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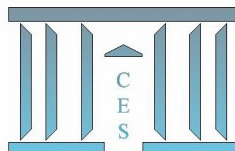
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Economic Development: Is Social Capital Persistent?

Rakesh GUPTA N. R.

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Economic Development: Is Social Capital Persistent?

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Abstract

This paper, on the one hand, goes a step closer to demonstrate the *causality* of social capital on economic performance. On the other hand, we confirm a continued role of social capital effects on economic performance in this paper by using a much larger sample, spanning three decades and increasing the scope of countries.

This paper is unique in the sense that it contributes to revisiting questions of economic performance, social capital and institutions with a clearly better and updated dataset from the last 28 years building upon existing empirical evidence. We employ a longitudinal analysis (pooled *unbalanced* multiple cross-section datasets) with fixed effects in this study. Our sample includes *both* the World Values Survey and European Values Study dating back to the 1980s.

Our results are twofold: Firstly, to confirm that trust has a significant positive effect on growth. And more importantly, they have a significant effect on growth for at least 5 years (for growth at 5, 7 and 10 years following a period of trust measure). Secondly, associational activities - another measure in the overarching definitions of social capital, along with institutions, inequality, and education are consistently significant determinants of trust.¹

Keywords: interpersonal trust, trust, associational activities, social capital, economic development, institutions, inequality

JEL classification: Z13, O11, O43

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1 Introduction

The seminal work of Knack and Keefer (1997) is one of the most cited articles using social capital to explain economic growth. They attempted to quantify social capital by evoking those ideas as theorized by Putnam et al. (1993) and Olson (1982). In a nutshell, they present strong evidence of the relationship between interpersonal trust, norms of civic cooperation and economic performance (as measured by GDP growth); and their respective determinants. They also allow for the conflicting definitions of social capital in terms of associational activities as put forth by Putnam et al. (1993) and Olson (1982) in their analysis on their relationship with economic performance. Ever since their paper, the research has been provided impetus to head in different directions - social capital has gone to become all-encompassing and elusive by the day, to notions of civic behavior, social norms, networks or cooperation and social cohesion. A significant amount of micro empirical evidence has been sought to strengthen the foundations for these theories and legitimize what is reflected in their macro counterparts.² And the most prominent measures of social capital, “*Interpersonal Trust*” has undergone several tests.³ We are interested in this - how persistent is this prominent form of question (most used indicator of social capital) of “*Interpersonal Trust*”, or rather simply “*generalized trust*”⁴⁵ - does this continue to have a positive effect on economic development? In particular, we believe to bring ourselves closer through this paper to the causal relationship of trust on economic development by calibrating the variables, and to show that this is a cross-national global phenomenon by significantly increasing the sample size and time - without even having to control for region specific effects.⁶

This important work of Stephen Knack and Philip Keefer has been met with a fair share of criticisms. Questions on robustness, inconsistencies and small sample problems have been raised.⁷ The most recent work of Algan and Cahuc (2014) provides an excellent summary of the entire literature on social capital and economic development. On the other hand, this earlier work of Durlauf and Fafchamps (2004) have potently expressed the pitfalls of the social capital research, not the least to denounce the powerful insights this branch of research has provided us. These and many other works in this domain of research should serve us as a basis for understanding this present paper and the entire social capital research in general.

² Casey and Christ (2005), Helliwell (2004), Woolcock and Narayan (2000), Scheepers et al. (2002) and several others.

³ Delhey et al. (2011), Dasgupta (2009), Reeskens (2013) and Robbins (2012) among the recent ones.

⁴ Question asked in the surveys: “*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*”

⁵ To quote Rothstein and Stolle (2008), “...These attitudes of trust are generalized when they go beyond specific personal settings in which the partner to be cooperated with is already known.”

⁶ Guiso et al. (2007) for a historical approach to the question of social capital (a very long term approach of Putnam’s ideas) and economic development.

⁷ Beugelsdijk et al. (2004) and Bjornskov (2007) among others discuss these problems at length.

Our preliminary results with our dataset encompassing more recent, enhanced and comprehensive information led us to continue in the similar direction as Knack and Keefer (1997) with a fine-tuned empirical strategy. Interpersonal trust continues to emerge as one of the significant variables over time and space. In our opinion, interpersonal trust is important in itself and a principal actor of social cohesion in a society which contributes to having far reaching effects on efficient and better functioning of societies. The paper by Giraud et al. (2012) is one of the important motivations to undertake this study. Their approach puts social networks central to the conception of human development and at the same time, acknowledges the diversity of personal and collective values and their specific ends - which we believe to be ingrained in Sen's capability approach (Sen (1976) and Sen (2009)) and insofar as complementing Rawlsian maximin view (Rawls (1971)). The three dimensions of the relational capabilities they distinguish are given below:

1. To be integrated into networks;
2. To have specific attachments to others, including friendship and love;
3. To commit to a project within a group: which aims at serving a common good or a social interest, to take part in decision-making in a political society.

The third dimension mentioned above of the Relational Capability Indicator (RCI) indicator has a civic commitment dimension which is of special interest to this paper, since we empirically explore the works of Olson and Putnam alongside the RCI. This civic dimension of the RCI is composed of the following five components:⁸

1. Membership: Active membership in a group (religious, trade-unions and/or business associations)
2. Collective action: Participation in political actions
3. Vote: Voting behavior of the agent
4. Solidarity: Active membership in a common interest group
5. Trust in others: Trust in unknown people

As we embark to make precise the question of the interlinkages between social capital, institutions and economic performance, we put forth some evidence found so far in the literature which undeniably highlights the gaps despite some groundbreaking findings. Among the questions that we explore in this paper, the principal one is the following: does the trust measure of social capital (or simply, generalized trust) continue to be persistent in having positive effects on economic performance? We do so by exploiting

⁸ A full table of RCI dimensions and components is to be found in the appendix.

all the survey waves available till date from the World Values Survey and European Values Study, aggregated from over 430,000 nationally representative observations. This translates into 292 countries-surveys sample starting from 1980 up until 2009.

The importance of social capital and its relationship to economic performance and its trends is not new to political science, although the last twenty years have seen a significant interest that is to be found in the literature using measurable variables implemented to empirically test this effect inspired from sociology, political science and (behavioral) economics. This trend has its origins to the seminal work of Robert Putnam in his book by (Putnam et al., 1993), where Putnam used a comparison of societies in the North and South of Italy. In this early definition, social capital was identified with those "... features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions" (page 167). The *natural experiment* from 1970 where the highly centralized Italian government devolved power to the newly created regional governments, was used by Putnam to analyze how two regions with essentially identical institutions can have such different political and economic outcomes.

What he finds is that the North outperforms the South of Italy in their collective action outcomes, which he refers to as Northern Italy having higher levels of civic engagement or civic-mindedness. He continues to claim that this distinction of civic engagement or civic-mindedness between the North and the South of Italy determines the economic performance, more than political institutions which are a result of the process of democracy as proposed by most of the growth literature.

The role of associational activities in economic performance at a predefined observed group level has garnered much contention over the past decades.⁹ Contrary to this prevalent view of Putnam, Olson's seminal work - Olson (1982), that has received its due attention, is of the opinion that Putnam style horizontal associations with the shared-values of solidarity and common good are not sufficient to promote growth. A group which works for shared interests helps resolve collective action problems, and this group relies on a system of selective incentives to tackle the problem of free-riding (as monitoring in larger groups tends to be harder). Olson claims that after a certain point, these (special interest) same groups may get overboard in acting as special interest groups lobbying for preferential policies. According to him, in certain situations, this behavior will naturally render the economic growth to fizzle, since they divert the scarce economic resources away from technological advances and other growth-enhancing activities. Although, according to Heckelman (2007) in his review of Olson's book, he suggests that there is only partial support of Olson's theory - which Olson himself has repeatedly acknowledged to his critics, as they are meant to illustrate certain specific aspects of his

⁹ Cross-country level analysis undertaken for this paper.

general theory.¹⁰¹¹

The following were the questions included in the World Values Survey and the European Values Study in the last two survey waves. Although World Value Survey does better in asking respondents to measure the density/intensity of their involvements in the associational groups, this is excluded in the European Values Survey. Hence, in the interest of consistency, we leave out the intensity of participation in groups in our analysis. We follow a simple aggregation method of average number of associational groups' membership in each country. The following are the questions available in the surveys:

- (a) Member: Belong to social welfare service for elderly
- (b) Member: Belong to religious organization (*P-GROUP*)
- (c) Member: Belong to education, arts, music or cultural activities (*P-GROUP*)
- (d) Member: Belong to labor unions (*O-GROUP*)
- (e) Member: Belong to political parties (*O-GROUP*)
- (f) Member: Belong to local political actions
- (g) Member: Belong to human rights
- (h) Member: Belong to conservation, the environment, ecology, animal rights
- (i) Member: Belong to conservation, the environment, ecology, animal rights
- (j) Member: Belong to professional associations (*O-GROUP*)
- (k) Member: Belong to youth work (*P-GROUP*)
- (l) Member: Belong to sports or recreation (*potential P-GROUP*)
- (m) Member: Belong to women's group (*potential O-GROUP*)
- (n) Member: Belong to peace movement (*potential P-GROUP*)
- (o) Member: Belong to organization concerned with health
- (p) Member: Belong to consumer groups
- (q) Member: Belong to other groups¹²

To quote from Knack and Keefer (1997, p. 1273), "*We explored this possibility further by attempting to differentiate "Putnamian" from "Olsonian" groups. Groups b, c,*

¹⁰ To quote from his article [pg. 28], "...*In general, the theory of institutional sclerosis has often been used by other scholars to successfully explain experiences throughout history, but only rarely has it come out unscathed.*"

¹¹ The other significant works on social capital of Bourdieu and Coleman are out of the scope of this paper.

¹² Questions (l)-(q) are new additions in the World Values Survey and European Values Study.

and k from the above list were identified as those groups least likely to act as “distributional coalitions” but which involve social interactions that can build trust and cooperative habits. Groups d , e , and j were deemed most representative of groups with redistributive goals.”

Our “group” measure includes the additional questions (those that are potentially Putnamian and Olsonian groups), whereas our *O-GROUPS* and *P-GROUPS* are constructed in the same fashion to include the same groups as presented in the paper by Knack and Keefer (1997).¹³

There is another major strand of research which considers (interpersonal) trust as an output of social capital.¹⁴ This measure of (interpersonal) trust has been extensively empirically tested and beginning to be applied as a standard determinant of economic growth in the literature.¹⁵

It is worth noting that research on the questions of trust has developed somewhat more independent of social capital research categorized by academic disciplines. What has been established is that more “trusting” societies are countries that have grown faster in the recent decades as opposed to other comparable countries.¹⁶ We do not attempt to question the already existing evidence in the literature on the (direct) positive effects of social capital on economic performance. What has also been established is the important role of “good” institutions on economic performance of societies or countries - we do not attempt to contest that either.¹⁷ Given this background, and thanks to the latest available dataset which includes information, we propose to make precise the causality in terms of the variables in an accounting sense, i.e., a given level of trust at a given point of time may cause economic development (growth) for 5, 7, 10 years or even more.

To condense the econometric specification difficulties, we can categorize them into two broad categories: First, the reverse causality between trust at one period of time (here, survey wave) and economic development (here, growth) experienced at the same time.¹⁸

¹³ Membership profiles (country averages) for our 2000 and 2008 samples are found in the appendix.

¹⁴ We also test for the sensitivity of different measures of trust - “trust in neighborhood”, “trust in foreigners”, “trust in people outside the neighborhood”, etc. Our forthcoming paper using Gallup data allows for better use of this information allowing for disaggregation by education, gender and income levels to mention a few.

¹⁵ Cf. Knack (2003), Beugelsdijk et al. (2004), Beugelsdijk (2006), Bjornskov (2007), Berggren et al. (2008) among others.

¹⁶ See Whiteley (2000), Zak and Knack (2001) and Beugelsdijk et al. (2004) which address this question more directly in comparison to other papers on social capital in the literature.

¹⁷ Bjornskov (2012) in their paper present various transmission channels - where “good” institutions and education emerge as significant channels of trust’s influence on economic performance.

¹⁸ This paper of Algan and Cahuc (2010) has accounted for initial trust (to make precise - origin country’s trust of an immigrant in the US) or as they call it, “*inherited trust*” of a person. It could also be the (shared) values of a population that creates the trust among people within a population - refer to Uslaner (2002) and Tabellini (2007).

This is controlled for in a simple and seemingly powerful way (refer to the paragraph above, and more detailed explanation in the Methodology section). Second, the omitted variable bias which affects both trust and economic development (through the error term of the regression equation) remains to be verified in our specification since these can most often be controlled for observing historical variations that affects trust behaviors, commonly referred to as “natural experiments”, or through an extraneous exogenous instrument through an instrumental variable identification.

However, we already know how unreliable are the measures of institutional quality.¹⁹ We demonstrate these difficulties by using different measures and to show how sensitive these measures are to the model specification and on the point estimates of the regressions. The same argument applies to geographical factors, environmental factors, social norms and culture which more often is intangible and sometimes impossible to quantify.

2 Data

We have used data from several sources like the Integrated Values Survey (merging World Values Survey (WVS) and European Values Study (EVS)) which has the five World Values Survey and the four European Values Study, Penn World Table 7.1 and 8.0 (PWT), World Bank World Development Indicators (WDI), UNU-WIDER World Income Inequality Database (WIID), *Ethnologue*, Fractionalization and Polarization indicators of Alesina et al. (2003) and their disaggregated measures of Esteban and Ray’s (*“frac_fear”*), Barro-Lee dataset of educational attainment and enrollment estimates (BL), UN-UIS UNESCO Statistics (UIS) for alternative educational enrollment/attainment data, World Bank - World Governance Indicators dataset (WGI), Freedom House (FH), Heritage Foundation (HF), International Country Risk Guide (ICRG), Economic Freedom Network, and the Central Intelligence Agency - The World Factbook (CIA) as well for the gini coefficient estimates.

2.1 Variables of interest

Find below the variables information implemented in our regressions:²⁰

Growth: 5, 7 and 10 years annualized average GDP growth following the period of the values survey. This is obtained from the Penn World Table 8.0 version.

¹⁹ Oman and Arndt (2006), Arndt (2008), Langbein and Knack (2008) and Razafindrakoto and Roubaud (2010) provide a detailed discussion on problems facing a variety of institutional quality variables.

²⁰ Detailed descriptive statistics of all variables are found in the appendix.

Table 1: Table of number of countries, years and sources

Wave	Countries	Survey years	Ref. year	Surveys
1	26	1981-84	1980	WVS
2	37	1989-93	1990	WVS+EVS
3	52	1994-98	1995	WVS+EVS
4	72	1999-04	2000	WVS+EVS
5	58	2005-09	2005	WVS
6	47	2008-09	2005	EVS
	292			

1. The Integrated Values Survey (WVS and EVS) has 292 countries-surveys observations in total. Some of the countries that repeated in both surveys have been eliminated (and with similar scores like Sweden and Turkey around the 2000 survey waves).

2. Some countries with extreme values like Bosnia and Herzegovina in 1998 (36.74% annualized average growth for 5 years following 1998) is removed from the sample. Latvia, Lithuania, Estonia and Russia in 1990 following the Soviet Union (USSR) disintegration (-15%, -12%, -9% and -7% annualized average growth observed respectively) have been removed as well.

Trust: Average of trust levels within a country which is computed as percentage of trusting population in a country. The question used for this, “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? Possible answers: 1. Most people can be trusted 0. You can never be too careful when dealing with others”

GDP/capita: GDP/capita PPP (constant 2005 International USD) using chain series - for the years pertaining to the reference year of the survey wave. This is sourced from Penn World Table 8.0. To normalize, we use the natural log transformation.^{21,22}

Education: Average total schooling years of the 25-year old population of a country for the survey reference year is taken for our education variable among several measures available.²³ This is sourced from the Barro-Lee dataset. As an alternative we have also used the latest “Index of Human Capital” from the Penn World Table 8.0 (based on Barro-Lee’s educational attainment and Psacharopoulos’ returns to education).

Price level of investment: Investment goods prices, PPP-adjusted (constant 2005 International USD) for the years pertaining to the survey year of the respective country. This is also sourced from the Penn World Table 8.0. This is now called the “price of capital formation” in the latest version of Penn World Table.

²¹ This is fairly standard in the empirical literature.

²² PPP - purchasing power parity.

²³ This we believe is better than using the educational attainment statistics for 20 years prior to the survey year since, this 25-year old population compose the active working population in a country.

Population: Population data also retrieved from Penn World Table 8.0. We use the natural log transformation in our analysis.

Civic: Respondents of the survey chose a number from 1 (never justifiable) to 10 (always justifiable). We reversed these scales in the interest of consistency and comparability which are to be found in all the four survey waves of WVS and EVS,²⁴ so that larger values indicate greater cooperation, and summed values over the four items to create a scale (CIVIC) with a 40-point maximum. The following are the four questions:

1. "Claiming government benefits to which you are not entitled"
2. "Avoiding a fare on public transport"
3. "Cheating on taxes if you have the chance"
4. "Someone accepting a bribe in the course of their duties"²⁵

GROUPS: The average of the memberships that are binary coded for the questions (a)-(r) aforementioned in the "Introduction" section and aggregated as a cross-country average (1 = Belong; 0 = not mentioned).

Putnamian groups: Indicator constructed as an average of memberships within a country for the following groups - *belong to religious organization, belong to education, arts, music or cultural activities, and belong to youth work.*

Olsonian groups: Indicator constructed as an average of memberships within a country for the following groups - *belong to labor unions, belong to political parties, and belong to professional associations.*²⁶

Inequality (gini coefficients): The Gini coefficient estimates are sourced from the PovcalNet.²⁷ Whenever necessary, the imputed/interpolated gini coefficient are used; and not for countries where data is missing with a gap of long periods of time (say, over 5 years).²⁸

²⁴ We have ignored two additional questions from the EVS - "Paying cash for services to avoid taxes" and "Joyriding".

²⁵ The following question has been discontinued as found in the earlier survey waves of WVS and EVS - "failing to report damage you've done accidentally to a parked vehicle."

²⁶ We present all the variables used here. However, our analysis on correlations of associational behavior and trust/growth/institutions is not the focus of this paper since these questions are not found in all the survey waves of WVS and EVS.

²⁷ "PovcalNet: the online tool for poverty measurement developed by the Development Research Group of the World Bank" <http://iresearch.worldbank.org/PovcalNet/>.

²⁸ We test alternative gini coefficient estimates from World Bank - WDI, CIA - The World Factbook and the UNU - WIID, in the interest of checking for the sensitivity of measures and different distributional definitions used.

Ethnicity: A range of indicators have been used to represent different identities of individuals from *Ethnologue* database - ethnic, linguistic, religion and ethno-linguistic indicators; Esteban and Ray dataset “*frac_fear*” indicator; and data from Fearon and Laitin (2003) - ELF(1), ELF(6), ELF(15), POL(1), POL(6) and POL(15) for different levels of aggregation of ethno-linguistic fractionalization and polarization respectively. Our primary variable of interest among the alternatives available are sourced from Alesina et al. (2003), which is a measure of “*the probability that two random citizens of a given country belong to the same ethnic group*”.

Institutions -

World Governance Indicators: “Rule of Law” - 2.5 (weak) to 2.5 (strong) is used.²⁹

Economic Freedom in the World: Sourced from the Economic Freedom Network (on a scale of 1 to 10).

ICRG: Dataset titled “International Country Risk Guide (ICRG)” from the PRS Group is used. Their information goes back to 1980s including over 140 countries.

Freedom House: “Rule of Law” and “Functioning of the Government” as a measure of institutional quality used. Their most prominent “Polity2” dataset has also been used for country scores to test for the sensitivity of the measures used.

Heritage Foundation: Property rights protection composite scores of countries used alternatively as well.

3 Methodology

At the outset, as have been largely accepted, we concur that the channels of trust among people (or social capital in general) is instrumental for economic development *via* certain means (for example, institutions). Trusting people cooperate towards various ends - (co)providing public goods, facilitating interaction as efficient economic agents, formal/informal solidarity activities via organizations or institutions and even redistribute among a society or population.³⁰

²⁹ Cf. Kaufmann et al. (2010).

³⁰ Krishna, Uphoff, and Esman (1997) in their book, and Uphoff’s work through 1970s until late 1990s was inadvertent documenting of context specific social capital where its latent dominant aspect being *existing* or *created* trust. There are two takeaways from their work for this paper: Firstly, trust manifests in a plethora of forms and is very context specific. Secondly, trust is not only a predisposition to cooperate and participate in efficient economic activities, but also a force of conflict resolution derived from incentives to cooperate based on trust.

In this section, we will discuss the three specifications which make the core of our paper. First and foremost, as mentioned earlier, is the testing of the persistence of “Interpersonal Trust” as a measure of social capital - if it continues to play an important role in economic development. More specifically, as the existing empirical literature suggests that trust is a *more or less* positive and statistically significant factor in affecting growth. It is at least, definitely positive correlated to growth. We wanted to test if generalized trust continues to have the same positive (significant) effect on economic development, and we also test if the same effect holds over time, that is to say, when several periods taken together. Empirical evidence is aplenty, and has tested a diverse set of hypotheses, in different levels of analysis - micro, meso and macro.

Simply put, the uniqueness of our paper in testing generalized trust effects on economic development lies in the following:

- Testing the persistence of trust effects on economic performance over three decades with the largest available sample.
- We also believe to come closer to the causal relationship of trust and economic performance.

This is executed, not in the sense of repeated cross-section regressions (cross-country study), but, in the sense of taking all the available data together - in other words, pooled *unbalanced* multiple cross-section datasets. And our hypothesis being is the generalized trust persistent? A longitudinal analysis is not possible, since we do not observe same countries included in the values surveys over different survey waves.³¹ A repeated cross-section is helpful, but not sufficient - it loses its utility since some of the variables’ significance changes drastically over survey waves and sources (WVS, EVS, European Social Survey, Global Barometer Surveys etc.).³² Hence, the most appropriate approach is to pool all these seemingly similar databases together; and to have wave fixed effects to control for the aforementioned problems.³³

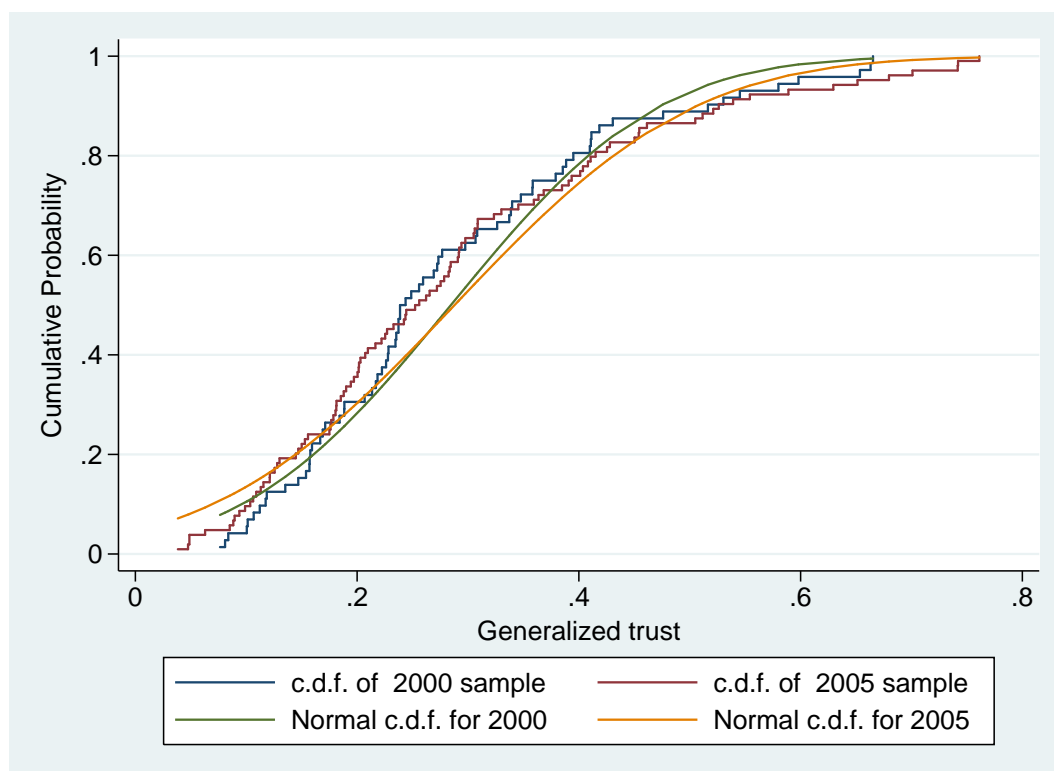
³¹ Moreover, they are not deemed to be representative for each particular survey wave. See Berggren et al. (2008) and Beugelsdijk et al. (2004)

³² Find the discussion in Bjornskov (2007). The sample of countries varies largely over time to include countries that have made the surveys representative over recent years/waves (at least starting late 1990s) as demonstrated in this paper. Figure 1 confirms that the 30+ countries added in the latest wave of WVS and EVS combined doesn’t induce sampling bias of low-trust or high-trust profile countries. This is contrary to other papers’ claim.

Most importantly, they also demonstrate that generalized trust measure is stable over time, and hence countries are *path dependent* per se, along their initial trust levels. This also implies that the trust values are stationary - all the variation is random - another argument against longitudinal analysis. But, crucial to this is doing away with data points which we find commonly in the literature by using average values for countries where more than one trust values are found, and this reduces the sample size drastically.

³³ Wave fixed effects to control for our unbalanced sample since we cover all the survey waves. This is important since most of the countries included in the earlier waves were developed economies. Gradually,

Figure 1: CDF of Generalized Trust of all countries in our 2000 and 2005 reference year's samples



Average cross-country interpersonal trust levels. *Summary tables found in the appendix.* The (Interpersonal) trust levels globally seems unchanged, although there were some “gainers” and “losers”.

Most importantly, there is no sample enlargement induced bias created between these two waves. Refer to the appendix for the chart on the longitudinal changes in the trust levels across countries.

How do we come closer to a *causal relationship*? It’s quite simple: we construct the growth variables of 5, 7 and 10 years annualized average which follows the generalized trust measures from survey years (reference years). For instance, a trust score at time t is regressed on average annualized growth variables at $t+5$, $t+7$ and $t+10$. By doing so, we also ensure that the growth regressed on trust doesn’t overlap for countries-surveys combination,³⁴ and of course, by construct, trust “causes” future periods of growth.

Equation 1:³⁵

more and more poor and developing countries have been included in the WVS and EVS surveys (and as mentioned earlier, have induced sample bias especially in the third and fourth survey waves).

Results with and without wave fixed effects are to be found in the appendix.

It’s also difficult to have country fixed effects. Since, to stress again, it’s an unbalanced sample.

³⁴ For example, Argentina, Finland, Germany, Hungary, Mexico, South Africa, South Korea, Spain, Sweden, United Kingdom and United States are found in all the five survey waves.

³⁵ Additional controls of institutions, ethnicity and inequality were tested without results changing

$$Growth(g_{i,t}) = \alpha_t + \beta_1 * trust_{i,t} + \beta_2 * \ln(gdp/capita)_{i,t} + \beta_3 * educ_{i,t} + \beta_4 * price\ level\ of\ investment_{i,t} + \epsilon, i = 1, \dots, N, t = 1, \dots, T.$$

Secondly, we also test a few standard variables expected to affect institutions. Generalized trust is of course the prime candidate, which is expected to channelize to create various types of institutions.³⁶ And thirdly, trust which is formed from various types of cultural norms,³⁷ individual backgrounds and environmental factors, tangible or otherwise is our third set of regressions where we attempt to find the determinants of trust at the individual level from personal characteristics and demographics which our dataset allows us to explore.³⁸

Equation 2:

$$Institutions(I_t) = \alpha_t + \beta_1 * trust_{i,t} + \beta_2 * X_{i,t} + \epsilon, i = 1, \dots, N, t = 1, \dots, T.$$

X = GDP/capita, Population, Education, Ethnic diversity and inequality among others.

Equation 3 (Logistic regression micro-estimates):

$$Pr(Trust(t_{i,j}) = 1 | X) = \alpha_j + \beta_1 * X_{i,j} + \epsilon, i = 1, \dots, N, j = 1, \dots, T.$$

X = Age, Age squared, Married, Children, Sex, Education levels, Employment, Subjective income, Habitat size and Spiritual denomination.

Table 2: Descriptive statistics of the variables used in equation 1

variable	N	mean	p25	p50	p75	sd	min	max
growth5	275	3.31	1.17	2.97	5.18	3.11	-4.66	15.11
growth7	233	4.29	1.93	3.80	6.02	3.08	-3.59	17.97
growth10	233	4.40	2.23	3.82	5.54	3.20	-0.87	19.86
Trust	291	0.30	0.19	0.27	0.40	0.16	0.04	0.76
Education	251	8.61	7.05	9.05	10.35	2.46	1.16	13.19
ln(gdp/capita)	275	9.44	8.87	9.56	10.32	1.05	5.42	11.38
gdpcapita	275	19,040.90	7,080.98	14,156.64	30,392.14	14,795.98	225.48	87,845.73

much. Interactions terms were also used.

³⁶ Roughly speaking: Social capital → Institutions → Economic development

³⁷ See Tabellini (2010) and Guiso et al. (2004) for examples from Europe and within Italy.

³⁸ In equations 1 and 2, i refers to countries, but i refers to the individual in equation 3. t refers to the year or the survey waves in all equations. α_t refers to the survey wave fixed effects coefficients. Lastly, in equation 3, j refers to the countries.

Table 3: Descriptive statistics of the variables used in equation 2

variable	N	mean	p25	p50	p75	sd	min	max
Economic Freedom	257	6.72	6.07	6.95	7.54	1.13	3.03	9.03
Rule of Law	166	0.42	-0.44	0.36	1.32	1.00	-1.77	1.98
Property Rights	212	57.92	32.50	50.00	90.00	24.25	10.00	95.00
Trust	292	0.30	0.19	0.27	0.40	0.16	0.04	0.76
ln(gdp/capita)	276	9.43	8.86	9.55	10.32	1.06	5.42	11.38
ln(population)	276	9.77	8.55	9.70	10.97	1.65	5.43	14.08
Education	251	8.61	7.05	9.05	10.35	2.46	1.16	13.19
Inequality (gini coeff.)	271	35.83	30.10	33.30	40.70	8.99	17.80	67.40
Ethnic fractionalization	279	0.32	0.12	0.26	0.51	0.23	0.00	0.93

Table 4: Descriptive statistics of the variables used in equation 3

variable	N	mean	p25	p50	p75	sd	min	max
Trust	400292	0.29	0	0	1	0.45	0	1
Life satisfaction	415475	6.71	5	7	9	2.43	1	10
Happy	409932	1.97	1	2	2	0.73	1	4
Age	417125	42.09	28	40	54	16.75	13	108
Age sq.	417125	2052	784	1600	2916	1575.75	169	11664
Married	416237	0.58	0	1	1	0.49	0	1
Sex	417049	0.47	0	0	1	0.50	0	1
(Sub.) Income	307985	4.68	3	4	6	2.45	1	11
No. of children	340241	1.86	0	2	3	1.76	0	8
Child	340241	0.71	0	1	1	0.45	0	1
Education	321361	4.68	3	5	6	2.18	1	8
Employment	409831	3.24	1	3	5	2.17	1	8
Self-employed	409831	0.09	0	0	0	0.28	0	1
Student	409831	0.07	0	0	0	0.26	0	1
Employment1	409831	0.54	0	1	1	0.50	0	1
Employment1(ext)	409831	0.69	0	1	1	0.46	0	1
Full-employment	409831	0.38	0	0	1	0.49	0	1
Unemployed	409831	0.09	0	0	0	0.28	0	1
Habitat size	297689	4.74	2	5	7	2.50	1	8
Religious	385549	0.70	0	1	1	0.46	0	1
Atheist	385549	0.05	0	0	0	0.21	0	1
Protestant	369786	0.15	0	0	0	0.36	0	1
Muslim	369786	0.15	0	0	0	0.35	0	1
Buddhist	369786	0.02	0	0	0	0.13	0	1
Catholic	369786	0.34	0	0	1	0.47	0	1
Hindu	369786	0.02	0	0	0	0.15	0	1
Jew	369786	0.01	0	0	0	0.08	0	1
Sunni	369786	0.01	0	0	0	0.08	0	1
Shia	369786	0.01	0	0	0	0.10	0	1

4 Results

A measurable definition of social capital through the question of interpersonal trust among people which has been used as an indicator of social capital is gaining importance. In this paper, we revisit the hypotheses of generalized trust and its effects on economic development, their links with institutional quality, and their determinants at the micro level. We have a larger and a newer dataset.

4.1 Trust and Economic Development - cross-country analysis

Table 5: Trust on Growth - cross-country fixed effects regressions 1980-2009

	(1)	(2)	(3)
	Growth5	Growth7	Growth10
Trust	3.966*** (0.73)	3.882** (1.04)	5.091*** (0.90)
ln(GDP/capita)	-1.157* (0.51)	-1.338* (0.58)	-1.681** (0.45)
Investment	-2.968* (1.35)	-3.529** (1.21)	-3.390** (0.90)
Education	0.047 (0.11)	0.131 (0.13)	0.059 (0.16)
Constant	14.217** (3.67)	16.187** (3.95)	19.392*** (2.61)
Observations	235	198	198
R^2	0.319	0.362	0.517
Adjusted R^2	0.307	0.349	0.507

Standard errors in parentheses

Huber and White robust standard errors

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

39

Before we continue to interpret the results from the analysis we undertook; we need to remind ourselves the objective of this paper - Does the generalized trust persistently have positive effects on economic development? And of course, the manner in which we compute our average annualized growth variable that follows the respective reading

³⁹ 1. Without wave fixed effects tables presented in appendix.

2. "Index of human capital" sourced from the latest PWT 8.0 which is based on educational attainment - Barro and Lee (2010) and returns to education - Psacharopoulos (1994). This is an alternative for total schooling years (not just secondary school years' average which is the standard usage in the literature). Results do not change much on the choice of variable.

3. Dependent variables are average annualized growth of 5, 7 and 10 years following the average generalized trust scores within a country.

Excluded countries from the regressions for reasons mentioned earlier are: Latvia (1990), Lithuania (1990), Estonia (1990), Russia (1990), Romania (1993), Belarus (1990), Bulgaria (1991), Hungary (1991) and Bosnia and Herzegovina (1998).

of trust levels, brings us closer to the causality argument.⁴⁰

For one percentage point increase in trust levels, the average growth is expected to increase by 3.96%, 3.88% and 5.09% over 5, 7 and 10 year horizon, holding all other variables constant, in the cross-country sense. This could imply that the relative trust level effects across all countries of the world on economic performance is “high” in the context of growth rates between four and five percent, which is substantially large, especially so after the 2008 global financial crisis.^{41,42} These are of course, positive and significant at 1% level (5% in equation 2) in the three specifications.

The results are indeed encouraging - the adjusted R squared - which is the explanatory power of the model, is in the upper bound of the estimates compared to other empirical papers in the literature. This is encouraging since most of the other papers have included few survey waves or have had a regional focus. Another interesting observation emerges here - the adjusted R squared increases from model (1) to model (3) - this suggests that the impact of trust on growth increases over the time horizon where trust levels have a lasting effect, on average, across countries on economic performance.

Another check of validity has been undertaken - we test these three models with regional dummies and “levels of development” dummies.^{43,44} Regional dummies don’t have any effect. However, the “levels of development” dummies have a significant effect on growth confirming their fixed effects. This is also reflected in the investment variables always remaining negative; and the education variable not being significant. This could be explained by the fact that growth in the 1990s and 2000s (unlike the historical development episodes of the now developed countries which was heavily dependent on education, skilled population share of the country and human capital accumulation in general) are eminent from the emerging countries where the traditional measures are on average low, like the school enrollment and educational attainment rates. A better measure of human capital is required to correctly attribute the impact of education in this diverse and dynamic world. Nonetheless, the education variable is always positive, but not statistically significant.

Econometrically speaking, magnitude of the trust coefficients’ positive effects on growth is higher compared to other papers in the empirical literature. The following are among the possible reasons: First, larger sample of high and low trust profile countries with different levels of development (per capita incomes), and the clear specification of growth following trust. This means the cross-sectional differences are important in having a

⁴⁰ Hausman test implemented to ensure fixed effects to be a good fit, and not random effects.

⁴¹ Under the assumption that our sample is representative.

⁴² However, the latest wave of WVS from 2010-2014 recently released needs to be exploited to verify the magnitude and signs of these results.

⁴³ World Bank Income Groups and Regional Groups of countries of the world classification used for this purpose.

⁴⁴ Refer to the regression table 11 in the appendix.

positive effect on growth. Second, it could also mean the omitted variable bias (OVB) or the error term is correlated to both trust and growth variables - making trust variable capture some of the variation in the data.

4.2 Institutions and Trust - cross-country analysis

Table 6: Institutions and Trust - cross-country fixed effects regressions 1980-2009

	(1)	(2)	(3)	(4)
	ICRG	Economic freedom	Rule of law	Property rights
Trust	0.327*** (0.04)	1.083* (0.46)	1.176** (0.21)	19.838 (12.87)
ln(GDP/capita refyr)	0.129*** (0.02)	0.669*** (0.10)	0.648*** (0.06)	14.942*** (0.89)
ln(Pop in '000 refyr)	-0.009 (0.01)	-0.025 (0.05)	-0.084** (0.01)	-1.767 (1.13)
Education	0.001 (0.01)	0.007 (0.04)	-0.032 (0.02)	-0.166 (0.66)
Gini coefficients	-0.002 (0.00)	0.015** (0.01)	-0.006 (0.00)	0.188* (0.06)
Ethnic fractionalization - prob.	-0.009 (0.04)	0.529 (0.36)	-0.293** (0.05)	-10.198** (3.06)
Constant	-0.503** (0.14)	-0.487 (1.48)	-4.586*** (0.31)	-71.309*** (7.37)
Observations	206	230	147	189
R^2	0.694	0.435	0.702	0.565
Adjusted R^2	0.685	0.419	0.689	0.551

Standard errors in parentheses

Huber and White robust standard errors

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

45

From the table 6, we see that trust almost always have a significant, positive effect on institutions (except on property rights). However, before we proceed and interpret the results, we need to keep in mind the important contributions pioneered by North, Acemoglu, Aghion and many others on the complexities of determinants of the types of institutions, and the myriad factors responsible for their existence or creation. Hence, the evidence presented here is to be read as an indication.

For one percentage point increase in trust levels, the institutional quality measures are expected to increase by 0.327, 1.083 and 1.176 percentage points, holding all other variables constant, and in the cross-country sense.⁴⁶ This suggests that the positive

⁴⁵ 1. Without wave fixed effects tables presented in appendix.

2. Excluded countries from the regressions for reasons mentioned earlier are: Latvia (1990), Lithuania (1990), Estonia (1990), Russia (1990), Romania (1993), Belarus (1990), Bulgaria (1991), Hungary (1991) and Bosnia and Herzegovina (1998).

⁴⁶ To recall, the institutional variables are standard normalized on the following scale:

1. ICRG - 0 to 1

effects on Rule of Law and ICRG index have the greatest magnitude, and less so on Economic Freedom index. The positive effects on Property Rights have large coefficients, but they are not significant.

As briefly mentioned earlier, let us remind ourselves that the institutions variables measures are ajar to criticisms. So, how can we interpret these results to provide some useful insight, even if it is just an indication? - Trust is always positively related to institutions. There is also the average income or levels of development having positive effects on institutional quality. The reverse causality question is not clear - do institutions cause income increases for example? This reaffirms the general hypotheses that “good” institutions working to ensure contracts are enforced, set the rules of the game and facilitate economic activities turn out to have higher incomes.

When we turn to the gini coefficients’ point estimates, we see that they are negatively correlated (and not significant) to institutions in models (1) and (3). When they are positive in models (2) and (4), they are also significant interestingly. However, when we observe closely we notice that the institutions quality variables of models (2) and (4) are rather specific - pertaining to very specific economic spheres of institutions - property rights and economic freedom. They are expected to facilitate economic activity and hence improve incomes. This in turn will have an impact on the income distribution. From the results we observe that in countries where property rights are stronger and economic freedoms are higher, they are also positively correlated with higher income inequalities. At the same time, of course, the question of causality lurks on the direction of the relationship between inequality and economic freedom or between inequality and property rights.

Population and ethnicity can perhaps be merged together while interpreting our table 6, partly because they are significant simultaneously in model (3) and negative. This could mean that creating institutions in a less fractionalized society with relatively less population is easier. This manifests in other models too by the sign of their correlations, but they are not always significant.

4.3 Determinants of Trust - Logistic regression micro-estimates

Logistic model has been used to fit our data with the binary outcome dependent variable of “interpersonal trust” at the micro level, thanks to the integrated values dataset merging all the WVS and EVS waves. We have 421,799 observations in the total sample. This dataset will also enable us to include the country fixed effects.⁴⁷ A cross-country inves-

2. Economic Freedom - 1 to 10

3. Rule of Law - -2.5 to 2.5

4. Property rights - 10 to 100.

⁴⁷ Country-survey fixed effects and survey fixed effects alone are also tested.

Table 7: Determinants of Trust - ordered-logit micro estimates 1980-2009

	(1)	(2)	(3)	(4)	(5)
	Trust	Trust	Trust	Trust	Trust
Trust					
Age	1.005*** (0.00)	1.004* (0.00)	1.008*** (0.00)	1.006** (0.00)	1.005* (0.00)
Age squared	1.000** (0.00)	1.000 (0.00)	1.000 (0.00)	1.000 (0.00)	1.000 (0.00)
Married	1.031*** (0.01)	1.019* (0.01)	1.017 (0.02)	0.982 (0.02)	1.023 (0.02)
Sex	1.007 (0.01)	1.004 (0.01)	1.012 (0.01)	1.019 (0.02)	1.019 (0.01)
Employment	1.194*** (0.01)	1.129*** (0.01)	1.176*** (0.02)	1.138*** (0.02)	1.173*** (0.02)
Education		1.106*** (0.00)	1.091*** (0.00)	1.078*** (0.00)	1.083*** (0.00)
No. of children			1.015*** (0.01)	1.015*** (0.01)	1.016*** (0.01)
Unemployed			0.949* (0.03)	0.967 (0.03)	0.941* (0.03)
Student			1.283*** (0.04)	1.278*** (0.05)	1.266*** (0.04)
Self-employed			1.057** (0.03)	1.075*** (0.03)	1.047* (0.03)
Habitat size			0.990*** (0.00)	0.988*** (0.00)	0.990*** (0.00)
Religious or not			0.935*** (0.01)	0.943*** (0.02)	0.931*** (0.02)
(Sub.) Income				1.041*** (0.00)	
Atheist					1.069* (0.04)
Protestant					1.073** (0.03)
Muslim					1.206*** (0.05)
Buddhist					1.086 (0.09)
Catholic					1.051** (0.03)
Hindu					1.146** (0.08)
Jew					1.156 (0.14)
Sunni					1.298** (0.17)
Shia					0.865 (0.19)
Constant	0.177*** (0.01)	0.111*** (0.01)	0.163*** (0.01)	0.146*** (0.01)	0.162*** (0.01)
Observations	378669	293346	155559	137903	144745
R^2					
Adjusted R^2					
Pseudo R^2					
AIC	441710.2	326336.5	171666.3	151920.9	158841.6
BIC	442881.4	327490.8	172641.8	152874.8	159899.0

Exponentiated coefficients; Standard errors in parentheses

Country fixed effects included

Huber and White robust standard errors

Country population weights applied

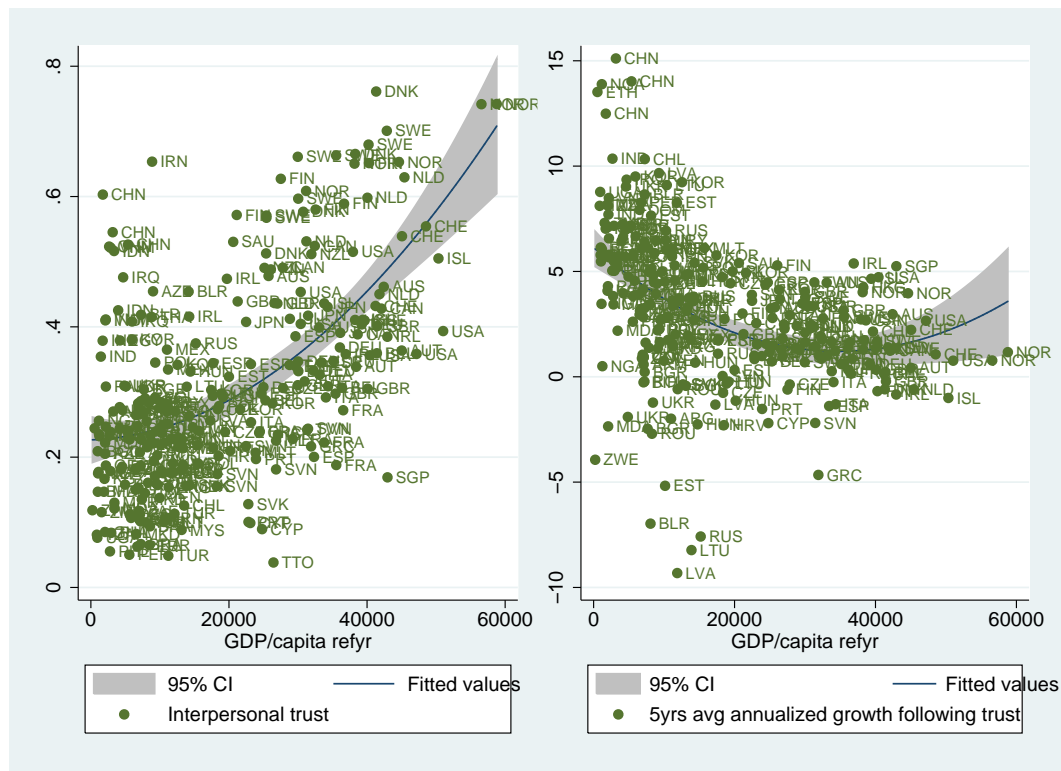
Regression 4 with subjective income scales variable

Coefficients represent the odds of Trust=1 when X increases by 1 unit

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

tigation of determinants of trust is of course inviting, but the pseudo R squared of our micro-estimates suggest that apart from the variables we can control for, there are several country specific heterogeneity for the determinants of trust that require moving away from a cross-country analysis. A regional focused, micro or better, a multilevel model is useful to control for several hierarchically affecting factors. The cross-country analysis approach is also extensively documented in the subjective well-being literature.⁴⁸

Figure 2: Twoway Trust-GDP/capita and Growth-GDP/capita (full sample)



Average generalized trust levels and growth rates on GDP/capita.

Note: Luxembourg and Bosnia & Herzegovina observations dropped from this figure.

Summary tables found in appendix.

Age and age squared variables are significant and takes an “inverted U” form against trust - a downward concave relationship. This is akin to what is also found in the subjective well-being literature of the relationship between age and happiness variables, or the life satisfaction variables using the values surveys. This means that the odds of being trustful increases with age up until a certain point (or age), then it declines.⁴⁹ Remember, our dataset is a snapshot of the world,⁵⁰ so this result does not imply that this is a generational trend - that a person is more trusting as he grows up and then his

⁴⁸ Cf. Easterlin et al. (2010), Clark et al. (2008), Graham (2014) among others.

⁴⁹ Graphs on quadratic relationship, and the marginal effects of age and trust are found in the appendix.

⁵⁰ Although, a snapshot of over 28 years of data.

trusting behavior declines after a certain age. Perhaps this is the case, but this is not clear. To verify this, a panel data is required.

Being a male also favors to being more trusting, as found in other empirical papers, but they are not significant in any of our models. Being married increases the odds of being more trusting, and significantly so in models (1) and (2).⁵¹

Employment (along with Student dummy) is the one of the most significant variables in terms of high odds of increasing trusting behavior, across all the models with 1% statistical significance. This is also true with increasing education levels of people.⁵² We can infer that the capability of being employed or educated (or currently in education - student dummy) increases the odds of being trustful of others. If we were to stretch this interpretation further, we can also say that the social stigma of not being employed and not being educated has its negative effects. This is further strengthened with the unemployed dummy odds on trusting behavior.

Having children improve the trusting attitudes of people, or parents at least. These are positive and significant in all the models.⁵³ Habitat size (the population size of the village/town/city in which one lives in) has a negative and significant effect on trust. This may imply that more the people in a society, the social interactions and personal transactions are “anonymized” and thus leading to decline in the likelihood of interpersonal trust between “unknown” people.

When we turn to the coefficients of being religious or not dummy, we see that they are negatively and significantly related to trust; much like being an atheist (or not dummy). Every “major” religious denomination that a person declares to adhere to, has a positive and significant effect on trusting others, except for being a Buddhist, Jew or a Shia. Being a Buddhist or being a Jew is positively correlated to trust, but they are not significant. Being a Shia is negatively correlated to trust, but that is not significant either.

We have executed the Hausman test which points at using the fixed effects model instead of a random effects model. This confirms what we discussed earlier on the pseudo R squared and the micro versus macro trade-offs.⁵⁴

⁵¹ Incidentally, when we extend the definition of marriage to include all unions (but not officially married), they are no longer significant.

⁵² The probability of being trustful increases with higher levels of education accomplished. Refer to the graph in the appendix on the marginal effects of education levels on trust.

⁵³ However, we don't observe the similar relationship as observed between the marginal effects of education and trust, with respect to number of children and trust. The relationship is a lot weaker, if any.

⁵⁴ 1. Brant and BIC tests.

2. With and without fixed effects results presented in appendix.

3. Employment dummies also tested with various arbitrary cutoffs of education levels.

4. Literacy dummies also tested.

All our models of the three principal equations have gone through several validity and robustness tests. To summarize what we have done for robustness and internal validity, we answer the following questions: First, how our estimated parameters vary as different models are used. Second, in these papers found in this literature, researchers tend to examine only a few representative specifications, but there is no reason why they couldn't examine many more if the data were available. We did precisely that. We would also add that the effect may change when we alter the covariates or the sample, but it does so in a predictable and theoretically consistent manner - yet another definition to be called robust.

4.4 Associational activity and civic norms - 2000 combined WVS and EVS sample

Inequality is the prominent variable which is significant almost always at 5% and a negative determinant of trust and civic norms in our sample. Olsonian groups (and not so much Putnamian groups) in general have a significant effect on trust and civic norms. For one percentage point increase in Olsonian groups' membership, the trust measures are expected to increase by 0.34, 0.45 and 0.51 percentage points on average, depending on the model, holding all other variables constant. Levels of development is one variable having a significant positive effect on trust and not civic norms. The same is observed with education have a positive and significant effect on trust, and not on civic norms (they are surprisingly negative and significant).

Of course, this section is to provide us with an indication alone on the associational activity and its links with trust and civic norms in a country.

5. Children dummies instead of the number of children were also used.

Table 8: Determinants of Trust: Group memberships [2000 sample]

	(1)	(2)	(3)	(4)	(5)
	Trust	Trust	Trust	Trust	Trust
ln(GDP/capita)	0.034** (0.01)	0.039*** (0.01)	0.032** (0.01)	0.040*** (0.01)	0.040*** (0.01)
Education	1.859** (0.92)	1.503 (0.98)	1.754* (0.92)	1.436 (1.03)	1.337 (1.13)
Gini coefficients	-0.005*** (0.00)	-0.002 (0.00)	-0.006*** (0.00)	-0.001 (0.00)	-0.001 (0.00)
Groups	0.057** (0.02)				-0.030 (0.10)
Olsonian		0.342*** (0.10)		0.448*** (0.15)	0.506** (0.24)
Putnamian			0.141** (0.07)	-0.084 (0.10)	-0.029 (0.18)
Constant	-0.004 (0.17)	-0.134 (0.17)	0.073 (0.17)	-0.186 (0.15)	-0.183 (0.15)
Observations	53	53	53	53	53
R^2	0.438	0.502	0.401	0.512	0.514
Adjusted R^2	0.391	0.461	0.351	0.460	0.450

Standard errors in parentheses

Huber and White robust standard errors

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Determinants of Trust: Group memberships [2000 sample]

	(1)	(2)	(3)	(4)	(5)
	Civic	Civic	Civic	Civic	Civic
ln(GDP/capita)	0.000 (0.00)	0.001 (0.00)	0.000 (0.00)	0.001 (0.00)	0.001 (0.00)
Education	-0.571** (0.26)	-0.606** (0.26)	-0.588** (0.26)	-0.600** (0.27)	-0.644** (0.26)
Gini coefficients	-0.001*** (0.00)	-0.001** (0.00)	-0.001*** (0.00)	-0.001** (0.00)	-0.001* (0.00)
Groups	0.006* (0.00)				-0.011 (0.02)
Olsonian		0.034** (0.01)		0.028 (0.03)	0.050 (0.04)
Putnamian			0.018* (0.01)	0.005 (0.02)	0.026 (0.05)
Constant	0.393*** (0.03)	0.382*** (0.03)	0.401*** (0.03)	0.385*** (0.04)	0.386*** (0.04)
Observations	41	41	41	41	41
R^2	0.273	0.288	0.271	0.289	0.297
Adjusted R^2	0.192	0.209	0.190	0.188	0.173

Standard errors in parentheses

Huber and White robust standard errors

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5 Conclusion

In this exercise to revisit the questions of social capital and its economic payoffs, we observe that (interpersonal) trust continues to be an important variable in a larger sense if we consider social cohesion as an important dimension of human development, and also to have economic payoffs in societies.

Generalized trust can be *trusted* over time and across countries, to have positive effects on economic development and institutions. This is true when we take all countries together (a cross-national global phenomenon). More importantly, we go a step further in establishing causality between trust and economic development. Trust also tends to have a longer lasting effect on economic development (10 years > 7 years > 5 years). There are of course some confounding elements that this analysis unveils, and this in our opinion only nourishes the research on social capital.

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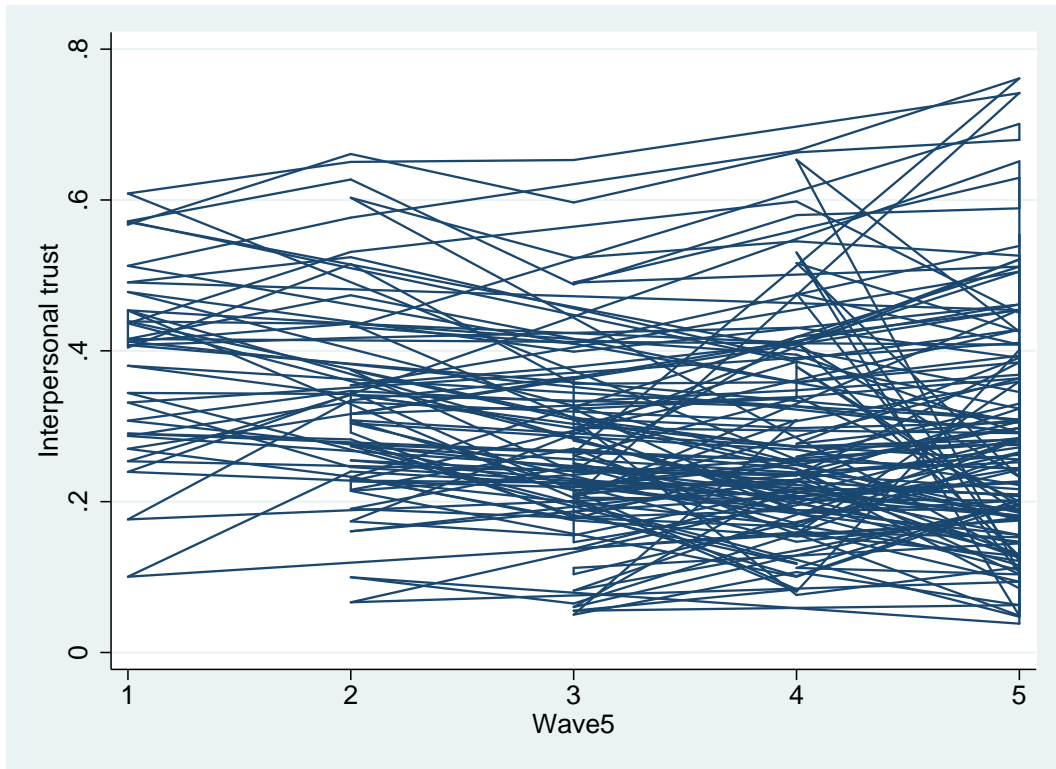
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Table 10: Relational Capability Index: Dimensions and components

Dimensions	Components	Deprived if
Integration to network	<p>Employment status</p> <p>Access to transport</p> <p>Access to telecommunications</p> <p>Access to information</p>	<p>No stable job with regular professional relations</p> <p>No means of transport</p> <p>Does not use a phone, a computer or the internet</p> <p>Does not obtain news from radio, television or newspaper</p>
Private relations	<p>No. of people in the HH</p> <p>Family ties</p> <p>Close friends</p> <p>Financial support</p> <p>Trust in the community</p>	<p>Lives alone</p> <p>No trust in family</p> <p>No close friends providing psychological & emotional support</p> <p>No financial support from relatives or acquaintances</p> <p>No trust in people the individual knows</p>
Civic commitment	<p>Membership</p> <p>Collective action</p> <p>Vote</p> <p>Solidarity</p> <p>Trust in others</p>	<p>No active membership in a group</p> <p>No participation in political action</p> <p>Does not vote</p> <p>No active membership in common interest group</p> <p>No trust in unknown people</p>

Figure 3: Generalized trust levels across time in the combined WVS and EVS surveys



Missing countries: Latvia (1990), Lithuania (1990), Estonia (1990), Russia (1990), Romania (1993), Belarus (1990), Bulgaria (1991), Hungary (1991) and Bosnia and Herzegovia (1998).
Waves 1: 1981-84, 2: 1989-93, 3: 1994-98, 4: 1999-2004 and 5: 2005-09

Table 11: Trust on Growth - cross-country fixed effects regressions 1980-2009

	(1)	(2)	(3)
	Growth5	Growth7	Growth10
trust	4.431*** (0.85)	3.726** (0.99)	5.004*** (0.88)
lngdpc20	-1.619** (0.55)	-2.165** (0.49)	-2.455*** (0.38)
piref	-4.124** (1.06)	-2.803* (1.03)	-2.784** (0.79)
bl_asy25mfref	-0.027 (0.14)	0.088 (0.12)	0.013 (0.12)
o.High income	0.000 (.)	5.686** (1.40)	5.082** (1.26)
Low income	-4.442** (1.20)		
Lower middle income	-1.497** (0.42)	3.745** (1.16)	3.027** (0.97)
Upper middle income	-0.521 (0.40)	5.128** (1.51)	4.536** (1.01)
o.Low income		0.000 (.)	0.000 (.)
Constant	20.148** (4.41)	18.511*** (2.95)	21.915*** (1.99)
Observations	233	197	197
R^2	0.420	0.423	0.565
Adjusted R^2	0.402	0.402	0.548

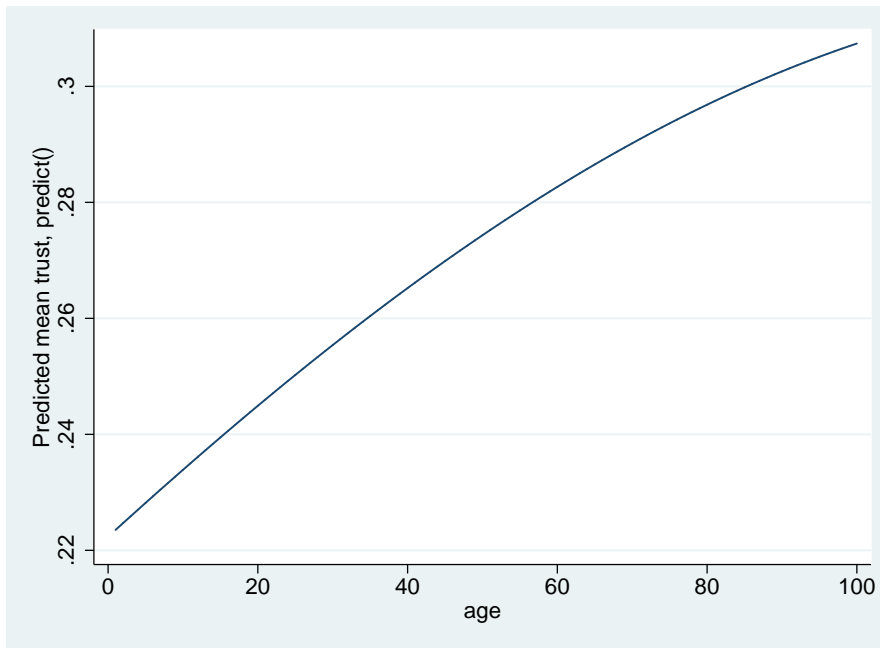
Standard errors in parentheses

Huber and White robust standard errors

Country income level group dummies included

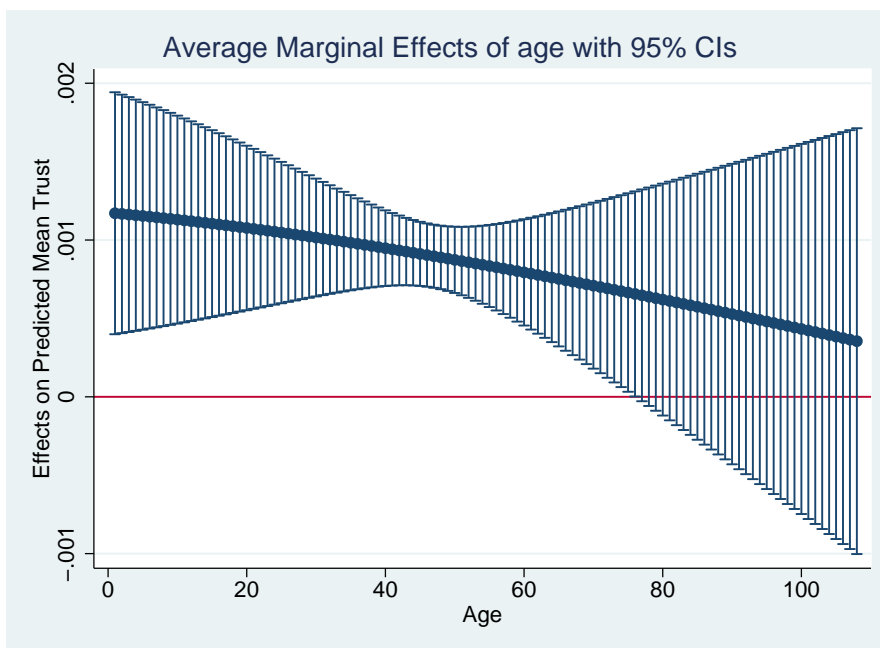
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 4: Marginal effects of Age on Trust (quadratic and continuous)



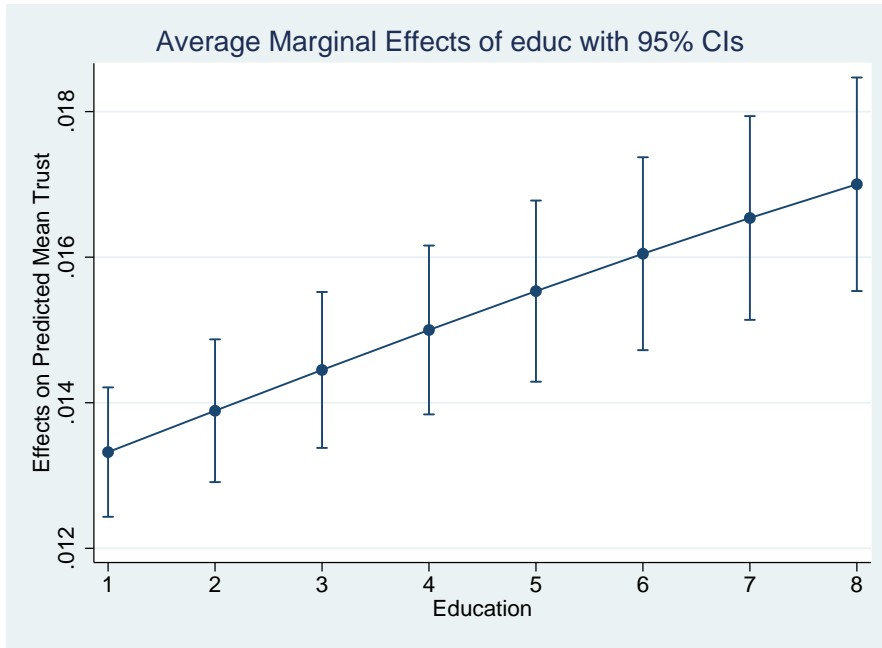
Combined sample 1980 - 2005

Figure 5: Marginal effects of Age on Trust



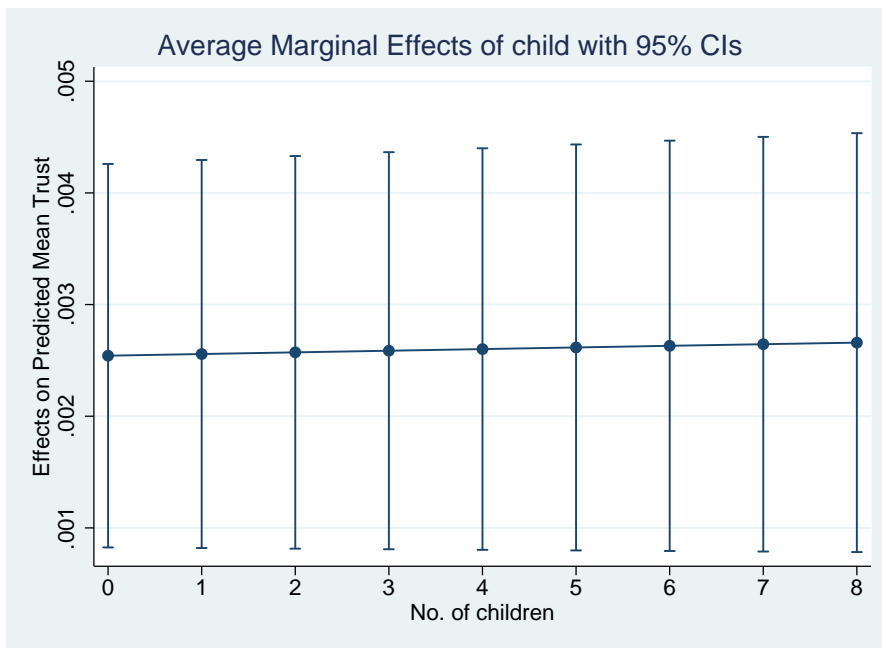
Combined sample 1980 - 2005

Figure 6: Marginal effects of Education Levels on Trust



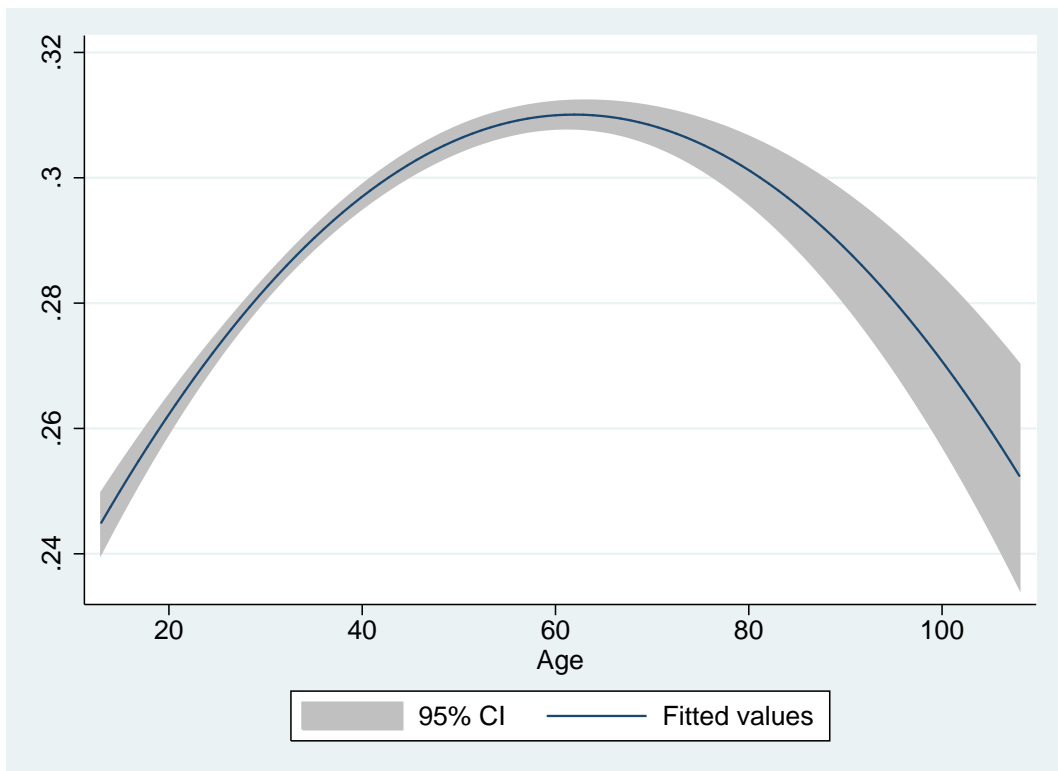
Combined sample 1980 - 2005

Figure 7: Marginal effects of Number of Children on Trust



Combined sample 1980 - 2005

Figure 8: Trust and age - quadratic relationship



Combined sample 1980 - 2005

Figure 9: Trust and per capita income levels by survey waves

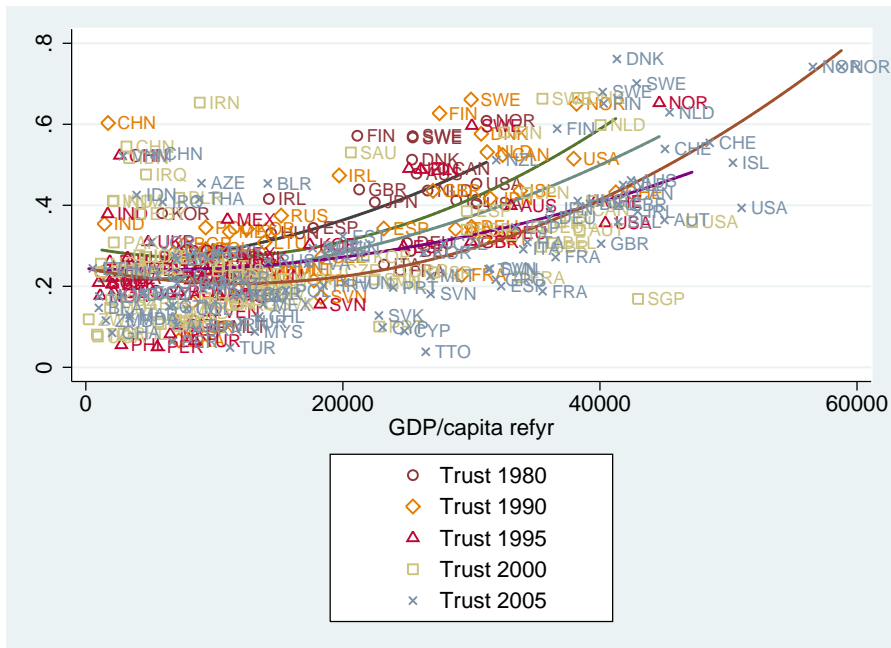


Figure 10: Trust and per capita income levels by survey waves

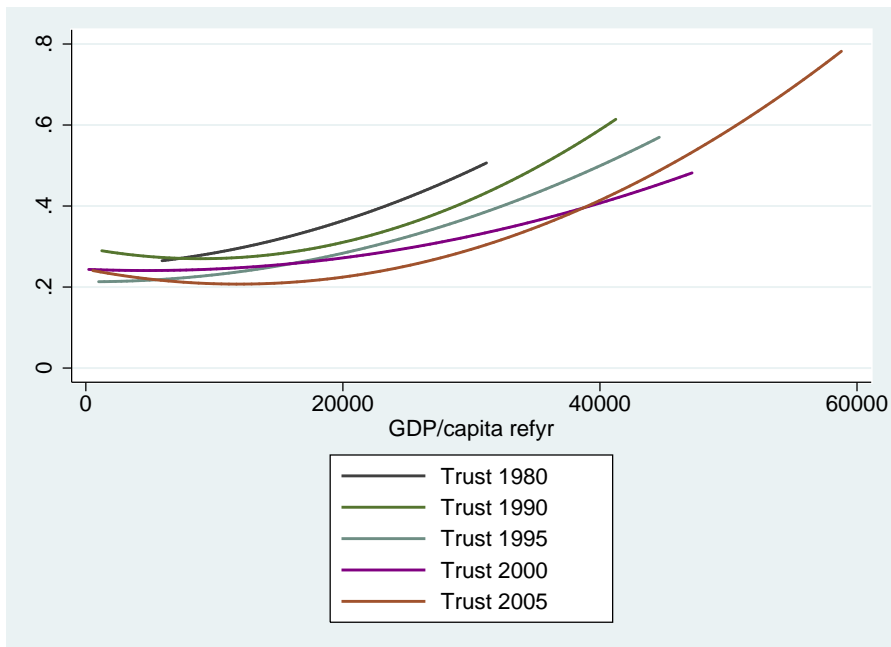


Table 12: World Values Survey - 2000 sample

No.	Country	year	trust	congov	lifesat	happy	civic	growth
1	Sweden	1999	0.66	.	7.65	3.29	.	3.09
2	Iran	2000	0.65	2.86	6.38	2.81	36.86	1.18
3	China	2001	0.55	3.36	6.53	2.87	37.58	10.22
4	S. Arabia	2003	0.53	.	7.28	3.35	.	-0.55
5	Indonesia	2001	0.52	2.57	6.96	3.15	35.77	0.50
6	Iraq	2004	0.48	2.20	5.23	2.66	.	14.87
7	Japan	2000	0.43	2.10	6.48	3.17	37.35	0.58
8	Vietnam	2001	0.41	3.74	6.52	3.41	38.08	6.63
9	India	2001	0.41	2.58	5.14	2.95	35.74	4.66
10	Canada	2000	0.39	2.33	7.80	3.39	36.22	2.93
11	Egypt	2000	0.38	2.66	5.36	3.06	37.78	3.32
12	United States	1999	0.36	2.31	7.65	3.32	35.33	2.78
13	Spain	2000	0.34	2.39	6.99	3.06	35.89	3.99
14	Pakistan	2001	0.31	2.26	4.85	2.94	38.89	0.82
15	Jordan	2001	0.28	3.34	5.64	2.92	38.32	0.81
16	South Korea	2001	0.27	2.19	6.21	2.96	.	4.28
17	Nigeria	2000	0.26	2.48	6.87	3.58	35.80	1.81
18	Albania	2002	0.24	2.62	5.17	2.59	35.53	4.48
19	Morocco	2001	0.24	2.63	6.05	3.05	37.94	1.66
20	Bangladesh	2002	0.24	3.28	5.78	2.90	39.40	1.87
21	Israel	2001	0.23	.	7.03	3.02	.	1.66
22	Chile	2000	0.23	2.58	7.12	3.16	33.13	4.65
23	Puerto Rico	2001	0.23	2.48	8.49	3.47	36.91	3.81
24	Mexico	2000	0.21	2.18	8.13	3.48	31.96	1.39
25	Serbia	2001	0.20	2.09	5.62	2.83	36.32	2.97
26	Turkey	2001	0.19	2.28	5.81	3.03	.	1.72
27	Singapore	2002	0.17	.	7.13	3.23	35.40	3.04
28	Kyrgyzstan	2003	0.17	2.13	6.48	3.04	33.78	0.86
29	Venezuela	2000	0.16	2.58	7.52	3.42	34.75	0.20
30	Bosnia & Herz.	2001	0.16	2.17	5.77	3.02	37.36	38.74
31	Argentina	1999	0.15	1.85	7.33	3.13	35.91	0.08
32	Moldova	2002	0.15	2.18	4.57	2.53	28.88	-0.11
33	Macedonia	2001	0.14	1.59	5.12	2.89	35.51	0.66
34	Zimbabwe	2001	0.12	2.56	3.94	2.66	38.09	-2.12
35	South Africa	2001	0.12	2.54	5.81	3.12	33.26	2.10
36	Algeria	2002	0.11	2.48	5.67	2.96	35.16	1.84
37	Peru	2001	0.11	2.06	6.44	2.95	34.02	1.54
38	Philippines	2001	0.08	2.54	6.67	3.26	30.65	0.72
39	Tanzania	2001	0.08	3.34	3.87	3.50	37.91	1.42
40	Uganda	2001	0.08	3.15	5.62	3.03	33.71	2.69

Note: congov - Confidence in Government; lifesat - Life Satisfaction; happy - Happiness; trust1 - Trust in Neighborhood; and trust2 - Trust in Family.

Table 13: European Values Survey - 2000 sample

No.	Country	year	trust	lifesat	happy	civic	rci	growth
1	Denmark	1999	0.67	8.24	3.39	37.73	.	2.73
2	Sweden	1999	0.66	7.65	3.29	.	.	2.11
3	Netherlands	1999	0.60	7.88	3.41	35.33	.	3.11
4	Finland	2000	0.58	7.87	3.13	35.44	.	4.11
5	Belarus	2000	0.42	4.81	2.69	28.64	.	.
6	Iceland	1999	0.41	8.05	3.44	.	.	0.70
7	N. Ireland	1999	0.39	8.07	3.42	.	.	.
8	Spain	1999	0.39	7.09	3.06	.	.	2.85
9	Ireland	1999	0.36	8.17	3.38	.	.	9.63
10	Germany	1999	0.35	7.61	3.03	35.82	.	1.10
11	Austria	1999	0.34	8.02	3.25	35.74	.	2.30
12	Italy	1999	0.33	7.17	2.95	36.12	.	1.39
13	Belgium	1999	0.31	7.56	3.33	33.59	.	2.11
14	United Kingdom	1999	0.30	7.40	.	35.14	.	3.93
15	Ukraine	1999	0.27	4.56	2.44	31.65	.	.
16	Bulgaria	1999	0.27	5.34	2.41	.	.	-1.26
17	Luxembourg	1999	0.26	7.87	3.29	33.37	.	3.67
18	Lithuania	1999	0.25	5.09	2.79	32.38	.	.
19	Czech Republic	1999	0.24	7.06	2.96	34.79	.	2.50
20	Greece	1999	0.24	6.67	2.91	31.45	.	1.98
21	Russia	1999	0.24	4.74	2.46	33.18	.	-3.28
22	Estonia	1999	0.23	5.90	2.70	.	.	4.88
23	France	1999	0.22	6.93	3.22	32.86	.	1.50
24	Hungary	1999	0.22	5.69	2.81	.	.	2.27
25	Slovenia	1999	0.22	7.23	2.91	.	.	5.99
26	Malta	1999	0.21	8.21	3.16	.	.	4.35
27	Poland	1999	0.19	6.37	2.93	.	.	6.13
28	Croatia	1999	0.18	6.46	2.90	35.36	.	3.36
29	Latvia	1999	0.17	5.27	2.61	.	.	.
30	Slovakia	1999	0.16	6.03	2.74	.	.	5.91
31	Romania	1999	0.10	5.23	2.39	.	.	1.66
32	Portugal	1999	0.10	6.98	3.00	.	.	3.02
33	Turkey	2001	0.07	5.09	2.61	.	.	1.94

Note: Relational Capability Indicator (RCI) could not be constructed due to several missing questions for our 2000 sample.

Table 14: World Values Survey - 2008 sample

No.	Country	year	trust	trust1	trust2	congov	lifesat	happy	civic	rci	growth
1	Norway	2008	0.74	0.91	0.99	2.53	7.96	3.33	35.86	0.77	2.01
2	Sweden	2006	0.68	0.90	1.00	2.35	7.74	3.39	35.28	0.78	3.24
3	Finland	2005	0.59	0.86	0.99	2.67	7.84	3.21	35.94	0.70	3.14
4	Switzerland	2007	0.54	0.87	0.99	2.70	8.01	3.36	37.18	0.73	1.40
5	China	2007	0.52	0.86	0.99	3.32	6.76	2.94	35.38	.	12.23
6	Vietnam	2006	0.52	0.90	1.00	3.78	7.09	3.15	36.41	0.58	7.56
7	New Zealand	2004	0.51	0.91	0.99	2.34	7.89	3.36	36.62	.	2.50
8	Australia	2005	0.46	0.82	0.99	2.31	7.28	3.27	36.41	0.73	2.30
9	Netherlands	2006	0.45	0.70	0.93	2.08	7.76	3.36	36.68	0.69	1.42
10	Canada	2006	0.43	0.84	0.98	2.30	7.76	3.41	36.38	0.73	2.32
11	Indonesia	2006	0.43	0.78	0.99	2.61	6.91	3.18	37.36	0.68	3.55
12	Thailand	2007	0.42	0.76	0.98	2.36	7.21	3.32	30.97	0.56	4.40
13	Hong Kong	2005	0.41	.	.	2.58	6.41	2.90	35.45	.	4.71
14	Iraq	2006	0.41	.	.	2.69	4.46	2.42	.	.	-1.00
15	United States	2006	0.39	0.80	0.98	2.31	7.32	3.27	35.34	0.71	1.77
16	Japan	2005	0.39	.	.	2.14	6.99	3.18	37.37	.	1.49
17	Germany	2006	0.37	0.76	0.98	2.01	7.13	3.02	35.73	0.66	1.32
18	Jordan	2007	0.31	0.86	1.00	3.43	7.12	3.14	36.37	.	3.64
19	United Kingdom	2006	0.31	0.80	0.98	2.18	7.60	3.43	35.53	0.71	2.81
20	Italy	2005	0.29	0.69	0.99	2.07	6.89	3.07	36.81	0.63	1.30
21	Uruguay	2006	0.28	0.76	0.96	2.65	7.46	3.15	35.10	.	0.40
22	South Korea	2005	0.28	0.72	0.99	2.38	6.35	2.99	35.29	0.61	5.21
23	Ukraine	2006	0.28	0.73	0.98	2.04	5.67	2.83	31.34	0.61	11.88
24	Russia	2006	0.26	0.68	0.99	2.32	6.09	2.76	32.62	0.59	10.24
25	Ethiopia	2007	0.24	0.79	0.97	2.09	4.99	2.88	36.95	0.66	3.54
26	Taiwan	2006	0.24	0.81	0.99	2.15	6.58	3.04	35.71	0.62	3.99
27	India	2006	0.23	0.87	0.98	2.63	5.79	3.02	31.86	0.67	5.72
28	Bulgaria	2006	0.22	0.74	0.99	2.14	5.22	2.60	35.22	0.57	7.58
29	Romania	2005	0.20	0.50	0.97	2.00	5.75	2.56	36.14	0.51	8.28
30	Andorra	2005	0.20	0.51	0.98	2.21	7.13	3.20	34.55	0.65	.
31	Spain	2007	0.20	0.76	0.99	2.37	7.32	3.05	35.19	.	2.26
32	Poland	2005	0.19	0.75	0.98	1.94	7.02	3.12	35.34	0.59	4.27
33	France	2006	0.19	0.82	0.95	2.01	6.91	3.25	33.04	0.67	1.55
34	South Africa	2007	0.19	0.73	0.98	2.94	7.03	3.15	33.87	0.61	3.55
35	Egypt	2008	0.19	0.95	1.00	.	5.74	2.91	37.21	0.56	2.55
36	Georgia	2008	0.18	0.92	1.00	2.14	4.96	2.75	37.38	0.59	9.29
37	Slovenia	2005	0.18	0.60	0.98	2.07	7.24	2.97	33.56	0.61	4.57
38	Moldova	2006	0.18	0.54	0.98	2.11	5.45	2.48	31.70	0.55	8.14
39	Argentina	2006	0.18	0.71	0.98	2.22	7.79	3.20	34.94	0.62	1.99
40	Mali	2007	0.17	0.86	0.98	2.96	6.09	3.20	31.15	0.62	2.16
41	Guatemala	2005	0.16	.	.	2.20	7.95	3.23	31.89	.	1.30
42	Mexico	2005	0.16	0.54	0.91	2.35	8.23	3.49	30.55	0.58	1.79
43	Serbia	2006	0.15	0.66	0.99	2.01	6.01	2.69	25.50	0.61	6.51
44	Burkina Faso	2007	0.15	0.71	0.95	2.44	5.57	3.01	33.83	0.54	2.08
45	Colombia	2005	0.14	0.56	0.96	2.46	8.31	3.35	.	0.56	2.92
46	Morocco	2007	0.13	0.84	0.99	2.62	5.25	3.03	36.68	0.60	4.45
47	Chile	2005	0.13	0.57	0.97	2.39	7.16	3.08	32.47	0.54	3.90
48	Zambia	2007	0.12	0.58	0.94	2.41	6.06	2.78	30.31	0.60	2.71
49	Iran	2007	0.11	.	.	2.60	6.43	2.94	33.98	.	4.17
50	Cyprus	2006	0.10	0.51	0.98	2.52	7.37	3.21	34.62	0.62	1.94
51	Brazil	2006	0.09	0.56	0.94	2.34	7.65	3.24	31.90	0.60	1.73
52	Malaysia	2006	0.09	0.81	0.99	3.02	6.84	3.31	29.50	0.60	3.47
53	Ghana	2007	0.09	0.63	0.98	2.95	6.12	3.25	35.59	0.59	2.95
54	Peru	2008	0.06	0.38	0.93	1.79	7.04	2.94	.	0.50	3.68
55	Rwanda	2007	0.05	0.90	0.97	.	4.97	2.95	34.82	.	5.64
56	Turkey	2007	0.05	0.75	0.99	2.77	7.46	3.19	37.94	0.52	4.08
57	Trinidad & To.	2007	0.04	0.61	0.95	2.12	7.33	3.37	34.29	0.61	11.17

Table 15: European Values Survey - 2008 sample

No.	Country	year	trust	congov	lifesat	happy	civic	rci	growth
1	Denmark	2008	0.76	2.54	8.36	3.44	37.60	0.80	1.15
2	Norway	2008	0.74	2.43	8.10	3.36	36.07	0.73	1.79
3	Sweden	2009	0.70	2.47	7.63	3.19	34.16	0.73	2.78
4	Finland	2009	0.65	2.28	7.72	3.00	36.50	0.63	2.95
5	Netherlands	2008	0.63	2.41	8.01	3.52	36.10	0.71	1.47
6	Switzerland	2008	0.55	2.64	8.01	3.34	36.29	0.69	1.61
7	Iceland	2009	0.50	2.17	8.01	3.48	36.62	0.76	1.87
8	Azerbaijan	2008	0.45	2.65	5.94	2.82	34.32	0.59	27.31
9	Belarus	2008	0.45	2.67	6.07	2.91	29.91	0.54	10.99
10	Germany	2008	0.40	2.07	7.10	2.96	35.07	0.60	1.47
11	United Kingdom	2009	0.40	1.87	7.49	3.33	36.59	0.59	1.87
12	Ireland	2008	0.38	2.23	7.79	3.41	34.36	0.67	1.88
13	Austria	2008	0.36	1.92	7.55	3.16	34.30	0.61	2.32
14	Belgium	2009	0.36	2.13	7.67	3.38	34.41	0.62	1.98
15	Spain	2008	0.35	2.19	7.32	3.17	34.44	0.56	1.30
16	Luxembourg	2008	0.33	2.71	7.90	3.31	34.59	0.64	2.99
17	Estonia	2008	0.32	2.20	6.69	2.89	34.84	0.54	8.06
18	Italy	2009	0.31	2.01	7.14	3.00	36.24	0.68	0.37
19	Czech Republic	2008	0.31	1.91	7.21	2.97	33.20	0.54	5.50
20	Lithuania	2008	0.30	2.05	6.45	2.73	32.15	0.47	9.61
21	Russia	2008	0.29	2.64	6.52	2.81	31.53	0.54	9.56
22	N. Ireland	2008	0.29	2.02	7.84	3.35	34.88	0.63	.
23	Ukraine	2008	0.28	1.81	6.08	2.79	34.62	0.54	11.60
24	Poland	2008	0.28	1.92	7.21	3.05	33.65	0.52	5.37
25	France	2008	0.27	2.10	7.08	3.26	33.26	0.63	1.02
26	Bosnia & Herz.	2008	0.27	1.92	7.09	3.06	35.74	0.46	4.93
27	Latvia	2008	0.26	1.90	6.36	2.84	32.84	0.52	10.11
28	Montenegro	2008	0.25	2.23	7.43	3.05	36.30	0.49	7.34
29	Slovenia	2008	0.24	2.30	7.55	3.04	35.39	0.57	5.41
30	Georgia	2008	0.23	2.46	5.48	2.81	36.44	0.56	10.05
31	Malta	2008	0.23	2.48	7.91	3.24	38.30	0.55	2.10
32	Greece	2008	0.22	1.87	6.92	3.01	32.93	0.55	3.63
33	Hungary	2008	0.21	1.77	6.29	2.92	36.29	0.52	3.79
34	Armenia	2008	0.21	2.41	5.70	2.94	35.32	0.53	14.06
35	Croatia	2008	0.20	1.81	7.04	2.98	34.45	0.50	5.03
36	Portugal	2008	0.20	1.99	6.82	3.06	35.59	0.56	0.26
37	Macedonia	2008	0.19	2.43	6.85	3.03	37.04	0.57	4.39
38	Bulgaria	2008	0.18	1.66	5.83	2.69	36.97	0.52	7.90
39	Romania	2008	0.18	1.96	6.78	2.84	33.73	0.48	9.05
40	Slovak Republic	2008	0.13	2.44	7.27	2.94	32.42	0.57	7.50
41	Serbia	2008	0.12	1.80	6.84	2.85	36.67	0.48	6.62
42	Moldova	2008	0.12	2.17	6.59	2.71	34.45	0.47	7.85
43	Turkey	2009	0.11	2.48	6.50	2.93	38.72	0.52	5.07
44	Kosovo	2008	0.11	2.82	6.90	3.09	38.35	0.50	.
45	Albania	2008	0.10	1.97	6.30	2.76	33.84	0.47	12.48
46	Cyprus	2008	0.09	2.69	7.36	3.15	33.28	0.57	1.87
47	N. Cyprus	2008	0.05	2.30	6.28	2.99	39.00	0.54	.