Generalized Trust

The macro perspective

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Abstract:

The paper looks at 188 polls of generalized trust (most people can be trusted).This question has been asked by the World Values Surveys in 83 countries, over a period of almost 20 years. It is argued that the 188 resulting average "G-scores" measures the justified "rational" trust levels in the countries. It is demonstrated that the G-scores are sufficiently volatile to be endogenous, and that they reacted strongly to the transition from socialism in Eastern Europe. It is further demonstrated that the Gini coefficient, life satisfaction, corruption, and thus indirectly income are the best explanatory factors for the G-trust. They are all strongly related to income, and dominate the direct effect of trust on income, and trust is at most weakly related to democracy either way.

Keywords: Generalized trust, economic development, social capital

Jel: O11, D70, Z13

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1. Introduction: The *G-trust* variable

One of the key variables in the social capital discussions is generalized trust.[3] To save words the average generalized trust for a country is termed: *G-trust*. Table 1 gives the formulation and the aggregate of all answers in the *World Value Surveys*[4] that covers 188 pools in 83 countries during the last two decades of the 20th century. Almost 30% of the 255,399 answers say that "most people can be trusted". The individual country *G-trusts* are listed in the Appendix.

Table 1. The *G-trust* item in the World value Surveys: 1980-2000

Item A165: Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?		
Answer	Frequency	Percent
Most people can be trusted	75,466	**29.55**
Can't be too careful	179,933	70.45
Sum	255,399	100.00

Note: The WVS covers 188 polls covering 267,870 people in 83 countries in 4 waves. The *G-trust* item is included in all 188 polls done.

Justified trust reduces transaction and monitoring costs. It saves time and trouble the higher it is in society. It is thus a factor of production – it will be demonstrated that it is not a powerful one.

Any country has a level of justifiable or rational trust, *RT*. If you have more trust than *RT*, you are a "sucker" that other people exploit. If you have less trust than *RT*, you are a "cynic", who creates costs and trouble for other people. Most prefer to deal with reasonable people, who are realistic by being close to *RT*. By the law of large numbers the *G-trust* ≈ *RT* for a country:

Thesis: The *Rationality Theorem of Trust*: Trust is rational for society at large.

We may measure it poorly and individuals deviate to both sides, but the *G–trust* is rational and an important characteristic of a society.

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3. See Fukuyama (1995). The present article does not discuss the definitions of social capital; see Paldam (2000).
4. For easy replicability the WV-survey data are used throughout this paper. The data are documented in Inglehart et al. (1998, 2004). I use the full data set as available from http://www.worldvaluessurvey.org.

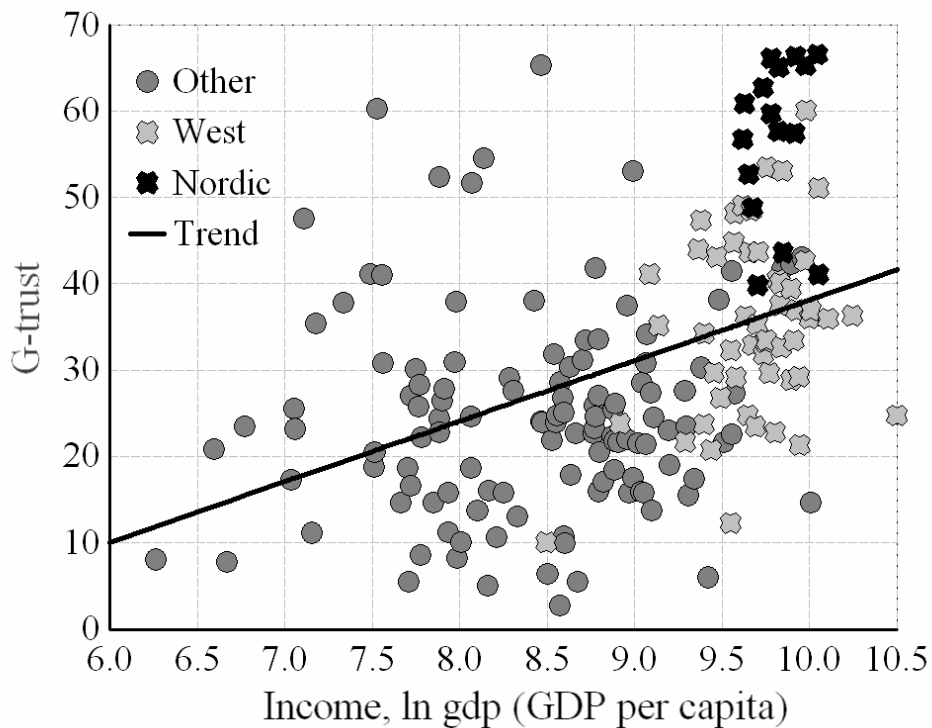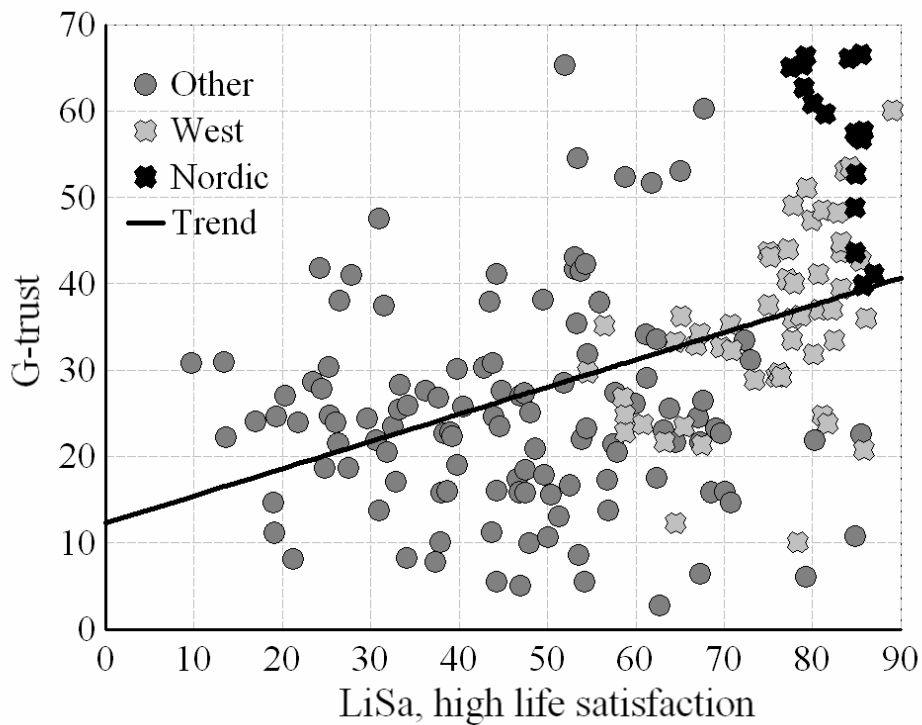Figure 1. Scatter of the 188 *G-trust* and *income* (GDP-per capita)

Figure 2. Scatter of the 187 *G-trust* and *LiSa*, high life satisfaction

Note: Life satisfaction is missing in one of the 188 polls.

The *G-trusts* of the 188 polls are depicted on Figure 1, which shows that they have a strong correlation to income. Figure 2 shows an almost equally strong correlation of *G-trust* and *LiSa*, high life satisfaction used in happiness research as a welfare measure (see Frey and Stutzer, 2002). The two – rather similar – figures allow us to make three observations about the *G-trust*:

Obs 1: It varies widely between countries, from close to 0% to almost 70%.

Obs 2: It is related to other important matters in society as income and welfare.

Obs 3: It contains a "cultural" element so that some groups of countries cluster.

As *G-trusts* from a wide variety of countries are considered, an organizing principle is necessary. For this purpose I use the theory of the **Grand Transition.** It is the process, whereby poor countries become wealthy, and the article thus has the relation between the *G-trust* and economic development as the underlying theme.

The newest survey of the literature on growth and trust is Bjørnskov (2007). It appears that the variables in Table 2 are the main ones that enter in the family of models tried, but a handful of other variables have been tried as well, though with less success, see e.g. and Delhey Newton (2005) and Bjørnskov (2006).

Section 2 offers a few notes on GT-theory. Figure 1 suggests that the Grand Transition is associated with a change from a *G-trust* of 10% to about 40%, i.e. by 30 points. Section 3 discusses the time dimension: Is trust a stable factor in the society? Section 4 looks at a set of the main variables – listed in Table 2 – which are related to the G-trust and discusses causality. Section 5 discussed the problematic relations between the G-trust and on one side development and on the other democracy. Section 6 contains concluding remarks.

Table 2. The six variables considered in the paper

Variables	Definition	Source, see also netsources
G-trust	Generalized trust (see Table 1)	World Value Surveys
Income	Natural logarithm to gdp [a)]	Maddison (2003)
LiSa	High life satisfaction	World Value Surveys
TI-hc	Honesty/corruption measure	Transparency International
-Gini	Gini coefficient	World Development Indicators
Polity	Polity index for democracy/dictatorship	Peace Research Institute, Univ. of Maryland

Note a. gdp is GDP per capita. It is measured in PPP-prices.

2.   A note on the Grand Transition and the GT-theory

The GT is the path of a country going from a low to high income, i.e. from a poor LDC to a wealthy DC. Pt the difference in gdp (in PPP prices) is about 40 times. Most socio-political and institutional variables also have large changes when countries go through the GT. Tables 5-7 below show that this is indeed the case with the 6 variables we consider in the paper.

For example: The *TI-hc* index (from Transparency International) for honesty-corruption has a range of 7.9 from about 1.8 in the most corrupt country to about 9.7 in the most honest. If we compare the *TI-hc* of the 10% poorest to that of the 10% richest countries, they differ by almost 7 points, so the GT is somehow associated with a transition of corruption of about 85% of the observed range for the index, and also the correlation between income and the *TI-hc* is 0.81 in the data sample of Table 5. Thus the two variables are strongly connected. Paldam (2002) argues that the main direction of causality is from the GT to corruption, and the arguments are supported by the causality analysis in Gundlach and Paldam (2007).[5]

The key idea of the GT-theory is that development is a path where the whole society changes in much the same way.[6] Thus the GT consists of a set of transitions in all proportions and institutions in society. The GT is not a unique path, but rather a zone around such a path. All countries deviate somewhat, but the GT does give a lot of convergence.[7] Thus, if we compare two countries that have both gone through the full transition, they are much more alike after the transition than they were before.

Poor countries have little physical and human capital, mortality is high, people live in the countryside, religiosity and corruption are high, etc. Development changes all of that, and we speak of the urban transition, the demographic and the democratic transitions, the sectoral transition, the religious transition (or secularization), the transition of corruption, etc. Here the GT-claim is that all these transitions are basically endogenous, but if one of them does not occur it turns into a development barrier.

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5. Some other authors claim that the reverse causality dominates, see e.g. Lambsdorff (2007). People who have worked with these things have not yet managed to agree on the causal structure explaining the strong correlation.
6. See Paldam and Gundlach (2007) for a discussion of GT-theory, and the relation between this theory and the main alternative, the Primacy of Institutions theory.
7. We do not observe convergence in cross country samples because countries are at very different stages in the GT.

Consequently, the GT is a highly simultaneous dynamic process, where everything depends upon everything else, resulting in much multicollinearity that makes it difficult to untangle causality as illustrated by a comparison of Figures 1 and 2.

GT-theory takes income/production as the most representative "catch all" variable for the Grand Transition, and thus says that the key causal link expected is from the income level to the other variable. This is obviously a reduced form relation, as it covers the full web of simultaneity. All variables that are within the GT-complex can be used to explain each other – see e.g. Table 5 below. From nearly all sets of 3 variables from that table it is easy to present a model where any two of them explain the third in a seemingly convincing way.

Thus the key variable is income/production. We use the natural logarithm to gdp, which is the GDP (gross domestic product) per capita, as the best income variable.

Income is ln gdp, where we use the gdp-data, from Maddison (2001, 2003).

The concept of the Grand Transition thus implies that everything depends upon everything else. The big simultaneity has caused many researchers to look for a key: Something that is *primary*, in the sense that it causes development, but is not caused by development. In order to work, such a key has to be reasonably stable and must differ substantially between countries.

3.   The time dimension: Are G-trusts stable?

The book that pushed the concept of Social Capital into it present status was Putnam (1993).[8] Two of its main ideas are:[9]

Claim 1: *Stability***:** Social capital stays stable for centuries. At present we take this claim to mean that the *G-trusts* are stable.

Claim 2: *Primacy:* Social capital is primary to institutional and economic development.

Putnam's claim is that social capital is primary and hereby fills a crucial role. Claim 2 states that social capital is primary to institutions – or at least to the effectiveness of institutions.[10]

The same claim is also made – though in a different context – by Uslaner (2002) as regards *G-trust*. Uslaner takes *G-trust* back to the "moral" foundation of society. It is thus something basic that even deserves to be primary.

To the extent that *G-trust* is a factor of production, the idea that *G-trust* changes slowly is a troubling idea, especially if it has to do with the moral foundation. Putnam's claim is that poor countries are deemed to remain poor for a long time to come, due to something that was formed slowly centuries ago. Uslaner's idea leads to the conclusion that countries are – and maybe even deserve to be – richer *because* they have a sounder moral foundation.

Below we show that G-trust do move more than enough to be endogenous, and that it is – at least in one important case – endogenous.[11]

3.1   The distribution of the changes 1: The numerical changes

Thus it is crucial if the *G-trust* is stable. The data contains 161 changes of the G-trust of a country, as seen in Table 3. The first three columns show average changes over 5 years, then the next two columns show average changes over 10 years, etc. The averages in row (A) are the absolute, while row (B) gives the average numerical changes.

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8. Putnam's definition of social capital is network density, though he discusses its relation to trust. Thesis 3 is defended in Helliwell and Putnam (1995).
9. I should state that this is the standard interpretation of Putmans book, and that it does not speak of G-trust, but of network density. Also, Putnam (2000) describes a large fall in social capital in the US over a couple of decades.
10. Consequently Putnam's claim encompasses the *primacy of institutions hypothesis* claim by Acemoglu, Johnson and Robinson (see their 2005).
11. The argument contradicts the results cited in Bjørnskov (2007) and Uslaner (2002) arguing the trust is primary.

Table 3. All changes ΔG that can be calculated from the 188 polls

About		5 years				10 years		15 years	20 years
Waves	W2-W3	W3-W4	All	W1-W2	W2-W4	All	W1-W3	W1-W4
App. years	1990-95	1995-00	5 year	1982-90	1990-00	10 year	1982-95	1982-00
Number	31	41	72	20	39	59	11	19
(A) Average ΔG	-4.49	1.10	-1.31	3.08	-3.54	-1.30	-4.50	-0.57
(B) Average |ΔG|	5.76	6.73	6.91	5.44	7.25	7.39	5.68	8.74
Fraction of |ΔG| >10	19.4%	14.6%	16.7%	10.0%	23.1%	18.6%	18.2%	42.1%

Note: The table covers all 161 pairs of G-trusts for the same country that can be calculated from the 188 polls.

We first consider the numerical changes in row (B) of the table: Two points are immediately obvious: (1) The 5-year changes are rather large. (2) The changes are not much larger as the span increases to 10, 15 and 20 years.

This suggests that a good deal of the movements is due to measurement error, which includes short run reactions to "random" events. Figure 3 gives an estimate of the order of magnitudes. The six dots are the unshaded averages from Table 3. If the average line is weighted with the number of observations it tilts marginally upward only. Thus Figure 3 suggests that the measurement error is of the order of magnitude of 5 percentage points:

Thesis 4:   The *measurement error* in national polls of the G-trust is about 5 points

Figure 3. The average numerical G-trust changes, |ΔG|

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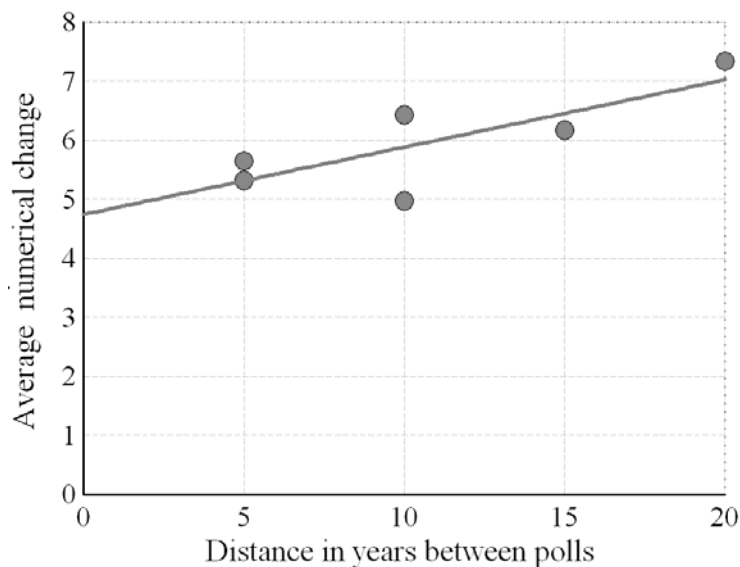
Hence, the "true" average movement in the G-trust is about 2 points over the 20 years or 0.1 points per year. This is rather modest – much as suggested by Thesis 2. But if the movement adds up over two centuries it does reach 20 points. Note also than no less than 42% of the 19 first differences that extends 20 years change more that 10 points, which is twice the likely measurement error. Consequently this measure of social capital is not stable.

If we take into account that the Grand Transition in most cases takes 2-3 centuries and that is associated with a change of about 20 points change in the G-trust there is really nothing in these orders of magnitudes that prevents the full change in the G-trust shown on Figure 1 to be endogenous.

Figure 4. The distribution of the changes in the G-trusts
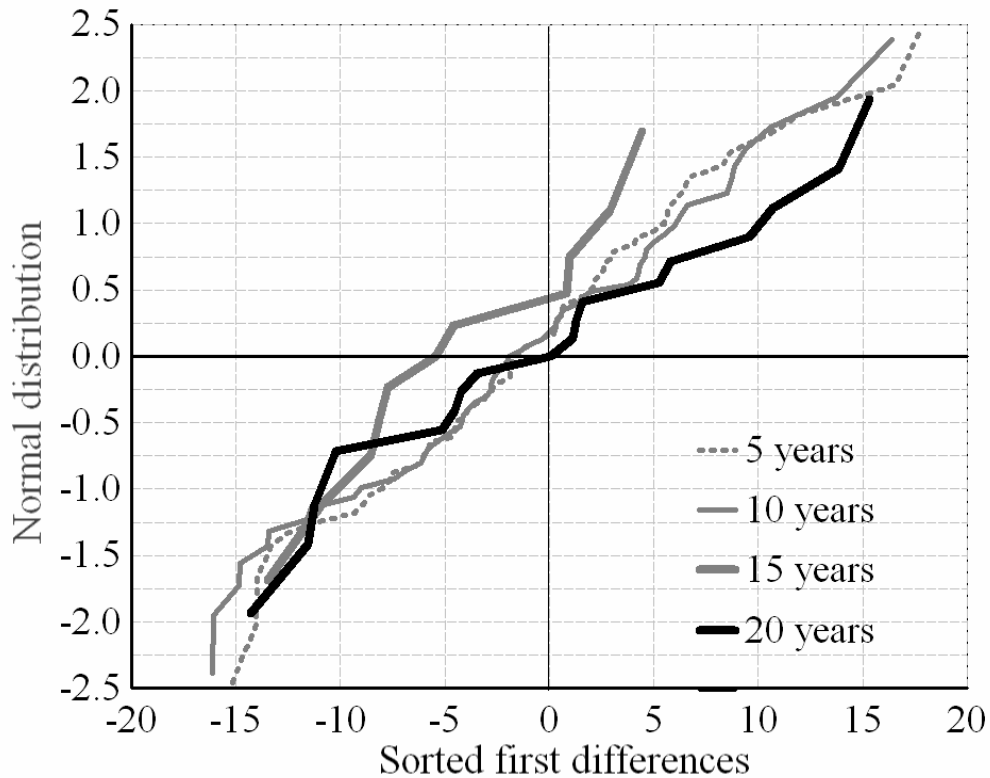
3.2   The distribution of the changes 2: The absolute changes

With such a large measurement uncertainty it is difficult to determine how much the results change. However, it may help to look at the absolute changes.

Figure 4 shows all the 161 changes drawn as four probit diagrams, i.e., for each lag length the observations are sorted and depicted with the standardized normal distribution at the vertical axis. If these observations are normally distributed, the four lines should be approximately straight – precisely as they are. However, we note that the lines for the 5 years and the 10 years lags show some truncation. That is, changes are too rarely larger that 15 points for 5 years and for 10 years. Given the near-normality we also note that the slopes of the four lines are approximately the same, so that the variance is the same. Also, the intersection with the vertical axis for the zero-change is close, so the averages are close too.

In fact, Table 4 shows that we are unable to reject that either pair of averages or either pair of variances are different at the 5% level of significance. Hence, we know that these data show little *systematic* movement, but Figure 4 show that large changes take place in the G-trusts. In fact no less that 25% of the observations are in excess of 1.8 times the likely measurement error (of 5 percent). So, surely there are countries with big changes in the G-trust.

Table 4. Pairwise two-group tests for differences between averages and variances of the absolute changes, ΔG, from Table 3

Samples		Observations		Averages		Variance	
S1	S2	N1	N2	A1<A2	A1=A2	V1<V2	V1=V2
Y5	y10	71	60	45%	91%	31%	62%
Y5	y15	71	11	92%	17%	69%	62%
Y5	y20	71	19	33%	66%	7%	14%
y10	y15	60	11	91%	17%	77%	47%
y10	y20	60	19	37%	73%	14%	28%
y15	y20	11	19	10%	20%	10%	19%
Result should be:				< 50%	< 5%	< 50%	< 5%
Result is:				Mostly	Never	Mostly	Never

Note: Going from sample 1 of the 71 5-year changes to sample 2 of the 60 10-year changes should increase the average, and its variance. The average and variance should further increase when going from the 71 5-year averages to the 11 15 year averages, etc. The predicted signs normally occur, but not always.

3.3   A large scale social experiment: The transition from socialism [12]

The period from 1982 to 2000 contains a large social experiment: The collapse of communism in East and Central Europe and the transition to a western (capitalist/democratic) society. The collapse happened very fast 1988-90. It came unpredicted, and it caused a large U-shaped economic crisis, where the full recuperation has only taken place after 2000 in most of the countries, and it is not even yet complete in some of the transition countries. It seems reasonable to treat the transition as a large, sudden, exogenous chock to the system. It is documented rather well in the WVS data, with 2-3 observations from 19 countries for waves 2-4. However, there is only one observation from 1982, namely from Hungary, which was a unique communist country.[13]

Figure 5. The G-trust and life satisfaction during the transition from communism
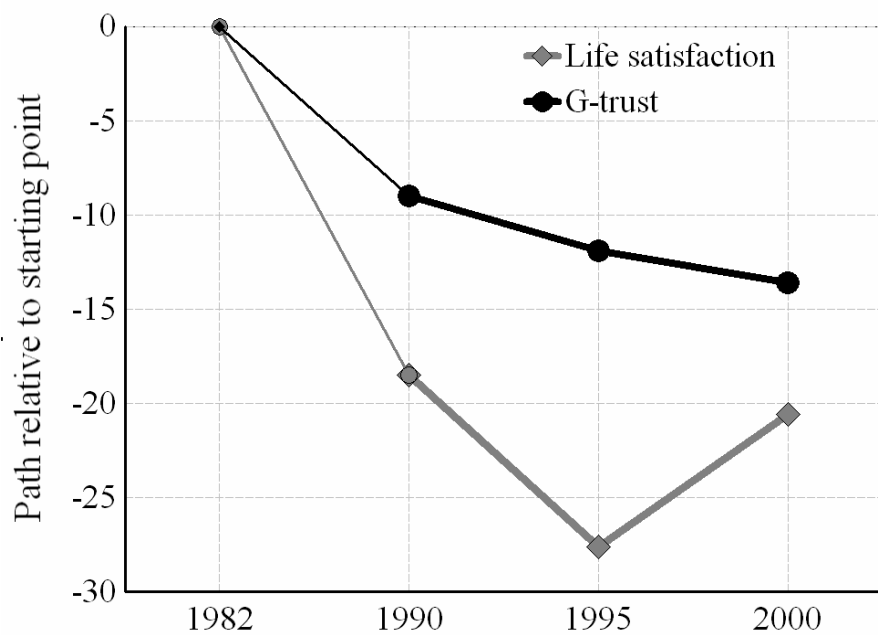
The figure is calculated by taking the (one) change from 1982-90 and adding the change from 1990 to 1995 (that is for 12 countries), and finally adding the change from 1995 to 2000 (for 19 countries). So it is all the available information, and the last two sections of the curve are reasonably well determined. 1989/91 was the year of the big political collapse and the starting

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12. This subsection uses the term *transition* for the transition from socialism.
13. Hungary was the communist country that was allowed the most market institutions and the most contacts with the West, also, it had an relatively easy transition to a market system.

year of the transition downswing, so it is unfortunate that the change out of the old system is only indicated by one observation.

It builds trust in the data that the path of the life satisfaction variable is similar to the one of the *G-trust*, though the *G-trust* moves a little less and turns a little slower. If we take these data to be representative, they show a large effect on the G-trust of the transition from communism. Also, we predict that (most of) the return to the previous levels of life satisfaction and trust will take place in the first decade of the century.

We know only the level of *G-trust* in one old communist country and in two Asian communist countries. However, we also have three polls for the *G-trust* in Belorussia, which is the ex-communist country that has changed the least, so perhaps we can assess that the level in the old communist block in East and Central Europe was between 35 and 40. Thus the fall was about 30% due to transition that generated a fall of income that peaked at about 30% in the average country. This suggests a strong endogenous reaction of *G-trust* to the economy.

The greatest "social experiment" in our data consequently shows that the *G-trust* can have large endogenous movements. Thus we are not able to say that *G-trust* is fully primary – perhaps it is not primary at all.

4.   The web of connections between the G-trust and other variables

The research on trust has found several variables that are related to the G-trust. The five main ones included are – as defined in Table 2:

Income, or production is (the natural) logarithm to gdp as explained. *LiSa,* High life satisfaction. *TI-hc*, Transparency International's honesty/corruption index, It is scaled from 10 for full honesty to 0 for full corruption. Here only data for the last period are available. *Gini,* the Gini coefficient. Here, the data has many gaps, and time series are not available. As it should be negatively correlated to the *G-trust*, the sign has been reversed, and we thus use *–Gini. Polity*, the Polity index of democracy/dictatorship, *Polity*. It is scaled from 10 for a perfect democracy to -10 for a perfect dictatorship. An average for the last 10 years is used.

The expected result from Grand Transition theory is that the variables contain much simultaneity, in the sense that all other variables contribute somewhat to explaining income, and the income contributes much to explaining all other variables. However, we hope to find that some variables are only indirectly related to income. That is, if *A*, *B* and *C* are used to explain income, then *C* is not needed, in the sense that *C* is insignificant, and contributes nothing to the R^2 when it is adjusted for degrees of freedom. In this case we say that *A* and *B* encompass *C*.

4.1   The correlations

Table 5 is a correlation matrix between these variables. Due to the scaling all coefficients of correlation and thus all regression coefficients in Table 7 should be positive.

It is satisfactory that all coefficients in the table have the positive sign predicted, and that only two are insignificant. The least significant is the one between the *Gini* and *LiSa*. This is puzzling, but not central to our story. It is much more important for that story that the correlation between the *G-trust* and the *Polity* index is insignificant.

Income is the variable that is most correlated to all the others, as it should be by the Grand Transition theory. The variable that has the least correlation to the others is the *Gini*. This is not unexpected given the quality of measurement for that variable, and the literature. The second least correlated coefficient is *G-trust*, which also has a large measurement problem.

Table 5. Correlation matrix – pure cross-country

N = 80	G-trust	Income	LiSa	TI-hc	-Gini	Polity
G-trust	1	**0.38**	**0.45**	**0.49**	**0.52**	0.13
Income, Ln gdp	**0.38**	1	**0.73**	**0.81**	**0.33**	**0.71**
LiSa, High Life satisfaction	**0.45**	**0.73**	1	**0.71**	0.07	**0.46**
TI-hc, index for honesty/corruption	**0.49**	**0.81**	**0.71**	1	**0.29**	**0.57**
-1 *x Gini* coefficient	**0.52**	**0.33**	0.07	**0.29**	1	**0.25**
Polity index, last 10 years	0.13	**0.71**	**0.46**	**0.57**	**0.25**	1
Average correlation	0.39	0.59	0.48	0.57	0.29	0.42

Note: The bolded variables are significant at the 5% level.

The tools of causality testing demand time series of a considerable length that depends on the stochastic element in the series. Above we have demonstrated that the G-trust has considerable measurement error/short run instability, relative to the longer run movements. As a most 4 observations are available, it is difficult to establish causality. Many of the cells in the table have been researched, and some of this research has reached agreement.

4.2 The links to income via growth

By far the most researched connections are the ones to income via growth, dealt with in Table 6. The effects of hundreds of variables on the growth rate have been studied by a range of methods, and large scale attempts have been made to determine which of these variables have a robust impact.[14] This literature shows that a little more than 10 variables have a robust effect on growth, while another 5 to 10 are borderline robust. None of our variables are among the robust ones, but a couple is in the borderline group. These results are helpful when it comes to untangling a pattern such as the one we consider.

Consider the observation that income and democracy have a correlation of no less than 0.71. The growth literature tells us that the many attempts to find an effect of democracy on growth have only led to a weak effect, see Doucouliagos and Ulubasoglu (2006) for a new meta study covering the literature. At least 10 other effects are stronger, and there is a considerable residual factor. So there is no way the causality from democracy to income can explain more than a small fraction of the correlation. Thus the large correlation has to be mainly a GT-effect, i.e. a Grand Transition effect.

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14. See Doppelhofer, Miller, Sala-i-Martin (2004) and Sturm and Haan (2005).

Table 6. The links to income, the central variable

(1)	(2)	Correlation	Size in % of range	(1) ➔ (2) Via growth	Comments to growth connection	(2) ➔ (1) GT-pattern
G-trust	*Income*	0.38	50%	Some	Social capital is a factor of production	Yes?
LiSa	*Income*	0.73	70%	No?	Perhaps a link via productivity	Yes
TI-hc	*Income*	0.81	85%	Weaker	Weak effect from TI ➔ investment➔growth	Yes
Gini	*Income*	0.33	50%	Dubious	Much researched, but weak results	Yes
Polity	*Income*	0.71	60%	Weak	Borderline significant	Yes

Note: Column (4) considers the difference between the value of the said index in the poorest 10% and in the richest 10% of the countries relative to the range observed for the index.

Figure 6a. The causal links from/to income
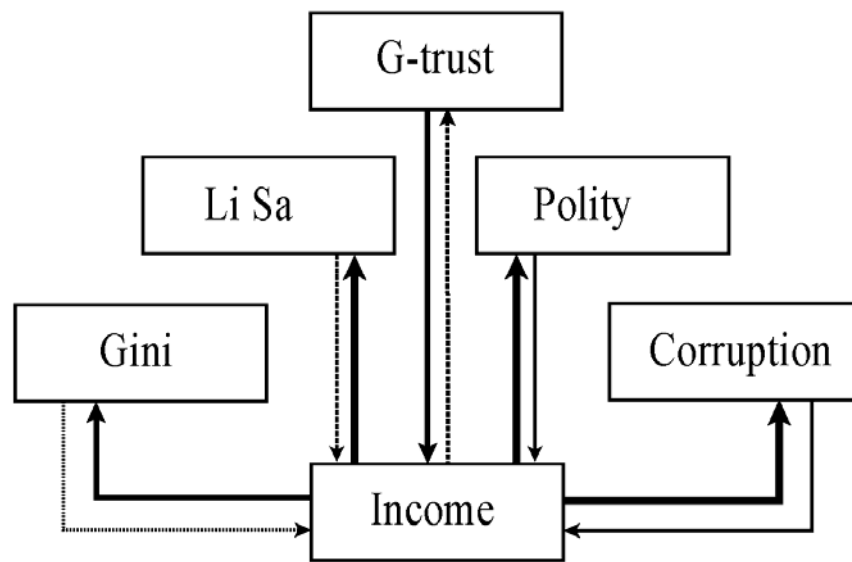
This is only a reduced form conclusion, for there are a number of possible channels whereby the Grand Transition may lead to democracy. One may be a pure demand effect saying that the income elasticity of people's demand for democracy is larger than 1. Another explanation goes via the vast expansion in education that is associated with the GT, etc. However, our analysis contains no education variable. This allows us to start with the causal connections from/to income as drawn on Figure 6. Income influences all the other variables, but they do in turn all influence income a little, as per the theory of the Grand Transition.

4.3   The other links: Regressions looking for encompassing

The next step is then to find the important parts of all the other causal links. In principle all boxes may be connected to all others. In order to assess the causal direction we should run causality tests on all connections. This is not possible for most of the links as time series of the necessary length are not available, so we have just run all the OLS-regressions between the 6 variables to obtain an expanded version of table 5.

The regressions are run in two or three versions. Version (a) in Table 7 includes all six variables. Version (b) is reached by testing down, that is, first the least significant of the insignificant variables is deleted, and the regression is re-run. Then the process is repeated till only significant variables remains. Version (c) is reached by first deleting variables with wrong signs and then testing down.

Table 7a. OLS-regressions between the 6 variables (N = 80)

	(1) G-trust			(2) Income		(3) LiSa		
	(a)	(b)	(c)	(a)	(b)	(a)	(b)	(c)
Constant	63.90	38.77	40.15	**7.73**	**7.52**	**-92.61**	**-114.01**	**-43.93**
	(2.9)	(5.9)	(6.0)	(23.7)	(27.7)	(-4.0)	(-7.0)	(-2.2)
(1) G-trust				-0.057		**0.41**	**0.47**	*0.19*
				(-1.2)		(3.4)	(4.4)	(1.7)
(2) Income	-3.34					**11.68**	**14.58**	**9.57**
	(-1.2)					(4.2)	(9.5)	(3.7)
(3) LiSa	**0.34**	**0.29**	**0.32**	**0.016**	**0.015**			
	(3.4)	(3.2)	(4.8)	(4.2)	(4.0)			
(4) –Gini	**0.84**	**0.80**	**0.80**	**0.017**	**0.012**	**-0.71**	**-0.74**	
	(5.8)	(5.7)	(5.7)	(2.4)	(2.1)	(-4.1)	(-4.4)	
(5) TI-hc	**2.01**	**1.53**		**0.15**	**0.14**	*1.50*		*1.99*
	(2.4)	(2.0)		(4.7)	(4.6)	(1.6)		(1.9)
(6) Polity	**-0.67**	**-0.84**		**0.049**	**0.054**	**-0.02**		
	(-2.2)	(-3.2)		(4.2)	(5.0)	(-0.1)		
R^2 adj	0.49	0.49	0.43	0.79	0.78	0.64	0.64	0.57

Note: The bolded coefficients are significant at the 5% level. The gray cells are the ones where wrong signs appear.

Table 7b. OLS-regressions between the 6 variables (N = 80)

| | (4) -*Gini* | | | (5) *TI-hc* | | (6) *Polity* | | |
	(a)	(b)	(c)	(a)	(b)	(a)	(b)	(c)
Constant	**-72.18**	**-77.62**	**-46.13**	**-11.26**	**-11.67**	**-26.08**	**-33.57**	**-32.00**
	(-5.6)	(-8.8)	(-23.5)	(-4.1)	(-6.7)	(-3.2)	(-7.8)	(-7.4)
(1) *G-trust*	**0.37**	**0.35**	**0.32**	**0.035**	**0.030**	**-0.09**	**-0.06**	
	85.8)	(5.9)	(5.4)	(2.4)	(2.5)	(-2.2)	(-2.0)	
(2) *Income*	**4.39**	**5.14**		**1.54**	**1.64**	**4.00**	**4.58**	**4.20**
	(2.4)	(4.2)		(4.7)	(6.8)	(4.2)	(9.0)	(8.8)
(3) *LiSa*	**-0.26**	**-0.27**		*0.021*	*0.023*	-0.002		
	(-4.1)	(-4.4)		(1.6)	(1.9)	(-0.1)		
(4) –*Gini*				-0.01		0.07		
				(-0.4)		(1.1)		
(5) *TI-hc*	-0.22					0.25		
	(-0.4)					(0.8)		
(6) *Polity*	0.23			0.03				
	(1.1)			(0.8)				
R^2 adj	0.41	0.41	0.26	0.69	0.70	0.50	0.51	0.49

4.3   Including regional/cultural country groups

Appendix Tables 2 and 3 rerun Tables 6a and b with a set of five regional/cultural dummies, which are 1 if the country is in the group and zero otherwise. The five groups are *Western*, *Muslim*, *Oriental*, in *TraSoc*, in transition from socialism and, *Nordic*. The variable name is in italic. *Oriental* means Far Eastern, *Nordic* is the 5 Nordic/Scandinavian countries.

Once again the sign on the *Gini* has been reversed, so that all signs in the table should be positive. Of the 49 signs, only 13 are negative, and of these 5 are insignificant. So there are only 8 = 4 *x* 2 problems in the table. And they are, not surprisingly 2 *x* 2 symmetrical, so we shall say that the said effects are *dominated* by the other variables. They are: (i) the two coefficients between *G-trust* and *Polity*, and (ii) the two coefficients between the *Gini* and *LiSa* (life satisfaction). These two sets of coefficients were the same two that had insignificant correlations in Table 5. So we conclude that the strong GT-correlation between all the variables have pulled them into the negative. This is what happens with high multicollinearity. In some cases it does matter if the variables with wrong signs are deleted; but in most it does not.

By and large the results are the same for the six variables covered in Tables 7 a and b, but in a few cases something happens. For the *G-trust* variable we see that it is high in the *West* and

in the *Orient*, and particularly high in the *Nordic* countries. Since these countries are the richest and the most democratic it has effects on the two variables with wrong signs. The effect on *Polity* disappears, but the income effect becomes even more wrong.

The effects on income are almost unchanged, but the effect of the *Gini* disappears. Here the expected high growth in the *Orient* and the *TranSoc* countries (around year 2000) appears. The analysis of high life satisfaction, *LiSa*, is interesting as a highly significant pattern in the regional/cultural groups appears: Three groups appear with low life satisfaction. It is Muslims, Orientals and as expected east – and central Europeans in the transition countries.

For the *Gini* it is interesting to note that when the regional/cultural variables are included, they replace the effect of income, but instead a significant effect of democracy appears, while the effect of the *Gini* on *Polity* is dubious. On the *TI-hc* variable the regional/cultural variables replaced the *G-trust*, as *West* and *Nordic* become positive while *Transition* becomes negative. Finally for *Polity* most of the regional/cultural variables become significant with the expected signs, but at the same time the income variable becomes even more significant.

4.4   Summing up: The causal net

Thus we have reached the pattern of causality shown on Figure 6b. There are still some uncertain links, which are indicated with a question mark and, of course, more variables may be included.

Figure 6b. All causal links between the 6 variables
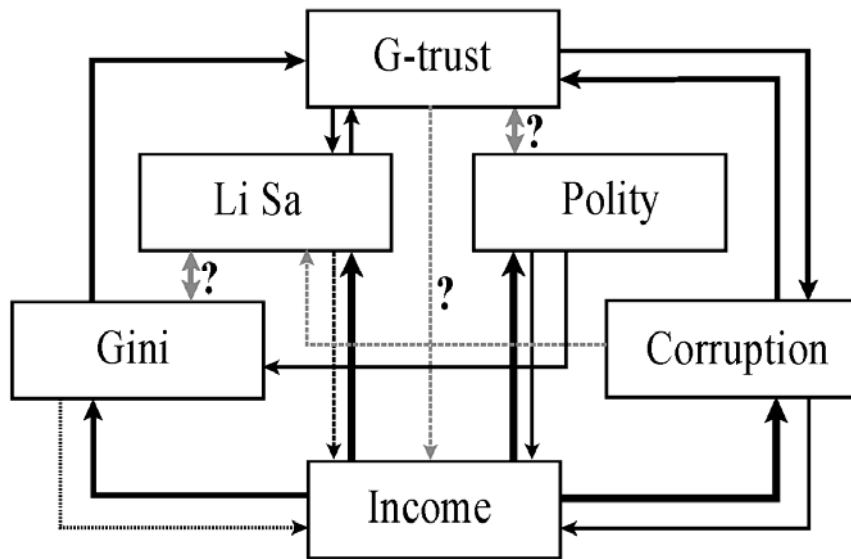
How much can we trust the causal directions indicated? I am fairly confident that the ones on Figure 6a are trustworthy. Also the causal links from the *Gini, LiSa* and *TI-hc* to *G-trust* on Figure 6b seem reasonably well justified.[15]

However, the two key causal relations in the policy debates on social capital both end with a question mark on the figure. Thus they need a separate section.

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15. The significant coefficient to the Gini is common in this research; see e.g. Uslaner (2004) and Leigh (2006).

5. Two dubious links: Social capital, development and democracy

Three links to *G-trust* are indicated to be dubious on Figure 6b. We shall not discuss the dubious link between *LiSa* (high life satisfaction) and the *Gini*. The correlation is only 0.07 in Table 5 and has the wrong sign in all 4 regression tables. Thus it appears that there is no connection between *LiSa* and the *Gini.* This is certainly against the beliefs of most social reformers.

However, the really puzzling and worrying result for the policy discussions about social capital is that the two times two links between the *G-trust* and *income* on the one side and between *G-trust* and *Polity* both appear weak and dubious in the analysis.

5.1 *The links between the G-trust and income*

We expect to find a positive connection between *income* and *G-trust,* and the correlation is 0.38 in Table 5 – also, it looks convincing on Figure 1. There is no doubt that the two variables are connected. However, the *income*/*G-trust* coefficients in all four regression tables have the wrong sign and some are even significant. Thus we have to conclude that the connections are indirect and more of a general GT-nature than due to direct causality. Let us look at each link:

The causality: *G-trust* ➔ *income*.[16] A substantial literature from Putnam (1993), Dasgupta and Seargeldin (2000) and in particular Grootaert and Bastelaer (2002) argues that social capital plays a role for development. It is easy to argue that social capital is a factor of production. Social capital – certainly trust – makes transactions faster and cheaper, it reduces monitoring costs, etc.

Above thesis 2 and thesis 3 claim that *G-trust* is *the* primary factor that explains development. This should give a clear causal link from the *G-trust* to income, but our finding is that the link is encompassed by other links. It must mean that the causal link operates through other variables. Thus it is difficult to believe that social capital is *the* primary factor for development we are all looking for. It rather appears as another endogenous factor in the complex causal net of the Grand Transition. This does not reject that it is an important variable to study.

The causality: *income* ➔ *G-trust*. Here it appears that the link goes via other variables, and is a typical GT-effect. It is interesting that the link goes via two seemingly independent variables, the *Gini* and *LiSa,* so that *income* ➔ *Gini* ➔ *G-trust* and *income* ➔ *LiSa* ➔ *G-trust*.

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[16] . See also Berggren, Elinder and Jordahl (2007) for a study of the robustness of the relation.

As the two intermediate variables are independent, we are dealing with a complex web where the influence of additional variables is likely to be involved.

5.2   *The links between the G-trust and Polity, the degree of democracy*

We then turn to the links between *G-trust* and *Polity*. Here the correlation is only 0.13 in Table 5, and Figure 7 shows a picture corresponding to Figures 1 and 2. It looks much less convincing. Also, it is strange that the line through *Other* countries has a negative slope, while the line through all points (not included) has almost the same slope, but positive. Neither slope is significant. Also, the *Polity/G-trust* coefficients in all four regression tables have wrong signs and some are significant.

Figure 7. Scatter of the 80 *G-trust* and the *Polity* index for the degree of democracy
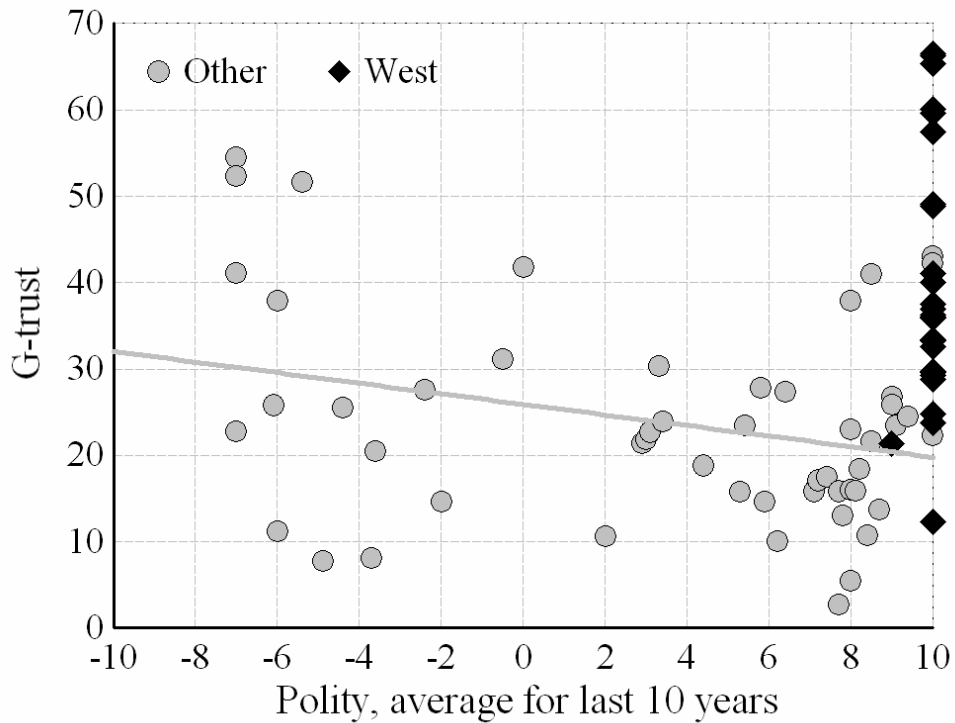
The causality: *G-trust* ➔ *Polity*. A considerable literature discusses social capital as an important prerequisite for democracy, in particular see Deth et al. (2002). Also, many development aid agencies argue that it is important for development to build civic society and social capital. Thus

we expect a positive link from *Polity* to *G-trust*. Our findings suggest that this link must be indirect and weak.

The causality: *Polity* ➔ *G-trust*. It is one of the cornerstones in the argument in Putnam (1993) that the difference in social capital in the north and south of Italy is due to the political history of the two parts of Italy in the previous 500 years, where especially the dictatorship in The Kingdom of the two Sicilies in the south prevented the development of social capital, while the north of Italy had a complex set of regimes that were often less oppressive, and hence permitted the building of social capital.

This idea has been developed in Paldam and Svendsen (2000, 2002) to explain the difference between West and East Europe, due to democratic history of the West and the communist dictatorship in the East. This led to: The dictatorship theory of social capital is that dictatorial regimes fear voluntary cooperation between its citizens and thus tries to bring such cooperation under the control of the political system. Also, it is well known that many dictators use fear as a deliberate instrument.

Thus I expected to find a clear connection from *Polity* to *G-trust*. However, this did not work.[17] Part of the reason may be that the transition from communism in East and Central Europe was associated with a rather large depression, a chaotic period of rent grabbing, and a wave of high inflation that caused a large drop in life satisfaction. So perhaps something may still appear in a longer perspective.

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17. An alternative way to study this connection is to analyze the relation between G-trust and economic freedom directly as done by Berggren and Jordahl (2006), who do find considerable correlation.

6. Conclusion: The trust transition

The article is a mixture of a survey and a basic exposition of the macro data on generalized trust, *G-trust*. It covers only one of the main series used to measure social capital. However, a great deal of data has been collected on this variable. The article has looked at the dynamics of the measured G-trusts, and at its relation to five other series.

The organizing framework is the theory/empirics of the Grand Transition, which sees the process of development as a broad transition of all socio-political and economic variables in society. All these transitions add up to the Grand Transition. It is not helpful to say that everything depends on everything else, so the literature on development has searched for *the* key to development: Something that is primary to all other factors. Since Putnam (1993) it has been frequently claimed that social capital is that key.

It is clear from the results in the paper that the data show a transition from low trust in poor societies to high trust in rich societies. Thus, there is a transition of trust. The article discusses how the transition of trust relates to development.

The article demonstrates that the measures of *G-trust* have a considerable element of measurement error, and though it normally changes slowly it does change enough so that it is perfectly possible that the trust transition is fully endogenous. Thus the Putnam claim that social capital is a deep constant in society and hence primary does not appear to hold as regards the *G-trusts*.

In the analysis of the relation between generalized trust and other variables a number of connections were found strongly significant: The main variables that appear to be causal to social capital is the *Gini* and *LiSa* (high life satisfaction), but also corruption matters. My interpretation of the literature (including my own research) is that these variables all have income as a key causal factor. Thus it is clear that the *G-trust* enters into the complex

So whereas G-trust is an interesting variable that plays a role in the Grand Transition, it is hardly the key causal factor for the transition.

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World Development Indicators are at: http://devdata.worldbank.org/dataonline/

Appendix table 1. All G-trusts in the World Values Survey – first four waves

	Country	1982	1990	1995	2000		Country	1982	1990	1995	2000
1	Albania			27.0	24.4	44	Lithuania		30.8	21.9	25.9
2	Algeria				11.2	45	Luxemburg				24.8
3	Argentina	26.1	23.3	17.6	15.9	46	Macedonia			8.2	13.7
4	Armenia			24.7		47	Malta	10.1	23.8		20.8
5	Australia	48.2		40.1		48	Mexico		33.5	31.2	21.8
6	Austria		31.8		33.4	49	Moldova			22.2	14.6
7	Azerbaijan			20.5		50	Morocco				22.8
8	Bangladesh			20.9	23.5	51	Netherlands	44.8	53.5		60.1
9	Belarus		25.5	24.1	41.9	52	New Zealand			49.1	
10	Belgium	29.2	33.5		29.2	53	Nigeria		23.2	17.3	25.6
11	Bosnia			28.3	15.8	54	Norway	60.9	65.1	65.3	
12	Brazil		6.5	2.8		55	Pakistan			18.8	30.8
13	Bulgaria		30.4	28.6	26.8	56	Peru			5.0	10.7
14	Canada	48.5	53.1		37.0	57	Philippines			5.5	8.6
15	Chile		22.7	21.4	23.0	58	Poland		31.8	17.9	18.4
16	China		60.3	52.3	54.5	59	Portugal		21.7		12.3
17	Colombia			10.8		60	Puerto Rico			6.0	22.6
18	Croatia			25.1	20.5	61	Romania		16.1	18.7	10.1
19	Czech Re		27.4	28.5	24.6	62	Russia		37.5	23.9	24.0
20	Denmark	52.7	57.7		66.5	63	Saudi Arabia				53.0
21	Dominican Re			26.5		64	Serbia			30.2	25.8
22	Egypt				37.9	65	Singapore				14.7
23	El Salvador			14.6		66	Slovakia		22.0	27.0	15.9
24	Estonia		27.6	21.5	23.5	67	Slovenia		17.4	15.5	21.7
25	Finland		62.7	48.8	57.4	68	South Africa		29.1	15.9	13.1
26	France	24.8	22.8		21.4	69	Spain	35.1	34.2	29.7	36.3
27	Georgia			18.7		70	Sweden	56.7	66.1	59.7	66.3
28	Germany	32.3	32.9	33.3	37.5	71	Switzerland		42.6	37.0	
29	Greece				23.7	72	Taiwan			38.2	
30	Hungary	33.6	24.6	22.7	22.4	73	Tanzania				8.1
31	Iceland	39.8	43.6		41.1	74	Turkey		10.1	5.5	16.0
32	India		35.4	37.9	41.0	75	Uganda				7.8
33	Indonesia				51.6	76	UK	43.1	43.7	29.6	28.9
34	Iran				65.4	77	Ukraine			31.0	27.8
35	Iraq				47.6	78	Ulster	44.0	43.6		39.5
36	Ireland	41.1	47.4		36.0	79	Uruguay			21.6	
37	Israel				23.5	80	USA	40.5	51.1	35.9	36.3
38	Italy	26.8	35.3		32.6	81	Venezuela			13.8	15.9
39	Japan	41.5	41.7	42.3	43.1	82	Vietnam				41.1
40	Jordan				27.7	83	Zimbabwe				11.2
41	Korea S	38.0	34.2	30.3	27.3		Number	21	43	54	70
42	Kyrgyzstan				16.7		Average	38.9	34.8	25.8	28.4
43	Latvia		19.8	24.7	17.1		Standard deviation	11.5	14.5	13.2	14.7

Note: Every poll in the WVS includes this item. The list thus also covers the 188 pools of the WVS data set.

Appendix table 2. OLS-regressions with regional/cultural dummies (N = 80)

	(1) G-trust			(2) Income		(3) LiSa		
	(a)	(b)	(c)	(a)	(b)	(a)	(b)	(c)
Constant	**56.90**	**66.39**	**33.57**	**6.85**	**6.39**	**-88.01**	**-85.99**	**-35.65**
	(2.6)	(3.9)	(5.6)	(17.3)	(31.1)	(-3.8)	(-4.3)	(-2.6)
Western	**10.06**	**8.40**		0.27		5.71		
	(2.1)	(2.1)		(1.4)		(1.1)		
Muslim	6.34			**0.44**	**0.42**	**-12.45**	**-14.67**	**-14.32**
	(1.3)			(2.2)	(2.3)	(-2.3)	(-3.0)	(-3.0)
Orient	**15.75**	**15.55**	**11.94**	**0.73**	**0.60**	*-9.93*	**-13.38**	**-8.60**
	(3.3)	(3.9)	(3.2)	(4.0)	(3.9)	(-1.8)	(-3.0)	(-2.0)
Transition	4.91			**0.40**	**0.40**	**-10.20**	**-12.28**	**-15.20**
	(1.2)			(2.7)	(3.2)	(-2.4)	(-3.6)	(-4.9)
Nordic	**17.47**	**18.03**	**19.56**	-0.30	**-0.39**	6.25		
	(3.5)	(3.9)	(4.2)	(-1.4)	(-2.2)	(1.1)		
(1) *G-trust*				-0.01		**0.32**	**0.39**	**0.31**
				(-1.4)		(2.5)	(3.8)	(3.3)
(2) *Income*	**-4.31**	**-4.19**				14.40	14.32	10.09
	(-1.4)	(-2.1)				(5.1)	(7.0)	(6.4)
(3) *LiSa*	**0.26**	**0.25**	**0.23**	**0.019**	**0.019**			
	(2.5)	(2.5)	(3.6)	(5.1)	(5.4)			
(4) *–Gini*	**0.42**	**0.54**	**0.55**	0.0065		**-0.48**	**-0.38**	
	(2.4)	(3.6)	(4.2)	(0.9)		(-2.4)	(-2.1)	
(5) *TI-hc*	0.79			**0.16**	**0.18**	-0.73		
	(0.9)			(4.9)	(6.3)	(-0.7)		
(6) *Polity*	-0.21			**0.065**	**0.071**	**-0.73**	**-0.74**	
	(-0.6)			(5.9)	(6.9)	(-2.0)	(-2.1)	
R^2 adj	0.59	0.58	0.56	0.84	0.83	0.71	0.71	0.67

Note: Corresponds to Table 7a.

Appendix table 3. OLS-regressions with regional/cultural dummies (N = 80)

	(4) -Gini			(5) TI-hc		(6) Polity		
	(a)	(b)	(c)	(a)	(b)	(a)	(b)	(c)
Constant	**-55.49**	**-44.54**	**-52.41**	**-10.09**	**-7.91**	**-28.67**	**-31.86**	**-24.52**
	(-4.2)	(-13.2)	(-26.2)	(-3.7)	(-4.5)	(-3.8)	(-7.2)	(-4.0)
Western	**10.45**	**10.75**	**8.54**	**1.35**	**1.38**	-1.11		***-2.82***
	(3.6)	(4.3)	(3.4)	(2.2)	(3.1)	(-0.6)		(-1.8)
Muslim	**8.25**	**9.07**	**10.56**	-0.46		**-5.82**	**-5.07**	**-5.27**
	(2.6)	(3.1)	(3.6)	(-0.7)		(-3.5)	(-3.3)	(-3.2)
Orient	4.95	**6.11**	*4.92*	-0.25		**-6.69**	**-6.44**	**-7.17**
	(1.5)	(2.2)	(1.8)	(-0.4)		(-4.1)	(-5.0)	(-4.8)
Transition	**9.98**	**10.82**	**12.31**	*-0.82*	**-0.71**	**-3.41**	**-2.23**	**-2.62**
	(4.4)	(5.2)	(6.2)	(-1.6)	(-2.0)	(-2.5)	(-2.1)	(-2.0)
Nordic	*6.50*	*5.88*		**1.64**	**1.75**	0.85		
	(1.9)	(1.8)		(2.5)	(3.3)	(0.4)		
(1) *G-trust*	**0.17**	**0.16**	**0.20**	0.013		-0.027		
	(2.4)	(2.3)	(3.2)	(0.9)		(-0.6)		
(2) *Income*	1.70			**1.65**	**1.42**	**5.21**	**4.99**	**4.14**
	(0.9)			(4.9)	(6.9)	(5.9)	(8.4)	(6.6)
(3) *LiSa*	**-0.16**	**-0.14**		-0.010		**-0.08**	**-0.10**	
	(-2.4)	(-2.5)		(-0.7)		-2.0	-2.9	
(4) *–Gini*				-0.02		0.10		***0.11***
				(-0.6)		(1.5)		(1.9)
(5) *TI-hc*	-0.38					-0.26		
	(-0.6)					(-0.8)		
(6) *Polity*	**0.31**	**0.41**	**0.39**	-0.03				
	(1.5)	(2.6)	(2.4)	(-0.8)				
R² adj	0.55	0.56	0.52	0.76	0.77	0.63	0.64	0.61

Note: Corresponds to Table 7b.