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Economic development, inequality and generalized trust

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Abstract

Individuals turn towards identifiable in-groups to reduce uncertainty in social interaction. By reducing existential uncertainty, economic development undermines the rationality of in-group bias and, as such, facilitates the emergence of generalized trust. Conversely, income inequality may undermine generalized trust because it makes social interaction less predictable. In view of this, we argue that the positive impact of economic development on generalized trust is likely to be undermined by income inequality. Our empirical evidence, based on a panel of up to 89 countries, and controlling for the influence of potentially confounding covariates and the real possibility that generalized trust can impact on both development and inequality, provides robust support for this assertion. Thus, if generalized trust is to be sustained, attention should be given to both the growth and distribution of income.

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1 Introduction

Generalized trust refers to the extent to which individuals believe that most people, including strangers, can be trusted (Cook, 2016). By reducing transaction costs in economic and political exchange, generalized trust can contribute towards economic development and the quality of governance (see Algan and Cahuc, 2014 for a review). Because of this, scholars have attempted to identify the determinants of generalized trust uncovering the role of several variables including the level and distribution of income, ethnic or racial heterogeneity and religion (Nannestad, 2008 reviews related work).

We revisit the role of income. Higher average income should contribute towards generalized trust. Individuals rely on identifiable in-groups to reduce uncertainty in social interaction (Kyriacou, 2005; Efferson et al., 2008). In settings of resource scarcity, intense competition for resources generates uncertainty thereby increasing in-group bias to the detriment of out-group interactions (Banfield, 1958; Inglehart and Welzel, 2005). From this vantage point, resource scarcity is likely to contribute towards the emergence of particularized or within-group trust. Conversely, higher income reduces the rationality of in-group bias thus facilitating the emergence of generalized trust.

Similarly, income inequality may undermine trust in strangers because inequality makes social interaction less predictable. Social heterogeneity, of which income inequality is one dimension, makes it more difficult to predict the behavior of others and so increases the rationality of particularized trust. Indeed, in unequal settings, relatively wealthy individuals may expect relatively poorer ones to defect from cooperative agreements that perpetuate the status quo, thus reducing generalized trust (Boix and Posner, 1998).

Previous work has reported the positive association between the level of income and generalized trust and/or the negative relationship between inequality and trust (for example, Alesina and La Ferrara, 2002; Delhey and Newton, 2005; Rothstein and Uslaner, 2005; Leigh, 2006; Barone and Mocetti, 2016). To date, existing work has not examined how income inequality can mediate the impact of income per capita on generalized trust. We expect the positive impact of income per capita to be reduced in settings of higher income inequality. While rising average incomes should reduce societal uncertainty thus facilitating the emergence of generalized trust, income inequality increases uncertainty in social interaction thus hindering trust in strangers. It is to the empirical exploration of this hypothesis that we dedicate the rest of this article. In the next section we describe the data and empirical methodology. We follow this with our empirical findings before concluding.

2 Data and empirical methodology

To measure generalized trust we turn to the World Value Surveys database (WVS) and compute the share of people that answer yes to the question "In general, do you think that most people can be trusted". Real GDP per capita is obtained from the World Development Indicators, while our inequality measure is the disposable income Gini index from the Standardized World Income Inequality database (Solt, 2016).

Rather than rely exclusively on cross-country variation like most previous work, we turn to panel data techniques. We use five-year averages to estimate an unbalanced panel

over the period 1981 to 2014. More specifically, we estimate the following regression:

$$Trust_{it} = \beta_1 \ln(GDP_{pc})_{it} + \beta_2 Gini_{it} + \beta_3 \ln(GDP_{pc})_{it} * Gini_{it} + \beta_4 \mathbf{x_{it}} + \mu_t + \phi_j + \epsilon_{it}, \quad (1)$$

where beyond our variables of interest, $\mathbf{x_{it}}$ is a vector of control variables, μ_t and ϕ_j represent time and regional dummies, and ϵ_{it} is a random error term.[1]

Given the relatively limited within-country variation in our key variables, the inclusion of country fixed effects is not advisable. Instead, our estimation strategy follows Bjørnskov et al. (2010) and exploits both the within and the between variation. To reduce omitted variable bias we include time fixed effects, regional and legal origin dummies along with a set of country-specific controls that have been suggested by previous empirical work. Specifically we control for population (size and share above 65 years old), years of education, government quality, openness, ethnic fragmentation, urbanization and main religions. Previous work has proposed that generalized trust is positively related to age, education, government quality, urbanization and Protestantism and negatively associated with population size, openness, ethnic heterogeneity and more hierarchical religions like Catholicism and Islam (see, for example, Bjørnskov, 2007).

To account for reverse causality, we also apply 2SLS. We instrument GDP per capita through (five year) lagged values of this variable and income inequality through the size of mature cohorts (Jong-Sung and Khagram, 2005; Leigh, 2006) and the logarithm of the ratio between the land surface suitable for wheat over that suitable for the production of sugar (Easterly, 2007). The interaction term is instrumented by the product of the lagged values of GDP per capita and cohort size.[2]

3 Results

Table I presents the results from the estimation of equation (1). Columns [1] and [2] show the impact of GDP and inequality on generalized trust when the variables are considered independent of each other. We confirm the opposite impact of economic development and inequality on trust found in the literature. The latter, however, is not estimated with precision when the full set of controls is included.

In columns [3]-[10] we consider how inequality mediates the impact of economic development on trust: columns [3]-[6] show OLS results while columns [7]-[10] display 2SLS regressions. In both cases, the analysis goes from the most parsimonious estimation where, beyond our variables of interest, only time fixed-effects and regional dummies are included (columns [3] and [7]), to the most saturated regression that further includes a full set of control variables. With regard to the 2SLS regressions, the Hansen p-values indicate that the instruments are valid; that is, we do not reject the joint null hypothesis that they are uncorrelated with the error term and, as such, that the instruments are correctly excluded from the estimated equation. Our sample goes from a maximum of 89

[1] Following the World Bank we employ the following regional groupings: East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, North America, South Asia and Sub-Saharan Africa.

[2] Controlling for the share of the population above 65 years of age has the salutary effect of reinforcing the exclusion restriction of the cohort-based instruments given evidence that generalized trust increases with age (for example, Alesina and La Ferrara, 2002).

Table I: Regression Results

Dependent variable: *Trust*	OLS						2SLS			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
$\ln(\text{GDP}_{pc})_{it}$	4.066	3.678	18.306	10.605	13.184	13.216	8.076	38.311	31.005	28.293
	(1.327)***	(1.830)**	(4.545)***	(4.667)**	(5.111)**	(5.213)**	(2.186)***	(11.794)***	(11.480)***	(15.585)*
Gini_{it}	-0.212	-0.243	3.531	1.302	2.380	2.065	0.864	6.876	4.701	4.241
	(0.124)*	(0.179)	(1.127)***	(1.005)	(1.113)**	(1.212)*	(0.643)	(2.985)**	(2.689)*	(4.261)
$\ln(\text{GDP}_{pc})_{it}$*$\text{Gini}_{it}$			-0.431	-0.177	-0.303	-0.267	-0.202	-0.838	-0.658	-0.576
			(0.126)***	(0.119)	(0.133)**	(0.142)*	(0.116)*	(0.322)**	(0.315)**	(0.460)
$\ln(\text{Population})_{it}$		1.912			2.200	2.209			4.060	5.421
		(0.831)**			(0.683)***	(0.867)**			(1.727)**	(1.792)***
$\text{Retired share}_{it}$		0.695			0.579	0.706			0.178	0.825
		(0.267)**			(0.272)**	(0.272)**			(0.464)	(0.522)
$\text{Years. sec. school}_{it}$		-0.846			0.531	-0.830			-0.502	-0.697
		(1.114)			(1.263)	(1.109)			(2.283)	(2.212)
$\text{ICRG-Government quality}_{it}$		0.071				0.048				0.024
		(0.088)				(0.086)				(0.154)
Trade share_{it}		0.000				0.006				0.097
		(0.028)				(0.028)				(0.069)
$\text{Ethnic fragmentation}_{i}$		0.022				0.033				0.019
		(0.039)				(0.039)				(0.055)
Urban share_{it}		-0.076				-0.027				-0.024
		(0.092)				(0.084)				(0.270)
Number Id	80	67	89	80	71	67	47	46	40	39
Observations	205	176	218	205	186	176	92	91	83	82
R-squared	0.652	0.732	0.448	0.656	0.697	0.738	0.849	0.638	0.673	0.731
Hansen p-values							0.700	0.730	0.571	0.489
Regional dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Religion controls	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓
Legal controls	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓

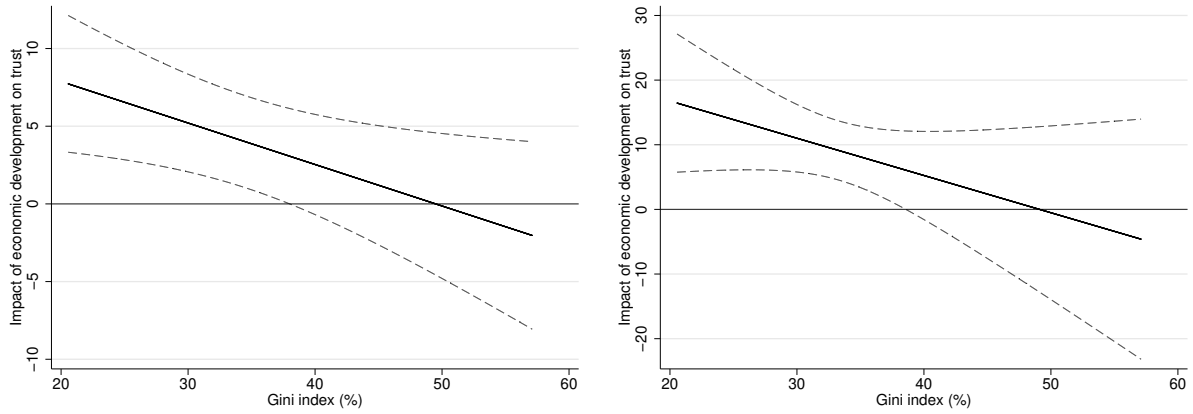
Notes: Robust standard errors in parentheses. *, **, *** indicate coefficients are significant at the 10%, 5%, and 1% level, respectively. 2SLS: Endogenous variables: $\ln(\text{GDP}_{pc})_{it}$, Gini_{it}, $\ln(\text{GDP}_{pc})_{it}$*$\text{Gini}_{it}$. External instruments: $\ln(\text{GDP}_{pc})_{it-1}$, Cohort_{it-1}, $\ln(\text{GDP}_{pc})_{it-1}$*$\text{Cohort}_{it-1}$, Wheat-Sugar_{i}. We employ lagged values of the remaining time variant variables.

countries (column [3]) to a minimum of 39 (column [10]).[3]

Despite the changes in the number of countries, we observe a robust pattern in our variables of interest. We always find that GDP per capita is positively associated with generalized trust while the interaction term is always negative. To consider the impact of economic development on trust for different values of inequality we compute the marginal effect of the former on trust (along with associated standard errors) for a relevant range of values of the Gini index. Figure 1 presents the estimated marginal effects. Figures 1.a and 1.b show the marginal effects computed, respectively, from columns [6] and [10] in Table I. We show the results corresponding to the most saturated regressions but the marginal effects are robust across all the specifications (available upon request). Note that the fact that the interaction term (or any of its individual components) is not statistically significant in regression 10, does not mean that the marginal effect is not significant for substantively relevant values of the mediating variable, as this depends on the sign of the covariance between our variables of interest (Brambor et al., 2006). The relevant range of Gini values is given by the sample distribution.

[3]All regressions include a balanced number of developed and developing countries. Sample information is available upon request.

Figure 1: Marginal Effects



(a) OLS (b) 2SLS

Notes: OLS and 2SLS marginal effects are computed, respectively, from columns [6] and [10] in Table 1. 90% Confidence intervals.

Both figures show the same pattern. Economic development has a positive impact on trust, but this depends on the level of inequality. Income inequality mitigates the positive impact of GDP per capita on generalized trust.[4] Our results show that for values of the Gini index larger than 40, a higher GDP per capita does not have a statistically significant impact on generalized trust. Our results extend previous work that has considered the independent effect of economic development or inequality on trust and that has generally found that development has a positive effect while inequality undermines trust in others.

4 Conclusion

Economic development has a positive impact on generalized trust or trust in strangers because it relaxes scarcity constraints that otherwise drive individuals into the arms of identified in-groups to the detriment of out-group interactions. We hypothesize that the positive effect of development on generalized trust will be mitigated by income inequality since the latter - by increasing social heterogeneity and thus uncertainty in social interaction - increases the rationality of in-group bias. Our empirical evidence, based on a panel of up to 89 countries over the period 1981-2014 and after accounting for a range of confounding variables and the possibility of reverse causality, supports this hypothesis. From a policy perspective, this implies that societies seeking to foster generalized trust should aim for both sustained and equitable growth.

[4]Note that multiplicative interaction models are symmetric by definition. This means that we could instead focus on the impact of inequality on trust conditional on the income level. This would be very similar to studying the impact of inequality in developed vs developing countries - an exercise recently undertaken by Barone and Mocetti (2016), who find a negative effect only in developed countries. We also find a negative impact of inequality only for high income levels. Results are available upon request.

References

Alesina, A. and La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics*, 85(2):207–234.

Algan, Y. and Cahuc, P. (2014). Trust, growth, and well-being: New evidence and policy implications. In *Handbook of Economic Growth*, volume 2, chapter 02, pages 49–120. Elsevier, 1 edition.

Banfield, E. (1958). *The Moral Basis of a Backward Society*. Free Press.

Barone, G. and Mocetti, S. (2016). Inequality and trust: New evidence from panel data. *Economic Inquiry*, 54(2):794–809.

Bjørnskov, C. (2007). Determinants of generalized trust: A cross-country comparison. *Public Choice*, 130(1):1–21.

Bjørnskov, C., Dreher, A., and Fischer, J. A. (2010). Formal institutions and subjective well-being: Revisiting the cross-country evidence. *European Journal of Political Economy*, 26(4):419 – 430.

Boix, C. and Posner, D. N. (1998). Social capital: Explaining its origins and effects on government performance. *British Journal of Political Science*, 28(04):686–693.

Brambor, T., Clark, W. R., and Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, 14:63–82.

Cook, K. (2016). Trust. In Ritzer, G., editor, *The Blackwell Encyclopedia of Sociology*. John Wiley & Sons, Ltd.

Delhey, J. and Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or nordic exceptionalism? *European Sociological Review*, 21(4):311–327.

Easterly, W. (2007). Inequality does cause underdevelopment: Insights from a new instrument. *Journal of Development Economics*, 84(2):755–776.

Efferson, C., Lalive, R., and Fehr, E. (2008). The coevolution of cultural groups and ingroup favoritism. *Science*, 321(5897):1844–1849.

Inglehart, R. and Welzel, C. (2005). *Modernization, Cultural Change, and Democracy: The Human Development Sequence*. Cambridge University Press.

Jong-Sung, Y. and Khagram, S. (2005). A comparative study of inequality and corruption. *American Sociological Review*, 70(1):136–157.

Kyriacou, A. P. (2005). Rationality, ethnicity and institutions: A survey of issues and results. *Journal of Economic Surveys*, 19(1):23–42.

Leigh, A. (2006). Does equality lead to fraternity? *Economics Letters*, 93(1):121–125.

Nannestad, P. (2008). What have we learned about generalized trust, if anything? *Annual Review of Political Science*, 11(1):413–436.

Rothstein, B. and Uslaner, E. M. (2005). All for all: Equality, corruption, and social trust. *World Politics*, 58(1):41–72.

Solt, F. (2016). The standardized world income inequality database. *Social Science Quarterly*, 97(5):1267–1281.