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Trust and Prosperity: A Conditional Relationship

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Trust and Prosperity: A Conditional Relationship

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Abstract

The paper extends Breggren et al. (2008, EE) on 'trust and growth: a shaky relationship" by incorporating recent developments in the trust-growth literature and using a robust methodological underpinning that accounts for the presence of outliers. The empirical evidence is based on 63 countries. Two main findings are established. Firstly, the substantially documented positive trust-growth nexus is broadly confirmed. Secondly, when initial levels of growth come into play in determining the relationship, only 0.25 and 0.90 quantiles confirm the positive nexus. The results suggest that the trust-growth nexus cannot be generalized for all countries as some previous studies have concluded. Accordingly, trust-growth policies should be contingent on existing levels of development and tailored differently across rich and poor countries.

JEL Classification: A13; O40; Z13
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1. Introduction

Over the past decades, a substantial body of work has covered the nexus between trust and economic growth (Knack & Keefer, 1997; La Porta et al., 1997; Glaeser et al., 2000; Zak & Knack, 2001; Beugelsdijk et al., 2004; Breggren et al., 2008; Cahuc, 2013). Accordingly, most studies that have investigated the nexus have established a positive trust-growth nexus. The debate has recently shifted from the sign of the nexus to the robustness of the nexus (Beugelsdijk et al., 2004; Breggren et al., 2008). While Beugelsdijk et al. (2004) have concluded that the relationship between trust and economic growth in terms of statistical significance is reasonably robust in terms of size of the estimated effect, Breggren et al. (2008) have examined the conclusions of previous literature by taking the robustness further and investigating the stability of previous findings and exposing them to systematic empirical scrutiny. Whereas Breggren et al. (2008) have concluded on a robust and shaky nexus, the conclusions of recent literature provide a motivating background for the assessment of a robust and conditional relationship.

The emergence of a recent strand of interesting threshold literature on the trust-growth nexus has focused on how initial trust levels matter in the trust-growth relationship (Uslaner, 2008; Tabellini, 2008; Roth, 2009; Algan & Cahuc, 2010). Uslaner (2008) has concluded that generalized trust is stable value that is transmitted from parents to children by assessing how ethnic background matters in the relationship. Tabellini (2008) in explaining the range of situations in which individuals cooperate has studied a theoretical model where individuals respond to incentives but are also influenced by norms of good conduct inherited from earlier generations. Accordingly, there is an underlying assumption that parents rationally choose what values to transmit to their offspring and this choice is influenced by the quality of external enforcement and the pattern of likely future transactions. In the same vein, Algan & Cahuc (2010) have recently developed a new method to uncover the causal effect of trust on economic

growth by focusing on the inherited component of trust and time variation. They show that inherited trust of descendants is influenced by country of origin and the timing of arrival of their forebears: a strategy that allows them to identify the sizeable causal impact of inherited trust on worldwide growth during the twentieth century. Deviating from 'inherited initial levels of trust, Roth (2009) has also concluded that from a policy point of view, an increase in trust is crucial for countries with low levels of trust, but can likely be neglected by countries with sufficient levels of trust and may even hamper economic performance in countries with high levels of trust.

This paper contributes to existing literature along two main axes: complementing existing literature and extending Berggren et al. (2008). Firstly, it complements recent literature in a twofold manner by: focusing on 'growth thresholds' instead of 'trust thresholds' and; investigating the Roth (2009) hypothesis: "*The common knowledge which has governed the nature of discussions in social science and economics of the last ten years, that trust is generally positively related to economic performance, must be seriously questioned*" (p. 1). Accordingly, the use of the quantile regression estimation technique enables us to assess how growth thresholds matter in the Roth hypothesis. Secondly, we extend Berggren et al. (2008) by using a methodology that is robust in the presence of outliers. The extension of Berggren et al. (2008) has a twofold motivation. (1) By using quantile regression, we are able to assess the robustness of the findings from another methodology underpinning. Hence, we also complement a strand of the literature on the relevance of a robust trust-growth nexus. (2) While the trust-growth relationship may be shaky, establishing how it is conditioned on initial growth levels could have substantial policy implications. Hence, if the trust-growth nexus is heterogeneous across growth distributions then, blanket policies may not be effective unless they are contingent on initial growth levels and tailored differently across high-growth and low-growth countries.

As far as we have reviewed, the only study closest to the present paper in the literature in terms of methodological underpinning is Peiró-Palomino & Tortosa-Ausina (2012). The present paper steers clear of theirs from three standpoints. Firstly, while they employ the quantile regression technique, their scope and positioning is on short-run and long-run development outcomes. Secondly, their study does not control for the plethora of cultural and social unobserved heterogeneity recently documented in the trust-growth literature (Uslaner, 2008; Tabellini, 2008; Algan & Cahuc 2010). Thirdly, the dataset used is significantly different from the Berggren et al. (2008) dataset which we intend to use.

Consistent with Peiró-Palomino & Tortosa-Ausina (2012) on the motivation for employing quantile regression, another aspect on which no consensus has yet been reached relates to determining if social capital effects are stronger in poorer or richer countries. Previous findings on the concern are based on average effects, mainly from Ordinary Least Squares (OLS) which suffers from several limitations. On the one hand in big samples outlying observations are common. Hence, estimated coefficients heavily affected by outliers may be biased. On the other hand, when the outliers are controlled for, the trust-growth nexus could depend on initial levels of growth. This argument which has become a challenging issue in social capital studies highlighted by Knack & Keefer (1997) has been integrated in recent studies (Roth, 2009)[2].

The rest of the paper is organized as follows. Measurement and methodology issues are discussed in Section 2. Empirical analysis is covered in Section 3. We conclude with Section 4.

[2] Knack & Keefer (1997) included a regression term 'trust × initial income' and concluded that the trust-growth nexus was stronger in poorer countries because the estimated value of the term was negative. Roth (2009) has split the sample into two sub-samples on the 25 (poorest) and 75 (richest) percentiles.

2. Data and Methodology

2.1 Data

We examine a sample of 63 countries using the same dataset as in Berggren et al. (2008) because; the problem statement is an extension of Berggren et al. (2008). Hence, using the same dataset is logical, since this paper steers clear of the Berggren study in terms of methodological underpinnings. The large dataset for the period 1990-2000 also source from Inglehart et al. (2000), Inglehart et al. (2004) and Latinobarómetro (2004). Consistent with our methodological motivation, we focus on the large sample of Berggren et al. (2008) and not on the small sample because issues of outliers (our estimation technique intends to handle) are common with heavier samples. We divide the variables into four groups as in the seminal paper motivating this study. These include: the dependent variable, the variable of interest and, the fixed and switching control variables. While the fixed variables are control variables that are included in all regressions, the switch variables are included and varied across specifications. The latter set of variables is principally used to control for the unobserved heterogeneity.

The dependent variable is the annual growth of real GDP chain per capita (*Growth*). The independent variable of interest is *Trust*. Fixed variables include: *Schooling* (the average number of years in school, 1990), *Investment-good price* (the price level of investment), *Openness* (Exports plus imports divided by real GDP per capita, in current prices 1990) and *Real GDP per capita*, in thousands of USD, 1990. Switch variables are twelve that are used in pairs of three in four different specifications. These include: UK Colony, Language fractionalization, Religious fractionalization, Orthodox, Muslims, Buddhists, Hindus, Jewish, sub-Saharan Africa, Urbanization, European Language and Area. These variables are the same used by Berggren et al. (2008) and have been advanced as determinants of growth.

Details about variable definitions (with descriptive statistics) and correlation analysis (showing the relationships between key variables used in the paper) with presentation of countries are found in the appendices. The 'summary statistics' of the variables used in the regressions shows that there is quite some variation in the data utilized so that one should be confident that reasonable estimated nexuses would emerge (Appendix 1). The purpose of the correlation matrix (Panel A of Appendix 2) is to address issues resulting from overparametization and multicolinearity. Based on a preliminary assessment of the correlation coefficients, there do not appear to be any serious concerns in terms of the relationships to be estimated. Countries making-up the dataset are presented in Panel B of Appendix 2.

2.2 Methodology

2.2.1 Issue of outliers and robustness

It has been substantially documented that OLS estimates are sensitive to outliers (Berggren et al., 2008; Billger & Goel, 2009; Okada & Samreth, 2012; Asongu, 2013a, b). This means observations that deviate from the linear pattern formed by the majority of the data. Outliers frequently occur in datasets because of measurement errors as some observations may be drawn from a different population with a different type of nexus between them and the variable of interest or due to exceptional events (e.g earthquakes). Accordingly, OLS on such a dataset contaminated by outliers may results in severely biased estimates. In the extreme case for instance, one single outlier can result in an infinite bias of OLS estimates. In order to deal with the problem, robust regression methods are required. As far as we have reviewed, quantile regressions are the most widely used regression methods that are robust to outliers.

Another issue in the trust-growth nexus literature that has been substantially debated is robustness (Berggren et al., 2008). In fact, the results may be fragile as the size of the estimated coefficient change with variation in control variables. This issue is addressed in this study by

using four different sets of switching control variables that control for the unobserved heterogeneity and hence, assess the sensitivity of the trust-growth nexus to changes in socio-economic and cultural environments documented in recent literature (Uslaner, 2008; Tabellini, 2008; Algan & Cahuc 2010; Cahuc, 2013: Kodila-Tedika & Agbor, 2013).

2.2.2 Estimation technique

Consistent with recent literature (Billger & Goel, 2009; Okada & Samreth, 2012; Asongu, 2013a, b), to determine whether existing levels of per capita economic prosperity affect how trust comes into play, we use quantile regression. This approach enables us to assess if the nexus between trust and growth differs throughout the distributions of growth (Koenker & Hallock, 2001). Hence, based on this estimation technique we are able to carefully examine the incidence of trust throughout the conditional distribution with particular emphasis on countries with the highest and lowest growth levels. Quantile regression (hence QR) yields parameters estimated at multiple points in the conditional distribution of the dependent variable (Koenker & Bassett, 1978). Accordingly, the θth quantile estimator of the endogenous variable is obtained by solving for the following optimization problem.

$$\min_{\beta \in R^k}\left[\sum_{i\in\{i:y_i\geq x_{i'}\beta\ \}}\theta\left|y_i-x_{i'}\beta\right|+\sum_{i\in\{i:y_i\geq x_{i'}\beta\ \}}(1-\theta)\left|y_i-x_{i'}\beta\right|\right] \quad (1)$$

Where θ is in the '0 and 1' interval. Contrary to OLS that is based on minimizing the sum of squared residuals, with QR we minimize the weighted sum of absolute deviations. For example the 10th or 75th quantiles (with θ=0.10 or 0.75 respectively) by approximately weighing the residuals. The conditional quantile of y_i given x_i is:

$$Q_y(\theta / x_i) = x_{i'}\beta_\theta \quad (2)$$

where unique slope parameters are derived for each θth quantile of interest. This formulation is analogous to $E(y/x) = x_{i'}\beta$ in the OLS slope though parameters are estimated only at the

mean of the conditional distribution of the endogenous variable. For the model in Eq. (2) the dependent variable y_i is the GDP per capita growth rate while x_i contains a constant term, trust and control variables. Consistent with Berggren et al. (2008) we also provide a baseline estimation of mean effects. The employment of four sets of switch variables in different specifications for further robustness is consistent with recent quantile regression literature (Billger & Goel, 2009; Okada & Samreth, 2012; Asongu, 2013a).

3. Empirical analysis

The results presented in Tables 2 include OLS and QR estimates. OLS estimates provide a baseline of mean effects and we compare these to estimates of separate quantiles in the conditional distributions of the growth dependent variable. In the interpretation of estimated coefficients, it is worth noting that smaller values (in conditional distributions) of the dependent variables denote less growth.

Table 1 below summarizes the trust-growth effects of Table 2. The motivation for this summary is to synthesize the potential incidence of trust on growth when initial growth levels matter. Based on the summary of the results, two main conclusions could be drawn. Firstly, the substantially documented positive trust-growth nexus is broadly confirmed. Secondly, when initial levels of growth come into play in determining the relationship, only 0.25 and 0.90 quantiles confirm the positive nexus. These findings are consistent across specifications.

Most of the significant control variables have the right signs. Firstly, the negative value of the initial growth coefficient confirms the presence of convergence in per capita income growth. This implies poorer countries (within full dataset and in some specific quantiles) are catching-up with their richer counterparts in terms of per capita income growth. Secondly, there is broadly a positive relationship between 'investment-good price and growth'. This nexus is not significantly positive in Breggren et al. (2008) because of specification differences. Thirdly, the positive effect

of the *Hindu* dummy on growth in low income countries is broadly driven by the recent economic success of India in the sample.

While the emergence of a recent strand of interesting threshold literature on the trust-growth nexus has focused on how initial levels of trust matter in the relationship (Uslaner, 2008; Tabellini, 2008; Roth, 2009; Algan & Cahuc, 2010), we have shown that initial levels of growth could also matter in this relationship. In fact the present study has complemented Breggren et al. (2008) by establishing that, while the trust-growth nexus is shaky, it is also conditional on initial growth levels. From the available weight of empirical evidence, the Roth (2009) hypothesis that cautions the generalization of the positive role of trust in economic performance is confirmed[3]. Hence, the trust benefits of economic growth could be contingent on initial levels of growth such that blanket trust-growth policies may not succeed unless they are tailored differently across low-income and high-income countries.

Table 1: Summary of results

	OLS	Q 0.1	Q 0.25	Q 0.50	Q 0.75	Q 0.90
Specification 1	**0.063*** **	0.028	**0.073***	0.034	0.038	**0.082** **
	(0.002)	(0.532)	**(0.078)**	(0.276)	(0.168)	**(0.042)**
Specification 2	**0.063*** **	0.007	**0.073** **	0.036	0.045	**0.060***
	(0.001)	(0.928)	**(0.033)**	(0.258)	(0.264)	**(0.056)**
Specification 3	**0.055*** **	0.038	**0.042***	0.032	0.069	**0.094** **
	(0.006)	(0.200)	**(0.097)**	(0.241)	(0.288)	**(0.030)**
Specification 4	**0.062*** **	0.035	**0.072***	0.040	0.054	**0.099*** **
	(0.003)	(0.477)	**(0.062)**	(0.155)	(0.109)	**(0.003)**

*, **, ***, denote significance levels of 10%, 5% and 1% respectively. Lower quantiles (e.g., Q 0.1) signify nations where GDP per capita growth is least. OLS: Ordinary Least Squares.

[3] "*The common knowledge which has governed the nature of discussions in social science and economics of the last ten years, that trust is generally positively related to economic performance, must be seriously questioned*" (Roth, 2009, p. 1).

Table 2: Conditional estimations

		OLS	Q 0.1	Q 0.25	Q 0.50	Q 0.75	Q 0.90
				Specification 1			
Constant		-0.294	0.231	0.245	0.007	1.478	0.969
		(0.809)	(0.912)	(0.887)	(0.996)	(0.313)	(0.685)
Trust		**0.063*** **	0.028	**0.073***	0.034	0.038	**0.082****
		(0.002)	(0.532)	**(0.078)**	(0.276)	(0.168)	**(0.042)**
	RGDP	**-0.159****	0.111	0.015	-0.080	**-0.195****	**-0.284****
		(0.026)	(0.407)	(0.886)	(0.452)	**(0.047)**	**(0.035)**
	IGP	0.014	-0.001	-0.001	0.008	0.009	0.018
Fixed Control		(0.153)	(0.942)	(0.927)	(0.530)	(0.607)	(0.587)
Variables	Schooling	0.111	-0.054	-0.238	0.120	0.134	0.248
		(0.504)	(0.809)	(0.365)	(0.648)	(0.529)	(0.377)
	Openness	-0.002	-0.023	-0.002	-0.003	0.001	0.008
		(0.728)	(0.516)	(0.859)	(0.790)	(0.920)	(0.475)
	UK_Colony	-0.094	1.691	0.719	-0.325	-0.273	0.798
Switching		(0.894)	(0.393)	(0.483)	(0.773)	(0.865)	(0.454)
Control	LanguageF.	-1.097	0.561	-1.800	0.390	-1.128	**-2.910****
Variables		(0.301)	(0.763)	(0.423)	(0.815)	(0.562)	**(0.024)**
	Religious F.	0.727	-3.468	0.416	0.005	1.920	0.663
		(0.569)	(0.318)	(0.859)	(0.998)	(0.376)	(0.811)
Pseudo R^2		0.249	0.282	0.163	0.078	0.151	0.411
Observations		63	63	63	63	63	63

		OLS	Q 0.1	Q 0.25	Q 0.50	Q 0.75	Q 0.90
				Specification 2			
Constant		-0.602	-2.921	-0.436	1.067	2.235	**2.798***
		(0.573)	(0.361)	(0.774)	(0.469)	(0.178)	**(0.067)**
Trust		**0.063*** **	0.007	**0.073****	0.036	0.045	**0.060***
		(0.001)	(0.928)	**(0.033)**	(0.258)	(0.264)	**(0.056)**
	RGDP	**-0.191*** **	-0.157	-0.151	-0.093	**-0.144***	**-0.249****
		(0.005)	(0.273)	(0.203)	(0.300)	**(0.085)**	**(0.012)**
	IGP	**0.017***	0.026	0.011	0.010	0.004	-0.002
Fixed Control		**(0.071)**	(0.454)	(0.275)	(0.355)	(0.724)	(0.872)
Variables	Schooling	0.205	0.543	0.221	0.018	0.060	0.251
		(0.229)	(0.189)	(0.484)	(0.943)	(0.806)	(0.425)
	Openness	-0.003	-0.031	-0.033	-0.002	-0.0004	0.008
		(0.627)	(0.407)	(0.307)	(0.776)	(0.971)	(0.449)
	Orthodox	**-0.028***	-0.031	-0.028	-0.034	-0.017	**-0.031***
Switching		**(0.057)**	(0.266)	(0.345)	(0.308)	(0.363)	**(0.076)**
Control	Muslims	-0.005	0.007	-0.0001	-0.009	-0.006	-0.013
Variables		(0.567)	(0.809)	(0.989)	(0.457)	(0.611)	(0.231)
	Buddhists	0.024	-0.005	-0.017	-0.014	0.101	0.027
		(0.417)	(0.853)	(0.568)	(0.675)	(0.385)	(0.824)
Pseudo R^2		0.296	0.312	0.170	0.090	0.219	0.403
Observations		63	63	63	63	63	63

		OLS	Q 0.1	Q 0.25	Q 0.50	Q 0.75	Q 0.90
				Specification 3			
Constant		-0.588	0.006	-0.959	-0.177	-0.211	0.717
		(0.599)	(0.996)	(0.425)	(0.909)	(0.933)	(0.865)
Trust		**0.055*** **	0.038	**0.042***	0.032	0.069	**0.094** **
		(0.006)	(0.200)	**(0.097)**	(0.241)	(0.288)	**(0.030)**
	RGDP	**-0.170** **	0.002	0.004	-0.147	**-0.292***	-0.300
		(0.014)	(0.977)	(0.952)	(0.246)	**(0.090)**	(0.272)
	IGP	**0.019***	0.009	0.012	0.025	0.030	0.014
Fixed Control		**(0.055)**	(0.400)	(0.216)	(0.276)	(0.370)	(0.850)
Variables	Schooling	0.143	-0.132	-0.148	0.040	0.208	0.125
		(0.380)	(0.522)	(0.419)	(0.866)	(0.486)	(0.625)
	Openness	-0.002	-0.024	0.005	0.001	0.003	0.025
		(0.772)	(0.428)	(0.530)	(0.867)	(0.743)	(0.175)
	Hindus	0.019	**0.038***	**0.041*****	0.022	-0.001	-0.013
Switching		(0.407)	**(0.066)**	**(0.008)**	(0.321)	(0.970)	(0.437)
Control	Jews	0.300	0.513	0.381	0.669	0.668	0.771
Variables		(0.520)	(0.146)	(0.239)	(0.452)	(0.476)	(0.517)
	SSA	-1.292	-0.864	-1.339	-1.308	-1.553	-0.890
		(0.200)	(0.333)	(0.212)	(0.335)	(0.615)	(0.898)
Pseudo R^2		0.267	0.335	0.210	0.114	0.173	0.390
Observations		63	63	63	63	63	63

		OLS	Q 0.1	Q 0.25	Q 0.50	Q 0.75	Q 0.90
				Specification 4			
Constant		-1.397	-2.057	-2.011	-0.362	1.152	-0.552
		(0.252)	(0.436)	(0.422)	(0.827)	(0.560)	(0.797)
Trust		**0.062*** **	0.035	**0.072***	0.040	0.054	**0.099*** **
		(0.003)	(0.477)	**(0.062)**	(0.155)	(0.109)	**(0.003)**
	RGDP	**-0.182*** **	-0.058	-0.081	-0.098	**-0.185***	**-0.304*** **
		(0.007)	(0.530)	(0.462)	(0.322)	**(0.075)**	**(0.002)**
	IGP	**0.017***	0.019	0.012	0.017	0.011	0.019
Fixed Control		**(0.064)**	(0.199)	(0.302)	(0.180)	(0.559)	(0.342)
Variables	Schooling	0.159	-0.002	-0.164	0.063	0.021	0.053
		(0.334)	(0.992)	(0.506)	(0.782)	(0.930)	(0.818)
	Openness	0.001	-0.021	-0.024	0.005	0.006	0.012
		(0.889)	(0.535)	(0.568)	(0.603)	(0.563)	(0.183)
	Urban	-0.0003	0.010	0.037	-0.013	0.0008	0.019
Switching		(0.986)	(0.741)	(0.325)	(0.613)	(0.969)	(0.354)
Control	EuroL	0.929	0.479	0.219	0.729	0.703	1.108
Variables		(0.1387)	(0.590)	(0.826)	(0.413)	(0.367)	(0.147)
	Area	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.151)	(0.177)	(0.624)	(0.401)	(0.394)	(0.466)
Pseudo R^2		0.302	0.328	0.189	0.117	0.179	
Observations		63	63	63	63	63	63

Notes. The dependent variables is the GDP per capita growth rate. *,**,***, denote significance levels of 10%, 5% and 1% respectively. Lower quantiles (e.g., Q 0.1) signify nations GDP per capita growth is least. P-values in brackets. FDI: Foreign Direct Investment. RGDP: Real GDP per capita in 1996 constant prices (1990). IGP: Investment Good Price. LanguageF: Language fractionalization. Religious F: Religious fractionalization. SSA: Sub-Saharan Africa. EuroL: European Language. OLS: Ordinary Least Squares.

4. Conclusion

The paper has extended Breggren et al. (2008) on ‘trust and growth: a shaky relationship” by incorporating recent developments in the trust-growth literature and using a robust methodological underpinning that accounts for the presence of outliers. The empirical evidence is based on 63 countries. Two main findings have been established. Firstly, the substantially documented positive trust-growth nexus is broadly confirmed. Secondly, when initial levels of growth come into play in determining the relationship, only 0.25 and 0.90 quantiles confirm the positive nexus. The results suggest that the trust-growth nexus cannot be generalized for all countries as some previous studies have concluded. Accordingly, blanket trust-growth policies may not succeed unless they are contingent in existing levels of development and tailored differently across rich and poor countries.

Appendices

Appendix 1: Variable specifications and descriptive statistics (1990-2000)

Variables	Definitions	Obs	Mean	S.D	Min	Max	Sources
Growth	Annual growth rate in percent of real GDP (chain) per capita, 1990-2000: 100*[(Real GDP per capita$_{2000}$ / Real GDP per capita$_{1990}$)$^{1/10}$ − 1] Taiwan: 1990−1998	63	1.751	1.934	-2.58	7.688	Heston et al. (2002)
Trust	First value of trust 1990−2000, i.e., the share that agrees with the statement "most people can be trusted"	63	30.46	15.71	5.000	66.10	Inglehart et al. (2000); Zak and Knack (2001); Inglehart et al. (2004); Latinobarómetro (2004)
Schooling	Average years of schooling, 1990	63	6.698	2.624	2.190	12.00	Barro and Lee (2001)
Real GDP per capita	Real GDP (chain) per capita, thousands of USD in 1996 constant prices, 1990	63	10.244	7.606	0.686	26.45	Heston et al. (2002)
Investment-good price	The PPP of investment divided by the exchange rate times 100, 1990	63	78.960	33.50	12.46	177.6	Heston et al. (2002)
Openness	Exports plus imports divided by real GDP per capita, in current prices, 1990	63	57.362	28.98	14.99	154.65	Heston et al. (2002)
UK colony	Dummy with value 1 if former UK colony and 0 otherwise	63	0.190	0.395	0.000	1.000	Persson and Tabellini (2003); http://www.britishempire.co.uk; Encyclopaedia Britannica; *Nationalencyklopedin [Swedish National Encyclopedia]*
Language fractionalization	One minus the Herfindal index of linguistic group shares, 2001	62	0.269	0.257	0.002	0.922	Alesina et al. (2003)
Religious fractionalization	One minus the Herfindal index of religious group shares, 2001	63	0.390	0.232	0.004	0.860	Alesina et al. (2003)
Orthodox	Share of population that is Orthodox Christian, 2000	63	3.881	15.96	0.000	93.76	World Christian Database, http://www.worldchristiandatabase.org/wcd/; population from Heston et al. (2002), for Taiwan from http://www.census.gov/ipc/www/idbsum.html
Muslim	Share of population that is Muslim, 2000	63	11.52	28.03	0.000	98.11	Ditto
Buddhist	Share of population that is Buddhist, 2000	63	1.888	7.711	0.000	55.72	Ditto
Hindu	Share of population that is Hindu, 2000	63	1.703	10.14	0.000	79.76	Ditto
Jewish	Share of population that is Jewish, 2000	62	0.259	0.546	0.000	3.065	Ditto
Sub-Sahara	Dummy with value 1 if African country is located to the south of the Sahara and 0 otherwise	63	0.063	0.245	0.000	1.000	
Urban	Share of population in urban areas, 1990	62	60.65	19.10	11.2	96.40	United Nations (2003)
European Language	Fraction of a country's population that speaks English, French, German, Portuguese or Spanish	63	0.401	0.433	0.00	1.00	Hall and Jones (1999); http://www.ethnologue.com
Area	Million square kilometres	63	1.18	2.40	0.00	10.0	Central Intelligence Agency (2004)

Obs: Observations. S.D: Standard Deviation. Min: Minimum. Max: Maximum.

Appendix 2: Correlation Matrix and Presentation of Countries

Panel A: Correlation Matrix

Educ.	RGDP	IGP	Open	UKcol	Lanfrac	Relifrac	Ortho	Muslim	Budd.	Hindu	Jewish	SSA	Urban	EuroL	Area	Trust	Growth	
1.000	0.789	0.276	0.216	-0.155	-0.205	0.307	0.146	-0.457	0.163	-0.188	0.271	-0.291	0.640	0.049	0.099	0.537	0.045	Educ.
	1.000	0.604	0.169	-0.147	-0.167	0.279	-0.035	-0.326	0.186	-0.168	0.252	-0245	0.603	0.135	0.116	0.624	0.008	RGDP
		1.000	0.067	0.110	-0.125	0.035	-0.041	0.012	0.132	-0.127	-0.002	0.022	0.233	0.013	-0.058	0.479	0.184	IGP
			1.000	-0.026	-0.064	-0.144	-0.047	-0.021	-0.121	-0.210	-0.211	-0.161	0.198	-0.097	-0.397	0.088	-0.059	Open
				1.000	0.380	0.316	-0.061	0.272	-0.089	0.268	-0.040	0.536	-0.274	-0.113	0.183	0.032	0.064	UKcol
					1.000	0.323	-0.110	0.102	-0.108	0.283	-0.086	0.471	-0.394	-0.310	0.070	-0.091	-0.126	Lanfrac
						1.000	-0.139	-0.336	0.208	-0.035	0.154	0.414	0.055	0.076	0.339	0.182	0.014	Relifrac
							1.000	-0.031	-0.058	-0.038	-0.052	-0.062	-0.026	-0.188	-0.067	0.041	-0.158	Ortho
								1.000	-0.086	0.072	-0.152	-0.041	-0.317	-0.339	-0.030	-0.110	-0.010	Muslim
									1.000	-0.025	-0.084	-0.063	0.016	-0.184	0.014	0.180	0.161	Budd.
										1.000	-0.066	-0.020	-0.292	-0.142	0.109	0.031	0.157	Hindu
											1.000	-0.062	0.387	0.390	0.396	0.121	0.035	Jewish
												1.000	-0.405	-0.218	-0.071	-0.213	-0.147	SSA
													1.000	0.426	0.068	0.189	-0.027	Urban
														1.000	0.221	-0.177	0.049	EuroL.
															1.000	0.206	0.244	Area
																1.000	0.346	Trust
																	1.000	Growth

Panel B: Presentation of Countries (63)

Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Finland, France, Germany, Ghana, Guatemala, Honduras, Greece, Iceland, India, Indonesia, Ireland, Italy, Japan, Jordan, Korea, Latvia, Mexico, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Turkey, Uganda, United Kingdom, Uruguay, USA, Venezuela, Zimbabwe.

Educ: Schooling. RGDP: Real GDP per capita in 1996 constant prices (1990). IGP: Investment Good Price. Open: Openness. UKcol: UK Colony. Lanfrac: Language fractionalization. Relifrac: Religious fractionalization. Ortho: Orthodox. Budd: Buddhist. SSA: Sub-Saharan Africa. EuroL: European Language.

References

Alesina A., Devleeschauwer A., Easterly W., Kurlat S., & Wacziarg R., (2003) "Fractionalization", *Journal of Economic Growth*, 8, pp. 155–194.

Algan, Y., & Cahuc, P., (2010). "Inherited Trust and Growth." *American Economic Review*, 100(5), pp. 2060-2092.

Asongu, S. A., (2013a). "Fighting corruption in Africa: do existing corruption-control levels matter". *International Journal of Development Issues*, 12(1), pp. 36-52.

Asongu, S. A., (2013b). "On the effectiveness of foreign aid in institutional quality", *European Economic Letters*, 2(1), pp. 12-19.

Berggren, N., Elinder, M., & Jordahl, H., (2008). "Trust and Growth: A Shaky Relationship", *Empirical Economics*, 35(2), pp. 251-274.

Beugelsdijk, S., de Groot, H. L. F., & van Schaik, A. B. T. M., (2004). "Trust and economic growth: a robustness analysis". *Oxford Economic Papers*, 56, pp. 118–134.

Billger, S. M., & Goel, R. K., (2009). "Do existing corruption levels matter in controlling corruption? Cross-country quantile regression estimates", *Journal of Development Economics*, 90, pp. 299-305.

Cahuc, P., (2013). *Trust, Institutions and Economic Development*, Handbook of Economic Growth, eds Philippe Aghion and Steven Durlauf: Forthcoming.

Central Intelligence Agency (2004). The world factbook 2004. Central Intelligence Agency, Washington, District of Columbia.

Glaeser, E. L., Laibson, D. I, Scheinkman, J. A., & Soutter, C. L., (2000). "Measuring trust". *Quarterly Journal of Economics*, 115, pp. 811–846.

Hall, R. E., & Jones, C. I., (1999). "Why some countries produce so much more output per worker than others", *Quarterly Journal of Economics*, 114, pp. 83-116.

Heston A., Summers R., & Aten B., (2002). Penn world table version 6.1. Center for International Comparisons at the University of Pennsylvania (CICUP)

Inglehart R., et al. (2000) "World values surveys and European values surveys, 1981−1984, 1990−1993, and 1995−1997". ICPSR study 2790, Inter-University Consortium for Political and Social Research, Institute for Social Research, Ann Arbor, Michigan.

Inglehart R., Basañez M., Diez-Medrano J., Halman L., & Luijkx R., (2004). "Human beliefs and values: a cross-cultural sourcebook based on the 1999-2002 values surveys". Siglo XXI Editores, Mexico City.

Knack, S., & Keefer, P., (1997). "Does social capital an economic payoff? A cross country investigation", *The Quarterly Journal of Economics*, 112, pp. 1251–1288.

Kodila-Tedika, O., & Agbor, J. A., (2013). "Does trust matter for entrepreneurship: evidence from a cross section of countries", *MPRA Paper* No. 46306.

Koenker, R., & Bassett, Jr. G., (1978). "Regression quantiles", *Econometrica*, 46, pp. 33-50.

Koenker, R., & Hallock, F. K., (2001). "Quantile regression". *Journal of Economic Perspectives*. 15, pp. 143-156.

La Porta, R., Lopez-de-Silanes, F., Schleifer, A., & Vishny, R. W., (1997). "Trust in large organizations". *American Economic Review*, 87, pp. 333−338

Latinobarómetro (2004). http://www.latinobarometro.org

Okada, K., & Samreth, S., (2012). "The effect of foreign aid on corruption: A quantile regression approach", *Economic Letters*, 11, pp. 240-243.

Peiró-Palomino, J., & Tortosa-Ausina, E., (2012). "Can trust on development be generalized? A response by quintile", Department of Economics, Universitat Jaume I, Castellon, Spain.

Persson T., & Tabellini G., (2003). *The economic effects of constitutions*. The MIT Press, Cambridge, Massachusetts.

Roth, F., (2009). "Does too much trust hamper economic growth?" *Kyklos*, 62(1), pp. 103–128

Tabellini, G., (2008). "The scope of cooperation: Values and incentives". *The Quarterly Journal of Economics*, 123(3), pp. 905–950.

United Nations (2003). World urbanization prospects: the 2003 revision. United Nation, New York.

Uslaner, E. M., (2008). "Where you stand depends upon where your grandparents sat", *Public Opinion Quarterly*, 72(4), pp. 725–740.

Zak, P. J., & Knack, S., (2001). "Trust and Growth", *Economic Journal*, 111, pp. 295-321.