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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. The dominant shape from the influence of inclusive/human development is Kuznets or inverted U-shape: the return of inclusive/human development in the trust-QG nexus is decreasing in the bottom half of the QG distributions. As a main policy implication, decreasing (increasing) inequality (human development) would improve the positive trust-QG nexus in countries with low levels of QG.

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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 (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.

Whereas, the literature has proposed several indicators for measuring inclusive development, to the best of our knowledge, the most notable are from Anand et al. (2013) and Mlachila et al. (2014). The former study builds on the literature which maintains that for inclusive growth to be established, the corresponding poverty reduction should be sustainable (see Kraay, 2004; Berg et al., 2011ab). The study adopts an absolute pro-poor concept of growth (see Ravallion & Chen, 2003), contrary to the relative pro-poor notion of growth (see

Dollar & Kraay, 2002). Absolute (relative) pro-poor growth is growth that mitigates poverty (inequality). According to Anand et al. (2013), relative pro-poor growth could affect both poor and wealthy households with sub-optimal externalities. The inclusiveness definition encompasses characteristics like: equity and equal opportunities, employment transitions and market participation. Hence, their inclusive growth measurement consists of growth that moves hand-in-glove with economic expansion that is conducive to *inter alia*: employment opportunities, investment and productivity.

The quality of growth measurement proposed by Mlachila et al. (2014) builds on Anand et al. (2013) and a multitude of previous concepts and measurements of pro-poor growth. The corresponding quality of growth index (QGI) is also consistent with the Commission on Growth and Development (2008) on the one hand and Ianchovichina and Gable (2012) on the other hand. The stream of literature has substantiated concerns about 'immiserizing growth' that is linked to inequality, poverty and unemployment. These concerns raised prior to the MDG extreme poverty target (Dollar & Kraay, 2002; Martinez & Mlachila, 2013; Dollar et al., 2013; Ola-David & Oyelaran-Oyeyinka, 2014) have been confirmed in the more contemporary inclusive development literature on the post-2015 sustainable development agenda (Simpasa et al., 2015; Page & Shimeles, 2015; Jones et al., 2015; Asongu, 2016; Jones & Tarp, 2015; Page & Söderbom, 2015). The GQI conceives 'inclusive growth' to be 'pro-poor growth' that is socially-friendly, high and durable. Therefore, some important dimensions which are critical for 'growth quality' consist of growing productivity, better standards of living, strength, stability, sustainability and poverty mitigation.

The present study focuses on extending Mlachila et al. (2014) within the context of the trust literature. Accordingly, Mlachila et al. (2014) have built on the existing inclusive growth literature to develop a more holistic measurement of pro-poor growth termed 'quality of growth'. The trust literature engaged above has investigated the trust-growth nexus and not the trust-'quality of growth' relationship. Moreover, the underlying trust literature has assessed the nexus on mean values of the dependent variable. In this inquiry, we also investigate the relationship throughout the conditional distribution of 'quality of growth'.

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 source consists of averages from 63 developed and developing countries for the period 1990-2000, while the latter source entails four non-overlapping intervals from 93 developing nations for the period 1990-2011[1]. The matching process on developing countries yields a sample of 33 cross sections, 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). The selected countries are: Algeria, Argentina, Bangladesh, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Ecuador, Egypt, El Salvador, Ghana, Guatemala, Honduras, India, Indonesia, Jordan, Latvia, Mexico, Nicaragua, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Romania, South Africa, Turkey, Uganda, Uruguay and Venezuela. The selected countries are grouped in terms of Hopefuls, Contenders and Best Performers in QG in order to ease more targeted policy implications. The retained variables are in bold in Table 1.

In accordance with the motivation of the note, the Quantile regression (QR) strategy is adopted. The QR approach consists of examining the determinants of growth quality throughout the conditional distributions of growth quality. This enables the study to articulate countries with low, intermediate and high initial levels of growth quality. Hence parameter estimates are produced at various points of the conditional distribution of growth quality (see Koenker & Hallock, 2001). This motivation is in accordance with the literature on conditional determinants (see Billger & Goel, 2009; Okada & Samreth, 2012; Asongu, 2013) which focuses on initial levels of the dependent variable in order to account for heterogeneity in existing levels of the dependent variable when assessing the effect of determinants on the outcome variable. Mlachila et al. (2014) have reported parameter estimates at the conditional mean of quality of growth. While such mean impacts are relevant, we employ the QR estimation strategy to account for existing levels of growth quality. Accordingly, whereas Ordinary Least Squares (OLS) assume that the error terms and growth quality are normally distributed, the QR is not based on this assumption of normally distributed error terms. In essence, with the QR approach, estimated parameters are obtined at various points of the conditional distribution of growth quality (Koenker & Bassett, 1978). In other words, the empirical approach enables the inquiry to investigate the effects of trust on growth quality

[1] The four averages include: 1990-94, 1995-1999, 2000-2004, and 2005-2011.

with particular emphasis on worst- and best-performing developing countries with regard to quality of growth.

The θ^{th} quantile estimator of growth quality is obtained by solving for the following optimization problem, which is presented without subscripts in Eq. (1) for the purpose of simplicity.

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

where $\theta \in (0,1)$. Contrary to OLS which is fundamentally based on minimizing the sum of squared residuals, with QR, the weighted sum of absolute deviations is minimised. For instance, the 90$^{\text{th}}$ or 10$^{\text{th}}$ quantiles (with θ=0.90 or 0.10 respectively) are estimated by approximately weighing the residuals. The conditional quantile of growth quality or y_i given x_i is:

$$Q_y(\theta / x_i) = x_i' \beta_\theta \ , \quad (2)$$

where unique slope parameters are modelled for each θ^{th} specific quintile. This formulation is analogous to $E(y / x) = x_i' \beta$ in the OLS slope where parameters are examined only at the mean of the conditional distribution of 'quality of growth'. For Eq. (2), the dependent variable y_i is the quality of growth indicator while x_i contains: a constant term, *trust, inequality, human development, government stability, foreign direct investment and foreign aid.*

The specifications are tailored to display non-contemporaneous (contemporaneous) regressions with contemporary QG and non-contemporary trust (non-contemporary QG and non-contemporary trust). Contemporary should not be interchanged with contemporaneous because the latter is when both the dependent and independent variables are of the same periodicity. Conversely, specifications are non-contemporaneous when the dependent variable has a lead in periodicity. In a contemporaneous specification, 'contemporary trust' affects 'contemporary QG' whereas in a non-contemporaneous specification 'non-contemporary trust' affects 'contemporary QG'. The use of a non-contemporaneous specification to have some bite on endogeneity is in accordance with recent inclusive development literature (Mlachila et al., 2014; Asongu & Nwachukwu, 2016a).

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 Table 2. Table 3 and Table 4 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.

Table 1 : Categorization of countries

	Categories	Countries	Number
QG Performance	Hopefuls	"Burundi, Benin, Burkina Faso, **Bangladesh**, Central African Republic, Côte d'Ivoire, Cameroon, Congo Republic, Djibouti, Ethiopia, Gabon, Guinea, The Gambia, Equatorial Guinea, Lesotho, Madagascar, Mali, Mozambique, Mauritania, Malawi, Niger, Nigeria, **Pakistan**, Rwanda, Sudan, Senegal, Sierra Leone, Swaziland, Chad, Togo, **Uganda**, Yemen, Congo Democratic Republic" (p.15).	33
	Contenders	"Azerbaijan, **Bolivia**, Georgia, **Ghana, Guatemala**, Iran, Lao PDR, Morocco, Mongolia, Namibia, **Nicaragua**, Nepal, Tajikistan, Tanzania, Uzbekistan, Zambia" (p.15).	16
	Best Performers	"Albania, **Argentina**, Armenia, Bulgaria, Belarus, **Brazil**, Botswana, **Chile, China, Colombia, Costa Rica**, Cuba, **Algeria, Ecuador, Egypt, Honduras, Indonesia, India, Jordan,** Kazakhstan, Kenya, Kyrgyz Republic, Sri Lanka, Lithuania**, Latvia**, Moldova, **Mexico**, Malaysia, **Panama, Peru**, **Philippines, Poland, Paraguay, Romania**, Russia, El **Salvador**, Syria, Thailand, Tunisia, **Turkey, Uruguay, Venezuela**, Vietnam, **South Africa**"(p.15).	44

Source: Asongu and Nwachukwu (2016b)

Table 2: 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).	Mlachila et al. (2014, p.25)
Trust	"First value of trust 1990−2000, i.e., the share that agrees with the statement most people can be trusted" (p. 268).	Berggren et al. (2008, p. 268)
Inequality	The Gini index of inequality	Mlachila et al. (2014, p.25)
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).	Mlachila et al. (2014, 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).	Mlachila et al. (2014, p.25)
Foreign Direct Investment	"*Net Inflows of Foreign Direct Investments, as percent of GDP*" (p. 25)	Mlachila et al. (2014, p.25)
Foreign Aid	"*Official development Aid actually disbursed, as percent of GDP*" (p. 25)	Mlachila et al. (2014, p.25)

Sources: Berggren et al. (2008) and Mlachila et al. (2014).

Table 3: 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.
Source: Authors

Table 4: 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.
Source: Authors

3. Empirical results

The findings are presented in Table 5. Apparent differences (in significance and magnitude) between OLS based on mean values of QG (or on minimizing the sum of squared residuals) and quintiles (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 5 shows results with the inequality- (human development-) modifying policy variable.

Table 5: Quality of Growth, Trust, Inequality and Human Development

Panel A: Quality of Growth, Trust and Inequality

	Contemporaneous						Non-Contemporaneous					
	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 R^2/R^2	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: Quality of Growth, Trust and Human Development

	Contemporaneous						Non-Contemporaneous					
	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 R^2/R^2	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. R^2 (Pseudo R^2) for OLS (QR). FDI: Foreign Direct Investment. HDI: Human Development Index.

Source: Authors

The following findings are established. First, in Panel A, trust has a positive association with GQ at the 0.25^{th} quintile of both specifications, while the nexus is negative at

the highest (0.90^{th}) quintile of the LHS. Second, in Panel B, there is a decreasing positive correlation of trust from the 0.25^{th} to the 0.75^{th} quintile 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 0.75^{th} and 0.90^{th} quintiles, with increasing magnitude.

Third, the corresponding marginal effects of inequality in the correlation between trust and QG are: (i) positive (negative) for the 0.90^{th} (0.25^{th}) quintile(s) of Panel A and (ii) negative for 0.50^{th} and 0.75^{th} quintiles 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} quintiles 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} quintiles 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). Normally, modifying variables must be within their ranges (minimum to maximum) in the summary statistics for the modifying thresholds to have economic meaning. If a modifying threshold is not within the corresponding range of its variable, it does not make economic sense (see Asongu & De Moor, 2016).

Consistent with Asongu and De Moor (2016), the notion of threshold is in accordance with Cummins (2000) on a minimum threshold/level of proficiency in language before second-language speakers can start enjoying the rewards from a particular language. Moreover, the notion of threshold is also consistent with the theory of critical mass which has been considerably documented in the literature on economic development (see Roller & Waverman, 2001; Ashraf & Galor, 2013). A recent application of the threshold theory or critical mass based on interaction variables can be found in Batuo (2015). Hence, in our view, threshold effects are not different from: (i) critical mass for positive effects (Roller & Waverman, 2001; Batuo, 2015); (ii) minimum requirement for enjoying of positive effects (Cummins, 2000) and (iii) criteria for U and Kuznets shapes (Ashraf & Galor, 2013).

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 quintiles.

Fourth, on the potential shape of the nexuses, the followings are apparent: (i) the effect of inequality on the trust-QG relationship is Kuznets shape in the 0.25^{th} quintiles and U-shape in the 0.90^{th} quintile on the LHS and (ii) the impact of human development in the trust-QG relationship is Kuznets-Shape in the 0.25^{th} and 0.50^{th} quintiles on the LHS. The Kuznets or inverted U-shape reflects decreasing marginal returns to QG from inclusive/human development.

Fifth, 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. Concluding implications and future research directions

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 dominant shape from the influence of inclusive/human development is Kuznets or inverted U-shape in the bottom half of the QG distributions. In other words, the return of inclusive/human development in the trust-QG nexus is decreasing in the bottom half of the QG distributions. The findings are timely and relevant in the current transition from MDGs to SDGs.

The fact that there are negative returns to the trust-QG nexus from inequality/human development in the bottom quintiles of the distributions implies that policy needs to be tailored towards decreasing inequality and increasing human development in countries with low levels of QG order to improve the positive trust-QG relationship. This is essentially because inequality (human development) is a variable with a negative (positive) signal. In other words, the positive response of QG to trust is likely to increase with decreasing (increasing) levels of inequality (human development) in the countries experiencing low levels of QG. These countries are Hopefuls and Contenders in QG for the most part, namely: Bangladesh, Pakistan, Uganda, Bolivia, Ghana, Guatemala and Nicaragua.

Future research could be devoted to assessing if the established relationship withstands further scrutiny involving causal relationships. Moreover, since the dependent variable is a

fraction, fractional response models could also be considered in order to improve the extant literature. These future recommendations also double as limitations of the study[2].

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[2] We are using cross-sectional data and only relationships can be established from corresponding findings, not causality. The narratives have consistently engaged the linkages as relationships, not causality. In order to support our recommendations for further research we look at whether quality of growth affects/improves trust or not, and we find this reverse relationship to hold at certain quantiles. Complete details of these results are available upon request from the authors.

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