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Tax morale and social capital: An empirical investigation among European citizens

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Abstract

Despite the extensive literature examining determinants of tax morale, little is still known about the relationship between the associational involvement of citizens and their willingness to pay taxes. Given the insights offered by the social capital literature regarding the role of voluntary organizations in shaping civic engagement, this study empirically investigates how membership of different types of associations could influence individual tax morale in Europe. With this in mind, we exploit the information available in the fifth wave of the European Values Study for citizens of 34 countries. Unlike previous studies on tax morale, we classify the types of voluntary associations depending on their potential to build out-group “bridging” or in-group “bonding” social ties. In this study, to carry out the classification, three alternative approaches are considered which are based on the sociodemographic heterogeneity within associations, the interconnections between them, and a combination of both. Our findings show that, after controlling for different individual characteristics and country-specific unobserved heterogeneity, those survey respondents involved in bridging associations tend to exhibit higher levels of tax morale, while the

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opposite is found for bonding associations. The results are quite robust for the three approaches and different estimation strategies, including an instrumental-variables methodology.

KEYWORDS

social capital, tax morale, volunteering

JEL CLASSIFICATION

C25, H26

1 | INTRODUCTION

According to recent estimates, approximately 860 billion euros in public money is lost every year in the European Union due to tax evasion (Murphy, 2019). Eastern Europe also faces a similar problem, since the transition process towards a market economy has weakened the position of new States in collecting taxes and building reliable institutions (Torgler, 2012). In general terms, tax revenue losses due to tax evasion is harmful for the whole collective, since it deprives society of the resources needed to provide public goods and welfare programmes, and may generate efficiency costs as well as harm the equality principle of the tax system (Bousquet et al., 2019). Reducing tax evasion has, therefore, become a key objective for policy makers of European countries concerned with raising tax revenues and allocating resources in a more efficient and fairer way (European Commission).¹ Indeed, several policies have been adopted at the European level with the purpose of intensifying the information exchange and expertise among national tax administrations to achieve effective taxations.² Nevertheless, despite the governments' efforts, a large proportion of European citizens call for more policy actions against deliberate tax deception (Eurobarometer Survey 89.2 conducted by the European Parliament, 2018).

The academic literature widely recognizes that individual tax morality, understood as the intrinsic willingness to comply with fiscal duties (Frey & Torgler, 2007; Luttmer & Singhal, 2014; Torgler, 2005a), plays a key role in explaining the aggregate compliance levels in the majority of countries (e.g., Dell'Anno, 2009). This is the reason why, in recent years, much research has focused on which contextual and/or sociodemographic factors might explain the individual's tax morality. As a result, we can now benefit from a relatively comprehensive understanding of the relationship between tax morale and some of its determinants, such as age, gender, religiosity, and education (e.g., Alm & Torgler, 2006; Lago-Peñas & Lago-Peñas, 2010; Torgler, 2005b). However, despite the extensive literature devoted to this subject, the potential influence of voluntary associations on willingness to pay taxes has so far been little explored, and the few existing empirical findings are inconsistent. For instance, Filippin et al. (2013) find for Italy that membership of voluntary associations is positively associated with tax morale while, for Palestine, Andriani (2016) finds the opposite is true

¹ European Commission (https://ec.europa.eu/taxation_customs/huge-problem_en), accessed 20 December 2021.

² Some examples in this regard are the European Union Savings Directive (EUSD), the Directive on Administrative Cooperation (DAC), the application of the Automatic Exchange of Information (AEOI) standards in 2016 to bring greater tax transparency, or the Fiscalis Programme. European Commission (https://ec.europa.eu/taxation_customs/system/files/2019-10/2019-taxation-papers-76.pdf), accessed 19 February 2022.

The relatively limited attention given to this last issue within the tax morale literature is indeed surprising, considering the significant research stressing the interconnection between voluntary associations and civic engagement. Indeed, social capital research tells us that active participation in voluntary organizations facilitates face-to-face interactions across their adherents, which could contribute to intensifying the civic engagement of the members of the community, educating them in cooperation, tolerance and public-spiritedness (e.g., Audia & Teckchandani, 2010; Crescenzi et al., 2013; Putnam et al., 1993, 2000; Ruiter et al., 2009; Stolle & Rochon, 1998).^{3,4} In contrast, another stream of social capital research recognizes a potential “dark side” of voluntary social networks, arguing that these inevitably lead to excluding members outside the network on the basis of some discriminating criteria. This may, in turn, lead to inward-looking, rent-seeking, or free-riding behaviors of group members (e.g., Helliwell, 1996; Baron et al., 2000; Field, 2003; Fine, 1999; Molyneux, 2002; Pervaiz & Chaudhary, 2015; Quibria, 2003; Van Staveren & Knorringa, 2007). To accommodate these two conflicting predictions, relevant scholars have questioned whether membership of diverse types of associations differs in its effect on society, distinguishing between “bridging” and “bonding” social networks. While the former group of networks refers to those connecting people who are unlike one another in important sociodemographic characteristics, the latter group is understood as those networks linking people who are like one another (Putnam & Goss, 2002, p. 11).

In practice, the distinction between “bridging” and “bonding” social networks is not straightforward (Crescenzi et al., 2013; Geys & Murdoch, 2008, 2010). Fortunately, the empirical literature provides some different approaches in this regard. On the one hand, Coffé and Geys (2007a, 2007b) develop an internal approach, based on the sociodemographic composition of association membership. Within this framework, those associations whose members are more (less) representative of the population as a whole are designed as “bridging” (“bonding”), assuming that they are more (less) likely to bring heterogeneous members into contact within each given association. On the other hand, Paxton (2002) proposes an external approach, assuming that associations made up of members belonging to other types of associations tend to present more diverse interactions, promoting the “bridging” social capital, while more isolated associations could strengthen inward-focused behaviors, fostering the “bonding” social capital. These two approaches, despite being widely applied in different contexts, are not exempt from criticism. Indeed, Geys and Murdoch (2010) evidence that these two interpretations could lead to different outcomes and propose an integrating approach that takes into account both the interconnections *between* associations and the heterogeneity of membership *within* associations.⁵

³ See Hwang, Grabb, and Curtis (2005) for a review of the determinants of volunteering activity.

⁴ These types of arguments may have influenced public policies in Europe in recent decades. For instance, the EU promoted several initiatives to provide financial support to civil society to get European citizens socially involved through democratic engagement and civic participation. Some recent cases are represented by the *Europe For Citizens Programme (EFC)* and the *Civil Society Facility (CSF)*. Other initiatives aiming to support civil society organisations have also been addressed outside the European countries. The latest case refers to the *Global Europe Civil Society Organisations programme* of the European Commission, targeting applicants living in other European areas, such as Armenia, Azerbaijan, Belarus, Georgia.

⁵ Alternatively, another set of research classifies voluntary associations according to their nature, based on the two perspectives provided by Putnam (1993) and Olson (1965, 1982). The former perspective emphasizes the tendency of certain altruistic associations to inculcate public spiritedness in their members, while the latter argues that rent-seeking associations could act as “distributional coalitions”, oriented at protecting the private interests of their members at the expense of the rest of society. For instance, some empirical papers evaluate whether distinct types of associations, classified as Putnamian or Olsonian, could have a different impact on economic well-being (Knack and Keefer, 1997; Knack, 2003;

Using these approaches, empirical papers have studied whether membership of different types of voluntary associations has a varying impact on political democracy (Paxton, 2002), economic activity (Audia & Teckchandani, 2010), perceived corruption (Griesshaber & Geys, 2012), or different civic and political attitudes, such as utilitarian individualism, intolerance, or the perceived political powerlessness (e.g., Coffé & Geys, 2007b; Geys & Murdoch, 2008, 2010). However, to our knowledge, the potentially heterogeneous influence of different types of associations on tax morale has not yet been examined. Therefore, in this paper we aim to fill this gap by empirically evaluating how the individual's willingness to pay taxes in Europe may depend on associational involvement, differentiating between "bridging" and "bonding" voluntary associations, in accordance with the internal, external and integrating approaches.

The paper is structured as follows. Section 2 provides an overview of the related literature, followed by Section 3 which states our main research hypotheses. Section 4 presents the empirical analysis of the potential influence of voluntary associations on the individual's tax morale in 34 European countries, including a description of the dataset, the different measurements of bonding and bridging associations, the econometric specification and estimation strategies. The main results are presented and discussed in Section 5. Finally, conclusions and policy implications are presented in Section 6.

2 | LITERATURE REVIEW

2.1 | Tax morale and its potential determinants

A large body of academic literature has focused on finding an answer to the question "why do people avoid paying taxes?". One of the pioneering works on this issue is Allingham & Sandmo (1972), who proposed a theoretical model, based on the Becker's (1968) economics approach to criminal behavior in a tax evasion context. Specifically, the proposed model suggested that increases in deterrence factors, such as a greater penalty or a larger perceived probability of audit, could lead to a reduction in tax evasion. However, despite providing reasonable predictions, the model has been broadly criticized for neglecting nonpecuniary factors in the taxpayer's behavior. Indeed, the subsequent empirical and experimental analyses highlight that, according to such a model, there should be higher rates of tax evasion than actually observed, taking into account the expected costs of being detected and punished in most countries (e.g., Alm et al., 1992; Baldry, 1986; Graetz et al., 1986). The literature then looked to evaluate the potential importance of non-financial motivations in explaining the degree of tax compliance of individuals. Nowadays, a large number of studies exist which highlight tax morale as one of the key factors that could shape tax compliance (e.g., Frey, 2003; Xin Li, 2010; Halla, 2012).

According to Luttmer & Singhal (2014), there are at least five intrinsic motivations for tax compliance: (I) the individual feeling of pride that may be derived from honest behavior; (II)

Hoyman et al., 2016), happiness (Bartolini et al., 2013), entrepreneurial activity (Kim and Kang, 2014) or industrial diversification (Cortinovis et al., 2017). In such studies, charities, cultural and environment associations are commonly considered as Putnam-type organisations, while trade unions and professional organisations tend to be associated with Olson-type groups. However, the ambiguous nature of other types of associations has prevented the development of a unanimous classification criterion with this approach.

reciprocity between the taxpayers and the State in exchange for public benefits; (III) peer effects in terms of sanctions or recognitions; (IV) culture; and (V) imperfect information on audit rates, penalties or tax enforcement. The importance of the different factors associated with these motivations has been tested both in experiments (Blumenthal et al., 2001; Castro & Scartascini, 2013; Coricelli et al., 2010; Torgler, 2004a; Dwenger et al., 2016; Alm et al., 2016; Bott et al., 2019; Koessler et al., 2016; Saad, 2014) and empirical studies. Regarding the latter, most of them exploit international individual surveys, such as the European Social Survey (ESS), European Values Study (EVS), International Social Survey Programme (ISSP), Latinobarómetro, and World Values Survey (WVS), to build proxies for tax morale and its possible explanatory factors. Depending on the type of study, the determinants of tax morale have either been evaluated for individuals in specific countries (e.g., Martínez-Vazquez & Torgler, 2009; Torgler & Werner, 2005) or in a cross-country context (see Lago-Peñas & Lago-Peñas, 2010, and Horodnic, 2018, for a systematic review). Most empirical studies agree that tax morale could depend on several individual and contextual socio-demographic factors. On the one hand, the literature reveals that tax morale is positively related to certain individual characteristics, such as age, religiosity, or income (Lago-Peñas & Lago-Peñas, 2010). On the other hand, it is negatively related to self-employment (Alm & Torgler, 2006; Lago-Peñas & Lago-Peñas, 2010; Prieto et al., 2006; Torgler, 2004b). In addition, individual perceptions on the institutional framework have also been evidenced as influencing factors on tax morality: the latter increases when taxpayers are confident with the political system, with democracy and when they trust on formal institutions (Torgler, 2005a, 2005b, 2006; Alm & Torgler, 2006; Lago-Peñas & Lago-Peñas, 2010; Horodnic, 2018).

Furthermore, the socio-economic conditions of each country have also been revealed as influencing factors on individual tax morale. On the one hand, it is evidenced that cultural idiosyncrasies could play a relevant role in explaining the presence of systematic cross-country differences in the individual's intrinsic willingness to pay taxes (e.g., Torgler, 2004b; Alm & Torgler, 2006). On the other hand, the literature also supports the idea that citizens living in countries with higher economic development tend to show greater responsibility towards their civic duties, such as tax payments. This may be explained by the modernization thesis, which states that the more economically developed the country, the greater the level of tax morality, since the informal economy is less prevalent in the face of economic development and modernization of government (i.e., fewer institutional bureaucracies, strengthening of legal rights). This hypothesis has been empirically confirmed in several papers (e.g., Williams & Martínez, 2014; Williams & Krasniqi, 2017). Additionally, the role of institutions, how they are organized and perceived by individuals, could also be essential in explaining the intrinsic willingness of citizens to pay taxes. In this vein, Feld & Frey (2007) defend the idea of a psychological tax contract between the taxpayers and the government, which involves a reciprocal obligation. While taxpayers pay taxes, the institutions provide governance qualities. In fact, the authors argue that individuals would be willing to pay the entire amount of tax due even if they do not receive a full public good equivalent to the amount paid so long as the political process is perceived as fair and legitimate. Thus, larger tax morale could be related to a better quality of institutions. In this sense, Barone & Mocetti (2011) show that for Italy the attitude towards paying taxes is greater when public resources are spent in a more efficient way. In addition to the aforementioned factors, the composition of the population could also influence tax compliance. Some researches provide evidence that a higher percentage of a regular influx of immigrants is associated with higher rates of tax morale (Russo, 2013; Williams & Martínez, 2014), although it may depend on the level of perceived threat towards immigrants of natives (Nemore & Morone, 2019). The literature further highlights that tax morale is greater in decentralized fiscal systems. So, for instance, Torgler et al. (2010) show that there is a strong

and positive correlation between local autonomy, direct democracy, and tax morale in Switzerland, while Torgler & Werner (2005) provide evidence to support the same positive relationship between local autonomy and tax compliance in Germany. Finally, some research studies reveal a negative correlation between increasing national burdens and tax morale at national level (e.g., Lago-Peñas & Lago-Peñas, 2010).

2.2 | The importance of social capital

In recent decades, a growing body of literature in economics and social sciences has focused on the importance of social capital. This concept was introduced by Putnam et al. (1993), referring to the connections among individuals, social networks and the norms of reciprocity and trustworthiness that arise from them. Putnam's idea was that social networks, in addition to physical and human capital, contain value for individuals, and the way and the extent to which the interactions between economic subjects are applied within a system is also important. In fact, social capital enables participants to act together more effectively to pursue shared objectives, which in turn may lead citizens to achieve better collective goals (Putnam, 1995).

The fundamental intuition is that societies with higher social capital, hence with people more connected to each other, with high interpersonal trust and with more civic and voluntary activities may be more cohesive. The social capital has been defined as the missing link in economic analysis (Van Staveren et al., 2007), since its role has been largely ignored. In fact, an extensive body of literature has since demonstrated the influence of social capital on several economic outcomes, such as GDP growth, investment rate, labor productivity and innovation (e.g., Putnam, 1993, 2000; Knack & Keefer, 1997; Van Staveren & Knorringa, 2007; Akçomak & Ter Weel, 2009; Crescenzi et al., 2013; Crescenzi & Gagliardi, 2015; Pervaiz & Chaudhary, 2015; Beugelsdijk & Van Schaik, 2005; Beugelsdijk & Smulders, 2009; Muringani et al., 2021).

However, another strand of the literature defends that, depending on whether the kind of social interaction is potentially inclusive or exclusive, this might lead to different outcomes in society. Indeed, to account for this heterogeneity, Putnam (2000) distinguishes between “bridging” and “bonding” social capital. On the one hand, the bridging social capital arises from inter-group relationships, those represented by weak social ties (Granovetter, 1973, 1985) which link people who are unlike one another (Putnam & Goss, 2002). It tends to increase tolerance and acceptance of different people, values and beliefs through contact with diverse others (Paxton, 2002), hence it can improve economic outcomes through positive externalities such as reducing transaction costs, increasing solidarity and cooperation, and stimulating the borrowing and investing activity (Adler & Kwon, 2002; Van Staveren et al., 2007). On the other hand, the bonding social capital is the outcome of strong social ties, those that link people who are like one another (Putnam & Goss, 2002) according to their social identity, which leads to strong social cohesion within a homogeneous group of people who trust the other members of the same group just because they are part of it. This refers to relatively closed groups, which tend to show very high intra-group trust, but could exclude the others who do not share the same social identity and values. In contrast to bridging social capital, the latter is more likely to be associated with negative externalities arising from its exclusive nature, able to create barriers to trusting people outside the group who do not share the same social identity and values of the group (Beugelsdijk & Smulders, 2009; Pervaiz & Chaudhary, 2015; Claridge, 2020; Muringani et al., 2021).

Interestingly, some other studies, particularly in the field of community development, stress that positive externalities of social capital are optimized when a relative balance exists between both bridging and bonding ties in the society, although this can be challenging to achieve in

practice (Saegert et al., 2002; Warren et al., 2001; Bridger & Alter, 2006). Along the same lines, Woolcock (1998) highlights that both forms of social capital are necessary for social cohesion, since too many tightly-knit networks of individuals/associations with closed and strong ties to one another can lead to insularity and exclusion, while too many dispersed networks of individuals/associations who are connected through weak but diverse ties can result in fragile interactions and a lack of collective action. This strand of literature, therefore, defends that achieving equitable development requires mutual understanding (i.e., embeddedness) within communities and respect between them (i.e., autonomy).⁶

Besides the well-known bridging and bonding social capital, literature also recognizes “linking” forms of social capital, which involves vertical ties and power dynamics among individuals or organizations across different hierarchies or social strata (Woolcock, 1998; Woolcock & Narayan, 2000; Evans & Syrett, 2007). The linking social capital is closely related to the bridging social capital. Both involve ties between people who are different from each other, but the linking (bridging) social capital emphasizes vertical (horizontal) connections. The linking social capital arises when individuals construct ties with institutions and other individuals with power over them or the capacity to provide resources (Szreter & Woolcock, 2004).

In order to empirically measure the bridging and bonding potential of social networks, as described in the introduction, a relevant stream of literature in social sciences points to at least three different approaches, based on the socio-demographic heterogeneity within associations (Coffé & Geys, 2007a, 2007b), the interconnections between them (Paxton, 2002), and a combination of both (Geys & Murdoch, 2010). In this line, we can find interesting insights from empirical literature concerned with exploring the influence of bridging and bonding types of association networks on economic outcomes (e.g., Paxton, 2002; Audia & Teckchandani, 2010; Griesshaber & Geys, 2012; Coffé & Geys, 2007b; Geys & Murdoch, 2008, 2010). In contrast, the empirical operationalization of the linking social capital has not yet been extensively developed, and the empirical research is still limited, most likely due to the widely used surveys in the literature (mentioned in Section 2.1.) not providing enough information for that purpose.⁷

Finally, regarding the empirical literature related to tax morality, it should be noted that the corresponding impact of social capital on individual willingness to pay taxes has, to date, remained little explored. Filippin et al. (2013) represent one exception, evidencing that those individuals actively involved in associations in their community present higher levels of morale in Italy, arguing that this effect derives from the higher sense of civickness of subjects who volunteer. This result is consistent with the idea that volunteering could promote the prosocial attitude, intended as a behavior through which people help others (Eisenberg, 1982), and may influence an individual's belief in the importance of contributing towards public expenditures, leading to an increase in tax morale, resulting in a potentially greater tax compliance attitude among people involved in bridging social networks. However, contrasting evidence is also reported by Andriani (2016) who finds that tax morale is lower among individuals involved in voluntary associations in Palestine, arguing that they could more clearly perceive the malfunctioning of formal institutions and, hence, by

⁶ What Woolcock denotes as “closed/strong” and “diverse/weak” ties is parallel to what is widely referred to as “bonding” and “bridging” social capital. Additionally, the conceptualisation expressed here of “embeddedness” vs “autonomy” correspond to the micro (local) level described in Woolcock (1998). However, according to the author, in the macro (or national) level, “embeddedness” refers to cooperation and congruity in state–society linkages, whereas “autonomy” is manifested in institutional coherence, capability, and competence.

⁷ To our knowledge, of the few papers that manage to empirically measure the linking social capital many develop their own survey questionnaires. Some examples are Cofré-Bravo et al. (2019) or Mathews (2021).

having a lower tax morale attitude, they show less willingness to contribute to the public financing of inefficient institutions. The lack of consensus in this regard may derive from the possible idiosyncrasy of each country and/or the need to account for a specific distinction between different types of associations, which has so far been neglected in the tax morale literature. In this paper we aim to fill this research gap by providing the first evidence of the potential heterogeneous influence of different types of associations on the intrinsic motivation in European citizens for paying taxes. As a first foray into this issue in the tax morale literature, this study uses the empirical operationalization of bridging and bonding types of associations, in line with Coffé and Geys (2007a, 2007b) and Geys and Murdoch (2010).

3 | RESEARCH HYPOTHESES

According to the arguments provided by the literature on bridging and bonding social capital (Putnam, 2000; Marshall & Stolle, 2004; Coffé & Geys, 2007b; Geys & Murdoch, 2008; 2010), we formulate the following research hypotheses:

Hypothesis 1: Being involved in bridging social networks is positively related to the individual's willingness to pay taxes.

Hypothesis 2: Being involved in bonding social networks is negatively related to the individual's willingness to pay taxes.

On the one hand, we expect that the bridging potential of social networks stimulates the positive civic values of members (i.e. more prosocial attitude), hence it increases tax morale.

On the other hand, the associational involvement in bonding social networks may hamper the positive civic values of members (i.e., less prosocial attitude), hence we expect that this decreases tax morale.

4 | EMPIRICAL ANALYSIS

4.1 | Data and descriptive analysis

The dataset of our research comes from the fifth wave of the European Values Study (2017), which is a cross-country survey that accounts for a representative sample of adult respondents (18 years old and older) in Europe. The dataset includes information about a wide range of aspects of European citizens, such as their socio-demographic status, their view about society, politics and general perceptions about their life. The sample covers the following 34 countries: Albania (AL); Armenia (AM); Austria (AT); Azerbaijan (AZ); Bosnia and Herzegovina (BA); Bulgaria (BG); Belarus (BY); Switzerland (CH); Czech Republic (CZ); Germany (DE); Denmark (DK); Estonia (EE); Spain (ES); Finland (FI); France (FR); Great Britain (GB); Georgia (GE); Croatia (HR); Hungary (HU); Iceland (IS); Italy (IT); Lithuania (LT); Montenegro (ME); Netherlands (NL); North Macedonia (MK); Norway (NO); Poland (PL); Portugal (PT); Romania (RO); Serbia (RS); Russia (RU); Sweden (SE); Slovenia (SI); Slovakia (SK). Below we describe the variables used in the empirical analysis, and Table 1 presents some descriptive statistics.

TABLE 1 Variables description and summary statistics

Variable	Description	Obs.	Mean	Std. Dev.	Min.	Max.
Dependent variable						
TM_{ic}	Individual level of tax morale. Index ranging from 1 (low tax morale) to 5 (high tax morale).	54,480	4.554	0.946	1	5
Main independent variables: number of associations in which respondents participate, considering different classifications approaches						
Internal approach						
$BridgingSC_{ic}^{Int}$	Individual involvement in bridging associations.	55,276	0.592	0.879	0	4
$MiddleSC_{ic}^{Int}$	Individual involvement in middle-of-the-road associations.	55,276	0.265	0.553	0	3
$BondingSC_{ic}^{Int}$	Individual involvement in bonding associations.	55,276	0.240	0.556	0	4
External approach						
$BridgingSC_{ic}^{Ext}$	Individual involvement in connected associations.	55,276	0.414	0.658	0	4
$MiddleSC_{ic}^{Ext}$	Individual involvement in intermediately connected associations.	55,276	0.213	0.494	0	3
$BondingSC_{ic}^{Ext}$	Individual involvement in isolated associations.	55,276	0.471	0.825	0	4
Integrating approach						
$SC1_{ic}$	Individual involvement in bridging-bridging associations.	55,276	0.274	0.496	0	3
$SC2_{ic}$	Individual involvement in bridging-middle associations.	55,276	0.152	0.405	0	4
$SC3_{ic}$	Individual involvement in middle-middle associations.	55,276	0.075	0.281	0	3
$SC4_{ic}$	Individual involvement in bridging-bonding associations.	55,276	0.305	0.604	0	6
$SC5_{ic}$	Individual involvement in middle-bonding associations.	55,276	0.175	0.467	0	4
$SC6_{ic}$	Individual involvement in bonding- bonding associations.	55,276	0.115	0.343	0	2
Control variables						
HT_{ic}	Horizontal trust, coded as a dummy variable equal to 1 if respondent believes that most people can be trusted.	54,053	0.369	0.483	0	1
VT_{ic}	Vertical trust, measured by a composite score based on the respondents' trust on different institutions.	50,183	0	1	-1.978	2.633
DS_{ic}	Democratic spirit, measured on a 1-4 scale from "very bad" to "very good" based on the respondents' opinions on having a democratic political system.	52,521	3.524	0.656	1	4

(Continues)

TABLE 1 (Continued)

Variable	Description	Obs.	Mean	Std. Dev.	Min.	Max.
R_{it}	Religiosity, measured with a dummy variable equal to 1 if individuals states that religion is important.	55,276	0.507	0.499	0	1
$Female_{it}$	Dummy variable equal to 1 for female respondents and 0 otherwise.	55,276	0.552	0.497	0	1
Age	Age level, coded in a set of dummy variables, according to the following seven age categories: 18–24, 25–34, 35–44, 45–54, 55–64, 65–74, and 75 or more.					
Income	Income level, coded in three dummy variables (low, middle, and high) measuring the relative position of each respondent in the income distribution within his/her country.					
Education	Highest level of educational attainment, coded in a set of dummy variables comprising the ISCED-2011 classification.					
Employment status	Employment status, coded in a set of dummy variables, according to the following categories: full employment, self-employment, military employment, retired, homemaker, student, unemployed and disabled.					
Marital status	Marital status, coded in a set of dummy variables, according to the following categories: married, registered partnership, widowed, divorced, separated, and never married and registered partnership.					

All variables have been constructed using the information available from the EVS2017.

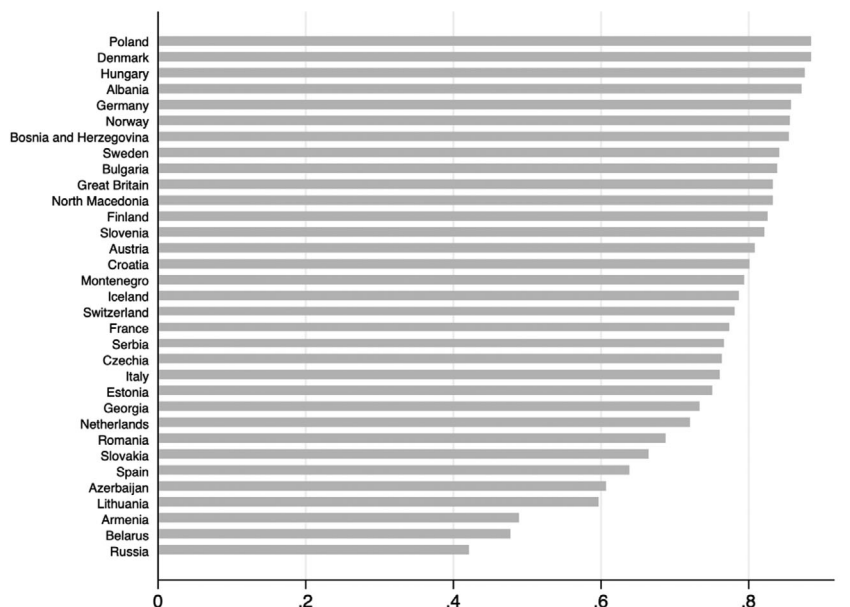


FIGURE 1 Share of respondents in each country with a high level of tax morality. *Source:* Own elaboration based on data from the EVS2017.

4.1.1 | Dependent variable

Our dependent variable is tax morale, measuring the individual willingness to pay taxes. The variable is constructed with the information given by the EVS2017 responses to the question “Please tell me whether you think it can always be justified, never be justified, or something in between: cheating on taxes if you have the chance”. In the survey, the individual responses are classified from 1 (never justified) to 10 (always justified). However, to make easier the interpretation, in our analysis we have decided to recode the variable to a five-point scale from low to high levels of tax morality (TM_{ic}), considering the following structure: value 1 = “low tax morale” (responses 9 and 10); value 2 = “middle lower tax morale” (responses 7 and 8); value 3 = “middle tax morale” (responses 5 and 6); value 4 = “middle upper tax morale” (responses 3 and 4); and value 5 = “high tax morale” (responses 1 and 2). Figure 1 displays the share of respondents in each country who state a high level of tax morality. As can be seen, this category varies widely across nations. It is close to 90% in countries like Poland (89.7%), Denmark (88.6%), Hungary (88.5%), Albania (87.3%) or Germany (86.9%), while the same share is between approx. 60% and 80% in most of the sampled countries, and finally it drops to less than 50% in Armenia (49.4%), Belarus (49.2%) and Russia (43.6%). This evidence underlines the systematic heterogeneity in the attitude to pay taxes between European countries.

4.1.2 | Main independent variables

Our main independent variables are measures of social capital. They are constructed through the information given by the EVS2017 responses to the question “Please look carefully at the

following list of voluntary organisations and activities and say... which, if any, do you belong to?"⁸ Specifically, we consider the number of memberships an individual states in different type of associations, distinguishing between bridging and bonding social networks according to following three alternative approaches.⁹

- First, we use the *internal approach* of Coffé and Geys (2007a), which distinguishes different type of voluntary associations based on the diversity of their members on certain sociodemographic features. More precisely, it assumes that associational memberships that are more representative of the overall population have greater potential to generate heterogeneous interactions, which contributes to build bridging social capital. In contrast, associations composed by over or under-represented sociodemographic groups present greater difficulties to generate bridges between different groups within each association, contributing then to the intensification of the bonding social capital (Stolle & Rochon, 1998). Under this conceptual framework, we implement the approach proposed by Coffé and Geys (2007a), taking the following steps. Making use of the information available in the EVS2017, we begin computing a diversity score for each country as the average absolute difference of the national population composition and that from the membership in association types over five sociodemographic features: religion, language, age, gender, and education. We then normalize the diversity score between 0 and 1 across the socio-demographic features for each association and country. Later, these normalized diversity scores are summed up across the socio-demographic features for each association type and country, resulting in a composite score that ranges from zero to five (the number of socio-demographic features considered). According to this approach, lower (higher) values on the composite score indicate that the characteristics of the members in each association type deviate little (more) from those of the overall population, likely implying more (less) bridges across different sociodemographic groups within the association type, intensifying the bridging (bonding) social capital. We thus rank association types from the most bridging (1) to the most bonding (11) in each country. Finally, based on these ranking results at country level, we distinguish across bridging associations (ranked from 1 to 4), bonding associations (ranked from 8 to 11) and the remaining associations in an intermediate position (ranked from 5 to 7). The summary for each country is shown in Table A1 in Appendix A. Therefore, the respondent's involvement in each of these three categories of voluntary associations represents our first set of independent variables in the internal approach: $BridgingSC_{ic}^{Int}$, $BondingSC_{ic}^{Int}$ and $MiddleSC_{ic}^{Int}$.¹⁰

⁸ The survey respondents indicate whether they belong (or not) to any of the following voluntary organisations and activities: Religious organization; Cultural activities; Trade unions; Political parties; Environment, ecology, animal rights; Professional associations; Sport/recreation; Charitable/humanitarian organisation; Consumer organisation; Self-help, Mutual aid group; Other groups.

⁹ In line with other cross-country empirical studies (e.g., Griesshaber & Geys, 2012), we apply the three approaches at country level, so the exact classification of the different associations may differ across nations.

¹⁰ In the internal approach, the composite score is designed to quantify the homogeneity degree of members within each type of association, considering the adequate number of sociodemographic dimensions that define each national population. If these dimensions are not properly considered, there is a risk of characterizing incompletely the association types and the population, which could give rise to misleading conclusions. Therefore, to prevent misleading classifications, we use the detailed information from the EVS2017 on nine different religious denominations (Roman Catholic, Orthodox, Protestant, Muslim, Free Church/Non-conformist/Evangelical, Hindu, Buddhist, Jew, and others), 34 languages, seven age categories (18–24, 25–34, 35–44, 45–54, 55–64, 65–74, more than 74), two gender groups (women and men), and nine educa-

- Second, the *external approach* of Paxton (2002, 2007) is alternatively applied, which classifies associations in accordance with the interconnections between them. In accordance with this approach, belonging to associations whose members are tied to other associations could prevent individuals from being isolated, since such connected association groups tend to cross-cut social boundaries more intensely than those with fewer ties. In this case, similarly to Paxton (2007), we make use yet again of the EVS2017 information to quantify the connectedness of the different types of associations by counting the country's average number of further association types in which each association's member is additionally involved.¹¹ However, we correct the outcome for the relative size of each association type in the respective country.¹² To do so, in line with Geys and Murdoch (2008) and Griesshaber and Geys (2012), we regress by OLS the quantified connectedness of the different association types by the number of its members in each country. These authors suggest that the size of the resulting residuals can be subsequently employed to rank association types from connected/bridging (1) to isolated/bonding (11) in each country, since high (low) residuals indicate that an association type presents more (less) inter-type connections than expected, according to its membership level. Table A2 (in Appendix A) reports the residuals (as a size-corrected measure of interconnections in each specific association type) by country, as well as the resulting rankings. Using these rankings, for each country we finally conduct a three-fold categorisation of associations as bridging social networks (ranked from 1 to 4), bonding social networks (ranked from 8 to 11), and the remaining intermediate association types (ranked from 5 to 7). The individual involvements in each of these categories of associations represent our second set of independent variables in the external approach: $BridgingSC_{ic}^{Ext}$, $BondingSC_{ic}^{Ext}$, and $MiddleSC_{ic}^{Ext}$.
- Lastly, we follow the *integrating approach* of Geys and Murdoch (2010), which combines the information embodied in previously described internal and external perspectives to build a more general measure of bridging and bonding associations. Specifically, we consider together the internal and external classifications in each country to differentiate the following type of voluntary associations: bridging in both perspectives ($SC1_{ic}$), bridging in one perspective and intermediate in the other ($SC2_{ic}$), intermediate in both internal and external perspectives ($SC3_{ic}$), bridging in one perspective and bonding in the other ($SC4_{ic}$), bonding in one perspective and intermediate in the other ($SC5_{ic}$), and bonding in both perspectives ($SC6_{ic}$).¹³ In line with Geys and Murdoch (2010), the individual membership in these six type of associations constitute our third set of independent variables in our analysis. Interestingly, this classification allows us to distinguish between purely bridging, middle or bonding types of associations

tional levels (based on the ISCED-2011 classification). We believe that these sociodemographic dimensions can sufficiently describe the current European society.

¹¹ In the EVS2017, respondents state whether they belong (or not) to any of the listed types of associations in the survey. Unfortunately, the information available does not allow us to measure the actual number of connections between individual associations within each typology. Even so, the available data can be useful enough for ranking different types of associations based on their inter-type connections. This way of implementing the external approach has also been adopted in previous relevant empirical studies, such as Paxton (2007), Geys and Murdoch (2010), and Griesshaber and Geys (2012).

¹² The size-correction is needed to prevent an excessive (scarce) attribution of bridging (bonding) potential to small (large) groups, since all participants involved in a small group can also be involved in large one, but not vice versa (Blau, 1977; Geys and Murdoch, 2008, 2010).

¹³ Interestingly, Figure A1 in Appendix A shows that internal and external rankings in each country are weakly correlated. This outcome supports the arguments of Geys and Murdoch (2010, p. 442), who defend that both internal and external approaches are not necessarily related to each other.

in both internal and external approaches ($SC1_{ic}$, $SC3_{ic}$ and $SC6_{ic}$, respectively), from other association types with a hybrid nature ($SC2_{ic}$, $SC4_{ic}$, and $SC5_{ic}$).

4.1.3 | Control variables

According to the literature, to guarantee an adequate model specification, we also consider the following control variables to capture different individual characteristics:

- Horizontal trust (HT_{ic}): it is a measure of the individual generalized trust. In line with Frey & Torgler (2007), this is defined as a dummy variable, considering the EVS responses of individuals to the following question: “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” (1 = “most people can be trusted” and 0 = “can’t be too careful”).¹⁴ The sample average level of this variable is 0.369, with a standard deviation of 0.483. The individuals’ beliefs about peer behavior could affect the tax compliance attitude, given the importance of prosocial behavior or conditional cooperation (Frey & Torgler, 2007). Hence, generalized trust (in other citizens) could be positively related with tax morale.
- Vertical trust (VT_{ic}): this measures the individuals’ confidence in formal institutions. Similarly to Andriani (2016), Chan et al. (2018), and Kouamé (2021), we construct this measure by exploiting the survey information on self-reported individual confidence on different formal institutions (coded on a scale from 1 = “none at all” to 4 = “a great deal”): *parliament*, *government*, *political parties*, *police*, and *judicial system*. Specifically, a composite score is computed by combining these five items with a factor analysis and regression scoring method.¹⁵ The procedure provides a standardized variable with a mean of 0 and a standard deviation of 1. As explained in the literature review, Feld and Frey (2007) argue that being tax compliant can be seen as an implicit psychological contract between taxpayers and tax authorities; hence the confidence in the latter, as well as in the other formal institutions, can determine the individual tax morale. This has been widely supported by empirical research which consistently shows a positive linkage between vertical trust and willingness to pay taxes (e.g., Scholz & Lubell, 1998; Alm et al., 2006; Andriani, 2016; Kouamé, 2021).
- Democratic spirit (DS_{ic}): it measures the individual attitude towards democracy. It is given by the respondent’s answer to the question: “Having a democratic political system is?...” from 1 (very bad) to 4 (very good). The sample average level of this variable is 3.524, with a standard deviation of 0.656. We expect a positive DS_{ic} coefficient since a democratic system helps incorporate citizen preferences into public spending (Torgler, 2005a; Alm & Torgler, 2006; Lago-Peñas & Lago-Peñas, 2010).

¹⁴ As a robustness check, in line with Kouamé (2021), we have considered a different measure of horizontal trust, built with the EVS responses to the following question (coded on a scale from 1 1 = “do not trust at all” to 4 4 = “trust completely”): “How much do you trust people in your neighbourhood?”. The results employing this alternative measure are consistent with our main conclusions in the article. They are not shown here for brevity reasons but are available upon request.

¹⁵ According to the factor analysis, the items concerning the individual trust on the *parliament*, *government*, *political parties*, *police*, and *judicial system* are consistent indicators (with a high Cronbach’s alpha of 0.83) that load strongly on one single factor, which presents a large eigenvalue of 3.037 and explains 60.5% of the total variance of the underlying items. This suggests that the proposed five items could be reasonably combined to generate one single measure, which we have labeled “vertical trust”.

- Religiosity (R_{ic}): dummy variable equal to 1 if the respondent declared that religion is very or quite important to the EVS question: “*How important is religion in your life?*”. It allows us to measure the religious attitude of people, which might be an important determinant of tax morale (Alm & Torgler, 2006; Torgler, 2006).
- Finally, other socio-demographic individual characteristics have also been included as control regressors, which have been operationalized with dummy variables by using the categorical information collected in the EVS2017 survey: gender (female, male), age groups (18–24, 25–34, 35–44, 45–54, 55–64, 65–74), income (low, medium, and high), educational level (nine categories based on the ISCED-2011 classification), employment status (employed, self-employed, military, retired, homemaker, student, unemployed, and disabled), and marital status (married, registered partnership, widowed, divorced, separated, never married, and never registered partnership). Several previous studies show that tax morale tends to increase with age, among women and those individuals with higher educational attainments (Alm & Torgler, 2006; Torgler et al., 2008; Martinez-Vazquez & Torgler, 2009; Lago-Peñas & Lago-Peñas, 2010; Torgler & Valev, 2010). In contrast, it is empirically recognized lower level of tax morale among self-employed, as well as never married or separated individuals (Torgler, 2004b; Alm & Torgler, 2006). Regarding the potential effect of income on tax morality, there is not general consensus in the empirical literature. On the one hand, richer people could present more tax morale, since they have more money to spend, hence showing more willingness to pay taxes. However, in progressive tax-systems, a larger level of income may be negatively related to tax morale, since richer people are supposed to pay a relatively larger marginal tax rate (as showed in Torgler, 2006; Alm et al., 2006; Lago-Peñas & Lago-Peñas, 2010). Additionally, some other studies found the effect of income is not statistically significant (Torgler, 2005a; Konrad & Qari, 2012; Rodriguez-Justicia & Theilen, 2018).

4.2 | Econometric specification and methodology

To evaluate the relationship between social capital and tax morale, we use the following econometric specification:

$$T M_{ic}^* = SC'_{ic} \alpha + X'_{ic} \beta + \gamma_c + u_{ic} \quad (1)$$

where TM_{ic}^* represents an unobservable latent variable underlying the ordered and categorical measure of tax morality TM_{ic} of each individual i living in country c , and SC'_{ic} represents a vector of social capital variables, measuring the number of voluntary associations to which each individual belongs, distinguishing different types of associations according to the three alternative approaches previously described (i.e., internal, external and integrating). Additionally, the specification also includes a vector of the previously defined control variables for individual characteristics, X'_{ic} , and a set of country dummies, γ_c , to take into account the unobserved heterogeneity at national level (e.g., cultural differences, discrepancies in the national fiscal system and other contextual features at country level) that could affect tax morality. Finally, u_{ic} represents the error term.

Under this framework, the relationship between the unobservable latent variable TM_{ic}^* and the observed variable TM_{ic} is given by:

$$T M_{ic} = 1 \text{ if } TM_{ic}^* \leq \theta_1 \text{ (low tax morale)}$$

$$T M_{ic} = 2 \text{ if } \theta_1 < TM_{ic}^* \leq \theta_2 \text{ (middle lower tax morale)}$$

$$T M_{ic} = 3 \text{ if } \theta_2 < TM_{ic}^* \leq \theta_3 \text{ (middle tax morale)}$$

$$T M_{ic} = 4 \text{ if } \theta_3 < TM_{ic}^* \leq \theta_4 \text{ (middle upper tax morale)}$$

$$T M_{ic} = 5 \text{ if } TM_{ic}^* > \theta_4 \text{ (high tax morale)}$$

where θ represents unknown thresholds to be estimated, along with the remaining parameters in Equation (1), using the maximum likelihood (ML) procedure within an ordered probit framework, subject to the constraints that $\theta_1 < \theta_2 < \theta_3 < \theta_4$. Additionally, to check the robustness of the results, Equation (1) is also estimated as a linear regression model by employing the ordinary least squares (OLS) method, assuming that the dependent variable is a cardinal measure ranging from 1 to 5.

One concern in our analysis is the endogeneity problems that could arise from simultaneity and/or measurement errors. On the one hand, tax morality and volunteering could be reasonably joint determined, and, on the other hand, it is well recognized that some survey respondents might be reluctant to reveal their real attitude towards tax cheating since it may seem socially irresponsible, and/or they may unintentionally misreport their actual participation in some activities (e.g., Kinsey, 1992; Tripp, 1997; Torgler, 2012; Kouamé, 2021). If so, the estimated coefficients would not be useful to evaluate the true effect of social capital on tax morale. Therefore, to minimize possible endogeneity problems, we subsequently extend the analysis by using two alternative instrumental-variables methodologies. Specifically, the ordered probit specification from Equation (1) is estimated by using the control function approach (CFA) proposed by Wooldridge (2015), while the linear regression version of the model is estimated by using the two-stages least squares (2SLS) procedure. In both cases, we instrument the different variables of social capital included in vector SC'_{ic} by their respective average values, considering linguistic and religion clusters at regional level (NUTS2) within the same country, excluding the individual's responses. The reasoning behind this approach is that individual participation in associations could be reasonably affected by the average association membership of neighboring individuals living in each region, sharing a cultural heritage and a local institutional context (for a similar approach, see for instance, Kouamé, 2021). Moreover, as an additional instrument for variables included in SC'_{ic} we also employ the number of children of each respondent living in their corresponding household. According to literature, the parenthood may influence the individual's time use and the willingness to participate in volunteering organizations (e.g., Smith, 1994; Rotolo, 2000), but it is not necessarily related with tax morale.¹⁶

The CFA and 2SLS approaches are implemented in two stages. In both cases, the first stage involves regressing by OLS each potentially endogenous explanatory variable (i.e., SC'_{ic} in our case) on all excluded instruments, the control variables, and country dummies. However, the second stage varies depending on the approach chosen. In the CFA procedure, the second stage involves estimating the ordered probit specification from Equation (1) using the maximum likelihood estimator, including as additional regressors the vector of predicted residuals from the first stage. In contrast, the second stage in the 2SLS procedure consists in estimating by OLS the lin-

¹⁶ The information on NUTS2 regions, language, religion and number of children have been also extracted from the EVS2017.

ear regression version of the main model, replacing the potentially endogenous variables by their predictions from the first stage.

5 | RESULTS

5.1 | Internal approach

Following the internal approach for defining bridging and bonding social networks, Table 2 shows the estimated coefficients and standard errors (in parentheses) from Equation (1) using the above-mentioned estimation strategies. Columns I and II present, respectively, the ML estimates of the ordered probit and the OLS linear regression estimates, while columns III and IV report the corresponding estimates from the ordered probit model with CFA and the 2SLS linear regression estimates.¹⁷ For the ordered probit specifications (columns I and III), we further present the estimated average marginal effects (ME) for the highest score of tax morale ($T M_{ic} = 5$). Additionally, at the bottom of Table 2 we report a set of diagnostic tests, whose results support the reliability of the chosen instrumental variables and the CFA and 2SLS methods.¹⁸

In general terms, the estimated results are relatively consistent across the four estimation strategies. However, in view of diagnostic test results, the following comments will be focused on the outcomes obtained from the instrumental-variables methodologies (columns III and IV from Table 2). As can be seen, the first aspect that calls our attention is that involvement in voluntary associations classified in the bridging and intermediate categories according to the internal approach is significantly related with a positive individual's attitude towards paying taxes. Indeed, according to the average marginal effects from the ordered probit model in column III, the probability of stating the highest level of tax morality significantly increases by 3.5% and 6% for being involved in each association categorised as internally bridging and intermediate, respectively. Similarly, the 2SLS estimates in column IV show that one-point increase in the membership of these two types of associations raises tax morale by 0.070 and 0.191, respectively, on a five-point scale. In contrast, our estimates show that increasing membership in internally bonding associations are significantly linked with lower tax morality. According to the ordered probit estimates in column III, the average marginal effect on the probability of stating the highest level of tax morality for one unit change in the number of these associations in which individuals belong is -17.7% . Furthermore, the 2SLS estimates in column IV indicate that a one-point increase in the membership of internally bonding associations yields a reduction of tax morale by 0.457 points on a five-point scale.

Regarding the estimated coefficients associated with control variables, we can observe that they are reasonable and in line with the already existing evidence on the determining factors of tax

¹⁷ To preserve space, we do not show here the detailed results of the first-stage regressions, although they are available upon request from authors.

¹⁸ On the one hand, the excluded instrumental variables are jointly significant in the first-stage regression for each of the potentially endogenous variables, providing evidence that the instruments are not weak. Additionally, the predicted residuals from the first stage are jointly significant in the estimated ordered probit with CFA, suggesting the potential presence of endogeneity. On the other hand, according to the 2SLS estimates, the Hansen J statistic on overidentification fails to reject the exogeneity of instruments, while the Kleibergen-Paap rk LM test statistic rejects the null of the model's underidentification. The Kleibergen-Paap-Wald F-test statistic is larger than the rule-of-thumb value of 10 proposed by Staiger and Stock (1997), suggesting a strong correlation between our chosen instruments and the potentially endogenous variables (Kleibergen & Paap, 2006). Lastly, the Durbin-Wu-Hausman test statistic of endogeneity rejects the null hypothesis of equality between 2SLS and OLS, suggesting the at least one suspected explanatory variable (i.e., SC'_{ic}) is endogenous.

TABLE 2 Results from Equation (1), considering the “internal” approach

Variables	Endogeneity unaddressed				Endogeneity addressed									
	(I) Ordered probit				(II) OLS				(III) Ordered probit with CFA				(IV) 2SLS	
	Coeff	SE	Average ME †	SE	Coeff	SE	Coeff	SE	Coeff.	SE	Average ME †	Coeff	SE	
$BridgingSC_{ic}^{int}$	0.015	(0.010)	0.004	(0.006)	0.005	(0.006)	0.005	(0.006)	0.128***	(0.040)	0.035	0.070***	(0.021)	
$MiddleSC_{ic}^{int}$	-0.002	(0.014)	-0.001	(0.008)	-0.005	(0.008)	-0.001	(0.008)	0.220***	(0.104)	0.060	0.191***	(0.067)	
$BondingSC_{ic}^{int}$	-0.049***	(0.013)	-0.013	(0.008)	-0.036***	(0.008)	-0.013	(0.008)	-0.652***	(0.160)	-0.177	-0.457***	(0.097)	
HT_{ic}	0.048***	(0.016)	0.013	(0.010)	0.040***	(0.010)	0.013	(0.010)	0.065***	(0.020)	0.018	0.050***	(0.013)	
VT_{ic}	0.084***	(0.008)	0.023	(0.006)	0.059***	(0.006)	0.023	(0.006)	0.084***	(0.009)	0.023	0.059***	(0.006)	
DS_{ic}	0.209***	(0.011)	0.057	(0.008)	0.142***	(0.008)	0.057	(0.008)	0.210***	(0.012)	0.057	0.143***	(0.009)	
R_{ic}	0.081***	(0.015)	0.022	(0.010)	0.036***	(0.010)	0.022	(0.010)	0.082***	(0.018)	0.022	0.035***	(0.012)	
$Female_{ic}$	0.152***	(0.014)	0.041	(0.009)	0.090***	(0.009)	0.041	(0.009)	0.150***	(0.014)	0.041	0.088***	(0.009)	
Age (ref: 18–24)														
25–34	0.051	(0.032)	0.015	(0.025)	0.047*	(0.025)	0.015	(0.025)	0.042	(0.032)	0.011	0.042	(0.026)	
35–44	0.142***	(0.034)	0.041	(0.026)	0.115***	(0.026)	0.041	(0.026)	0.136***	(0.035)	0.037	0.11***	(0.027)	
45–54	0.179***	(0.035)	0.052	(0.026)	0.139***	(0.026)	0.052	(0.026)	0.193***	(0.035)	0.052	0.147***	(0.027)	
55–64	0.233***	(0.036)	0.066	(0.027)	0.17***	(0.027)	0.066	(0.027)	0.258***	(0.038)	0.070	0.185***	(0.028)	
65–74	0.266***	(0.044)	0.075	(0.030)	0.183***	(0.030)	0.075	(0.030)	0.297***	(0.044)	0.081	0.201***	(0.031)	
75+	0.304***	(0.051)	0.084	(0.033)	0.206***	(0.033)	0.084	(0.033)	0.331***	(0.053)	0.090	0.223***	(0.035)	
Income (ref: Low)														
Middle	-0.004	(0.018)	-0.001	(0.012)	-0.001	(0.012)	-0.001	(0.012)	0.002	(0.020)	0.001	0.002	(0.013)	
High	-0.020	(0.019)	-0.005	(0.013)	-0.011	(0.013)	-0.005	(0.013)	-0.006	(0.022)	-0.002	-0.002	(0.014)	
Education (ref: No education)														
Primary education	0.061	(0.090)	0.018	(0.067)	0.029	(0.067)	0.018	(0.067)	0.060	(0.090)	0.016	0.030	(0.069)	
Lower secondary	0.161*	(0.086)	0.047	(0.064)	0.097	(0.064)	0.047	(0.064)	0.156*	(0.086)	0.042	0.094	(0.066)	
Upper secondary without access to higher education	0.162*	(0.087)	0.047	(0.065)	0.099	(0.065)	0.047	(0.065)	0.150*	(0.088)	0.041	0.093	(0.067)	

(Continues)

TABLE 2 (Continued)

Variables	Endogeneity unaddressed				Endogeneity addressed					
	(I) Ordered probit		(II) OLS		(III) Ordered probit with CFA		(IV) 2SLS			
	Coeff	SE	Average ME †	Coeff	SE	Coeff.	SE	Average ME †	Coeff	SE
Upper secondary with access to higher education	0.169*	(0.085)	0.049	0.099	(0.064)	0.159*	(0.086)	0.043	0.093	(0.066)
Post-secondary	0.204*	(0.087)	0.058	0.130*	(0.066)	0.241***	(0.091)	0.066	0.155*	(0.068)
Bachelor's level	0.204*	(0.087)	0.058	0.120*	(0.065)	0.233***	(0.090)	0.063	0.136*	(0.068)
Master's and higher level	0.224***	(0.086)	0.064	0.144*	(0.065)	0.264***	(0.091)	0.072	0.169*	(0.069)
Other	0.712*	(0.302)	0.168	0.219*	(0.094)	0.747	(0.870)	0.203	0.245*	(0.105)
Employment status (ref: Employed)										
Selfemployment	-0.116***	(0.029)	-0.032	-0.084***	(0.021)	-0.078***	(0.032)	-0.021	-0.059*	(0.023)
Militaremploy	-0.244	(0.179)	-0.066	-0.214	(0.185)	-0.287	(0.180)	-0.078	-0.237	(0.183)
Retired_pens	0.071*	(0.029)	0.019	0.033*	(0.017)	0.043	(0.032)	0.012	0.013	(0.018)
Homemaker	-0.103***	(0.034)	-0.028	-0.070***	(0.025)	-0.105***	(0.037)	-0.028	-0.071***	(0.026)
Student	-0.028	(0.038)	-0.008	0.001	(0.028)	-0.040	(0.039)	-0.011	-0.008	(0.029)
Unemployed	-0.065*	(0.027)	-0.018	-0.038*	(0.020)	-0.070***	(0.028)	-0.019	-0.041*	(0.020)
Disabled	-0.004	(0.057)	-0.001	-0.020	(0.037)	0.039	(0.060)	0.011	0.012	(0.039)
Marital status (ref: Married)										
Registered partnership	-0.104*	(0.042)	-0.029	-0.055*	(0.029)	-0.110***	(0.044)	-0.030	-0.058*	(0.031)
Widowed	-0.016	(0.029)	-0.004	0.003	(0.016)	-0.017	(0.028)	-0.005	0.002	(0.017)
Divorced	-0.085***	(0.025)	-0.023	-0.050***	(0.016)	-0.077***	(0.025)	-0.021	-0.045***	(0.017)
Separated	-0.046	(0.06)	-0.012	-0.047	(0.041)	-0.017	(0.062)	-0.005	-0.032	(0.043)
Never married and never registered partnership	-0.064***	(0.021)	-0.017	-0.030*	(0.014)	-0.065***	(0.022)	-0.018	-0.033*	(0.015)
Country dummies (ref: Russia)	YES			YES		YES			YES	

(Continues)

TABLE 2 (Continued)

Variables	Endogeneity unaddressed (I) Ordered probit			(II) OLS			Endogeneity addressed (III) Ordered probit with CFA			(IV) 2SLS	
	Coeff	SE	Average ME †	Coeff	SE	Average ME †	Coeff.	SE	Coeff	SE	
Observations	41,571			41,571			40,820		40,820		
Log-likelihood	-31540.480						-30944.652				
Joint significance of excluded instruments in the first-stage regressions for each potentially endogenous variable:											
<i>BridgingSC_{ic}^{Int}</i>							1029.07	[0.000]			
<i>MiddleSC_{ic}^{Int}</i>							277.45	[0.000]			
<i>BondingSC_{ic}^{Int}</i>							136.34	[0.000]			
Coeff. of residuals from the first-stage regressions (control-function approach):											
r1							-0.120***	(0.041)			
r2							-0.222**	(0.105)			
r3							0.608***	(0.161)			
Joint significance of first-stage residuals in the main equation:											
Kleibergen–Paap rk LM statistic							19.77	[0.000]		189,905	
Kleibergen–Paap rk Wald F statistic										56.011	
Hansen J statistic									0.021	[0.885]	
Durbin–Wu–Hausman test									8.50	[0.000]	
F-test for joint significance of country dummies	2475.10	[0.000]		64.82	[0.000]		2017.52	[0.000]	1793.88	[0.000]	

Note: The standard errors in parentheses are heteroskedasticity-consistent for the ordered probit (I), OLS (II) and 2SLS (IV) approaches, while they are bootstrapped with 1000 replications for the ordered probit with CFA (III). We employ *, **, and *** to denote statistical significance at the 10%, 5%, and 1% levels, respectively. P-values are presented in brackets. In columns (III) and (IV), the three variables *BridgingSC_{ic}^{Int}*, *MiddleSC_{ic}^{Int}* and *BondingSC_{ic}^{Int}* have been instrumented by their corresponding averaged levels among individuals of the same linguistic and religious origin in the community (NUTS2 level) and the number of children. † We report the average marginal effects for the highest score of tax morality.

morality. Specifically, our findings suggest that personal beliefs, such as trust in others and institutions as well as confidence in the democratic political system and religiosity, significantly increase individuals' willingness to pay their taxes without cheating. Additionally, the results also reveal that tax morality is influenced by certain individual socio-demographic characteristics. First, as can be seen, women are significantly more likely to report a positive attitude towards taxes than men. Second, the individual's age and educational level are significantly positively associated with tax morality. Third, we also find that self-employed persons, homemakers, and unemployed people are significantly less likely to state the highest level of tax morale than full-time employees. Regarding marital status, the results suggest that respondents with a registered partnership (but unmarried), divorced, and single individuals present significantly fewer positive attitudes towards taxes than married people. However, we find insignificant effects on tax morale for income level, as in Torgler (2005a), Konrad and Qari (2012), and Rodriguez-Justicia and Theilen (2018).¹⁹

Finally, Table 2 shows that the coefficients of the country dummy variables are jointly significant at the 1% level. The corresponding F-test outcome suggests that, regardless of the influence of social capital and other individual's socio-demographic characteristics, there are cross-country differences of tax morale, which may be attributed to the presence of heterogenous cultural backgrounds, discrepancies in the welfare and fiscal systems and other contextual unobserved features at country level.

For the sake of conciseness, the estimated coefficients of country dummy variables have not been presented in Table 2. Nevertheless, we summarize in Figure 2a these country-specific point estimates and the corresponding 95% confidence intervals, according to the internal approach, based on the outcomes obtained with the instrumental-variables methodologies (ordered probit model with CFA and the 2SLS linear regression). Our specification includes as regressors the set of country dummies, leaving as the reference (omitted) group the country with the lowest level of tax morale in the sample (i.e. Russia). Thus, as can be seen in Figure 2a, Russia, Armenia, and Belarus present by far the lowest levels of tax morale. Indeed, according to the ordered probit with CFA, the obtained coefficients of Armenia and Belarus are statistically equal to zero, suggesting that their morality levels (net of social capital and other socio-demographic characteristics) are statistically equivalent to those in Russia. This is not surprising, taking into consideration the economic, institutional, and cultural linkages of these three countries (e.g., Cameron & Orenstein, 2012; Tarr, 2016). In contrast, the Central European countries of Hungary, Poland, and Slovenia exhibit the most distant levels of tax morality (net of explanatory variables) with respect to Russia. On the one hand, the high levels of tax morale that we observe in Hungary and Slovenia are consistent with the conclusions of other authors, such as Torgler (2012), who find that in the aftermath of joining the EU, in 2004, the tax morale significantly increased in both countries with respect to the previous decade. Our evidence is in line with this pattern, confirming the increasing tax compliance trend also in the last decade. On the other hand, according to a recent report of the World Bank (Palmer et al., 2021),²⁰ in the last years there has been a strict and effective commitment

¹⁹ To further evaluate the robustness of our findings, following Kouamé (2021) we have also considered horizontal and vertical trust as potentially endogenous variables. In this case, we have instrumented the social capital variables and horizontal and vertical trust by their respective average values, considering linguistic and religion clusters at NUTS2 level within the same country, excluding the individual's responses. The new results, summarized in Appendix B, are highly consistent with our main findings.

²⁰ In a joint effort with World Bank and EU institutions, the Government of Poland has established the National Revenue Administration (NRA) and the Large Taxpayers Office (LTO) to reduce the complexity of the tax system (i.e., reducing errors on tax returns and providing tax certainty). More details can be found in "Sealing the tax gap in Poland: A holistic approach to tax compliance", World Bank Blogs, accessed 12 February 2023.

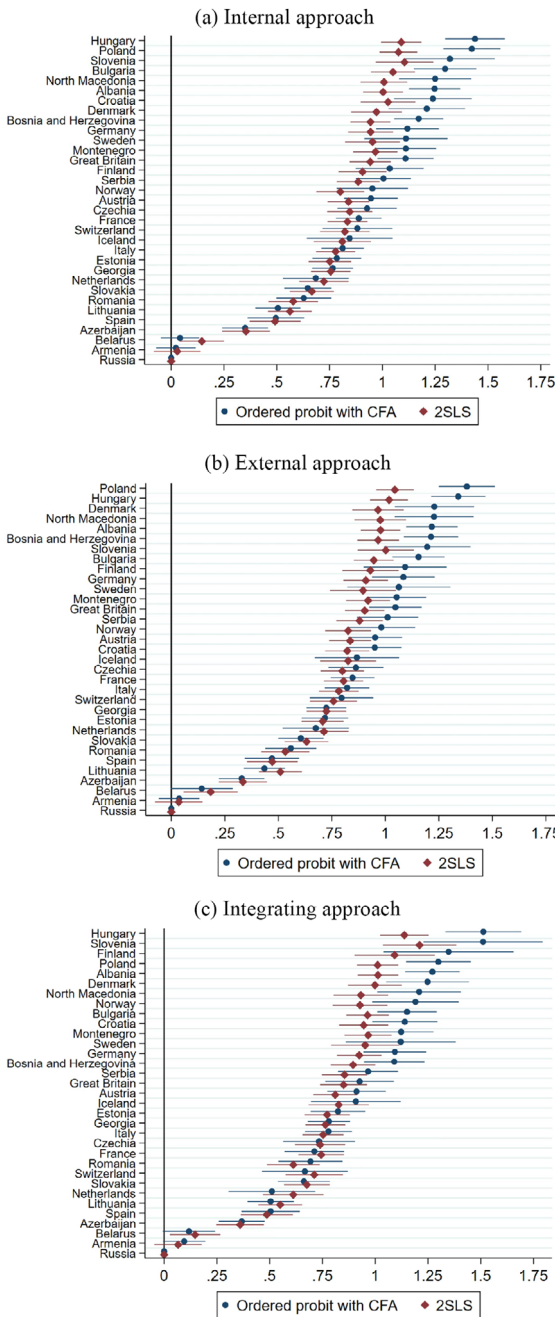


FIGURE 2 Estimated coefficients of country dummy variables. a) Internal approach, b) External approach, c) Integrating approach. The reference group for country dummy variables is Russia. Blue circles and lines represent, respectively, the point estimates and 95% confidence intervals derived from the ordered probit with CFA, while red diamonds and lines corresponds to the 2SLS outcomes. [Colour figure can be viewed at wileyonlinelibrary.com]

of the Polish administration to encourage taxpayers and administration to reduce tax evasion in its country. In fact, the VAT gap between the expected and collected revenues in Poland more than halved between 2015 and 2018, and the combined effort between taxpayers and tax authorities may explain the strong difference we find in the citizens' tax morale (net of explanatory variables) compared to Russia. Regarding the remaining country dummy coefficients, a considerable degree of cross-nation heterogeneity can be seen, but we do not detect any other remarkable pattern.

5.2 | External approach

In Table 3 we present the corresponding results from using the external measure of bridging/bonding social networks based on connected and isolated voluntary associations. We employ again the estimation strategies described in the previous section, and the estimates are presented in an analogous way. Additionally, as we have proceeded in the internal approach, here we also focus our attention on the estimates results from the ordered probit model with the CFA (column III) and the 2SLS regression (column IV) in Table 3, given that diagnostic test results suggest that instrumental-variables methodologies are appropriate.

According to the estimated coefficients in Table 3, membership in bridging voluntary associations in the external approach significantly increases the individual's willingness to pay taxes. Indeed, as can be seen in the ordered probit estimates of column III, being involved in each association categorised as externally bridging leads to a significant increase in the probability of stating the highest level of tax morale, with an average marginal effect of 4.7%. This result is also confirmed by the 2SLS estimates in column IV, showing that one-point increase in the membership of this type of associations leads to a significant increase in tax morale of 0.106 on a five-point scale. Conversely, involvement in externally bonding voluntary associations is significantly related with lower tax morale. Indeed, according to the ordered probit estimates in column III, a unit change in the number of this kind of associations in which individuals belong significantly reduces the probability of stating the highest level of tax morality, resulting in a negative average marginal effect of -3.1%. The 2SLS estimates in column IV exhibit a reasonable result, indicating that a marginal increase in the membership of externally bonding associations results in a reduction of tax morale by 0.089 points on a five-point scale. Additionally, the involvement in voluntary associations classified in the intermediate categories with the external approach is not significantly related to tax morale. Lastly, as can be noticed, the estimated outcomes related to individual socio-demographic control variables and country dummies (reported in Table 3 and Figure 2b) are overall coherent with those previously discussed in the internal approach.

5.3 | Integrating approach

Table 4 displays the results from employing the integrating approach to classify voluntary associations into six different groups. As before, the diagnostic test results support the potential presence of endogeneity as well as the instrumental-variables methodologies. Therefore, we again focus our attention on the outcomes obtained when instrumenting the membership in the different type of voluntary associations (columns III and IV from Table 4).

As can be seen, being involved in bridging-bridging voluntary associations according to the integrating approach is significantly related with a positive individual's willingness to pay taxes. According to the marginal effects from the estimated ordered probit in column III, the probability of stating the highest level of tax morale raises by 7.4% for one unit change in the number of bridging-bridging associations in which individuals belong. This result is relatively consistent with that obtained by the 2SLS estimates in column IV, showing that a unitary increase in the membership of these kinds of associations leads to an increase in tax morale by 0.151 points on a five-point scale. In contrast, the results suggest that being involved in bonding-bonding voluntary associations in the integrating approach significantly reduces tax morale. According to the marginal effects of the ordered probit estimates reported in column III, a unit increase in the

TABLE 3 Results from Equation (1), considering the “external” approach

Variables	Endogeneity not corrected			Endogeneity corrected								
	(I)			(II)			(III)			(IV)		
	Ordered probit			OLS			Ordered probit with CFA			2SLS		
	Coeff	SE	Average ME †	Coeff	SE		Coeff.	SE	Average ME †	Coeff	SE	
<i>BridgingSC^{Ext}_{ic}</i>	-0.002	(0.013)	-0.001	-0.003	(0.007)		0.172***	(0.053)	0.047	0.106***	(0.029)	
<i>MiddleSC^{Ext}_{ic}</i>	-0.015	(0.015)	-0.004	-0.010	(0.009)		-0.154	(0.154)	-0.042	-0.054	(0.096)	
<i>BondingSC^{Ext}_{ic}</i>	-0.008	(0.010)	-0.002	-0.013***	(0.006)		-0.116*	(0.061)	-0.031	-0.089**	(0.042)	
<i>HT_{ic}</i>	0.048***	(0.016)	0.013	0.040***	(0.010)		0.064***	(0.020)	0.017	0.050***	(0.012)	
<i>VT_{ic}</i>	0.085***	(0.008)	0.023	0.059***	(0.006)		0.087***	(0.009)	0.024	0.060***	(0.006)	
<i>DS_{ic}</i>	0.209***	(0.011)	0.057	0.142***	(0.008)		0.211***	(0.011)	0.057	0.143***	(0.008)	
<i>R_{ic}</i>	0.083***	(0.015)	0.023	0.037***	(0.010)		0.075***	(0.018)	0.021	0.030***	(0.012)	
<i>Female_{ic}</i>	0.152***	(0.014)	0.041	0.090***	(0.009)		0.154***	(0.014)	0.042	0.092***	(0.009)	
Age (ref: 18-24)												
25-34	0.051	(0.032)	0.015	0.047*	(0.025)		0.044	(0.032)	0.012	0.043*	(0.026)	
35-44	0.142***	(0.034)	0.041	0.115***	(0.026)		0.136***	(0.035)	0.037	0.111***	(0.027)	
45-54	0.179***	(0.035)	0.052	0.139***	(0.026)		0.181***	(0.035)	0.049	0.139***	(0.026)	
55-64	0.231***	(0.036)	0.066	0.169***	(0.027)		0.241***	(0.037)	0.065	0.173***	(0.027)	
65-74	0.264***	(0.044)	0.074	0.181***	(0.030)		0.269***	(0.044)	0.073	0.182***	(0.031)	
75+	0.302***	(0.051)	0.084	0.205***	(0.033)		0.309***	(0.053)	0.084	0.207***	(0.034)	
Income (ref: Low)												
Middle	-0.004	(0.018)	-0.001	-0.001	(0.012)		-0.001	(0.019)	-0.0003	0.001	(0.012)	
High	-0.020	(0.019)	-0.006	-0.011	(0.013)		-0.015	(0.021)	-0.004	-0.009	(0.014)	
Education (ref: No education)												
Primary education	0.060	(0.090)	0.018	0.029	(0.067)		0.055	(0.089)	0.015	0.032	(0.069)	
Lower secondary	0.162*	(0.086)	0.047	0.098	(0.064)		0.166*	(0.086)	0.045	0.106	(0.066)	

(Continues)

TABLE 3 (Continued)

Variables	Endogeneity not corrected				Endogeneity corrected				
	(I)		(II)		(III)		(IV)		
	Ordered probit	SE	Average ME †	OLS	Ordered probit with CFA	2SLS	Average ME †	SE	
Upper secondary without access to higher education	0.164*	(0.087)	0.047	0.100	0.171*	(0.065)	0.046	0.111*	(0.067)
Upper secondary with access to higher education	0.170***	(0.085)	0.049	0.101	0.18***	(0.064)	0.049	0.113*	(0.066)
Post-secondary	0.203***	(0.087)	0.058	0.13***	0.226***	(0.066)	0.061	0.148***	(0.068)
Bachelor's level	0.203***	(0.087)	0.058	0.120*	0.238***	(0.065)	0.065	0.144***	(0.067)
Master's and higher level	0.223***	(0.086)	0.063	0.144***	0.261***	(0.065)	0.071	0.171***	(0.068)
Other	0.707***	(0.302)	0.168	0.217***	0.747	(0.094)	0.203	0.252***	(0.098)
Employment status (ref. Employed)									
Selfemploy	-0.119***	(0.029)	-0.032	-0.085***	-0.092***	(0.021)	-0.025	-0.067***	(0.022)
Militairemploy	-0.241	(0.179)	-0.066	-0.212	-0.229	(0.185)	-0.062	-0.201	(0.186)
Retired_pens	0.072***	(0.029)	0.020	0.034***	0.062***	(0.017)	0.017	0.030*	(0.017)
Homemaker	-0.104***	(0.034)	-0.028	-0.070***	-0.105***	(0.025)	-0.028	-0.068***	(0.026)
Student	-0.027	(0.038)	-0.007	0.002	-0.017	(0.028)	-0.005	0.008	(0.029)
Unemployed	-0.065***	(0.027)	-0.018	-0.038*	-0.065***	(0.020)	-0.018	-0.037*	(0.020)
Disabled	-0.010	(0.057)	-0.003	-0.023	-0.011	(0.037)	-0.003	-0.024	(0.038)
Marital status (ref. Married)									
Registered partnership	-0.104***	(0.042)	-0.029	-0.055*	-0.103***	(0.029)	-0.028	-0.054*	(0.030)
Widowed	-0.015	(0.029)	-0.004	0.003	-0.013	(0.016)	-0.004	0.004	(0.017)
Divorced	-0.086***	(0.025)	-0.024	-0.050***	-0.084***	(0.016)	-0.023	-0.049***	(0.016)
Separated	-0.049	(0.060)	-0.013	-0.049	-0.037	(0.041)	-0.010	-0.043	(0.041)
Never married and never registered partnership	-0.064***	(0.021)	-0.017	-0.030***	-0.056***	(0.014)	-0.015	-0.054*	(0.030)

(Continues)

TABLE 3 (Continued)

Variables	Endogeneity not corrected			Endogeneity corrected		
	(I)	(II)	(IV)	(III)	(IV)	(IV)
	Ordered probit			Ordered probit with CFA		
	Coeff	SE	Average ME †	Coeff	SE	Average ME †
Country dummies (ref: Russia)	YES			YES		
Observations	41,571			41,572		40,820
Log-likelihood	-31546.459					-30954.819
Joint significance of excluded instruments in the first-stage regressions for each potentially endogenous variable:						
<i>BridgingSC_{ic}^{Ext}</i>				1011.62	[0.000]	
<i>MiddleSC_{ic}^{Ext}</i>				133.75	[0.000]	
<i>BondingSC_{ic}^{Ext}</i>				347.80	[0.000]	
Coeff. of residuals from the first-stage regressions (control-function approach):						
r1				-0.185***	(0.054)	
r2				0.139	(0.155)	
r3				0.110	(0.072)	
Joint significance of first-stage residuals in the main equation:						
Kleibergen–Paap rk LM statistic				12.85	[0.005]	242.521 [0.000]
Kleibergen–Paap rk Wald F statistic						69.910
Hansen J statistic						0.156 [0.693]
Durbin–Wu–Hausman test						9.84 [0.017]
F-test for joint significance of country dummies	2456.76	[0.000]		64.87	[0.000]	1984.54 [0.000]

Note: The standard errors in parentheses are heteroskedasticity-consistent for the ordered probit (I), OLS (II) and 2SLS (IV) approaches, while they are bootstrapped with 1000 replications for the ordered probit with CFA (III). We employ *, **, and *** to denote statistical significance at the 10%, 5%, and 1% levels, respectively. P-values are presented in brackets. In columns (III) and (IV), the three variables *BridgingSC_{ic}^{Ext}*, *MiddleSC_{ic}^{Ext}*, and *BondingSC_{ic}^{Ext}* have been instrumented by their corresponding averaged levels among individuals of the same linguistic and religious origin in the community (NUTS2 level) and the number of children. † We report the average marginal effects for the highest score of tax morality.

TABLE 4 Results from Equation (1), considering the “integrating” approach

Variables	Endogeneity not corrected				Endogeneity corrected					
	(I)		(II)		(III)		(IV)			
	Ordered probit		OLS		Ordered probit with CFA		2SLS			
	Coeff	SE	ME †	Coeff	SE	Coeff	SE	Average ME †	Coeff	SE
SC1 _{ic} (bridging-bridging)	0.046***	(0.016)	0.012	0.026***	(0.009)	0.271***	(0.060)	0.074	0.151***	(0.031)
SC2 _{ic} (bridging-middle)	-0.020	(0.019)	-0.005	-0.008	(0.012)	0.090	(0.111)	0.025	0.147	(0.094)
SC3 _{ic} (middle-middle)	-0.029	(0.027)	-0.008	-0.020	(0.015)	0.011	(0.258)	0.003	0.084	(0.147)
SC4 _{ic} (bridging-bonding)	-0.028***	(0.014)	-0.008	-0.027***	(0.008)	-0.255***	(0.078)	-0.069	-0.153	(0.146)
SC5 _{ic} (middle-bonding)	0.025	(0.016)	0.007	0.006	(0.009)	0.556**	(0.224)	0.151	0.302	(0.186)
SC6 _{ic} (bonding-bonding)	-0.049***	(0.021)	-0.013	-0.033***	(0.012)	-0.888***	(0.312)	-0.241	-0.659***	(0.190)
HT _{ic}	0.048***	(0.016)	0.013	0.040***	(0.010)	0.049**	(0.023)	0.013	0.043***	(0.014)
VT _{ic}	0.084***	(0.008)	0.023	0.059***	(0.006)	0.084***	(0.009)	0.023	0.059***	(0.006)
DS _{ic}	0.209***	(0.011)	0.057	0.141***	(0.008)	0.205***	(0.012)	0.056	0.142***	(0.009)
R _{ic}	0.081***	(0.015)	0.022	0.035***	(0.010)	0.074***	(0.018)	0.020	0.027**	(0.012)
Female _{ic}	0.152***	(0.014)	0.041	0.090***	(0.009)	0.148***	(0.015)	0.040	0.091***	(0.010)
Age (ref: 18-24)										
25-34	0.050	(0.032)	0.015	0.047	(0.025)	0.042	(0.034)	0.011	0.039	(0.027)
35-44	0.140***	(0.034)	0.041	0.114***	(0.026)	0.119***	(0.039)	0.032	0.096***	(0.028)
45-54	0.178***	(0.035)	0.051	0.139***	(0.026)	0.171***	(0.037)	0.046	0.131***	(0.027)
55-64	0.231***	(0.036)	0.066	0.169***	(0.027)	0.214***	(0.039)	0.058	0.157***	(0.029)
65-74	0.263***	(0.044)	0.074	0.181***	(0.03)	0.236***	(0.046)	0.064	0.160***	(0.032)
75+	0.301***	(0.051)	0.083	0.205***	(0.033)	0.273***	(0.056)	0.074	0.186***	(0.036)
Income (ref: Low)										
Middle	-0.004	(0.018)	-0.001	-0.001	(0.012)	-0.002	(0.020)	-0.001	-0.0003	(0.013)
High	-0.021	(0.019)	-0.006	-0.011	(0.013)	-0.018	(0.023)	-0.005	-0.008	(0.015)
Education (Ref: No education)										

(Continues)

TABLE 4 (Continued)

Variables	Endogeneity not corrected				Endogeneity corrected				
	(I)		(II)		(III)		(IV)		
	Ordered probit		OLS		Ordered probit with CFA		2SLS		
	Coeff	SE	ME †	Coeff	SE	Coeff	SE	SE	
Primary education	0.061	(0.090)	0.018	0.029	(0.067)	0.069	(0.092)	0.019	0.038
Lower secondary	0.160*	(0.086)	0.046	0.097	(0.064)	0.145	(0.089)	0.039	0.094
Upper secondary without access to higher education	0.162*	(0.087)	0.047	0.099	(0.065)	0.148	(0.090)	0.040	0.096
Upper secondary with access to higher education	0.167***	(0.085)	0.048	0.099	(0.064)	0.148	(0.090)	0.040	0.096
Post-secondary	0.203***	(0.087)	0.058	0.129**	(0.066)	0.212**	(0.097)	0.058	0.147**
Bachelor's level	0.203***	(0.087)	0.058	0.120	(0.065)	0.198**	(0.097)	0.054	0.127
Master's and higher level	0.222***	(0.086)	0.063	0.144**	(0.065)	0.219**	(0.101)	0.060	0.155**
Other	0.714***	(0.302)	0.169	0.220**	(0.094)	0.758	(0.869)	0.206	0.274**
Employment status (ref: Employed)									
Selfemployment	-0.119***	(0.029)	-0.032	-0.085***	(0.021)	-0.109***	(0.038)	-0.030	-0.070***
Militairemploy	-0.245	(0.179)	-0.067	-0.215	(0.185)	-0.267	(0.193)	-0.072	-0.217
Retired_pens	0.071***	(0.029)	0.019	0.033**	(0.017)	0.065**	(0.031)	0.018	0.029
Homemaker	-0.103***	(0.034)	-0.028	-0.069***	(0.025)	-0.096***	(0.037)	-0.026	-0.065**
Student	-0.026	(0.038)	-0.007	0.002	(0.028)	-0.012	(0.042)	-0.003	0.012
Unemployed	-0.065***	(0.027)	-0.018	-0.038	(0.020)	-0.067**	(0.029)	-0.018	-0.039
Disabled	-0.007	(0.057)	-0.002	-0.020	(0.037)	0.015	(0.062)	0.004	-0.006
Marital status (ref: Married)									
Registered partnership	-0.103***	(0.042)	-0.028	-0.054	(0.029)	-0.093**	(0.047)	-0.025	-0.047
Widowed	-0.015	(0.029)	-0.004	0.003	(0.016)	-0.003	(0.029)	-0.001	0.009
Divorced	-0.085***	(0.025)	-0.023	-0.049***	(0.016)	-0.071***	(0.026)	-0.019	-0.041**

(Continues)

TABLE 4 (Continued)

Variables	Endogeneity not corrected				Endogeneity corrected						
	(I)		(II)		(III)		(IV)				
	Ordered probit		OLS		Ordered probit with CFA		2SLS				
	Coeff	SE	Average ME †	Coeff	SE	Coeff	SE	Average ME †	Coeff	SE	
Separated	-0.045	(0.060)	-0.012	-0.046	(0.041)	-0.011	(0.064)	-0.003	-0.025	(0.043)	
Never married and never registered partnership	-0.062***	(0.021)	-0.017	-0.029**	(0.014)	-0.047**	(0.022)	-0.013	-0.021	(0.015)	
Country dummies (ref: Russia)	YES			YES		YES			YES		
Observations	41,571			41,571		40,820			40,820		
Log-likelihood	-34376.526					-30932.368					
Joint significance of excluded instruments in the first-stage regressions for each potentially endogenous variable:											
SC1 _{ic}						695.95	[0.000]				
SC2 _{ic}						194.01	[0.000]				
SC3 _{ic}						80.17	[0.000]				
SC4 _{ic}						214.75	[0.000]				
SC5 _{ic}						44.98	[0.000]				
SC6 _{ic}						48.20	[0.000]				
Coeff. of residuals from the first-stage regressions (control-function approach):											
r1						-0.247***	(0.061)				
r2						-0.113	(0.112)				
r3						-0.039	(0.260)				
r4						0.235***	(0.079)				
r5						-0.531**	(0.225)				
r6						0.838***	(0.313)				

(Continues)

TABLE 4 (Continued)

Variables	Endogeneity not corrected				Endogeneity corrected						
	(I)		(II)		(III)		(IV)				
	Ordered probit		OLS		Ordered probit with CFA		2SLS				
	Coeff	SE	Average ME †	Coeff	SE	Coeff.	SE	Average ME †	Coeff	SE	
Joint significance of first-stage residuals in the main equation:											
Kleibergen–Paap rk LM statistic						33.02	[0.000]		127.383	[0.000]	
Kleibergen–Paap rk Wald F statistic									20.552		
Hansen J statistic									0.133	[0.715]	
Durbin–Wu–Hausman test									5.67	[0.000]	
F-test for joint significance of country dummies	2378.84	[0.000]		63.13	[0.000]	1758.03	[0.000]		1638.22	[0.000]	

Note: The standard errors in parentheses are heteroskedasticity-consistent for the ordered probit (I), OLS (II) and 2SLS (IV) approaches, while they are bootstrapped with 1000 replications for the ordered probit with CFA (III). We employ *, **, and *** to denote statistical significance at the 10%, 5%, and 1% levels, respectively. *P*-values are presented in brackets. In columns (III) and (IV), the six variables $SC1_{ic}$, $SC2_{ic}$, $SC3_{ic}$, $SC4_{ic}$, $SC5_{ic}$ and $SC6_{ic}$ have been instrumented by their corresponding averaged levels among individuals of the same linguistic and religious origin in the community (NUTS2 level) and the number of children. † We report the average marginal effects for the highest score of tax morality.

number of bonding-bonding associations in which individuals belong decreases by -24.1% the probability of stating the highest level of tax morality.²¹ Similarly, the 2SLS estimates in column IV indicate that a one-point increase in the membership of these sorts of associations results in a reduction of tax morale by 0.659 points on a five-point scale. Regarding the other hybrid combinations of bridging/middle/bonding associations in the integrating approach, their estimated coefficients show mixed signs, although most of them are statistically insignificant at standard levels. This is not surprising given their diverse nature. Finally, the estimated outcomes of individual control variables and country dummies (shown in Table 4 and Figure 2c) are rather consistent with the previously obtained findings with the internal and external approaches.²²

6 | CONCLUSIONS

The standard economic approach to tax evasion, based on the subjective cost–benefit model, has been broadly criticized for neglecting nonpecuniary factors in the taxpayer's behavior. In fact, non-financial motivations may largely explain the degree of tax compliance of individuals. Among these, the tax morale, understood as the intrinsic willingness of people to pay taxes, has been demonstrated to be one of the key factors. Despite the extensive literature on its determinants, there has been little research on the effect of being involved in volunteering associations on the individual's attitude toward paying taxes.

This paper provides evidence on the relationship between associational involvement and the individual's willingness to pay taxes, reviewing citizens of 34 European countries. In contrast to previous studies in this strand of research, we differentiate between involvement in “bridging” and “bonding” social networks. To do so we apply three approaches, namely the “internal”, “external”, and “integrating” approach. These approaches consider the socio-demographic heterogeneity within associations, the interconnections between them, and a combination of both. Our estimated results show that individuals involved in bridging (bonding) voluntary associations tend to exhibit greater (less) levels of tax morale. This evidence remains robust for the three approaches and different estimation strategies.

According to this evidence, we formulate some policy implications which aim to generate positive externalities on the society resulting from an individual's improved attitude towards paying taxes. First, we suggest incentivizing volunteering in more connected associations and in those that tend to include more heterogeneous members. Second, interconnections between diverse voluntary associations should be promoted, such as those favouring cross-network activities, which would increase the bridging potential of each group and, hence, could positively stimulate the members' willingness to contribute to public expenditures. Third, fostering member heterogene-

²¹ So far, the main results from the ordered probit have been presented in terms of the average marginal effects for the highest score of tax morality, computed at the observed values of the covariates across all individuals in the dataset. However, our findings remain robust by considering certain profiles of individuals. For instance, we also find that tax morale is positively (negatively) associated to bridging (bonding) associations, regardless of whether individuals belong to both types of associations, or only to one of them. These results fail to confirm the Woolcock's prediction that overall externalities of social capital are optimized when a balance exists between bridging and bonding networks. However, it is relevant to note that the Woolcock's prediction refers to the community level, while our analysis is at individual level.

²² In Appendix C, as a robustness check, we have presented further results from Equation (1) with the integrating approach, considering each social capital variable separately to reduce potential multicollinearity problems. For brevity, in this case we have focused our attention on the corresponding estimates obtained with the instrumental-variables methodologies (i.e., ordered probit with CFA and 2SLS). The conclusions remain qualitatively unchanged.

ity and integration within associations would be desirable to increase the bridging potential of the social networks in a country. In this vein, the government should implement tax policies that consider the importance of volunteering, stimulating social cohesion and integration both within and between voluntary associations. As reported in a communication of the European Commission (1997), voluntary organizations should be encouraged and promoted, given their importance in social activities and their crucial role in the development and implementation of public policies.²³ Moreover, the European Commission conducted a survey of over 2300 voluntary organizations, showing that their first perceived need is the demand for more funds such as public subsidies, despite these actually being mainly dependent on external financial resources. Given the findings of our research, we suggest policies should be designed that index the allocation of public funds to the bridging potential of each voluntary organization. For instance, the actual structure of funds allocation could be integrated as follows: (1) analyzing the association members' composition; (2) analyzing the intensity of association cross-associational activities; (3) allocating funds giving priority to those associations whose members are more heterogeneous and that carry out more inter-organizational activities. This mechanism would incentivize the bridging potential of each voluntary organization, encouraging the positive effect on tax compliance of volunteering.

In conclusion, our research shows that the role of associational involvement may be crucial in shaping tax morality. Given its potentially heterogeneous impact, we argue that to correctly assess the effect of volunteering on civic values and personal attitudes, such as an individual's willingness to pay taxes, a precise distinction should be made between bridging and bonding associations. Additionally, as already discussed in the literature (i.e., Geys & Murdoch, 2010), we provide further evidence that supports the view that internal and external approaches should be considered as complementary. Indeed, we have found that the bridging-bonding rankings of associations classified according to these two approaches turn out to be weakly correlated. Hence, we emphasize the importance of applying an integrating approach in order to combine information from both aspects.

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²³ For further information see: “Communication from the Commission of 6 June 1997 on promoting the role of voluntary organisations and foundations in Europe”, accessed 9 February, 2023.

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SUPPORTING INFORMATION

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