Trust and Quality of Growth: A Note

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Abstract

The transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs) has substantially shifted the policy debate from growth to inclusive growth. In this short note, we revisit the trust-growth nexus by exploiting a dataset on quality of growth (QG), recently made available to the scientific community. The empirical evidence is based on interactive contemporary and non-contemporary quantile regressions. Inequality and human development modifying variables are used as additional controls. The findings broadly support the positive role of trust in QG. In addition, relatively high thresholds of inequality are needed to change this positive trust-QG nexus in some distributions.

JEL Classification: A13; I30; O40; Z13
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1. Introduction

Over the past two decades, a great bulk of the literature has focused on the relationship between trust and economic growth (La Porta et al., 1997; Glaeser et al., 2000; Zak & Knack, 2001; Dincer & Uslaner, 2010; Cahuc, 2013). The policy debate on the underlying nexus has shifted in the last couple of years from the trust-growth nexus to robustness of this empirical relationship. Whereas, Beugelsdijk et al. (2004) have established a robust relationship in terms of magnitude of estimated effects, Breggren et al. (2008) have gone a step further to revisiting and systematically scrutinizing previous findings to assess the stability of the underlying relationship. Asongu and Kodila-Tedika (2013) have extended Breggren et al.'s

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(2008) work, using a methodology that is robust to outliers and confirmed the consensus on a positive relationship only in some thresholds of the growth distribution.

The transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs) has also shifted a policy debate from growth to inclusive growth (Asongu & De Moor, 2015). In essence, '*Output may be growing, and yet the mass of the people may be becoming poorer*' (Lewis, 1955). It is estimated that by 2016, the wealth of the Bottom 99% in the world would be lower than that of the Top 1% (Oxfam, 2015). Income accruing from the recent global economic recovery has been captured exclusively by the underlying Top 1% (Covert, 2015). The conclusion of Piketty's (2014) celebrated '*capital in the 21st century*' extends to less developed countries. For instance, the April 2015 World Bank publication on the MDGs poverty target reveals that extreme poverty has been increasing in Sub-Saharan Africa since the 1990s, in spite of: (i) over two decades of growth resurgence and (ii) the sub-region accounting for 7 of the 10 fasting growing economies in the world (Asongu & Kodila-Tedika, 2015; World Bank, 2015).

In light of the above, there is a pressing scholarly challenge of shifting the emphasis from the trust-growth relationship to a trust-'growth quality' (QG) nexus. Hence, the present line of inquiry complements existing literature by exploiting a new dataset from the International Monetary Fund (Mlachila et al., 2014) on QG to assess the latter relationship.[1] The rest of the note is structured as follows: Section 2 discusses the data and methodology. Empirical results are covered in Section 3. Section 4 concludes with implications.

2. Data and methodology

Consistent with the motivation discussed above, this study combines the datasets of Berggren et al. (2008) and Mlachila et al. (2014) on trust and QG respectively. The former consists of averages from 63 developed and developing countries for the period 1990-2000, while the latter entails four non-overlapping intervals from 93 developing nations for the period 1990-2011[2]. The matching process yields a sample of 33 developing countries, with averages consisting of: (i) non-contemporary Mlachila et al. (1990-1999) and Berggren et al. (1990-2000) and (ii) contemporary Mlachila et al. (2000-2011).

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[1] Mlachila et al. (2014) have built on existing inclusive growth literature to develop a more holistic measurement of pro-poor growth termed 'quality of growth'
[2] The four averages include: 1990-94, 1995-1999, 2000-2004, and 2005-2011.

The dependent variable is the QG index, while the independent variable of interest is the trust indicator. Hence, we have non-contemporaneous (contemporaneous) regressions with contemporary QG and non-contemporary trust (non-contemporary QG and non-contemporary trust).[3] Consistent with Mlachila et al. (2014, p. 21), control variables are government stability, foreign direct investment (FDI) and foreign aid. For brevity and lack of space, we discuss expected signs concurrently with empirical results. The variables are defined in Appendix 1. Appendix 2 and Appendix 3 provide the summary statistics and correlation matrix respectively.

Interactive quantile regressions (QR) are employed as empirical strategy. The technique which enables an assessment throughout the conditional distributions of QG is robust to outliers (Koenker & Hallock, 2001). The choice of this approach is justified by the need to steer clear of the existing trust-growth literature and tailor the relationship across high- and low-QG countries. In essence, contingency of the investigated relationship on initial levels QG avoids the shortcoming of blanket policies based on mean values of the dependent variable, as generally obtained from ordinary least squares (OLS) estimation. In order to provide more room for policy options, we include two policy modifying variables, notably: inequality and human development. The interaction variables are consistent with the substantial body of literature on the trust-growth nexus (Zak & Knack, 2001; Cahuc, 2013). In accordance with Brambor et al. (2006), estimated interaction coefficients are interpreted as marginal effects. For lack of space we do not disclose the specifications, which are available upon request.

3. Empirical results

The findings are presented in Table 1. Apparent differences (in significance and magnitude) between OLS based on mean values of QG (or on minimizing the sum of squared residuals) and quantiles (minimizing the weighted sum of absolute deviations) justify the choice of our empirical strategy. The left-hand-side [LHS] (right-hand-side [RHS]) of the table presents contemporaneous (non-contemporaneous) regressions. Panel A (B) of Table 1 shows results with the inequality- (human development-) modifying policy variable.

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[3] Contemporary should not be interchanged with contemporaneous because the latter is when both the dependent and independent variables of the same periodicity. Conversely, specifications are non-contemporaneous when the dependent variable has a lead in periodicity.

Table 1: Quality of Growth, Trust, Inequality and Human Development

	Panel A: Quality of Growth, Trust and Inequality											
	Contemporaneous (QG$_t$)						Non-Contemporaneous(QG$_{t+1}$)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	0.284	-0.654	**0.168****	0.246	0.323	**1.099*****	**0.400***	-0.516	**0.373****	0.467	0.288	**0.820*****
	(0.209)	(0.339)	**(0.012)**	(0.494)	(0.388)	**(0.000)**	**(0.063)**	(0.599)	**(0.016)**	(0.359)	(0.458)	**(0.001)**
Trust	**0.005***	0.021	**0.009*****	0.006	0.010	**-0.008***	**0.005***	0.020	**0.006****	0.005	0.011	-0.002
	(0.074)	(0.135)	**(0.000)**	(0.286)	(0.264)	**(0.057)**	**(0.064)**	(0.326)	**(0.013)**	(0.650)	(0.181)	(0.619)
Inequality	0.002	0.017	**0.004*****	0.004	0.003	**-0.006****	0.003	0.016	0.003	0.002	0.005	-0.001
	(0.369)	(0.150)	**(0.000)**	(0.384)	(0.564)	**(0.025)**	(0.284)	(0.323)	(0.168)	(0.762)	(0.307)	(0.588)
Trust.Inequality	-0.00009	-0.0005	**-0.0002*****	-0.0001	-0.0002	**0.0002****	-0.0001	-0.0004	**-0.0001****	-0.0001	-0.0002	0.00009
	(0.263)	(0.178)	**(0.000)**	(0.484)	(0.358)	**(0.015)**	(0.175)	(0.380)	**(0.039)**	(0.743)	(0.256)	(0.452)
Gov't Stability	0.028	0.068	**0.038*****	0.024	0.022	-0.017	0.019	0.060	**0.024****	0.012	0.020	-0.0008
	(0.154)	(0.223)	**(0.000)**	(0.473)	(0.420)	(0.507)	(0.278)	(0.457)	**(0.035)**	(0.786)	(0.629)	(0.956)
FDI	0.021	0.005	**0.021*****	0.013	0.018	0.007	0.016	-0.001	0.015	0.014	0.020	0.010
	(0.178)	(0.856)	**(0.000)**	(0.613)	(0.412)	(0.754)	(0.184)	(0.967)	(0.192)	(0.668)	(0.459)	(0.317)
Foreign Aid	**-0.015*****	**-0.015***	**-0.021*****	**-0.016****	**-0.011****	**-0.015*****	**-0.010*****	**-0.008**	**-0.015*****	-0.008	**-0.008***	**-0.010*****
	(0.001)	**(0.086)**	**(0.000)**	**(0.015)**	**(0.015)**	**(0.000)**	**(0.000)**	**(0.475)**	**(0.000)**	(0.287)	**(0.091)**	**(0.000)**
Pseudo R²/R²	0.676	0.594	0.566	0.492	0.412	0.416	0.605	0.555	0.514	0.442	0.332	0.396
Fisher	**9.76*****	---	---	---	---	---	**7.22*****	---	---	---	---	---
Observations	24	24	24	24	24	24	24	24	24	24	24	24

	Panel B: QG, Trust and Human Development											
	Contemporaneous (QG$_t$)						Non-Contemporaneous(QG$_{t+1}$)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	0.090	0.060	0.005	**0.085****	0.075	0.192	**0.328****	0.393	0.353	0.391	0.281	0.244
	(0.368)	(0.596)	(0.256)	**(0.030)**	(0.615)	(0.441)	**(0.018)**	(0.205)	(0.275)	(0.348)	(0.281)	(0.590)
Trust	**0.008****	0.002	**0.885*****	**0.873*****	**0.011****	0.009	0.005	-0.001	0.001	0.005	**0.009***	**0.010***
	(0.012)	(0.281)	**(0.000)**	**(0.000)**	**(0.019)**	(0.176)	(0.142)	(0.873)	(0.853)	(0.577)	**(0.097)**	**(0.059)**
HDI	**0.899*****	**0.810*****	-0.007	**-0.013*****	**0.879*****	**0.819****	**0.671*****	0.565	0.578	0.568	**0.739*****	**0.839****
	(0.000)	**(0.000)**	(0.455)	**(0.000)**	**(0.000)**	**(0.022)**	**(0.000)**	(0.102)	(0.143)	(0.217)	**(0.002)**	**(0.027)**
Trust.HDI	**-0.011****	-0.002	0.018	**-0.013*****	**-0.018****	-0.013	-0.006	0.002	-0.001	-0.006	-0.016	-0.018
	(0.037)	(0.593)	(0.356)	**(0.000)**	**(0.034)**	(0.326)	(0.298)	(0.857)	(0.933)	(0.710)	(0.156)	(0.109)
Gov't Stability	0.005	0.013	-0.004	**0.010*****	0.010	0.0005	-0.003	-0.005	-0.001	-0.003	0.004	0.004
	(0.507)	(0.173)	(0.715)	**(0.002)**	(0.448)	(0.979)	(0.759)	(0.826)	(0.970)	(0.912)	(0.886)	(0.941)
FDI	-0.002	-0.001	-0.0004	-0.001	-0.001	-0.002	-0.0006	0.003	0.002	0.002	-0.001	-0.009
	(0.496)	(0.839)	(0.844)	(0.320)	(0.729)	(0.789)	(0.874)	(0.806)	(0.879)	(0.915)	(0.863)	(0.492)
Foreign Aid	-0.002	-0.0005	-0.008	**-0.003*****	**-0.004*****	-0.005	-0.0006	0.0007	0.00001	-0.002	-0.003	-0.002
	(0.507)	(0.741)	(0.966)	**(0.000)**	**(0.003)**	(0.291)	(0.723)	(0.827)	(0.998)	(0.693)	(0.265)	(0.623)
Pseudo R²/R²	0.931	0.852	0.795	0.803	0.795	0.801	0.853	0.804	0.733	0.676	0.631	0.659
Fisher	**101.6*****	---	---	---	---	---	**42.38*****	---	---	---	---	---
Observations	23	23	23	23	23	23	23	23	23	23	23	23

*,**,***: significance levels of 10%, 5% and 1% respectively. OLS: Ordinary Least Squares. QR: Quantile Regression. Lower quantiles (e.g., Q 0.1) signify nations where Quality of Growth is least. Gov't: Government. R² (Pseudo R²) for OLS (QR). FDI: Foreign Direct Investment. HDI: Human Development Index.

The following findings are established. First, in Panel A, trust has a positive association with GQ at the 0.25th quantile of both specifications, while the nexus is negative at the highest (0.90th) quantile of the LHS. Second, in Panel B, there is a decreasing positive correlation of trust from the 0.25th to the 0.75th quantile on the LHS. Evidence of decreasing positive magnitude is broadly consistent with the negative relationship on the LHS of Panel A. On the RHS, the correlation is positive in the 0.75th and 0.90th quantiles, with increasing magnitude.

Third, the corresponding marginal effects of inequality in the correlation between trust and QG are: (i) positive (negative) for the 0.90th (0.25th) quantile(s) of Panel A and (ii) negative for 0.50th and 0.75th quantiles of Panel B. Three of the five modifying thresholds are within the ranges provided by the summary statistics, notably: (i) 45 (0.009/0.0002), 40

(0.008/0.0002), and 60 (0.006/0.0001) for respectively the 0.25^{th}, 0.50^{th} and 0.25^{th} quantiles for inequality across Panel A and (ii) 67.15 (0.873/0.013) and 0.61 (0.011/0.018) for respectively the 0.50^{th} and 0.75^{th} quantiles for human development in Panel B. Hence, 45 and 40 are within the inequality range (28.13-59.45), whereas 0.61 within the human development range (0.30-0.70). It follows that, the modifying thresholds are within ranges only for contemporaneous specifications. Moreover, relatively high levels of inequality are needed to change the positive trust-QG nexus. While the negative marginal effect of inequality is consistent with intuition, the marginal impact of human development is an exception that justifies the need for assessing the correlations throughout the conditional distributions. This is essentially because human development consistently displays a positive correlation with QG in other quantiles.

Fourth, the significant control variables have signs that are consistent with Mlachila et al. (2014, p. 21). Accordingly, it is documented that government stability and FDI increase QG while foreign aid decreases it.

4. Conclusion

We have briefly contributed to the trust-growth literature by incorporating a previously missing QG dimension into the narrative. In general, the findings support the positive role of trust in QG and relatively high thresholds of inequality are needed to change this positive trust-QG nexus in some contemporaneous distributions. The findings are timely and relevant in the current transition from MDGs to SDGs. Future research could be devoted to assessing if the established relationship withstands further scrutiny involving causal relationships.

Appendices

Appendix 1: Definition of variables

Variable(s)	Definition(s)	Source(s)
Quality of Growth Index (QGI)	"*Composite index ranging between 0 and 1, resulting from the aggregation of components capturing growth fundamentals and from components capturing the socially-friendly nature of growth. The higher the index, the greater is the quality of growth*" (p. 25).	
Trust	"First value of trust 1990−2000, i.e., the share that agrees with the statement most people can be trusted"	Berggren et al. (2008) and Mlachila et al. (2014, p.25)
Inequality	The Gini index of inequality	
Human Development Index	"*Geometric mean of normalized indices measuring achievements in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living.*" (p. 25).	
Government Stability	"*Index ranging from 0 to 12 and measuring the ability of government to stay in office and to carry out its declared program(s).The higher the index, the more stable the government is*" (p. 25).	
Foreign Direct Investment	"*Net Inflows of Foreign Direct Investments, as percent of GDP*" (p. 25)	
Foreign Aid	"*Official development Aid actually disbursed, as percent of GDP*" (p. 25)	

Appendix 2: Summary Statistics

	Mean	S. D	Minimum	Maximum	Obs
Quality of Growth Index (QGI)t	0.660	0.078	0.417	0.777	33
Quality of Growth Index (QGI) (t+1)	0.715	0.066	0.536	0.845	33
Trust	22.427	12.432	5.000	60.300	33
Inequality	43.970	9.984	28.135	59.450	33
Human Development Index	0.561	0.107	0.306	0.706	32
Government Stability	7.197	0.711	5.800	8.666	33
Foreign Direct Investment	2.069	1.392	0.129	5.236	33
Foreign Aid	2.493	3.830	-0.251	14.154	24

S.D: Standard Deviation. Obs: Observations.

Appendix 3 : Correlation Matrix (n=23)

Trust	GINI	HDI	GovStab	FDI	Aid	QGI$_t$	QGI$_{t+1}$	
1.000	-0.418	-0.174	0.191	-0.275	-0.104	0.158	0.141	Trust
	1.000	0.511	0.627	0.627	-0.043	0.251	0.245	GINI
		1.000	0.456	0.456	-0.520	0.892	0.863	HDI
			1.000	0.315	0.085	0.323	0.280	GovStab
				1.000	0.175	0.281	0.295	FDI
					1.000	-0.647	-0.591	Aid
						1.000	0.975	QGI(t)
							1.000	QGI(t+1)

GINI: Inequality Index. HDI: Human Development Index. GovStab: Government Stability. FDI: Foreign Direct Investment. Aid: Foreign Aid. GQI$_t$: Non-Contemporary Quality of Growth Index. GQI$_{t+1}$: Contemporary Quality of Growth Index.

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