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Tax Morale: Framing and
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Abstract

This paper examines to the relationship between the perception of tax fairness (independent variable) and tax morale (dependent variable) conditional on the level of financial and tax literacy (FTL).

There is an extensive literature that considers various determinants of tax morale, from socio-demographic characteristics (e.g. age, gender, marital status, income, education, tenure) to societal variables (e.g. government trust, perceived fairness of the tax system, political orientation). While there is an extensive amount of research on fairness and tax morale (Song, 1978; Torgler, 2003, 2005, 2006 and 2007; Wenzel, 2005; Gilligan, 2005, among others), there is relatively little research on the influence of FTL (exceptions being Palil *et al.*, 2013; Azwadi and Norsiad, 2014; and Wong and Lo, 2015), and no one has yet considered it as a moderator to tax fairness.

The researchers surveyed 630 US and UK public and private sector employees, which resulted in 627 responses. The researchers explored the tax compliance and tax evasion ethics of the respondents with several sets of questions of varying perspectives. Particularly the researchers have looked at the framing of these survey questions and based on extant literature have divided the survey questions into – positively framed and negatively framed questions. Literature suggests that there is a general tendency of risk aversion for positively framed problems, and of risk seeking for negatively framed problems. Therefore evaluating the response of individual taxpayers in this context can provide interesting contributions to the body of literature in tax morale.

Using factor analysis, the researchers have found that there is a systematic variation of the effect of perceived tax fairness conditional on the FTL. Further, the way in which questions are framed is found to be important. For positively framed tax morale questions, the moderating effect of tax fairness is significantly negative for low levels of FTL candidates and improves with literacy. However, in negatively framed tax morale questions, tax morale is improved as one views that the tax system is fair but the impact is significant for higher levels of literacy. This has further policy implications as the ‘framing’ of tax literature could be instrumental in improving the tax morale of taxpayers.

Introduction and Context

Tax Morale is an area of considerable interest among policy makers. There has been a world-wide, concerted effort of governments to address perceived low levels of tax morale. The OECD's recent publication, *Building Tax Culture, Compliance and Citizenship* provides 28 developing countries' initiatives in taxpayer education (OECD, 2015). Similar programmes are prevalent in developed countries.

Olsen (2009) and Kornhauser (2009) reflect initiatives taken in the United States. Nina Olsen, the United States Taxpayer Advocate since her appointment in 2001, reflected on a ten-step approach to reducing the tax gap in the United States. This was the basis for the Taxpayers' "Bill of Rights" which were adopted by the IRS in June 2014 and available at <https://www.irs.gov/taxpayer-bill-of-rights>. Step VII proclaims taxpayers' rights matter, that procedural justice and fairness are essential components of tax morale and impact taxpayer compliance. Raising taxpayers' awareness of the importance of tax revenue for the public good is essential, according to Olsen (2009). Kornhauser began the development of the Tax Literacy Project in the US in 2009. This is a non-partisan effort to informally educate US citizens on tax matters and is now accessible at <https://taxjazz.com>. The IRS has taxpayers education programmes throughout the year in various locations and have adopted the seemingly friendly label of UncleFed's Tax Board. More information on this initiative may be accessed at <http://www.unclefed.com/Tax-Help/txpredu.html>.

An initiative taken by HMRC in the UK in 2015 was to develop and disseminate its Tax Facts education programme for teenagers. This was followed by Junior Tax Facts in 2016 for the benefit of primary school children. Thus UK is not alone in implementing programmes and initiatives to bring about a cultural change in attitudes to personal taxation. The degree to which these tax education are being implemented in the national curricula and the impact of these specific learning materials is still relatively unknown.

The UK Chartered Institute of Taxation (CIOT) has a proactive group of volunteers working under the banner of the *Low Incomes Tax Reform Group* (LITRG), researching and developing other programmes to educate and assist UK taxpayers. Their research extends from the young (Alexander, et al, 2018) to the elderly (Frecknall-Hughes and Lymer, 2017). They have a website dedicated to organising and disseminating information and helpful tools and links.

Traditionally, most taxpayers in the UK have required little understanding of how they are taxed thanks to Pay-as-You-Earn (PAYE), the "most sophisticated withholding system in the world" (Gauke, 2011). Forty-five million individuals are covered by the PAYE system, of whom only 7 million are required to complete a tax return (HMRC, 2017, p. 36). Where employees had a question about their income tax, taxpayers used to be able to visit one of hundreds of local offices which stretched from Penzance in south-west England to Wick in north-east Scotland; and from Enniskillen in Northern Ireland to England's Lowestoft, the most easterly settlement in the UK. HMRC now have no drop-in enquiry centres and, at the same time, is moving the responsibility for the effective operation of the PAYE system onto the taxpayer by way of online Personal Tax Accounts (HMRC, 2018, p. 9). Therefore a deeper understanding of the relationship between FTL and tax morale is important to be able to develop the right interventions to improve the tax morale of taxpayers.

The remainder of this paper is structured as follows: Section 2 reviews the relevant academic literature; Section 3 gives details of the research data and methodologies; Section 4 discusses the findings; Section 5 offers conclusions with recommendations for future research.

A Review of the Literature

Tax Morale

Research into motivational factors behind taxpayer compliance (i.e. tax morale) began with Allingham and Sandro in their 1972 seminal work. Alm followed on with his research in the early 1990s, and the subject area gained real momentum from 2007, following several publications from Torgler's doctoral research. Torgler, Schaffner and Macintyre (2007) provided a review of the early literature that considered various theoretical considerations including an altruistic approach (e.g. Chung 1976), the Kantian morality approach (see Laffont 1975, Sugden 1984), and social customs (Gordon 1989, Akerlof 1980, Naylor 1989, Myles and Naylor 1996).

Kornhauser (2007) provided a review of the next wave of literature (2000 through 2007), which further developed the theories and concepts established in the earlier literature. Her review considered the tax morale research in three major areas: cognitive and affective processes (see e.g. Kahan and Braman, 2005; Cullis et al., 2006; Hansen, 2003), social norms and personal values/norms (see e.g. Kolstad, 2007; Fehr and Fischbacher, 2004; Mazar and Ariely, 2006), and demographic factors (see e.g. McGee and Tyler, 2006; Torgler, 2003 and 2006; Hasseldine and Hite, 2003).

Since Kornhauser's review, there have been a number of papers published on tax morale as national policy makers and supra-national organisations address tax gaps. In the OECD Report, *Building Tax Culture*, it is recognised that global society is "witnessing a transformation of state-citizen relations and a cultural shift in tax administration" (OECD 2015, p17). Resources directed at improving taxpayer education and facilitating greater appreciation for individual contribution to nations are deemed to be cost-beneficial in improving taxpayer compliance. Tax authorities, once reliant on a fear-culture (e.g. fear of being caught and penalised), recognise citizens as allies, rather than mere 'obligation holders'. That said, cultural-shifts are slow and the public perception of tax authorities in many countries will take time to move from one of cohesion and repression, to one of partnership and alliance (OECD, 2015).

Fairness and Tax Morale

The literature is divided with some research demonstrating correlations between fairness and self-interest (Tyler, 1986), and some finding little to no such influence (Sears and Funk, 1990, 1991). 'Personal tax burdens, however, are the one area in which support for economic self-interest has been found (Sear and Funk, 1990).

Gilligan and Richardson (2005) surveyed post graduate business students at three universities in Hong Kong and Australia. Their survey posed several questions on perceived tax fairness and tax non-compliance behaviour. Cultural tax system structural differences were hypothesised to explain variations in correlations coefficients between the two nations.

Torgler's doctoral thesis on tax morale has been well recognised by subsequent researchers as raising the awareness and interests of policy makers and academics alike. A number of his subsequent publications, in which the World Values and European Values Surveys were used, considers the various aspects and key determinants of tax morale, perceived fairness being one. He considered Germany's fiscal autonomy and tax morale in 2005. In Austria, societal values such as trust and pride were found to influence tax moral in his 2005 paper. These aspects were then considered in a multi-cultural European study which involved Switzerland, Spain and Belgium (2007). Torgler again found that trust and pride had positive impacts on tax morale in all three countries.

Wenzel (2002) distinguished between perceptions of procedural justices and distributive justice in his research on tax morale. In his work, Wenzel found that justice was concerned with identity processes and referred to social identity theory (Tyler et al, 1997) for procedural justice and self-categorisation theory (Turner et al, 1987) for distributive justice (Wenzel, 2002). The author conclude from his study that perceptions of fairness play a role in some, not all, forms of taxpayer compliance. It is only when the respondent identified closely with the group that their behaviour was affected by such perceptions. Wenzel justified improvements in tax authorities' treatment of taxpayers to strengthen such identification of inclusion. This entails treatments of respect and dignity, wide and equal consultation, demonstration of intentions of fairness and justice for the collective benefit (Wenzel, 2002).

Wahl et al (2010) addressed the issues of only using students in research by including self-employed taxpayers as a second sample in the replicated experiment. Their lab and online experiments considered the 'slippery-slope framework', focusing on the interactions between trust in government, power of the tax authority and tax compliance. Their conclusion called for improved treatment of taxpayers by the authorities with the desire to build trust and maximise compliance.

Financial and/or Tax Literacy and Tax Morale

While education, in general, has been considered by many researching tax morale, relatively few have considered the influence of financial and tax literacy, specifically. Song and Yarbrough (1978) may have been the first when they considered influences on tax ethics and the impact of greater fiscal knowledge, concluding that great fiscal knowledge results in higher levels of tax ethics. The more recent contributions are discussed here.

In a more recent study of trust and tax compliance among Malaysian working youth, researchers found that while increased tax knowledge does not necessarily have a significant effect on the levels of trust in the tax system and the tax authorities, it may nevertheless increase tax morale (Azwadi and Norsiad, 2014).

The two other notable studies in this area (Palil et al (2013) and Wong and Lo (2015)), were based entirely on student respondents. The main limitation of such studies is that students are not representative of the wider population. Our research surveyed public and private sector employees which adds to the robustness of our findings.

In research conducted by Palil *et al* (2013) in which religiosity was considered as a moderator between tax education and tax knowledge and tax compliance, the first hypothesis posed was that there was a "relationship between awareness on tax education and tax compliance". The researchers did not find a significant relationship from their sample of 70 Malaysian MBA students.

Wong and Lo (2015) considered the impact of general and specific tax tuition provided to undergraduate and postgraduate students in a Hong Kong University on their tax compliance behaviour. They concluded that different types of tax education affected the tax compliance decisions of the students.

In addition to the relatively little research done in the area of financial and tax literacy and tax morale, there is an apparent gap in the literature in which financial and tax literacy is considered as a moderator between perceived fairness of a tax system and tax morale.

Framing Phenomenon

Tversky and Kahneman (1981) defined decision framing, thus establishing decision theory in their seminal work. It has since attracted a significant amount of interest in research and policy-making,

particularly after Kahneman was awarded the Nobel Prize in Economics for his research (with Smith) in behavioural economics. Relevant literature crosses disciplines, from organisational behaviour (Levin, et al., 1998), to psychology (Lewis, 1982), to economics (Kahneman, 1979).

Framing may be used in a 'strict or loose' sense, whereas semantic manipulation is simply used in the former, and other contextual features enter into the latter. Identical problems framed either positively or negatively are examples of framing used in the 'strict' sense. Similar questions but posed in a general (macro) sense versus a personal (micro) sense are examples of framing used in the 'loose' sense.

Research suggests that while the questions or scenarios are identical in the strict sense or similar in the loose sense and should therefore not reflect any systematic preference, there is a general tendency of risk aversion for positively framed problems, and of risk seeking for negatively framed problems (Kuhberger, 1998).

Roberts, Hite and Bradley (1994) considered the impact of framing questions in abstract and concrete terms on their subjects' responses to questions on tax progressivity. Blum and Kalven's (1953) seminal work on tax progressivity included concrete questions to elicit responses given the complex nature of the topic. The authors concluded that "except for a relatively small elite, the very notion of a progressive tax proved to be beyond grasp" (Blum and Kalven, 1953). Keene (1983) surmises that surveys of attitudes towards tax progressivity that have relied solely on abstract questions have been criticised for providing inconsistent results given the conceptual complexity of the topic.

Data and Methodology

Data

The researchers surveyed 630 US and UK public and private sector employees, which resulted in 627 responses. The researchers explored the tax compliance and tax evasion ethics of the respondents with several sets of questions of varying perspectives. First, ten statements on tax compliance were given and the respondents were asked for their level of agreement or disagreement on a 5-point Likert scale. Second, sixteen statements on tax evasion were given and the respondents were asked for their levels of agreement or disagreement regarding justifiable cheating on a 7-point Likert scale. The statements and scales were taken from the literature (Torgler, *et al*, 2007 and McGee *et al*, 2005, respectively). Two World Values Survey questions on tax evasion were also posed. The researchers also explored the respondents' perceptions of fairness of the respective tax systems (3 statements with a 5-point Likert scale based on Gilligan and Richardson's research in 2005), trust in government (Torgler, *et al*. 2007), financial literacy (Rooji et al., 2011) and tax literacy (Chen, 1998). Finally, the respondents were asked to consider the percentage of taxpayers that underpay their legal tax obligations.

The demographics considered in the first and second rounds were gender, age, education, nationality, employment, tenure, marital status, presence and number of children, income, and political affiliation. Other aspects explored in the surveys included socio-class perceptions, societal and political engagements, and altruism, each with its basis in the literature.

Factor Analysis

The researchers adopted from the literature (McGee et al., 2005) sixteen questions assessing the respondents' ethics of tax evasion (tax morale). The questions were design to address three views: duties to pay the states, anarchist view and evasion both ethical and unethical under circumstances. The analysis shows relatively large correlations among the questions, especially within a group which

incentivised the use of factor analysis to construct an index for a set of common factors. Frey and Torgler (2007) suggest that a composite index of different items is a preferable measure of tax morale in contrast to the use of single questions. They argue that a composite index is more reliable due to the multi-dimensional nature of tax morale, and there is lower probability that it will be adversely influenced by random errors.

Compared to a single-item measure, a multi-item index likely provides better score reliability by pooling together information that the items have in common. A multi-item tool also increases validity by providing a more representative sample of information about the underlying concept, and it increases precision by decreasing score variability (Torgler, Schaffner, & Macintyre, 2010).

The first step is to perform an analysis on all tax morale questions. Both Kaiser and scree test suggest that all of the indicators (with factor loadings more than 0.6) are loaded on two distinct factors: one reflecting a positivist (five questions) and the other reflecting a negativist attitude about tax morale (the remaining 11 questions). Table xx present the rotated factor loading using varimax routine.

Table 1. Factor analysis –ethics of tax evasion questions

Question description <i>Please tell me for each of the following statements whether you think cheating on taxes is justifiable even if...</i>	Factor loadings	
	Factor 1 (positive)	Factor 2 (negative)
... most of the money collected is spent wisely.	0.8954	
... a large portion of the money collected is spent on projects that do benefit me.	0.8415	
... a large portion of the money collected is spent on worthy projects.	0.9037	
... tax rates are not too high because government is not entitled to take as much as it is taking from me	0.7387	
... it means that if I pay less, others will have to pay more.	0.7801	
... a large portion of the money collected is spent on projects that do not benefit me.		0.7777
... the probability of getting caught is low.		0.7182
... everyone is doing it.		0.7569
... tax rates are too high.		0.8293
... a large portion of the money collected is spent on projects that I morally disapprove of.		0.8661
... I can't afford to pay.		0.7847
... some of the proceeds go to support a war that I consider to be unjust.		0.7552
... the tax system is unfair.		0.8389
... a large portion of the money collected is wasted.		0.8519
... a significant portion of the money collected winds up in the pockets of corrupt politicians or their families and friends.		0.8426
... the government discriminates against me because of my religion, race or ethnic background		0.7298
% of Variance explained	58.1%	35.71%

The two factors explained 93.9% of the variance in the data. Another approach would be to apply principal component analysis to correlated variables. This yielded very similar results, with the correlation coefficient between the principal component and factors score of around 0.9.

Along with our preferred measure based on factor analysis, we have measured both dimensions of tax morale by individual 7-point Likert scaled questions. The level of positive tax morale is assessed based on a question:

Please tell me for each of the following statements whether you think cheating on taxes is justifiable even if most of the money collected is spent wisely.

The level of negative tax morale is assessed based on a question:

Please tell me for each of the following statements whether you think cheating on taxes is justifiable if money collected is spent on projects that do not benefit me

Answers range from 1 (strongly disagree) to 7 (strongly agree). We take the same approach as Torgler (2007) and record seven points into a five-point scale with values 5-7 observed together as category 0, as it does not show significant variations among respondents.

The survey considered the respondents' perceptions of the fairness of the income tax system, as adopted from Gerbing (1988) and used extensively in the literature (Christensen et al., 1994; Gillian and Richardson, 2005). While these studies identify many dimensions of fairness (i.e. general fairness, exchange with government, special provisions, tax-rate structure and self-interest), we focused only on the general fairness dimension. For that purpose, we use three 5-point Likert-style questions (i.e. very fair to very unfair) to establish a modified version of the general tax fairness perception scale. Cronbach's Alpha score of 0.92 reflects the reliability of the indicator (exceeding the minimum acceptable level of 0.7-0.8 (Nunnally, 1978; Vaske, 2008)).

In order to measure financial literacy, we used a set of basic financial literacy questions similar to Rooji *et al.* (2011) assessing the numeracy (i.e. calculation of interest rates), the effect of inflation and the relationship between bonds and interest rate. These were coupled with questions on general financial literacy from Chen and Volpe (1998). Those concepts are the basis of basic financial transactions, financial planning, and day-to-day financial decision-making.

The study considered a wide range of socio-demographic characteristics of respondents including age, marital status (dummy for married, separated/divorced, widowed), gender (dummy variable taking the value 1 if the respondent is a female and otherwise 0), nationality (dummy variable taking the value 1 for UK and 0 for US), level of education (bachelor, attended university-no degree, university degree, postgraduate and other in comparison to certificate or diploma in higher education) and tenure (number of years worked).

The study also considered societal variables as proxies for the level to which respondents identify with governments and society. These are measures of trust in government, perceived norm of cheating by other society members (see Frey and Torgler, 2007) and political orientation. We follow Swank (2002) and coded political orientation in the UK and US in the following four groups: Left and Left-libertarian (Green Party, Labour and Sinn Fein in the UK), Right (Conservatives and Ulster Unionist in

the UK and Republicans in the US) and Secular Cent (Liberals, Social Democrats and Scottish Nationals in the UK and Democrats in the US), None and Others.

Table 2 shows variable description and descriptive statistics. For Likert-type data and other ordinal, median and/or frequency distribution is reported. For continuous and dummy variables, we report mean and standard deviation.

Table 2. Variable description and summary statistics.

Variables	Definition	Mean (standard deviation)	Median
Dependent variable			
Tax morale			
Tax morale - positive	Composite index from 5 questions on “positive” tax morale	5.654 (1.66)	6.11
Tax morale-negative	Composite index from 11 questions on “negative” tax morale	5.71 (1.75)	5.83
Tax morale (categorical)	Individual perception tax ethics (justifiable cheating if money is spent wisely) on a scale from 1 (strongly disagree) to 7 (strongly agree). 5-7 observed as 0.	1.862 (1.112)	2
Tax morale (dummy)	DV=1 if respondent “strongly disagree” on tax evasion ethics question; zero otherwise	0.038 (.191)	0
Variables of interest			
Perception of tax fairness	Individual perception of fairness of income tax on a scale 1 (very strong distrust) to 11 (very strong trust)	2.85 (1.11)	2.93
Financial and tax literacy	Number of correct answers on five financial and tax questions	1.87 (1.24)	2
Control variables			
Respondent age	Respondent’s age	45.02 (14.10)	45
Female	DV=1 if a respondent is a female; zero otherwise	0.499 (0.500)	0
Marital status	Married, separated/divorced/widowed in comparison to single (reference)		
Number of children	DV=1 if a respondent has children; zero otherwise	2.31 (1.6)	2
Public sector	DV=1 if a respondent is employed in public sector; zero otherwise	0.498 (0.5)	0
UK	DV=1 if a respondent is UK citizen; zero if it is US citizen	0.5 (0.5)	1
		Freq.	Percent
Level of education			
Certificate or diploma of Higher Educat		182	28.89
Bachelor’s degree		215	34.13

Attended university, but no degree		89	14.13
Post Graduate degree		90	14.29
Other		54	8.57
Gender			
Male		316	50.08
Female		315	49.92
Marital status			
Single		235	37.3
Married		298	47.3
Separated		97	15.4
Nationality			
UK		316	50.08
US		315	49.92
Sector			
Private and non-profit		317	50.24
Public		314	49.76
Income groups			
1	Annual salary \$0 - \$9,225 in the US and £0 –£10,600 in the UK	81	12.84
2	Annual salary \$9,226 - \$37,450 in the US and £10,601- £31,785 in the UK	259	41.05
3	Annual salary \$9,226 - \$37,450 in the US and £31,786 - £42,385 in the UK	188	29.79
4	Annual salary more than \$90,751 in the US and £42,386 in the UK	103	16.32

Model

As previous studies assume that the effect of fairness on tax morale is not conditional on the level of FTL, we start the analysis by testing this proposition on our data and first estimate a model (1):

$$Tax\ morale_i = \beta_0 + \beta_1 Literacy_i + \beta_2 Fairness_i + \beta_3 Age_i + \beta_4 Female_i + \beta_5 UK_i + \beta_6 Marital\ status_i + \beta_7 Income_i + \beta_8 Education_i + \beta_9 Public_i + \beta_{10} Children_i + \beta_{11} Tenure_i + \beta_{12} Trust_i + \beta_{13} Political_i + \beta_{14} Evasion_perc_i + \beta_{15} Happiness_i + \varepsilon_{i,t} \quad (1)$$

Further, to test our hypothesis that the influence of perceived fairness of tax system on tax morale depends on the level of tax literacy, the following model (2) has been estimated:

$$Tax\ morale_i = \beta_0 + \beta_1 Literacy_i + \beta_2 Fairness_i + \beta_3 (Literacy_i * Fairness_i) + \beta_4 Age_i + \beta_5 Female_i + \beta_6 UK_i + \beta_7 Marital\ status_i + \beta_8 Income_i + \beta_9 Education_i + \beta_{10} Public_i + \beta_{11} Children_i + \beta_{12} Tenure_i + \beta_{13} Trust_i + \beta_{14} Political_i + \beta_{15} Evasion_perc_i + \beta_{16} Happiness_i + \varepsilon_{i,t} \quad (2)$$

							*	
Other	(0.211) 0.619**	(0.211) 0.634**	(0.210) 0.498*	(0.210) 0.525*	(0.267) 0.85753***	(0.023) -	(0.244) 0.43861	(0.020) -0.03002
						0.07277***		
Public	(0.250) 0.031	(0.253) 0.027	(0.277) -0.013	(0.278) -0.021	(0.308) -0.061	(0.025) 0.005	(0.365) 0.0065	(0.028) -0.0005
Number of children	(0.130) -0.079	(0.130) -0.075	(0.139) -0.057	(0.138) -0.050	(0.154) -0.123**	(0.014) 0.011**	(0.156) -0.019	(0.013) 0.002
Tenure	(0.050) 0.054	(0.050) 0.057	(0.047) 0.008	(0.047) 0.015	(0.058) 0.034	(0.005) -0.003	(0.050) 0.059	(0.004) -0.005
Government trust	(0.051) 0.006	(0.051) 0.007	(0.054) 0.084**	(0.054) 0.086**	(0.062) -0.027	(0.005) 0.002	(0.061) 0.061	(0.005) -0.005
	(0.033) 0.006	(0.033) 0.007	(0.036) 0.084**	(0.036) 0.086**	(0.039) -0.027	(0.003) 0.002	(0.043) 0.061	(0.004) -0.005
<i>Political orientation</i>								
Left and Left-Libertarian	(0.204) -0.079	(0.204) -0.083	(0.199) -0.119	(0.199) -0.128	(0.234) -0.148	(0.021) 0.01310	(0.244) -0.26412	(0.019) 0.02126
Secular Cent	(0.190) 0.109	(0.189) 0.114	(0.195) -0.067	(0.194) -0.059	(0.230) 0.029	(0.020) -0.00261	(0.223) 0.12535	(0.019) -0.01067
None and Others	(0.172) 0.132	(0.171) 0.13362	(0.192) 0.060	(0.190) 0.063	(0.201) 0.113	(0.018) -0.009	(0.212) -0.059	(0.018) 0.005
Perceived norm of cheating	(0.064) -0.297***	(0.064) -0.297***	(0.076) -0.403***	(0.075) -0.404***	(0.075) -0.259***	(0.007) 0.023***	(0.080) -0.402***	(0.008) 0.034***
Wellbeing	(0.033) 0.049	(0.033) 0.047	(0.038) 0.061	(0.037) 0.057	(0.039) 0.067*	(0.004) -0.006*	(0.041) 0.058	(0.003) -0.005
Literacy	(0.056) 0.119**	(0.142) -0.088	(0.061) 0.024	(0.162) -0.353**	(0.186) -0.106	(0.006) -0.011*	(0.173) -0.348**	(0.006) -0.008
Fairness	(0.070) -0.127*	(0.118) -0.263**	(0.076) 0.091	(0.125) -0.159	(0.147) -0.292**	(0.008) 0.013	(0.138) -0.214	(0.007) -0.006
Literacy x Fairness		0.074		0.135***	0.079		0.156***	
		(0.049)		(0.053)	(0.063)		(0.058)	
Constant	(0.499) 5.643***	(0.549) 6.024***	(0.605) 4.063***	(0.686) 4.772***	(0.683) -2.251***		(0.711) -1.105	
Observations	627	627	627	627	627	627	627	627
R-squared	0.13	0.14	0.14	0.15				
Prob(LM-statistic)					0.000	0.000	0.000	0.000

Notes: In the reference group are man, US citizen, single, Certificate or diploma of Higher Education, Private sector, Right political orientation; Marginal effect (Marginal) = highest tax morale score (4).

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

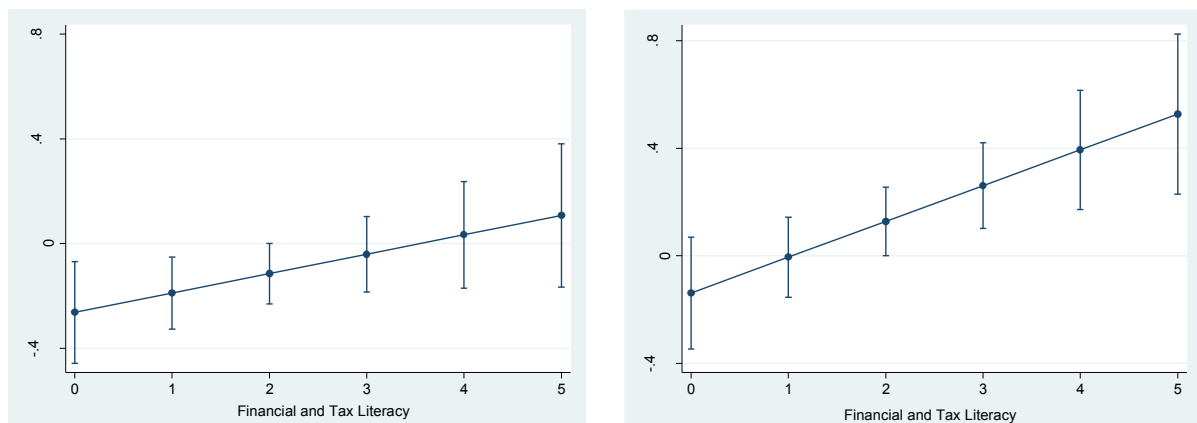
Table 3 presents the results of the OLS estimation of models (1) and (2) for the tax morale indices when tax morale is measured by positively and negatively framed questions. The analysis is complemented with ordered probit estimation of the scaled proxy for tax morale. With respect for the difficulties in interpreting parameters of ordered logit, (e.g. it only allows interpretation of the sign of the estimated coefficient), we present the marginal effects to enhance the understanding of the results. Marginal coefficients estimate the change in probability of belonging to a specific tax morale rank for a unit increase of the independent variable. For the sake of simplicity, we report marginal effects for the highest value of tax morale indicator. Positively framed questions are represented by “*cheating on taxes is justifiable if the money collected is spent wisely*”, while negatively framed questions are captured with “*cheating on taxes is justifiable if money collected is spent on projects that do not benefit me*”.

Due to similarity in both OLS and ordered logit estimates, only OLS estimates will be discussed. First, we will consider the results from the model (1). As expected, higher literacy increases tax morale. The positive and significant coefficient on aggregate indicator of financial and tax literacy indicates that higher literacy (as measured by the number of correct answers) results in higher tax morale, but the effect is significant only when questions are positively framed. However, the findings about the effect of fairness are unexpected: when significant (and that is the case when tax morale questions are positively framed), the estimated results show tax morale is negatively influenced by an increased level of perceived fairness of the tax system.

Since the literature suggests that the effect of fairness on tax morale might depend on the respondent's level of financial literacy, we further investigated whether the effect is moderated by the level of financial literacy of the participant by estimating model 2 (columns 2-p and 2-n in Table 3). We are primarily interested in the marginal effect of fairness and the extent it is modified by financial and tax literacy.

To see in more details how the effect of fairness behaves at different levels of literacy, the marginal effect of fairness on tax morale at different values of FT-literacy is plotted in Figure 1.

Figure 1. The average marginal effects of fairness on “positive” and “negative” morale as a function of FT-literacy (x-axis), 90% CIs



First, we will be looking at the estimates for positively framed questions. The estimated coefficients in Table 3 indicate that the effect of fairness on tax morale increases as the literacy increases. The left-hand panel in Figure 1 show that the more literate an individual is, so is the effect of perceived fairness on tax morale. The perception of fairness has a negative effect on tax morale only for respondents with very low levels of FT-literacy (e.g. number of correct answers from 0 to 2) and positive for the more FT-literate respondents (e.g. answering at least three questions correctly). However, the effect is significant only for the respondents with low levels of literacy (which captures 69% of the observations). Thus, the marginal analysis shows that the fairness is negatively and significantly associated with tax morale only for the respondents with low levels of financial and tax literacy, while it has no significant effect for more literate respondents.

In case of tax morale as measured with negatively framed questions, the results reveal a slightly different situation as depicted in the right-hand panel in Figure 2. When morale is measured with negative questions, the effect of fairness is statistically significant only for the respondents with higher literacy

levels (3 or more correct answers) (Figure 2). Figure 2 indicates that the perception of fairness increases tax morale when literacy is higher (3 or more correct questions), while fairness has no effect on tax morale for less literate respondents (less than 3 questions answered correctly).

The perception toward positive statements used to measure tax moral is also affected by the marital status, gender and number of children. In particular, there is a lower probability of high tax morale among married respondents and respondents with more children, but higher among women. Tax morale increases with age, regardless of the framing. Framing does not make a difference for the effect of perceived norm of cheating; it is unanimously negative and highly statistically significant. Finally, more trust in government results in higher levels of tax morale, with the effect being significant only for tax morale as measured by negatively framed questions.

Several relevant results emerge from this study: (1) the framing of tax morale questions does matter and (2) the effect of fairness on tax morale depends on the level of financial literacy.

The study shows that both, variables of interest (literacy and fairness) as well as control variables impact differently individuals' level of tax morale depending whether morale is measured with negatively or positively framed questions. In particular:

- 1) Individual's perception of the fairness of tax system influences tax morale but that influence is conditional on one's level of financial and tax literacy. Literacy tends to enhance the effect of fairness on tax morale. However, the statistical significance of the effect of fairness depends on the way in which tax morale is measured. In the case of the positively framed tax morale questions, fairness has a statistically significant effect only for respondents with what is deemed to be a low level of financial and tax literacy; the effect will be negative. As financial and tax literacy increases, the negative effect diminishes. When tax morale questions are negatively framed, tax morale will be enhanced when individual perceives the tax system to be fair, but the effect is only statistically significant for more financially literate respondents.

- 2) Financial and tax literacy is expected to increase tax morale when measured by positively framed questions, regardless of the fairness of the system as perceived of individual. However financial and tax literacy will improve tax morale as measured by negatively framed questions only for those who perceived relative fairness in the tax system.

- 3) Most of the control variables have plausible and expected signs. Regardless of framing, education and perceived norm of cheating are significant in all specifications. Specifically, tax morale generally increases with a higher levels of education, while tax morale is reduced the more respondents believe that other society members cheat. This is in line with earlier literature, which hypothesize that tax morale decreases if we perceive that evasion is widespread (Frey and Trogler, 2007). Sociodemographic characteristics, in particularly the personal attributes (age, gender, marital status) explains only positively framed tax morale. In particular, older respondents and women are more likely to have higher levels of tax morale, while tax morale is lower among married respondents in comparison with single respondents. These findings reinforce some of the previous findings in literature (Cummings et al., 2009; among others). At the same time, societal variables such as trust in government seems to be important only when the tax morale questions are for negatively framed; a greater trust in government results in higher levels of tax morale. Sectors of employment (public or private),

participants' nationalities (UK or USA), number of children, tenure, political orientation and respondents' perceived sense of wellbeing are not significant in any of specifications (with or without interactions and positively or negatively framed in this study).

Overall, the results show that the effect of perceived tax fairness on tax morale is moderated by the level of FTL. When tax morale is measured with positive statements, the higher the perception on tax fairness tends to reduce tax morale for less FT-literate respondents, while fairness does not significantly influence tax morale of more FT-literate respondents. However, when morale is measured with negative statements, perceived tax fairness increases tax morale for FT-literate respondents and has no effect on tax morale of less FT-literate respondents.

Robustness checks

To isolate which area of literacy matters and check the sensitivity of our findings, we also analysed the effect of literacy as measured by the individual questions (Table A1. in the Appendix). For positively framed questions, the estimated results suggest that the effect is statistically significant only for those that answer inflation question correctly. However, for negatively framed questions, the effect is statistically significant for all individual FL-questions.

In addition to the aggregate fairness indicator from our factor analysis, we also report fairness by an individual questions on fairness that comprises the aggregate index. The results in Table A.2. in the Appendix report the results from the individual questions. The overall reading of these results seems not to suggest sharp differences across individual tax fairness questions, nor in comparison to the main results. For positively framed questions, interaction is statistically significant when fairness of tax system for average taxpayer is assessed, while for the negatively framed questions the effect of fairness perceived either as a fairness personal for the respondent and/or general fairness seems to be conditional on FT-literacy.

Following another stream of empirical literature (Alm and Torgler ; 2006; Heinemann, 2010; Peichl and Doerrenberg, 2013), 7-point scale of tax morale is proxied as dichotomous choice, making division between respondents who "strongly disagree" with cheating on taxes and all the other answers. Hence, tax morale is a dummy variable taking a value of 1 if respondent "strongly disagree" with cheating on tax and zero otherwise. Given dichotomous nature of the dependent variable, logit model is estimated, but the estimates are not statistically significant.

Conclusion

This research makes two significant contributions. First, the framing of tax morale questions in surveys matters. The study shows that both, variables of interest (literacy and fairness) as well as control

variables impact differently individuals' level of tax morale with respect to whether morale is measured with negatively or positively framed questions.

In addition to the aggregate fairness indicator from our factor analysis, we also report fairness by an individual questions on fairness that comprises the aggregate index. The results in Table A.2. in the Appendix report the results from the individual questions.

Second, financial and tax literacy enhances the effect of fairness on tax morale. However, the statistical significance of the effect of fairness depends on the way in which tax morale is measured.

When the tax morale questions are positively framed, fairness has a statistically significant negative effect, but only for respondents with what is deemed to be a low level of financial and tax literacy. As financial and tax literacy increases, the negative effect diminishes. When negatively framed, tax morale will be enhanced when individual perceives the tax system to be fair, but the effect is only statistically significant for more financially and tax literate respondents.

Appendix

Table A1. Tax literacy assessed by individual questions, ordinary least square estimates of the model (2)

VARIABLES	(1-p)	(2-p)	(3-p)	(4-p)	(5-p)	(1-n)	(2-n)	(3-n)	(4-n)	(5-n)
	Tax morale (positive framing)					Tax morale (negative framing)				
Age	0.022*** (0.006)	0.019*** (0.006)	0.024*** (0.006)	0.024*** (0.006)	0.024*** (0.006)	0.012** (0.006)	0.008 (0.006)	0.014** (0.006)	0.01242** (0.006)	0.01271** (0.006)
Female	0.340** (0.141)	0.368*** (0.141)	0.303** (0.142)	0.292** (0.143)	0.305** (0.141)	0.230 (0.150)	0.269* (0.147)	0.191 (0.149)	0.19576 (0.151)	0.20595 (0.150)
UK	-0.080 (0.170)	-0.124 (0.168)	-0.072 (0.170)	-0.077 (0.169)	-0.079 (0.171)	0.063 (0.184)	0.019 (0.181)	0.063 (0.183)	0.06112 (0.184)	0.08416 (0.186)
Married	-0.693*** (0.168)	-0.626*** (0.166)	-0.677*** (0.171)	-0.672*** (0.170)	-0.681*** (0.169)	-0.179 (0.175)	-0.116 (0.173)	-0.181 (0.175)	-0.16862 (0.175)	-0.16839 (0.176)
Separated	-0.072 (0.214)	-0.044 (0.208)	-0.077 (0.211)	-0.061 (0.212)	-0.070 (0.211)	0.074 (0.241)	0.120 (0.242)	0.061 (0.239)	0.09305 (0.240)	0.09758 (0.242)
Income	-0.064 (0.079)	-0.055 (0.080)	-0.055 (0.082)	-0.059 (0.082)	-0.059 (0.082)	0.033 (0.080)	0.036 (0.077)	0.039 (0.079)	0.03600 (0.080)	0.03250 (0.080)
<i>Education level</i>										
Attended university, no degree	0.260 (0.169)	0.322* (0.169)	0.374** (0.166)	0.374** (0.167)	0.364** (0.167)	0.647*** (0.177)	0.626*** (0.176)	0.703*** (0.173)	0.678*** (0.175)	0.663*** (0.176)
Bachelor degree	0.381* (0.217)	0.363* (0.218)	0.383* (0.220)	0.379* (0.222)	0.369* (0.221)	0.630*** (0.223)	0.627*** (0.222)	0.662*** (0.225)	0.632*** (0.224)	0.634*** (0.225)
Post Grad	0.527** (0.208)	0.494** (0.208)	0.584*** (0.209)	0.598*** (0.210)	0.575*** (0.209)	0.917*** (0.210)	0.839*** (0.209)	0.947*** (0.210)	0.933*** (0.211)	0.923*** (0.210)
Other	0.611** (0.253)	0.641*** (0.247)	0.599** (0.249)	0.584** (0.246)	0.592** (0.248)	0.510* (0.277)	0.54245* (0.278)	0.497* (0.276)	0.476* (0.278)	0.494* (0.277)
Public	0.032 (0.129)	0.024 (0.127)	0.003 (0.129)	-0.009 (0.129)	0.002 (0.130)	-0.014 (0.137)	-0.003 (0.136)	-0.029 (0.137)	-0.042 (0.138)	-0.019 (0.138)
Number of children	-0.081 (0.049)	-0.096* (0.050)	-0.098* (0.050)	-0.100** (0.050)	-0.097* (0.050)	-0.052 (0.047)	-0.058 (0.047)	-0.057 (0.046)	-0.060 (0.046)	-0.059 (0.046)
Tenure	0.028 (0.050)	0.031 (0.050)	0.048 (0.050)	0.049 (0.050)	0.049 (0.050)	0.005 (0.053)	-0.005 (0.054)	0.019 (0.054)	0.015 (0.054)	0.011 (0.054)
Government trust	0.008 (0.032)	-0.003 (0.031)	0.006 (0.032)	0.007 (0.032)	0.005 (0.033)	0.091** (0.036)	0.077** (0.035)	0.086** (0.036)	0.085** (0.036)	0.084** (0.036)
<i>Political orientation</i>										
1-Left and Left- Libertarian	-0.013 (0.200)	-0.044 (0.197)	-0.091 (0.200)	-0.082 (0.198)	-0.074 (0.201)	-0.09363 (0.202)	-0.087 (0.197)	-0.15152 (0.198)	-0.13302 (0.199)	-0.12508 (0.201)
Secular Cent	0.051 (0.189)	0.108 (0.187)	0.059 (0.188)	0.037 (0.187)	0.055 (0.189)	-0.09555 (0.194)	-0.02532 (0.194)	-0.07730 (0.194)	-0.11011 (0.194)	-0.07327 (0.195)
None and Others	0.142	0.147	0.099	0.090	0.106	0.06256	0.09103	0.02155	0.02597	0.05289

Perceived norm of cheating	(0.172)	(0.171)	(0.176)	(0.175)	(0.175)	(0.191)	(0.189)	(0.192)	(0.194)	(0.194)
Wellbeing	-0.301***	-0.287***	-0.297***	-0.294***	-0.298***	-0.4041***	-0.394***	-0.403***	-0.403***	-0.404***
Fin_Lit_Numeracy	(0.063)	(0.063)	(0.064)	(0.064)	(0.064)	(0.076)	(0.074)	(0.075)	(0.075)	(0.076)
Fairness	0.041	0.045	0.044	0.045	0.044	0.058	0.061	0.058	0.059	0.061
Fin_Lit_Numeracy	(0.032)	(0.033)	(0.033)	(0.033)	(0.033)	(0.038)	(0.037)	(0.037)	(0.037)	(0.038)
Inflation	0.436					-0.529				
Inflation#Fairness	(0.355)					(0.410)				
Fin_Lit_Investment	-0.121	-0.305**	-0.135*	-0.104	-0.143*	-0.03455	-0.12849	0.01623	0.07625	0.08247
Fin_Lit_Investment #Fairness	(0.096)	(0.123)	(0.077)	(0.074)	(0.079)	(0.100)	(0.131)	(0.081)	(0.078)	(0.089)
Tax_literacy_1	0.014					0.224*				
Tax_literacy_1 #Fairness	(0.123)					(0.133)				
Tax_literacy_2		-0.459					-0.562			
Tax_literacy_2 #Fairness		(0.409)					(0.461)			
Constant		0.308**					0.346**			
Constant		(0.139)					(0.153)			
Constant			-0.395					-1.144**		
Constant			(0.409)					(0.470)		
Constant			0.108					0.328**		
Constant			(0.148)					(0.162)		
Constant				-0.344					-1.029	
Constant				(0.604)					(0.742)	
Constant				0.019					0.233	
Constant				(0.183)					(0.217)	
Constant					-0.361					-0.066
Constant					(0.396)					(0.423)
Constant					0.102					0.025
Constant					(0.134)					(0.136)
Constant	5.127***	5.712***	5.312***	5.269***	5.355***	5.613***	6.199***	5.878***	5.832***	5.924***
Constant	(0.548)	(0.566)	(0.531)	(0.518)	(0.529)	(0.531)	(0.542)	(0.519)	(0.505)	(0.515)
Observations	627	627	627	627	627	627	627	627	627	627
R-squared	0.16	0.16	0.14	0.14	0.14	0.15	0.15	0.13	0.13	0.13

Notes: In the reference group are man, US citizen, single, Certificate or diploma of Higher Education, Private sector, Right political orientation; Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table A2. Tax fairness assessed by individual questions, ordinary least square estimates of the model (2)

<i>Dependent variable</i>	(1-p)	(2-p)	(3-p)	(1-n)	(2-n)	(3-)
	Tax morale (positive framing)			Tax morale (negative framing)		
Age	0.022***	0.023***	0.021***	0.011*	0.012**	0.011*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Female	0.354**	0.349**	0.336**	0.241	0.243	0.208
	(0.144)	(0.144)	(0.143)	(0.151)	(0.150)	(0.151)
UK citizen	-0.085	-0.099	-0.046	0.039	0.027	0.142
	(0.167)	(0.170)	(0.166)	(0.181)	(0.185)	(0.183)
Married	-0.687***	-0.689***	-0.686***	-0.189	-0.186	-0.172
	(0.169)	(0.170)	(0.168)	(0.174)	(0.174)	(0.176)
Separated	-0.071	-0.071	-0.086	0.079	0.049	0.068
	(0.210)	(0.211)	(0.211)	(0.240)	(0.240)	(0.240)
Income	-0.062	-0.060	-0.063	0.036	0.038	0.029
	(0.080)	(0.080)	(0.080)	(0.078)	(0.078)	(0.079)
<i>Education level</i>						
Attended university, no degree	0.334**	0.320*	0.335**	0.680***	0.668***	0.680***
	(0.169)	(0.170)	(0.169)	(0.173)	(0.175)	(0.176)
Bachelor degree	0.352	0.354	0.338	0.624***	0.609***	0.629***
	(0.220)	(0.219)	(0.217)	(0.222)	(0.222)	(0.223)

Post Grad	0.531** (0.209)	0.502** (0.210)	0.540*** (0.209)	0.902*** (0.210)	0.887*** (0.210)	0.917*** (0.211)
Other	0.636** (0.252)	0.622** (0.252)	0.619** (0.254)	0.524* (0.277)	0.527* (0.277)	0.494* (0.282)
Public	0.031 (0.129)	0.018 (0.130)	0.035 (0.129)	-0.025 (0.138)	-0.025 (0.138)	-0.004 (0.138)
Number of children	-0.087* (0.051)	-0.090* (0.050)	-0.081 (0.050)	-0.053 (0.047)	-0.047 (0.046)	-0.049 (0.047)
Tenure	0.038 (0.050)	0.034 (0.050)	0.045 (0.050)	0.014 (0.054)	0.015 (0.053)	0.019 (0.054)
Government trust	-0.001 (0.033)	-0.004 (0.033)	0.005 (0.032)	0.084** (0.036)	0.089** (0.036)	0.097*** (0.036)
<i>Political orientation</i>						
Left and Left-Libertarian	-0.065 (0.200)	-0.052 (0.200)	-0.092 (0.202)	-0.134 (0.198)	-0.123 (0.199)	-0.137 (0.202)
Secular Cent	0.098 (0.188)	0.087 (0.189)	0.102 (0.189)	-0.068 (0.194)	-0.068 (0.194)	-0.039 (0.196)
None and Others	0.147 (0.171)	0.144 (0.172)	0.137 (0.171)	0.058 (0.190)	0.059 (0.190)	0.064 (0.192)
Perceived norm of cheating	-0.298*** (0.064)	-0.289*** (0.063)	-0.295*** (0.064)	-0.404*** (0.075)	-0.407*** (0.074)	-0.405*** (0.076)
Wellbeing	0.039 (0.033)	0.041 (0.033)	0.047 (0.033)	0.059 (0.037)	0.053 (0.037)	0.065* (0.038)
FT-Literacy	-0.077 (0.135)	-0.066 (0.137)	-0.099 (0.124)	-0.327** (0.154)	-0.367** (0.158)	-0.180 (0.146)
TF_average	-0.210* (0.111)			-0.130 (0.117)		
FT-Literacy #.TF_average	0.064 (0.046)			0.126** (0.050)		
TF_personal		-0.171 (0.111)			-0.171 (0.116)	
FT-Literacy#.TF_personal		0.057 (0.046)			0.139*** (0.050)	
TF_general			-0.278** (0.108)			-0.139 (0.117)
FT-Literacy#.TF_general			0.072 (0.045)			0.078 (0.049)
Constant	5.460*** (0.567)	5.386*** (0.563)	5.547*** (0.554)	4.711*** (0.682)	4.827*** (0.675)	4.553*** (0.668)
Observations	627	627	627	627	627	627
R-squared	0.15	0.14	0.15	0.15	0.15	0.14

Notes: In the reference group are man, US citizen, single, Certificate or diploma of Higher Education, Private sector, Right political orientation; Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Table A3. Logit estimates of the model (2)

Dependent variable VARIABLES	(1-p)	(2-p)	(1-n)	(2-n)
	Tax morale (positive framing) Coeff.	Tax morale (positive framing) Marginal	Tax morale (negative framing) Coeff.	Tax morale (negative framing) Marginal
Age	0.011 (0.008)	0.003 (0.002)	0.008 (0.008)	0.002 (0.002)
Female	0.132 (0.190)	0.032 (0.046)	0.142 (0.204)	0.031 (0.045)
UK citizen	-0.309 (0.235)	-0.075 (0.057)	0.067 (0.250)	0.015 (0.055)
Married	-0.477**	-0.114**	-0.339	-0.074

	(0.229)	(0.055)	(0.237)	(0.052)
Separated	0.114	0.028	0.049	0.011
	(0.310)	(0.077)	(0.318)	(0.074)
Income	-0.129	-0.031	-0.024	-0.005
	(0.106)	(0.026)	(0.104)	(0.023)
<i>Education level</i>				
Attended university, no degree	0.523**	0.121**	1.014***	0.205***
	(0.235)	(0.053)	(0.251)	(0.048)
Bachelor degree	0.409	0.094	0.777**	0.149**
	(0.301)	(0.070)	(0.318)	(0.064)
Post Grad	0.754**	0.179**	1.027***	0.208***
	(0.308)	(0.073)	(0.305)	(0.064)
Other	0.987***	0.236***	1.035***	0.210**
	(0.338)	(0.081)	(0.369)	(0.082)
Public	-0.046	-0.011	0.015	0.003
	(0.179)	(0.043)	(0.186)	(0.041)
Number of children	-0.164**	-0.039**	-0.037	-0.008
	(0.074)	(0.018)	(0.073)	(0.016)
Tenure	0.001	0.0002	0.016	0.003
	(0.068)	(0.016)	(0.072)	(0.016)
Government trust	-0.026	-0.006	0.025	0.005
	(0.035)	(0.008)	(0.036)	(0.008)
<i>Political orientation</i>				
Left and Left- Libertarian	-0.090	-0.021	-0.413	-0.085
	(0.286)	(0.068)	(0.303)	(0.060)
Secular Cent	0.054	0.013	0.220	0.051
	(0.247)	(0.060)	(0.249)	(0.057)
None and Others	0.036	0.009	-0.058	-0.013
	(0.240)	(0.058)	(0.254)	(0.056)
Perceived norm of cheating	-0.200**	-0.048**	-0.335***	-0.074***
	(0.089)	(0.021)	(0.100)	(0.022)
Wellbeing	0.105**	0.025**	0.089*	0.019*
	(0.043)	(0.010)	(0.049)	(0.011)
Literacy	0.323	0.014	0.313	0.015
	(0.211)	(0.018)	(0.215)	(0.017)
Fairness	0.172	0.004	0.052	-0.021
	(0.143)	(0.022)	(0.153)	(0.020)
Literacy x Fairness	-0.082		-0.076	
	(0.060)		(0.063)	
Constant	-1.289		-2.041**	
	(0.820)		(0.899)	
Observations	627	627	627	627
Prob(LM-statistic)	0.0010	0.0010	0.0012	0.0012

Notes: In the reference group are man, US citizen, single, Certificate or diploma of Higher Education, Private sector, Right political orientation; Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

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