

Cheating, Luck and Government Effectiveness

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Abstract

We show that individuals who think that luck and connections are important determinants of individual outcomes are more likely to justify cheating on taxes than individuals who think that hard work usually brings success. Tolerance to evasion also tends to be greater in countries in which governments are less effective. These findings suggest that law enforcement might not be popular in countries in which individuals think that results are unfair –i.e. that luck and connections is what matters most– and the State has limited capacity to protect the needy.

Keywords: Informality, tax morale

JEL: H20, H26, O17

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Introduction

Individuals have different opinions regarding law compliance. Many think, or at least say when asked, that cheating on taxes, public benefits and public transport fares is never justifiable, but some individuals are more “flexible”. We show in this paper that individuals who say that success in life is more a matter of luck and connections than hard work are more likely to justify cheating. Also individuals living in countries with more effective governments are less likely to justify cheating. These findings suggest that policies geared to strengthening government’s enforcement capacity might lack political support in countries in which (i) the population is skeptical about the returns to effort and (ii) the government effectiveness is low.

There is considerable evidence that the support for redistributive policies positively correlates with the belief that luck and connections is more important than hard work to succeed in life (Alesina et. al. 2001; Alesina and Angeletos, 2005b; among others). Alesina and Angeletos (2005b) present a formal model that rationalizes this stylized fact, based on the hypothesis that individuals prefer “fair” to “unfair” outcomes, where “fairness” is a measure of the distance between market outcomes and outcomes determined by effort. In their model, individuals favor redistribution to a larger extent if they believe that it is luck and connections rather than effort what drives the results.

The correlation we show in this paper between believes in luck and justification of cheating suggests a complementary channel to that in Alesina and Angeletos. The disenchanted with the market might not only support more redistribution, as Alesina and Angeletos argue, but they might also demand more tolerance to tax evasion. In other words, individuals who believe that luck determines outcomes might demand “flexibility” regarding law compliance. The negative correlation we find between government effectiveness and justification of cheating on taxes points towards the same direction. Individuals are more likely to justify cheating if the government is less effective.

We see our study as a contribution to the literature on informality. Most of the literature focusses on individuals and firms, trying to understand the reasons why they exit and/or are excluded from the formal sector (for a survey, see Perry et. al. 2007). Governments also play an important role in the explanation, since informality is considered the result of the limited ability of governments to monitor and enforce the law. This hypothesis is consistent with at least two stylized facts, namely that informality is more prevalent (i) in weak institutional environments and (ii) among small than large firms.² The idea is convincing, but it might not be the whole story. The evidence we present in this paper suggests that governments’ limited enforcement capacity might not account for all the facts regarding informality.

In a related paper (Forteza and Noboa 2014), we argue that governments might be unwilling, rather than unable, to enforce the law, if they can only commit to simple (not fully contingent) policy rules. According to this story, tolerance to informality might be a way of gaining flexibility through discretion. The evidence in the present paper provides some support to that

² Assuming fixed monitoring costs, it will be inefficient to monitor small firms (Bigio et. al. 2011; Busso et. al. 2013).

story, as individuals are more likely to justify evasion if they think that individual effort is not conducive to success and if governments are not very effective. If these beliefs are correctly reflected in political support, politicians might tolerate informality.

In our view, if the limited enforcement capacity were the only problem, citizens would demand less rather than more tolerance to evasion in weak states. However, we see that people tend to justify cheating on taxes more in countries with less effective governments. In the story of Forteza and Noboa, this can be rationalized as a demand for flexibility. In this light, it is not surprising that weak states are not only less able but also less willing to enforce the law than strong states.

Our paper owes much to the literature on tax morale. This literature has used survey data to characterize individuals' attitudes towards tax obligations. Studying answers to questions regarding how justifiable cheating on taxes is, the literature has tried to unravel what is behind tax compliance. The idea is that the incentives provided by the risk of being caught evading and having to pay fines are not strong enough to explain the relatively high levels of compliance in most countries (see, for example, Torgler and Schaltegger, 2005).

Luttmer and Singhal (2014) provide a survey of the literature on tax morale. They review studies that analyze specific mechanisms through which tax morale may impact on tax compliance. These include: intrinsic motivation, reciprocity, peer effects and social influences, long-run cultural factors and information imperfections and deviations from utility maximization. Some studies have reported positive correlations between measures of institutional quality, trust in government, satisfaction with public services and tax morale, which is interpreted as reciprocity.

In the present paper, we complement these studies by analyzing a covariate that, to the best of our knowledge, has not yet been analyzed in the tax morale literature, namely the individuals' beliefs about the role of luck and connections in individual performance. Our hypothesis is that individuals who believe that success is more a matter of luck and connections than hard work are more likely to justify low tax compliance (weak tax morale).

Nevertheless, it should be clear by now that our motivation is different from that in the literature on tax morale. We look at individuals' attitudes towards tax evasion stated in surveys as a proxy for the demand for "flexibility" or "tolerance" in the application of laws.

The theme in this paper is also related to a growing literature on political culture and development. The notion that "culture matters" is probably more extended among political scientists than economists. Inglehart, Welzel and collaborators have made a significant contribution in this regard producing the "world values surveys" (WVS). The WVS provides a comprehensive database on individuals' opinions gathered with a common methodology in almost 100 countries since 1981 (<http://www.worldvaluessurvey.org/wvs.jsp>). Mostly based on this data, they have provided systematic analysis of values and beliefs across countries and time (see, for example, Inglehart and Welzel, 2005). Most of the data we use in the present paper comes from the WVS.

In recent years, economists are paying increasing attention to culture. Alesina and collaborators, among others, have devoted considerable attention to this theme (Alesina and Angeletos, 2005a and b; Alesina and Fuchs-Schündeln, 2007; Alesina and Giuliano, 2010 and 2014). We hope our paper can make a contribution to this literature as well.

After this introduction, the paper continues as follows. In section 2, we present the data. We present the econometric methodology in section 3 and our main results in section 4. The paper ends with some concluding remarks in section 5.

Data

Data sources

The WVS represents the main source of data for the analysis presented in this paper. This survey started gathering individuals' opinions in 1981 and has covered almost a hundred countries since then. Surveys are organized in period waves containing between four and six years depending on the wave. In each wave questions are revised and there might be some differences between countries.

The analysis presented in this paper is based on wave 6, the most recent one. It was gathered between 2010 and 2014 depending on the country, and covered 59 countries. Questions were organized under the following chapters: perception of life, environment, work, family, politics and society, religion and morale, national identity, security, science, structure of life and socio-demographics.

In order to assess different opinions regarding tax compliance we used the following question asked in the WVS (wave 6): "Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between." The questionnaire continues with a list of actions, including: "Cheating on taxes if you have a chance". Answers are distributed in a ten point scale, where 1 is "never justifiable" and 10 is "always justifiable". Considering this question, we built a dichotomous variable (named *cheat*) that is equal to 1 if the respondent chose 2 to 10 in the ten scale index, and is equal to 0 if she chose 1.

Recoding the original into a more compact scale is common in the literature on tax morale. Torgler and Schaltegger (2005), Torgler (2006), Frey and Torgler (2007) and Streiff (2013) use a four-point scale. Alm and Torgler (2006), Doerrenberg and Peichl (2010), Heinemann (2011), Daude (2012), Halla (2012), and Gerstenblüth et. al. (2012) use a two-point scale. Most of these two-point scales take the value 1 when cheating on taxes is "never justified" and 0 otherwise. Alm and Torgler (2006) and Daude (2012) report results with the two-point scale, but mention that they obtain similar results with the four- and the original ten-point scales. Halla (2012) creates a binary variable equal to one if the respondent answered between 6 and 10 to the WVS questionnaire, and zero otherwise. Halla's choice of the threshold is dictated by the aim of matching the WVS and the American General Social Survey questions on tax morale. Gerstenblüth et. al. built a binary variable where 1 stands for "never justify" and the following category, and 0 otherwise, in order to obtain a balanced frequency of observations.

It should be noted that, as Alm and Torgler (2006, p. 230) mention, “we recognize that single-item measures in cross-cultural comparison should be treated with some caution”. Governments with quite different characteristics could imply that people are more or less likely to justify cheating on taxes beforehand (for example, if taxes are financing a dictatorship people may be more likely to justify cheating than in a democracy).

In order to assess views on how important luck is on success we used the following question in the WVS (wave 6): “Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between”. The statement on the left is “In the long run, hard work usually brings a better life”, and the statement on the right is “Hard work doesn't generally bring success - it's more a matter of luck and connections”. We built a dichotomous variable (named *luck*) that is equal to 1 if the individual chose 2 to 10 in the ten-point scale, and is equal to 0 if she chose 1. Alesina and Angeletos (2005) use the same binary variable.

Following the Tax Morale literature, we include several controls regarding demographics, marital status, education, social class, and religiosity (see Frey 2007, among others).

Regarding demographics and marital status, we include dummies for several age groups, sex, and marital status.

The WVS (wave 6) inquires about education with the following question: “What is the highest educational level that you have attained?” Answers run in a nine scale-index, where the highest value corresponds to “University-level education, with degree” and the lowest corresponds to “No formal education”. We use the original nine-point index.

Regarding social class, individuals are asked the following: “People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the upper class, upper middle class, lower middle class, working class or lower class?” Answers are distributed in a five-point scale, where the upper class takes the value 1 and the lower class takes the value 5. We recoded this variable to make higher values represent higher social class.

As for church attendance, individuals could choose to answer in an eight-point scale in which value one stands for “more than once a week” and value eight for “never, practically never”. We recoded this variable to make lower values represent less frequent attendance to church.

After some analysis, we chose not to include controls for employment status. We run a multilevel model with random intercept and fixed slopes including controls for employment status like those in Frey (2007). None of the coefficients for employment status was statistically significant and the results regarding our coefficients of interest did not change significantly if we did not include these controls. In turn, the multilevel model with random slopes did not converge when we included the controls for employment status. Therefore, we opted to remove these controls.

All WVS data was weighted to take into account national populations characteristics and in order to make every countries' sample size equal (we plan to explore the influence of working with population weighted data in the future).

Regarding government effectiveness, we use an indicator constructed by the World Bank's Worldwide Governance Indicators (WGI) project. This project reports indicators on 215 countries from 1996 through 2013. Six dimensions of governance are measured in the WGI: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. As Kaufmann et. al. (2009, p. 4) explain, these indicators are constructed "based exclusively on subjective or perceptions based data on governance reflecting the views of a diverse range of informed stakeholders, including tens of thousands of household and firm survey respondents, as well as thousands of experts working for the private sector, NGOs, and public sector agencies". Our government effectiveness variable (*ge*) is the "government effectiveness estimate" in the WGI project. This indicator aims at "capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies" (Kaufmann et.al. 2009, p. 6). The indicator is defined as a continuous variable ranging from -2.5 to 2.5, and higher scores correspond to higher governance effectiveness.

We worked with 55 of the 59 countries included in the WVS wave 6. Three of them (Bahrain, Germany and Qatar) were left out of the analysis because one of the main question of our analysis was not included in the questionnaire for these countries. Algeria was left out because it generated odd results for the WGI indicators.

Descriptive statistics

Table 1 summarizes statistics regarding original indicators of the WVS by country grouped in the World Bank region and country income group (countries in each region and income group are specified in the footnote of each table). We present the number of countries in each region and income group and the following statistics for each indicator: mean score, median score, 10th percentile and 90th percentile scores. Data was not weighted for the population of each country (each country has the same weight).

Insert table 1 about here

In most regions and country income groups, at least half of the population says that cheating on taxes is never justifiable (the median of the variable is equal to 1). The exceptions are South Asia and Sub-Saharan Africa and the group of low income countries, but even there at least half of the population chooses one of the two lowest points in the ten-point scale when asked about justifiability of cheating on taxes. The mean score lies between a minimum of 1.87 in Latin America and the Caribbean and a maximum of 2.90 in South Asia. In all regions and income groups the mean is well above the median, indicating that the distribution is asymmetric to the right.

The response to the question about justifiability of cheating on taxes varies greatly across

countries. The between countries heterogeneity is particularly large at the bottom of the ten-point scale (figure 1). The proportion of respondents saying that cheating on taxes is never justifiable ranges from a minimum of 23 percent in India to a maximum of 87 percent in Japan. The cross country heterogeneity is smaller at other points in the scale.

Insert figure 1 about here

There is also considerable heterogeneity between WB regions and country income groups (figures 2 and 3). Part of the country differences naturally average out when we look at groups of countries, but some remain. South Asia is the region that justifies cheating to a larger extent in most of the scale. Only at points 8 and 9 in the ten-point scale, the empirical CDF of South Asia lies above the CDF of other regions. Unexpectedly, Latin America and the Caribbean is the region with the highest empirical CDF, close to and above that of North America (composed only by the United States in our sample).

Insert figures 2 and 3 about here

The population in high income countries tends to justify cheating on taxes to a lesser extent than the population in upper-middle income countries and they do it to a lesser extent than the population in lower-middle income countries (figure 3). This ranking remains the same irrespective of the tolerance threshold we consider. In turn, individuals in low-income countries seem to justify cheating on taxes more than in the other three categories, if we judge by the proportion answering that cheating is never justifiable, but less than or equal to the other, if we judge by some less rigorous threshold.

All in all, this analysis suggests that most of the heterogeneity regarding tolerance to tax cheating takes place at the lowest threshold, i.e. among those who argue that cheating is never justifiable and those who are less extreme. This justifies the common use of a binary variable in the literature that separates those who are totally intolerant to evasion from all the others.

Table 2 summarizes the proportion of respondents who justify cheating on taxes (proportion of *cheat* = 1), the proportion of respondents who state that luck matters in success (proportion of *luck* = 1) and the average government effectiveness by region and income group. As in Table 1, data was not weighted for the population of each country (each country has the same weight).

Insert table 2 about here

The proportion of individuals who justify cheating varies considerably across regions. It is 83 percent higher in South Asia than in the Americas. The proportion of individuals who say that luck and connections rather than hard work determines success varies much less across regions, ranging from a minimum of 75 percent in Sub-Saharan Africa to a maximum of 80 percent in Europe and Central Asia.

As expected, the proportion of respondents who justify cheating on taxes decreases as country income increases and government is more effective. But, rather surprisingly, the proportion of

individuals who think that luck is driving success increases with country income (save for the two low-income countries included in our sample).

It is hard to draw any clear conclusion from this aggregate data about the relationship between variables *cheat* and *luck* by regions or country groups.

Table 3 presents the correlations between variables in the pooled WVS micro-database. As we expected, variables *cheat* and *luck* (original 10-scale coding) are positively correlated, indicating that it is likely that individuals who say that luck matter more in success than hard work are more prone to justify cheating. Education has small positive and social class small negative correlations with *cheat* and *luck*. As expected, education is positively correlated with social class.

Insert table 3 about here

Methods

We analyze the effect of *luck* and *ge* (government effectiveness) on *cheat*, controlling for *education* and *social class*. As we mentioned in the previous section, in the cases of *cheat* and *luck*, we recoded the original 10-point scale variables to binary variables.

We specified a two-level logistic model in which individuals (subindex *i*) are the level 1 and countries (subindex *j*) are the level 2. The level 1 model is specified as follows:

$$\text{logit}\{Pr(\text{cheat}_{ij} = 1 | \text{luck}_{ij}, \text{ge}_j, \text{z}_{ij})\} = \eta_{1j} + \eta_{2j}\text{luck}_{ij} + \eta_3' \text{z}_{ij}$$

Where z_{ij} is a vector of controls.

The level 2 model allows for random intercept and random slope for variable luck_{ij} . The corresponding equations are:

$$\begin{aligned} \eta_{1j} &= \gamma_{11} + \gamma_{12}\text{ge}_j + \zeta_{1j} \\ \eta_{2j} &= \gamma_{21} + \gamma_{22}\text{ge}_j + \zeta_{2j} \end{aligned}$$

ζ_{1j} and ζ_{2j} are random intercept and slope, respectively.

We substitute the level 2 into the level 1 equation to get a reduced form model:

$$\begin{aligned} \text{logit}\{Pr(\text{cheat}_{ij} = 1 | \text{luck}_{ij}, \text{ge}_j, \text{z}_{ij})\} \\ = \beta_0 + \beta_1\text{luck}_{ij} + \beta_2\text{ge}_j + \beta_3\text{ge}_j \times \text{luck}_{ij} + \beta_4' \text{z}_{ij} \\ + (\zeta_{1j} + \zeta_{2j}\text{luck}_{ij}) \end{aligned} \quad (1)$$

where $\beta_0 = \gamma_{11}$; $\beta_1 = \gamma_{21}$; $\beta_2 = \gamma_{12}$; $\beta_3 = \gamma_{22}$; $\beta_4 = \eta_3$.

ge_j is allowed to impact on both, the intercept and the slope. Individuals may think that cheating on taxes is less justifiable if the government is effective than if it is not ($\gamma_{12} < 0$). In

turn, the (expected positive) impact of $luck_{ij}$ on $cheat_{ij}$ might be ameliorated if the government is effective, because social programs could compensate the unlucky ($\gamma_{22} < 0$). In other words, if the government is sufficiently effective, those who think that hard work does not bring success could still refrain from justifying cheating and rather support larger social programs (the Alesina-Angeletos channel).

We first estimated the reduced form model (1) assuming that the individual effects ζ_{1j} and ζ_{2j} are uncorrelated to the regressors. We used `gllamm` in STATA to take due care of the particular structure of errors and used an adaptive quadrature with eight integration points for each individual effect.³

We run first a version of the model that assumes $\zeta_{2j} = 0$ (the random intercept model) and then a less restrictive version with both ζ_{1j} and ζ_{2j} different from zero (the random intercept and random slope model). We tested whether relaxing the assumption of a deterministic slope contributed to the fitting of the model using a likelihood ratio test.

The residual between-countries heterogeneity can be computed in the random intercept model as:

$$\rho = \frac{Var(\zeta_{1j})}{Var(\zeta_{1j}) + \pi^2/3}$$

ρ measures the proportion of the residuals variance that is due to the variance of the random intercept.

Results

The main results are summarized in table 4. In the first column, we present results for a model with random intercept only, i.e. assuming $\zeta_{2j} = 0$. The second column reports the results of estimating a model with both random intercept and random coefficient for luck. While the results are very similar, the likelihood ratio test indicates that allowing for random coefficients significantly improves the fitting of the model.

Insert table 4 about here

The odds of justifying cheating is estimated to be more than two times as high for individuals who say that luck and connections are key determinants of success as for those who say that “hard work usually brings a better life”. This effect is entirely captured by the coefficient multiplying *luck* in the regression, for the coefficient of the interaction *ge * luck* is not statistically different from zero. The estimated odds ratio (OR) for *luck* alone is 2.403 and 2.355 in the random intercept and random intercept and slope models, respectively. In both cases, the ORs are different from 1 at 1 percent significance. The OR of the interaction between government effectiveness and luck is not significantly different from one. Hence we cannot reject the hypothesis that the impact of luck on cheating does not systematically vary with government effectiveness.

³ See Rabe-Hesketh and Skrondal (2012) for a detailed explanation of `gllamm` in STATA.

Government effectiveness has a negative effect on the probability of justifying cheating on taxes. The OR is below one, significant at 10 percent in the first model and 5 percent in the second. A one point increase in the government effectiveness index –which happens to be close to one standard deviation in the sample of countries used in this study–, is estimated to reduce the odds of justifying cheating by about 15 percent.

Education has a positive impact on justification of cheating, but significant only at 10 percent. This variable is measured in an 8-point scale, so moving from the lowest to the highest point in the scale would imply an almost 10 percent increase in the odds of justifying cheating ($1.095 = 1.013^7$).⁴

Social class shows a positive impact on the justification of cheating, significant at 1 percent. The magnitude of the OR for social class can be better assessed by noting that this is a 5-point categorical variable. The highest category is expected to have more than 20% higher odds of justifying cheating than the lowest category ($1.22 = 1.053^4$).

The residual between-countries heterogeneity estimated in the random intercept model is less than 10 percent. Hence only about 10 percent of total residual heterogeneity is due to the variance of the random intercepts.

⁴ Using order probits, Frey (2007) reports negative or non-significant coefficients, depending on the estimation procedure.

Concluding remarks

We find that individuals who think that luck and connections rather than effort determine success are more likely to justify cheating on taxes than individuals who claim it is their own effort that matters most. The odds of justifying cheating is estimated to be more than two times as high for individuals who say that luck and connections are key determinants of success as for those who say that “hard work usually brings a better life”.

We would expect that individuals who tend to justify cheating on taxes also tend to prefer that the government is tolerant with evasion. Therefore, our findings suggest that the belief that success is determined by luck and connections spurs citizens’ demands for government tolerance with tax evasion.

We find some, albeit less strong, support for the hypothesis that government effectiveness matters in this regard. We show that the World Bank indicator of government effectiveness negatively correlates with individuals’ justification of cheating on taxes. Hence, citizens in countries with more effective governments seem to be less willing to tolerate tax evasion than citizens in countries in which governments are less effective. However, we find no evidence that the effect of luck on tolerance to cheating varies systematically with government effectiveness.

We have analyzed individuals’ justification of cheating on taxes, but our story is not about tax morale. We used this variable as a proxy for citizens’ demand for government tolerance or “flexibility”. In our story, individuals demand tolerance when they think outcomes are determined by luck and connections, i.e. unfair. We see our results as complementary to Alesina and Angeletos (2005b), who have argued that individuals demand larger social programs when they think outcomes are not fair.

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Tables and figures

Table 1: Descriptive statistics on WVS indicators by region and income group (wave 6)

	Number of countries	Justifiable cheating on taxes (1)				Importance of luck for success (2)			
		Mean score	Median score	10 th perc.	90 th perc.	Mean score	Median score	10 th perc.	90 th perc.
Regions (5)									
East Asia & Pacific	11	2.13	1	1	5	4.04	4	1	8
Europe & Central Asia	17	2.15	1	1	5	4.60	4	1	9
Latin America & Caribbean	9	1.87	1	1	4	4.10	4	1	9
Middle East & North Africa	10	2.31	1	1	6	3.33	2	1	8
North America	1	1.91	1	1	5	3.83	3	1	8
South Asia	2	2.90	2	1	7	4.59	4	1	9
Sub-Saharan Africa	5	2.46	2	1	6	3.93	3	1	8
Income groups (6)									
High income	20	1.98	1	1	5	4.43	4	1	8
Upper middle income	20	2.23	1	1	5	4.09	4	1	9
Lower middle income	13	2.40	1	1	6	3.68	3	1	8
Low income	2	2.27	2	1	5	3.79	3	1	8
	Number of countries	Education (3)				Social class (4)			
		Mean score	Median score	10 th perc.	90 th perc.	Mean score	Median score	10 th perc.	90 th perc.
Regions (5)									
East Asia & Pacific	11	5.08	5	2	8	2.74	3	2	4
Europe & Central Asia	17	5.24	5	2	8	2.84	3	2	4
Latin America & Caribbean	9	4.30	4	1	8	2.53	3	1	4
Middle East & North Africa	10	4.90	5	1	8	2.71	3	1	4
North America	1	6.73	7	5	8	2.87	3	2	4
South Asia	2	3.68	3	2	6	3.02	3	1	4
Sub-Saharan Africa	5	4.14	4	2	7	2.21	2	1	4
Income groups (6)									
High income	20	5.15	5	2	8	2.82	3	2	4
Upper middle income	20	4.77	5	2	8	2.65	3	1	4
Lower middle income	13	4.73	4	2	8	2.63	3	1	4
Low income	2	4.04	4	2	7	2.29	2	1	4
<p>(1) Justifiable cheating on taxes: 1 "Never justifiable" - 10 "Always justifiable"</p> <p>(2) Importance of luck for success: 1 "In the long run, hard work usually brings a better life" - 10 "Hard work doesn't generally bring success - it's more a matter of luck and connections"</p> <p>(3) Education: 1 "No formal education" - 10 "University-level education, with degree"</p> <p>(4) Social class: 1 "Lower class" - 5 "Upper class"</p> <p>(5) Countries by region (World Bank classification): <u>East Asia & Pacific</u>: Australia, China, Hong Kong, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan and Thailand. <u>Europe & Central Asia</u>: Armenia, Azerbaijan, Belarus, Cyprus, Estonia, Kazakhstan, Kyrgyzstan, Netherlands, Poland, Romania, Russia, Slovenia, Spain, Sweden, Turkey, Ukraine and Uzbekistan. <u>Latin America & Caribbean</u>: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Trinidad and Tobago, and Uruguay. <u>Middle East & North Africa</u>: Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Tunisia and Yemen. <u>North America</u>: United States. <u>South Asia</u>: India and Pakistan. <u>Sub-Saharan Africa</u>: Ghana, Nigeria, Rwanda, South Africa and Zimbabwe.</p> <p>(6) Countries by income group (World Bank classification): <u>High income</u>: Australia, Chile, Cyprus, Estonia, Hong Kong, Japan, Kuwait, Netherlands, New Zealand, Poland, Russia, Singapore, Slovenia, South Korea, Spain, Sweden, Taiwan, Trinidad and Tobago, United States and Uruguay. <u>Upper middle income</u>: Argentina, Azerbaijan, Belarus, Brazil, China, Colombia, Ecuador, Iraq, Jordan, Kazakhstan, Lebanon, Libya, Malaysia, Mexico, Peru, Romania, South Africa, Thailand, Tunisia and Turkey. <u>Lower middle income</u>: Armenia, Egypt, Ghana, India, Kyrgyzstan, Morocco, Nigeria, Pakistan, Palestine, Philippines, Ukraine, Uzbekistan and Yemen. <u>Low income</u>: Rwanda and Zimbabwe.</p>									

Table 2: Cheating on taxes, importance of luck for success and government effectiveness by region and income group (wave 6 for WVS indicators and 2010-2013 average for WGI indicator)

	Number of countries	Proportion of respondents who justify cheating on taxes (wave 6)	Proportion of respondents who state that luck matters in success (wave 6)	Mean government effectiveness (2010-2013 average)
Regions (5)				
East Asia & Pacific	11	0.37	0.79	1.15
Europe & Central Asia	17	0.37	0.80	0.25
Latin America & Caribbean	9	0.30	0.71	0.15
Middle East & North Africa	10	0.39	0.58	-0.52
North America	1	0.30	0.79	1.52
South Asia	2	0.55	0.76	-0.44
Sub-Saharan Africa	5	0.52	0.75	-0.41
Income groups (6)				
High income	20	0.34	0.82	1.17
Upper middle income	20	0.37	0.71	-0.19
Lower middle income	13	0.43	0.64	-0.52
Low income	2	0.58	0.75	-0.66
<p>(1) Justifiable cheating on taxes: 0 "Never justifiable" - 1 Otherwise (2) Importance of luck for success: 0 "In the long run, hard work usually brings a better life" - 1 Otherwise (3) Government effectiveness ranges from -2.5 to 2.5. 2010-2013 average (5) Countries by region (World Bank classification): <u>East Asia & Pacific</u>: Australia, China, Hong Kong, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan and Thailand. <u>Europe & Central Asia</u>: Armenia, Azerbaijan, Belarus, Cyprus, Estonia, Kazakhstan, Kyrgyzstan, Netherlands, Poland, Romania, Russia, Slovenia, Spain, Sweden, Turkey, Ukraine and Uzbekistan. <u>Latin America & Caribbean</u>: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Trinidad and Tobago, and Uruguay. <u>Middle East & North Africa</u>: Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Tunisia and Yemen. <u>North America</u>: United States. <u>South Asia</u>: India and Pakistan. <u>Sub-Saharan Africa</u>: Ghana, Nigeria, Rwanda, South Africa and Zimbabwe. (6) Countries by income group (World Bank classification): <u>High income</u>: Australia, Chile, Cyprus, Estonia, Hong Kong, Japan, Kuwait, Netherlands, New Zealand, Poland, Russia, Singapore, Slovenia, South Korea, Spain, Sweden, Taiwan, Trinidad and Tobago, United States and Uruguay. <u>Upper middle income</u>: Argentina, Azerbaijan, Belarus, Brazil, China, Colombia, Ecuador, Iraq, Jordan, Kazakhstan, Lebanon, Libya, Malaysia, Mexico, Peru, Romania, South Africa, Thailand, Tunisia and Turkey. <u>Lower middle income</u>: Armenia, Egypt, Ghana, India, Kyrgyzstan, Morocco, Nigeria, Pakistan, Palestine, Philippines, Ukraine, Uzbekistan and Yemen. <u>Low income</u>: Rwanda and Zimbabwe.</p>				

Table 3: Correlations of WVS variables (wave 6)

	<i>cheat</i> (1)	<i>luck</i> (2)	<i>education</i> (3)	<i>social class</i> (4)
<i>cheat</i> (1)	1			
<i>luck</i> (2)	0.1199	1		
<i>education</i> (3)	0.0046	0.0171	1	
<i>social class</i> (4)	-0.0041	-0.0258	0.2886	1

(1) *cheat*: 0 "Never justifiable" - 1 Otherwise
(2) *luck*: 0 "In the long run, hard work usually brings a better life" - 1 Otherwise
(3) *education*: 1 "No formal education" - 10 "University-level education, with degree"
(4) *social class*: 1 "Lower class" - 5 "Upper class"

Table 4: The two-level models for cheating on taxes. Odds ratios.

Covariates	Random intercept	Random intercept and coefficient for luck
<i>luck</i>	2.403*** (0.143)	2.355*** (0.138)
<i>ge</i>	0.842* (0.082)	0.849** (0.062)
<i>ge*luck</i>	0.968 (0.063)	0.956 (0.062)
<i>education</i>	1.013* (0.008)	1.013* (0.007)
<i>social class</i>	1.053*** (0.019)	1.053*** (0.019)
<i>constant</i>	0.254*** (0.027)	0.252*** (0.024)
Number of units		
Level 1 (individuals)	70,513	70,513
Level 2 (countries)	55	55
seEform in parentheses *** p<0.01, ** p<0.05, * p<0.1		
Variances and covariances of random effects		
<i>country</i>	0.353	0.370
<i>luck</i>	---	0.156
<i>country-luck</i>		-0.098
<i>rho</i>	0.097	---
Log likelihood	-29858.073	-29783.258
LR test		149.63

Figure 1: Cheating on taxes: empirical cumulative distribution functions by country.

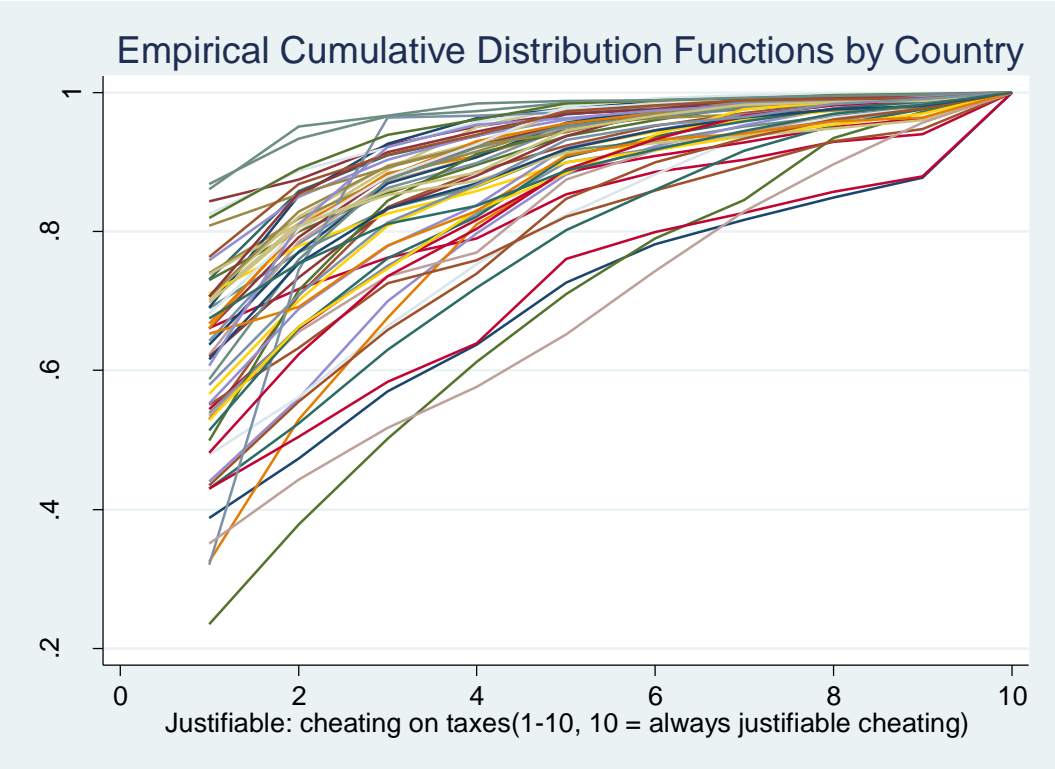


Figure 2: Cheating on taxes: empirical cumulative distribution functions by WB regions

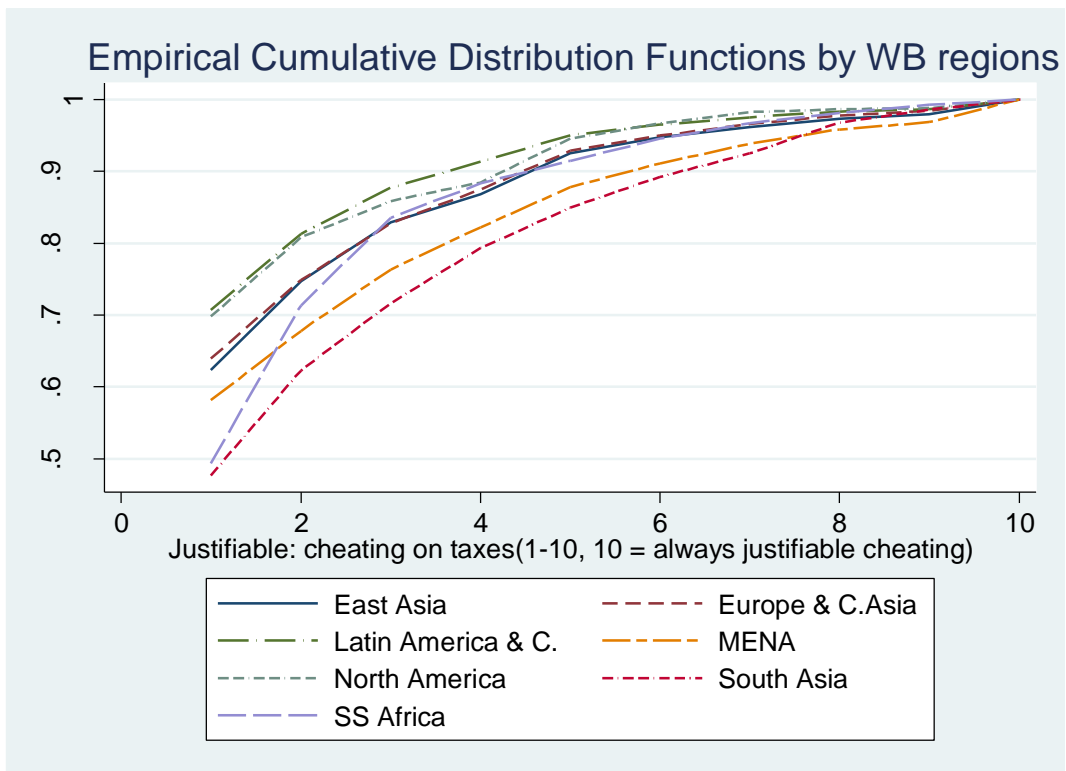


Figure 3: Cheating on taxes: empirical cumulative distribution functions by WB country-income group

