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Abstract

We study how the tax morale of individuals is influenced by societal diversity in their place of residence. Using data from the World Value Survey, we compare the effects that diversity has on self-reported measures of tax morale both at the regional and at the individual level. We show first that within countries sub-national regions characterized by greater diversity exhibit on average lower levels of tax morale. We then document that within each region tax morale is lower among individuals who are less similar to others from the region and this effect operates more strongly in regions characterized by higher levels of diversity. This pattern applies to diversity in terms of different attributes, including income, ethnicity, language or religion, but is particularly striking when it comes to diversity in terms of cultural values. It suggests that social identification may be important for how people perceive their responsibility of paying taxes.

Keywords: Tax Evasion, Tax Morale, Diversity, Identity, Cultural Values.

JEL Classification: H26, K42, O17, R50, Z13.

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1 Introduction

Tax evasion has been the subject of an extensive literature in public economics. This literature started out by applying ideas from decision-making under uncertainty and economics of deviant behavior to the decision of how much income to report to the tax authorities (Allingham & Sandmo, 1972; Srinivasan, 1973). In these early studies on tax evasion, individual taxpayers were assumed to optimally choose what fraction of their income they should be officially reporting by balancing out their own costs and benefits. Beyond these private pecuniary considerations, however, there is increasing evidence that the decisions of individuals to evade or not to evade taxes is influenced also by non-pecuniary considerations, which are referred to collectively in the literature with the term tax morale (Feld & Frey, 2007; Luttmer & Singhal, 2014; Alm, 2019).

To understand these non-pecuniary motives for tax compliance, many authors in the literature have shifted their attention to the broader socioeconomic environment in which individual taxpayers operate. This is because taxpayers should recognize that the income taken away from them constitutes their own contribution towards the various public goods and social support programs provided by the government (Cowell & Gordon, 1988; Slemrod & Yitzhaki, 2002). Moreover, the exact way in which these tax contributions are valued should vary across individual taxpayers depending on how much they identify and sympathize with others outside their own household. As several recent studies have documented, individuals characterized by such sentiments are more likely to pay their taxes (Christian & Alm, 2014; Dulleck et al., 2016; Dwenger et al., 2016; Hallsworth et al., 2017). Similarly it has been shown that individuals tend to be more supportive of public good and redistribution programs by governments if they feel that this will benefit people they associate with (Luttmer, 2001; Dalberg et al., 2012). These findings are also consistent with the evidence that public good provision and income redistribution is typically weaker in more diverse societies (Alesina et al., 1999; Desmet et al. 2012; Gershman & Rivera, 2018; Gruendler & Koellner, 2020).

In this paper we set out to test a general hypothesis regarding the relationship between societal diversity, identity considerations and tax compliant behavior. We argue that the inclination of individuals to pay their taxes depends on how similar they are to others in society. This is because individuals tend to identify more strongly with people who are similar to them and higher levels of social identification should increase their considerations about others.[1] We would, therefore, expect individuals who are more similar to others to exhibit greater tax compliance, as they place more weight on how their tax contributions benefit broadly the rest of the society rather than just the people around them. We also consider whether this relationship varies with the overall

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[1]The notions of social identity and social identification as important determinants of individual behavior have a long tradition in social psychology, going back to the work of Tajfel and Turner (1979). One important conclusion from the extensive line of research on social identity is that individuals tend to behave more altruistically towards the members of the social groups to which they belong and with which they identify. See Hogg (2018) for a recent survey.

level of diversity in the society. This is because in a more diverse society the social identities of individuals are likely to become more salient and individuals will tend to associate themselves more closely with their own social group rather than with society at large.

In order to test this hypothesis we use data from the World Values Survey. The survey has been often used to measure tax morale. Building on previous work in the literature, we quantify tax morale as the extent to which survey respondents find the act of cheating on taxes to be morally justifiable. From these responses we can measure both the tax morale of a given individual and the average level of tax morale in a given region. We relate these measures to a number of indicators of how similar or diverse survey respondents are in terms of various socio-demographic attributes. These include their income levels, their ethnicity, their main language, their religion and their cultural values. This allows us to assess whether similarity in terms of these attributes, which should enhance social identification, also fosters tax morale.

Our findings provide strong support for this hypothesis. Comparing, first of all, tax morale across sub-national regions within the same country we find that it is weaker in regions that are more diverse in terms of all five aforementioned socio-demographic attributes. We then document that individual respondents who are less similar to others living in the same region, in terms of these attributes, exhibit lower tax morale. Furthermore, we show that these two effects complement each other: the level of tax morale of individuals becomes more sensitive to their degree of similarity with others in their region in these five socio-demographic attributes, as the overall level of societal diversity in these same attributes increases. Comparing the magnitudes of these effects, we find that they vary across attributes and the effect is strongest for similarity in terms of cultural values.

These results hold conditionally on a variety of individual and regional characteristics, including standard individual and regional determinants of tax morale, such as social trust, preferences for equality or the quality of governance. Moreover, the results survive the inclusion of region-specific fixed effects to account for all potential differences in tax morale and societal characteristics across regions. We further demonstrate that our results are not sensitive to the way in which we measure tax morale or the way in which we quantify the degree of similarity between individuals. Our results also do not hinge on the employed econometric specification and they hold even when we employ an instrumental variable strategy to account for the potential endogeneity of the employed similarity measures.

Overall our findings suggest that the extent to which individuals identify themselves with others in their community is important for how they perceive their civic duty of paying their taxes. In this respect our empirical analysis complements several theoretical papers that have modeled how tax compliance can be affected by social interactions and coordination (Myles & Naylor, 1996; Fortin et al., 2007; Traxler, 2010; Litina & Palivos, 2016). These horizontal types of relationships between citizens are shown to matter above and beyond the vertical relationships

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that citizens have with the state, which has been often emphasized in the literature (Frey & Torgler, 2007; Hug & Spoerri, 2011; Filippin et al., 2013; Besley, 2020). As societies become more diverse, it is these horizontal relationships that weaken. This may result in lower levels of tax compliance in individuals, even when their vertical relationships with the state remain unchanged.

In addition to that, our analysis shows how the effect of societal diversity on tax morale extends beyond the typical divisions related to income, ethnicity or religion.[2] As our results highlight, differences in cultural values, although less visible, can also play an important role in this context. This suggests that social identification may operate in more complex ways than is commonly understood in the literature.[3] Greater dispersion of cultural values can also lead to the loosening of social ties and undermine the individual's sense of civic duty to pay their taxes.

To establish these results we proceed as follows. In the next section we describe our empirical strategy and discuss how we measure our key variables of interest. In Section 3 we present our main regression results. In Section 5 we report a series of robustness checks on our main results. In section 6 we offer some concluding remarks our key findings and their implications.

2 Measurement and Estimation Approach

Our aim in this paper is to analyze systematically how tax morale is influenced by the degree of diversity in terms of various socio-demographic attributes. We study this relationship both at the individual and at the aggregate level. When measuring diversity our reference point in all cases are sub-national regions, which typically corresponds to first-level administrative divisions within countries. By comparing how similar in terms of different attributes individuals are who reside in the same region and operate within the same socio-economic environment, we can make more meaningful comparisons and abstract from a wide range of factors that influence population diversity and tax morale in different parts of the world.[4]

We first test our relationship of interest at the regional level by estimating equation (1) that links the average level of tax morale in a given region, $TaxMorale_{r,c,w}$, to indices of similarity in the population of that region in terms of a given attribute, $Similarity_{r,c,w}$. Then we estimate equation (2) to see how the same indices of similarity at the regional level affect individual tax morale, $TaxMorale_{i,r,c,w}$. Then we estimate equation (3) and look at how individual tax morale is affected by the degree of similarity of that individual with others residing in the same region, $Similarity_{i,r,c,w}$. Finally, to understand how the effects of individual and regional similarity are

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[2]Such divisions have been the focus of an extensive literature in economics and other social sciences. See Alesina and La Ferrara (2005), Stichnoth and van der Straeten (2013), and Ashraf and Galor (2018) for surveys.

[3]See Akerlof and Kranton (2000), Shayo (2009), or Benjamin, Choi, and Strickland (2010) for common ways of modeling social identity.

[4]This includes, for example, differences in population composition, government institutions, tax laws or economic structure that are not always easy to quantify.

related, we estimate also an interaction effect between the two measures, as indicated in equation (4). This is because the degree of similarity of a given individual with others may become more salient depending on the overall level of similarity between individuals in a given region.[5]

$$TaxMorale_{r,c,w} = \alpha_{c,w} + \beta \cdot Similarity_{r,c,w} + \gamma' X_{r,c,w} + \varepsilon_{r,c,w}. \tag{1}$$

$$TaxMorale_{i,r,c,w} = \alpha_{c,w} + \beta \cdot Similarity_{r,c,w} + \gamma' X_{r,c,w} + \delta' Y_{i,r,c,w} + \varepsilon_{i,r,c,w}. \tag{2}$$

$$TaxMorale_{i,r,c,w} = \alpha_{r,c,w} + \beta \cdot Similarity_{i,r,c,w} + \delta' Y_{i,r,c,w} + \varepsilon_{i,r,c,w}. \tag{3}$$

$$TaxMorale_{i,r,c,w} = \alpha_{r,c,w} + \beta_1 \cdot Similarity_{i,r,c,w} + \beta_2 \cdot Similarity_{i,r,c,w} \cdot Similarity_{r,c,w} + \delta' Y_{i,r,c,w} + \varepsilon_{i,r,c,w}. \tag{4}$$

In all equations the subscript i refers to a given individual, r to the individual's region of residence, c to the individual's country of residence and w to the survey wave, the point in time when this information was collected. X_{rcw} and Y_{ircw} denote vectors of various regional and individual determinants of tax morale respectively. In equations (1) and (2) we also include fixed effects at the country-wave level, $\alpha_{c,w}$, while in equations (3) and (4) we include fixed effects at the region-wave level, $\alpha_{r,c,w}$.[6] The error term is assumed to be heteroskedastic and clustered at the same level as the fixed effects.

To construct these variables we use the integrated longitudinal data set of the World Values Survey and European Values Study (WVS/EVS), which covers six survey waves conducted between 1981 and 2014. In the subsections below we describe how we measure tax morale and similarity at the individual and regional level. In the appendix we provide more information on the data set and detailed descriptions of all variables used in our empirical analysis.

2.1   Measuring Tax Morale

The notion of tax morale refers to an individual's non-pecuniary motives as well as to factors outside the standard expected utility framework that drive tax compliance (Luttmer & Singhal, 2014). It is commonly measured from individual responses to survey questions on the moral justifiability of tax evasion, which have been shown to predict actual tax compliance behavior

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[5]Throughout our analysis we employ measures of similarity between individuals and think of diversity as the opposite of that. Although the notion of diversity can be understood more broadly, this interpretation is sufficient for the purpose of our analysis.

[6]While the included set of fixed effects can account for various unobserved factors that could influence the observed levels of tax morale, as part of our analysis we also consider an estimation strategy based on instrumental variables, which we describe in more detail in Section 4.1.

well (Alm & Torgler, 2006; Cummings et al., 2009; Dulleck et al., 2016; Mare et al., 2020).

The WVS/EVS questionnaire includes a question that asks individuals to indicate on a scale from 1 to 10 whether *"cheating on their taxes is justified."* This question has been frequently used in empirical studies of tax morale in the literature (Slemrod, 2002; Alm & Torgler, 2006; Frey & Torgler, 2007; Hug & Spoerri, 2011; Besley, 2020). Given the way the question is phrased, an answer of 1 indicates that a respondent finds tax evasion never justified and an answer of 10 as always justified. Since our focus is on measuring tax morale, we invert the response scale, so that higher values indicate individuals with higher levels of tax morale. Averaging these values across individuals residing in the same region we obtain our regional measure of tax morale.

2.2   Individual and Regional Measures of Similarity

To measure how similar or dissimilar individuals within a region are, we consider the extent of similarity across individual respondents from that region in a given wave of the WVS/EVS survey in terms of several important socio-demographic attributes. These attributes consist of their household income, their ethnicity, their main language, their religion and a range of cultural values. Using any of these attributes a we can partition the set of individuals from a given region r into different groups $1, \cdots, G^a$. For each of these groups g let s_r^g denote the population share of the group in the region. We can then quantify the regional level of similarity in terms of attribute a based on the index:

$$Similarity_r^a = \sum_{g=1}^{G^a} (s_r^g)^2. \tag{5}$$

This index ranges from 0 to 1 and captures the probability that two randomly selected individuals from region r belong to the same group in terms of attribute a. It corresponds to the Herfindahl-Hirschman index of concentration and it is the opposite of the fractionalization index that has been widely used in the literature to measure ethno-liguistic diversity (Alesina et al., 2003; Desmet et al., 2009). In contrast to this line of research that focuses on population-wide measures, we also want to measure the extent to which a specific individual is similar in terms of attribute a to other residents of region r. This can be done following the same logic. Suppose that individual i belongs to group g whose relative size is given by the population share s_r^g. Since this share also reflects the probability of that individual coming across another person from the region that shares attribute a, we can define the individual similarity index as:

$$Similarity_{i,r}^a = s_r^g. \tag{6}$$

Using expressions (5) and (6) we compute measures of similarity at the regional and the individual level for each of the aforementioned socio-demographic attributes.[7] When doing so

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[7] An alternative way is to think of these measures as reflecting social connectedness. See, for example Stuart

based on income we split individual responds into 10 income groups based on country-specific income classes reported in the survey. When doing so based on ethnicity, language or religion we consider in each country all groups that have a population share of 5 percent or higher.

To measure similarity in terms of cultural values, we build on the approach of Beugelsdijk and Klasing (2016), Desmet et al. (2017), and Beugelsdijk et al. (2019), who group individuals based on the answers that they give to different value questions in the WVS/EVS survey. For this purpose we use the answers to 96 different questions listed in the appendix, which are in the core part of the WVS/EVS questionnaire. These are all questions that can be answered on a rating scale and indicate the importance that individuals attribute to a particular value. For each of these questions we measure separately regional and individual similarity based on expressions (5) and (6) and then we average the resulting scores across all 96 questions to obtain broad measures of value similarity.[8]

3   Regressions Results

3.1   Similarity and Tax Morale at the Regional Level

We first analyze the relationship between our different measures of similarity and tax morale at the regional level by estimating equation (1). Beyond our five measures of similarity, our regression specification includes a set of control variables which capture differences between regions in terms of their geographic characteristics and level of economic development. These variables, whose coefficients estimates are not reported for brevity, are distance from the coast, distance from the country's capital, population density and nighttime luminosity per capita. Our specification also includes country-wave fixed effects to account for any unobserved factor that may influence tax morale in a specific country and time. To facilitate the interpretation of the estimated coefficients, all explanatory and control variables are standardized.

In column 1 of Table 1 we examine the effect of income similarity and find that it relates positively and significantly to regional tax morale. Within a given country, regions where incomes are more similar across individuals are characterized by greater tax morale on average. In column 2 we look at similarity in terms of ethnicity. The estimated effect on tax morale is of similar magnitude, although the corresponding standard error is higher in this case. In column 3 we look at linguistic similarity across individuals and we find again a strong positive effect on tax morale. In column 4 we look at the effect of religious similarity. Here too we find a positive relationship with tax morale, although its estimated effect is much weaker. In column 5 we turn to our measure of similarity in terms of cultural values, which we find to be strongly and

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and Taylor (2020).

[8]As we discuss in greater detail in the appendix, we also construct and employ alternative measures of value similarity based on the same questions but using other metrics.

Table 1 - Regional Similarity and Regional Tax Morale

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:			Regional Tax Morale			
Reg. Income Similarity	0.063***					0.004
	(0.02)					(0.03)
Reg. Ethnicity Similarity		0.060				-0.013
		(0.06)				(0.06)
Reg. Language Similarity			0.094***			0.089***
			(0.03)			(0.03)
Reg. Religion Similarity				0.027		-0.048
				(0.03)		(0.04)
Reg. Value Similarity					0.156***	0.137**
					(0.04)	(0.05)
Regions	1338	1042	1109	1567	1575	986
Countries	97	78	82	102	103	74
R-squared	0.01	0.00	0.01	0.00	0.03	0.05
Fixed Effects			Country-Wave			
Regional Controls			Yes			

Notes: This table compares the effect of various measures of regional similarity on regional tax morale. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the country-wave level. All regressions control without reporting the estimates for the following regional characteristics: luminosity per capita, population density, distance to capital, distance to sea. Heteroskedasticity robust standard errors clustered at the country-wave level are reported in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

positively related to regional tax morale.

Lastly, in column 6 we include all five indicators of similarity simultaneously in a horse race regression to get a better sense of which are relatively more important. We find this to be the case for language and value similarity, the two variables for which we had estimated the largest coefficients when included in the specification separately. For similarity in terms of values, which has the largest effect, the estimates imply that a one standard deviation increase in similarity raises tax morale by approximately 0.16 units in the scale. This is about 16% of the standard deviation in tax morale across regions. For the other three indicators the coefficients estimates drop substantially and become statistically insignificant. This is possibly due to the positive correlation between these indicators

3.2 Similarity and Tax Morale at the Individual Level

The effects reported in Table 1 pertain to the average level of tax morale in a given region. To understand better what is driving these effects, in Table 2 we shift our focus to tax morale of individual survey respondents and how it relates to the extent of similarity among people in

Table 2 - Regional Similarity and Individual Tax Morale

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:			Individual Tax Morale			
Reg. Income Similarity	0.037**					-0.031
	(0.02)					(0.03)
Reg. Ethnicity Similarity		-0.004				-0.074
		(0.05)				(0.06)
Reg. Language Similarity			0.086**			0.068
			(0.03)			(0.05)
Reg. Religion Similarity				0.054		-0.031
				(0.03)		(0.05)
Reg. Value Similarity					0.339***	0.372***
					(0.03)	(0.05)
Individuals	191213	145074	165581	238502	262741	125715
Regions	1300	1036	1099	1540	1548	979
Countries	94	76	82	101	102	72
R-squared	0.01	0.01	0.01	0.01	0.02	0.02
Fixed Effects			Country-Wave			
Individual Controls			Yes			
Regional Controls			Yes			

Notes: This table compares the effect of various measures of regional similarity on individual tax morale. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the country-wave level. All regressions control without reporting the estimates for the following regional characteristics: luminosity per capita, population density, distance to capital, distance to sea. They also control for the following individual characteristics: age, gender, marital status, employment status, education level. Heteroskedasticity robust standard errors clustered at the country-wave level are reported in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

their region of residence. For this purpose we estimate equation (2), retaining the original set of regional controls and country-wave fixed effects. In this specification we further introduce a set of individual-level controls. These include age, gender, marital status, employment status and education level, all of which have been frequently shown to affect individual tax morale.[9] As with the regional controls, the coefficient estimates for these variables are not reported for brevity.

Following the same approach as in Table 1, we first introduce in this specification the same five measures of regional similarity one-by-one in columns 1 to 5 and then in column 6 we include them all together. For all variables apart from our ethnic similarity measure we see a positive association with individual tax morale. This implies that individuals who reside in regions that are relatively homogeneous in terms of income, language, religion and cultural values, exhibit

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[9]There is an extensive literature on how particular individual characteristics predict the likelihood of tax compliance going back to Clotfelter (1983) and Slemrod (1985). See Alm (2019) for a survey of this literature.

higher levels of tax morale relative to individuals residing in more diverse regions within the same country.

Comparing the magnitudes of the estimated effects in Table 2, we obtain again the highest for similarity in values followed by similarity in language. This pattern in confirmed by the horse race regression in column 6, where all five measures are included in the specification. In this case we see that similarity in terms of values has a much stronger effect on individual tax morale than any of the other similarity measures. Specifically, we find that if regional value similarity increases by one standard deviation, this will increase the individual's level of tax morale by 0.37 units, which corresponds to about 16% of its standard deviation. This effect is comparable to the estimated effect that we obtained in Table 1 for the regional level.

Having documented how tax morale is affected by our different measures of similarity at the regional level, we turn to look at the effects of the corresponding measures of similarity at the individual level. We do so by estimating equation (3), which links the level of tax morale of individual respondents with how similar these individuals are to other people in their region of residence in terms of the five attributes. The estimation results are reported in Table 3, which consists of two panels. Panel A reports the estimates when we include in the specification country-wave fixed effects and the same set of regional controls as we did in Tables 1 and 2. Panel B reports the estimates for the specification when we use instead region-wave fixed effects that filter out any unobserved differences between regions and waves, and also absorb the regional controls.

Looking first at the estimates in panel A, we see that all individual similarity measures in columns 1 to 5 are positively related to individual tax morale. With the exception of similarity in terms of ethnicity, the estimated effects are statistically significant. When comparing the magnitudes of the estimated effects, however, we see striking differences across the five measures of similarity. In particular, we find the effect of similarity in terms of values to dwarf the effects of the others by a factor of ten to fifteen. This pattern is also confirmed by the estimates of column 6, where the effects of all variables are compared in the context of a horse race regression. Despite the change in the sample size, the estimated effect value similarity does not change much in standardized terms. As the level of similarity in the values of a given individual to others in the region increases by one standard deviation, this should raise the tax morale of the individual by 0.65 to 0.7 units, which corresponds to 30% of a standard deviation. This is a much larger effect than that of the other individual-level control variables such as the respondents' gender or education, which have been emphasized in the literature.[10] Moreover, comparing the magnitudes with those reported in Table 2, we see that the effect of value similarity roughly doubles as we switch from regional to individual measures of similarity, while the estimated effects of the other similarity measures remain in the same range.

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[10]See, for example, Torgler and Valev (2010), and Rodriguez-Justicia and Theilen (2018).

Table 3 - Individual Similarity and Individual Tax Morale

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
			Individual Tax Morale			
Panel A						
Ind. Income Similarity	0.031***					-0.031***
	(0.01)					(0.01)
Ind. Ethnicity Similarity		0.007				-0.040
		(0.02)				(0.03)
Ind. Language Similarity			0.053***			0.015
			(0.02)			(0.02)
Ind. Religion Similarity				0.040***		-0.017
				(0.01)		(0.02)
Ind. Value Similarity					0.637***	0.708***
					(0.03)	(0.05)
Individuals	191213	145074	165581	238502	262741	125715
Regions	1300	1036	1099	1540	1548	979
Countries	94	76	82	101	102	72
R-squared	0.01	0.01	0.01	0.01	0.05	0.06
Individual Controls				Yes		
Regional Controls				Yes		
Fixed Effects			Country-Wave			
Panel B						
Ind. Income Similarity	0.024***					-0.010
	(0.01)					(0.01)
Ind. Ethnicity Similarity		0.012				-0.021
		(0.01)				(0.01)
Ind. Language Similarity			0.024*			-0.003
			(0.01)			(0.01)
Ind. Religion Similarity				0.032***		-0.007
				(0.01)		(0.01)
Ind. Value Similarity					0.773***	0.869***
					(0.02)	(0.03)
Individuals	191213	145074	165581	238502	262741	125715
Regions	1300	1036	1099	1540	1548	979
Countries	94	76	82	101	102	72
R-squared	0.01	0.01	0.01	0.01	0.05	0.05
Individual Controls				Yes		
Fixed Effects			Region-Wave			

Notes: This table compares the effect of various measures of individual similarity on individual tax morale. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects. Panel A reports the estimates when fixed effects are imposed at the country-wave level, while panel B reports the corresponding estimates when fixed effects are imposed at the region-wave level. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. The estimates in Panel A also control for the following regional characteristics: luminosity per capita, population density, distance to capital, distance to sea. Heteroskedasticity robust standard errors clustered at the country-wave or region-wave level, in line with the fixed effects, are reported in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

These conclusions are also confirmed by the estimates in panel B of Table 3, which come from a specification that includes region-wave instead of country-wave fixed effects. Doing so allows us to compare tax morale solely between individuals who reside in the same sub-national region and were interviewed in the same survey wave. In columns 1 to 5 we see that all similarity measures relate positively to individual tax morale, as we saw also in panel A. The estimated magnitudes for similarity in terms of income, ethnicity, language and religion are slightly weaker in this case. Strikingly, though, this not the case for similarity in terms of cultural values, for which the estimated effect is now larger. This pattern is also observed in column 6 where all variables are included simultaneously.

Taken together the results shown in Table 3 indicate that individual measures of similarity relate positively to individual tax morale and this is particularly the case for similarity in terms of cultural values. These results are consistent with those of Tables 1 and 2, but they also highlight that interpersonal variation is highly relevant. The level of tax morale exhibited by a given individual is not only influenced by how much diversity there is overall in the region. It also hinges on how similar that individual is to others. Individuals who are more similar to others within their region, particular when it comes to the values that they espouse, tend to be characterized by higher tax morale. This suggests that identity considerations matter and is consistent with the view of social identity advanced by Turner et al. (1987), according to which the extent of altruistic behavior of individuals towards other members of a social group depends on their level of identification with the group.[11]

3.3 Interaction Regressions

In the regression results presented so far we have documented that an individual's tax morale is influenced both by the overall level of similarity across individuals in their region of residence, documented in Table 2, and by the level of similarity of that particular individual with others, documented in Table 3. A natural question that emerges from these results is whether these two effects should be considered as independent, or whether they are related and if so in what way. With this question in mind, in Table 4 we combine the explanatory variables from Table 2 and 3 and estimate equation (4) which includes interaction effects between individual similarity and regional similarity. From these regressions we can assess whether the effect of individual similarity on tax morale is sensitive to the overall level of similarity across individuals in a given region. This would be natural to expect, as discussed previously, if changes in regional similarity influence the salience of an individual's identity considerations.

Table 4 presents the estimates for these interaction regressions in two panels. In panel A

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[11]The view of social identity by Turner et al. (1987) is often referred to in the literature as self-categorization theory in order to distinguish it from the original version of social identity theory proposed by Tajfel and Turner (1979).

Table 4 - Interaction Regressions with Individual and Regional Similarity

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:			Individual Tax Morale		
Interaction Variable: Reg. Similarity in:	Income	Ethn.	Lang.	Relig.	Values
Panel A					
Ind. Value Similarity	0.711***	0.696***	0.705***	0.644***	0.774***
	(0.04)	(0.05)	(0.04)	(0.03)	(0.03)
Interaction Var.	-0.039**	-0.065	0.010	-0.023	-0.186***
	(0.02)	(0.05)	(0.04)	(0.03)	(0.04)
Ind. Value Similarity × Interaction Var.	-0.053***	0.006	-0.109***	-0.091***	-0.098***
	(0.02)	(0.03)	(0.03)	(0.02)	(0.01)
Individuals	191213	145074	165581	238502	262741
Regions	1300	1036	1099	1540	1548
Countries	94	76	82	101	102
R-squared	0.06	0.05	0.06	0.05	0.06
Individual Controls			Yes		
Regional Controls			Yes		
Fixed Effects			Country-Wave		
Panel B					
Ind. Value Similarity	0.844***	0.860***	0.849***	0.773***	0.784***
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Ind. Value Similarity × Interaction Var.	-0.075***	-0.051**	-0.138***	-0.081***	-0.176***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Individuals	191213	145074	165581	238502	262741
Regions	1300	1036	1099	1540	1548
Countries	94	76	82	101	102
R-squared	0.05	0.05	0.06	0.05	0.05
Individual Controls			Yes		
Fixed Effects			Region-Wave		

Notes: This table explores how the effect of individual similarity on individual tax morale varies with the level of regional similarity. Individual similarity is always measured in terms of values, while regional value similarity is measured as indicated at the top of each column. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects. Panel A reports the estimates when fixed effects are imposed at the country-wave level, which permits the estimation of the effect of regional similarity. Panel B reports the corresponding estimates when fixed effects are imposed at the region-wave level, which absorb the effect of regional similarity. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. The estimates in Panel A also control for the following regional characteristics: luminosity per capita, population density, distance to capital, distance to sea. Heteroskedasticity robust standard errors clustered at the country-wave or region-wave level, in line with the fixed effects, are reported in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

we employ a specification with country-wave fixed effects, which allows us to include regional similarity measures and our set of regional control variables. In panel B we employ a specification with region-wave fixed effects, which absorb all region-specific variables including the regional similarity measures. In both panels A and B we use only the individual similarity measure in terms of values, for which we have established that it has the strongest effect on individual tax morale. This is interacted with regional similarity measured in terms of all five attributes, as indicated at the top of the table.

Looking first at the estimates in panel A, we observe a common pattern. Across all five columns we find individual value similarity to have consistently a positive effect on tax morale, while the effect of the regional similarity measures is not positive anymore.[12] This suggests that individual tax morale is more strongly related to how similar a given individual is to others in the same region than to how much similarity there is overall among people in the individual's region of residence. Looking at the interaction effect between the individual and regional similarity measures, we find it to be negative in all cases apart from when we use the regional ethnic similarity measure. This implies that as regional similarity in terms of any of the five attributes increases, the positive relationship between individual value similarity and tax morale weakens. The tax morale of a given individual is less sensitive to how similar that individual is to others in the region, if that individual resides in a region where people are more similar and diversity is low.

Turning to the estimates in panel B we see similar patterns. The base effect of individual value similarity remains positive, statistically significant and of similar magnitude across all specifications. The interaction effect with the different regional similarity measures is again estimated to be negative in all cases. This suggests once more that individuals become more sensitive to their level of similarity with others if they reside in a region that is more diverse.

To understand better how the link between tax morale and individual similarity varies as regional similarity changes, in Figure 1 we plot the marginal effect of individual value similarity on individual tax morale for different levels of regional similarity. For this purpose we use our measure of regional similarity in terms of values, for which we found the interaction effect to be the largest. Hence, this plot corresponds to the estimates of column 5 in panel B of the table. In the figure we also plot the 95% confidence interval as well as a histogram of the distribution of regional value similarity, which is measured on the horizontal axis.

As the plot indicates, there is a tight negative relationship between the marginal effect of individual value similarity on individual tax morale and regional value similarity for the typical values of regional value similarity. When we move beyond that range, as the histogram in the background reveals, the relationship weakens and estimation precision drops. This is because

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[12]In some cases the effect turns negative, but this is due to the positive correlation between the individual and regional similarity measures.

Figure 1: Interaction Plot between Individual and Regional Value Similarity
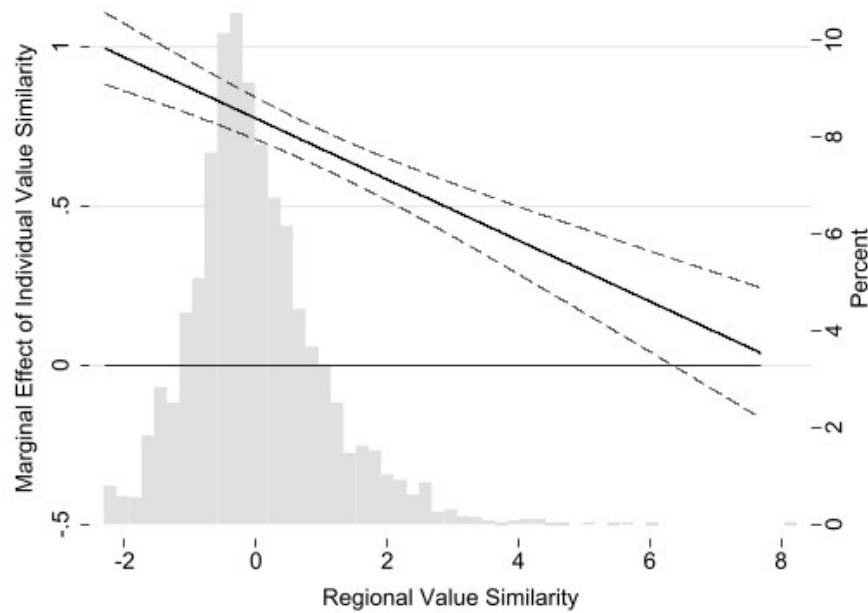
Notes: The figure plots how the effect of individual value similarity on tax morale varies with the level of regional value similarity different values based on the regression estimates of column 5 in panel B of Table 4. The solid line corresponds to the point estimate and the dotted lines mark the 95% confidence interval. The line superimposed above the histogram of the distribution of regional value similarity across all regions in our sample.

there are only few regions where individuals are so similar in terms of their values to fall in this category. Even for that range, however, individual value similarity has a positive effect on tax morale. Hence greater regional similarity moderates, but does not overturn the base result.

These findings lend further support to the conclusions about social identity that we advanced earlier. The fact that the effect of individual similarity is lower for individuals residing in more homogeneous regions is consistent with our interpretation of this variable as reflecting identity considerations of each individual. In a region where people are very similar to each other, each individual's sense of identification with members of their own social groups is expected to be relatively weak. As societal diversity increases and the overall level of similarity between individuals decreases, though, this is likely to trigger closer identification of individuals within their own group. This will have an asymmetric effect on the tax morale of individuals whose own social group is large and their level of individual similarity is high relative to those whose own social group is small and their individual similarity is lower. For the former individuals closer identification with members of their own group raises their concerns for most people in society and consequently increases their willingness to pay taxes. For the latter individuals, on the other hand, their concerns about the majority of people in society will decrease and their tax morale will decline. Thus, greater societal diversity will increase the differences in tax morale between

individuals characterized by high and low similarity to others and should make tax morale more sensitive to variation in individual similarity.

This interpretation is also consistent with the broader view of social identity advanced by Turner et al. (1987). In particular it echoes the conclusions from Turner and Oakes (1989), who argue that the comparison with other social groups is more evident in a more diverse environment and diversity tends to strengthen an individual's own categorization as a member of a specific group. It is also consistent with a variety of evidence indicating that exposure to societal diversity triggers stronger identification with the social group to which a given individual belongs (Charness et al., 2007; Fong & Luttmer, 2009; Benjamin et al., 2010; Finseraas et al., 2019). Diversity, hence, makes social identity more salient.

4 Robustness Checks

In this section we present a series of additional regressions to assess the robustness of the results presented above. These checks are meant to explore the robustness of our main results with respect to different estimation methods, to alternative measures of similarity to different sets of value questions and to the inclusion of additional control variables.

4.1 Different Estimation Methods

Throughout our main analysis we have estimated the relationship between tax morale and the different similarity measures with ordinary least squares (OLS). We opted for this baseline estimation approach for simplicity and in order to facilitate comparisons across different specifications with different controls and fixed effects. However, our individual tax morale measure is not a continuous variable. It reflects individual responses on an ordered scale of integers from 1 to 10. Given that, in this subsection we estimate our individual level regressions using probit and logit models. The estimation results are reported in Table 5 below.

In column 1 of the table we first repeat for comparison the OLS estimates for the effect of individual value similarity from column 5 in panel B of Table 3 that is estimated conditional on region-wave fixed effects. We study this regression specification in particular, as individual value similarity is the main measure we focus on and, as already shown, it has the largest effect on individual tax morale. In columns 2 and 3 we estimate the same specification using ordered probit and order logit models respectively. For these models the table reports both the estimated coefficients and the marginal effects, estimated at the mean value of individual similarity. In both cases we obtain a clear positive relationship between individual tax morale and value similarity. Also the marginal effects from the two models are very similar.

In columns 4, 5 and 6 we follow an alternative approach and estimate the effect of individual value similarity on a binary measure of individual tax morale. This is based on a re-coding of

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Table 5 - Robustness Regressions with Different Estimation Methods

Dependent Variable:	(1)	(2)	(3)	(4) Individual Tax Morale	(5)	(6)	(7)	(8)
Estimation Method:	OLS	O. Logit	O. Probit	OLS	Logit	Probit	OLS	2SLS
Ind. Value Similarity	0.773***	0.937***	0.535***	0.186***	0.998***	0.596***	0.065**	0.297*
	(0.02)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.03)	(0.16)
Marginal effect		0.196***	0.195***		0.229***	0.223***		
		(0.002)	(0.002)		(0.002)	(0.002)		
Individuals	262741	262741	262741	262741	258946	258946	259377	259377
Regions	1548	1548	1548	1548	1495	1495	1548	1548
Countries	102	102	102	102	102	102	102	102
(Pseudo) R-squared	0.05	0.09	0.09	0.06	0.16	0.16	0.01	0.04
Individual Controls				Yes				
Fixed Effects				Region-Wave				

Notes: This table explores the robustness of the effect of individual value similarity on individual tax morale when considering different estimation methods. Column 1 reports our baseline OLS estimates from Table 3. Columns 2 and 3 report the estimates respectively for the ordered logit and probit model, estimated based on the same dependent variable. Columns 4, 5 and 6 report the estimates respectively for a simple OLS, logit and probit, estimated based on the modified binary version of the dependent variable. Column 7 reports the OLS estimates when we use the predicted measure of individual value similarity instead of the actual one. Finally column 8 reports the 2SLS estimates when we use the predicted measure of individual value similarity as an instrument for the actual one. The estimates in all columns include fixed effects at the region-wave level and the following individual-level controls: age, gender, marital status, employment status and education level. Heteroskedasticity robust standard errors clustered at the level of the fixed effects are reported in parentheses. For the estimates of columns 2-5 we also report the marginal effects estimated at the mean. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

our individual tax morale measure with 1 indicating individuals who find tax evasion completely unjustified and have a score of 10 in the original ordered scale, and 0 indicating individuals who find it at least partially justified and have scores from 1 to 9 in the original ordered scale. This is a common approach in the literature on tax morale, as the distribution of individual responses in the ordered scale is quite skewed with a large share of respondents answering that tax evasion is never justified.[13] Using this binary measure as the dependent variable, we estimate in column 4 our main specification with OLS, in column 5 with a binary logit and in column 6 with a binary probit. Doing so yields similar conclusions as before. Individual value similarity is found in all cases to have a positive effect on tax morale and the estimated marginal effects are similar across the different models. A one standard deviation increase in value similarity is found to increase the probability of an individual considering tax evasion to be unjustified by about 18.5% to 23%.

In the remaining two columns of Table 5 we use an instrumental variable estimation approach in order to account for the potential endogeneity of individual value similarity. We construct

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[13]See, for example, Alm and Torgler (2006) and Torgler and Valev (2010).

predicted individual value similarity scores for each individual and use that as an instrument for their actual value similarity scores. The predicted value similarity scores are obtained by first estimating an ordered probit regression where the responses to each of the 96 employed value questions are regressed on our core set of individual controls and region-wave fixed effects. Based on the estimated coefficients, we then compute for each individual a predicted response to a given value question. This corresponds to the response with the highest probability score according to the order probit regression. We then assign to each individual respondent a similarity score for that question that reflects the share of other people in the region whose actual response to that question is equal to the individual's predicted response.[14]

After computing predicted value similarity scores for each respondent and question, we average the scores across questions and use the resulting average score as our measure of predicted value similarity. In the regression of column 7 we estimate the same regression as in column 1 using this measure instead of the actual value similarity score. In column 8 we estimate a 2SLS regression with predicted value similarity serving as an instrument for actual value similarity. In both cases, we observe a positive relation with individual tax morale, while the reported effective F-statistic confirms the strength of our instrument. This confirms that our results in the main text are not driven by potential biases due to endogeneity. The resulting estimates are a bit lower in this case, but this is to be expected as predicted value similarity only reflects part of the observed variation in actual value similarity.

4.2 Alternative Measures of Value Similarity

The measures of individual and regional similarity that we use for our main analysis all reflect the average probability of an individual or a group of individuals coming across another individual from the same region sharing a given socio-demographic attribute, such as the same income class, ethnicity, main language, religion or cultural values. Using such measures of similarity that are based on the Herfindahl-Hirschman index of concentration has a long tradition in economics and other social sciences. These measures are useful in our context because they facilitate comparisons regarding the importance of similarity across attributes. However, these measures reflect only the distribution of individuals within a given region across the different variants of each attribute. They do not reflect how different these variants are or other aspects of differentiation across individuals.

With this in mind, in this section we explore the robustness of our main results to alternative measures of similarity. We only focus on similarity in terms of cultural values, given its relative

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[14]Suppose, for example, that we have a value question with three possible answers for which the actual shares of respondents in a given region associated with answers 1, 2 and 3 are 0.2, 0.3 and 0.5 respectively. Consider an individual whose actual response to this question in 1 and his actual individual value similarity score based on that question is 0.2. If the probit estimation gives a predicted answer to this question for that individual of 2 based on the employed regressors, then the individual's predicted value similarity score would be equal to 0.3.

importance and the fact that there are several alternative ways to measure that. These robustness checks are reported in Table 6. In all cases we introduce these alternative measures in the specification of column 5 in panel B of Table 3 that includes region-wave fixed effects. Column 1 of the table repeats for comparison the estimates for our main measure of individual value similarity. In column 2 we replace that with a weighted measure of value similarity where the probability of a given individual coming across another person with a certain type of values is weighted with the extent of difference in values between them.[15] Our weighted measure of value similarity is again computed separately for each question and then averaged across all 96 value questions from the WVS/EVS questionnaire. As we can see in column 2, this weighted measure of value similarity is also strongly positively related to individual tax morale.

In column 3 we employ an alternative measure of value similarity that indicates the share, out of the 96 value questions, for which an individual's value similarity score is above or equal to the corresponding median score in their region. In column 4 we employ a similar measure that indicates the share of questions for which an individual's weighted value similarity score is above or equal to the corresponding median score in their region. Using both these measures we see that individuals whose level of value similarity on average is more similar to the median in the region tend to be characterized by higher tax morale, confirm our earlier conclusion.

In column 5 we consider a simpler measure of value similarity for individuals that reflects the share of questions, out of the 96, for which an individual's values are the most common in their region, placing them in the majority. In column 6 we consider a measure that reflects the opposite, namely the share of questions for which an individual's values are the least common in their region, placing them in the minority. As we can see from the estimation results, these two measures have unsurprisingly opposite effects on individual tax morale. Individuals whose values conform more closely to the majority view in their region tend to display higher tax morale, while individuals whose values conform more closely to the minority view in their region tend to display lower tax morale.

Finally in columns 7 and 8 we employ two alternative measures that reflect the extent of the deviation in values between a particular individual and other people from the same region. Specifically, in column 7 we consider the absolute deviation of the responses of a given individual to each value question from the mean response in their region averaged across all 96 questions. In

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[15]More formally, let s_r^g denote again the share of individuals in region r belonging to group g, which in the context of cultural values are defined based on the answer to a given value question. Consider a given individual i who belong to group g_i. Suppose the difference in values between that individual with people belong group g is proportional the distance in the response scale $|g - g_i|$. Then a weighted measure of individual value similarity that account for this distance would correspond to the index:

$$\widetilde{Similarity}_{i,r}^{a} = 1 - \sum_{g=1}^{G^a} s_r^g \cdot |g - g_i|.$$

Table 6 - Robustness Regressions with Alternative Measures of Value Similarity

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Individual Tax Morale				
Ind. Value Similarity	0.773*** (0.02)							
Weight. Value Similarity		0.455*** (0.02)						
Value Sim. Above Med.			0.405*** (0.01)					
Weigh. Value Sim. Above Med.				0.325*** (0.01)				
Values in Majority					0.473*** (0.01)			
Values in Minority						-0.215*** (0.01)		
Abs. Deviation of Values							-0.301*** (0.01)	
Std. Deviation of Values								-0.281*** (0.01)
Individuals	262741	262741	262741	262741	262741	262741	262741	262741
Regions	1548	1548	1548	1548	1548	1548	1548	1548
Countries	102	102	102	102	102	102	102	102
R-squared	0.05	0.03	0.05	0.03	0.05	0.02	0.02	0.03
Individual Controls					Yes			
Fixed Effects					Region-Wave			

Notes: This table explores the robustness of the effect of individual value similarity on individual tax morale when considering different measures of similarity. Column 1 presents the effect for our preferred measure of value similarity, from Table 3. Column 2 presents the effect of the corresponding weighted measure of value similarity where the weights reflect distances in the response scales. In columns 3 and 4 the employed measures reflect the extent to which the responses of individuals place them on average above or below the median in their region in terms of the unweighted and weighted value similarity measures respectively. In columns 5 and 6 the employed measures reflect the extent to which the responses of individuals place them on average in the majority or the minority in their region respectively. In columns 7 and 8 value similarity is measured based on average absolute deviation and standard deviation respectively of individual responses relative to other respondents from the same region. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. They also include fixed effects at the region-wave level as indicated at the bottom of the table. Heteroskedasticity robust standard errors clustered at the level of the fixed effects are reported in brackets. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

column 8 we consider the standard deviation of the responses of a given individual from the mean response in their region across all 96 questions. As expected, both measures are found to have a strong negative relationship with individual tax morale. Taken together, the estimation results in Table 6 imply that our earlier conclusions about the strong positive relationship between individual tax morale and similarity in cultural values do not hinge on the exact way in which we measure similarity.

4.3   Alternative Sets of Value Questions

Our main measure of value similarity, as well as the alternatives presented in Table 6, are constructed as averages of similarity measures across a broad set of 96 cultural values that are included in the core part of the WVS/EVS questionnaire. A natural question is whether the conclusions that we have reached using this measure are sensitive to the exact set of questions based on which we measure value similarity. To assess whether this the case, in this subsection we construct alternative versions of our individual value similarity measure that are based on the responses of individuals to only a subset of these 96 questions.

In Table 7 we focus on subsets of these questions following the thematic structure of the WVS/EVS questionnaire which represents seven different themes. These are perceptions of life (Section A), environment (Section B), work (Section C), family (Section D), politics and society (Section E), religion and morality (Section F), and national identity (Section G). Given that the questions falling under the same section tend to reflect more closely related values, we construct seven alternative versions of our main individual value similarity measure that are equal to the average of the value similarity scores for the questions belonging to the same section. For each of these sections we also construct a corresponding residual value similarity measure that takes the average of the value similarity scores for the questions not belonging to this section.

Using these section-specific value similarity measures, together with the correspond residual one, we re-estimate our key specification from column 5 in panel B of Table 3. Doing so we can assess the relative importance of value similarity for the values that fall within each of the seven sections of the WVS/EVS questionnaire. The estimates are reported in columns 1 to 7 of Table 7. As they reveal, tax morale is influenced by similarity in all types of cultural values. All section-specific individual value similarity measures are positively and significantly related to individual tax morale. Comparing the estimated effects across sections, though, we do see some differences. Specifically, we see that value similarity associated with religious and moral values, covered in Section F, appears to be relatively more important for tax morale, followed by value similarity in terms of values related to politics and society, covered in Section E. This suggests that sharing these types of values can play a crucial role in fostering a sense of identity and promoting pro-social behavior.

In Table 8 we further explore the robustness of our results to the types of value questions

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Table 7 - Robustness Regressions with Alternative Sets of Value Questions I

Dependent Variable:	(1)	(2)	(3)	(4) Individual Tax Morale	(5)	(6)	(7)
Value Sim. Sect. A	0.059*** (0.01)						
Value Sim. Sect. B		0.024*** (0.01)					
Value Sim. Sect. C			0.028*** (0.01)				
Value Sim. Sect. D				0.054*** (0.01)			
Value Sim. Sect. E					0.198*** (0.01)		
Value Sim. Sect. F						0.686*** (0.02)	
Value Sim. Sect. G							0.087*** (0.01)
Value Sim. Residual	0.799*** (0.02)	0.854*** (0.02)	0.763*** (0.02)	0.756*** (0.02)	0.652*** (0.02)	0.291*** (0.02)	0.745*** (0.02)
Individuals	262741	196429	262260	262421	262652	262736	250941
Regions	1548	1305	1548	1548	1548	1548	1548
Countries	102	95	102	102	102	102	102
R-squared	0.05	0.05	0.05	0.05	0.05	0.06	0.05
Individual Controls				Yes			
Fixed Effects				Region-Wave			

Notes: This table explores the robustness of the effect of individual value similarity on individual tax morale when value similarity is measured based on alternative sets of values questions. The value questions are grouped based on the section (A to G) in which they appear in the EVS/WVS questionnaire. Columns 1 to 7 compare the effect of value similarity measured based on questions from a particular section of the survey with that of value similarity measured based on all remaining questions. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the region-wave level as indicated at the bottom of the table. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. Heteroskedasticity robust standard errors clustered at the level of the fixed effects are reported in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

based on which we construct our measure of value similarity. This time, though, we focus on the response scales. As mentioned in the main text already, the response scales for some value questions allow individuals to give only two possible responses. Others allow for 3, 4, 5 or 10 different responses. To account for these differences, we have from the beginning normalized the response scales for all questions. Nevertheless, questions that permit more responses may be better suited for measuring value similarity. To assess whether this matters, we construct five different measures of value similarity that exclude questions with a particular response scale from the analysis and take the average of the value similarity scores across the remaining questions.

Table 8 – Robustness Regressions with Alternative Sets of Value Questions II

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Individual Tax Morale				
	no 2pQ	no3pQ	no4pQ	no5pQ	no10pQ	uQ < 50%	uQ < 25%	N>25	N>75
Value Sim. excl. 2pQ	0.891*** (0.02)								
Value Sim. excl. 3pQ		0.736*** (0.02)							
Value Sim. excl. 4pQ			0.793*** (0.02)						
Value Sim. excl. 5pQ				0.760*** (0.02)					
Value Sim. excl. 10pQ					0.413*** (0.01)				
Ind. Value Similarity						0.777*** (0.02)	0.800*** (0.03)	0.776*** (0.02)	0.790*** (0.02)
Individuals	262741	262741	262741	262741	262741	253181	123388	255712	232051
Regions	1548	1548	1548	1548	1548	1542	978	1316	975
Countries	102	102	102	102	102	101	70	102	102
R-squared	0.06	0.05	0.05	0.05	0.03	0.05	0.05	0.05	0.05
Individual Controls					Yes				
Fixed Effects					Region-Wave				

Notes: This table explores the robustness of the effect of individual value similarity on individual tax morale to variation in the response scale of the employed value questions and in the number of responses per respondent. In columns 1 to 5 our measure of value similarity is constructed excluding questions with two, three, four, five and ten point Likert-scales respectively. In columns 6 and 7 our sample excludes respondents who answered fewer than 50% and 75% of the 96 value questions respectively. In columns 8 and 9 our sample excludes regions where the number of respondents is fewer than 25 and 75. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the region-wave level as indicated at the bottom of the table. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. Heteroskedasticity robust standard errors clustered at the level of the fixed effects are reported in brackets. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Columns 1 to 5 of the table report the estimation results when consider each of these response-scale-specific variants. As the estimates reveal, dropping questions with 2-point response scales from the value similarity measure, as we do in column 1, increases the magnitude of the effect. This is because these questions capture less variation in cultural values across individuals. Dropping questions with 3-point, 4-point and 5-point response scales from the value similarity measure, as we do in columns 2, 3 and 4, does not change much the estimated effect. On the other hand, dropping the questions with the 10-point response scales from the value similarity measure, which capture better variation in cultural values, decreases the magnitude of the effect in column 5.

In columns 6 and 7 of the table we go back to include all 96 value questions in our measure of individual value similarity, but we impose cutoffs on the number of survey questions that an individual should have answered in order to be included in the sample. We do so because individuals who only answered few of the 96 questions may have individual value similarity scores which are less informative. Specifically, in column 6 we retain in our sample only individuals who have answered at least 50% of the 96 questions. In column 7 we raise that cutoff further and retain in the sample only individuals who have answered 75% of the 96 questions. In both cases we see that our results are robust to imposing these cutoffs.

In columns 8 and 9 we impose cutoffs on the number of respondents per region and exclude from our sample regions for which the number of individual respondents is low. This is because our value similarity scores may be less accurate for regions where we have only few survey participants. Specifically, in column 8 we only retain regions with at least 25 survey respondents and in column 9 we only retain regions with at least 50 respondents. While this approach reduces our sample size, in both cases we see that it does not affect our main results.

4.4   Additional Individual Controls

The regressions presented in our main tables include only a small set of individual controls, namely age, gender, marital status, employment status and education level. This is largely for consistency reasons, as these variables are typically reported for most survey respondents and, hence, we can use them for our instrumentation strategy, described in a previous subsection. Beyond these variables, though, the literature has identified several other individual characteristics that are systematically related to individual tax morale. With this in mind, in Table 9 below we explore the robustness of our main regression results to the inclusion of additional individual characteristics as controls. Here we report for brevity the effect of these controls when introduced in the specification of column 5 in panel B of Table 4, that includes individual value similarity interacted with regional value similarity and region-wave fixed effects.

In column 1 of Table 9 we control for differences in the respondents' household income. In column 2 we condition on the level of religiosity of the respondents, emphasized by Torgler (2006).

Table 9 - Robustness Regressions with Additional Individual Characteristics

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
						Individual Tax Morale					
Ind. Value Similarity	0.847***	0.765***	0.782***	0.784***	0.778***	0.754***	0.782***	0.775***	0.821***	0.792***	0.791***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.07)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Ind. Value Similarity × Reg. Value Similarity	-0.187***	-0.176***	-0.175***	-0.170***	-0.216***	-0.216**	-0.175***	-0.172***	-0.165***	-0.170***	-0.175***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.09)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Income	-0.049***										
	(0.01)										
Religiosity		0.089***									
		(0.01)									
Morality			0.018***								
			(0.01)								
Trust				0.041***							
				(0.01)							
Trust in Neighbours					0.050***						
					(0.01)						
Compatriots Tax Honesty						0.383***					
						(0.04)					
Dislike Foreign Neighbors							-0.043***				
							(0.01)				
Confidence in Civil Service								0.071***			
								(0.01)			
Satisf. with Pol. System									0.081***		
									(0.01)		
Preference for Equality										0.015**	
										(0.01)	
Preference for Active Gov.											0.021***
											(0.01)
Individuals	191213	253080	262726	250929	112088	20809	254075	247659	121062	249372	257481
Regions	1300	1540	1548	1548	950	281	1514	1534	870	1547	1547
Countries	94	101	102	102	67	23	101	101	62	102	102
R-squared	0.06	0.05	0.05	0.05	0.06	0.08	0.05	0.05	0.06	0.05	0.05
Individual Controls						Yes					
Fixed Effects						Region-Wave					

Notes: This table explores the robustness of the effect of individual value similarity and its interaction with regional value similarity on individual tax morale when controlling for additional individual characteristics. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the region-wave level. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. Heteroskedasticity robust standard errors clustered at the region-wave level are reported in brackets. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

In column 3 we account for the respondents' level of generalized morality, as defined by Tabellini (2010). In column 4 we control for the respondents' level of generalized trust and in column 5 for the level of trust that respondents exhibit towards their neighbors. In column 6 we account for the respondents' perception of tax evasion by other people in their country, highlighted by Frey and Torgler (2007). In column 7 we control for the respondents' attitudes towards foreigners, proxied by their stated preferences on a having a foreign neighbor. In columns 8 and 9 we follow Besley (2020) and consider the respondents' perception of institutions, measured by their confidence in the country's civil service and their satisfaction with their country's political system. In columns 10 and 11 we account for the respondents' preferences toward equality and government intervention, emphasized by Alesina and Angeletos (2005). All these variables are measured based on specific questions from the survey as described in the appendix.[16]

Looking at the estimated effects for the additional control variables, first of all, we can confirm previous conclusions reached by the literature regarding the effects of these variables. Individual who are richer and less sympathetic to foreigners tend to have lower tax morale. Individuals who are more religious, exhibit higher levels of generalized morality and trust others more tend to have higher tax morale. This is also the case for individuals who are more confident in other people paying their taxes, believe more strongly in government institutions, and are more supportive of income redistribution and an active government. Even when we condition on these effects in our regressions, though, we still observe the main pattern uncovered in our baseline regressions. Individuals who are more similar to others in terms of their values are characterized by higher levels of tax morale and this effect becomes weaker if they reside in a region where people are generally more similar.[17]

4.5 Additional Interactions with Regional Characteristics

In the regression results reported in Table 4 we have only explored interaction effects of individual similarity with different regional similarity measures. The regional similarity measures that we consider, however, may also reflect other differences across regions that influence tax morale. Hence, to ensure the correct interpretation of our main results, it is important that we assess whether the interaction effects that we have documented are driven by other regional characteristics. For this purpose, we have turned to the literature and identified several such characteristics that have been linked with tax morale. For each of these characteristics we estimate an interaction effect with our main individual value similarity measure. The estimation

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[16] As these questions are not included in all survey waves, there is naturally some variation in sample size across columns.

[17] Despite the fact that several of these additional control variables are significant predictors of individual tax morale, none of them appear to moderate the relationship between individual similarity and tax morale. This means our main result is not driven by specific values and attitudes such as social trust, tolerance towards migrants or preferences from equality.

results are reported in Table 10. As we did in Table 9, we introduce these interactions in the specification of column 5 in panel B of Table 4. This specification includes region-wave fixed effects. Thus, for each of these regional characteristics we can only estimate the interaction effect with individual value similarity, but not the level effect.

In column 1 of Table 10 we introduce an interaction effect of individual value similarity with the level of economic development of the region, proxied by the observed luminosity of the region at night relative to its population.[18] In column 2 we include an interaction with population density which reflects each region's broader economic and social organization. In column 3 we do the same with the share of respondents who are natives, which reflects the exposure of the region's population to migrants. In columns 4 and 5 we introduce interaction terms of individual value similarity with two widely used measures of institutional quality at the country level. These are respectively the government effectiveness index from the World Bank's Worldwide Governance Indicators and the ICRG quality of governance index. In column 6 we do the same with a regional quality of governance indicator by the Quality of Governance Institute which is available for European Union regions. In columns 7 and 8 we consider interactions with the regional averages levels of confidence in the civil service and satisfaction with democracy, as indicators of the perceived quality of local institutions. Finally, in column 9 we look at average levels of participation in elections by individuals in each region to capture the local level of civic engagement. Details on how each of these variables are measured are provided in the appendix.

Looking at the estimates of the interaction terms between individual value similarity and each of these variables we can note a clear pattern. The positive relationship between individual value similarity and tax morale generally appears to be less pronounced in regions that are more developed economically, have better institutions and where the population is more civically engaged. This pattern is consistent with previous findings in the literature, as economic and institutional development can foster tax morale (Torgler, 2005; Hug & Spoerri, 2011; Ivanyna et al., 2016 Besley, 2020). It is also consistent with the interaction effects reported in Table 4, as regions that are more homogeneous tend to be characterized by higher levels of economic development and institutional quality. What is surprising, however, is that in all cases the negative interaction effect between individual and regional value similarity is still visible in the data even when we condition on these additional interaction effects.

The only variable for which we find a positive interaction effect with individual value similarity is population density. This again is not surprising as populous urban areas tend to be also more congested and more diverse compared to rural areas. Our original interaction effect with regional value similarity, though, is still visible even when we include this interaction effect with population density. Moreover, in all cases we see that the additional interaction effects are always weaker

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[18]We use this variable as a measure of economic development because it is hard to obtain comparable measures of regional income levels for the large number of sub-national regions that we consider in our analysis. For more details on why per capita luminosity is a good proxy for economic development see Henderson et al. (2012).

Table 10 - Robustness Regressions with Additional Regional Characteristics

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Individual Tax Morale				
Ind. Value Similarity	0.781***	0.785***	0.680***	0.746***	0.749***	0.517***	0.782***	0.778***	0.762***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.04)	(0.02)	(0.03)	(0.03)
Ind. Value Similarity × Reg. Value Similarity	-0.185***	-0.174***	-0.143***	-0.244***	-0.243***	-0.211***	-0.183***	-0.204***	-0.218***
	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)	(0.05)	(0.02)	(0.03)	(0.04)
Ind. Value Similarity × Luminosity per capita	-0.042**								
	(0.02)								
Ind. Value Similarity × Population Density		0.037***							
		(0.01)							
Ind. Value Similarity × Share Native Population			0.011						
			(0.03)						
Ind. Value Similarity × Nat. Quality of Governance				-0.205***					
				(0.02)					
Ind. Value Similarity × Nat. Gov. Effectiveness					-0.184***				
					(0.02)				
Ind. Value Similarity × Reg. Quality of Governance						-0.106***			
						(0.03)			
Ind. Value Similarity × Reg. Confidence in Civil Service							0.024		
							(0.02)		
Ind. Value Similarity × Reg. Satisf. with Pol. System								-0.036*	
								(0.02)	
Ind. Value Similarity × Reg. Election Participation									-0.077***
									(0.03)
Individuals	262741	262741	125183	239196	257561	82128	261528	180825	67215
Regions	1548	1548	675	1439	1514	494	1534	870	762
Countries	102	102	42	90	98	28	101	62	52
R-squared	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06
Individual Controls					Yes				
Fixed Effects					Region-Wave				

Notes: This table explores the robustness of the interaction effect between individual value similarity and regional value similarity on individual tax morale to the inclusion of interactions with other regional characteristics. The estimates in all columns are based on ordinary least squares (OLS) with fixed effects imposed at the region-wave level. All regressions control without reporting the estimates for the following individual characteristics: age, gender, marital status, employment status, education level. Heteroskedasticity robust standard errors clustered at the region-wave level are reported in brackets. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

than our main interaction effect with regional value similarity. This suggests that our main results are unlikely to be driven by any other regional determinants of tax evasion, even though these variables are definitely relevant for individual tax morale.

5   Conclusion

In this paper we explore how societal diversity in terms of various socio-demographic attributes that include income, ethnicity, language, religion and cultural values can influence tax morale. Using data from the World Values Survey, we measure and compare tax morale across regions within countries and across individuals within regions. We consistently find greater diversity in these attributes to be associated with lower tax morale across regions as well as across individuals. Moreover, our regression results demonstrate that within a given region individuals who are more similar to others in terms of these attributes tend to display higher tax morale. Assessing the relative importance of the different attributes, we show that, although these patterns apply to similarity in terms of all attributes, similarity in terms of cultural values appears to be particularly important.

We furthermore compare how the tax morale of individuals is influenced by their similarity to other respondents in their region of residence and the overall level of similarity across respondents in the region. We find that the two effects complement each other. As regional diversity increases and the overall level of similarity across individuals decreases, individual tax morale becomes more sensitive to how similar that individual is to others in the region. These findings are shown to be robust to explicitly controlling for various other individual and regional determinants of tax morale as well as the inclusion of region-specific fixed effects. They suggest that there is a strong individual component to tax morale, which is visible even when comparing individuals that live in the same region and operate within the same local economic and institutional environment. This individual component appears to reflect people's own social identity.

While the role of social identity has been discussed by some authors in the context of tax evasion, we are the first to provide systematic empirical evidence about its importance. Our employed measures of similarity reflect social identification in terms of several socio-demographic attributes. The fact that we see similar patterns across different attributes suggests that our findings are not driven by any specific social cleavage. Instead what appears to matter is the broader sense of identification that individuals have with others around them. This broader sense of social identification can play an important role in motivating individuals to deviate from their own narrow interests and behave in a more pro-social way in tax compliance and related decisions.

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Appendix

Data Description

In this part of the appendix we present further details on how we construct all the variables that we use in our empirical analysis from the integrated longitudinal data set of the World Values Survey and European Values Study (WVS/EVS). This data set includes individual survey responses collected as part of the six waves of the WVS/EVS, conducted between 1981 and 2014, covering more than 500,000 respondents from 109 countries and territories based on a standardized questionnaire.

Table A1: List of Countries

Albania	El Salvador	Latvia	Rwanda
Algeria	Estonia	Lebanon	Serbia
Andorra	Ethiopia	Libya	Slovakia
Argentina	Finland	Lithuania	Slovenia
Armenia	France	Luxembourg	South Africa
Australia	Georgia	Macedonia	South Korea
Austria	Germany	Malaysia	Spain
Azerbaijan	Ghana	Mali	Sweden
Bangladesh	Greece	Malta	Switzerland
Belarus	Guatemala	Mexico	Taiwan
Belgium	Haiti	Moldova	Thailand
Bosnia Herzegovina	Hong Kong	Montenegro	Trinidad and Tobago
Brazil	Hungary	Morocco	Tunisia
Bulgaria	Iceland	Netherlands	Turkey
Burkina Faso	India	New Zealand	Uganda
Canada	Indonesia	Nigeria	Ukraine
Chile	Iran	Norway	United Kingdom
China	Iraq	Pakistan	United States
Colombia	Ireland	Palestine	Uruguay
Croatia	Italy	Peru	Uzbekistan
Cyprus	Japan	Philippines	Venezuela
Czech Republic	Jordan	Poland	Viet Nam
Denmark	Kazakhstan	Portugal	Yemen
Dominican Rep.	Kosovo	Puerto Rico	Zambia
Ecuador	Kuwait	Romania	Zimbabwe
Egypt	Kyrgyzstan	Russian Federation	

Classification of Survey Respondents into Subnational Regions

The WVS/EVS data set reports the geographic location of each survey respondent. This includes typically includes the country of residence and the sub-national region where the respondent resides. While the level of detail reported about the latter varies across waves, we can in most cases identify the first-level administration region where a respondent resides. Based on this information we can partition the survey population from a given country based on the sub-national region where they resided at the time the survey was conducted. Hence, the starting point for our analysis is the subset of all survey respondents for whom we know the region of residence and can measure their tax morale. This subset comprises 312,600 individuals from 1,575 different regions in 103 countries. The countries covered in our analysis are listed in the table below.

Measuring Regional and Individual Similarity

As we already mentioned in the main text, we measure similarity between the respondents from a given region and survey wave in terms of five socio-demographic attributes: income, ethnicity, language, religion, and cultural values. Here we describe the information from the survey that we use to partition individuals into groups based on each attribute.

Income: Respondents in the WVS/EVS survey are asked to place themselves into one of ten rungs of the income ladder in terms of their household income. Based on this information we can split the survey respondents from a given country and wave into ten income groups.

Ethnicity: In some waves of the WVS/EVS respondents are asked about their ethnicity. We use this information to split the survey respondents from a given country and wave into ethnic groups. In some cases respondents indicate their ethnicity as "other". To ensure some minimal level of representativeness and consistency, we classify all ethnicities with a population share of less than 5% at the country level as part of the "other" category. The resulting number of ethnic groups ranges from 1 to 11 across countries.

Language: In some waves of the WVS/EVS respondents are asked about the language they speak at home. We use this information to split the survey respondents from a given country and wave into language groups. Just as in the case of ethnicity, we combine all language groups with a population share of less than 5% at the country level into one group labeled "other". The resulting number of language groups ranges from 1 to 13 across countries.

Religion: Respondents in the WVS/EVS survey are asked about their religious denomination. As this is self-reported, the religious denominations listed as answers are often too detailed and not comparable across countries. To ensure some level of consistency, we reclassify the reported religious denominations into the following broad categories: Protestant Christianity, Catholic Christianity, Orthodox Christianity, Islam, Judaism, Hinduism, Buddhism, Tao, Folk religions. We also treat atheists and non-religious people as separate groups. We furthermore combine all religion groups with a population share at the country level of less than 5% into one group labeled "other". The resulting number of religious groups ranges from 1 to 7 across countries.

After classifying individual survey respondents from each country into income, ethnic, linguistic and religious groups, we can compute the population share in each region and survey wave that belongs to each of these groups. From these shares we can construct our measures of individual and regional similarity based on the indices described in Section 2.

Table A2: Employed WVS/EVS Value Questions

Sect.	Label	Question Statement	Answer Scale
A	A001	How important in your life is family?	4 point
A	A002	How important in your life are friends and acquaintances?	4 point
A	A003	How important in your life is leisure time?	4 point
A	A004	How important in your life are politics?	4 point
A	A005	How important in your life is work?	4 point
A	A006	How important in your life is religion?	4 point
A	A025	One must always love parents regardless of their faults	2 point
A	A026	Parents' responsibility is to do the best for their children	3 point
A	A027	Children should learn good manners	2 point
A	A029	Children should learn independence	2 point
A	A030	Children should learn hard work	2 point
A	A032	Children should learn responsibility	2 point
A	A034	Children should learn imagination	2 point
A	A035	Children should learn tolerance and respect	2 point
A	A038	Children should learn thrift	2 point
A	A039	Children should learn perseverance	2 point
A	A040	Children should learn reliigious faith	2 point
A	A041	Children should learn unselfishness	2 point
A	A042	Children should learn obedience	2 point
A	A165	Most people can be trusted	2 point
A	A168	Most people try to be fair	10 point
A	A173	How much control do you have over your life?	10 point
B	B001	I would give part of my income to prevent pollution.	4 point
B	B002	Increase in taxes if used to prevent environmental pollution.	4 point
B	B008	Protecting environment vs. economic growth.	2 point
C	C001	When jobs are scarce, priority should be given to men over women.	3 point
C	C002	When jobs are scarce, priority should be given to nationals over immigrants.	3 point
C	C011	Is good pay important in a job?	2 point
C	C012	Is not too much pressure important in a job?	2 point
C	C013	Is job security important in a job?	2 point
C	C015	Are good hours important in a job?	2 point
C	C016	Is use initiative important in a job?	2 point
C	C017	Are generous holidays important in a job?	2 point
C	C018	Is achieving something important in a job?	2 point
C	C019	Is a responsible job important?	2 point
C	C020	Is an interesting job important?	2 point
C	C021	Are meeting abilities important in a job?	2 point
C	C036	To fully develop your talents, you need to have a job.	5 point
C	C037	It is humiliating to receive money without having to work for it.	5 point
C	C038	People who don't work turn lazy.	5 point
C	C039	Work is a duty toward society.	5 point
C	C041	Work should always come first, even if it means less spare time.	5 point
C	C059	Is it fair or not fair for a more efficient secretary to be paid more?	2 point
C	C061	One should always follows one's superiors instructions, even if one does not agree with them.	2 point
D	D018	Children need both parents to grow up happily.	2 point
D	D019	Women need children in order to be fulfilled.	2 point
D	D022	Marriage is outdated.	2 point
D	D023	Do you approve of a woman to wanting to have a child as a single parent?	3 point
D	D054	One of main goals in life has been to make my parents proud.	4 point
D	D056	A working mother can establish just as warm and secure a relationship with her children.	5 point
D	D057	Being a housewife is just as fulfilling as working for pay.	4 point
D	D058	Both the husband and wife should contribute to household income.	4 point
D	D059	Men make better political leaders than women do.	4 point
D	D060	University is more important for a boy than for a girl.	4 point
D	D061	A pre-school child likely suffers when the mother works.	4 point
E	E012	Are you willing to fight for your country?	2 point
E	E014	Less emphasis on money is good.	3 point
E	E015	Less emphasis placed on work is good.	3 point
E	E016	More emphasis placed on technology is good.	3 point
E	E018	Greater respect for authority is good.	3 point
E	E019	More emphasis on family life is good.	3 point
E	E022	Scientific advances will help	3 point
E	E033	Left vs. right political views.	10 point
E	E034	Present society must be defended against all changes	2 point
E	E035	Income differences as individual incentives.	10 point
E	E036	Private vs. state ownership of businesses.	10 point
E	E037	Individual vs. state responsibility in providing for people	10 point
E	E039	Competition good vs. harmful	10 point
E	E040	Success determined by luck vs hard work	10 point
E	E041	People can only get rich at the expense of others.	10 point
E	E114	Having a strong leader who does not have to bother with parliament and elections is good.	4 point
E	E115	Having experts, not government, make decisions according to what they think is best for the country.	4 point
E	E116	Having the army rule the country is good.	4 point
E	E117	Having a democratic political system is good.	4 point
E	E143	Prohibit people from developing countries coming here to work.	4 point
F	F001	How often do you think about the meaning and purpose of life?	4 point
F	F034	Are you a religious person?	2 point
F	F035	Does the church provide adequate answers to the moral problems and needs of the individual?	2 point
F	F036	Does the church provide adequate answers to the problems of family life?	2 point
F	F037	Does the church provide adequate answers to the people's sprititual needs?	2 point
F	F038	Does the church provide adequate answers to the social problems facing our country today?	2 point
F	F050	Do you believe in god?	2 point
F	F051	Do you believe in afterlife?	2 point
F	F053	Do you believe in hell?	2 point
F	F054	Do you believe in heaven?	2 point
F	F063	How important is god in your life?	10 point
F	F064	Do you get comfort and strength from religion?	2 point
F	F065	Do you take some moments of prayer, meditation or contemplation?	2 point
F	F102	Politicians who do not believe in good are unfit for public office.	5 point
F	F118	Is homosexuality justifiable?	10 point
F	F119	Is prostitution justifiable?	10 point
F	F120	Is abortion justifiable?	10 point
F	F121	Is divorce justifiable?	10 point
F	F122	Is euthanasia is justifiable?	10 point
F	F123	Is suicide justifiable?	10 point
G	G006	How proud are you of nationality?	4 point

Notes: This table lists all value questions from the WVS/EVS questionnaire that we use in order to measure value similarity. The first column indicates the section of the questionnaire in which the question appears in. The second lists the original variable name in the WVS/EVS data set. The third presents the way the question is stated. The last column indicates the answer scale.

Cultural Values: To measure individual and regional similarity in terms of cultural values we follow a similar approach. Consider a particular cultural value that is measured in the WVS/EVS survey with a rating question where the potential responses are ordered on a fixed answer scale. From the individual responses to this question we construct groups of individuals who choose the same response on the answer scale. From the shares of respondents in each group in a given region we can then compute our indices of individual and regional value similarity in terms of that particular value.

The extent of value similarity, however, is likely to vary across different cultural values, as some individuals may exhibit a high degree of similarity on some values, but a low degree of similarity on others. To ensure that our measure of value similarity is not driven by specific values, we take into consideration all possible questions in the WVS/EVS that reflect cultural values and are answered by at least 150,00 respondents across all waves of the survey. The resulting set includes 96 questions, which are listed in Table A2. For each of these 96 value questions, we compute our indices of individual and regional value similarity and then take the average of these indices across all questions. For each of these 96 questions Table A2 states the original variable label in the WVS/EVS data set, the section in the questionnaire in which the question appears, the exact question statement and the number of possible responses the question permits.

While all these 96 questions admit ordered responses on fixed Likert-type scale, the number of possible answers varies across questions. Some questions admit just two possible answers, with respondents having to indicate their agreement or disagreement with the question statement. Other questions allow respondents to indicate their level of agreement or disagreement based on three, four, five or ten point answer scales. For comparability, we normalize the scale for all question to lie be between 0 and 1. While this normalization is not essential for the construction of our main indices, it allows us to construct weighted versions of these indices where the weights reflect distance in the response scale, as we explain below.

Description of Variables and Summary Statistics

This section describes all the variables that we employ in our empirical analysis and how they are constructed from the original data. Summary statistics for these variables are reported in Table A3 below.

Regional-Level Variables

Regional Tax Morale corresponds to the average response to the WVS/EVS survey question on whether cheating on taxes is justifiable across individuals in a given sub-national region. It ranges from 1 to 10 with higher values indicating regions with higher levels of tax morale where

people find this behavior less justifiable.

Regional Income Similarity reflects the likelihood of two individual survey respondents from a given region falling into the same group in terms of the 10 income classes reported in the WVS/EVS survey based on their household income.

Regional Ethnicity Similarity reflects the likelihood of two individual survey respondents from a given region falling into the same group in terms of the ethnicity that they report in the WVS/EVS survey.

Regional Language Similarity reflects the likelihood of two individual survey respondents from a given region falling into the same group in terms of the main language that they report to speak at home in the WVS/EVS survey.

Regional Religion Similarity reflects the likelihood of two individual survey respondents from a given region falling into the same group in terms of the religious denomination that they report in the WVS/EVS survey.

Regional Value Similarity reflects the average likelihood of two individual survey respondent from a given region expressing similar values across the 96 value questions selected from the WVS/EVS survey.

Luminosity per capita is the ratio of the night-time light density within the area of a given region relative to the region's population, measured in 2010.

Population Density is the ratio of the region's population in 2010 relative to its total area.

Distance to Capital corresponds to the natural logarithm of the distance between the centroid of each region and the country's capital in meters.

Distance to Sea corresponds to the natural logarithm of the distance between the centroid of each region and the nearest sea coast in meters.

Share of Native Population is the ratio of the number of respondents in the WVS/EVS survey from a given sub-national region who are natives to the country relative to the total number of survey respondents from the same region.

National Government Effectiveness is an index variable of the effectiveness of a country's government in 2010 as reflected by the corresponding measure from the World Bank Governance Indicators (WBGI).

National Quality of Governance is an index variable of the average quality of a country's government in 2010 as reflected by the main quality of governance (QoG) measure of International Country Risk Guide (ICRG).

Regional Quality of Governance is an index variable of the average quality of governance in regions of European Union countries between 2010 and 2017. The index is referred to as the

European Quality of Government Index (EQI) and is constructed by the Quality of Government Institute at Gothenburg University.

Regional Confidence in Civil Service is an index variable capturing the average level of confidence that individuals in a given region have in the country's civil service. It is constructed from their responses to the corresponding question (E069_08) in the WVS/EVS survey.

Regional Satisfaction with Political System is an index variable capturing the average level of satisfaction of individuals in a given region with the political system for governing their country. It is constructed from their responses to the corresponding question (E111) in the WVS/EVS survey.

Regional Election Participation is an index variable reflecting the average level of participation of individuals in a given region at both national and regional elections. It is constructed from their responses to the corresponding two questions (E257 and E263) in the WVS/EVS survey.

Individual-Level Variables

Individual Tax Morale corresponds to the response of a given individual to the WVS/EVS survey question on whether cheating on taxes is justifiable. The responses take integer values from 1 to 10 and the scale is inverted so that higher values indicate individuals with higher levels of tax morale who find this behavior less justifiable.

Individual Income Similarity reflects the likelihood of an individual survey respondent from a given region coming across another respondent from the same region who falls into the same group in terms of the 10 income classes reported in the WVS/EVS survey based on their household income.

Individual Ethnicity Similarity reflects the likelihood of an individual survey respondent from a given region coming across another respondent from the same region who falls into the same group in terms of the ethnicity that they report in the WVS/EVS survey.

Individual Language Similarity reflects the likelihood of an individual survey respondent from a given region coming across another respondent from the same region who fall into the same group in terms of the main language that they report to speak at home in the WVS/EVS survey.

Individual Religion Similarity reflects the likelihood of an individual survey respondent from a given region coming across another respondent from the same region who falls into the same group in terms of the religious denomination that they report in the WVS/EVS survey.

Individual Value Similarity reflects the average likelihood of an individual survey respondent from a given region coming across another respondent from the same region who expresses

similar values across the 96 value questions selected from the WVS/EVS survey.

Weighted Value Similarity for a given individual reflects the average likelihood of that person expressing similar values across the 96 value questions as other respondents from the same region weighted by the extent of differences in these values along the response scale.

Value Similarity, Above Median for a given individual reflects the share out of the 96 value questions for which the individual's value similarity score is above the median level of value similarity in their region of residence.

Weighted Value Similarity, Above Median for a given individual reflects the share out of the 96 value questions for which the individual's weighted value similarity score is above the median level of weighted value similarity in their region of residence.

Values in Majority Group for a given individual reflects the share out of the 96 value questions for which the individual's response corresponds to the majority view in their region of residence.

Values in Minority Group for a given individual reflects the share out of the 96 value questions for which the individual's response corresponds to the minority view in their region of residence.

Average Absolute Deviation of Values for a given individual reflects the average absolute deviation of the individual's response across the 96 value questions from the mean responses to each question in their region of residence.

Average Standard Deviation of Values for a given individual reflects the average standard deviation of a given individual's response across the 96 value questions from the mean responses to each question in their region of residence.

Predicted Individual Value Similarity for a given individual is constructed in the same way as our main measure of individual value similarity with the difference that it uses for each survey respondent their predicted response to each value question instead of the actual ones. These predicted responses are obtained from a series of ordered probit regressions given the respondent's age, gender, marital status, employment status, education level and region of residence.

Section-Specific Value Similarity for a given individual is constructed in the same way as our main measure of individual value similarity with the difference that instead of using all 96 value questions we consider only the questions from a certain section (A to G) of the WVS/EVS questionnaire.

Scale-Specific Value Similarity for a given individual is constructed in the same way as our main measure of individual value similarity with the difference that instead of using all 96

value questions we consider only the questions with particular response scales in the WVS/EVS questionnaire.

Age is measured in years.

Male is a dummy variable indicating individuals who are male.

Married is a dummy variable indicating individuals who are married.

The employment status of respondents is captured by four dummy variables (**Employed, Self-Employed, Retired, Unemployed**) indicating, respectively, individuals who are full- or part-time employed, respondents who are self-employed, respondents who are retired, and respondents who are unemployed. Working-age individuals who are outside the labor force form the omitted category.

Education is measured on a 6-point ordered scale indicating whether individuals have: incomplete primary schooling (1), completed primary schooling (2), incomplete secondary schooling (3), completed secondary schooling (4), incomplete tertiary schooling (5), completed tertiary schooling (6). Secondary schooling attainment reflects both the academic and technical tracks.

Income is measured on a 10-point ordered scale indicating the position in the country's income distribution where individuals fall based on their household income.

Urban Resident is a dummy variable indicating individuals who reside in urban areas, defined as cities with at least 100,000 inhabitants.

Religiosity is an index variable capturing how strongly individuals believe in god. It is constructed from their responses to the corresponding question (F050) in the WVS/EVS survey.

Morality is a composite index variable reflecting an individual's level of generalized morality, as defined by Tabellini (2010). It is constructed by taking the average response of individuals to four survey questions about: (a) the importance of obedience (A042), (b) the importance of respect (A035), (c) their generalized trust (A165) and (d) their sense of control in life (A173).

Trust is an indicator of whether individuals exhibit generalized trust towards other. It is based on their answers to the survey question of whether most people can be trusted or one has to be careful when dealing with strangers (A165).

Trust in Neighbors is an index variable of how much trust individuals exhibit towards their neighbors. It is constructed from their responses to the corresponding question (G007_18) in the WVS/EVS survey, based on the corresponding question in the survey.

Tax Evasion Perception of Compatriots is an index variable reflecting the perceptions of individuals regarding how often other people in their country engage in tax evasion. It is constructed from their responses to the corresponding question (G007_18) in the WVS/EVS survey, based on the corresponding question in the survey.

Table A3: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Regional-Level Variables					
Regional Tax Morale	1,575	8.7	1.0	3.9	10.0
Regional Income Similarity	1,338	0.2	0.1	0.1	1.0
Regional Ethnicity Similarity	1,042	0.8	0.2	0.3	1.0
Regional Language Similarity	1,109	0.9	0.2	0.2	1.0
Regional Religion Similarity	1,567	0.7	0.2	0.2	1.0
Regional Value Similarity	1,575	0.5	0.1	0.4	1.0
Luminosity per capita	1,575	-2.8	1.6	-10.3	1.0
Population Density (in 1000s)	1,575	0.6	3.1	0.0	59.7
Distance to Capital (in nat. logs)	1,575	12.1	1.4	5.1	15.9
Distance to Sea (in nat. logs)	1,575	11.4	1.5	4.8	14.5
National Government Effectiveness	1,575	0.3	1.0	-1.6	2.1
National Quality of Governance	1,501	0.6	0.2	0.2	1.0
Regional Quality of Governance	496	50.8	21.9	4.7	89.0
Regional Confidence in Civil Service	1,575	0.5	0.1	0.1	1.0
Regional Satisfaction with Political System	880	0.4	0.1	0.1	1.0
Regional Election Participation	307	0.6	0.2	0.1	1.0
Individual-Level Variables					
Individual Tax Morale	312,600	8.7	2.2	1.0	10.0
Individual Income Similarity	231,898	0.2	0.1	0.0	1.0
Individual Ethnicity Similarity	162,874	0.8	0.3	0.0	1.0
Individual Language Similarity	185,007	0.8	0.3	0.0	1.0
Individual Religion Similarity	281,354	0.7	0.3	0.0	1.0
Individual Value Similarity	312,600	0.5	0.1	0.2	1.0
Weighted Value Similarity	312,600	0.7	0.1	0.4	1.0
Value Similarity, Above Median	312,600	0.7	0.1	0.1	1.0
Weighted Value Similarity, Above Median	312,600	0.7	0.1	0.3	1.0
Values in Majority Group	312,600	0.6	0.1	0.1	1.0
Values in Minority Group	312,600	0.1	0.1	0.0	0.6
Average Absolute Deviation of Values	312,600	0.3	0.0	0.0	0.6
Average Standard Deviation of Values	312,600	0.3	0.0	0.0	0.7
Predicted Value Similarity	259,377	0.5	0.1	0.4	1.0
Age	311,841	42.2	16.7	15.0	108.0
Male (Dummy)	312,425	0.5	0.5	0.0	1.0
Married (Dummy)	311,520	0.6	0.5	0.0	1.0
Employed (Dummy)	305,427	0.4	0.5	0.0	1.0
Self-Employed (Dummy)	305,427	0.1	0.3	0.0	1.0
Retired (Dummy)	305,427	0.1	0.4	0.0	1.0
Unemployment (Dummy)	305,427	0.1	0.3	0.0	1.0
Education (Categorical)	270,709	3.7	1.4	1.0	6.0
Income (Categorical)	231,898	4.7	2.3	1.0	10.0
Urban Resident (Dummy)	194,652	0.4	0.5	0.0	1.0
Religiosity	300,892	0.7	0.3	0.0	1.0
Morality	312,579	0.6	0.2	0.0	1.0
Trust	297,797	0.3	0.4	0.0	1.0
Trust in Neighbours	125,626	0.6	0.3	0.0	1.0
Tax Evasion Perception of Compatriots	21,315	2.2	0.7	1.0	4.0
Confidence in Civil Service	293,915	0.5	0.3	0.0	1.0
Satisfaction with Political System	127,535	0.4	0.3	0.0	1.0
Equality Preferences	292,254	0.5	0.3	0.0	1.0
Active Government Preferences	300,659	0.5	0.3	0.0	1.0

Notes: This table presents descriptive statistics for the main variables considered in our analysis.

Dislike Foreign Neighbors is an indicator of whether individuals dislike having a foreigner as their neighbor. It is constructed from their responses to the corresponding question (A124_06) in the WVS/EVS survey, based on the corresponding question in the survey.

Confidence in Civil Service is an index variable of how much confidence individuals have in the country's civil service. It is constructed from their responses to the corresponding question (E069_08) in the WVS/EVS survey, based on the corresponding question in the survey.

Satisfaction with Political System is an index variable of how satisfied individuals are with the political system for governing their country. It is constructed from their responses to the corresponding question (E111) in the WVS/EVS survey, based on the corresponding question in the survey.

Equality Preferences is an index variable reflecting whether individuals think current income levels should be made more equal or not. It is constructed from their responses to the corresponding question (E146) in the WVS/EVS survey, based on the corresponding question in the survey.

Active Government Preferences is an index variable reflecting whether individuals think that it is the state responsibility to provide for the people or not. It is constructed from their responses to the corresponding question (E137) in the WVS/EVS survey, based on the corresponding question in the survey.

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