-term residency is strictly controlled by local governments in China. Even though this particular government control could affect the population distribution of local residency in addition to geographic/genetic reasons, its potential influence is unrelated to information manipulation incentives of firms. On the other hand, snow conditions and temperature are pure geographic "shocks." Both instruments, therefore, can introduce variations in regional cultures that are exogenous to firm incentives. In other words, they are reasonable instruments because they satisfy both the inclusion restriction and the exclusion restriction.

Based on the above instruments, we estimate the following two-stage IV specification:

$$First\ stage: Alcohol_{p,t} = a + b \times IV_{p,t} + c \times M_{i,p,t-1} + \delta_{p,t-1}, \quad (2)$$

$$Second\ stage: Accrual_{i,p,t} = \alpha + \beta \times \widehat{Alcohol}_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (3)$$

where $IV_{p,t}$ denotes the two instrument variables in the first stage for province p, and $\widehat{Alcohol}_{p,t}$ refers to the projected value of alcohol consumption obtained from the first stage regression. Other variables are the same as before.

Table 4 presents the results of the instrument variable specification. We first use the *Gender ratio* and *Snow* as our main instruments, and report the results of the first stage and the second stage in Models (1) and (2), respectively. We find that both a higher *Gender ratio* (more males with respect to females) and more snow conditions significantly enhance alcohol consumption in the first stage. In the second stage, instrumented alcohol consumption significantly enhances earnings manipulation. We have conducted a list of tests to examine the power and validity of the IV regressions. More specifically, F-tests confirm that our variables are not weak instruments. Furthermore, Hansen's J Statistics is insignificant at 1.28, suggesting that the IV specification is not over-identified. Both statistics confirm the quality of the IV specification.

In Models (3) and (4), we conduct a robustness check by using the average *temperature* to replace *Snow*. The results are very similar. Also, as in the previous case, the F-tests and Hansen's J Statistics suggest that our instruments are powerful and that our system is not over-identified. Combining this test with that reported in Models (1) and (2), our results here lend support to a causal interpretation on the relationship between the culture of alcohol beverage and earnings management.

Finally, Models (5) and (6) provide another robustness check by combining a time-series shock with geographic shock. The time series shock is the reduction in the tariffs of imported alcohol in 2005.[19] More explicitly, we construct a dummy variable, *Tariff*, which takes the value of one for the years after 2005, and 0 otherwise, and then use it jointly with the gender ratio as instrument in Equation (2). In line with existing literature, (e.g., Wagenaar, Salois and Komro, 2009), Model (5) indicates that reductions in tariffs significantly increase alcohol consumption. The second stage results are similar as before: instrumented alcohol consumption incentivizes firms to distort more their earnings.

Table 5 applies our main instrumental variable approach to the two alternative proxies of alcohol culture as well as the alternative proxies of earnings management. More explicitly, Models (1) and (2) still use the *Gender ratio* and *Snow* as two instruments and proxy for the culture of alcohol beverage by the number of nearby famous distilled liquor brands *("#Famous Brand*"). In other words, the only difference between these two models and Models (1) and (2) of the previous table is that we replace *Alcohol* with *"#Famous Brand*". In the first stage, we find that both a higher *Gender ratio* and higher *Snow* affect the supply of famous alcohol brand names. Interestingly, *Snow* is negatively linked to the supply of luxury brands, the results nontheless further confirm the geographic origin of the culture of alcohol beverage in terms of its supply side. In the second stage, instrumented *"#Famous Brand*" significantly enhances earnings manipulation as before.

Models (3) and (4) replace alcohol consumption by the intensity of alcohol intoxication ("*Intoxication*"). Both a higher *Gender ratio* and higher *Snow* significantly enhance the intensity of alcohol intoxication, suggesting that geographic conditions still play an important role in affecting the social cost related to alcohol. Moreover, in the second stage, instrumented alcohol intoxication significantly enhances earnings manipulation.

Models (5) to (8) use the same instruments (*Gender ratio* and *Snow*) and culture proxy (*Alcohol consumption*) as the previous table, but use alternative definitions of discretionary accruals (*Accrual_Jones* and *Accrual_KLW*) and two target beating measures (*SPDE* and *SPE*). Since the first stage is largely the same as Model (1) of the previous table, we do not tabulate it. Rather, we focus on the second stage results. We can see that, across all alternative proxies of earnings management, instrumented alcohol consumption is positively associated with earnings management.

Overall, the analysis in this section lends support to a causal interpretation on the relationship between the culture of alcohol beverage and earnings management. This causal interpretation can not only apply to our main relationship between alcohol consumption and accruals, but also be extended to

[19] According to WTO, starting from Jan 1 of 2005, tariffs for wine and distilled spirit will be reduced to 10% to 30%, a significant reduction compared to previous years (e.g., http://www.lmst.com.cn/docview.php3?keyid=4744).

alternative proxies of the culture of alcohol beverage as well as alternative ways of managing earnings. Together with the previous section, these results suggest that (sin) culture may play a fundamental role in affecting firm incentives.

V. How Does Regional Culture Travel in a Country?

In the previous section, we have shown that (alcohol) culture affects earning manipulation. We now examine the question of how culture transmits in a society. Recent studies show that culture has a persistent impact on human beings even when they immigrate to a different country (Guiso, Sapienza, and Zingales, 2006, Fisman and Miguel, 2007, DeBacker, Heim, and Tran, 2015, and Liu, 2015). If so, we expect corporate leaders to carry with them the values of the culture of their home regions, and help spread it through their corporate leadership. We can also follow the approach of the above literature to further establish the causal impact of culture—in addition to what we have seen in the instrumental variable approach.

More specifically, we design two tests to verify this channel. In the first test, we examine whether more "alcohol-adapted" CEOs—i.e., CEOs who come from regions with more a prominent drinking culture than the location of the firm—are more prone to enhance the relationship between alcohol and earnings management. To conduct the test, we first hand-collect two types of CEO "home regions"—the region of birth ("*Home Region*") as well as the region of college ("*College Region*"). The culture in the region of birth is of course important, as a person could be exposed to more alcohol-related occasions in a high-alcohol region because of his childhood. The region of college is also important to develop the personal habit regarding alcohol consumption, as college is typically the first place in China in which young people start to drink alcohol.[20] We use this information to construct a dummy variable that takes the value of one when the CEO of a firm comes from a region (either college or birth) with higher value of *Alcohol* than the location of the firm, and zero otherwise. We label this dummy variable "$More\_Alcohol\_CEO$". We then expand the baseline regression of Equation (1) by interacting this dummy variable with the previously defined proxy for the drinking culture of the region of the firm. In other words, we conduct the following regression:

[20] Before college, young people in China typically stay with their parents, who strictly control for their alcohol consumption. In college, however, young people live in dorms without the monitoring of parents. The drinking culture of the region can thus heavily affect their consumption behavior regarding alcohol.

$$Accrual_{i,p,t} = \alpha + \beta_1 \times Alcohol_{p,t} + \beta_2 \times More\_Alcohol\_CEO_{i,t} + \gamma \times Alcohol_{p,t} \times More\_Alcohol\_CEO_{i,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (5)$$

where $Alcohol_{p,t}$ is the alcohol consumption of the region of the firm and $More\_Alcohol\_CEO_{i,t}$ refers to the dummy variable for more alcohol-adapted COEs. If more alcohol-adapted CEOs do enhance the existing relationship between alcohol and earnings management, earnings management should be positively related to this interaction term.

We report the tests in Table 6. In Models (1) and (2), the dummy variable "$More\_Alcohol\_CEO$" is constructed using the CEOs' region of birth and their region of college, respectively. Interestingly, earnings management is positively (though insignificantly) associated with the dummy variable of $More\_Alcohol\_CEO$ itself, suggesting that having a more alcohol-adapted CEO by itself may lead firms to distort more information, thought the effect is not highly significant. More importantly, earnings management increases in the interaction term, suggesting an additional culture impact coming from the CEOs' region of origin. Our first step of analysis, therefore, demonstrates an active role played by CEOs in spreading the impact of the sin culture.

Next, to further investigate this effect, we modify Equation (1) by including a region-fixed-effects that controls for the average earnings manipulation incentives for firms located in a same region. This allows us to directly zoom on the relationship between earnings manipulation and the alcohol culture of the *home* regions of the CEOs ("*Alcohol_CEO*"). We therefore regress earnings manipulation on "*Alcohol_CEO*" with the additional control of region-fixed effects, and report the results in Models (3) and (4) of Table 6.

We find a significant positive relationship between earnings manipulation and the alcohol culture of CEOs' home region. This suggests that the culture of corporate leaders' home region has an influence on the corporate manipulation incentives above and beyond the general impact of the regional culture in the location of firms. In other words, CEOs, by carrying with them the imprint of their culture value of origin, distort firm information *regardless of the location of their firms*.

It is worth point out that Models (3) and (4) adopt the same identification approached used by the current literature to establish the causal impact of culture when immigrants move from their country of origin to new countries (Guiso, Sapienza, and Zingales, 2006, Fisman and Miguel, 2007, DeBacker, Heim,

and Tran, 2015, and Liu, 2015). In this regard, we extend this strand of the literature by demonstrating that the same intuition applies to people moving from one region to another region within a country. Economically speaking, this extension brings us one major advantage that has been explored in the literature: i.e., country-level institutions are automatically controlled for when we conduct region-level analysis. This same intuition has been exploited for example by Guiso, Sapienza, and Zingales (2004, 2008b) and Putnam (1993). But this advantage is even more prominent in the case of China given the existence of a strong national government. In this regard, our results combine the strength of the two intuitions, which allow us to clearly identify the unique role played by culture in the business world.

VI. Further Insights: Culture, Formal Institutions and Trust

We now examine the relationship between culture and other social "glues". We first focus on formal institutions and then we consider trust.

A. On the Relationship between Informal Culture and Formal Institutions

We start by looking at the relationship between formal institutions and culture. The two can be related because weak legal enforcement may incentivize citizens to rely on informal and local rules. For example, Gambetta (1993) documents that the Mafia benefited from the abolishment of feudalism in Sicily.[21] Also, and even more interestingly if a sin culture can negatively affect the enforcement of formal institutions, negative externalities may emerge in which all firms want to load on the sin culture.

We first explore whether culture does indeed affect the enforcement of formal institutions, which may consequently give rise to negative externalities. To explore this possibility, we begin with the notion that the likelihood of fraud detection should increase in earnings management, because firms that more heavily distort information are also more likely to conduct corporate fraud (and regulators pay attention to these firms). We then ask whether the culture of alcohol beverage could reduce this sensitivity—or the detection rate conditioning on information distortion. Previous research shows that Chinese firms spend money to entertain, if not bribe, government officials (e.g., Cai, Fang, and Xu, 2011). We extend this observation and explore the culture origin of such behavior. Our underlying hypothesis is that alcohol increases the ability of firms and regulators to connect with each other and therefore reduces the effectiveness of enforcement.

[21] More complicated mechanisms may exist to guide the joint dynamics of the two (Benabou and Tirole, 2011).

We estimate the following Logistic specification:

$$FraudDetection_{i,p,t} = \alpha + \beta_1 \times Accrual_{i,p,t} + \beta_2 \times Alcohol_{p,t} + \gamma \times Accrual_{i,p,t} \times Alcohol_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (4)$$

where $FraudDetection_{i,p,t}$ is a dummy variable that takes the value of one when fraud is detected for firm i located in province p in year t, and other variables are defined as before. The coefficient of interest is γ: if the drinking culture reduces the detection rate, the coefficient should be negative.

The results are tabulated in Table 8. We first observe from Model (1) that the likelihood of fraud detection increases in discretionary accruals, consistent with our presumption that there should be a positive relationship between the two. More importantly, fraud detection decreases in the interaction between accruals and alcohol in Model (3), suggesting that, conditioning on the same level of information distortion, the presence of a more intensive drinking culture reduces the detection rate.

These results have important normative implications. They show that the drinking culture appears to contribute to a negative externality in which the presence of the culture reduces the cost of distorting information. If so, dishonest firms benefit from sin culture, incentivizing otherwise honest firms to distort information as well. This negative externality may help explain why sin culture has such a prevailing impact on earnings management in the first place.

If culture influences firm incentives when formal institutions are weak, a strengthening in institutions should reduce the impact of culture. The 2012 anticorruption move of the central government provides a natural experiment to study this issue. During the meeting of the Political Bureau of the Communist Party of China (CPC) Central Committee, the country's top-ruling body, on December 4, 2012, the Party proposed an anticorruption regulation with eight specific items.[22] This regulation is perhaps the most

[22]The document made explicit requirements on how government officials should improve their work style in eight aspects, focusing on rejecting extravagance and reducing bureaucratic visits, meetings and empty talk. The regulations that are most related to sin culture are: (1) Regulation 1: "There should be no welcome banner, no red carpet, no floral arrangement or grand receptions for officials' visits"; (2) Regulation 8: "Leaders must practise thrift and strictly follow relevant regulations on accommodation and cars". See details: http://cpcchina.chinadaily.com.cn/2012-12/05/content_15992256.htm
There are several detected corruption cases that are related to alcohol consumption. http://news.sohu.com/20141216/n407015870.shtml; http://news.163.com/14/0929/08/A7A1N99C00014SEH.html; http://sd.people.com.cn/n/2015/1223/c362710-27380697.html

severe anticorruption move over the last three decades, with Party leaders at both the region level and the country level being investigated and imprisoned for corruption-related activities due to it. Moreover, investigated top leaders come from all the regions in our sample, suggesting that this anticorruption move is a wiping strengthening of formal institutions that applied to *all* provinces in China. In this regard, the 2012 anticorruption move introduces an exogenous shock in the time series in our analysis.

To examine this shock, we define a dummy variable, *Post_Meet*, which takes the value of one for post-2012 meeting periods (i.e., 2013 and 2014). We then revisit the main results as tabulated in Table 2, except that we interact alcohol consumption with this *Post_Meet* dummy variable to isolate the impact of alcohol consumption before and after the adoption of the anticorruption regulation. The results are tabulated in Models (4) to (6) of Table 6. Model (4) examines the whole sample. We see that while the impact of alcohol consumption on earnings management is positive as before, the interaction term between alcohol consumption and the *Post_Meet* dummy is significantly negative. Hence, the impact of alcohol on earnings management is significantly reduced after the adoption of more stringent anticorruption regulation.

One very important property of the anticorruption regulation is that it applies mostly to Party members (as it is a proposal of a Party meeting). Most investigated and imprisoned cases, for instance, involve Party leaders as well as top executives of large SOEs (top executives of large SOEs are typically Party members). By contrast, its influence to none-party members is indirect. In this case, although this regulation reduces the negative impact of culture in general, its influence should be different between firms run by Party members—i.e., SOEs—and firms run by non-Party members—i.e., non-SOE firms. To test this intuition, we apply the same test to the subsamples of SOE and non-SOE firms in Models (5) and (6), respectively. In line with our expectations, we find that the impact of this anticorruption regulation is significant for SOE firms but insignificant for private firms. The differential response by SOE and non-SOE firms to the regulation not only confirms that formal institutions could suppress informal culture in impacting firm behavior, but also alleviates any concern that the test captures some spurious effect of culture in the time series unrelated to the enhanced formal institutions of anticorruption regulation.

B. On the Relationship between Sin Culture and Social Trust

Till now, we have considered the link between sin culture and formal institutions. We now consider the link between sin culture and other manifestations of culture or informal institutions. Typical candidates

are social trust and religion. Given that religion is underdeveloped in China compared to Western countries (Weber 1958), we focus on social trust and investigate how it affects the influence of sin culture. Since trust represents the collaborative value of a culture, our hypothesis is that social trust will reduce the negative effect of the sin culture.

To test this hypothesis, we construct three proxies to measure trust at provincial level. The first is the standard trust measure based on the World Values Survey in 2001 (see, for instance, the survey paper of Algan and Cahuc 2014 and discussions therein). The World Values Survey asks the question of whether "Most people can be trusted", and we use the fraction of population in a region which gives a "Yes" answer as the measure for social trust, and denote the measure as "*Trust*". The second proxy uses the answers to the question of whether "most people try to be fair". We refer to it as "*Fairness*". The third measure of trust follows Ang et al. (2015) and uses the per capita blood donation in a province (hereafter, "*BloodDonation"*). It is constructed as the number of voluntary blood donors in a province divided by its adult population. Information on blood donation is hand-collected from the *National Health and Family Planning Commission* and is available in three years: 2009, 2012, and 2014. We extrapolate information in these three years to the periods of 2002-2008, 2010-2011, and 2013, respectively.

We rely on the following specification to explore the influence of trust on the relationship between earnings management and alcohol:

$$Accrual_{i,p,t} = \alpha + \beta_1 \times Alcohol_{p,t} + \beta_2 \times Trust_{p,t} + \gamma \times Alcohol_{p,t} \times Trust_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (7)$$

where $Trust_{p,t}$ refers to the level of social trust. The coefficient of the interaction term tells us the influence of trust on the relationship between earnings management and alcohol.

The results are tabulated in Table 8. More explicitly, Model (1) includes the proxy of "Trust" into our baseline regression of Equation (1), and Model (2) further includes the interaction term between *Alcohol* and *Trust* as specified in Equation (7). First of all, we can see from Model (1) that the influence of *Alcohol* on earnings management is robust when social trust is included. Meanwhile, social trust reduces earnings management. This observation suggests that sin culture is not the same as social trust—each element of the culture has its own impact on firm incentives. Furthermore, the interaction term between *Alcohol* and *Trust* is significantly negative. This observation is consistent with the notion that high social trust reduces the influence of sin culture on manipulation incentives.

Models (3) to (4) and Models (5) to (6) further replace the main proxy of *Trust* with "*Fairness*" and "*BloodDonation*". We can see that, across all different specifications, the influence of *Alcohol* remains significant on its own—but the presence of a high degree of social trust reduces this influence.

C. On the Impact of Other Elements of Sin Culture

Finally, we explore the impact of other forms of sin culture. We therefore revisit Equation (1), replacing *Alcohol* with proxies of the culture of sex (*Sex*), the culture of smoking (*Smoking*), as well as the culture of gaming (*Gaming*).

The results are tabulated in Table 9. We find that the culture of sex also exhibits a positive relationship with earnings manipulation, whereas the culture of smoking and gaming have largely insignificant impact. The caveat here is that data on some elements of the above sin culture are indirect. For instance, unlike alcohol consumption which is not only legal but can also be heavily advertised in government-controlled TV channels, pornography remains illegal in China. Hence what we can observe is only detected cases, where the detection itself could be affected by the influence sin culture (i.e., a negative externality that is, unfortunately, unobservable). We may under-estimate its impact in this case. Nonetheless, our results provide some initial evidence that other elements of sin culture could have their own impact.

Conclusion

In this paper, we examine the impact of the sin culture—mainly in the form of alcohol consumption—on the incentives for firms to honestly disclose information. To control for formal institutions at the country level, we zoom in on China, a country with significant regionals variations in terms of culture, and find that firms in regions with a more prominent culture of alcohol beverage are in general associated with more earnings management. Our results are robust when we use alternative proxies of the culture of alcohol beverage and alternative measures of earnings management.

Since the culture of alcohol beverage is affected by geographic shocks such as regional gender ratio and snow or temperature, we use these regional variables as instruments to address the endogeneity issue. Tests based on these instruments suggest a causal interpretation.

We further demonstrate that the impact of culture can be carried on and spread in the society by corporate leaders. More explicitly, a more prominent drinking culture in the region of birth/schooling of CEOs of a firm can significantly increases earnings management, even when we control for region-fixed-effects of the locations of firms. This provides intuition on the way culture gets transmitted in a society and further address the issue of endogeneity.

We further show that culture can generate a negative externality by reducing the likelihood of fraud detection in the presence of a high degree of earnings management. In this case, even honest firms may have incentives not to disclose information in a honest and fair way. Yet improvements in formal institutions, as captured in the 2012 anticorruption move, can suppress the negative impact of informal culture, suggesting that the impact of culture is most significant when formal institutions fall short. Finally, we also find that the negative impact of culture is more significant in regions with low social trust, and that other elements of the sin culture may also affect firm incentives.

Overall, our results provide novel evidence on how culture affects firm activities in the real economy, which has important normative implications. Culture could serve as a founding block for an economy when formal institutions fall short—yet not all influences of culture are positive. Our research, therefore, calls for attention to the potential negative impact that culture may exert on firm behavior.

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Appendix: Variable definitions

	Definition	Source	Period
Dependent variables			
Accrual_DD	Dechow and Dichev's (2002) residual accruals.	CSMAR	2002-2014
Accrual_Jones	Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals, obtained by regressing total accruals on fixed assets and revenue growth, excluding growth in credit sales.	CSMAR	2002-2014
Accrual_KLW	Kothari, Leone, and Wasley's (2005) residual accruals. Based on *Accrual_Jones*, KLW's model further controls for firm's ROA.	CSMAR	2002-2014
SPAF	Target beating on small positive forecasting profits, a dummy variable that equals 1 if the difference between reported earnings per share and forecasted earnings per share scaled by stock price is between 0% and 1%, based on Degeorge, Patel, and Zeckhauser (1999).	CSMAR	2002-2014
SPDE	Target beating on small positive past-earnings profits, a dummy variable that equals 1 if the change in net income scaled by lagged total assets is between 0% and 1%, based on Burgstahler and Dichev (1997).	CSMAR	2002-2014
Fraud_detection	Likelihood of corporate fraud detection	CSMAR	2002-2014
Sin culture variables			
Alcohol	Alcohol consumption, measured as provincial urban residents' per capita annual average alcohol consumption divided by provincial urban employees' per capita annual wage, multiplied by 100.	National Bureau of Statistics (NBS) and Provincial Statistical Yearbook	2002-2012
#Famous Brand	The number of Top 200 famous brand names of distilled liquor factories nearby the location of firms (within a 200-kilometer radius).	China National Association for Liquor and Spirits Circulation	2009-2014
Intoxication	Intoxication, measured as the cases of alcohol intoxication scaled by adult population.	Survey on the residents with alcohol intoxication conducted by the National Ministry of Public Health in six provinces	2005、2011、2014

Sex	Sex culture, measured as the detected cases of pornographic publications (books and periodicals, and videos) divided by population aged 15 or elder in a province.	China Yearbook of Eliminating Pornography and Illegal Publications	2006-2013
Smoking	Smoking culture, measured as provincial tobacco consumption divided by urban employees' per capita GDP.	National Bureau of Statistics (NBS) and Provincial Statistical Yearbook	2002-2012
Gaming	Gambling culture, measured as the number of Mahjong rooms divided by population aged 15 or elder in a province.	Baidu Map search engine (http://map.baidu.com/)	2015
Anticorruption			
Meet	Anti-corruption move, equals 1 if the sample period is after the eight-point regulation which were adopt in December 2012, and otherwise 0.	The Website of Commission for Discipline Inspection of CPC	-
Trust variables			
BloodDonate	Per capita blood donation in a province, measured as the number of blood donation voluntarily in a province divided by its adult population.	National Health and Family Planning Commission	2009、2012、2014
Trust	Most people can be trusted.	World Values Survey (2001)	2001
Fairness	Most people try to be fair.	World Values Survey (2001)	2001
Instrumental variables			
Genda Ratio	Gender ratio, measured as the ratio of males to females in a province.	China Statistical Yearbook	2002-2014
Snow	Degree of snow disaster or storm in a province, measured as the snow disaster or storm area divided by provincial total area.	China Civil Affairs' Statistical Yearbook	2006-2013
Temperature	Annual average temperature in a region.	China Statistical Yearbook	2007-2013
Tarriff_Reduction	Tariffs reduction, a dummy variable that equals 1 for those years after 2005, and 0 otherwise.	Document of China's General Administration of Customs	2002-2014
Control variables			
Size	Firm size.	CSMAR	2002-2014
LEV	Financial leverage.	CSMAR	2002-2014

ROA	Return of assets.	CSMAR	2002-2014
Cret_volatility	Stock return volatility.	CSMAR	2002-2014
Totinsholdper	Institutional ownership.	Wind	2002-2014
Analyst	The number of analysts following the firm.	CSMAR	2002-2014
BM	The book-to-market ratio.	CSMAR	2002-2014
RET	Annual stock return.	CSMAR	2002-2014
Turnover	Turnover ratio.	CSMAR	2002-2014
Dual	Dual role of board chairmen.	CSMAR	2002-2014
Indir	Ratio of independent directors.	CSMAR	2002-2014
SOE	State owned enterprises	CCER	2002-2014
Gdp_percapita	Gdp divided by total population	China Statistical Yearbook	2002-2014
Invfixasset_gdp	Investment in fixed assets divided by total population	China Statistical Yearbook	2002-2014
Consume_percapita	Natural logarithms of resident consumption per capita	China Statistical Yearbook	2002-2014

Table 1: Descriptive statistics

This table presents descriptive statistics of the sample. Panel A presents the descriptive statistics for the full sample. The sample period is from 2002 to 2014. Panel B presents the summary statistics and Spearman (Pearson) correlation coefficients of the main variables that are used in this study. The upper-fight part (bottom-left part) of the Panel B is the Spearman (Pearson) correlation matrix. All variables are as defined in Appendix table 1. *, **, and *** indicate statistical significance at the10%, 5% and 1% levels, respectively.

Panel A: Summary statistics

Variable	Mean	STD	10%	25%	Median	75%	90%
Alcohol	0.838	0.175	0.601	0.745	0.873	0.971	1.038
Alcohol Intoxication	0.001	0.002	0.000	0.000	0.001	0.002	0.003
#Nearby Famous Brand Names	1.442	2.279	0.000	0.000	1.000	2.000	4.000
Sex	2.640	3.728	0.132	0.551	1.233	2.714	5.824
Smoking	0.843	0.648	0.307	0.400	0.644	1.046	1.570
Gambling	0.021	0.008	0.012	0.016	0.021	0.028	0.030
Accrual_DD	0.098	0.062	0.035	0.054	0.081	0.125	0.184
Accrual_Jones	0.056	0.054	0.007	0.018	0.040	0.076	0.129
Accrual_KK	0.053	0.051	0.007	0.017	0.038	0.072	0.117
SPAF	0.148	0.355	0.000	0.000	0.000	0.000	1.000
SPDE	0.184	0.387	0.000	0.000	0.000	0.000	1.000
SPE	0.141	0.348	0.000	0.000	0.000	0.000	1.000
Fraud_detection	0.133	0.339	0.000	0.000	0.000	0.000	1.000
Size	21.673	1.170	20.369	20.875	21.548	22.290	23.195
LEV	0.484	0.184	0.223	0.355	0.498	0.625	0.713
Cret_volatility	0.129	0.053	0.074	0.092	0.117	0.154	0.200
Totinsholdper	0.168	0.184	0.003	0.022	0.097	0.259	0.452
Analyst	22.216	40.319	0.000	0.000	3.000	25.000	74.000
BM	1.083	0.928	0.288	0.484	0.821	1.378	2.178
RET	0.299	0.948	-0.457	-0.268	-0.018	0.555	1.533
ROA	0.036	0.062	0.000	0.010	0.030	0.061	0.105
Turnover	20.281	1.318	18.366	19.332	20.434	21.213	21.888
Dual	0.156	0.362	0.000	0.000	0.000	0.000	1.000
Indir	0.353	0.061	0.333	0.333	0.333	0.375	0.429
SOE	0.605	0.489	0.000	0.000	1.000	1.000	1.000
Gdp_percapita	3.496	2.136	1.006	1.718	3.147	5.065	6.724
Invfixasset_gdp	0.520	0.178	0.321	0.363	0.485	0.640	0.783
Consume_percapita	9.482	0.428	8.838	9.173	9.525	9.790	10.054
BloodDonate	0.962	0.611	0.267	0.345	0.937	1.357	1.619
Trust	0.538	0.118	0.400	0.520	0.530	0.560	0.720
Fairness	0.700	0.123	0.520	0.600	0.710	0.800	0.880
Meet	0.231	0.422	0.000	0.000	0.000	0.000	1.000
Genda_Ratio	1.013	0.042	0.965	0.984	1.009	1.037	1.071
Snow	1.643	3.771	0.674	1.330	2.149	2.613	2.783
Temperature (Average)	12.430	4.431	6.917	10.083	12.008	14.483	19.983
Tarriff_Reduction	0.749	0.434	0.000	0.000	1.000	1.000	1.000

Panel B: Correlation coefficient (Spearman for the upper-right part, while Pearson for the bottom-left part)

Variable	*Accrual_DD*	*Alcohol*	*Size*	*LEV*	*Cret_volatility*	*Totinsholdper*	*Analyst*	*BM*	*RET*	*Turnover*	*ROA*	*Dual*	*Indir*	*SOE*	*Gdp_percapita*	*Invfixasset_gdp*	*Consume_percapita*
Accrual_DD	1	0.046***	-0.103***	0.142***	0.078***	-0.051***	-0.148***	-0.034***	-0.026***	-0.072***	-0.068***	0.004	-0.009	-0.051***	-0.114***	-0.004	-0.117***
Alcohol	0.042***	1	0.040***	0.013	0.091***	0.086***	0.107***	-0.082***	0.079***	0.189***	0.020**	0.038***	0.129***	-0.076***	0.123***	-0.113***	0.235***
Size	-0.141***	0.052***	1	0.360***	-0.064***	0.123***	0.537***	0.470***	0.019*	0.473***	0.184***	-0.094***	0.096***	0.188***	0.256***	0.077***	0.247***
LEV	0.111***	0.017*	0.355***	1	0.076***	-0.008	-0.003	0.528***	-0.01	0.040***	-0.318***	-0.053***	0.029***	0.110***	-0.014	0.073***	-0.026***
Cret_volatility	0.100***	0.078***	-0.079***	0.071***	1	0.132***	0.034***	-0.209***	0.258***	0.416***	-0.039***	0.021**	0.109***	-0.028***	0.066***	0.107***	0.068***
Totinsholdper	-0.040***	0.074***	0.068***	-0.01	0.137***	1	0.300***	-0.161***	0.158***	0.217***	0.231***	0.013	0.078***	-0.041***	0.110***	0.01	0.132***
Analyst	-0.133***	0.071***	0.504***	-0.024**	-0.087***	0.206***	1	-0.056***	0.074***	0.560***	0.454***	0.021**	0.148***	-0.022**	0.381***	0.137***	0.418***
BM	-0.056***	-0.038***	0.489***	0.487***	-0.188***	-0.094***	0.015	1	-0.379***	-0.253***	-0.352***	-0.099***	-0.013	0.168***	-0.059***	-0.005	-0.081***
RET	0.039***	0.064***	-0.018*	0.018*	0.475***	0.146***	-0.036***	-0.286***	1	0.292***	0.208***	0.008	0.065***	-0.021**	0.039***	0.073***	0.046***
Turnover	-0.088***	0.210***	0.499***	0.036***	0.387***	0.135***	0.453***	-0.154***	0.311***	1	0.271***	0.008	0.226***	-0.025***	0.404***	0.259***	0.446***
ROA	-0.063***	0.026***	0.184***	-0.300***	-0.027***	0.150***	0.346***	-0.238***	0.161***	0.266***	1	0.006	0.019*	-0.061***	0.135***	-0.048***	0.145***
Dual	0.001	0.052***	-0.095***	-0.055***	0.008	0.003	0.030***	-0.073***	-0.002	0.010	0.004	1	0.074***	-0.171***	0.095***	-0.005	0.106***
Indir	0.001	0.160***	0.093***	0.021**	0.107***	0.071***	0.119***	0.026***	0.059***	0.247***	0.044***	0.081***	1	-0.120***	0.205***	0.164***	0.245***
SOE	-0.060***	-0.091***	0.195***	0.115***	-0.014	-0.011	-0.038***	0.143***	-0.002	-0.025***	-0.054***	-0.171***	-0.128***	1	-0.200***	-0.027***	-0.231***
Gdp_percapita	-0.086***	0.178***	0.253***	-0.038***	0.001	0.067***	0.314***	0.004	-0.032***	0.379***	0.131***	0.091***	0.201***	-0.182***	1	-0.072***	0.942***
Invfixasset_gdp	-0.011	-0.066***	0.074***	0.067***	0.054***	-0.019**	0.107***	0.023**	0.026***	0.270***	-0.018*	-0.006	0.185***	-0.027***	-0.125***	1	-0.051***
Consume_percapita	-0.091***	0.305***	0.258***	-0.029***	0.051***	0.098***	0.346***	-0.013	0.004	0.492***	0.149***	0.100***	0.293***	-0.223***	0.901***	0.011	1

Table 2: The effect of alcohol culture on earnings management

This table presents the results of the following multivariate regression:

$$Accrual_{i,p,t} = \alpha + \beta \times Alcohol_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Accrual_{i,p,t}$ refers to the discretionary accrual following Dechow and Dichev's (2002) model (*Accrual_DD*) for firm i located in province p in year t, $Alcohol_{p,t}$ refers to the alcohol consumption of the region in Models (1) and (4), the number of nearby famous distilled liquor brand ("#Famous Brand") in Models (2) and (5), and the intensity of alcohol intoxication ("Intoxication") in Models (3) and (6). $M_{i,p,t-1}$ stacks a list of lagged control variables, including the logarithm of firm size (Size), financial leverage (LEV), return of assets (ROA), stock return volatility (Cret_volatility), institutional ownership (Totinsholdper), the number of analysts following the firm (Analyst), the book-to-market ratio (BM), annual stock return (RET), turnover ratio (Turnover), dual role of board chairmen (Dual), the indicator for state-owned enterprises (SOE), GDP per capita (GDP_percapita), natural logarithms of resident consumption per capita (Consume_percapita) and the ratio of investment in fixed asset as a fraction of GDP (Invfixasset_gdp). These variables are defined in the Appendix. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects (IY) and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Dep. Var=*Accrual_DD*	(1)	(2)	(3)	(4)	(5)	(6)
Alcohol	0.017**			0.023***		
	(2.29)			(3.07)		
#Nearby Famous Brand Names		0.007***			0.007***	
		(10.1)			(9.56)	
Alcohol Intoxication			2.628**			2.131*
			(2.29)			(1.76)
Size	-0.004**	-0.004**	-0.005*	-0.004**	-0.004**	-0.005
	(-2.20)	(-2.14)	(-1.70)	(-2.01)	(-2.17)	(-1.51)
LEV	0.056***	0.055***	0.057***	0.055***	0.054***	0.056***
	(7.31)	(7.33)	(4.72)	(7.07)	(7.21)	(4.67)
Cret_volatility	0.148***	0.139***	0.159***	0.147***	0.137***	0.158***
	(6.56)	(6.23)	(4.67)	(6.56)	(6.19)	(4.64)
Totinsholdper	-0.013**	-0.014***	-0.010	-0.012**	-0.014**	-0.010
	(-2.35)	(-2.73)	(-1.18)	(-2.23)	(-2.57)	(-1.23)
Analyst	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-1.35)	(-1.53)	(-0.65)	(-1.17)	(-1.40)	(-0.57)
BM	-0.005***	-0.005***	-0.006**	-0.006***	-0.005***	-0.006**
	(-3.74)	(-3.74)	(-2.23)	(-3.85)	(-3.72)	(-2.36)
RET	0.001	0.001	-0.002	0.001	0.001	-0.002
	(0.83)	(0.46)	(-1.16)	(0.89)	(0.60)	(-1.20)
Turnover	-0.006***	-0.005***	-0.002	-0.006***	-0.005***	-0.002
	(-3.21)	(-2.88)	(-0.61)	(-3.39)	(-2.85)	(-0.73)
ROA	0.026	0.030*	0.017	0.027*	0.026*	0.019
	(1.62)	(1.93)	(0.64)	(1.69)	(1.69)	(0.73)
Dual	-0.001	-0.003	0.001	-0.001	-0.003	0.001
	(-0.42)	(-0.86)	(0.16)	(-0.34)	(-0.88)	(0.30)
Indir	0.034*	0.021	0.032	0.033*	0.022	0.031
	(1.91)	(1.18)	(1.15)	(1.82)	(1.22)	(1.13)
SOE	-0.007***	-0.008***	-0.005	-0.007***	-0.008***	-0.006
	(-2.71)	(-3.31)	(-1.20)	(-2.94)	(-3.37)	(-1.49)
Gdp_percapita				0.002	0.002	0.003
				(1.20)	(1.11)	(0.82)
Invfixasset_gdp				0.027***	0.014	0.048**
				(2.80)	(1.50)	(2.25)
Consume_percapita				-0.005	0.003	-0.038
				(-0.55)	(0.33)	(-1.49)
Constant	0.243***	0.236***	0.190***	0.264***	0.204**	0.506**
	(6.59)	(6.11)	(3.18)	(3.15)	(2.51)	(2.32)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	10478	10478	4199	10478	10478	4199
Adj Rsq	0.11	0.16	0.09	0.11	0.17	0.09

Table 3: Alternative proxies of alcohol culture and earnings management

This table presents the results of the following multivariate regression:

$$Accrual_{i,p,t} = \alpha + \beta \times Alcohol_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Accrual_{i,p,t}$ refers to alternative proxies of earnings management for firm i located in province p in year t, including Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals ("Accrual_Jones"), Kothari, Leone, and Wasley's (2005) residual accruals ("Accrual_KLW"), and target beating on "small positive past-earnings profits" (SPDE) and "small positive profits" (SPE) based on Burgstahler and Dichev (1997). $Alcohol_{p,t}$ refers to the alcohol consumption of the region. $M_{i,p,t-1}$ stacks a list of lagged control variables, including the logarithm of firm size (Size), financial leverage (LEV), return of assets (ROA), stock return volatility (Cret_volatility), institutional ownership (Totinsholdper), the number of analysts following the firm (Analyst), the book-to-market ratio (BM), annual stock return (RET), turnover ratio (Turnover), dual role of board chairmen (Dual), the indicator for state-owned enterprises (SOE), GDP per capita (GDP_percapita), natural logarithms of resident consumption per capita (Consume_percapita) and the ratio of investment in fixed asset as a fraction of GDP (Invfixasset_gdp). These variables are defined in the Appendix. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Dep. Var=	*Accrual_Jones*	*Accrual_KK*	*SPDE*	*SPE*	*Accrual_Jones*	*Accrual_KK*	*SPDE*	*SPE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Alcohol	0.007**	0.007**	0.332**	0.355*	0.007*	0.006*	0.347**	0.570***
	(2.18)	(2.06)	(2.01)	(1.77)	(1.94)	(1.70)	(1.96)	(2.68)
Size	-0.006***	-0.005***	0.113***	0.026	-0.006***	-0.006***	0.131***	0.050
	(-6.26)	(-6.55)	(2.74)	(0.49)	(-6.14)	(-6.65)	(2.96)	(0.85)
LEV	0.022***	0.026***	-1.282***	0.340	0.023***	0.028***	-1.383***	0.223
	(5.63)	(7.42)	(-7.56)	(1.50)	(5.49)	(7.41)	(-7.54)	(0.93)
Cret_volatility	0.020	-0.003	-0.554	2.764***	0.023	-0.004	-0.211	2.545***
	(1.31)	(-0.26)	(-0.84)	(3.46)	(1.45)	(-0.25)	(-0.30)	(3.09)
Totinsholdper	0.001	0.001	0.018	-0.385**	0.002	0.002	0.030	-0.333*
	(0.34)	(0.38)	(0.13)	(-2.18)	(0.51)	(0.58)	(0.20)	(-1.81)
Analyst	-0.000	-0.000*	-0.004***	-0.009***	-0.000	-0.000	-0.005***	-0.010***
	(-0.91)	(-1.79)	(-4.72)	(-6.30)	(-0.55)	(-1.39)	(-4.79)	(-5.59)
BM	-0.002**	-0.002***	0.068*	0.278***	-0.002**	-0.002***	0.063	0.310***
	(-2.41)	(-2.93)	(1.86)	(5.62)	(-2.36)	(-2.94)	(1.56)	(5.62)
RET	0.008***	0.006***	-0.194***	-0.315***	0.008***	0.007***	-0.210***	-0.304***
	(7.28)	(6.04)	(-3.94)	(-4.56)	(7.29)	(6.12)	(-4.05)	(-4.26)
Turnover	0.001	0.001	0.017	-0.052	0.001	0.001	0.020	-0.086
	(1.27)	(1.16)	(0.41)	(-0.97)	(1.22)	(1.28)	(0.45)	(-1.49)
ROA	-0.020	0.016	-2.116***	-10.398***	-0.021	0.013	-2.276***	-10.331***
	(-1.53)	(1.54)	(-4.95)	(-17.0)	(-1.58)	(1.17)	(-5.00)	(-16.3)
Dual	-0.000	0.001	0.033	0.193**	-0.000	0.001	0.029	0.165*
	(-0.0092)	(0.77)	(0.45)	(2.27)	(-0.053)	(0.80)	(0.38)	(1.78)
Indir	0.009	0.014*	-0.670	-0.143	0.012	0.016*	-0.594	-0.179
	(1.01)	(1.69)	(-1.63)	(-0.26)	(1.25)	(1.83)	(-1.38)	(-0.32)
SOE	-0.003**	-0.003**	0.038	0.164**	-0.003*	-0.002*	0.045	0.156**
	(-2.10)	(-2.16)	(0.64)	(2.24)	(-1.93)	(-1.88)	(0.70)	(1.99)
Gdp_percapita					0.000	0.001	-0.000	0.010
					(0.59)	(0.76)	(-0.0096)	(0.23)
Invfixasset_gdp					-0.001	-0.000	0.276	0.711**
					(-0.27)	(-0.085)	(1.10)	(2.28)
Consume_percapita					0.002	0.003	-0.225	-0.284
					(0.37)	(0.67)	(-1.16)	(-1.13)
Constant	0.131***	0.144***	-2.859***	-2.009**	0.105**	0.100***	-1.431	0.406
	(7.30)	(7.68)	(-3.42)	(-1.98)	(2.32)	(2.64)	(-0.71)	(0.16)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	13261	14677	15081	15086	13261	14677	15081	15086
Adj Rsq	0.06	0.06	0.0465	0.118	0.06	0.06	0.0497	0.123

Table 4: Alcohol culture and earnings management: Instrumental variable approach

This table presents the results of the following two-stage IV specification:

$$First\ stage: Alcohol_{p,t} = a + b \times IV_{p,t} + c \times M_{i,p,t-1} + \delta_{p,t-1}, \quad (2)$$

$$Second\ stage: Accrual_{i,p,t} = \alpha + \beta \times \widehat{Alcohol}_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (3)$$

where $IV_{p,t}$ denotes the instrument variables in the first stage for province p, and $\widehat{Alcohol}_{p,t}$ refers to the projected value of alcohol consumption obtained from the first stage regression. $M_{i,p,t-1}$ stacks a list of lagged control variables as before. The instruments are the gender ratio (*Gender Ratio*), the fraction of areas suffering from snow storms and other natural disasters related to low temperature, wind, and hail (Snow), the average Temperature in a region in a year (Temperature), and the dummy variable of reductions in alcohol tariff (Tarriff_Reduction). Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

IVs=	*Panel A :Genda_Ratio & Snow*		*Panel B: Genda_Ratio & Temperature (Average)*		*Panel C: Genda_Ratio & Tarriff_Reduction*	
Dep. Var=	Stage 1 *Alcohol*	Stage 2 *Accrual_DD*	Stage 1 *Alcohol*	Stage 2 *Accrual_DD*	Stage 1 *Alcohol*	Stage 2 *Accrual_DD*
	(1)	(2)	(3)	(4)	(5)	(6)
Genda_Ratio	0.440***		0.592***		0.962***	
	(5.15)		(7.48)		(13.3)	
Snow	0.002**					
	(2.20)					
Temperature (Average)			-0.001***			
			(-6.88)			
Tarriff_Reduction					0.006**	
					(2.32)	
Alcohol_hat		0.173**		0.151***		0.204***
		(2.48)		(2.76)		(2.76)
Size	-0.005	-0.003	-0.002	0.000	-0.005	-0.003
	(-0.90)	(-1.41)	(-0.36)	(0.20)	(-0.89)	(-1.55)
LEV	0.047**	0.047***	0.044*	0.043***	0.047**	0.047***
	(2.08)	(5.09)	(1.83)	(4.30)	(2.05)	(4.91)
Cret_volatility	0.016	0.119***	-0.035	0.135***	0.015	0.131***
	(0.27)	(4.72)	(-0.56)	(4.75)	(0.25)	(4.97)
Totinsholdper	0.022	-0.018***	0.001	-0.013*	0.023	-0.018***
	(1.48)	(-2.90)	(0.074)	(-1.84)	(1.52)	(-2.69)
Analyst	-0.000**	-0.000	-0.000**	-0.000	-0.000**	0.000
	(-2.45)	(-0.067)	(-2.45)	(-1.45)	(-2.45)	(0.41)
BM	-0.006	-0.005***	-0.008*	-0.007***	-0.006	-0.005***
	(-1.19)	(-3.03)	(-1.65)	(-3.22)	(-1.17)	(-2.84)
RET	-0.002	0.003**	-0.002	0.002*	-0.002	0.003**
	(-0.71)	(2.08)	(-0.77)	(1.72)	(-0.73)	(2.03)
Turnover	0.016***	-0.007***	0.012**	-0.009***	0.016***	-0.009***
	(2.92)	(-3.25)	(2.20)	(-3.64)	(2.91)	(-3.66)
ROA	-0.063	0.019	-0.096*	0.053**	-0.062	0.026
	(-1.43)	(1.05)	(-1.84)	(2.23)	(-1.41)	(1.36)
Dual	0.011	-0.002	0.005	-0.001	0.011	-0.003
	(1.39)	(-0.71)	(0.61)	(-0.36)	(1.40)	(-0.97)
Indir	0.094*	0.037*	0.147**	0.022	0.094*	0.021
	(1.83)	(1.80)	(2.39)	(0.82)	(1.84)	(0.94)
SOE	-0.004	-0.008***	-0.004	-0.007**	-0.004	-0.007**
	(-0.46)	(-2.73)	(-0.57)	(-2.28)	(-0.50)	(-2.42)
Gdp_percapita	-0.044***	0.009**	-0.018***	0.005**	-0.044***	0.011***
	(-12.8)	(2.41)	(-4.04)	(2.06)	(-13.0)	(2.67)
Invfixasset_gdp	-0.294***	0.079***	-0.382***	0.085***	-0.296***	0.086***
	(-9.72)	(2.98)	(-6.82)	(2.93)	(-9.79)	(3.14)
Consume_percapita	0.210***	-0.042**	-0.055	0.003	0.212***	-0.046**
	(8.75)	(-2.19)	(-1.32)	(0.22)	(8.80)	(-2.31)
Constant	-1.487***	0.430***	0.777**	-0.019	-1.505***	0.463***
	(-6.24)	(3.44)	(1.97)	(-0.12)	(-6.29)	(3.55)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	10478	10478	10478	10478	10478	10478
Adj Rsq	0.23	0.14	0.19	0.12	0.23	0.09
Weak IV *F* Statistics	43.833		71.596		102.839	
Hansen's *J* Statistics	1.278		0.163		0.003	

Table 5: IV Regressions for Alternative Proxies of Culture and Earnings Management

This table presents the results of the following two-stage IV specification:

$$First\ stage: Alcohol_{p,t} = a + b \times IV_{p,t} + c \times M_{i,p,t-1} + \delta_{p,t-1},$$

$$Second\ stage: Accrual_{i,p,t} = \alpha + \beta \times \widehat{Alcohol}_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $IV_{p,t}$ denotes the two instrument variables in the first stage, including the gender ratio (*Gender Ratio*), the fraction of areas suffering from snow storms and other natural disasters related to low temperature, wind, and hail (Snow). In Models (1) to (4), $Accrual_{i,p,t}$ refers to our main proxies of discretionary accruals (*Accrual_DD*), and $Alcohol_{p,t}$ refers to the number of nearby famous distilled liquor brand ("#Famous Brand") in Models (2) and (5), and the intensity of alcohol intoxication ("Intoxication"). In Models (5) to (9), $Accrual_{i,p,t}$ refers to alternative proxies of earnings management for firm i located in province p in year t, including Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals ("Accrual_Jones"), Kothari, Leone, and Wasley's (2005) residual accruals ("Accrual_KLW"), and target beating on "small positive past-earnings profits" (SPDE) and "small positive profits" (SPE) based on Burgstahler and Dichev (1997), and and $Alcohol_{p,t}$ refers to our main proxy of regional alcohol consumption. In all specification, $M_{i,p,t-1}$ stacks a list of lagged control variables as before, and $\widehat{Alcohol}_{p,t}$ refers to the projected value of alcohol obtained from the first stage regression. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

IVs=	*Panel A: Alternative Measures of Alcohol Culture*				*Panel B: Alternative Measures of Earnings Manipulation*				
	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2			
Dep. Var=	*#Nearby Famous Brand Names*	*Accrual_DD*	*Alcohol Intoxication*	*Accrual_DD*	*Alcohol*	*Accrual_Jones*	*Accrual_KK*	*SPDE*	*SPE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Genda_Ratio	0.448		0.026***		0.440***				
	(0.37)		(10.1)		(5.15)				
Snow	-0.061***		0.000***		0.002**				
	(-3.52)		(7.37)		(2.20)				
#Nearby Famous Brand Names_hat		0.014**							
		(2.43)							
Alcohol Intoxication_hat				1.817***					
				(2.89)					
Alcohol_hat						0.037**	0.002*	0.007**	0.037***
						(2.01)	(1.88)	(2.53)	(3.18)
Size	0.000	-0.004**	0.011	-0.006*	-0.005	-0.005***	-0.005***	0.018**	-0.011*
	(0.71)	(-2.20)	(0.13)	(-1.79)	(-0.90)	(-4.43)	(-4.92)	(2.55)	(-1.93)
LEV	-0.000	0.056***	0.092	0.061***	0.047**	0.012**	0.019***	-0.214***	-0.011
	(-1.27)	(6.94)	(0.27)	(5.00)	(2.08)	(2.53)	(4.59)	(-7.07)	(-0.39)
Cret_volatility	-0.000	0.108***	1.556*	0.128***	0.016	0.013	-0.003	0.011	0.217**
	(-0.48)	(4.26)	(1.71)	(3.95)	(0.27)	(0.65)	(-0.17)	(0.098)	(2.13)
Totinsholdper	-0.000	-0.020***	0.345	-0.013	0.022	-0.003	0.001	-0.006	-0.010
	(-0.37)	(-3.10)	(1.31)	(-1.41)	(1.48)	(-0.81)	(0.42)	(-0.23)	(-0.47)
Analyst	-0.000	-0.000	0.000	-0.000	-0.000**	-0.000	-0.000**	-0.001***	-0.000*
	(-1.27)	(-1.23)	(0.24)	(-0.29)	(-2.45)	(-0.46)	(-2.08)	(-3.98)	(-1.91)
BM	0.000	-0.005***	-0.048	-0.007**	-0.006	-0.002	-0.002**	0.008	0.054***
	(0.35)	(-3.23)	(-0.90)	(-2.26)	(-1.19)	(-1.43)	(-2.17)	(1.02)	(7.47)
RET	-0.000**	0.001	0.058	0.001	-0.002	0.009***	0.007***	-0.018***	-0.016***
	(-2.25)	(0.86)	(1.59)	(0.27)	(-0.71)	(6.29)	(5.19)	(-3.04)	(-2.86)
Turnover	0.000	-0.003	-0.082	-0.001	0.016***	0.001	0.001	-0.001	0.001
	(1.09)	(-1.53)	(-1.08)	(-0.23)	(2.92)	(0.45)	(0.57)	(-0.16)	(0.16)
ROA	0.000	0.017	-0.259	-0.002	-0.063	-0.025*	0.013	-0.318***	-1.136***
	(0.43)	(1.01)	(-0.38)	(-0.066)	(-1.43)	(-1.69)	(0.96)	(-4.24)	(-14.6)
Dual	-0.000	-0.007*	0.278	0.002	0.011	-0.001	0.001	0.015	0.018*
	(-0.27)	(-1.71)	(1.54)	(0.36)	(1.39)	(-0.52)	(0.38)	(1.29)	(1.71)
Indir	0.000	0.020	2.108***	0.027	0.094*	0.011	0.020**	-0.018	-0.034
	(0.31)	(0.82)	(2.80)	(0.96)	(1.83)	(0.99)	(1.96)	(-0.24)	(-0.48)
SOE	-0.000	-0.010***	0.113	-0.008**	-0.004	-0.003**	-0.003**	0.005	0.012
	(-0.45)	(-3.52)	(0.96)	(-1.99)	(-0.46)	(-2.51)	(-2.12)	(0.57)	(1.59)
Gdp_percapita	0.001***	0.002	-0.170**	0.004	-0.044***	0.001	0.000	-0.006	0.003
	(8.70)	(1.31)	(-2.38)	(1.08)	(-12.8)	(0.73)	(0.28)	(-0.44)	(0.23)
Invfixasset_gdp	0.002***	0.003	0.883**	0.058**	-0.294***	0.005	-0.004	0.006	0.083
	(2.92)	(0.22)	(2.20)	(2.47)	(-9.72)	(0.38)	(-0.36)	(0.073)	(1.09)
Consume_percapita	-0.002***	0.002	-0.123	-0.043	0.210***	-0.005	0.004	-0.004	-0.021
	(-3.20)	(0.20)	(-0.39)	(-1.59)	(8.75)	(-0.51)	(0.44)	(-0.061)	(-0.39)
Constant	-0.014**	0.175*	2.295	0.541**	-1.487***	0.150**	0.100*	0.058	0.493
	(-2.10)	(1.93)	(0.65)	(2.16)	(-6.24)	(2.33)	(1.82)	(0.14)	(1.36)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	10478	10478	4199	4199	10478	13261	14677	15081	15086
Adj Rsq	0.07	0.09	0.36	0.09	0.23	0.05	0.06	0.05	0.09
Weak IV *F* Statistics	51.102		49.443			51.243	61.406	53.079	53.076
Hansen's *J* Statistics	1.062		0.335			1.311	1.715	0.513	0.076

Table 6: The role of corporate leaders in transmitting culture

The first two columns of this table present the results of the following regression:

$$Accrual_{i,p,t} = \alpha + \beta_1 \times Alcohol_{p,t} + \beta_2 \times More\_Alcohol\_CEO_{i,t} + \gamma \times Alcohol_{p,t} \times More\_Alcohol\_CEO_{i,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Accrual_{i,p,t}$ refers to the discretionary accrual following Dechow and Dichev's (2002) model (*Accrual_DD*) for firm i located in province p in year t, $Alcohol_{p,t}$ is the alcohol consumption of the region of the firm, and $More\_Alcohol\_CEO_{i,t}$ refers to the dummy variable for more alcohol-adapted COEs, which takes the value of one when the CEO of a firm comes from a region (either college or birth) with higher value of *Alcohol Consumption* than the location of the firm, and zero otherwise. We further control for industry and year fixed effects (IY) and cluster the standard errors at the firm level in all regressions. The last two columns of the table presents the results of the following multivariate regression:

$$Accrual_{i,p,t} = \alpha + \beta \times Alcohol\_CEO_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Alcohol\_CEO_{p,t}$ refers to the alcohol consumption of CEOs' region of origin (either college or birth). We further control for industry, year, and region fixed effects (IYR) and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Dep. Var=*Accrual_DD*	CEO Home Province	CEO College Province	CEO Home Province	CEO College Province
	(1)	(2)	(3)	(4)
Alcohol	0.034*	0.004**		
	(1.76)	(2.33)		
More_Alcohol_CEO	0.012	0.035		
	(1.19)	(1.34)		
*Alcohol*More_Alcohol_CEO*	0.098**	0.036*		
	(2.22)	(1.88)		
Alcohol_CEO			0.053***	0.103***
			(2.67)	(5.07)
Size	-0.005	-0.007**	-0.003	-0.011***
	(-1.15)	(-2.34)	(-0.60)	(-2.93)
LEV	0.051***	0.069***	0.057***	0.085***
	(3.20)	(5.39)	(3.49)	(5.15)
Cret_volatility	0.059***	0.054***	0.053***	0.033***
	(2.87)	(4.10)	(2.82)	(2.86)
Totinsholdper	0.008	-0.008	0.004	-0.002
	(0.60)	(-0.83)	(0.32)	(-0.15)
Analyst	-0.000***	-0.000**	-0.000***	-0.000
	(-2.75)	(-2.49)	(-2.70)	(-1.33)
BM	-0.002	-0.006***	-0.003	-0.004
	(-0.76)	(-2.74)	(-1.08)	(-1.16)
RET	-0.005*	-0.000	-0.006*	0.003
	(-1.70)	(-0.080)	(-1.76)	(0.88)
Turnover	0.003	0.001	0.002	0.003
	(0.78)	(0.36)	(0.64)	(0.79)
ROA	0.110***	0.031	0.112***	0.017
	(2.94)	(1.15)	(2.69)	(0.38)
Dual	0.004	0.000	0.004	0.000
	(0.66)	(0.016)	(0.70)	(0.027)
Indir	0.038	0.033	0.018	-0.007
	(0.80)	(0.98)	(0.42)	(-0.17)
SOE	-0.009	-0.009**	-0.014**	-0.012*
	(-1.62)	(-2.01)	(-2.27)	(-1.81)
Gdp_percapita	-0.004	0.000	0.007	0.009*
	(-1.52)	(0.14)	(0.90)	(1.82)
Invfixasset_gdp	0.040*	0.020	0.087**	0.085
	(1.87)	(1.21)	(2.23)	(1.38)
Consume_percapita	0.031	0.003	-0.003	-0.014
	(1.54)	(0.18)	(-0.93)	(-0.43)
Constant	-0.246	0.168	-0.025	0.214
	(-1.18)	(1.16)	(-0.42)	(0.73)
Fixed Effects	IY	IY	IYR	IYR
Obs	1933	3180	1933	3180
Adj Rsq	0.21	0.22	0.18	0.33

Table 7: The results on the relationship between informal culture and formal institutions

The first three columns of this table present the results of the following Logistic specification:

$$FraudDetection_{i,p,t} = \alpha + \beta_1 \times Accrual_{i,p,t} + \beta_2 \times Alcohol_{p,t} + \gamma \times Accrual_{i,p,t} \times Alcohol_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t}, \quad (4)$$

where $FraudDetection_{i,p,t}$ is a dummy variable that takes the value of one when fraud is detected for firm i located in province p in year t, $Accrual_{i,p,t}$ refers to the discretionary accrual following Dechow and Dichev's (2002) model (*Accrual_DD*) for firm i located in province p in year t, $Alcohol_{p,t}$ refers to the alcohol consumption of the region, and other variables are defined as before. The next three columns of the table augment the baseline regression in the following specification:

$$Accrual_{i,p,t} = \alpha + \beta \times Alcohol_{p,t} + \gamma \times Alcohol_{p,t} \times Post\_Meet_t + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

Where $Post\_Meet_t$ is a dummy variable that takes the value of one for periods after the recent anti-corruption regulation (the eight-point regulation, which were adopt in December 2012), and zero otherwise. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects (IY) and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Dep. Var =	*Prob(Fraud Detection)*			*Accrual_DD*		
	Full sample	SOE	Non SOE	Full sample	SOE	Non SOE
	(1)	(2)	(3)	(4)	(5)	(6)
Accrual_DD	1.598***	1.593***	6.333***			
	(3.82)	(3.80)	(3.25)			
Alcohol		0.232	0.752**	0.024***	0.028***	0.008**
		(1.18)	(2.13)	(3.44)	(3.31)	(2.10)
*Accrual_DD*Alcohol*			-5.561**			
			(-2.49)			
*Alcohol*Meet*				-0.025**	-0.062***	0.018
				(-2.30)	(-4.59)	(0.90)
Size	-0.459***	-0.459***	-0.456***	-0.005**	-0.004*	-0.005
	(-9.71)	(-9.71)	(-9.62)	(-2.55)	(-1.85)	(-1.52)
LEV	1.382***	1.381***	1.370***	0.055***	0.060***	0.053***
	(7.73)	(7.72)	(7.65)	(6.77)	(5.93)	(4.12)
Cret_volatility	1.833**	1.834**	1.781**	0.133***	0.104***	0.186***
	(2.41)	(2.42)	(2.34)	(5.63)	(3.56)	(4.86)
Totinsholdper	0.249*	0.248	0.253*	-0.014**	-0.011	-0.013
	(1.65)	(1.64)	(1.67)	(-2.45)	(-1.60)	(-1.38)
Analyst	0.001	0.001	0.001	-0.000	0.000	-0.000*
	(1.05)	(1.06)	(0.98)	(-0.65)	(0.49)	(-1.78)
BM	0.159***	0.159***	0.158***	-0.006***	-0.005***	-0.009***
	(3.39)	(3.39)	(3.37)	(-3.79)	(-3.03)	(-2.73)
RET	-0.002	-0.002	0.000	0.002*	0.002*	0.001
	(-0.044)	(-0.043)	(0.0065)	(1.89)	(1.70)	(0.41)
Turnover	0.139***	0.138***	0.136***	-0.006***	-0.003	-0.011***
	(2.95)	(2.94)	(2.89)	(-3.14)	(-1.35)	(-3.65)
ROA	-3.617***	-3.615***	-3.622***	0.017	-0.003	0.031
	(-7.61)	(-7.61)	(-7.63)	(1.03)	(-0.14)	(1.24)
Dual	0.314***	0.314***	0.317***	-0.000	0.001	-0.005
	(4.62)	(4.61)	(4.65)	(-0.12)	(0.30)	(-1.36)
Indir	-0.066	-0.068	-0.050	0.041**	-0.000	0.084**
	(-0.14)	(-0.15)	(-0.11)	(2.12)	(-0.021)	(2.50)
SOE	-0.503***	-0.503***	-0.501***			
	(-8.93)	(-8.93)	(-8.90)			
Gdp_percapita	-0.229***	-0.227***	-0.227***	0.002	0.003	-0.000
	(-7.22)	(-6.92)	(-6.93)	(1.15)	(1.55)	(-0.0081)
Invfixasset_gdp	-1.609***	-1.599***	-1.608***	0.025**	0.027**	0.026
	(-6.78)	(-6.56)	(-6.59)	(2.36)	(2.05)	(1.50)
Consume_percapita	0.196	0.190	0.171	-0.004	-0.010	0.002
	(1.00)	(0.95)	(0.86)	(-0.43)	(-0.93)	(0.14)
Constant	5.677***	5.707***	5.401***	0.270***	0.246**	0.327**
	(2.76)	(2.76)	(2.61)	(2.96)	(2.54)	(2.31)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	10478	10478	10478	10478	6335	4143
Adj Rsq	0.0992	0.0992	0.0997	0.11	0.10	0.15

Table 8: The impact of trust on the relationship between alcohol culture and earnings management

This table presents the results of the following specification:

$$Accrual_{i,p,t} = \beta_1 \times Alcohol_{p,t} + \beta_2 \times Trust_{p,t} + \gamma \times Alcohol_{p,t} \times Trust_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Accrual_{i,p,t}$ refers to the discretionary accrual following Dechow and Dichev's (2002) model (*Accrual_DD*) for firm i located in province p in year t, $Alcohol_{p,t}$ refers to the alcohol consumption of the region, and $Trust_{p,t}$ refers to the level of social trust, which is proxied "Trust", the fraction of population in a region which gives a "Yes" answer to the question of "Most people can be trusted", "Fairness", the fraction of population in a region which gives a "Yes" answer to the question of "most people try to be fair", and "BloodDonation", the per capita blood donation in a province. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects (IY) and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Trust=	*Trust*		*Fairness*		*Blood Donate*	
	(1)	(2)	(3)	(4)	(5)	(6)
Alcohol	0.018***	0.026***	0.017***	0.044***	0.027***	0.026***
	(4.61)	(4.87)	(4.14)	(4.91)	(6.91)	(6.14)
High_Trust	0.001	0.015**	-0.002	0.027***	-0.006***	-0.011
	(1.14)	(2.32)	(-1.47)	(3.10)	(-3.08)	(-1.39)
*High_Trust*Alcohol*		-0.016**		-0.033***		-0.006**
		(-2.13)		(-3.39)		(-2.27)
Size	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-3.91)	(-3.95)	(-3.94)	(-4.07)	(-4.06)	(-4.05)
LEV	0.054***	0.055***	0.054***	0.055***	0.055***	0.055***
	(13.0)	(13.1)	(13.0)	(13.2)	(13.5)	(13.5)
Cret_volatility	0.145***	0.144***	0.145***	0.145***	0.147***	0.147***
	(8.22)	(8.21)	(8.26)	(8.22)	(8.59)	(8.59)
Totinsholdper	-0.012***	-0.013***	-0.012***	-0.012***	-0.013***	-0.013***
	(-3.55)	(-3.64)	(-3.50)	(-3.48)	(-3.73)	(-3.72)
Analyst	-0.000	-0.000	-0.000	-0.000	-0.000*	-0.000*
	(-1.39)	(-1.39)	(-1.35)	(-1.34)	(-1.70)	(-1.69)
BM	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.006***
	(-4.69)	(-4.74)	(-4.67)	(-4.67)	(-5.40)	(-5.42)
RET	0.001	0.001	0.001	0.001	0.001	0.001
	(1.21)	(1.22)	(1.23)	(1.28)	(1.01)	(1.02)
Turnover	-0.005***	-0.005***	-0.005***	-0.005***	-0.006***	-0.006***
	(-4.99)	(-4.98)	(-5.01)	(-4.98)	(-5.56)	(-5.57)
ROA	0.037***	0.037***	0.037***	0.038***	0.029**	0.029**
	(3.17)	(3.16)	(3.14)	(3.21)	(2.57)	(2.57)
Dual	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001
	(-1.41)	(-1.43)	(-1.45)	(-1.39)	(-0.31)	(-0.32)
Indir	0.039***	0.039***	0.038***	0.037***	0.034***	0.034***
	(3.51)	(3.49)	(3.36)	(3.31)	(3.15)	(3.14)
SOE	-0.005***	-0.005***	-0.005***	-0.005***	-0.006***	-0.006***
	(-3.85)	(-3.88)	(-3.85)	(-3.96)	(-4.65)	(-4.62)
Gdp_percapita	0.000	0.000	0.001	0.001*	0.002**	0.002**
	(0.25)	(0.084)	(0.90)	(1.77)	(2.46)	(2.53)
Invfixasset_gdp	0.022***	0.024***	0.026***	0.028***	0.024***	0.026***
	(3.86)	(4.20)	(4.47)	(4.81)	(4.56)	(4.55)
Consume_percapita	0.003	0.002	0.001	-0.004	0.003	0.002
	(0.54)	(0.50)	(0.11)	(-0.85)	(0.49)	(0.48)
Constant	0.193***	0.189***	0.215***	0.234***	0.202***	0.203***
	(4.00)	(3.91)	(4.49)	(4.87)	(4.07)	(4.08)
Fixed Effects	*IY*	*IY*	*IY*	*IY*	*IY*	*IY*
Obs	9577	9577	9577	9577	10478	10478
Adj Rsq	0.11	0.11	0.11	0.11	0.11	0.11

Table 9: The impact of other elements of sin culture on earnings management

This table presents the results of the following multivariate regression:

$$Accrual_{i,p,t} = \alpha + \beta \times Sin_{p,t} + C \times M_{i,p,t-1} + \epsilon_{i,p,t},$$

where $Accrual_{i,p,t}$ refers to the discretionary accrual following Dechow and Dichev's (2002) model (Accrual_DD) for firm i located in province p in year t, $Sin_{p,t}$ refers to other types of sin culture, including the culture of sex (Sex), the culture of smoking (Smoking), as well as the culture of gaming (Gaming). These variables are defined in the Appendix. Obs denotes the number of firm-year observations, and AdjRsq is adjusted R^2. We further control for industry and year fixed effects (IY) and cluster the standard errors at the firm level in all regressions. The superscripts ***, **, and * refer to 1%, 5%, and 10% levels of statistical significance, respectively. The sample is over the period 2002 to 2014.

Dep. Var=*Accrual_DD*	(1)	(2)	(3)
Sex	0.058*		
	(1.86)		
Smoking		-0.002	
		(-0.71)	
Gambling			-0.259
			(-1.52)
Size	-0.005**	-0.004**	-0.004**
	(-2.41)	(-2.07)	(-2.07)
LEV	0.057***	0.056***	0.056***
	(7.38)	(7.19)	(7.25)
Cret_volatility	0.146***	0.148***	0.148***
	(6.52)	(6.59)	(6.63)
Totinsholdper	-0.012**	-0.012**	-0.011**
	(-2.21)	(-2.14)	(-2.12)
Analyst	-0.000	-0.000	-0.000
	(-1.32)	(-1.33)	(-1.40)
BM	-0.005***	-0.006***	-0.006***
	(-3.67)	(-3.87)	(-3.78)
RET	0.001	0.001	0.001
	(0.85)	(0.85)	(0.84)
Turnover	-0.005***	-0.005***	-0.005***
	(-3.04)	(-3.21)	(-3.18)
ROA	0.026	0.026	0.026
	(1.60)	(1.59)	(1.62)
Dual	-0.001	-0.001	-0.001
	(-0.31)	(-0.28)	(-0.17)
Indir	0.035*	0.034*	0.035*
	(1.95)	(1.89)	(1.94)
SOE	-0.007***	-0.007***	-0.008***
	(-2.73)	(-2.95)	(-3.05)
Gdp_percapita	0.001	0.000	-0.000
	(0.88)	(0.29)	(-0.054)
Invfixasset_gdp	0.019*	0.021**	0.021**
	(1.95)	(2.16)	(2.22)
Consume_percapita	0.009	-0.000	0.005
	(1.14)	(-0.013)	(0.59)
Constant	0.160**	0.244***	0.196**
	(2.00)	(2.86)	(2.25)
Fixed Effects	IY	IY	IY
Obs	10478	10478	10478
Adj Rsq	0.10	0.11	0.11

Figure 1: Map of residents' consumption on alcohol