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**Abstract**

While formal institutions are recognized as having an effect on trust formation, no theoretical or empirical models exist to formalize this relationship. This study introduces a new conceptual framework to explain trust building by individuals and the role that formal rules and laws may play in this process. Drawing on a social-cognitive theory of psychology, we present trust as composed of personal, interpersonal, and intrapersonal components with the latter encompassing formal institutions. We further demonstrate that there are three mechanisms – sanction, legitimacy, and autonomy – through which formal institutions may affect trust levels either directly or indirectly. In addition, our empirical analysis furnishes evidence of heterogeneity in institutional effects on trust, suggesting that the autonomy dimension of the institutional framework is particularly important for trust formation processes.

**Keywords**

Interpersonal trust, trust formation processes, formal institutions, social-cognitive psychology

## **The impact of formal institutions on social trust formation: A social-cognitive approach**

### **Introduction**

Current research offers two competing explanations regarding the mechanism through which trust emerges and changes. The first presents trust as a cultural attribute; hence manipulating its levels is regarded as unlikely to occur (Fukuyama, 2000; Putnam, 1995, 2000). The second emphasizes that trust is a function of contexts (Kumlin and Rothstein, 2005; Nooteboom, 2007); its levels are expected to rise or fall depending on contextual variations. Studies often refer to institutional arrangements as one such contextual variable, asserting that trust can evolve according to the dynamics of institutional change (Farrell, 2005). Little consideration has however been given to the possibility of an interaction between cultural and contextual determinants of trust.

The main objective of this research is to analyze the impact of formal institutions on social trust by drawing on a social-cognitive theory of psychology. Our contribution consists of utilizing psychology's analytical framework to introduce a new comprehensive model of trust formation. This model is further used to identify a set of formal institutions potentially important for trusting behavior and explicitly describe the mechanisms through which various institutional contexts interact with cultural forces of trust.

## **Literature overview**

The classical approach considers trust as a cultural attribute that is influenced by an individual's internal values, such as altruism or sympathy with others (Fukuyama, 2000; Putnam 1995, 2000). Recent studies dissociate trust building from an individual's personal attributes and externalize it by accounting for contexts within which trust formation processes unfold (Nooteboom, 2007; Rothstein and Stolle, 2001). This mainstream emphasizes that the quality of formal institutions, which regulate the interactions of individuals, may be the cornerstone of such contexts, and hence affect trust levels considerably (Farrell, 2005; Farrell and Knight, 2003).

Trust theory uses a twofold definition of formal institutions. On the one hand, institutions are viewed as a set of public organizations that individuals interact with over the course of their lives. In this case, the process of trust formation is affected by such organizations when citizens evaluate the quality of their performance (Edlund, 2006; Mishler and Rose, 2001) or that of elected officials (Thomas, 1998). A positive experience with public institutions or public officials is expected to motivate individuals to exhibit more trust not only towards these institutions or their rules, but also towards other people (Letki, 2006; Murphy, 2004; Tyler, 2006). Additionally, this positive experience is believed to dampen the negative effect of some conventional determinants of trust: Fair treatment by public authorities may, for instance, cushion the negative impact of having a minority status (Kumlin and Rothstein, 2008). In eliciting trust,

public authorities' trustworthiness does not necessarily need to be objectively valid.

Rather, what matters is the perception that citizens have regarding these organizations and not their actual quality (Levi, 1998; Scholz and Lubell, 1998; Steinmo, 1993).

On the other hand, institutions are considered as a set of rules of the game defining legal boundaries within which individuals are allowed – and expected – to operate. Efficient formal institutions are deemed to be conducive to establishing trust since they enforce third-party agreements (Herrerros and Criado, 2008). They enable individuals to pursue redress and restitution when cheated, thereby reducing the risk involved in trusting someone (Rothstein and Stolle, 2001; Tillmar and Lindkvist, 2007). If sanctions and penalties are imposed when a contract is breached, formal institutions may increase the cost of betrayal and encourage people to act honestly (Bohnet and Baytelman, 2007). Overall, formal rules are believed to help overcome the information deficit problem by indicating what the likely actions of others will be (Farrell and Knight, 2003) or to serve as a safety net for those who suffer because of others' dishonest behavior (Farrell, 2005). The mere existence of laws and rules is, however, insufficient to encourage the trust formation process. It is equally important that such legal mandates are duly enforced (Oskarsson et al., 2009) and perceived by individuals as being fairly applied to various population groups (Oskarsson et al., 2009).

Despite the fact that both strands find empirical evidence for a positive relationship between the quality of formal institutions and trust levels, they exhibit two

deficiencies. The first is the problem of uni-dimensionality regarding the definition of formal institutions. Institutional economics distinguishes between several types of institutions (Lim and Decker, 2007; Persson and Tabellini, 1994), while theoretical and empirical studies on trust rarely provide a precise definition concerning the kinds of institutions they analyze, thereby implying that all formal rules and laws are equally important to interpersonal trust. This might not necessarily be true since particular formal institutions often only regulate certain aspects of societal arrangements and each of them may affect only specific features of an individual's behavior. The institutional impact on trust is hence likely to be heterogeneous across different formal institutions, and ignoring this may lead to the false conclusion regarding which institutions actually matter in eliciting interpersonal trust and to what extent each of them does so.

The second shortcoming is that a clear formalization of the process of trust formation is lacking. Several competing theories describe how trust emerges but none offers a clear conceptual framework integrating cognitive, cultural, and contextual determinants into a single regression. Instead, most empirical studies either solely examine whether associations exist between trust levels and institutional scores while controlling for the socio-demographic characteristics of respondents (Herreros and Criado, 2008). Or, they offer mathematical models, derived from the rational choice perspective (Zak and Knack, 2001), which do not account for non-cognitive (cultural) forces beyond rational thinking that underlie an individual's decision-making regarding

whether or not to trust. This may impair establishing the complete set of channels through which formal institutions affect social trust levels.

We argue that applying theories of psychology to explain trust building may help eliminate both drawbacks. Trust formation is governed by brain structures and hence represents a mental operation. Psychology in turn offers a solid analytical framework describing the rationale behind mental functions and behavior; it can thereby help understand how trust emerges and how various formal institutions may intervene in this process. In addition, psychology integrates cognitive and non-cognitive, conscious and subconscious mechanisms of an individual's decision-making and may hence allow the analysis to address cultural and contextual determinants of one's behavior simultaneously.

### **Theoretical model**

Psychology asserts that people's behavior is determined by (1) values and norms, (2) others-regarding, and (3) duty-driven motivations/contexts within which individuals act (Feldman and Perez, 2009). Literature acknowledges that personal values shaped by culture and socialization processes are a starting point for behavioral action, but it denies that these values produce the same behavior in every situation (Seidler, 2011; Smith and Thornberry, 1995; White, 2002; Williamson, 2000).



By introducing the concept of moral identity, the social-cognitive perspective of psychology provides a comprehensive explanation for the existence of such behavioral deviations from values. The theory's point of departure is that every individual defines their own behavior based on their value identity (Bandura, 1991, 2001; Higgins, 1996; Narvaez et al., 2006; Shao et al., 2008) which is conceptualized as an organized mental representation (scheme) of how an individual with certain values is likely to think, feel, and act (Shao et al., 2008). People are believed to possess multiple and sometimes competing value identities corresponding to each particular situation. However, only one of them can be activated for processing social information at any given moment (Markus and Kunda, 1986). Which one is activated depends on the level of accessibility that different moral identities have (Markus and Kunda, 1986): The one which is more accessible exerts a stronger influence on behavior (Higgins, 1996). The theory further asserts that situational cues, defined as environmental factors that are connected to records (Byrnes, 2001), may influence the level of accessibility of moral identities (Bargh et al., 1986) by shifting mental representations from a state of low activation to a state of higher activation. Various contextual characteristics, including formal institutions, may represent such cues and hence play a central role in shaping individuals' behavior (Bargh et al., 1986; Shao et al., 2008).

An overview of available studies on contextual cues allows us to distinguish between three key mechanisms through which contextual variables that are related to

formal institutions can affect the activation of certain value identities: (1) a sanction mechanism, (2) a legitimacy mechanism, and (3) an autonomy mechanism. The sanction mechanism assumes that the law has an expressive function: The public perceives stronger sanctions in legal instruments as a signal that dishonest behavior deserves greater moral condemnation (Feldman and Perez, 2009; White, 2002). Strong sanctions will likely cause people to feel that the prohibited act is morally problematic (Bandura, 1999; Paternoster and Simpson, 1996), as a result of which the mental representations relating to honest behavior may be activated, and good values will be enacted in behavior.

Psychology further suggests that laws are an external factor designed and implemented by the government and hence the public. However, the understanding, interpretation, and enforcement of such laws in practice are personal (White, 2002). The legitimacy of formal rules or laws and the level of autonomy they promote may influence people's interpretation of these formal institutions (Kohlberg, 1981; White, 2002). The legitimacy mechanism is derived from the idea that individuals tend to comply with the law and will act in a trustworthy way if they consider a particular law legitimate (Feldman and Perez, 2009), even if individuals have not yet internalized the relevant values promoted by the law (Stone, 2011). In the long run, individuals might even revise their own values and beliefs in the presence of legitimate formal institutions (Shao et al., 2008). The required legitimacy is usually achieved through enhanced

citizen participation in creating formal rules and norms (Feldman and Perez, 2009) or enabling information to be available about the formation of such rules.

The autonomy mechanism presupposes that if formal rules and laws promote autonomy and independence, then individuals are encouraged to use good values in their behavior. Conversely, authoritarian rules or regimes with rigidly hierarchical organizations are believed to retard values enactment and development (Kohlberg, 1981). The rationale behind this effect stems from personal ego theories which assume that more autonomy may strengthen the personal ego, and people with strong egos rarely develop poor values or deviate from good beliefs and morals in their behavior (White, 2002).

Furthermore, psychology does not limit the role of situational cues to their impact on the accessibility of value identities, but also expands it to the aspect of others-regarding. It is believed that one's personal experiences may prompt an individual to expect that others may hold similar views or act in a similar way as a result of a similar experience (Lewis and Weigert, 1985; Jones, 1996; Nooteboom, 2007). An individual affected by the situational cues may hence make references from their own experiences to others and expect that contextual effects on others' behavior will be similar to what they themselves experienced. This may reshape one's perception of others and result in considering other people as more honest and law-obedient in the presence of effective formal institutions.

We use the above overview of evidence and findings from psychology to introduce a simplistic model of trust building and formalize the relationship between institutional contexts and trust. We offer three propositions to achieve these objectives.

*First*, psychology can contribute to reconsidering the composition of trust. By drawing on behavioral theories of psychology, we suggest that trusting as an actual behavior can be presented as consistent of three components: (1) a personal component (*PC*), (2) an interpersonal component (*InterPC*), and (3) an intrapersonal component (*IntraPC*)

$$\text{Trust} = f(\text{PC}, \text{InterPC}, \text{IntraPC}). \quad (1)$$

The personal component encompasses an individual's values that are relevant to trust. These are shaped by an individual's origins and early socialization processes and can be broadly equalized to culture. Such values represent individuals' relatively stable personality trait (Colby and Damon, 1992; Smith and Thornberry, 1995) that directly affect trust building, irrespective of the context within which this individual operates. The personal component is expected to vary among individuals, even those who are subject to the influence of the same contextual factors.

The interpersonal component encompasses the individual's perception of others or others-regarding. It is formed through interactions with other people and refers to the evaluation of others' trustworthiness in the course of deciding which level of trust to exhibit, if any. This is a conscious process of assessing observable and unobservable

characteristics about the other party to estimate the likelihood that promises made will be kept. The activation of this component is, on the one hand, based on cognitive mechanisms and depends on the individual's personal values and their ability to derive another individual's level of trustworthiness from the available information. On the other hand, the extent of trust that emerges depends on the actual characteristics of the one to whom trust is to be exhibited.

The intrapersonal component relates to the environment or context within which the decision about trust levels is made. This context is expected to embrace a group of individuals or a country's entire population, regardless of their cultural origins, and subject them to the same set of formal rules that may potentially influence trust formation. The intrapersonal trust component is formed through the activation of rational mechanisms and conscious considerations to evaluate the quality of the context, to assess one's own experiences with this context, and to extrapolate these experiences' effects on one's own behavior to the behavior of others. Formal institutions may represent such an intrapersonal component since the same individual has varying levels of trust given different institutional frameworks, as experiments with immigrants demonstrate (Kumlin and Rothstein, 2008).

*Second*, the three mechanisms through which the institutional context affects behavior can be used to derive three types of formal institutions that might influence the trust formation process. We associate the sanction mechanism with legal institutions,

such as the protection of property rights and contract enforcement legislation, since these institutions achieve their main objectives of reducing uncertainty over the long term and lowering transaction costs by detecting and sanctioning improper economic behavior (Troilo, 2011). Political institutions are linked to the legitimacy mechanism since they reflect the quality of the political system and democratic principles and hence measure the extent to which citizens can participate in creating rules (Acemoglu and Robinson, 2012). Regulatory institutions relate to the autonomy mechanism, since they set constraints on an individual's economic decision-making in the labor market, credit markets, etc. (Jalilian et al., 2007), and may therefore influence an individual's perception of how much autonomy is permitted regarding economic behavior.

*Third*, psychology can contribute to further explaining the logic of institutional effects on trust formation. By changing the level of accessibility of value identities, the three mechanisms, on the one hand, affect the extent to which values possessed by the individual are enacted in practice and hence utilized in the trust building process. One's poor values that relate to distrust can be suppressed and still generate trust if well defined and efficiently enforced formal institutions are in place. On the other hand, the individual's personal experience with formal institutions may change their perception of others and the role that this perception plays in trust formation. One's perception of other individuals as untrustworthy can still result in displaying trust towards them if well defined and efficiently enforced formal institutions are introduced. The functional

form of this relationship assumes that the effects of both the personal and interpersonal components on trust are dependent on the value of the intrapersonal - contextual - component

$$T = PC + InterPC + IntraPC + PC*IntraPC + InterPC*IntraPC \quad (2)$$

Additionally, if formal institutions may induce the revision of values and others-regarding, as psychology predicts, then one can expect that the personal and interpersonal components become a function of the intrapersonal component:

$$T = PC(IntraPC) + InterPC(IntraPC) + IntraPC \quad (3)$$

We use the above observations to postulate our hypotheses:

**Hypothesis 1:** An improvement in any of the three components of trust is associated with an increase in trust levels among individuals.

**Hypothesis 2:** The overall effect of the personal and interpersonal components on trust is conditioned by the quality of the intrapersonal component.

**Hypothesis 3:** An improvement in the intrapersonal component is expected to lead to positive changes in the personal and interpersonal components.

## **Data and methods description**

Our empirical analysis is based on the European Social Survey (ESS) for the year 2004.

We restrict the sample to people aged between 16 and 65 to primarily obtain economic

agents in active age for our analysis. A total of 25 countries are included in the sample, with observations numbering 32,582.

The variables are operationalized as follows (see Appendix 1 for descriptive statistics).

### ***Dependent variable***

Social trust is measured through the conventional question: "Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people?", with the response scale ranging from 0 "*cannot be trusted at all*" to 10 "*can be fully trusted*."

### ***Independent variables***

The personal component variable is constructed based on responses to 21 questions asking one's perception of how important various values or attitudes are to the respondent. Each item is measured on a six point scale ranging from 1 "*very much like me*" to 6 "*not like me at all*." The principle component factor analysis suggests that the items form three constructs. The first construct reflects one's general behavioral values regarding others, government and society. It is constructed by summing up responses to seven questions that ask whether it is important for the respondent to: (1) follow traditions and customs, (2) do what is told and follow rules, (3) get respect from others,



(4) behave properly, (5) be humble and modest, (6) live in secure and safe surroundings, and (7) that government is strong and ensures safety. The values of this construct range from 7 "*very much like me*" to 42 "*not like me at all*", with higher scores reflecting more socially desirable values. The second construct reflects one's preference for leisure and is constructed by combining questions that ask how important it is to the respondent to: (1) seek adventures and have an exciting life, (2) seek fun and things that give pleasure, (3) be successful and that people recognize achievements, (4) have a good time, (5) try new and different things in life, (6) show abilities and be admired, (7) be rich, have money and expensive things, (8) think new ideas and being creative, (9) make own decisions and be free. Its values vary from 9 "*very much like me*" to 56 "*not like me at all*", with higher scores reflecting more socially desirable values. The third construct reflects one's level of altruism and sympathy with others and is constructed by summing up responses to questions that ask how important it is to: (1) treat people equally and have equal opportunities, (2) understand different people, (3) help people and care for others' well-being, (4) be loyal to friends and devote to people close, (5) care for nature and environment. The values range from 5 "*very much like me*" to 30 "*not like me at all*," with higher scores reflecting less altruistic attitudes.

The interpersonal component is measured by the question asking how worried the respondent is of being treated dishonestly. The response scale varies from 1 "*very worried*" to 4 "*not at all*." The rationale behind choosing this question is that the extent

to which an individual worries about dishonest treatment is a function of the individual's perception of others' trustworthiness. A relatively strong correlation (0.30) found between this question and the question that directly evaluates an individual's perception of others ("Would you say that people try to take advantage of you or that they are fair most of the time?") confirms validity of our assumption.

The intrapersonal component is operationalized through three institutional scores. Political institutions are measured through the average of three World Bank Group institutional indexes reflecting the properties of a country's political system: voice and accountability, government effectiveness, and corruption control in government. Each item has values ranging from -2.5 "*poor political institutions*" to 2.5 "*very good political institutions*." Economic institutions are operationalized through a contract enforcement and property rights protection index measured on a ten-point scale with higher values corresponding to better institutions. The data are sourced from the 2007 annual report of Economic Freedom of the World (Gwartney et al., 2007). Regulatory institutions are measured by a regulation of labor, credit, and business index constructed by Economic Freedom of the World (Gwartney et al., 2007) with values varying from 1 "*entirely regulated*" to 10 "*entirely independent from regulation*". We average out all institutional indexes over three years (2003-2005) and re-scale them so that the final constructs have values between 0 "*poor formal institutions*" and 1 "*good formal institutions*."

### ***Control variables***

The set of control variables includes the conventional determinants of trust: the frequency of meeting friends, number of years completed in full-time education, respondents' gender, actual age, and household income. In addition, we include dummies specifying whether respondents have a paid job and whether they were born in the country they reside. We also control for respondents' level of political trust calculated as the sum of responses to questions asking how much trust an individual has in (1) country's parliament, (2) the legal system, (3) the police, (4) politicians, (5) political parties, with responses to each item ranging from 0 "*no trust at all*" to 10 "*complete trust*."

We test our hypotheses empirically at both individual and country levels. The individual-level analysis seeks to reveal individual and joint effects of the three trust components on the respondents' trust scores (Hypothesis 1). The main method of analysis is multilevel modeling which allows us to explain variations in trust levels with both upper and lower level factors. Formal institutions represent the upper level in all models. Accounting for such a hierarchical structure of our data is necessary to prevent the un-modeled country information from ending up being entirely pooled into the single individual error term (Kreft and Leeuw, 1998; Luke, 2004; Snijders and Bosker, 1999). The basic empirical model takes the following form

$$T = \gamma_{00} + \gamma_{10}PC_{ij} + \gamma_{20}InterPC_{ij} + \gamma_{01}IntraPC_j + \gamma_{30}X_{ij} + m_{oj} + \varepsilon_{ij} \quad (4)$$

Here,  $PC_{ij}$  and  $InterPC_{ij}$  are measures of the personal and interpersonal components, respectively.  $IntraPC_j$  consists of relevant measures of the three types of formal institutions that will sequentially be included in the model,  $X_{ij}$  is a set of control variables,  $m_{oj}$  is the variance at the country level, and  $\varepsilon_{ij}$  is the variance at the individual level. We use STATA command GLLAMM for calculating the parameters of the model. We also include interactions between the intrapersonal component (formal institutions) and the two other components to see whether the institutional context conditions the impact that the personal and interpersonal components have on the respondents' trust levels (Hypothesis 2).

The country-level analysis aims to determine if the intrapersonal component may trigger change in the two other components (Hypothesis 3). To do so, we employ a simultaneous equation model which can run several regressions simultaneously assuming that there is a certain cross-equation correlation. The set of equations includes a cross-country trust equation and two channel equations: one for the respondent's internal component and the other for the interpersonal component. Since laws and rules are believed to be a function of the local culture (Seidler, 2011; Williamson, 2000), we also consider institutions to be an endogenous variable and add an institutional equation to the simultaneous equation models. We use instrumental variables estimation to ensure that our structural parameters are identified. We also include other control

variables in the channel equations. The number of inclusions is sufficient to satisfy the order condition for identification. We estimate the full set of equations jointly by applying the STATA command `reg3` to the aggregated data-set which is obtained by calculating the countries' mean values for all the variables

$$T = \alpha_1 PC_j + \alpha_2 InterPC_j + \varepsilon_j \quad (5)$$

$$PC_j = \beta_1 Instrument_j + \beta_2 Latitude_j + \beta_3 Protestants_j + \beta_4 IntraPC_j + \delta_j \quad (6)$$

$$InterPC_j = \lambda_1 Instrument_j + \lambda_2 Unemployment_j + \lambda_3 Education_j + \lambda_4 IntraPC_j + \zeta_j \quad (7)$$

$$IntraPC_j = \gamma_1 Instrument_j + \gamma_2 Political\_stability_j + \gamma_3 Controls_j + \theta_j \quad (8)$$

where *PC* and *InterPC* are measures of the personal and interpersonal components, respectively. *IntraPC* stands for the institutional variables. *Instrument* is the set of instruments for the selected constructs. We use latitude (*Latitude*) as an instrument for the internal - cultural - component of trust (La Porta et al., 1999). In addition, we include instruments for each of the three attitudes. The attitude towards others, government and society is approximated by an individual's level of religiosity. The preference for leisure is instrumented with the number of hours an individual works per week: A greater preference for leisure is expected to result in less hours of work. The attitude towards helping others is instrumented with the ESS question about the extent to which free help/care is available in the country. The free care variable is operationalized through an ESS question “Can you count on unpaid house/care help from anyone outside household” by counting the percentage of respondents in each

country who answered positively on this question. The rationale behind our choice is that more free care results from more altruistic values prevalent in the country. The interpersonal component is instrumented with the variable reflecting past experience with other people that is measured through the question: "In the last five years, how often did a plumber/builder/mechanic/repairer overcharge you?" The responses vary from 1 "never" to 5 "more than five times." In addition, the equations contain the percentage of people adhering to protestant religion (*Protestants*), unemployment rate (*Unemployment*) and a country's average number of years of full-time education completed by respondents (*Education*).

Regarding the contextual component, La Porta et al. (1999) argue that legal origins of a country's legislation can be used as an instrument for legal institutions. Fidrmuc (2003) suggests that one can instrument political institutions with the index of civil liberties. Mauro (1995) demonstrates that fractionalization indexes are good instruments for institutional scores. We utilize this approach for regulatory institutions. The World Bank index of political stability is included in each of the three institutional equations.

### **Empirical analysis**

Our individual-level analysis (Table 1) suggests that people with good values are more likely to trust others. Similarly, trust increases when the respondents' perception of

others improves. Controlling for the context by including the institutional measures provides evidence that people who live in countries with better political, economic, and regulatory institutions usually exhibit greater trust scores. Overall, we receive support for Hypothesis 1.

The regression coefficients for the economic and political institutional variables have relatively similar values, suggesting that legitimacy and sanction mechanisms are equally important for economic agents' decision-making regarding whether or not to trust. The regulatory mechanism has a stronger impact, implying that the autonomy dimension of institutional frameworks is indispensable for developing social trust. The results do not change substantially after controlling for the key trust determinants (Models 1 - 3 in Table 2) or instrumenting the institutional variables in order to eliminate the problem of endogeneity (Models 4 - 6 in Table 2).

Tables 1 and 2 near here

In addition, we find diverse interaction effects between the contextual component and the personal - cultural - component of trust (Tables 3). In the case of the preference for leisure, we receive support for crowding-out effects. By contrast, the positive effect of more socially desirable general behavioral values and altruism on trust is enhanced as the quality of a country's formal institutions improves. The interaction

effect is found to be particularly strong in the case of regulatory institutions. Regulatory institutions are also the only formal institutions that condition the impact of altruism and sympathy with others on trust. Countries with less economic regulation enhance the positive impact of altruistic attitudes on social trust levels. This may partially explain why people living in liberal economies where the welfare state provides limited support but formal institutions allow citizens a great degree of autonomy in their economic decision-making have relatively higher levels of trust compared to other societies. Similarly, there is a strong interaction between the three institutional indexes and the interpersonal component (Tables 3). The effect of the respondents' perception of others on their own level of trust can be widely regarded as a function of the quality of the institutional context: People tend to exhibit higher levels of trust at the given level of others' perceived trustworthiness when the quality of formal institutions improves. The interaction effect is found to be particularly strong in the case of regulatory institutions. Overall, our empirical evidence is commensurate with Hypothesis 2.

Table 3 near here

Simultaneous equation models (Table 4-6) suggest that formal institutions may also affect trust indirectly by changing both the personal and interpersonal components, which is in line with Hypothesis 3. An improvement in formal institutions of any kind is



associated with more preference for leisure but also with an improvement in general behavioral values and altruism. This suggests that not only the impact of the cultural variable on trust can to some extent be conditioned by formal institutions, but these formal institutions may trigger change in such values. Similarly, individuals' perception of others improves in the presence of better formal institutions, especially in the case of regulatory institutions.

Tables 4, 5 and 6 near here

## **Conclusion and discussion**

Overall, our study supports the new conceptual framework of the trust formation process that is derived from social-cognitive theories of behavior. Trust should be considered as composed of people's values, their perception of others, and the properties of the context in which they act. Formal institutions are an important part of this context and may influence trust in a threefold manner: by (1) imposing sanctions on those who deviate from rules, (2) ensuring the legitimacy of rules introduced, and (3) allowing citizens some degree of autonomy in their decision-making. The institutional effects on trust are found to be heterogeneous across formal institutions. Regulatory institutions that reflect the level of individual autonomy in economic decision-making show a stronger relationship with trust levels, values, and the individual's perception of others.

In addition to the direct effect, formal institutions may impact trust indirectly by changing the personal and interpersonal components. Trust is hence both a cultural attribute and a result of particular arrangements created by the institutional context.

Further research is needed to analyze the percentage attributed to each component in the trust building process. It is likely that the composition of trust in terms of the three components can be a cultural variable in itself. In this case, culture would constrain trust formation not only through the value variables, but also through the role that these values are allowed to play in defining trust levels. Additionally, more analysis is needed to clarify the causal links between the three trust components. Formal institutions might not, for instance, constrain the effect of values on trust, but the effect of formal institutions on trust might be restricted by the existing values.

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**References**

- Acemoglu D and Robinson JA (2012) *Why Nations Fail: The Origins of Power, Prosperity and Poverty*. New York: Crown Publishers.
- Bandura A (1991) Social cognitive theory of moral thought and action. In: William MK and Jacob LG (eds) *Handbook of Moral Behavior and Development*. Hillsdale, NJ: Erlbaum, pp.45–103.
- Bandura A (1999) Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review* 3(3): 193–209.
- Bandura A (2001) Social cognitive theory: An agentic perspective. *Annual Review of Psychology* 52: 1–26.
- Bargh JA, Bond RN, Lombardi WJ et al. (1986) The additive nature of chronic and temporary sources of construct accessibility. *Journal of Personality and Social Psychology* 50(5): 869–878.
- Bohnet I and Baytelman Y (2007) Institutions and trust: Implications for preferences, beliefs and behavior. *Rationality and Society* 19(1): 99–135.
- Byrnes JP (2001) *Minds, Brains, and Learning: Understanding the Psychological and Educational Relevance of Neuroscientific Research*. New York: The Guilford Press.
- Colby A and Damon W (1992) *Some Do Care: Contemporary Lives of Moral Commitment*. New York: Free Press.

- Edlund J (2006) Trust in the capability of the welfare state and general welfare state support: Sweden 1997-2002. *Acta Sociologica* 49(4): 395–417.
- Farrell H (2005) Trust and political economy: Institutions and the sources of interfirm cooperation. *Comparative Political Studies* 38(5): 459–483.
- Farrell H and Knight J (2003) Trust, institutions and institutional evolution: Industrial districts and the social capital hypothesis. *Politics and Society* 31(4): 537–556.
- Feldman Y and Perez O (2009) How law changes the environmental mind: An experimental study of the effect of legal norms on moral perceptions and civic enforcement. *Journal of Law and Society* 36(4): 501–535.
- Fidrmuc J (2003) Economic reform, democracy and growth during post-communist transition. *European Journal of Political Economy* 19(3): 583–604.
- Fukuyama F (2000) *Social capital and civil society*. IMF Working Paper No. 00/74. Washington.
- Gwartney J, Lawson R, Sobel RS et al. (2007) Economic freedom of the world: 2007 annual report. The Fraser Institute: Economic Freedom Network.
- Herreros F and Criado H (2008) The state and the development of social trust. *International Political Science Review* 29(1): 53–71.
- Higgins TE (1996) The “self-digest”: Self-knowledge serving self-regulatory functions. *Journal of Personality and Social Psychology* 71(6): 1062–1083.

- Jalilian H, Kirkpatrick C and Parker D (2007) The impact of regulation on economic growth in developing countries: A cross-country analysis. *World Development* 35(1): 87–103.
- Jones K (1996) Trust as an affective attitude. *Ethics* 107(1): 4–25.
- Kohlberg L (1981) *The Philosophy of Moral Development: Moral Stages and the Idea of Justice*. Cambridge, MA: Harper & Row.
- Kreft I and De Leeuw J (1998) *Introducing Multilevel Modelling*. Thousand Oaks, CA: Sage Publications.
- Kumlin S and Rothstein B (2005) Making and breaking social capital: The impact of welfare state institutions. *Comparative Political Studies* 38(4): 339–365.
- Kumlin S and Rothstein B (2008) *Minorities and mistrust: The cushioning impact of social contacts and institutional fairness*. QoG Working Paper No.18., University of Gothenburg.
- La Porta R, Lopez-de-Silanes F, Shleifer A et al. (1999) The quality of government. *Journal of Law, Economics and Organization* 15(1): 222–279.
- Letki N (2006) Investigating the roots of civic morality: Trust, social capital, and institutional performance. *Political Behavior* 28(4): 305–325.
- Levi M (1998) A state of trust. In: Braithwaite V and Levi M (eds) *Trust and Governance*. New York: Russell Sage Foundation, pp.77–101.
- Lewis DJ and Weigert A (1985) Trust as a social reality. *Social Forces* 63(4): 967–985.

- Lim JJ and Decker JH (2007) *Do democracies grow faster? Revisiting the institutions and economic performance debate*. MPRA Paper No. 6076., Munich Personal RePEc Archive.
- Luke DA (2004) *Multilevel Modeling*. Thousand Oaks, CA: Sage Publications.
- Markus H and Kunda Z (1986) Stability and malleability of the self-concept. *Journal of Personality and Social Psychology* 51(4): 858–866.
- Mauro P (1995) Corruption and Growth. *Quarterly Journal of Economics* 110(3): 681-712.
- Mishler W and Rose R (2001) What are the origins of political trust? Testing institutional and cultural theories in post-communist societies. *Comparative Political Studies* 34(1): 30–62.
- Murphy K (2004) The role of trust in nurturing compliance: A study of accused tax avoiders. *Law and Human Behavior* 28: 187–209.
- Narvaez D, Lapsley DK, Hagele S et al. (2006) Moral chronicity and social information processing: Tests of a social-cognitive approach to the moral personality. *Journal of Research in Personality* 40(6): 966–985.
- Nooteboom B (2007) Social capital, institutions and trust. *Review of Social Economy* LXV(1): 29–53.
- Oskarsson S, Öberg P and Svensson T (2009) Making capitalism work: Fair institutions and trust. *Economic and Industrial Democracy* 30(2): 294–320.

Paternoster R and Simpson SS (1996) Sanction threats and appeals to morality: Testing a rational choice model of corporate crime. *Law and Society Review* 30(3): 549–583.

Persson T and Tabellini G (1994) Is inequality harmful for growth? Theory and evidence. *American Economic Review* 84(3): 600–621.

Putnam R (1995) Bowling alone: America's declining social capital. *Journal of Democracy* 6(1): 65–78.

Putnam R (2000) *Bowling Alone*. New York: Simon & Schuster.

Rothstein B and Stolle D (2001) Social capital and street-level bureaucracy: An institutional theory of generalized trust. In *Trust in Government Conference*, the Centre for the Study of Democratic Politics, Princeton University, 30 November 2001.

Scholz JT and Lubell M (1998) Trust and taxpaying: Testing the heuristic approach to collective action. *American Journal of Political Science* 42: 398–417.

Seidler V (2011) The role of informal institutions in building the institutional framework of an African state: The Case of the Kanuri in Nigeria. Available at: <http://extranet.isnie.org/uploads/isnie2011/seidler.pdf> (accessed 16 January 2013).

- Shao R, Aquino K and Freeman D (2008) Beyond moral reasoning: A review of moral identity research and its implications for business ethics. *Business Ethics Quarterly* 18(4): 513–540.
- Smith C and Thornberry TR (1995) The Relationship between Childhood Maltreatment and Adolescent Involvement in Delinquency. *Criminology* 33(4):451-79.
- Snijders TA and Bosker RJ (1999) *Multilevel Analysis: An Introduction to the Basic and Advanced Modelling*. Thousand Oaks, CA: Sage Publications.
- Steinmo S (1993) *Taxation and Democracy*. New Haven, CT: Yale University Press.
- Stone M (2011) Legal positivism as an idea about morality. *University of Toronto Law Journal* 61: 313–341.
- Tabachnik BG and Fidell LS (2007) *Using Multivariate Statistics*, 5th ed. Pearson Education, Inc.
- Thomas CW (1998) Maintaining and restoring public trust in government agencies and their employees. *Administration and Society* 30(2): 166–193.
- Tillmar M and Lindkvist L (2007) Cooperation against all odds: Finding reasons for trust where formal institutions fail. *International Sociology* 22(3): 343–366.
- Troilo M (2011) Legal institutions and high-growth aspiration entrepreneurship. *Economic Systems* 35: 158–175.
- Tyler TR (2006) Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology* 57: 375–400.



Uslaner EM (1999) *The Moral Foundations of Trust*. New York: Cambridge University Press.

White RD (2002) Do employees act like they think? Exploring the dichotomy between moral judgment and ethical behavior. *Public Administration Quarterly* 25(4): 391–412.

Williamson O (2000) The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature* 38(3): 596–613.

Zak PT and Knack S (2001) Trust and growth. *The Economic Journal* 111(470): 295–321.

**Table 1.** The trust equation: A three-component approach

Variables	(1)	(2)	(3)	(4)	(5)
<b>The personal component</b>					
Preference for leisure	0.000 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
General behavioral values	0.049*** (0.003)	0.046*** (0.003)	0.047*** (0.003)	0.045*** (0.003)	0.046*** (0.003)
Altruism and sympathy with others	-0.053*** (0.003)	-0.052*** (0.003)	-0.053*** (0.003)	-0.052*** (0.003)	-0.053*** (0.003)
<b>The interpersonal component</b>					
Others-regarding		0.405*** (0.015)	0.410*** (0.015)	0.406*** (0.015)	0.409*** (0.015)
<b>The intrapersonal component</b>					
Political institutions			4.202*** (0.103)		
Legal institutions				4.058*** (0.098)	
Regulatory institutions					6.146*** (0.180)
<i>Variance at level 1</i>	5.024 (0.039)	4.916 (0.039)	4.912 (0.038)	4.910 (0.038)	4.908 (0.038)
<i>Variance at level 2</i>	0.171 (0.005)	0.465 (0.015)	0.262 (0.012)	0.289 (0.013)	0.174 (0.008)
<i>Number of countries</i>	25	25	25	25	25
<i>Number of observations</i>	32,582	32,582	32,582	32,582	32,582

Note: Standard errors in parentheses.

† p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001 (two-tailed tests).

**Table 2.** The impact of formal institutions on trust: A robustness check

Variables	(1)	(2)	(3)	(4)	(5)	(6)
The personal component						
Preference for leisure	0.006*** (0.002)	0.007*** (0.002)	0.006*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.012*** (0.002)
General behavioral values	0.041*** (0.003)	0.042*** (0.003)	0.042*** (0.003)	0.047*** (0.003)	0.049*** (0.003)	0.042*** (0.003)
Altruism and sympathy with others	-0.042*** (0.004)	-0.042*** (0.004)	-0.043*** (0.004)	-0.030*** (0.004)	-0.030*** (0.004)	-0.030*** (0.004)
The interpersonal component						
Others-regarding	0.291*** (0.017)	0.294*** (0.018)	0.291*** (0.017)	0.287*** (0.017)	0.305*** (0.019)	0.286*** (0.017)
The intrapersonal component						
Political institutions	2.326*** (0.150)			2.217*** (0.158)		
Legal institutions		2.212*** (0.145)			2.379*** (0.172)	
Regulatory institutions			4.543*** (0.230)			5.573*** (0.281)
Individual-level control variables						
Meeting friends	0.094*** (0.009)	0.096*** (0.009)	0.097*** (0.009)	0.118*** (0.009)	0.115*** (0.010)	0.115*** (0.009)
Born in the country	0.111* (0.049)	0.112* (0.049)	0.119* (0.049)	0.139** (0.050)	0.135* (0.053)	0.198** (0.050)
Paid job	0.141*** (0.030)	0.145*** (0.030)	0.142*** (0.030)	0.234*** (0.030)	0.226*** (0.033)	0.205*** (0.030)
Gender (Male =1)	-0.007 (0.027)	-0.010 (0.027)	-0.011 (0.027)	0.029 (0.028)	0.013 (0.030)	0.019 (0.028)
Age	0.007*** (0.001)	0.007*** (0.001)	0.007*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.009*** (0.001)
Years of education	0.062*** (0.004)	0.063*** (0.004)	0.061*** (0.004)	0.087*** (0.004)	0.091*** (0.004)	0.083*** (0.004)
Household income	0.052*** (0.007)	0.049*** (0.007)	0.052*** (0.007)	0.020*** (0.007)	0.022*** (0.008)	0.028*** (0.006)
Political trust	0.071*** (0.001)	0.070*** (0.001)	0.071*** (0.001)	0.072*** (0.001)	0.070*** (0.002)	0.072*** (0.001)
Variance at level 1	4.242 (0.038)	4.241 (0.038)	4.241 (0.038)			
Variance at level 2	0.151 (0.011)	0.087 (0.007)	0.139 (0.011)			
Number of countries	25	25	25			
Number of observations	24,497	24,497	24,497	24,497	21,046	24,497
R-squared				0.268	0.265	0.271

Note: Standard errors in parentheses. The estimation of models 4, 5 and 6 is conducted by applying STATA command `reg3`. The set of equations for the institutional variables took the following form:

$$\text{Political\_institutions} = 0.990*** - 0.110***\text{Civil\_liberties} - 0.129***\text{Soviet\_dummy} \quad (Rsq = 0.896)$$

$$\text{Legal\_institutions} = 0.592*** + 0.187***\text{English\_legal\_origin} + 0.043***\text{French\_legal\_origin} + 0.089***\text{German\_legal\_origin} - 0.087***\text{Socialist\_legal\_origin} + \text{Scandinavian\_legal\_origin (ref. category)} + 0.003***\text{Protestants} + 0.001***\text{Catholics} - 0.042***\text{Orthodox} - 0.099***\text{Other\_religions} \quad (Rsq = 0.798)$$

$$\text{Regulatory\_institutions} = 0.431*** + 0.103***\text{Language\_fractionalization} + 0.016***\text{Political\_stability} + 0.029***\text{Corruption\_perception\_index} \quad (Rsq = 0.624)$$

† p < .10; \* p < .05; \*\* p < .01; \*\*\* p < .001 (two-tailed tests).

**Table 3.** Conditioning effects of formal institutions on the personal and interpersonal components of trust

Variables	Political institutions		Legal institutions		Regulatory institutions	
	(1)	(2)	(3)	(4)	(5)	(6)
The personal component						
Preference for leisure	0.032*** (0.008)	0.006** (0.002)	0.027*** (0.008)	0.007*** (0.002)	0.042*** (0.010)	0.007*** (0.002)
General behavioral values	0.016 (0.0158)	0.041*** (0.003)	0.011 (0.015)	0.042*** (0.003)	0.016 (0.014)	0.042*** (0.003)
Altruism and sympathy with others	-0.037 <sup>†</sup> (0.019)	-0.042*** (0.004)	-0.036 <sup>†</sup> (0.019)	-0.042*** (0.004)	0.001 (0.019)	-0.042*** (0.004)
The interpersonal component						
Others-regarding	0.293*** (0.017)	-0.065 (0.103)	0.289*** (0.017)	-0.143* (0.064)	0.295*** (0.017)	-0.216 <sup>†</sup> (0.120)
The intrapersonal component						
Formal institutions	3.745*** (0.387)	1.036* (0.414)	2.460*** (0.396)	-0.438 (0.271)	7.164*** (0.485)	2.185*** (0.556)
Interactions						
Intrapersonal component * Preference for leisure	-0.034*** (0.010)		-0.027* (0.011)		-0.052*** (0.014)	
Intrapersonal component * General behavioral values	0.032 (0.019)		0.038* (0.019)		0.035 <sup>†</sup> (0.019)	
Intrapersonal component * Altruism and sympathy with others	-0.005 (0.025)		-0.005 (0.025)		-0.061* (0.028)	
Intrapersonal component * Interpersonal component		0.485*** (0.138)		0.596*** (0.086)		0.760*** (0.174)
Individual-level control variables	yes	yes	yes	yes	yes	yes
Variance at level 1	4.238 (0.038)	4.239 (0.038)	4.243 (0.038)	4.239 (0.038)	4.239 (0.038)	4.241 (0.038)
Variance at level 2	0.125 (0.009)	0.145 (0.012)	0.235 (0.017)	0.183 (0.014)	0.097 (0.010)	0.205 (0.016)
Number of countries	25	25	25	25	25	25
Number of observations	24,497	24,497	24,497	24,497	24,497	24,497

Note. Standard errors in parentheses. The list of control variables includes meeting friends, born in the country dummy, paid job dummy, gender dummy, age, years of education, household income and political trust.

<sup>†</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001 (two-tailed tests).

**Table 4.** Indirect effects of formal institutions on trust components: the case of general behavioral values

Variables	The intrapersonal component		
	Political institutions	Economic institutions	Regulatory institutions
The trust equation			
The personal component	0.158* (0.068)	0.177* (0.078)	0.174* (0.083)
The interpersonal component	2.732*** (0.501)	2.549*** (0.583)	2.623*** (0.612)
R-squared	0.634	0.664	0.652
The personal component equation			
Religiosity	1.220*** (0.357)	1.343*** (0.368)	1.070*** (0.341)
Latitude	12.500** (4.041)	10.320* (4.159)	6.303 (4.588)
Percentage of Protestants	0.001 (0.009)	0.003 (0.010)	0.012 (0.009)
The external component	4.697* (1.896)	4.468* (2.007)	11.410*** (4.171)
R-squared	0.759	0.775	0.750
The interpersonal component equation			
Unemployment rate	-0.020* (0.008)	-0.014 (0.009)	-0.013 (0.009)
Years of education	0.066* (0.027)	0.063 <sup>†</sup> (0.033)	0.071* (0.032)
Past experience with others	-0.781** (0.296)	-0.641* (0.327)	-0.898*** (0.284)
The external component	0.749* (0.344)	1.104* (0.457)	1.758* (0.848)
R-squared	0.628	0.554	0.516
The intrapersonal component equation			
Civil liberties	-0.076*** (0.016)		
Political stability	0.071* (0.028)	0.148*** (0.026)	0.030 (0.023)
Socialist dummy (Former socialist=1)	-0.125*** (0.019)		
Legal origins dummy: English		0.019 (0.049)	
Legal origins dummy: French		-0.061 (0.038)	
Legal origins dummy: German		0.014 (0.043)	
Legal origins dummy: Socialist		-0.169*** (0.039)	
Language fractionalization			0.091* (0.040)
Corruption perception index			0.023*** (0.006)
R-squared	0.908	0.800	0.625
<i>Number of observations</i>	25	25	25

Note: Standard errors in parentheses. Scandinavian legal origins are used as a reference category.

<sup>†</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001 (two-tailed tests).

**Table 5.** Indirect effects of formal institutions on trust components: the case of preference for leisure

Variables	The intrapersonal component		
	Political institutions	Economic institutions	Regulatory institutions
The trust equation			
The personal component	0.165* (0.065)	0.195** (0.063)	0.147* (0.063)
The interpersonal component	3.575*** (0.415)	3.343*** (0.428)	3.686*** (0.432)
R-squared	0.586	0.640	0.551
The personal component equation			
Hours worked per week	-0.210* (0.0981)	-0.306** (0.110)	-0.165 (0.118)
Latitude	18.820*** (4.754)	18.160*** (4.317)	20.290** (6.700)
Percentage of Protestants	0.006 (0.0114)	0.011 (0.0103)	-0.001 (0.0124)
The external component	-9.257*** (2.890)	-12.180*** (3.417)	-15.480* (7.843)
R-squared	0.594	0.622	0.405
The interpersonal component equation			
Unemployment rate	-0.015* (0.007)	-0.007 (0.007)	-0.011 (0.008)
Years of education	0.044 <sup>†</sup> (0.025)	0.029 (0.027)	0.052 <sup>†</sup> (0.029)
Past experience with others	-0.498* (0.252)	-0.352 (0.260)	-0.654* (0.257)
The external component	1.074*** (0.315)	1.494*** (0.381)	2.002*** (0.775)
R-squared	0.625	0.531	0.490
The intrapersonal component equation			
Civil liberties	-0.071*** (0.016)		
Political stability	0.076** (0.028)	0.149*** (0.027)	0.034 (0.025)
Soviet dummy	-0.130*** (0.019)		
Legal origins dummy: English		0.0280 (0.051)	
Legal origins dummy: French		-0.055 (0.039)	
Legal origins dummy: German		0.009 (0.044)	
Legal origins dummy: Socialist		-0.168*** (0.039)	
Language fractionalization			0.069 (0.043)
Corruption perception index			0.023*** (0.006)
R-squared	0.909	0.800	0.617
<i>Number of observations</i>	25	25	25

Note: Standard errors in parentheses. Scandinavian legal origins are used as a reference category.

<sup>†</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001 (two-tailed tests).

**Table 6.** Indirect effects of formal institutions on trust components: the case of altruism and sympathy with others

Variables	The intrapersonal component		
	Political institutions	Economic institutions	Regulatory institutions
The trust equation			
The personal component	-0.282* (0.141)	-0.398** (0.144)	-0.225 (0.145)
The interpersonal component	3.692*** (0.492)	3.477*** (0.510)	3.770*** (0.497)
R-squared	0.491	0.525	0.464
The personal component equation			
Free help	0.039* (0.019)	0.032 (0.020)	0.036 (0.023)
Latitude	1.584 (3.546)	1.514 (3.688)	2.068 (4.074)
Percentage of Protestants	0.014* (0.007)	0.013 <sup>†</sup> (0.007)	0.010 (0.007)
The external component	-4.976*** (1.526)	-5.196** (1.746)	-8.326* (3.858)
R-squared	0.356	0.202	0.209
The interpersonal component equation			
Unemployment rate	-0.020*** (0.006)	-0.015 <sup>†</sup> (0.008)	-0.018* (0.008)
Years of education	0.043 <sup>†</sup> (0.023)	0.040 (0.028)	0.051 <sup>†</sup> (0.028)
Past experience with others	-0.519 <sup>†</sup> (0.237)	-0.490 <sup>†</sup> (0.263)	-0.673** (0.245)
The external component	1.048*** (0.311)	1.375*** (0.414)	1.911** (0.736)
R-squared	0.633	0.540	0.508
The intrapersonal component equation			
Civil liberties	-0.074*** (0.016)		
Political stability	0.073** (0.028)	0.150*** (0.027)	0.036 (0.026)
Soviet dummy	-0.127*** (0.019)		
Legal origins dummy: English		0.029 (0.049)	
Legal origins dummy: French		-0.053 (0.038)	
Legal origins dummy: German		0.020 (0.043)	
Legal origins dummy: Socialist		-0.162*** (0.039)	
Language fractionalization			0.077 <sup>†</sup> (0.044)
Corruption perception index			0.022*** (0.007)
R-squared	0.908	0.801	0.622
<i>Number of observations</i>	25	25	25

Note: Standard errors in parentheses. Scandinavian legal origins are used as a reference category.

<sup>†</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001 (two-tailed tests).

**Table 1.** Descriptive statistics for variables used for the analysis

Variable	Obs	Mean	SD	Min	Max
<b>Individual sample</b>					
Social trust	37895	4.940	2.472	0.000	10.000
Preference for leisure	34566	30.983	8.222	9.000	54.000
General behavioral values	34304	19.431	5.613	7.000	42.000
Altruism and sympathy with others	35050	13.053	4.262	5.000	30.000
Others-regarding	37018	3.015	0.840	1.000	4.000
Political institutions	38018	0.756	0.138	0.351	0.903
Legal institutions	38018	0.747	0.142	0.440	0.930
Regulatory institutions	38018	0.693	0.080	0.520	0.800
Meeting friends	37895	4.909	1.555	1.000	7.000
Born in the country	37951	0.913	0.281	0.000	1.000
Paid job	38018	0.610	0.488	0.000	1.000
Gender (Male =1)	37984	1.535	0.499	0.000	1.000
Age	38018	40.287	13.867	16.000	65.000
Years of education	37648	12.121	3.874	0.000	32.000
Household income	29652	5.980	2.788	1.000	12.000
Political trust	35772	22.646	10.222	0.000	50.000
<b>Aggregated sample</b>					
Social trust	25	4.979	1.047	3.000	6.840
Preference for leisure	25	31.085	1.997	26.977	35.292
General behavioral values	25	19.534	2.169	14.095	23.053
Altruism and sympathy with others	25	13.057	1.086	10.821	14.964
Others-regarding	25	3.033	0.319	2.384	3.538
Political institutions	25	0.758	0.141	0.351	0.903
Legal institutions	25	0.746	0.143	0.440	0.930
Regulatory institutions	25	0.695	0.082	0.520	0.800
Religiosity	25	5.441	0.643	3.794	6.154
Hours worked per week	25	40.718	3.342	34.102	50.207
Free help	25	74.608	11.229	38.200	89.300
Latitude	25	0.563	0.084	0.433	0.722
Percentage of protestants	25	28.512	36.528	0.000	97.800
Unemployment rate	25	8.255	4.105	3.500	18.300
Years of education	25	12.158	1.609	6.590	13.998
Past experience with others	25	1.597	0.133	1.317	1.848
Civil liberties	25	1.774	0.945	1.000	4.630
Political stability	25	0.874	0.537	-0.750	1.620
Socialist dummy (Former socialist=1)	25	0.280	0.458	0.000	1.000
Legal origins dummy: English	25	0.080	0.277	0.000	1.000
Legal origins dummy: French	25	0.32	0.476	0.000	1.000
Legal origins dummy: German	25	0.12	0.332	0.000	1.000
Legal origins dummy: Socialist	25	0.280	0.458	0.000	1.000
Political stability	25	0.874	0.537	-0.750	1.620
Language fractionalization	25	0.256	0.207	0.010	0.640
Corruption perception index	25	6.912	2.162	2.440	9.660