

RESEARCH ARTICLE

Determinants of institutional trust: the role of cultural context

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Abstract

We examine the cultural context for individual's trust in public institutions. To shed some light on possible cultural explanations from a more comparative perspective and cover a wider set of cultural aspects, we use indicators of cultural dimensions by Kaasa *et al.* (2014) based on Hofstede's (1980) approach. Multilevel regression analysis is conducted with individual-level data from two waves of the European Social Survey (2008, 2010) and regional-level data from multiple sources. Confirmatory factor analysis is used to construct the indicators of social and institutional trust and corruption. Our results suggest that individuals tend to trust institutions less in regions with large power distance. Hence, an important key for governments being more successful in achieving their aims seems to be related to improving the sense of participation and civic responsibility.

Key words: Culture; Hofstede; institutional trust; institutions

JEL classification: B52; Z10; Z13

1. Introduction

Institutional trust plays an important role in economic growth (Hwang, 2017; Knack and Keefer, 1997; Sumanjeet, 2015). If government is perceived as trustworthy and is believed to enforce the law, assure property rights and keep tax legislation stable, then more investment and other economic activity can be expected (Knack and Keefer, 1997). Institutional trust is essential in the governance of a modern state since enabling citizens to accept government authority supports the legitimacy, effective functioning and stability of democratic systems (Hooghe *et al.*, 2015; Mishler and Rose, 2005), particularly as democracy cannot rely on coercion to the same extent as other regimes might (Hetherington, 2005). Paradoxically, the spread of democratic systems has been concomitant with a decline in institutional trust (Zmerli, 2012), increasing the importance of understanding its determinants.

Here, the focus has been on government institutions and citizens' personal perceptions of political corruption and their social trust (Rothstein and Teorell, 2008). However, cultural aspects should also be considered to be determinants of an individual's institutional trust. The cultural context may affect the way individuals perceive public institutions (Grimmelikhuijsen and Porumbescu, 2013). Furthermore, according to social influence theory (Kelman, 1958, 1961), an individual's attitudes and beliefs are influenced by the referent others surrounding him or her.

The interconnection between culture and institutions has been a recurrent theme in institutional economics. Institutions, generally understood as formal and informal norms and rules shaping human interactions and social exchanges (Hodgson, 2006; North, 1990), share with culture the ability to shape individual and collective preferences and attitudes (Alesina and Giuliano, 2015; De Jong, 2011; Hodgson, 2006; Hofstede, 1980). As in the case of formal rules and constraints, culture, defined

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as a set of values and beliefs shared by a group of individuals (Greif, 2006; Hofstede, 1980; Schwartz, 2011), also affects an individual's choices, providing an indicative road map to distinguish between proper and improper behaviour (Acemoglu *et al.*, 2006; Greif, 2006).

Culture matters because it affects the attitudes and behaviour of individuals. In recent decades, the role of cultural context has gained momentum in the economic and institutional literature (Alesina and Giuliano, 2015; Guiso *et al.*, 2006; Tabellini, 2008). Cultural aspects have been used to explain well-functioning institutions (Tabellini, 2008), law enforcement (Acemoglu and Jackson, 2017), institutional change (Gërçhani and van Breemen, 2019), good governance (Kyriacou, 2016), redistribution (Gründler and Köllner, 2020). The role of culture in an individual's institutional trust has received less attention. Although some studies have explored the source of institutional trust by considering a limited set of values (Dong and Kübler, 2018; Yang and Tang, 2010; Zhai, 2018), some cultural dimensions (Baniamin *et al.*, 2020; Hadarics, 2016; Mahmud, 2017; Pitlik and Rode, 2017), ethnic minorities (Lühiste, 2006; van der Meer and Hakhverdian, 2017; Zmerli, 2012) and having a communist background (Hakhverdian and Mayne, 2012; Mishler and Rose, 2001), we did not find any analysis incorporating some cultural theory with a whole range of dimensions covering various elements of culture.

We aim to fill this gap by analysing the relationship between cultural context and an individual's institutional trust. We apply multilevel regression using individual-level data from the ESS (2008, 2010) and society-level data from different sources. In addition to cultural-level social and institutional trust and corruption perception, the cultural context in a wider sense is operationalised based on Hofstede's (1980) approach, using indicators from Kaasa *et al.* (2014) for the cultural dimensions of individualism–collectivism, uncertainty avoidance, power distance and masculinity–femininity. We also include the communist background as one cultural aspect. Altogether, these societal-level indicators enable us to shed some light on possible cultural explanations from a comparative perspective. Similar to previous studies (Beugelsdijk *et al.*, 2015; Davis and Williamson, 2019), a confirmatory factor analysis was used to capture information of the initial indicators into latent constructs describing different phenomena. Instead of countries, we focus on within-country regions as society-level units as there is reason to believe that the cultural context varies significantly within countries (Baskerville, 2003; Beugelsdijk *et al.*, 2006; Dolan *et al.*, 2004; Hofstede, 2001; Kaasa *et al.*, 2014). We analysed data for 2008 and 2010 for more than 47,000 and 45,000 respondents from 85 and 81 regions, respectively.

Our results show that citizens tend to have less institutional trust in regions with larger power distances. This outcome indicates a need for policy makers to adopt more inclusive decision-making processes to increase civic engagement among citizens. The empirical evidence also suggests that in regions with higher uncertainty avoidance, individuals have less trust in political parties but tend to have more trust in the police. This suggests that the possible impact of cultural context might be, and is reasonable to expect to be, different for different institutions.

The remainder of this article is structured as follows. The following section provides the theoretical background. Section 3 introduces the data and methodology. Section 4 presents the results. Section 5 draws conclusions and discusses the implications and limitations of this study.

2. Theoretical background

2.1 Institutional performance and social trust

Trust in public institutions manifests itself when citizens assess public institutions as promise-keeping, accountable, efficient, competent, caring, predictable, open, transparent, fair and honest (Hooghe *et al.*, 2015; van der Meer and Hakhverdian, 2017). Hence, individuals judge how their institutions act in the citizens' interest (Miller and Listhaug, 1990) and produce outcomes aligned with their expectations (Hetherington, 2005). To date, institutional trust has mainly been explained, directly or indirectly, through the institutional performance approach and social trust approach.

According to the *institutional performance approach*, institutional trust is a consequence of institutional performance (Berg and Hjerm, 2010; Lühiste, 2006). Both administrative effectiveness and

government's ability to boost economic performance are emphasised (Stoyan *et al.*, 2016; Suh *et al.*, 2012). However, explaining institutional trust only through actual performance has received much criticism because of ignoring citizens' assessment of this performance (Hooghe and Zmerli, 2011). As Berg and Hjerm (2010) note, both the *actual performance* and the *evaluations individuals make* are relevant. Hence, institutional trust is often explained as an evaluation of and response to the *perception* of design, performance and outputs of institutions (Godefroidt *et al.*, 2017; Mishler and Rose, 2001; Suh *et al.*, 2012). Citizens' evaluation also extends to their perception of public officials behaving ethically with integrity and loyalty and placing public interests before personal interests (Wang and Wan Wart, 2007), including corruption perception.

Empirical works have confirmed that individual-level evaluation of institutional performance (Berg and Hjerm, 2010; Dong and Kübler, 2018; Godefroidt *et al.*, 2017; Hadarics, 2016; Stoyan *et al.*, 2016; Yang and Tang, 2010; Zhai, 2018) and society-level indicators of good governance (Hooghe *et al.*, 2017; Newton and Zmerli, 2011) are positively related to different indicators of institutional trust. Some empirical studies have reported that institutional trust is negatively related to individual-level corruption perception (Anderson and Tverdova, 2003; Habibov *et al.*, 2017; Lühiste, 2006; Mishler and Rose, 2001, 2005).

The *social trust approach* explains institutional trust as an extension of the trust individuals have towards others: interpersonal trust or social (generalised) trust (Berg and Hjerm, 2010; Godefroidt *et al.*, 2017; Lühiste, 2006; Suh *et al.*, 2012). This general propensity to trust others 'spills over', creating institutional trust through civic associations (Mishler and Rose, 2001, 2005; Suh *et al.*, 2012). Social relations and cooperation among citizens promote trust and a sense of civic engagement, which are important for institutional trust (Guiso *et al.*, 2004; Putnam *et al.*, 1993) and institutional compliance (Tabellini, 2008).

Empirical evidence has indicated that institutional trust is positively related to individual-level social trust (Hadarics, 2016; Hakhverdian and Mayne, 2012; Newton and Zmerli, 2011; Zmerli, 2012) or interpersonal trust (Godefroidt *et al.*, 2017; Lühiste, 2006; Mishler and Rose, 2001).

2.2 Cultural context

The cultural environment around individuals is an important factor to consider. Culture can be defined as a set of personal values, beliefs and behaviours shared by a group of people, be it a country or a region (Hofstede, 1980; Schwartz, 2011). In general, culture is seen as something different from personality, which is an individual-level concept. Culture is a societal-level concept and a group phenomenon.

From a *narrower perspective*, it can be expected that an individual's institutional trust is influenced by the *cultural-level institutional trust of the people surrounding this individual*. This agrees with social influence theory (Kelman, 1958, 1961) and has also been referred to as endogenous social effects (Manski, 1993) or group effects (Firebaugh, 1978). Not all citizens have first-hand experience with public institutions (Hooghe and Zmerli, 2011; Roussey and Deffains, 2012); therefore, they have to rely on something else, such as others' opinions. Even when individuals do have experiences with institutions, they might still be influenced by the attitudes of others due to the perception that the majority must be right or because of social desirability. The role of cultural orientation in shaping individual attitudes has often been shown (Adamczyk, 2013; Boyd and Chung, 2012; Inglehart and Baker, 2000), and it has been suggested to aggregate individual-level measures to capture group-level characteristics when examining ecological and individual hypotheses in multilevel studies (Blakely and Woodward, 2000; Hayes and Boyd, 2017). It can be assumed that the average attitudes of a region towards a particular institution or institutions in general might influence the attitudes of an individual living in that region. The indicators of average and individual attitudes describe two different phenomena herein; i.e. while an individual indicator characterises an individual, an aggregated or average indicator describes the environment where this individual acts. They can correspond, but they might be different. It is possible that, for example, in a region generally

supportive of the parliament, there are individuals who have negative attitudes towards the parliament.

From a *wider perspective*, the *whole cultural environment surrounding the individual* is important for individual institutional trust. There are different ways to describe cultures.

One option is to examine certain phenomena, such as the level of corruption perceived in a society or society-level social trust. Concerning *society-level corruption perception*, it is possible that not all citizens have their own experiences; hence, the general perception in a society might prove relevant. Empirical studies have reported that institutional trust is negatively related to the society-level indicator of corruption perception (Dong and Kübler, 2018; Hakhverdian and Mayne, 2012; Newton and Zmerli, 2011; van der Meer and Hakhverdian, 2017). Regarding *society-level social trust*, it can be assumed that the spillover effect mentioned previously also works at the societal level and that a person living in a more trusting environment also has higher trust in institutions. However, society-level social trust has rarely been included in the analysis of individual-level institutional trust, and the results are mixed. Newton and Zmerli (2011) analysed data from the World Values Survey and found that society-level general trust was positively related to political trust. Zmerli (2012) analysed data from the ESS and found that aggregated social trust was not significantly related to trust in political institutions but was positively related to trust in regulative institutions.

Another option is to cover a variety of values, beliefs and attitudes based on a well-known theory offering a set of *cultural dimensions* characterising the mindset prevalent in a society. Such theories are based on the assumption that it is possible to describe cultures through different dimensions so that every culture can be shown as one point in a multidimensional space. The literature offers many different sets of cultural dimensions (Hofstede, 1980; House *et al.*, 2002; Inglehart and Baker, 2000; Schwartz, 1994). Our analysis is based on the concept of Hofstede (1980). Although his approach has often been criticised (see Chiang, 2005; Gooderham and Nordhaug, 2001; McSweeney, 2002), much of this criticism tends to address the measurement problems. Hofstede's dimensions have been used extensively during recent decades in both the theoretical and empirical literature in different fields of social sciences and can be regarded as a grounded approach for describing culture (Grimmelikhuijsen and Meijer, 2014). Next, Hofstede's cultural dimensions are introduced and discussed in the context of institutional trust.

First, *power distance* indicates the extent to which an unequal distribution of power and hierarchical relations are accepted in a society without further justification. In cultures with larger power distance, more centralised decision structures and formal rules are regarded as normal. This means that people perceive governmental structures to be far from them with fewer opportunities to be involved in decision-making processes. People might hold more fatalistic views, waiting for authorities to act and make decisions for them and not trying to engage in social processes (Kaasa, 2015). As institutional trust can be expected to be promoted by contacts between citizens and institutions (Mahmud, 2017), institutional trust can be assumed to be lower with a large power distance. At the same time, in cultures with smaller power distance, inequality and hierarchy are less accepted, and one could argue that people could then be more critical of the rulers. Hence, power distance might influence an individual's institutional trust in both directions. Empirical evidence, unfortunately, is scarce. Kaasa (2015) showed that regional-level institutional trust in Europe was negatively related to power distance. Mahmud (2017) found different indicators of power distance related to institutional trust. However, it is expected that the results are different for authoritarian regimes. Yang and Tang (2010) showed that traditional hierarchical values, Dong and Kübler (2018) and Baniamin *et al.* (2020) showed that authoritarian values, and Zhai (2018) showed that traditional values (e.g. blind loyalty and paternalism) were positively related to institutional trust in China. Grimmelikhuijsen and Meijer (2014) demonstrated that the effect of transparency on institutional trust is less positive in South Korea than in the Netherlands due to the larger power distance in the former country compared to the latter.

Uncertainty avoidance describes how people cope with unfamiliar and uncomfortable situations. In the case of low uncertainty avoidance, ambiguous situations and conflicts are regarded as natural and

constructive and *vice versa*. In uncertainty-avoidant cultures, people are less trusting, and rules play an important role in offering assurance (Kaasa, 2015). There might be a higher need for order and structure (Hadarics, 2016), and formalisation is favoured over deregulation (Mahmud, 2017). Hence, in the case of higher uncertainty avoidance, institutions can be more supported (Hadarics, 2016; Mahmud, 2017). The empirical evidence is mixed in this regard. The studies of Kaasa (2015) and Mahmud (2017) showed no relationship between institutional trust and uncertainty avoidance. Hadarics (2016), however, found the subjective importance of adherence to norms and personal security to be positively related to institutional trust.

The cultural dimensions of power distance and uncertainty avoidance may also better capture the formation of an individual's institutional trust in *post-communist contexts* than the classical simple dummy variable. A communist background is inevitably an important culture-related aspect in the relationship between public institutions and citizens. An individual's preferences are claimed to be shaped by the political regime (Alesina and Fuchs-Schündeln, 2007). Institutional trust has been shown to be much lower in countries with a communist past (Habibov *et al.*, 2017). The main argument is that a transition time is required for individuals to adapt, also cognitively, to institutional changes and to trust new kinds of institutions. Communist societies have strict rules, restrictions and sanctions to suppress initiative. However, at the same time, jobs or accommodations are ensured by the institutional system (Kaasa, 2015), thereby promoting a fatalistic view captured by power distance. Similarly, it has been noted that in post-communist societies, people regard corruption as something that is unavoidable (Habibov *et al.*, 2017). For instance, in such contexts, cautious attitudes, caused by the danger of being punished for certain behaviour when reported, have been found (Kaasa, 2015; Kaasa *et al.*, 2011; Sztompka, 2000). This, again, can be captured by the uncertainty avoidance dimension.

Masculinity(-femininity) reveals to what degree values such as achievement, assertiveness and competition, called masculine by Hofstede, dominate over feminine values such as tolerance, modesty and solidarity. In feminine societies, good relations are valued, and, thus, more cooperation can be expected. That, in turn, might engender more trust in institutions through civic associations. Jones *et al.* (2018) showed that feminine values promote institutional trust. The regional-level study of Kaasa (2015) indicated that masculinity is negatively related to institutional trust.

Individualism(-collectivism) demonstrates whether people prefer to act as individuals or as group members. In individualist societies, individual freedom and autonomy are valued, and people are expected to take care of themselves. In collectivist societies, high levels of group loyalty are expected. It can be assumed that in collectivist societies, people are more motivated to cooperate, which in turn might enhance institutional trust (Halman and Luijckx, 2006; Kaasa, 2015). However, individualism has also been claimed to support political trust (Barni *et al.*, 2016). In individualist societies, people might feel freer from social pressure; this might encourage them to express their opinions, engage in social processes (Allik and Realo, 2004; Kaasa, 2015) and thus have more trust in institutions. The analysis of Kaasa (2015) showed that individualism is positively related to regional-level institutional trust.

3. Data and methodology

3.1 Data

All individual-level data used in this study came from the ESS (2008, 2010), which includes questions about many different fields and has been repeated every other year since 2002. The number of European countries involved ranges from 21 to 29 for different waves, and the countries involved also vary to some extent. Information about the region where the interviews took place enables us to analyse data not only by countries, but also by within-country regions. In this article, regions at the NUTS1 level were used as society-level units. The NUTS (Nomenclature of Territorial Units for Statistics) classification subdivides each country into one or more NUTS1 regions (European Commission, 2018). The selection of years included was determined by two limitations. First,

questions approximating corruption perception were available only in the waves of 2004, 2008 and 2010. Second, data about regional institutional quality that would be close enough to 2004 were not available. Hence, regression analysis was performed for two datasets pertaining to the individual-level data for 2008 and for 2010 with 47,485 and 45,637 respondents from 85 and 81 regions, respectively.

3.1.1 Institutional trust

The variable of institutional trust is composed of four indicators, including ‘Trust in country’s parliament’, ‘Trust in the legal system’, ‘Trust in the police’ and ‘Trust in political parties’ (scale 0–10), through confirmatory factor analysis (here and hereinafter the principal components method). The factor loadings, percentages of the total variance explained by the factor and the Kaiser-Meyer-Olkin (KMO) measures indicating the appropriateness of the factor model for this and following factor models are presented in Table 1. Here and hereinafter, the shares of the total variance explained and the KMO measures can be viewed as acceptable (KMO measures larger than 0.6 or 0.5 are usually considered acceptable, although in the case of only two indicators, the value is always 0.5 because of the formula used for calculating the KMO measure). The factor scores with *mean* = 0 and *st. deviation* = 1 were saved as variables. We assume this variable to describe the overall trust in institutions in general with all indicators strongly correlated (factor loadings ranging from 0.80 to 0.88). Regarding the possible division of trust towards political and administrative/legal institutions (Dahlberg and Holmberg, 2016), there was no sign that the indicators of trust in the parliament and political parties and the indicators of trust in the legal system and the police would load into two separate factors. The correlations between those four indicators are all in the same range; therefore, it was not justified to group them pairwise. Our results of the additional regression analysis show that it is rather reasonable to analyse all four institutional trust indicators separately along with the generalised institutional trust factor.

3.1.2 Institutional performance and social trust

We used data on institutional quality obtained from Charron *et al.* (2014, 2015), who calculated the European Quality of Government Index (EQGI) based on national-level indices of governance from the WGI (Kaufmann *et al.*, 2010; The World Bank, 2018), and then corrected the data using survey data describing the experiences and perceptions of citizens at the regional level. The data for 2010/2013 based on the WGI data from 2008/2011 were used as the EQGI index based on the WGI data from 2010 or 2009 was not available. Corruption perception was described by two indicators in the 2008 ESS: ‘Doctors, nurses give special advantages or deal with everyone equally’ and ‘Tax authorities give special advantages or deal with everyone equally’ (scale 0–10, 10 = *advantages*). For 2010, corruption perception was described by ‘How often do police in country take bribes?’ and ‘How often judges in country take bribes?’ (scale 0–10). For both years, the indicator of corruption perception was created using confirmatory factor analysis. The social trust indicator is constructed through confirmatory factor analysis using three available trust items: ‘Most people can be trusted or you can’t be too careful’, ‘Most people try to take advantage of you, or try to be fair’, and ‘Most of the time people are helpful or mostly looking out for themselves’ (scale 0–10, larger values correspond to higher trust). The factor scores were again saved as variables.

3.1.3 Cultural context

To describe society-level institutional trust, the mean value of the institutional trust factor and separate indicators was calculated for every region. Similarly, the mean values of social trust and corruption perception were calculated for every region. Data about Hofstede’s cultural dimensions were obtained from Kaasa *et al.* (2014), who created new indicators of cultural dimensions at the NUTS1 level based on Hofstede’s (1980) original concept using data from the ESS and the European Values Survey. Every indicator resulted from a factor analysis of six initial questions taken from the two surveys to provide a balanced representation of them both. The resulting factor scores from the analysis of three levels

Table 1. Results of the confirmatory factor analysis, 2008 and 2010

Latent variable	Indicators	2008			2010		
		Factor loadings	Variance explained (%)	KMO	Factor loadings	Variance explained (%)	KMO
Institutional trust	Trust in country's parliament	0.87	70.63	0.78	0.88	71.71	0.77
	Trust in the legal system	0.87			0.88		
	Trust in political parties	0.81			0.84		
	Trust in the police	0.81			0.80		
Social trust	Most people can be trusted	0.85	71.96	0.71	0.85	70.39	0.70
	Most people try to be fair	0.87			0.85		
	Most of the time people are helpful	0.83			0.82		
Corruption perception (special advantages)	Doctors, nurses give special advantages	0.89	78.46	0.50			
	Tax authorities give special advantages	0.89					
Corruption perception (bribes)	How often do police in country take bribes				0.92	84.83	0.50
	How often judges in country take bribes				0.92		

(countries, NUTS1, NUTS2) had *mean* = 0 and *st. deviation* = 1. As we use data only for regions included in this analysis, the means and standard deviations differ slightly. Only data for 2008 were available, but it can be expected that culture does not change quickly, which allows us to incorporate the cultural dimensions for 2008 into both the 2008 and 2010 individual-level databases.

The dependent variables of this analysis that describe trust towards different institutions characterise individuals, and the cultural dimensions describe the environment around these individuals. The initial questions used for creating the power distance dimension in Kaasa *et al.* (2014) also included ‘Confidence in parliament’, an indicator of societal-level institutional trust; and ‘Satisfied with democracy’, which is closely related to the former. Hence, the power distance dimension also covers some aspects of general attitudes towards institutions and can thus be viewed as a substitute for using just an average of particular attitudes in a region; furthermore, this substitute reflects many more aspects of power distance that can also influence an individual’s institutional trust, as explained before. Additionally, the uncertainty avoidance dimension of Kaasa *et al.* (2014) included the social trust question ‘People can be trusted’. Hence, the uncertainty avoidance cultural dimension, among other aspects, also covers society-level trust.

3.1.4 Additional socioeconomic variables

As control variables, GDP at current market prices in the purchasing power standard per inhabitant and the percentage of the population aged 25–64 with tertiary education were used. Both indicators were drawn from Eurostat (2018). To capture the possible impact of a communist past, a corresponding indicator was added. Additionally, standard socioeconomic variables such as gender, age in years, whether the person was born in the country, years of full-time education and the household’s total net income from all sources (scale 1–10) were included as control variables.

The descriptive statistics of all variables used in the regression analysis are presented in Table 2.

3.1.5 Variability across within-country regions

To investigate whether the division into within-country regions is justified, we calculated the mean absolute deviations of our key variables in a standardised form (to enable comparability) across countries and within-country regions for those countries divided into regions at the NUTS1 level. The mean absolute deviation describes the variability of a particular indicator within that particular group, such as the regions of a country or countries included in the study. This robust measure was chosen because it is more resilient to outliers than, for instance, standard deviation where the distances from the mean are squared, causing large deviations to have larger weights. Usually, the mean absolute deviation is calculated as a mean of the absolute values of the deviations from the group mean. However, when calculating the mean absolute deviations inside one country, we used the value of that particular indicator for the whole country instead. The results are presented in Table 3.

Although variability across all countries is generally larger than that inside countries, the variability within countries is of a comparable extent for some variables and countries, e.g. institutional quality in Belgium or cultural dimensions in Germany. The within-country variability tends to be smaller for institutional and social trust and corruption perception, but for every cultural dimension, there are two to six countries where the mean absolute deviation forms at least one-third of that across the countries. Hence, considerable variability can be found within countries, which could also have an impact on institutional trust.

3.2 Methodology

We used multilevel modelling as our dataset has a hierarchical structure in which individuals represent level one, regions represent level two, and the dependent variable can be explained by both the individual-level and group-level variables. In line with Raudenbush and Bryk (2002), we standardised all variables as this translates all the results to the same scale so that they can be compared. Multilevel

Table 2. Descriptive statistics, 2008 and 2010

Variable	2008				2010			
	Min	Max	Mean	Standard deviation	Min	Max	Mean	Standard deviation
<i>Individual-level</i>								
Institutional trust	-2.097	2.546	0	1	-2.030	2.611	0	1
Gender (male = 1)	0	1	0.460	0.498	0	1	0.460	0.498
Age	15	105	48.020	18.437	14	101	48.700	18.738
Education	0	50	12.140	4.109	0	50	12.260	4.151
Income	1	10	5.480	2.774	1	10	5.080	2.809
Born in country (= 1)	0	1	0.910	0.284	0	1	0.900	0.297
Social trust	-2.466	2.450	0	1	-2.557	2.492	0	1
Corruption perception	-1.997	2.008	0	1	-1.553	2.519	0	1
<i>Regional-level</i>								
GDP	8600	55,700	25,645.882	9,568.208	8,300	56,100	25,530.864	8,984.412
Tertiary education	10.30	41.60	26.063	7.070	15.20	45.90	28.530	6.752
Institutional quality	-1.98	1.64	0.334	0.887	-1.91	1.66	0.386	0.759
Cultural-level institutional trust	-1.21	1.03	0.020	0.409	-0.90	0.97	0.059	0.410
Cultural-level social trust	-0.90	0.88	-0.006	0.396	-0.92	0.84	0.028	0.365
Cultural-level corruption perception	-0.78	1.03	0.027	0.487	-1.00	1.17	-0.091	0.495
Post-communist (= 1)	0	1	0.247	0.434	0	1	0.210	0.410
Power distance	-2.38	1.67	-0.189	0.825	-2.38	1.67	-0.257	0.780
Uncertainty avoidance	-2.40	1.78	-0.182	0.953	-2.40	1.78	-0.234	0.951
Masculinity	-1.80	2.32	-0.218	0.956	-1.80	2.32	-0.319	0.875
Individualism	-1.30	1.77	0.251	0.739	-1.90	1.77	0.260	0.773

Table 3. Mean absolute deviations of used variables (in standardised form), 2008 and 2010

	No of countries/ regions	Institutional trust	Social trust	Corruption perception	Institutional quality	Power distance	Uncertainty avoidance	Masculinity	Individualism
<i>2008</i>									
All countries	25	0.974	0.942	0.892	0.854	0.902	0.876	0.829	0.871
All NUTS1 regions	85	0.697	0.773	0.900	0.830	0.729	0.803	0.782	0.817
<i>Regions of</i>									
Belgium	3	0.175	0.382	0.130	0.722	0.170	0.299	0.108	0.120
Bulgaria	2	0.250	0.220	0.278	0.234	0.104	0.041	0.094	0.100
France	8	0.077	0.095	0.126	0.152	0.163	0.326	0.247	0.320
Germany	16	0.295	0.268	0.314	0.187	0.513	0.540	0.297	0.541
Greece	4	0.353	0.421	0.278	0.405	0.084	0.162	0.233	0.301
Hungary	3	0.030	0.024	0.117	0.327	0.139	0.179	0.108	0.375
The Netherlands	4	0.023	0.201	0.082	0.190	0.061	0.134	0.086	0.134
Poland	6	0.148	0.154	0.100	0.058	0.206	0.105	0.098	0.161
Romania	4	0.262	0.293	0.124	0.324	0.321	0.111	0.167	0.445
Spain	7	0.267	0.408	0.179	0.295	0.287	0.199	0.402	0.530
Sweden	3	0.144	0.065	0.007	0.082	0.227	0.186	0.129	0.165
United Kingdom	12	0.178	0.177	0.096	0.221	0.302	0.248	0.240	0.264
<i>2010</i>									
All countries	24	0.999	0.996	0.967	0.926	0.916	0.853	0.819	0.910
All NUTS1 regions	81	0.677	0.743	0.798	0.776	0.694	0.789	0.754	0.779

<i>Regions of</i>									
Belgium	3	0.053	0.302	0.159	0.755	0.177	0.301	0.117	0.112
Bulgaria	2	0.158	0.026	0.134	0.405	0.109	0.041	0.102	0.094
France	8	0.102	0.143	0.122	0.236	0.171	0.328	0.268	0.298
Germany	16	0.412	0.264	0.208	0.233	0.537	0.543	0.316	0.505
Greece	4	0.158	0.369	0.258	0.155	0.088	0.163	0.253	0.281
Hungary	3	0.060	0.069	0.089	0.169	0.145	0.180	0.117	0.350
The Netherlands	4	0.085	0.181	0.110	0.060	0.064	0.135	0.094	0.125
Poland	6	0.207	0.263	0.249	0.156	0.216	0.105	0.106	0.150
Spain	7	0.094	0.274	0.197	0.246	0.301	0.200	0.437	0.494
Sweden	5	0.053	0.155	0.064	0.072	0.238	0.187	0.140	0.154
United Kingdom	12	0.243	0.274	0.214	0.217	0.316	0.249	0.260	0.247

regression analysis (mixed model with fixed intercept, random intercept and fixed slopes) was conducted simultaneously for 2008 and 2010. We tested whether the choice of multilevel modelling was justified. We started with an intercept-only model and found that the random intercepts (region group effects) were statistically significant. The intraclass correlations (ICCs) for the model with only random region effects included are 0.188 and 0.190 for 2008 and 2010, respectively. It is suggested that multilevel modelling is used when ICC values exceed 0.05 (Hayes, 2006) and ICC values exceeding 0.15 are considered large (Hox, 2010). Hence, we accepted the multilevel approach at the individual and regional levels. To investigate the potential multicollinearity, variance inflation factors were calculated; and for the models presented later, they were all below the conventional level of 10.

Our random intercept model is specified in a generalised form as follows:

$$Inst. trust_{ij} = \beta_0 + \sum_{k=1}^n \beta_k ind. level indicator_{kij} + \sum_{l=1}^m \beta_l reg. level indicator_{lj} + u_j + \varepsilon_{ij}$$

where *Inst. trust_{ij}* is our institutional trust variable created from four initial indicators, the subscript *kij* represents the effect of the *k*th individual-level variable, the subscript *lj* represents the effect of the *l*th regional-level variable, *u_j* represents the random intercept in the equation, and *ε_{ij}* the individual-level residuals. Regarding potential endogeneity, we acknowledge the possibility that an individual's institutional trust might have an impact on this individual's general social trust or perception of corruption, but we believe that the causal direction is rather from general to more specific and from experience to attitude. We do not expect the institutional trust of a particular individual to influence the cultural context as culture is shaped throughout a longer period of time and thus is quite stable.

4. Results

4.1 Main results

The results of various model specifications for institutional trust are presented in Tables 4 and 5 (2008 and 2010). We present standardised regression coefficients in order to enable a comparison of the relative importance of various variables. First, only individual-level variables were included in the analysis (Model 1). A model with only individual-level control variables was also tested. However, as the coefficients of the individual-level variables proved to be stable, this setup is not presented to save space. Next, society-level control variables and institutional quality were added (Model 2). Finally, variables describing the cultural environment were added to the model one by one (Models 3–10) for two reasons. First, society-level institutional trust, social trust and corruption perception, cultural dimensions and a communist background can be viewed as alternative explanations for individual-level institutional trust, all covering one aspect of cultural context. Second, there are strong correlations among those variables. Similarly, because of multicollinearity issues, GDP and institutional quality had to be left out when society-level institutional trust, social trust or corruption perception were included. The Akaike information criterion indicating the goodness of fit (where a smaller value indicates a better fit) shows that the fit increased when regional-level controls were added, and the models with power distance had the best fit for both 2008 and 2010.

The coefficients for corruption perception are negative, statistically significant and of the same magnitude even though the measurement of corruption perception was based on giving special advantages in 2008 and on taking bribes in 2010. These coefficients remain the same after adding the regional-level institutional quality variable into the model. This relationship is somewhat stronger for 2010, which seems logical as taking bribes is usually more associated with corruption. Social trust appears positively related to institutional trust; the coefficients are statistically significant and stable across all model specifications.

The institutional quality of a region appeared to have positive and statistically significant coefficients for both years and all specifications, but the relative importance is smaller than those for

Table 4. Estimation results of the multilevel mixed model (standardised coefficients) for institutional trust, 2008

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Fixed effects</i>										
<i>Individual-level</i>										
Intercept	0.047 (0.101)	-0.022 (0.345)	0.001 (0.929)	0.028 (0.277)	0.035 (0.222)	-0.022 (0.336)	-0.006 (0.757)	-0.022 (0.328)	-0.013 (0.555)	-0.022 (0.336)
Gender	0.009** (0.033)	0.009** (0.035)	0.009** (0.032)	0.009** (0.033)	0.009** (0.033)	0.009** (0.034)	0.009** (0.028)	0.009** (0.029)	0.009** (0.029)	0.009** (0.034)
Age	-0.015*** (0.002)	-0.015*** (0.002)	-0.014*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)
Education	0.035*** (0.000)	0.034*** (0.000)	0.034*** (0.000)	0.034*** (0.000)	0.035*** (0.000)	0.035*** (0.000)	0.035*** (0.000)	0.034*** (0.000)	0.034*** (0.000)	0.035*** (0.000)
Income	0.044*** (0.000)	0.045*** (0.000)	0.044*** (0.000)	0.044*** (0.000)	0.044*** (0.000)	0.044*** (0.000)	0.043*** (0.000)	0.044*** (0.000)	0.044*** (0.000)	0.044*** (0.000)
Born in country	-0.018*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)	-0.017*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)	-0.018*** (0.000)
Social trust	0.302*** (0.000)	0.301*** (0.000)	0.299*** (0.000)	0.301*** (0.000)	0.301*** (0.000)	0.301*** (0.000)	0.300*** (0.000)	0.300*** (0.000)	0.301*** (0.000)	0.301*** (0.000)
Corruption perception (special advantages)	-0.226*** (0.000)	-0.225*** (0.000)	0.221*** (0.000)	0.227*** (0.000)	0.226*** (0.000)	0.225*** (0.000)	0.224*** (0.000)	0.225*** (0.000)	0.225*** (0.000)	0.225*** (0.000)
<i>Regional-level</i>										
GDP		0.139*** (0.000)				0.131*** (0.000)	0.075** (0.043)	0.171*** (0.000)	0.137** (0.012)	0.131*** (0.000)
Tertiary education		-0.100*** (0.006)	-0.076*** (0.000)	-0.009 (0.827)	-0.098** (0.018)	-0.099*** (0.007)	-0.083** (0.018)	-0.119*** (0.002)	-0.094** (0.012)	-0.099*** (0.007)
Inst. quality		0.173*** (0.000)				0.167*** (0.000)	0.095*** (0.010)	0.206*** (0.000)	0.223*** (0.000)	0.167*** (0.000)
Cultural-level inst. trust			0.342*** (0.000)							
Cult.-level social trust				0.143*** (0.001)						
Cult.-level corr. perception					-0.134*** (0.000)					
Post-communist						-0.017 (0.569)				
Power distance							-0.149*** (0.001)			
Uncertainty avoidance								0.046 (0.204)		
Masculinity									0.036 (0.320)	
Individualism										0.015 (0.530)
<i>Random effects</i>										
Variance of random intercept	0.058*** (0.000)	0.030*** (0.000)	0.013*** (0.000)	0.047*** (0.000)	0.055*** (0.000)	0.030*** (0.000)	0.025*** (0.000)	0.030*** (0.000)	0.028*** (0.000)	0.028*** (0.000)
Observations	47,485	47,485	47,485	47,485	47,485	47,485	47,485	47,485	47,485	47,485
Number of regions	85	85	85	85	85	85	85	85	85	85
Akaike inform. criterion	59,360	59,326	59,274	59,354	59,364	59,330	59,209	59,220	59,217	59,217

Note: p-values in parentheses; ***, **, * denote significance at the 0.01, 0.05, 0.10 levels.

Table 5. Estimation results of the multilevel mixed model (standardised coefficients) for institutional trust, 2010

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Fixed effects</i>										
<i>Individual-level</i>										
Intercept	0.041 (0.128)	0.100 (0.628)	0.004 (0.685)	0.026 (0.183)	-0.005 (0.788)	0.01 (0.612)	-0.015 (0.428)	0.010 (0.576)	0.006 (0.756)	0.01 (0.612)
Gender	-0.009** (0.041)	-0.009** (0.040)	-0.009** (0.039)	-0.009** (0.041)	-0.009** (0.041)	-0.009** (0.040)	-0.009** (0.029)	-0.009** (0.040)	-0.009** (0.040)	-0.009** (0.040)
Age	-0.004 (0.413)	-0.004 (0.396)	-0.004 (0.390)	-0.004 (0.395)	-0.004 (0.406)	-0.004 (0.396)	-0.004 (0.397)	-0.004 (0.390)	-0.004 (0.395)	-0.004 (0.397)
Education	0.011** (0.046)	0.010* (0.060)	0.009* (0.064)	0.010* (0.056)	0.010* (0.59)	0.010* (0.60)	0.010* (0.55)	0.010* (0.60)	0.010* (0.60)	0.010* (0.60)
Income	0.042*** (0.000)	0.042*** (0.000)	0.041*** (0.000)	0.042*** (0.000)	0.042*** (0.000)	0.042*** (0.000)	0.042*** (0.000)	0.042*** (0.000)	0.042*** (0.000)	0.042*** (0.000)
Born in country	-0.010** (0.037)	-0.010** (0.039)	-0.010* (0.027)	-0.009* (0.034)	-0.010* (0.032)	-0.010* (0.032)	-0.010* (0.040)	-0.010* (0.041)	-0.010* (0.041)	-0.010* (0.032)
Social trust	0.306*** (0.000)	0.304*** (0.000)	0.302*** (0.000)	0.304*** (0.000)	0.305*** (0.000)	0.304*** (0.000)	0.304*** (0.000)	0.304*** (0.000)	0.304*** (0.000)	0.304*** (0.000)
Corruption perception (bribes)	-0.275*** (0.000)	-0.273*** (0.000)	0.269*** (0.000)	0.273*** (0.000)	0.271*** (0.000)	0.272*** (0.000)	0.272*** (0.000)	0.273*** (0.000)	0.272*** (0.000)	0.273*** (0.000)
<i>Regional-level</i>										
GDP		0.064** (0.025)				0.067** (0.028)	0.025 (0.436)	0.0649 (0.107)	0.071** (0.015)	0.072** (0.019)
Tertiary education		-0.041 (0.181)	-0.031** (0.032)	-0.008 (0.757)	-0.005 (0.842)	-0.040 (0.192)	-0.025 (0.401)	-0.030 (0.332)	-0.045 (0.140)	-0.045 (0.150)
Inst. quality		0.162*** (0.000)				0.164*** (0.000)	0.101*** (0.006)	0.123*** (0.001)	0.135*** (0.000)	0.161*** (0.000)
Cultural-level inst. trust			0.289*** (0.000)							
Cult.-level social trust				0.196*** (0.000)						
Cult.-level corr. perception					-0.186*** (0.000)					
Post-communist						0.006 (0.829)				
Power distance							-0.104*** (0.001)			
Uncertainty avoidance								-0.050 (0.118)		
Masculinity									-0.031 (0.249)	
Individualism										-0.019 (0.464)

<i>Random effects</i>										
Variance of random intercept	0.050*** (0.000)	0.025*** (0.000)	0.006*** (0.000)	0.025*** (0.000)	0.028*** (0.000)	0.025*** (0.000)	0.023*** (0.000)	0.025*** (0.000)	0.025*** (0.000)	0.025*** (0.000)
Observations	45,637	45,637	45,637	45,637	45,637	45,637	45,637	45,637	45,637	45,637
Number of regions	81	81	81	81	81	81	81	81	81	81
Akaike inform. criterion	59,771	59,736	59,650	59,734	59,741	59,741	59,634	59,639	59,640	59,641

Note: *p*-values in parentheses; ***, **, * denote significance at the 0.01, 0.05, 0.10 levels.

individual-level social trust and corruption perception and even smaller when power distance is included. As expected, regional institutional trust appeared to be statistically significantly related to the individual's institutional trust with the same magnitude as for individual-level social trust and corruption perception. For regional social trust and regional corruption perception, the coefficients are smaller. Living in a region with a communist background appeared to have no significant relationship with an individual's institutional trust.

Regarding cultural dimensions, power distance is negatively and statistically significantly related to an individual's institutional trust. This confirms that a larger power distance results in less participation, passive attitudes dominating more, and fewer contacts between citizens and institutions, which lower an individual's institutional trust. The coefficients have a smaller absolute value for 2010 than for 2008. Although culture is not expected to change fast, one cannot rule out the possibility that this can be explained with a lag: the power distance indicator for the year 2008 was used in both cases. The magnitudes of the coefficients of power distance are again smaller than those of the individual-level corruption perception and social trust but comparable and larger than those of institutional quality. The other cultural dimensions were not statistically significant. These results are robust to the different indicators used for corruption perception in 2008 and 2010. A reviewer also drew our attention to the possibility that the influence mechanism of cultural dimensions on an individual's institutional trust could run through social trust rather than directly. We repeated our analysis with an individual's social trust as a dependent variable, but none of the cultural dimensions were statistically significant for an individual's social trust.

4.2 Extension: results for separate institutional trust components

In the main models, we used the institutional trust factor created from four variables describing trust in the parliament, political parties, the legal system and the police. As an extension, we conducted similar analyses separately for these four variables. We did not include the eight tables similar to [Tables 4 and 5](#) to save space (they are available on the first author's web page), but we present an overview of our results in [Table 6](#).

The findings for 2008 and 2010 are again similar to each other, and the results regarding an individual's social trust, an individual's corruption perception, and the cultural-level aggregates of trust in a particular institution, social trust and corruption perception are similar to those discussed before. Institutional quality, however, is more weakly related to trust in political parties and the country's parliament. Hence, here, the division between political and administrative/legal institutions (Dahlberg and Holmberg, 2016) seems relevant, and the institutional quality index measuring rather the administrative aspect is more related to trust in administrative/legal institutions.

Regarding cultural dimensions, interesting differences emerged. Power distance appeared negatively and statistically significantly related to all types of institutional trust except for trust in the police. Here, in turn, uncertainty avoidance appears statistically significant: people from regions with higher uncertainty avoidance tend to trust the police more. Regarding trust in political parties, uncertainty avoidance and for 2010 also masculinity appeared significant in addition to power distance. An individual's trust towards political parties is higher in regions with lower uncertainty avoidance and masculine values dominating over feminine. The positive relationship between uncertainty avoidance and trust in the police might be due to the perception that the police are closer to people than to the other public institutions involved in our analysis. The police, providing order and security, helps to overcome uncertainty in contexts with predominant values of adherence to norms and personal security (Hogg, 2000). In such contexts, institutions aiming to provide feelings of certainty and physical security are more likely to gain trust (Hadarics, 2016). In contrast, political parties might be viewed as institutions with unpredictable behaviour that are conflict prone; hence, there is a negative association with uncertainty avoidance. A positive association between masculinity and trust in political parties can be explained by an overlap between the value-orientation system dominating in the political parties and that typical of Hofstede's masculine society (Aylott and Bolin, 2017; Ennser-Jedenastik and Müller, 2015).

Table 6. Overview of the results of the multilevel regression analyses (2008 and 2010)

Individual-level dependent variable:	Institutional trust (factor of 4 indicators)	Trust in country's parliament	Trust in political parties	Trust in the legal system	Trust in the police
<i>Individual-level</i>					
Social trust	+	+	+	+	+
Corruption perception	-	-	-	-	-
<i>Regional-level</i>					
Institutional quality	+	(+)	(+)	+	+
Cultural-level aggregate of dependent var.	+	+	+	+	+
Cultural-level social trust	+	+	+	+	+
Cultural-level corruption perception	-	-	-	-	-
Communist background					
Power distance	-	-	-	-	
Uncertainty avoidance			-		+
Masculinity			(+)		
Individualism					

Note: '+'/'-' denote a positive/negative statistically significant (here and hereafter at least at the 0.05 level) regression coefficient, '(+)' denotes a positive relationship that is not statistically significant for some model specifications, empty cells mean no statistically significant relationship.

5. Discussion and conclusions

The cultural context matters for an individual's institutional trust since it may precondition the way citizens perceive public institutions. Developing specific policy recommendations for optimal solutions is, however, challenging. First, cultural changes are slow, and it is unlikely that new policies might influence cultural evolution (Davis and Williamson, 2016). Second, policies properly functioning in some contexts might not perform in the same way when transferred to other contexts with a different cultural pattern (Cline and Williamson, 2017; Grimmelikhuijsen and Porumbescu, 2013).

Our results show that an individual's institutional trust is higher in regions with smaller power distance. It is possible that a large power distance induces citizens to develop feelings of vulnerability and powerlessness against government decisions (Grimmelikhuijsen and Porumbescu, 2013). In such a context, individuals might sense a lack of institutional responsiveness to citizens' concerns. This makes citizens perceive the state-citizen relationship as subordinate without an actual opportunity to influence decision-making processes. The sense of being involved and seeing citizens' interests taken into account is important for institutional trust. The government being perceived as trustworthy and believed to enforce the law, assure property rights and keep tax legislation stable is again important for various economic activities.

Hence, we suggest that in cultural contexts with large power distance, policy makers might need to adopt more inclusive decision-making processes, reduce the perceived distance between the government and citizens and boost citizens' perception of the government's fairness and responsiveness to citizens' needs. Increasing public participation in a decision-making process has consistently been advocated (Herian *et al.*, 2012). This could actualise in the creation of accessible spaces and forums, virtual or physical, where political leaders and public administrators consult citizens on various aspects of the decision-making process, ranging from policy development to its application and assessment. Such communication channels are rare in highly hierarchical environments, but public

consultation practices have already been a part of central and local governments' modernisation agendas in some countries, e.g. the UK (Lowndes *et al.*, 2006). This could promote a sense of organisational belonging and feeling of being involved. From a public management perspective, this requires a change in the approach to citizens. Citizens become stakeholders and active 'consumers' of public administration services rather than simply passive and dependent 'clients' (Lowndes *et al.*, 2006).

This reasoning might also explain the relationship between institutions and citizens in Eastern European countries more consistently than simply their communist past. Our results did not indicate a statistically significant difference in an individual's institutional trust caused by a communist background. Hence, much of the reasoning behind the impact of a communist past seems to be covered by cultural dimensions, especially power distance. It is easy to draw a line along this historical divide, but the actual reasons for lower institutional trust in post-communist countries might not lie in this division, but rather lie in some aspects of culture that might also explain lower levels of institutional trust in some countries without a communist past. This does not exclude, of course, the possibility that a communist past has had a role in increasing the power distance in post-communist societies.

Several limitations have to be acknowledged. Not all European countries were covered in the ESS dataset. Hence, when data with wider coverage become available, it would be interesting to repeat the analysis. The selection of control variables was limited at the regional level, e.g. it was not possible to include income inequality. The indicators for the perception of corruption were not the same for 2008 and 2010. However, the similarity of the results validates the findings and suggests that the two indicators describe a similar concept. The set of cultural dimensions used is one of many, and if data were available for another set of dimensions, this would complement the knowledge about the impact of cultural context. Hence, there are several possibilities for further research.

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