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Economic Development: Is Social Capital Persistent?

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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.

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

Classification JEL: 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[2] has been sought to strengthen the foundations for these theories and evidence in their macro counterparts. 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"*[4][5]. - 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 variable, 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]. 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. The most recent work of Algan and Cahuc (2014) provides an excellent summary of the entire literature on social capital and economic development.

Our preliminary results with our dataset including 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, where interpersonal trust continues to emerge as

[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.

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 the evidence so far in the literature which undeniably highlights the gaps despite some groundbreaking research 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 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.

[8] A table with full table of RCI dimensions and components are to be found in the appendix.

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 passed on 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 North outperforms South 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 North and South determines the economic performance, more than the 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 an predefined observed group level[9] has garnered much contention over the past three decades. 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; instead a group which works for shared interests helps resolve collective action problems, 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 groups may get overboard to act as special interest groups lobbying for preferential policies. According to him, in certain situations, will naturally render the economic growth to fizzle as 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 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 general theory[10][11].

The following were the questions included in the World Values Survey and the Euro-

[9] cross-country level analysis undertaken for this paper.

[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.

pean Values Study in the last two surveys 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 groups[12]

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

[12] Questions (l)-(r) are new additions in the World Values Survey and European Values Study
[13] Membership profiles (country averages) for our 2000 and 2008 samples are found in the appendix.

There is the 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[15] and starting to be applied as a standard determinant of economic growth in the literature.

It is worth noting that research on the questions of trust have 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 don 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]. 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). This remains to be verified in our specification since these can be controlled for observing historical variations that affects trust behaviors, "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 are[19]. We demonstrate these difficulties by using different measures and to show how sensitive

[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 (2006), Knack (2003), Bjornskov (2007), Berggren et al. (2008) among others.

[16] SeeWhiteley (2000), Zak and Knack (2001) and Beugelsdijk et al. (2004) among others.

[17] Bjornskov (2012) in their paper present various transmission channels - where "good" institutions and education emerge significant determinants of 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).

[19] Cf. Oman and Arndt (2006), Arndt (2008), Razafindrakoto and Roubaud (2010) and Langbein and Knack (2008) among others.

these measures are to the model specification and our point estimates. The same applies to the geography, 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 (merged World Values Survey (WVS) and European Values Study (EVS)) which has the five World Values Survey and the four European Values Study, Penn World Tables 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.

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.

2.1 Variables of interest

Find below the variables information implemented in our regressions (for alternative variables information used for testing the sensitivity of our variables, refer to the appendix)[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 Tables 8.0 version.

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 Tables 8.0. To normalize the data, we use the natural log transformation.[21].

Education: Average secondary school 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. This is sourced from the Barro-Lee dataset.

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 Tables 8.0. This is now called the "price of capital formation" in the latest version of Penn World Tables.

Population: Population data also retrieved from Penn World Tables 8.0. We use the 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 [22], 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"

[20] Descriptive statistics of all the variables are to be found in the appendix.
[21] This is standard in the empirical literature.
[22] We have ignored two additional questions from the EVS - "Paying cash for services to avoid taxes" and "Joyriding"

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"[23]

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).

GROUPS1: We also test the following questions which are seemingly similar to the ones used above, in the interest of sensitivity of the definition and how they are perceived by the respondents of the survey (1 = Belong; 0 = not mentioned).

(a) Voluntary work: Unpaid work social welfare service for elderly, handicapped or deprived people
(b) Voluntary work: Unpaid work religious or church organization
(c) Voluntary work: Unpaid work education, arts, music or cultural activities
(d) Voluntary work: Unpaid work labor unions
(e) Voluntary work: Unpaid work political parties or groups
(f) Voluntary work: Unpaid work local political action groups
(g) Voluntary work: Unpaid work human rights
(h) Voluntary work: Unpaid work environment, conservation, animal rights
(i) Voluntary work: Unpaid work professional associations
(j) Voluntary work: Unpaid work youth work
(k) Voluntary work: Unpaid work sports or recreation
(l) Voluntary work: Unpaid work women's group
(m) Voluntary work: Unpaid work peace movement
(n) Voluntary work: Unpaid work organization concerned with health
(o) Voluntary work: Unpaid work consumer groups
(p) Voluntary work: Unpaid work other groups[24]

[23] The following question has been discontinued as found from the earlier surveys waves of WVS and EVS, "*failing to report damage you've done accidentally to a parked vehicle.*"

[24] The intensity of activity to construct our density of networks in the horizontal associational groups information *"active or inactive membership"* is available only in the last WVS survey wave, hence ignored from our analysis.

Putnamian groups: Indicator constructed similarly to our groups1 variable for responses to - *belong to religious organization, belong to education, arts, music or cultural activities, and belong to youth work.*

Olsonian groups: Indicator constructed similarly to our groups1 variable for responses to - *belong to labor unions, belong to political parties, and belong to professional associations.*[25]

Inequality (gini coefficients): The Gini coefficient estimates are sourced from the PovcalNet[26]. Whenever necessary, the imputed/interpolated gini coefficient are used; and of course not forcountries where data is missing with a gap of long periods of time (say, oover 5 years)[27].

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[28].

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

ICRG: Standard 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 also used for country

[25] 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 surveys waves of WVS and EVS. Detailed tables are found in the appendix.

[26] "PovcalNet: the online tool for poverty measurement developed by the Development Research Group of the World Bank" http://iresearch.worldbank.org/PovcalNet/.

[27] 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.

[28] Cf. Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi (2010). *"The Worldwide Governance Indicators : A Summary of Methodology, Data and Analytical Issues".* World Bank Policy Research Working Paper No. 5430.

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[29].

In this section, we will discuss the three specifications which makes 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 approaches to the analysis - micro, meso-macro and macro.

Simply put, the uniqueness of our paper in testing generalized trust effects on economic development lies in the following[30]:

- Is generalized trust persistent over time?
- We get closer to the causal relationship.

This is executed, not in the sense of repeated cross-sections (macro cross-country study), but, in the sense of taking all the available data together - in other words, pooled

[29] Krishna, Uphoff, and Esman (1997) in their book, and Uphoff's work through 70s until late 90s 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 - 1. Trust manifests in so many different ways and is very context specific. 2. 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.

[30] We also have put together the largest sample size that is ever used in the literature.

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 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[33] to control for the aforementioned problems.

How do we come closer to *causal relationship*? Its 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* the future periods of growth.

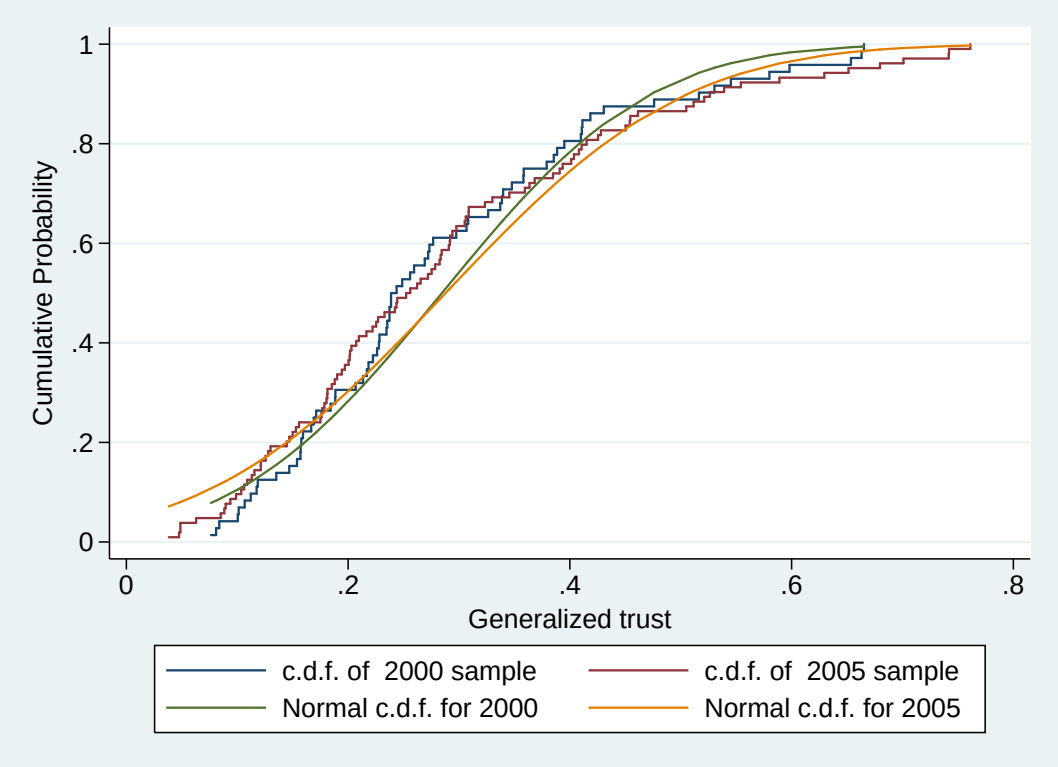
[31] However, they are deemed to be representative for each particular survey wave.
See Berggren et al. (2008) and Beugelsdijk et al. (2004)

[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.
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 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 since the value surveys inception. This is important since most of the countries included in the earlier waves were developed economies. Gradually, more and more poor and developing economies have been included in the WVS and EVS surveys (and as mentioned earlier, has 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.
Its also difficult to have country fixed effects. Since, to stress again, its an unbalanced sample.

[34] For example, Spain, Sweden, Finland, Germany, Hungary, Mexico, Poland, United Kingdom and United States are found in all the six survey waves.

Figure 1: CDF of Generalized Trust of all countries in our 2000 and 2005 reference years 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.

Equation 1[35]:

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

Secondly, we also test a few standard variables expected to affect institutions. Generalized trust is of course the prime candidate where the channels are sourced to form 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 regression where we attempt to find the determinants of trust at

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

the individual levels from personal characteristics and demographics which our dataset allows us to explore[38].

Equation 2:

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

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

Equation 3 (Logistic regression micro-estimates):

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

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

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

[38] In equations 1 and 2, i refers to countries, and 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 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***	3.882**	5.091***
	(0.73)	(1.04)	(0.90)
ln(GDP/capita)	-1.157*	-1.338*	-1.681**
	(0.51)	(0.58)	(0.45)
Investment	-2.968*	-3.529**	-3.390**
	(1.35)	(1.21)	(0.90)
Education	0.047	0.131	0.059
	(0.11)	(0.13)	(0.16)
Constant	14.217**	16.187**	19.392***
	(3.67)	(3.95)	(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
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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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 positively effects on economic development? And of course, the manner in which we compute our average annualized growth variable that follows the respective reading of trust levels, brings us closer to the causality argument[40].

[39] 1. Without wave fixed effects tables presented in appendix.
2. "Index of human capital" from the latest PWT 8.0 sourced from Barro-Lee and used as an alternative for total schooling years (not just secondary school years as presented here which is the standard convention in the literature - results do not change much).
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).

[40] Haussman test implemented to ensure the wave fixed effects to be a good fit, and not random effects.

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, and in the cross-country sense. This could mean that the relative trust levels effects across all countries of the world[41] on economic development 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[42]. These are of course, positive and significant at 1% level (5% in equation 2) in the three specifications.

Nevertheless, the results are 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.

Another check of validity has been undertaken - we test these three models with regional dummies and "levels of development" dummies[43]. Regional dummies doesn'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 begin significant. This could be explained by the fact that growth in the 1990s and 2000s (unlike the historical development episodes of the now development economies which was heavily dependent on education, skilled population and human capital) are from the emerging countries where the traditional measures are on average low like the school enrollment and attainment rates. A better measures 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 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 the variation in the data.

[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 economies of the world data used for this purpose.
Regression output tables found in the appendix.

4.2 Institutions and Trust - cross-country analysis

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

	(1) ICRG	(2) Economic freedom	(3) Rule of law	(4) Property rights
Trust	0.327***	1.083*	1.176**	19.838
	(0.04)	(0.46)	(0.21)	(12.87)
ln(GDP/capita refyr)	0.129***	0.669***	0.648***	14.942***
	(0.02)	(0.10)	(0.06)	(0.89)
ln(Pop in '000 refyr)	-0.009	-0.025	-0.084**	-1.767
	(0.01)	(0.05)	(0.01)	(1.13)
Education	0.001	0.007	-0.032	-0.166
	(0.01)	(0.04)	(0.02)	(0.66)
Gini coefficients	-0.002	0.015**	-0.006	0.188*
	(0.00)	(0.01)	(0.00)	(0.06)
Ethnic fractionalization - prob.	-0.009	0.529	-0.293**	-10.198**
	(0.04)	(0.36)	(0.05)	(3.06)
Constant	-0.503**	-0.487	-4.586***	-71.309***
	(0.14)	(1.48)	(0.31)	(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
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[44]

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 institutions measures are expected to increase by 0.327, 1.083 and 1.176 points, holding all other variables constant, and in the cross-country sense[45]. This suggests that the positive effects on Rule of Law and ICRG index has the greatest magnitude, and less so on Economic Freedom index. The positive effects on Property Rights has large coefficients, but they are not significant.

[44] 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).

[45] To recall, the institutional variables are standard normalized on the following scale:
1. ICRG - 0 to 1
2. Economic Freedom - 1 to 10
3. Rule of Law - -2.5 to 2.5
4. Property rights - 10 to 100.

As briefly hinted 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 positive related to institutions. There is incomes or levels of development having positive effects on institutions. The reverse causality question is not clear - institutions cause increasing incomes. 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 coefficients of gini point estimates, we see that they are negatively correlated (and not significant) to institutions. When they are positive in models (2) and (4), they are also significant interestingly. However, the institutions variables of models (2) and (4) are rather specific - perhaps pertaining to very specific economic spheres - property rights and economic freedom are expected to facilitate economic activity and hence improve incomes. This will have an impact on the distribution of incomes. We see from the results that in countries where property rights 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 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 microlevel, thanks to the integrated values dataset merging all the WVS and EVS values surveys. We have 421,799 observations in the total sample. This dataset will also enable us to include the country fixed effects[46]. A cross-country investigation 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 for trust that require moving away from a cross-country analysis. A regional focused, micro or better, a multilevel analysis is useful to control for several hierarchically affecting variables. The cross-country analysis approach is extensively documented in the subjective wellbeing literature[47].

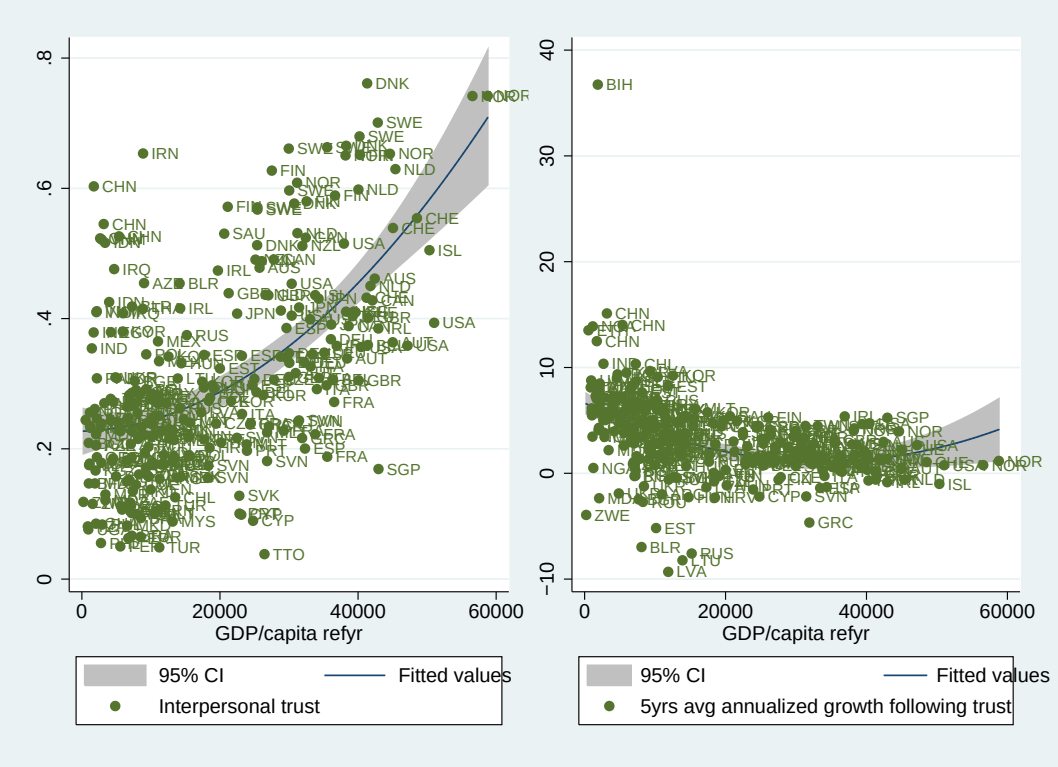
[46] Country-survey fixed effects and survey fixed effects also tested.
[47] Cf. Easterlin et al. (2010), Clark et al. (2008), Graham (2014) among others.

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

	(1) Trust	(2) Trust	(3) Trust	(4) Trust	(5) Trust
Trust					
Age	1.005***	1.004*	1.008***	1.006**	1.005*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age squared	1.000**	1.000	1.000	1.000	1.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Married	1.031***	1.019*	1.017	0.982	1.023
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Sex	1.007	1.004	1.012	1.019	1.019
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Employment	1.194***	1.129***	1.176***	1.138***	1.173***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Education		1.106***	1.091***	1.078***	1.083***
		(0.00)	(0.00)	(0.00)	(0.00)
No. of children			1.015***	1.015***	1.016***
			(0.01)	(0.01)	(0.01)
Unemployed			0.949*	0.967	0.941*
			(0.03)	(0.03)	(0.03)
Student			1.283***	1.278***	1.266***
			(0.04)	(0.05)	(0.04)
Self-employed			1.057**	1.075***	1.047*
			(0.03)	(0.03)	(0.03)
Habitat size			0.990***	0.988***	0.990***
			(0.00)	(0.00)	(0.00)
Religious or not			0.935***	0.943***	0.931***
			(0.01)	(0.02)	(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***	0.111***	0.163***	0.146***	0.162***
	(0.01)	(0.01)	(0.01)	(0.01)	(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
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 2: Twoway Trust-GDP/capita and Growth-GDP/capita total sample



Average generalized trust levels and growth rates on GDP/capita.
Note: Luxembourg data dropped from this figure.

Summary tables found in appendix.

Age and age squared variables are significant and takes a "inverted U" form against trust - a downward concave relationship. This is akin to what is also found in the subjective wellbeing 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 trusting increases with age up until a certain point (or age), then it declines[48]. 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 in models (1) and (2)[49].

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[50]. We

[48] Graphs on quadratic relationship, and the marginal effects of age and trust are found in the appendix.
[49] Incidentally, when we extend the definition of marriage to include all unions (but not officially married), they are no longer significant.
[50] The probability of being trusting increases with higher levels of education accomplished. Refer to

can infer that the capability of being employed or educated (or currently in education - student dummy) increases the odds of being trusting 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[51]. 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 are 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 Haussman 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 approach trade-offs[52].

All our models of the three 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. I would also add that the effect may change when you alter the covariates or the sample, but it does do so in a predictable and theoretically consistent manner - yet another definition to be called robust.

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the graph in the appendix on the marginal effects of education levels on trust.

[51] 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.

[52] 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.
5. Children dummies instead of the number of children was also used.

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 Olson groups, the trust measures are expected to increase by 0.39, 0.56 and 0.66 percentage points on average, depending on the model, holding all other variables constant. Levels of development (and not education however) is one variable having a significant positive effect on trust and civic cooperation.

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.

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

	Trust	Trust	Trust	Trust	Trust
penngdpcapita2	0.274^{+}	0.294*	0.300*	0.350*	0.360**
	(0.15)	(0.14)	(0.15)	(0.14)	(0.13)
totyrsprim	-49.907	-64.277	-66.213	-102.227	-108.517
	(109.59)	(91.26)	(116.29)	(97.68)	(100.90)
seceduc	6.136	4.258	5.399	4.853	3.866
	(12.27)	(10.48)	(13.26)	(10.02)	(10.42)
gini1	-0.589*	-0.349^{+}	-0.705**	-0.116	-0.134
	(0.22)	(0.19)	(0.25)	(0.24)	(0.25)
group	6.254*				-4.779
	(2.34)				(9.56)
olson		39.724***		56.877***	66.057**
		(8.67)		(11.20)	(22.82)
putnam			13.492^{+}	-14.633	-6.141
			(7.21)	(9.26)	(16.44)
Constant	35.712**	26.325*	43.081**	20.090^{+}	21.701^{+}
	(12.38)	(11.81)	(12.49)	(11.49)	(12.07)
Observations	52	52	52	52	52
Adjusted R^2	0.386	0.498	0.334	0.518	0.511

Standard errors in parentheses
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Determinants of Civic Cooperation: Group Memberships [2000 sample]

	Civic	Civic	Civic	Civic	Civic
penngdpcapita2	-0.005	-0.001	-0.006	-0.001	-0.000
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
totyrsprim	-19.432	-23.675	-18.580	-23.330	-24.239
	(27.73)	(28.14)	(28.07)	(29.72)	(31.85)
seceduc	-2.458	-2.488	-2.568	-2.490	-2.575
	(3.28)	(3.31)	(3.35)	(3.37)	(3.36)
gini1	-0.086*	-0.065^{+}	-0.101**	-0.067	-0.070
	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)
group	0.576				-0.606
	(0.38)				(2.07)
olson		3.337^{+}		3.194	4.440
		(1.70)		(3.19)	(4.55)
putnam			1.581	0.119	1.230
			(1.17)	(2.11)	(4.78)
Constant	39.655***	38.940***	40.330***	38.996***	39.185***
	(1.85)	(1.94)	(1.88)	(2.24)	(2.39)
Observations	40	40	40	40	40
Adjusted R^2	0.066	0.084	0.059	0.056	0.030

Standard errors in parentheses
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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 is 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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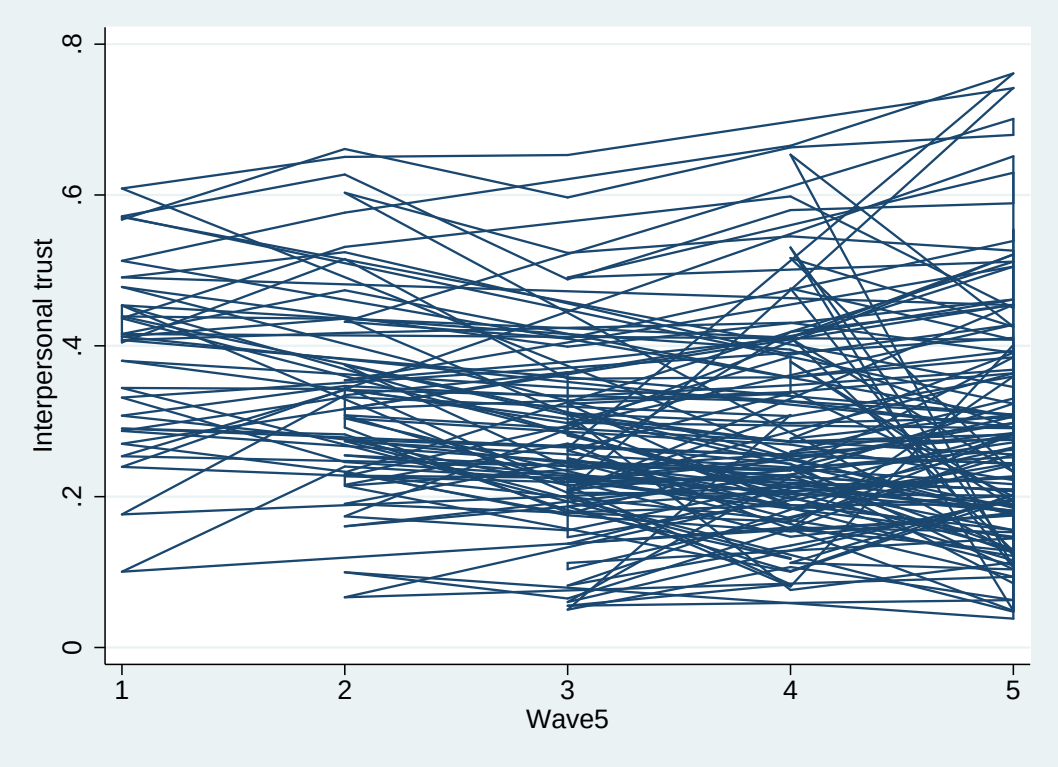
Table 10: Relational Capability Index: Dimensions and components

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

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



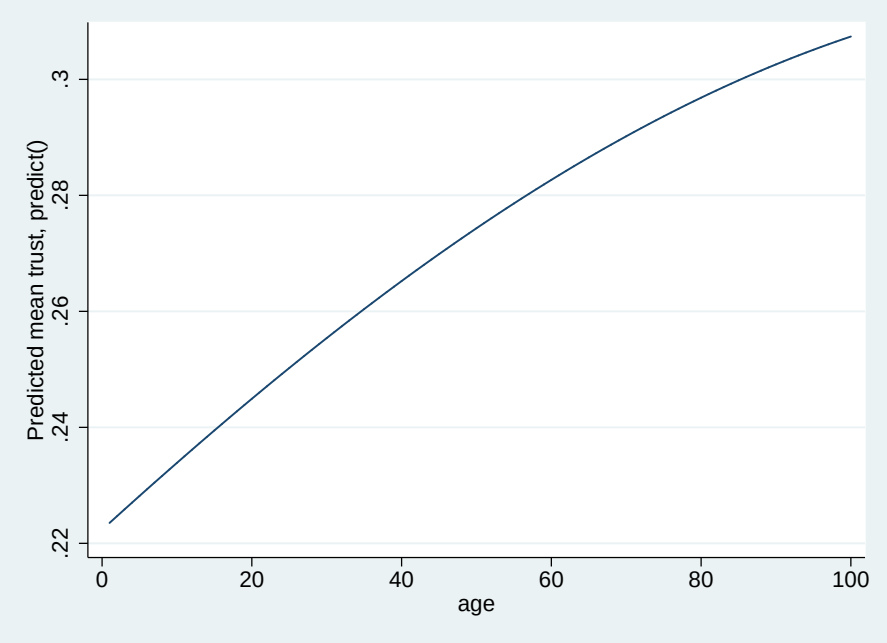
Missing countries: Latvia (1990), Lithuania (1990), Estonia (1990), Russia (1990), Romania (1993), Belarus (1990), Bulgaria (1991), Hungary (1991) and Bosnia and Herzegovia (1998).
Waves 1: 1981-84, 2: 1989-93, 3: 1994-98, 4: 1999-2004 and 5: 2005-09

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

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

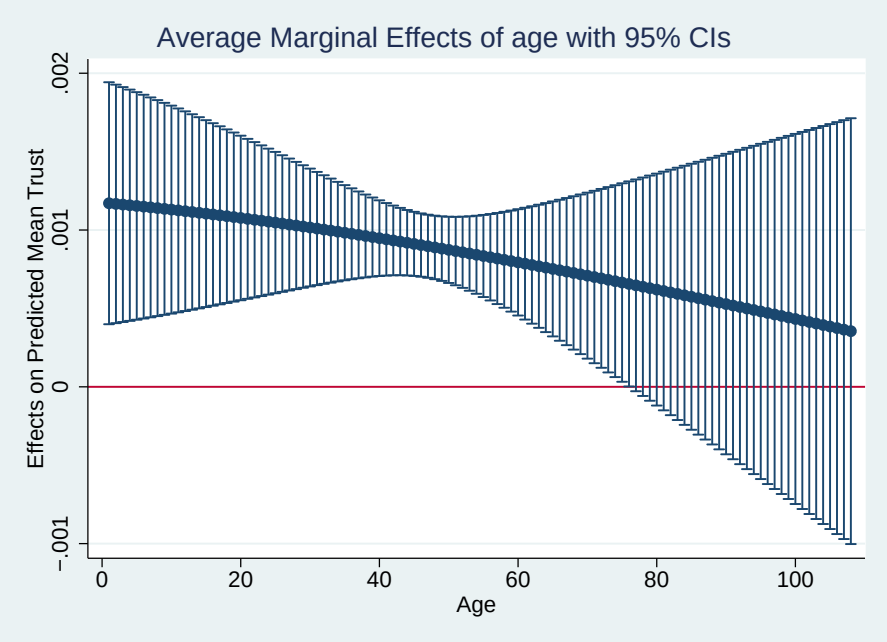
Standard errors in parentheses
Huber and White robust standard errors
Country income level group dummies included
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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



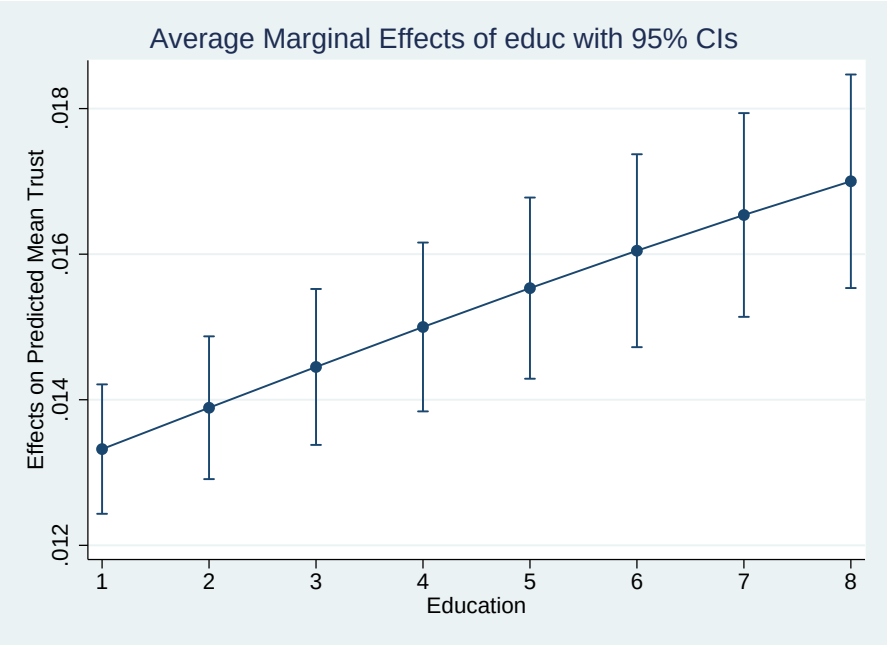
Combined sample 1980 - 2005

Figure 5: Marginal effects of Age on Trust



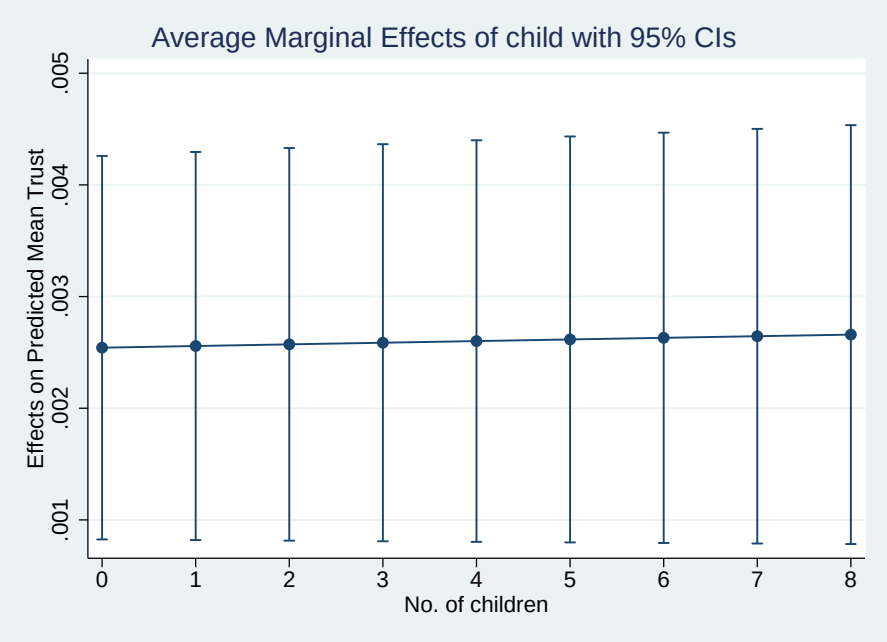
Combined sample 1980 - 2005

Figure 6: Marginal effects of Education Levels on Trust



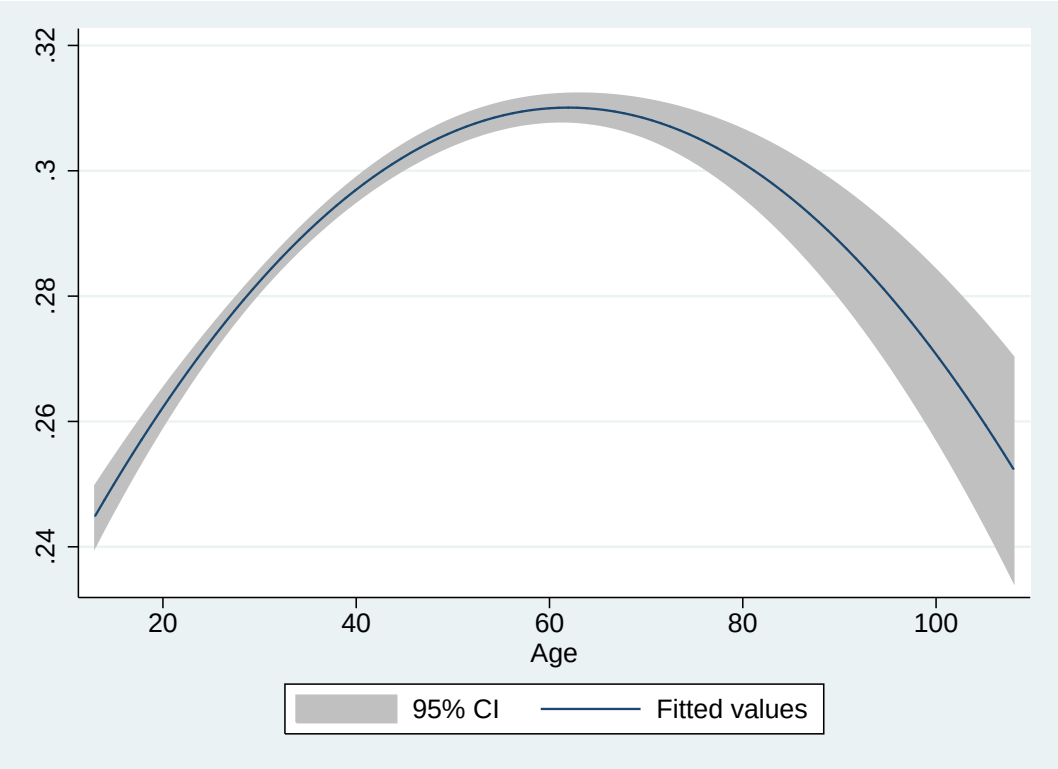
Combined sample 1980 - 2005

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

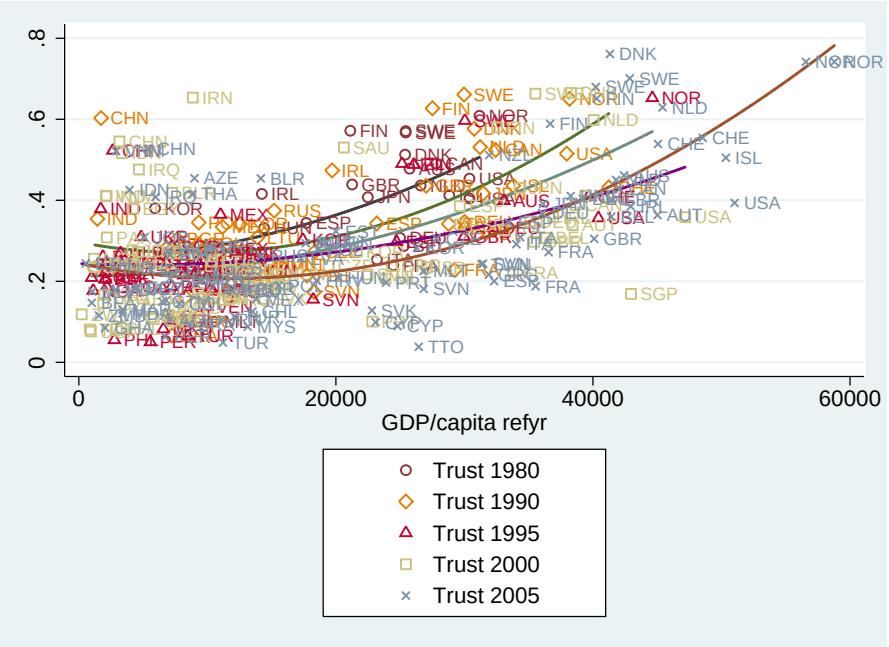


Figure 10: Trust and per capita income levels by survey waves

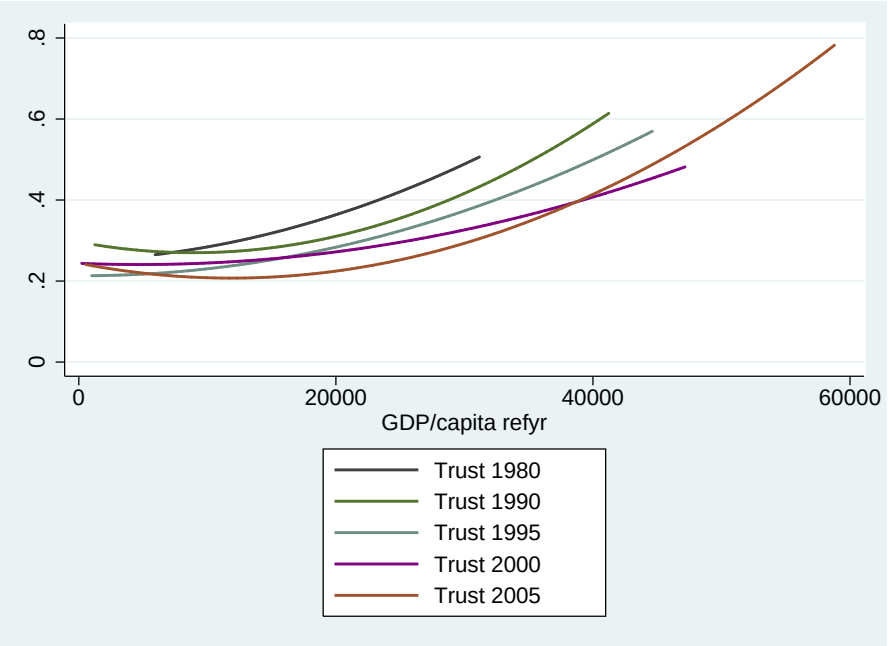


Table 12: World Values Survey - 2000 sample

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	.

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