

Determinants of generalized trust: A cross-country comparison

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Abstract The paper explores the determinants of generalized trust across countries. The findings suggest that only few variables can be considered significant. Social polarization in the form of income inequality and ethnic diversity reduces trust, Protestantism and having a monarchy increases trust while post-communist societies are less trusting than other. The findings also provide support for the use of a standard indicator as a stable measure of generalized trust and emphasize the importance of taking endogeneity seriously.

Keywords Trust · Inequality

JEL Code D31, Z13

1. Introduction

Since Robert Putnam's (1993) study on regional government in Italy, the concept of social capital has become a household word in economics. Putnam (1993: 167) defined social capital as "features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions" and as such, the concept seems to have triggered many allusions to people's everyday life. The literature has nevertheless focused on trust as the preferred measure, as later studies show that trust and networks are in fact not related to each other (e.g. Uslaner, 2002). Research exploring the many consequences of trust is now well-established and has generated a vast empirical literature. To name but a few of the more robust results, trust is a factor in explaining cross-country differences in economic growth (Knack & Keefer, 1997; Whiteley, 2000; Zak & Knack, 2001; Beugelsdijk et al., 2004), institutional development and quality (Helliwell & Putnam, 1995; la Porta et al., 1997; Rice & Sumberg, 1997; Knack, 2002), corruption (Uslaner, 2002) and subjective life satisfaction (Uslaner, 2002; Bjørnskov, 2003; Helliwell, 2003).

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The existence of these highly desirable effects should, one would think, create a demand for research on the determinants of trust; i.e. why the populations of some countries are more trusting than others and whether there is a role for public policy in creating trust. However, although already yielding a series of results the literature on the determinants of trust is not as developed as that of the consequences. Moreover, almost all papers rely on simple OLS regressions implying that potential endogeneity issues have gone unresolved. This paper therefore addresses the issue of what causes cross-country differences in generalized trust using the most recent data from the World Values Survey supplemented by recent surveys from another project and takes the endogeneity issue into account. The paper is structured as follows. Section 2 discusses the reliability and validity of the generalized trust measure used in the literature. Section 3 reviews a set of potential determinants, most of which have been suggested in the existing literature, and presents data capturing these determinants. The data are then used in Section 4 for estimating the determinants of trust. Section 5 concludes.

2. The trust measure

First of all, trust is not simply trust. When exploring the concept of trust most of the literature explicitly or implicitly deals with generalized trust, which must be distinguished from particularized trust. This point was made abundantly clear by Banfield's (1958) famous study of a Southern Italian village in which individuals were connected by exceedingly strong bonds within families but not at all between families. He therefore coined the term 'amoral familism' to describe the phenomenon where no trust exists between people who do not know each other through e.g. families or kin groups. What Banfield described was the difference between what is now usually termed particularized and generalized trust. While particularized trust arising in face-to-face interactions can be thought of as reputation and is thus readily understandable for economists and political scientists qua the huge theoretical literature on this concept, generalized trust, on the other hand, is trust towards strangers arising when "a community shares a set of moral values in such a way as to create regular expectations of regular and honest behavior" (Fukuyama, 1995: 153). In other words, generalized trust differs fundamentally from particularized trust by being extended to people on whom the trusting part has no direct information.¹

The measure of generalized trust used in virtually the entire cross-country literature is the share of a population answering yes to the question "In general, do you think that most people can be trusted, or can't you be too careful in dealing with people?" The history of using this question is long. It has for example been included in various US surveys such as the General Social Survey since the late 1950s and has been asked in all waves of the World Values Survey beginning in 1981 (see Inglehart et al., 2004). When asking this question, it is nonetheless not made clear to respondents whom to trust, in which situations or under which circumstances. This ambiguity could make it rather difficult for people to answer the question, implying that it might pick up culturally specific perceptions of the context in which it is asked or simply

¹ Yamagishi and Yamagishi (1994) and Uslaner (2002) in particular provide good discussions of the distinction between different types of trust. While Putnam argued that particularized trust arising from interactions in voluntary organizations spill over into generalized trust, a series of studies such as Claibourn and Martin (2000) and Uslaner (2002) have demonstrated that this is far from being the case. Any correlation between generalized trust and associational activity arises from trusters being more willing to join such organizations. Seen in the light of the fragility of the trust-association connection, one might speculate whether the eagerness with which most of the economics profession has accepted Putnam's claim arose from the ease with which it fits into already existing game-theoretical concepts such as reputation effects.

reflect purely transitory phenomena such as e.g. anxiety following adverse media reports or euphoria after a national victory in sports.

However, judging from the available studies the percentage of people answering yes to the question nonetheless appears to be a quite good measure of the underlying theoretical concept. Knack (2001) for example notes that in an experiment in which a number of wallets were dropped in cities around the world, the trust scores were good predictors of how many wallets in each country were returned with the contents intact. Another fact indicating validity is that generalized trust is a robust determinant of aggregate behavioral features such as corruption or the prevalence of violent crime (Lederman et al., 2002; Uslaner, 2002). In other words, the national trust scores measure the extent to which people in a country can in general be expected to ‘do the right thing’. Depending on experimental evidence, Glaeser et al. (2000) moreover note that the trust score actually seems to be a good measure of respondents’ own trustworthiness and hence whether respondents themselves can be expected to do the right thing. Yet this difference would be inconsequential at the national level as it is difficult to distinguish between trust and trustworthiness, even at the micro level since trusters have a tendency to respond positively to trusting behavior (see e.g. Dufwenberg & Gneezy, 2000; Guerra & Zizzo, 2004).

Another aspect of validity is to what extent the scores are stable across time. A plethora of developments could theoretically affect trust and has been argued to do so, as expounded in a following section. However, social trust might be stable across time for a number of reasons. A first point to note is that a basic propensity to trust is already learnt during peoples’ childhood and formative years, a standard finding in a long tradition in psychology. Katz and Rotter (1969) for example showed that 75% of the variation in teenagers’ trust levels could be explained by their parents’ propensity to trust most other people. This propensity must logically be in equilibrium at the level of society or individuals would gradually update their belief in other people’s trustworthiness when observing that their beliefs do not fit observed behavior. A second point to note is therefore that such an equilibrium might well be self-enforcing, as individuals act on their beliefs by reciprocating trust (Dufwenberg & Gneezy, 2000; Guerra & Zizzo, 2004). Hence, people in general will neither have a need to update beliefs nor to change their own behavior as beliefs are simply reconfirmed by observation except when the fundamental conditions of society change. As a third point to note with respect to the possibility that trust scores are stable over time, Uslaner (2004) shows that the *descendants* of immigrants to the US have a strong tendency to show the same level of trust as the *current* inhabitants of the countries from which their ancestors came generations ago. Logically, there must thus be an important element of cultural inheritance in individuals’ propensity to trust that is intergenerationally transmitted for surprisingly long periods of time.² As such, if the cross-country trust measures are to be trusted some level of stability should probably be expected. Finally, to the extent that the generalized trust scores are stable, one should also expect to find determinants that are relatively stable over time. By estimating the variability of trust over time, it is hence possible to contribute to resolving a central dispute in the social capital literature, namely whether features such as trust have deep historical roots or if they can more easily be influenced by public policy (e.g. Putnam, 1993; Knack & Zak, 2002; Uslaner, 2002).

The generalized trust measure indeed appears to be remarkably stable over time, as is evident in Table 1. In columns 1–3, changes in trust are regressed on initial trust where

² Adam Smith for example noted that “the Dutch are most faithful to their word” (quoted in Zak & Knack, 2001). Of the European countries that Smith would likely have had business, the Netherlands is to this day the nation with the highest trust score.

Table 1 Stability of generalized trust

| Dependent variable | Yearly trust change | | | Generalized trust | | |
|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|
| | OLS 1 | OLS 2 | OLS 3 | OLS 4 | FE 5 | FE 6 |
| Initial trust | -0.513*** (-4.470) | -0.537*** (-4.901) | -0.586*** (-5.086) | 0.887*** (13.328) | | 0.022 (0.097) |
| 1990s | | -0.0134 (-1.222) | | | | |
| Post communist | | | -0.194* (-1.681) | | | |
| Second wave | | | | -0.039 (-0.577) | 0.088* (1.684) | 0.001 (0.013) |
| Third wave | | | | -0.272*** (-4.225) | 0.030 (0.540) | -0.184*** (-3.216) |
| Fourth wave | | | | | -0.095* (-1.804) | |
| Observations | 64 | 64 | 64 | 46 | 69 | 46 |
| Pseudo R square | 0.251 | 0.257 | 0.272 | 0.818 | 0.870 | 0.883 |
| F statistic | 22.463 | 12.067 | 12.969 | 68.617 | 17.739 | 14.640 |
| RMSE | 7.457 | 7.428 | 7.352 | 6.289 | 5.134 | 5.039 |

Note: The dependent variable is generalized trust. All regressions include a constant term; t-statistics in parentheses are based on robust standard errors; *** denotes significance at $p < 0.01$; ** at $p < 0.05$; * at $p < 0.10$

the dependent variable is the yearly change in generalized trust between different waves of the WVS, i.e. 1981–1990 and either 1990–1997 or 1990–2000, depending on data availability. The table thus repeats the stability exercise in Volken (2002) but with a larger and more balanced dataset. It throughout shows a strong regression-to-mean effect, indicating that the national generalized trust scores seem to fluctuate around stable levels. Columns 2 and 3 explore this further, showing that while it is not a general feature of all countries, post-communist societies have experienced decreasing trust levels following the fall of the communist regimes (column 3) – a development that is hardly surprising when considering that an entire system of society was dismantled within the decade in most of these countries. The weak significance of the coefficient is mainly due to the increasing trust level in Slovenia following its independence from Yugoslavia in the early 1990s, the oddly high Belarusian level in 1999 and possibly also the fact that Hungary started dismantling parts of the communist system somewhat earlier than other communist countries.

These results could nevertheless be influenced by sampling bias, as the WVS has included more countries in later waves. Columns 4–6 therefore only include countries that have been part of the WVS since the inception in 1981; the dependent variable here is the generalized trust level. While indicating that trust scores have in general been about eight points lower in the third wave of the WVS (1997–1998), column 4 replicates the stability conclusion as trust in the preceding period emerges as an extremely important determinant. Indeed, the unstandardized coefficient on initial trust does not differ significantly from one. The lower trust observed in the third wave is nonetheless an effect of sampling bias, as this wave included a number of low-trust countries while more high-trust countries were included in the fourth wave. Another way to explore the stability of trust across time periods is estimation with fixed effects, which is now possible with the most recent data where a subset of 23 countries

have observations from both the first, second and either third or fourth waves of the WVS. Columns 5 and 6 therefore report further estimates of the stability of generalized trust using fixed effects. Almost 90% of the variation is explained and approximately 80–85% is picked up by the fixed effects. The columns therefore clearly show that apart from weak differences across the waves, generalized trust can indeed be treated as a time-invariant feature of national cultures.

In total, two results in Table 1 should be stressed. Firstly, only about a fourth of the cross-wave variation is explained by obvious variables in columns 1–3, which could possibly indicate that most of the observed variation is pure noise; and secondly, the estimates in columns 4 and 6 show that the trust scores are generally fixed over time. Judging from the evidence presented in Table 1, the national trust scores appear remarkably stable across time, suggesting that they are relatively insensitive to transitory phenomena whether these are random sunspots or conscious policy changes. It hence seems fair to use the scores as a reliable and valid measure of generalized trust and honesty. Consequently, the dependent variable throughout this paper is the national trust score, obtained from the two most recent waves of the World Values Survey (WVS) conducted in 1997 and 1999–2001 (Inglehart et al., 2004). In the case a country has been included in both waves I use the most recent observation. The WVS data are supplemented by a few observations from the recent Danish Social Capital project (2002–2003), which therefore yields a large sample with a more balanced geographical coverage. By employing these data, the paper comes to differ from earlier studies in using a somewhat larger sample containing more poor and middle-income countries as can be seen in appendix Table A2.

3. Potential determinants and data

Previous literature has explored the potential determinants of generalized trust and suggested a list of variables discussed in the following. Before turning to the set of variables included here, two qualifications need mention. First, it would be rash to claim that the following list of factors is anywhere near exhaustive, as the literature includes many more potential factors. Yet, the present paper explores the majority of variables that previous studies in the mainstream social capital literature have found to significantly affect generalized trust. Second, when assessing the likelihood that any variable might causally affect generalized trust the evidence in the previous section should probably be taken into account. For potential determinants, this implies that they should either be time-invariant or include elements with some persistence over time. Otherwise, they would logically violate the finding that trust is fairly stable over decade-long time periods.

A conclusion reached by virtually all studies is that income inequality is among the most robust cross-country determinants of trust (Knack & Keefer, 1997; Zak & Knack, 2001; Knack & Zak, 2002; Uslaner, 2002). In a broader sense, anything that reduces the social distance between the citizens of a country could be expected to lead to more trust. Ethnic diversity is consequently also sometimes found to be detrimental to trust and social cohesion (e.g. Knack & Keefer, 1997), which could for example underlie the negative effects of ethnic diversity on growth found by e.g. Easterly and Levine (1997) and Hodler (forthcoming).³ Income inequality (Gini coefficients) and a recent measure of ethnic diversity are therefore included in the baseline in the following. Only diversity can nonetheless be considered exogenous

³ As a rejoinder to these findings, it should nevertheless be mentioned that both stress the alleviating effects of strong institutions that can negotiate between ethnic groups.

with absolute certainty, as high trust could theoretically induce a feeling of solidarity across income segments that would create support for redistributive policies. Additionally, given that both generalized trust and Gini coefficients tend to be fairly stable over time, such endogeneity could explain part of their stability.

Another widely found result is that the religious composition of the population matters, which would also be consistent with the stability of trust since this composition in most countries is predominantly historically determined. La Porta et al. (1997) and Berggren and Jordahl (2006) find strong negative effects of hierarchical religions (Catholicism, Orthodox Christianity and Islam) while Zak and Knack (2001) find that Catholics and Muslims are less trusting and Uslaner (2002) finds a positive effect of Protestantism. At least two explanations exist for these findings. Referring to Putnam (1993), la Porta et al. (1997) stress the importance of hierarchical religions in creating vertical bonds of obligation in society that divide rather than unite people socially. Differences in religious traditions and norms as those originally described by Max Weber (1992 [1930]) might also have affected the creation of generalized trust, as responsibility is more individualized in non-hierarchical religions such as Northern European Protestantism where sins cannot be absolved by the church or any other institution. This interpretation is also supported by the robust effects of Protestantism in individual-level studies (e.g. Glaeser et al., 2000). Moreover, if the effects are due to the absence of strong hierarchical bonds in Protestantism, it could be expected that Eastern/Asian religions should generate the same effects. Alternatively, Protestantism might reflect an even deeper source of trust, as Ekelund et al. (2002) show that the success of the reformation in certain European societies crucially depended on a relatively high degree of social mobility already existing at the time, which reduced the possibilities of the Catholic church to act as a discriminating monopolist (in selling salvation). As such, part of the effect of Protestantism might simply be an extremely long run effect of reduced social distance. I thus include the shares of Protestants, Catholics, Muslims and people belonging to an Eastern religion (Hinduism, Buddhism) in the population but exclude the share of Orthodox Christians as effects of this variable are likely picked up by a dummy for post-communist countries.

The post-communist dummy is included in the baseline specification as a response to Paldam and Svendsen's (2001) dictatorship theory in which it is argued that trust levels in Central and Eastern Europe deteriorated due to the oppressive behavior of the communist dictatorships. Examples of such harmful behavior indeed abound. Romania's dictator Nicolae Ceausescu for example created an internal intelligence agency known as Securitate that may have employed as many as 700,000 citizens as informers (Lovatt & Lovatt, 2001). Other communist regimes had similar agencies, e.g. the Soviet KGB or East Germany's Stasi, both known worldwide for their brutal treatment of citizens merely accused of being political dissidents. It may thus have been entirely rational not to trust people other than the closest family and friends in the formerly communist societies. The effects of dismantling the communist systems reported in Table 1 must nonetheless also be taken into consideration when interpreting the potential effects of this variable, as well as the inevitable increase in income inequality arising from this development.⁴

⁴ Virtually all economists agree that the collapse of communism resulted in more skewed income distributions in the formerly communist countries. However, Henderson et al. (2005) warn that this increase should not be exaggerated, as communist statistics and the system itself hid much inequality. For example, summer cottages and a number of other luxury goods were provided as a bonus to loyal and high-ranking party members. An elite was therefore able to maintain a much higher de facto consumption than the rest of the population although such sources of inequality would never appear in the statistics.

Knack and Keefer (1997), Zak and Knack (2001) and Delhey and Newton (2005) moreover find that GDP per capita is significantly associated with trust. This might reflect the long run effects of trust on growth, which would be consistent with the stability of trust, or simply that rich people are more willing to take a chance in trusting strangers, hence capturing a difference of relative risk aversion that would tend to decrease as incomes increase. Alternatively, Delhey and Newton (2005) interpret it as a confirmation of Simmel's modernization theory. Consequently, GDP per capita is included in the baseline specification in the next section. Alternatively, Berggren and Jordahl (2006) suggest that the effects of wealth on institutional development underlie this correlation, as the rule of law could make people more trusting by protecting them from adverse effects when their trust is misused. Paraphrasing the philosopher Søren Kierkegaard, a strong legal system might thus shorten the 'leap of faith' inherent in any act of trust. Berggren and Jordahl (2006) therefore argue that people need to be "free to trust", which would imply an effect of either economic freedom through the rule of law or political freedom through democracy. Other studies have nevertheless argued for the reverse causal direction, implying that trust creates institutional development and stabilizes democracy (e.g. la Porta et al., 1997; Rice & Sumberg, 1997; Knack, 2002; Uslaner, 1999). I hence test for the effects of both democracy and legal quality although with more care than other variables that can more safely be considered exogenous since most countries have experienced improving institutional quality in recent decades. The variables used for capturing institutional development are either a measure of the rule of law, the well-known Gastil index of political rights or the number of years that countries have been consecutively democratic since 1972.

The endogeneity concerns also apply to the potential effects of education, of which measures are far from being stationary but could nonetheless include strong persistent features. Knack and Keefer (1997) and Knack and Zak (2002) argue that trust is created in the educational system by making individuals better informed and better at interpreting perceived information, as well as making them more conscious of the consequences of actions taken by themselves and others. Moreover, schooling might have an important socialization effect that may give young people a more positive attitude towards strangers. However, other studies argue for the reverse causal direction, as trust might also lead to better educational outcomes by allowing students to gain access to the help of family and fellow students (Coleman, 1988; la Porta et al., 1997; Putnam, 2000). Alternatively, firms' demand for educated employees might also be affected positively by generalized trust if the costs associated with monitoring workers with complex work tasks are not trivial. To capture these channels, I test for the effects of education measured by the share of the population finishing secondary school.

Turning to demographic variables, Putnam (2000) argues for a cohort effect as young Americans appear to be substantially less trusting than their older fellow citizens. In individual-level studies, Glaeser et al. (2000) and Alesina and la Ferrara (2000) confirm that older people in general are more trusting. Reflecting this result, Berggren and Jordahl (2006) find a negative effect of age structure, measured as the proportion of a population in the working age between 15 and 64, which is the variable used in the following. Another demographic variable to be considered is population size, since much network analysis finds that features such as trust are more likely to evolve in small networks (e.g. Zelmer, 2003). In addition, larger countries are often more culturally and ethnically diverse, which would also suggest that small countries might be more trusting. I hence include the logarithm to population size in the following. Two influential critiques of the international political development in recent decades are also addressed below. Skeptics of the increased international integration of recent years have claimed that globalization undermines features such as trust and social cohesion (e.g. Bauman, 1998; see also the discussion in Hirschman, 1982). Typical

of this line of thinking, Fred Hirsch argued as early as 1976 that “as individual behavior has been increasingly directed to individual advantage, habits and instincts based on communal attitudes and objectives have been lost out” (quoted in Hirschman, 1982: 1466). The developments that supposedly create this loss have only accelerated since then while the trust scores seem to have stayed stable. The standard measure of economic openness (trade volume as percent of GDP) is nevertheless included below as a response to these claims. In a broader perspective, most of these commentators lament what they perceive as a general political drift to the right, which might arguably affect generalized trust as leftwing parties often claim and receive credit for being more concerned with solidarity in society. This presumption is felt as an undercurrent in much sociological literature, e.g. in the so-called Frankfurt school, which includes such notables as Max Horkheimer and Jürgen Habermas, and in an entirely different arena, the notion was also an issue in the 2004 Democrat presidential campaign in the United States. On a more tangible note, leftwing governments are often thought to redistribute more and thus create a more equal income distribution, which virtually all studies find to be beneficial for generalized trust. A strong leftwing ideology could on the other hand serve as a polarizing force in society by implicitly putting focus on how richer segments of society allegedly ‘exploit’ poor groups. It is thus unclear what to expect from including ideology. In order to capture the influence of political ideology, I use a new measure similar to the one developed in Bjørnskov (2005).⁵

Finally, as a casual observation the three Nordic countries at the top of the trust scale are all constitutional monarchies while the kingdom of Jordan also appears to be more trusting than its substantially richer neighbor, Israel. Being a monarchy might capture two different influences. Firstly, having a royal or imperial family might provide social and political stability and represent a strong symbol of unity – something that people of different social segments, races, religions and ethnicities have in common. The royal head of state might also constitute a common national conscience, of which at least two prime examples exist: the British queen Elizabeth II and the Danish queen Margrethe II both yearly summarize the year for their nations and occasionally reprimand their subjects for various ‘slips of conduct’ in the Christmas Speech and the New Year’s Address, respectively. The lasting example of a monarch may thus hold adverse tendencies in check and provide a role model in a way that other arrangements such as temporary presidencies are unable to do. Alternatively, the existence of a monarchy might reflect the historical depth of trust, as Putnam (1993) argues in the case of Italy. For example, while France disposed of their monarch in the extremely violent 1789 revolution, no leading political figure or member of the royal family in Denmark has been assassinated since 1286. Other high-trust countries including Norway, Finland and the Netherlands also have peaceful political histories while at the same time, politicians and members of the royal families in these societies have traditionally been remarkably accessible to the public.⁶ Trust in people in general and the institutional quality arising thereof might also be reflected in the ease with which British governments for centuries have been able

⁵ Using the categorization in Beck et al. (2001), I calculate a measure of ideology by coding leftwing parties –1, centre parties 0, and rightwing parties 1. The ideology of the three largest parties in government weighted with the number of seats in parliament held by each party gives a yearly indicator of government ideology. The measure employed in the following is average ideology in the 90s. When employed as an instrument, I use the 25 year average.

⁶ The last assassination attempt in Denmark dates back to 1885 when the government leader avoided death as the bullet of the assassin hit a coat button made of solid metal. Another popular anecdote can exemplify the Nordic tradition of accessibility to those in power. On a visit to Copenhagen in the early 17th century, an astonished Russian Zar asked the Danish king Christian IV why he had virtually no soldiers to guard him while riding round the city. The king famously answered “I don’t need them. My people [subjects] watches

Table 2 Descriptive statistics

| Name | Average | Standard deviation | Observations |
|-----------------------|---------|--------------------|--------------|
| Age structure | 64.88 | 4.65 | 75 |
| Catholics | 27.75 | 37.37 | 76 |
| Common law | 0.24 | 0.43 | 76 |
| Democratic legacy | 18.79 | 15.82 | 76 |
| Eastern religion | 5.37 | 20.04 | 76 |
| Education | 85.47 | 28.13 | 72 |
| Ethnic diversity | 0.36 | 0.23 | 76 |
| Gastil index | 2.43 | 1.83 | 76 |
| GDP per capita | 12,565 | 9,730 | 76 |
| Generalized trust | 27.76 | 15.65 | 76 |
| Growth 1996–2000 | 9.58 | 11.35 | 70 |
| Income inequality | 37.80 | 9.79 | 76 |
| Monarchy | 0.18 | 0.39 | 76 |
| Muslims | 7.46 | 19.88 | 76 |
| Openness | 77.12 | 52.96 | 75 |
| Political ideology | 0.02 | 0.53 | 75 |
| Population size (log) | 9.76 | 1.49 | 75 |
| Post-communist | 0.22 | 0.42 | 76 |
| Press freedom | 35.88 | 22.26 | 75 |
| Protestants | 16.91 | 28.94 | 76 |
| Rule of law | .47 | 1.04 | 76 |

to borrow money for warfare from the population, as documented in Ferguson (2001). For these reasons, I include a dummy for monarchies in all but one of the following analyses.

As stressed above, the paper does not include all factors suggested in the literature but only (with one exception) those that are measurable and that one or more studies have found to be significantly associated with generalized trust. This implies that a number of factors suggested by classical sociological theories are not included as Delhey and Newton (2005) find no evidence of their effects. Neither are persistent cross-country differences in how educational systems structurally work, apart from the quantity of education they produce, as most of them would be difficult to quantify. Nor are unobserved characteristics such as a number of subjective perceptions of how society work that could affect e.g. people's acceptance of inequality or other theoretically valid beliefs (e.g. Denzau & North, 1994; Bjørnskov, 2005).

The data to capture these different potential influences are summarized in Table 2; appendix Table A1 gives the sources of all data and appendix Table A2 lists the countries included in the analysis. The tables show two of the three counts on which the present paper differs from previous literature: the country sample is somewhat larger than other studies and most variables suggested in other studies are tested on the same 74-country sample. The last difference occurs as a response to the potential endogeneity problems touched upon in the above, which part of the literature has ignored while another has tended to use lagged variables to overcome endogeneity issues. However, when the dependent variable is relatively stable over time – as the preceding section has shown – using lagged variables will not necessarily improve upon potential endogeneity problems. The effects of potentially endogenous

over me". The exception to the rule of political peace is Sweden, where the Swedish Prime Minister Olof Palme was murdered in 1986 and the Minister of Foreign Affairs Anna Lindh in 2003.

variables are therefore estimated using instrumental variables in a standard two-stage least squares method. The use of instrumental variables can also serve to alleviate, if not solve, a second problem related to the stability of the trust scores. Given that generalized trust is stable over time, estimating its determinants amounts to some extent to assessing the influence of a set of presumably fairly stable factors on a stable dependent variable. This situation may tend to exacerbate both the causality problem as well as the risk of drawing erroneous conclusions due to the potential existence of confounding variables.

Before proceeding to the results, it should be stressed that China is excluded in all but one of the following regressions as it is a strong outlier in all analyses, not only those presented in this paper (e.g. Uslaner, 2002). I also exclude the new observation of Iran, as the same problems apply.

4. Results

Table 3 reports the results of including the variables that will normally be considered to be exogenous while Table 4 reports results with variables that might be endogenous. As in

Table 3 Determinants of generalized trust

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Income inequality | -0.336*** (-2.989) | -0.386*** (-3.281) | -0.377*** (-3.344) | -0.363*** (-3.112) | -0.349*** (-2.843) | -0.378*** (-3.302) | -0.363*** (-3.203) |
| Ethnic diversity | -0.105 (-1.176) | -0.137 (-1.468) | -0.146 (-1.475) | -0.133 (-1.316) | -0.158 (-1.551) | -0.134 (-1.202) | -0.147 (-1.528) |
| Post communist | -0.243** (-2.119) | -0.282** (2.326) | -0.243** (-2.018) | -0.233* (-1.888) | -0.239* (-1.971) | -0.273 (1.656) | -0.209* (-1.804) |
| Protestants | 0.222 (1.575) | 0.236 (1.606) | 0.187 (1.399) | 0.151 (1.036) | 0.182 (1.316) | 0.190 (1.389) | 0.184 (1.373) |
| Catholics | -0.184** (-2.058) | -0.197** (-2.089) | -0.169* (-1.900) | -0.192** (-2.075) | -0.174* (-1.846) | -0.169* (-1.882) | -0.171* (-1.924) |
| Muslims | -0.129** (-2.398) | -0.150** (-2.618) | -0.129** (-2.250) | -0.129** (-2.201) | -0.125** (-2.096) | -0.127** (-2.311) | -0.137** (-2.366) |
| Eastern religion | 0.148** (2.044) | 0.153* (1.942) | 0.108* (1.694) | 0.111 (1.589) | 0.124* (1.947) | 0.097 (1.303) | 0.087 (1.179) |
| GDP per capita | 0.162 (1.297) | 0.136 (1.054) | 0.059 (0.444) | 0.109 (0.723) | 0.079 (0.544) | 0.027 (0.155) | 0.093 (0.748) |
| Monarchy | | | 0.269*** (2.911) | 0.262*** (2.836) | 0.264*** (2.813) | 0.273*** (2.978) | 0.276*** (2.900) |
| Openness | | | | -0.077 (-0.944) | | | |
| Political ideology | | | | | -0.083 (-1.039) | | |
| Age structure | | | | | | 0.053 (0.378) | |
| Population size (log) | | | | | | | 0.079 (0.804) |
| China and Iran | 0.371*** (3.849) | | | | | | |
| Observations | 76 | 74 | 74 | 73 | 73 | 74 | 74 |
| Pseudo R square | 0.511 | 0.472 | 0.524 | 0.518 | 0.522 | 0.517 | 0.521 |
| F statistic | 12.31 | 11.97 | 12.73 | 10.68 | 12.23 | 11.77 | 11.31 |
| RMSE | 10.937 | 10.820 | 10.273 | 10.383 | 10.359 | 10.341 | 10.300 |
| RESET test, $p <$ | 0.155 | 0.309 | 0.291 | 0.293 | 0.215 | 0.247 | 0.481 |
| VIF | 1.60 | 1.67 | 1.66 | 1.74 | 1.68 | 1.96 | 1.71 |

Note: The dependent variable is generalized trust. All regressions include a constant term; t -statistics in parentheses are based on robust standard errors; *** denotes significance at $p < 0.01$; ** at $p < 0.05$; * at $p < 0.10$

Table 4 Determinants, potentially endogenous variables

| Estimation method | OLS | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 |
| Income inequality | −0.379*** (−3.017) | −0.401*** (−3.504) | −0.386*** (−3.248) | −0.343*** (−2.953) | −0.304** (−2.480) |
| Ethnic diversity | −0.147 (−1.505) | −0.147 (−1.465) | −0.160 (−1.647) | −0.132 (−1.281) | −0.095 (−0.896) |
| Post communist | −0.246* (−1.812) | −0.232* (−1.850) | −0.249** (−2.055) | −0.259* (−1.893) | −0.209* (−1.800) |
| Protestants | 0.191 (1.491) | 0.226 (1.584) | 0.200 (1.495) | 0.111 (0.728) | 0.176 (1.173) |
| Catholics | −0.166* (−1.823) | −0.126 (−1.221) | −0.167* (−1.890) | −0.213** (−2.228) | −0.197** (−2.300) |
| Muslims | −0.129** (−2.244) | −0.130** (−2.262) | −0.138** (−2.281) | −0.153*** (−2.871) | −0.112* (−1.856) |
| Eastern religion | 0.109* (−1.758) | 0.130* (1.798) | 0.113* (1.728) | 0.103 (1.507) | 0.111 (1.605) |
| GDP per capita | 0.061 (0.434) | 0.067 (0.483) | 0.122 (0.622) | 0.096 (0.652) | 0.113 (0.803) |
| Monarchy | 0.269*** (2.886) | 0.269*** (2.856) | 0.274*** (2.852) | 0.235** (2.318) | 0.274*** (2.781) |
| Democratic legacy | −0.009 (0.061) | | | | |
| Gastil index | | 0.079 (0.667) | | | |
| Rule of law | | | −0.095 (−0.497) | | |
| Education | | | | 0.079 (0.542) | |
| Growth 1996–2000 | | | | | 0.124 (1.331) |
| Observations | 74 | 74 | 74 | 71 | 69 |
| Pseudo <i>R</i> square | 0.516 | 0.519 | 0.518 | 0.527 | 0.536 |
| <i>F</i> statistic | 11.39 | 11.38 | 10.85 | 11.26 | 11.76 |
| RMSE | 10.354 | 10.321 | 10.335 | 10.403 | 10.255 |
| RESET test, <i>p</i> < | 0.274 | 0.157 | 0.274 | 0.449 | 0.262 |
| VIF | 2.10 | 1.90 | 2.36 | 2.01 | 1.69 |

Note: The dependent variable is generalized trust. All regressions include a constant term; *t*-statistics in parentheses are based on robust standard errors; *** denotes significance at $p < 0.01$; ** at $p < 0.05$; * at $p < 0.10$

previous literature, the determinants are estimated by simple OLS. The tables also report Ramsey's RESET test for misspecification and the variance inflation factor (VIF).⁷ As a first test, the baseline variables are supplemented by a dummy for whether the country is China or Iran, which constitutes a simple test of the exclusion of those two countries. This seems a

⁷The latter test in particular could be important. As a referee pointed out to me, both GDP and other variables in the baseline specification may also determine e.g. the rule of law and education. Their joint inclusion might therefore result in an inflation of the variances that might prevent a proper identification of any 'real' effects of these variables. As the results show, this is not the case.

valid choice as the dummy is highly significant, indicating that China and Iran have official generalized trust scores that are approximately 35 percentage points higher – more than two standard deviations – than what would be predicted by a baseline specification that explains about half of the cross-country variation. All remaining results are therefore obtained in a sample that excludes these countries.

Turning to the remaining results, column 2 in Table 3 gives support for the influence of three baseline variables and some weaker support for a fourth variable. Firstly, income inequality is significant at $p < 0.01$ throughout, suggesting that a negative shock of one standard deviation would increase generalized trust by roughly 35–40% of a standard deviation. The shares of Catholics and Muslims also exert significant influences although the effects are approximately half of that of income inequality while the effect of Eastern religion is only significant at $p < 0.10$ and that of Protestants is not significant in any columns. It should, however, be stressed that a very large part of the population in most countries belong to one of these religions. Hence, the effect of any particular religion is only interpretable as compared to other religions.

Contrary to some previous studies, ethnic diversity does not exert a significant effect although the coefficient remains of the same size in most specifications. In general, while the size of the estimate remains about the same the significance of ethnic diversity depends on which countries are included. Conversely, the effect of having a communist past is clear as these countries are about eight percentage points less trusting than otherwise comparable countries. The findings thus clearly support Paldam and Svendsen's (2001) dictatorship theory although it is difficult to separate this effect from that of having an Orthodox majority population. As shown in Table 1, part of this effect may also be the result of a decline in trust during the 1990s, i.e. after the fall of the communist regimes. The post-communist dummy thus picks up both the effects of having a communist dictatorship as well as the disruptive effects of dismantling the entire organization of these societies within a relatively short span of time, which inevitably brought much anxiety and uncertainty regarding the future. The table, however, does not support the notion that richer countries in general are more trusting. Previous studies have concluded so, but with the most recent waves of the WVS this result no longer holds, as poor countries such as Indonesia and Vietnam not included in previous waves score substantially higher on the trust index than e.g. France or Greece. In Uslaner's (2002: 181, italics in original) words, it must be concluded that "what matters is not *how rich a country is*, but *how equitable is the dispersion of income*".

Column 3 includes the dummy for monarchies, which is considered exogenous as all monarchies in the sample have had this status for at least 50 years. The table shows that countries with some sort of monarchy in general are more trusting. The coefficient on monarchy is strongly significant throughout and remarkably stable in size, and the effect is moreover of a size that warrants interest: all other things being equal, populations in monarchies are approximately ten percentage points more trusting than in comparable countries. As it substantially increases the explanatory power of the regression, the monarchy dummy is included in the baseline specification in the following. While there is thus strong empirical support for the notion that monarchies for one or more of the reasons outlined above have been able to create and sustain high trust levels, all other things being equal, the same is not the case for the remaining exogenous variables in Table 3. Although the effects of both openness and political ideology are of the sign expected by globalization skeptics, they are far from being significant. Neither any drift to the political right nor the increased international integration therefore seem to affect generalized trust. With respect to the demographic variables, both are insignificant and even of the wrong sign, implying that Putnam's (2000) claims about the effects of young cohorts in the United States cannot be extended to other countries in general,

Table 5 Determinants, potentially endogenous variables, continued

| Estimation method | IV | | | | |
|-------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 |
| Income inequality | −0.536*** (3.048) | −0.313** (−2.247) | −0.428*** (−3.481) | −0.356*** (−3.253) | −0.366** (−2.589) |
| Ethnic diversity | −0.104 (−0.957) | −0.152 (−1.554) | −0.166 (−1.575) | −0.083 (−0.617) | −0.117 (−0.919) |
| Post communist | −0.287** (−2.487) | −0.290** (−2.473) | −0.282** (−2.385) | −0.332*** (−2.713) | −0.274*** (−3.129) |
| Protestants | 0.194 (1.567) | 0.063 (0.275) | 0.219 (1.546) | 0.056 (0.336) | 0.219 (1.409) |
| Catholics | −0.155 (−1.475) | −0.310 (−1.626) | −0.152* (−1.734) | −0.229** (−2.159) | −0.143 (0.937) |
| Muslims | −0.130** (−2.125) | −0.132** (−2.214) | −0.146** (−2.211) | −0.159*** (−3.098) | −0.118** (−2.321) |
| Eastern religion | 0.102 (1.557) | 0.032 (0.310) | 0.109* (1.802) | 0.107* (1.682) | 0.119 (1.575) |
| Monarchy | 0.263*** (2.732) | 0.275*** (2.896) | 0.288*** (3.000) | 0.194 (1.635) | 0.294*** (2.854) |
| Gastil index | | −0.265 (−0.874) | | | |
| Rule of law | | | −0.055 (0.327) | | |
| Education | | | | .267 (1.304) | |
| Growth 1996–2000 | | | | | 0.097 (0.312) |
| Observations | 67 | 73 | 73 | 71 | 65 |
| Pseudo <i>R</i> square | 0.508 | 0.464 | 0.520 | 0.521 | 0.547 |
| <i>F</i> statistic | 11.26 | 11.64 | 13.21 | 13.94 | 14.03 |
| RMSE | 10.798 | 10.948 | 10.384 | 10.465 | 10.348 |
| Sargan test, <i>p</i> < | 0.406 | 0.786 | 0.245 | 0.757 | 0.998 |

Note: The dependent variable is generalized trust. All regressions include a constant term; *t*-statistics in parentheses are based on robust standard errors; *** denotes significance at $p < 0.01$; ** at $p < 0.05$; * at $p < 0.10$. First-stage regressions are reported in the appendix

and population size neither seems to affect the level of trust. The latter result is even apparent in the raw data, as very large countries such as the United States, India and Indonesia have above-average trust levels.

I now turn to the results of including a set of variables that cannot a priori be considered exogenous, judging from the existing literature in which these variables have been proposed both as determinants and consequences of generalized trust. As pointed out by Durlauf (2002), the direction of causality is one of the particularly weak points of the social capital literature as it has predominantly relied on the use of simple OLS. Tables 4 and 5 therefore report the results obtained through both OLS and a two-stage least squares procedure with instrumental variables (IV), which makes it possible to judge the importance of taking causality seriously. Before turning to the IV estimates, Table 4 shows the OLS estimates that are comparable to previous literature but obtained using a much larger country sample. It should be stressed that all additional variables in Table 4 are subject to policy changes. Given

the evidence presented in Section 2, the potential effects of these variables may therefore pertain to relatively persistent components of such features, as they would otherwise make generalized trust change systematically over time.

Firstly, two indicators of democracy are included in columns 1 and 2. Both estimates are far from significance and the coefficient of the Gastil index even emerges with the wrong sign. One possible source of the insignificance might be the high correlation between the Gastil index and GDP per capita, which could increase the variance and thereby make identification of the effect less likely. However, the Gastil index remains insignificant when GDP is excluded from the specification and the low VIFs throughout rather clearly reject that collinearity is a problem. The results in the present larger sample thus do not replicate claims that people need to be free to trust (e.g. Delhey & Newton, 2005). The rule of law in column 3 is also insignificant and of the wrong sign, which therefore rejects Zak and Knack's (2001) claim that the legal system can create trust. Column 4 in Table 4 enters education, which emerges with the right sign but with a t-statistic well below one, i.e. the OLS estimates seem to reject the often-repeated claim that education leads to generalized trust (e.g. Knack & Keefer, 1997; Knack & Zak, 2002). It should be stressed that other measures of education such as primary school enrolment or average schooling length (not shown) yield the same result. Finally, Uslaner's (2002) claim that optimism for the future (whether one counts on success in life) generates more trusting individuals is tested in column 5. I here use the compounded growth 1996–2000 as a measure of optimism, as a prolonged growth period should be expected to generate general optimism in the population. The estimate is positive as expected although not quite significant, but must like the other estimates be interpreted with considerable care, as generalized trust is also found to be a robust determinant of growth (e.g. Whiteley, 2000; Zak & Knack, 2001; Beugelsdijk et al., 2004).

However, as noted in the above these variables may be endogenous. Uslaner (1999) suggests that generalized trust stabilizes democracy, la Porta et al. (1997) suggest that the rule of law and education are caused by trust and a number of studies have found trust to be a determinant of economic growth. Hence, the OLS estimates could be biased towards zero if there is a two-way influence or might simply reflect the reverse causal direction, an issue that virtually all previous studies have ignored or treated casually. The effects are therefore re-estimated in Table 5 with a set of instrumental variables, showing that in all four cases, the opposite story of causality is more likely. I also re-estimate the effects of income inequality as they could possibly be the outcome of long run redistributive policies in high-trust countries where populations might attach weight to solidarity and hence come to support such policies. For IV estimates to make empirical sense, instrumental variables must have sufficient power in explaining the potentially endogenous variable without overidentifying the effect, i.e. the instruments should not belong in the second-stage specification. All first-stage regressions can be found in Appendix Table A3, which shows that all sets of instruments comfortably pass Staiger and Stock's (1997) rule of thumb for proper instruments as all F-statistics are well above 10. Table 5 also reports Sargan's test for overidentification, which is often used as a test for the exogeneity of instruments. As the table shows, exogeneity is a valid assumption in all cases.

Starting with the effect of income inequality, the IV estimate in column 1 of Table 5 remains significant at $p < 0.01$ and while being somewhat larger, it does not differ significantly from the OLS estimates. Inequality can therefore be treated as an exogenous variable although the difference could potentially indicate some reverse causation. Conversely, the other IV estimates show that the findings in previous studies on determinants of trust, if anything, likely reflect that generalized trust has caused the cross-country differences in rule of law, democracy and economic growth. The coefficient on the Gastil index now has the 'correct' sign but

remains far from being significant, and the effect of rule of law remains insignificant and of the wrong sign. With respect to education, the IV estimate in column 4 shows that the effect found in previous studies is probably due to the reverse causality. The results in column 4 also show that the inclusion of education has a clear effect on ethnic diversity and monarchy, the last losing significance. However, this is due to multicollinearity problems and not trouble of identifying a ‘true’ effect of education. Even if these two variables are removed from the baseline specification and enter the estimate as instruments (not shown) education still remains far from being significant. Hence, there is no evidence here for the effects of education on generalized trust at the national level contrary to previous studies (e.g. Knack & Keefer, 1997; Knack & Zak, 2002) The last column likewise shows that the positive coefficient of economic growth in Table 4, which had a *t*-statistic of 1.3, purely reflects the effect of generalized trust on economic growth as found in previous studies. This result should, however, be treated with care since growth may not be a particularly good proxy for an environment of optimism for the future.

In summary, the findings in Tables 3–5 suggest that only five variables can be considered as significant and stable determinants of cross-country differences in generalized trust. The most important determinant of generalized trust is income inequality, which is also the only potentially endogenous variable to survive a test for the reverse causality although the IV estimate seems larger than the corresponding OLS estimate. The shares of Catholics and Muslims in the population are also clear determinants while the results indicate that people living in monarchies are about ten percentage points more trusting, all other things being equal. Post-communist societies are less trusting than other, partly due to the detrimental effects of having had a communist regime, partly due to the disruptive effects of dismantling the fundamental organization of society when communism collapsed. The effects of a set of other variables that previous studies have found to determine generalized trust never show a significant effect in the present analyses. Although it could be feared that the potential effects of e.g. rule of law and education might simply not be identifiable due to multicollinearity, the low VIFs in Tables 3 and 4 reject this possibility. Both the effects of the significant variables as well as the apparent reversals compared to previous literature therefore suggest the need for some discussion.

5. Discussion and concluding remarks

The growing interest in social capital in recent years has generated a substantial literature on the consequences of generalized trust while the literature on what causes trust has been lagging somewhat behind. However, a series of variables have been proposed as determinants of trust. After a discussion of the reliability and validity of the standard measure of generalized trust, the paper has examined the effects of a set of previously suggested determinants as well as additional variables in a cross-country comparison, using the most recent trust data from the World Values Survey supplemented by data from the Danish Social Capital Project. The paper therefore uses a much larger country sample than was available to previous studies. In contrast to most of the existing literature, the paper has also taken potential endogeneity concerns into consideration. The conclusions are that while the standard measure is indeed a reliable and valid indicator of generalized trust, most of the variables proposed in the literature as determinants of such trust are either spuriously related to trust or more likely caused by trust. Only five variables emerge as significant determinants.

As found in previous studies, this paper confirms that social polarization in the form of income inequality is detrimental to generalized trust and moreover shows that it is the only potentially endogenous variable to survive being estimated using instrumental variables. Religious differences also matter as having large Catholic or Muslim shares of the population reduce generalized trust while there is weak evidence that the effects of Eastern religions may be positive and those of Protestantism are never significant. While this may seem contrary to previous studies that find a positive effect of Protestantism, it must nonetheless be kept in mind that since the overwhelming majority of the population in most countries belong to one of these religions, the effects of single religions can only be interpreted compared to that of other religions. As such, it simply depends on the sample distribution whether one finds a predominantly positive effect of Protestantism or a predominantly negative effect of Catholicism and comparable religions. Two potential causes for the religious effects were outlined in Section 3: (1) that non-hierarchical religions contribute to trust due to their individualization of the responsibility of actions, and (2) that the occurrence of Protestantism depended on social mobility in the 16th century and the apparently religious effect as such might reflect a deep historical tradition of social mobility in countries where the Protestant reformation took root. However, the social mobility in Asian countries is traditionally rather low as witnessed by the extreme case of Hindu India where individuals are traditionally bound to their caste for life. Hence, as the effects of Protestantism do not exceed those of Eastern religions and in some specifications are smaller, the more likely interpretation of the religious variables is that the effects arise as a consequence of the individualization of responsibility in non-hierarchical denominations. As such, the cross-country findings in this paper are reconcilable with the individual-level findings of religious effects in e.g. Glaeser et al. (2000).

In addition, the findings reported here clearly show that post-communist societies are less trusting and monarchies are more trusting than comparable countries. Although the findings in Section 2 indicate that part of the effect of having a communist past should probably be attributed to the disruptive consequences of dismantling important parts of the organization of society, the estimated trust decline in these countries during the 90s is far from sufficient to account for the negative effects found in Section 4. It therefore seems safe to conclude that communism destroyed generalized trust as conjectured in Paldam and Svendsen's (2001) dictatorship theory. The last robust determinant – that monarchies are about ten percentage points more trusting than comparable countries – is a new finding for which there are multiple possible explanations. For example, there might be positive effects of having a lasting role model in the monarch and his or her family and the existence of a monarch could also in other ways provide a measure of social and political stability that could influence the formation and stability of generalized trust. Conversely, having official recognition of a royal or imperial family in the 21st century might simply be an indication of some deeper cultural factor that affects both the trust level and has allowed for monarchical institutions to survive.

In contrast to these results, the often-repeated claims that democracy, rule of law and education can create generalized trust find no support here. If at all associated with trust, these variables are more likely the outcomes of high-trust nations being better at creating strong institutions. As previous studies have found these variables to be significantly associated with generalized trust, the insignificance of the OLS estimates must therefore be attributed to the larger and more balanced sample used in this paper compared to existing studies. However, IV estimates confirm that the direction of causality goes from trust to any of these variables if the correlation is not to prove spurious. In general, the results thus emphasize the need to better account for endogeneity in the literature on generalized trust, as stressed by Durlauf (2002). Furthermore, even if there was reason to question the IV estimates it would be difficult

to reconcile the apparent stability of the trust measure documented in Section 2 with having determinants that evolve over time. When observing a correlation between generalized trust and a factor that shows non-random movement, it is hence more reasonable to interpret it as evidence of trust causing the development of the factor rather than the opposite causal direction.

As such, the obvious associations between generalized trust and e.g. democracy, education, the rule of law and economic growth therefore appear to reflect the effects of trust, if not spurious correlations. However, it still remains a possibility that some very basic level of education or rule of law is needed for generalized trust to evolve or remain stable and that the present paper fails to find such evidence because all countries in the sample have long achieved these levels. Such factors might also stabilize trust around its long-run level. For example, if educated individuals are better equipped to judge the underlying motivation for actions of other people, they may easier make precise inferences of the ‘true’ trustworthiness of other people. A plethora of equivalent possibilities remain and as such, there are many more questions to answer in the coming years.

Yet, the findings unambiguously lead to the conclusion that generalized trust is a fairly stable cultural feature of society. Simple fixed effects estimation suggests that trust levels have been stable for the two decades for which we have cross-country data and most of the determinants of trust are difficult to affect, even in the very long run. Some people might therefore consider the conclusions of this study to be overly pessimistic. However, it must be kept in mind that whenever one attempts to influence any feature of society, it is necessary to know what can be done as well as what cannot be done – otherwise, one is almost bound to waste time and resources on actions that are ineffectual. Nevertheless, the strongest determinant of generalized trust – income inequality – can be influenced through redistributive policy, which in the course of time would probably lead to stronger institutional development. Any beneficial effects of such trust-enhancing policy must naturally be balanced with the potentially negative effects of elements of the policy, such as higher marginal taxation or weakened incentive structures. Yet, if one wants to use trust-creation as a development strategy, this is probably the only way forward.

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Appendix

Table A1 Variable sources and descriptions

| Source | Name | Description |
|-----------------------------|--------------------|---|
| Inglehart et al. (2004) | Generalized trust | Share of population answering yes to the question “In general, do you think that most people can be trusted, or can’t you be too careful in dealing with people?” |
| Deininger and Squire (1996) | Income inequality | Gini coefficients, early 1990s |
| Alesina et al. (2003) | Ethnic diversity | The probability that two random citizens of a given country do not belong to the same ethnic group |
| Bjørnskov (2005) | Political ideology | Measure of government ideology, see footnote |
| CIA (2003) | Protestants | Protestant share of population |

(Continued on next page)

Table A1 (Continued)

| Source | Name | Description |
|------------------------|---------------------------------|---|
| Penn World Tables | Catholics | Catholic share of population |
| | Muslims | Muslim share of population |
| | Eastern religion | Hindu and Buddhist share of population |
| | Monarchy | Dummy for countries with a monarchy |
| | Common law | Dummy for countries with common law system |
| | GDP per capita growth 1996–2000 | Gross Domestic Product per capita, adjusted for purchasing power parity, and total growth in GDP 1996–2000. The methodology is described in detail in Summers and Heston (1991) |
| | Openness | Imports plus exports as percentage of GDP, adjusted for purchasing power parity |
| World Bank (2004) | Population size | Size of population, logarithm |
| | Education | Net enrolment in secondary school |
| | Age structure | Percentage of population between age 15 and 64 |
| Freedom House (2003) | Democratic legacy | Number of years a country has been democratic consecutively since 1972, defined as less than or equal to three on the Gastil index (one to seven) |
| | Gastil index | |
| Freedom House (2004) | Press freedom | Index of media independence from one (full freedom) to 100 (no freedom) |
| Kaufmann et al. (2003) | Rule of law | Measure between –2.5 and 2.5 of the rule of law, based on a large set of primary indices |

Table A2 Countries included

| Country | Trust | Country | Trust | Country | Trust |
|--------------------|------------------|-------------|-------------------|----------------|-------------------|
| Algeria | 11.2 | Hong Kong | 26.8 ^D | Portugal | 10.1 |
| Argentina | 15.4 | Hungary | 21.8 | Romania | 10.1 |
| Australia | 39.9 | Iceland | 41.1 | Russia | 23.7 |
| Austria | 33.9 | India | 40.9 | Serbia | 18.8 |
| Bangladesh | 23.6 | Indonesia | 51.6 | Singapore | 16.9 |
| Belarus | 41.9 | Iran | 65.4 | Slovakia | 15.7 |
| Belgium | 30.7 | Ireland | 35.2 | Slovenia | 21.7 |
| Brazil | 2.8 | Israel | 23.5 | South Africa | 11.8 |
| Bulgaria | 26.9 | Italy | 32.6 | South Korea | 27.3 |
| Canada | 38.9 | Japan | 43.1 | Spain | 36.2 |
| Chile | 22.8 | Jordan | 27.7 | Sweden | 66.3 |
| China | 54.5 | Latvia | 17.1 | Switzerland | 40.9 |
| Colombia | 10.8 | Lithuania | 24.9 | Taiwan | 38.2 |
| Costa Rica | 7.4 ^D | Luxembourg | 25.9 | Tanzania | 8.1 |
| Czech Republic | 23.9 | Macedonia | 13.5 | Thailand | 38.9 ^D |
| Denmark | 66.5 | Malaysia | 10.3 ^D | Turkey | 15.7 |
| Dominican Republic | 26.5 | Mexico | 21.4 | Uganda | 7.6 |
| Ecuador | 8.9 ^D | Moldova | 14.7 | Ukraine | 27.2 |
| Egypt | 37.9 | Morocco | 23.5 | United Kingdom | 29.8 |
| El Salvador | 14.6 | Netherlands | 59.8 | Uruguay | 22.1 |
| Estonia | 22.8 | New Zealand | 49.1 | USA | 35.8 |
| Finland | 58.0 | Nigeria | 25.6 | Venezuela | 15.9 |
| France | 22.2 | Norway | 65.3 | Vietnam | 41.4 |
| Georgia | 18.7 | Peru | 10.7 | Zimbabwe | 11.9 |
| Germany | 34.8 | Philippines | 8.38 | | |
| Greece | 23.7 | Poland | 18.9 | | |

Note: Observations marked D derive from the Danish Social Capital Project

Table A3 First stage regressions for IV estimates

| Variable | Income inequality | Gastil index | Rule of law | Education | Growth 1996–2000 |
|------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|
| GDP per capita | −0.556*** (−6.057) | −0.557*** (−7.010) | 0.643*** (7.388) | 0.486*** (4.159) | |
| Political ideology | 0.431*** (3.919) | | | | |
| Openness | | 0.435*** (4.848) | | | |
| Press freedom | | | −0.365*** (−4.662) | | |
| Common law system | | | 0.074 (1.404) | | |
| Age structure | | | | 0.371*** (3.949) | |
| Lagged growth | | | | | 0.267** (2.407) |
| Gastil index | | | | | −0.409*** (−3.701) |
| Observations | 67 | 73 | 73 | 71 | 65 |
| Pseudo <i>R</i> square | 0.366 | 0.380 | 0.838 | 0.525 | 0.279 |
| <i>F</i> statistic | 22.94 | 32.74 | 89.84 | 25.21 | 17.42 |
| RMSE | 8.055 | 1.363 | 0.419 | 19.495 | 9.026 |

Note: The dependent variable is generalized trust. All regressions include a constant term; *t*-statistics in parentheses are based on robust standard errors; *** denotes significance at $p < 0.01$; ** at $p < 0.05$; * at $p < 0.10$

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