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Abstract

We explore a newly available dataset on quality of growth to investigate the effect of institutions on growth quality in 93 developing countries for the period 1990 to 2011. Quality of institutions is measured in term of political risk. The empirical evidence is based on: (i) Ordinary Least Squares (OLS) and Two Stage Least Squares (2SLS) and (ii) cross-sectional and panel data structures. In order to avail room for more policy implications, the dataset is further disaggregated into income levels, namely: Lower middle income (LMIC), low income (LI) and upper middle income (UMIC). Three main findings are established. First, institutions are positively related to the quality of growth. Second, institutions have significantly contributed to growth quality in increasing order during the following time intervals: 2005-2011, 1995-1999 and 2000-2004. Third, the positive nexus between institutions and growth quality is fundamentally driven by LMIC. Policy implications are discussed.

1. Introduction

Since the fundamental empirical works of Mauro (1995), and Keffer and Knack (1995), a substantial empirical literature has been devoted to the importance of institutions in economic development (Acemoglu et al., 2005; Baland et al., 2010; Musila and Sigué, 2010; Kodila-Tedika, 2012; Anyanwu and Erhijakpor, 2014; Efobi, 2015). However, today with the transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs), the debate is gradually shifting from growth to 'quality of growth' (Asongu, 2015a; Asongu and Gupta, 2015). This is typically consistent with the theoretical and empirically underpinnings of Stewart and Streeten (1971) and Bhagwatti (1988) who established that economic growth acceleration is not enough to ensure socio-economic development. Along the same stream of literature, Ravallion (2001), Kakwani and Pernia (2000), Kakwani et al. (2004), Duclos (2009), have articulated the absolute and relative relevance of pro-poor growth. On the other hand, Bourguignon and Morrison (2002) and Milanovic (2005), *inter alia*, have insisted on: (i) the role of inequality in the poverty growth relations, (ii) the notions of pro-poor growth[1] and (iii) burgeoning impoverishing or immiserizing growth.

Among others, Lopez and Serven (2004), Lopez (2005) and Klasen (2005), have articulated that the debate has been exclusively focused on monetary aspects. Hence, many dimensions have been neglected. More recently, another concept has been evolving to overshadow the conception of pro-poor growth: inclusive growth[2]. With respect to Rauniyar and Kanbur (2010), inclusive growth is one characterised with declining inequality. Inclusive growth is also considered as *inter alia*: (i) pro-poor amelioration in social opportunities (Ali and Son, 2007) and (ii) equal access of opportunities (Ali and Zhuang, 2007).

The advantage of this inclusive development indicator is that it uses an inclusive growth measure that is better than those proposed by Ianchovichina and Gable (2012) and Anand et al. (2013). In essence, the quality of growth index (QGI) of Mlachila et al. (2014) has integrated social dimensions into the intrinsic measurement of growth. The QGI conceives 'inclusive growth' as 'pro-poor growth' that is high, durable and socially-friendly. Therefore, some of the crucial dimensions essential for 'growth quality' entail: increasing productivity, stability, strength, better standards of living and reduction of poverty. To the best of our knowledge, this QGI has been employed by two studies, namely: Asongu and Gupta (2015) and Asongu (2015a). The latter has assessed the conditional effects of welfare spending on

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[1]More insights can be found in *inter alia*: World Bank (2001), Klasen (2002, 2008) and Kakwani and Son (2008).
[2]Rauniyar and Kanbur (2010) have provided a survey of the literature on uses of inclusive growth.

quality of growth while the former study has used the new measurement to extend the trust-growth nexus to a 'trust'-'quality of growth' relationship. In the same vein, we complement this stream of literature by extending the institutions-growth nexus literature (highlighted in the first paragraph) to the 'institutions'-'quality of growth' relationship. Institutions within the framework of this study are in terms of political risks. In what follows, we devote space to substantiating the contemporary relevance of political risk in developing countries.

The mid-June 2015 report on Global Peace estimates that a substantial portion of global Gross Domestic Product (GDP) is spent on costs related to political instability and violent activities (Anderson, 2015). Accordingly, in 2014, about 14.3 trillion USD (or 13.4% of Global GDP) was spent to mitigate, *inter alia*: crimes, violence and political instability. The underlying cost is equivalent to the total GDP of Brazil, Canada, France, Germany, Spain and the United Kingdom. The report also projects political instability in the coming years. In essence, most of the instability is in developing countries and corresponding poverty externalities have been quite significant given that the year 2014 has recorded the largest number of internally displaced persons since World War 2 (Asongu and Kodila-Tedika, 2015a). Political risk has been documented to represent a substantial challenge to lifting Africa from poverty (Amavilah, 2015). The relevance of political risk in this context is even more interesting because the April 2015 World Bank report on MDGs has shown that poverty has not been declining in some developing countries (Asongu and Kodila-Tedika, 2015b), especially those affected by recurrent political instability.

Since the wake of the 2011 Arab Spring, political risk has been seriously deteriorating the quality of institutions in developing countries. Recent evidence can be stylized in ten main points. The first-two points are in accordance with Efobi et al. (2015), the third to the ninth are in line with Asongu et al. (2015) and Asongu and Nwachukwu (2015), whereas the tenth point is consistent with McDowell (2015). First, the political situation in Yemen has been deteriorating with proxy wars currently being fought by Iran and Saudi Arabia respectively in favor of rebels and the government. The ongoing political conflict has erupted partly because of the failure by the government of Yemen to respect all the terms of its socio-political contract with the Yemenis after the ouster of President Ali Abdullah Saleh. Second, the Syrian conflict has given birth to a powerful Islamic State of Iraq and the Levant (ISIL) that is currently destabilising the political fundamentals and concept of 'nation state' in North Africa and the Middle East. Some of ISIL's geopolitical externalities have not been limited exclusively to developing countries but also extended to developed nations, with recent examples including, *inter alia*, the: January 2015 'Charlie Hebdo' attacks in Paris-France,

foiled February 2015 attacks in Australia, December 2014 hostage crisis in Sydney-Australia, and foiled January 2015 attacks in Verviers-Belgium. However, the scope of this line of inquiry is limited to developing countries because the quality of growth data provided by Mlachila et al. (2014) is only available for developing countries.

Third, in the post-Gaddafi era, the political situation in Libya has deteriorated into that of a failed State which is characterised by substantial anarchy and societal breakdown. In essence, there are two rival governments and a plethora of rebel factions desperately fighting to dictate the law of the land. Fourth, in Kenya, the 2015 Garissa university and Westgate shopping mall killings have shown that the Somali Al-Quaeda affiliated Al-Shabab can still inflict considerable challenges to political stability in the sub-region. Fifth, in Tunisia, after the political landscape that has been characterised by post-'Arab Spring' assassinations, the new democratically elected government is presently being confronted with waves of threats from Islamic fundamentalists, namely, the: Sousse and Bardo National Museum attacks respectively in June and March 2015. Sixth, the Boko Haram of Nigeria is currently extending its distortion of political stability to neighbouring countries like Cameroon, Chad and Nigeria. Seventh, in Burundi, a recent decision by President Pierre Nkurunziza to run for another mandate has cast a shadow of political violence/instability across the country. Eight, the political turmoil in South Sudan which began in 2013 has resulted in thousands of death and also displaced hundreds of thousands of South-Sudanese to neighbouring countries. Ninth, the current political climate in the Central African Republic is not different from past experiences, namely: (i) a series of aborted coup d'états between 1996 and 2003 and (ii) the Bush war fought between 2004 and 2007. Tenth, the current Ukrainian crisis represents a proxy battle front between Russia and the West (McDowell, 2015) and could exert significant externalities in other developing countries, like ongoing efforts to resolve the Syrian crisis.

It is important to note that prior to the 2011 Arab Spring, the nine cases of political crisis that had led to total societal breakdown recorded in contemporary development literature were in developing countries, namely: Afghanistan, Angola, Burundi, Iraq, Liberia, Sierra Leone, Somalia, Sudan and Zaire/Congo (Asongu, 2014a). Some notable examples from the narrative include: (i) Nigeria's marred political transitions in 2008 and 2011; (ii) 2007/2008 post-election crisis in Kenya; and (iii) the protracted politico-economic crisis in Zimbabwe. Consistent with Asongu (2014a, p. 1569), the fundamental rule of the political game has been political strife, with examples like: Angola (1975-2002); Chad (2005-2010); Liberia (1999-2003); Burundi (1993-2005); Côte d'Ivoire (with a resurrected crisis in 2011

after the 1999 coup d'état and 2002-2007 civil war); Somalia and Sudan (with carnages in Durfur); the Congo Democratic Republic and Sierra Leone (1991-2002).

The above evidence of contemporary political risks does not augur well with the objectives of mitigating poverty and enhancing inclusive growth in the post-2015 development agenda. We investigate 93 developing countries with data from Mlachila et al. (2014) for the period 1990 to 2011. Quality of institutions is measured in term of political risk. The empirical evidence is based on: (i) Ordinary Least Squares (OLS) and Two Stage Least Squares (2SLS) and (ii) cross-sectional and panel data structures. In order to avail room for more policy implications, the dataset is further disaggregated into income levels, namely: Lower middle income (LMIC), low income (LI) and upper middle income (UMIC).

The rest of the study is organised as follows. Section 2 briefly articulates contemporary stakes and inclusive growth measurement in developing countries. The data and methodology are discussed in Section 3. Empirical results and discussion are presented in Section 4. Section 5 concludes.

2. Contemporary stakes and inclusive growth measurement in developing countries

'*Output may be growing, and yet the mass of the people may be becoming poorer*' (Lewis, 1955). The April 2015 World Bank report on MDGs has shown that some developing regions (like sub-Saharan Africa (SSA)) have been witnessing increasing poverty levels (Caulderwood, 2015; World Bank, 2015), in spite of: (i) more than two decades of growth resurgence that started in the mid-1990s (Fosu, 2015, p. 44) and (ii) the sub-region hosting seven of the ten fastest growing economies in the world (Asongu and Gupta, 2015). According to the World Bank report, 45% of countries in the sub-region are off-track from attaining the MDG poverty target. Most of these countries in SSA have a low-income status.

In light of the above stylized facts, it is apparent that the growth experienced by low income countries has been marred by increasing poverty and inequality. This is consistent with empirical literature substantiating that 'growth quality' is relevant because the inequality elasticity of poverty is higher than the growth elasticity of poverty. This implies that the response of poverty to growth is a decreasing function of inequality. More concretely: "*The study finds that the responsiveness of poverty to income is a decreasing function of inequality*" (Fosu, 2010a, p. 818); "*The responsiveness of poverty to income is a decreasing function of inequality, and the inequality elasticity of poverty is actually larger than the income elasticity of poverty*" (Fosu, 2010b, p. 1432); and "*In general, high initial levels of inequality limit the effectiveness of growth in reducing poverty while growing inequality*

increases poverty directly for a given level of growth" (Fosu, 2011, p. 11). The above conjectures have been verified both in African economies (Fosu, 2010c, 2010a) and broad panel of developing countries (Fosu, 2010b).

The interesting contemporary literature on inclusive growth has centred on *inter alia*: correlates of poverty (Anyanwu, 2013a, 2014a), gender inequality (Baliamoune-Lutz, 2007; Baliamoune-Lutz, & McGillivray, 2009; Elu, 2013; Anyanwu, 2013b, 2014b), reinventing foreign aid for inclusive and sustainable development (Asongu, 2015b), recent progress in finance for inclusive and sustainable development (Asongu and De Moor, 2015), debates about absolute pro-poor (Ravallion and Chen, 2003) and relative pro-poor (Dollar and Kraay, 2002) growth and measurements of inclusive growth (Anand et al., 2013; Mlachila et al., 2014). This last stream of the literature is closest to the present line of inquiry because we are exploring a new quality of growth database.

Whereas a plethora of indicators for measuring inclusive growth have been proposed in the literature, as far as we have reviewed, the most notable are from Anand et al. (2013) and Mlachila et al. (2014). The Anand et al. measurement has accounted for inequality by substantially drawing from a stream of current literature documenting the essence of inclusive growth in sustainable mitigation of poverty (Kraay, 2004; Berg et al., 2011ab). Contrary to *relative pro-poor growth* (Dollar and Kraay, 2002), the authors have adopted the notion of *absolute pro-poor growth* that is consistent with Ravallion and Chen (2003). The former conception of pro-poor growth sustains that growth is inclusive provided that it mitigates inequality whereas according to the latter, inclusive growth is one that reduces poverty. With respect to Anand et al., the relative pro-poor growth concept would affect poor and rich households with sub-optimal externalities. Their understanding of inclusiveness and definition of inclusive growth embodies features like: employment transitions, market protection, equal opportunities and equity. In this light, their measurement of inclusive growth which includes, *inter alia*: increasing investment, equal employment opportunities and productivity.

On the other hand, the measurement of inclusive development by Mlachila et al. (2014) has built on Anand et al. (2013) as well as a plethora of previous concepts, definitions and measurements of pro-poor growth, in order to provide a new indicator termed the Quality of Growth Index (QGI).

In essence, the new index which also draws from the Commission on Growth and Development (2008) and Ianchovichina and Gable (2012), is based on a strand of the literature which sustains that the recent growth resurgence is developing countries, especially in SSA has been 'immiserizing', with growing unemployment, inequality and poverty (Dollar

and Kraay, 2003; Dollar et al., 2002, 2013; Martinez and Mlachila, 2013; Ola-David and Oyelaran-Oyeyinka, 2014). Inclusive growth is conceived by the QGI as 'pro-poor growth' that is socially-friendly, high and durable. Therefore, some relevant dimensions that are crucial for growth quality are: increasing productivity, stability, sustainability, strength, better standards of living and poverty reduction. As we have highlighted above, the present line of inquiry employs the quality of growth measurement from Mlachila et al. (2014) because it has incorporated social dimensions to the intrinsic measurement of growth.

3. Data and Methodology

3.1 Data

We assess a sample of 93 developing countries with cross sectional and panel data for the period 1990-2011, consisting of: (i) inclusive growth and control variables from Mlachila et al. (2014) and (ii) the political risk indicator from the International Country Risk Guide (ICRG) to proxy for institutional quality. Following Knack and Keefer (1995) and Acemoglu et al. (2001), we refer to the political risk variable as the protection against expropriation risks. This index varies from zero to one hundred, with higher values indicating governments that are associated with the most effective growth-friendly policies. Data from Mlachila et al. consists of four-year non-overlapping intervals, notably: 1990-1994; 1995-1999; 2000-2004 and 2005-2011.

As we have highlighted in Section 2, the QGI dependent variable is derived with data from a plethora of sources, namely: Sala-i-Martin (2006), United Nations (UN) Commodity and Trade (COMTRADE) database, World Development Indicators of the World Bank, International Monetary Fund (IMF)'s World Economic Outlook and Barro and Lee (2010). In order to avail more room for more policy implications, the data is further disaggregated into income levels, namely: Lower middle income (LMIC), low income (LI) and upper middle income (UMIC). The summary statistics is presented in Appendix 1 while the definition and sources of the variables are disclosed in Appendix 2. Appendix 3 presents the categorisation of countries.

Selected control variables are consistent with the underlying inclusive growth literature, notably: Anand et al. (2013, p. 16), Mlachila et al. (2014) and Asongu (2015a). With the exception of inflation, which is expected to reduce 'growth quality' at very high and/or chaotic rates, due to decreasing purchasing power, other control variables are expected, for the most part to display positive signs. Accordingly, high inflation reduces 'growth quality', while inflation that is stable and low has the opposite effect (Asongu, 2013a). This is

essentially because stable/low inflation stimulates the much needed investment for economic growth, given that high inflation creates substantial uncertainties due to increasing economic ambiguity. Accordingly, investors have been documented to prefer economic strategies that are less ambiguous (Le Roux and Kelsey, 2015ab). Conversely, the positive effects from domestic credit, remittances and foreign direct investment have been documented in the bulk of inclusive growth studies (Barro and Lee, 2000; Dollar and Kraay, 2003; Calderon and Servén, 2004; Levine, 2005; IMF, 2007; Hausmann et al., 2007; Mishra, et al., 2011; Anand et al., 2012; Seneviratne and Sun, 2013).

We devote some space to substantiating the highlighted literature. In accordance with the IMF (2007) and Anand et al. (2013), structural change, human capital and macroeconomic stability are important determinants of pro-growth in developing countries. Structural change embodies human capital, globalisation (e,g foreign direct investment: FDI) while macroeconomic stability entails, among others: fixed investment, technological change and educational change. Other macroeconomic and structural characteristics essential for growth are stable output volatility and low inflation (Dollar & Kraay, 2003; Barro & Lee, 2010), finance (Levine, 2005), infrastructure development (Calderon and Servén, 2004; Seneviratne and Sun, 2013); catch-up in value chains (Hausmann et al., 2007; Anand et al., 2012) and modernization of production (Mishra et al., 2011).

3.2 Methodology

Eq. (1) and Eq. (2) below respectively show cross-sectional and panel specifications.

$$QGI_i = \alpha_o + \partial_1 I_i + \sum_{h=1}^{4} \delta_h W_{h,i} + \varepsilon_i \qquad (1)$$

$$QGI_{i,t} = \alpha_0 + \partial_1 I_{i,t} + \sum_{h=1}^{4} \delta_h W_{h,i,t} + \varepsilon_{i,t} \qquad (2)$$

Where: $QGI_{i,t}$ is the *Quality of Growth Index* for country i at period t; α is a constant, I represents institutional quality in terms of political risk, W is the vector of control variables (*inflation, private domestic credit, remittances* and *FDI*) and $\varepsilon_{i,t}$ the error term. While Eq. (1) is based on OLS that is consistent with Heteroscedasticity standard errors, Eq. (2) is estimated by 2SLS, in which institutions are instrumented with legal origins from La Porta et al. (1999). The first stage of the 2SLS process consists of regressing the institutional variables on legal origins (French, English, German and Scandinavian) and then saving the fitted values that are subsequently used at the second-stage as the institutional independent variable of

interest. It is important to note that the cross-sectional data can also be instrumented to have some bite on endogeneity.

4. Empirical results

This section presents the empirical results on baseline, 'time dynamic' and income estimations respectively in Table 1, Table 2 and Table 3. Table 1 entails both OLS and 2SLS estimations in the first-two and last-four specifications respectively. The following can be established. First, the information criteria for the validity of models reveal that the adjusted coefficients of determination (R^2) and overidentification restrictions (OIR) tests are appealing for OLS and 2SLS respectively. Accordingly, in the absence of control variables, institutions explain the quality of growth by about 34.6%. Moreover, the null hypotheses for the Sargan and Basmann OIR tests are not overwhelmingly rejected. This implies the legal origin instruments are valid and not correlated with the error terms at the second-stage of the 2SLS process. Second, the quality of institutions positively affects quality of growth, with the magnitude relatively higher for 2SLS. Third, the significant control variables have the expected signs. Accordingly, while we expected private domestic credit, FDI and remittances to increase growth quality, the effect of inflation is also positive because it is relatively low and stable. In essence, the median inflation is about 8%. FDI and private domestic credit are essential in stimulating economic growth while remittances which are principally used for consumption purposes directly help in mitigating poverty and income inequality (Ssozi and Asongu, 2015). We also notice that two of the three time-effects are significant.

Table 1. Baseline estimation

	qgi P-OLS	qgi P-OLS	qgi P-2SLS	qgi_geo P-2SLS	qgi P-2SLS	qgi_geo P-2SLS
Institutions	0.008***	0.006***	0.018***	0.018***	0.019***	0.019***
	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)	(0.004)
inflation		0.000***	0.000*	0.000*	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
credit		0.001***	0.000	0.001	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
remit		0.001	0.003*	0.004*	0.003	0.003
		(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
fdi		0.004**	-0.006	-0.005	-0.005	-0.005
		(0.002)	(0.004)	(0.004)	(0.004)	(0.004)
1990-94					0.116**	0.107**
					(0.045)	(0.046)
1995-99					(dropped)	(dropped)
2000-04					0.030	0.032
					(0.026)	(0.026)
2005-11					0.062**	0.066**
					(0.027)	(0.027)
Constant	0.143***	0.202***	-0.467**	-0.503**	-0.598**	-0.618**
	(0.039)	(0.042)	(0.209)	(0.214)	(0.251)	(0.254)
Observations	301	260	256	256	256	256
R^2	0.346	0.415	0.578	0.589	0.572	0.587
Sargan (p-value)			0.7682	0.4194	0.5923	0.3105
Basmann (p-value)			0.7713	0.4252	0.5994	0.3192

Notes: .01 - ***; .05 - **; .1 - *. OLS: Ordinary Least Squares. 2SLS: Two-Stage-Least Squares. qgi: Quality of Growth Index.

Table 2 is based on non-overlapping interval regressions, with the purpose of presenting time dynamic evidence of the nexus between institutions and quality of growth. Given that estimates corresponding to the independent variable of interest are instrumented, interpretation of findings can extend from correlations to causality. In quest for robustness, we are poised to complement the main regressions with those from geometric mean-based QGI (QGI_GEO). It is important to note that, the main QGI used is computed as an arithmetic mean. The following findings are established. First, underlying models are overwhelmingly valid because the null hypotheses of the Sargan and Basmann OIR tests for instrument validity are not overwhelmingly rejected. Second, institutions are significant determinants of quality of growth in the last-three time intervals, namely: 1995-1999, 2000-2004 and 2005-2011. Institutions have significantly contributed to 'growth quality' in increasing order during the following time intervals, 2005-2011, 1995-1999 and 2000-2004. Third, whether the QGI

employed is based on arithmetic or geometric mean, there is no significant difference in the estimate of institutions, in terms of significance and magnitude of significance.

Table 2. Estimations based on time

	1990-94	1995-99	2000-04	2005-11
		QGI		
Institutions	0.005	0.017**	0.026**	0.016***
	(0.008)	(0.007)	(0.010)	(0.006)
Constant	0.241	-0.462	-0.975	-0.402
	(0.398)	(0.423)	(0.585)	(0.360)
Number of observations	51	64	70	71
R^2	0.506	0.569	0.460	0.552
Sargan (p-value)	0.6541	0.8452	0.7459	0.3810
Basmann (p-value)	0.6767	0.8538	0.7583	0.4030
		QGI_GEO		
Institutions	0.001	0.017**	0.026**	0.016***
	(0.012)	(0.008)	(0.010)	(0.006)
Constant	0.360	-0.518	-1.049*	-0.406
	(0.578)	(0.461)	(0.604)	(0.356)
Number of observations	51	64	70	71
R^2	0.321	0.053	0.469	0.029
Sargan (p-value)	0.6315	0.8611	0.5814	0.4593
Basmann (p-value)	0.6553	0.8688	0.6001	0.4806

Notes: .01 - ***; .05 - **; .1 - *; The same control variables as in Table 1 are employed.

In Table 3, the findings on income-levels broadly confirm the positive nexus between institutions and quality of growth established in previous regressions. Unfortunately, while the estimate corresponding to UMIC does not have the expected sign, that corresponding to LIC is not valid because underlying instruments are not valid. It follows that the positive nexus between institutions and 'growth quality' is fundamentally driven by lower-middle-income countries.

Table 3. Estimations based on income levels

	LIC	LMIC	UMIC
		QGI	
Institutions	0.018**	0.008***	-0.007
	(0.008)	(0.003)	(0.005)
Constant	-0.605	0.142	1.087***
	(0.440)	(0.170)	(0.339)
Number of observations	69	115	72
R2	0.602	0.111	0.280
Sargan (p-value)	0.0689	0.1147	0.1163
Basmann (p-value)	0.0772	0.1223	0.1289

Notes: .01 - ***; .05 - **; .1 - *; The same control variables as in Table 1 are employed

		QGI_GEO	
	LIC	**LMIC**	**UMIC**
Institutions	0.022**	0.008***	-0.006
	(0.010)	(0.003)	(0.005)
Constant	-0.892*	0.117	0.994***
	(0.533)	(0.177)	(0.336)
Observations	69	115	72
R^2	0.031	0.176	0.349
Sargan (p-value)	0.0194	0.1162	0.0865
Basmann (p-value)	0.0209	0.1239	0.0963

Notes: .01 - ***; .05 - **; .1 - *; The same control variables as in Table 1 are employed.

5. Concluding implications and future directions

We set-out to complement existing literature by investigating the role of institutions on quality of growth. Three main findings have been established. First, institutions are positively related to the quality of growth. Second, institutions have significantly contributed to 'growth quality' in increasing order during the following time intervals: 2005-2011, 1995-1999 and 2000-2004. Third, the positive nexus between institutions and growth quality is fundamentally driven by lower-middle-income countries.

We devote some space to elucidating why for the 1990-1994 periodic interval; institutions do not significantly influence 'growth quality'. The outcome can be traceable to at

least two factors, namely: the geopolitical atmosphere of institutional development and growth dynamics in developing countries. First, on the geopolitical institutional front, the underlying period reflects a post-Berlin époque during which the Washington Consensus policy towards developing countries changed from *realpolitik* to genuine concerns about institutional building (Asongu, 2014b). In essence, before the fall of the Berlin wall, the prime motivation of the Washington Consensus was to keep developing countries without the influence of the Soviet Union, even at the expense of institutional building (e.g democratisation processes). Second, growth resurgence in most developing countries only took-up from the mid-1990s (see Fosu, 2015, pp. 44; Alan and Carlyn, 2015, p. 598). Hence, given that sustainable growth is a relevant factor in the QGI, it is reasonable to infer that the effect of institutions on a periodic interval before the mid 1990s is not significant.

It should be recalled that this line of inquiry has been motivated by two main trends, notably: (i) increasing immiserizing growth in developing countries and (ii) growing expenditure related to violence and political risks, for which 13.4% of Global GDP is being spent. The latter justifies the use of political risk as an indicator of institutions by this study. Based on our findings, the avoidance of political instability in nations is paramount for the achievement of SDGs. This is essentially because a substantial chunk of global GDP used to fighting political instability and its negative externalities would be devoted to more human and sustainable development objectives.

As a caveat, whereas we have employed the political risk indicator as an institutional variable, the concept of institutions is much broader than has been assumed by Knack and Keefer (1995), Acemoglu et al. (2001) and Acemoglu and Johnson (2005). While the first-two have used the political indicator as a proxy for institutional quality, Acemoglu and Johnson have employed Polity IV. As pointed-out by Asongu (2014a), in a critic to Ali (2013), the above concepts are exclusively limited to political governance. Institutional governance *per se*, is the respect of the State and citizens of institutions that govern interactions between them (proxied with corruption-control and rule of law). This caveat evidently leaves room for further research, notably: in exploring how other governance indicators collectively and individually affect the quality of growth.

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Appendices

Appendix1. Descriptives Statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
qgi	372	0.604	0.140	0.258	0.849
qgi_geo	372	0.578	0.156	0.002	0.843
Instition	368	80.20217	9.739148	61.2	105.9
inflation	335	21.579	55.559	-27.133	591.128
credit	355	36.979	32.500	-54.659	169.251
govstab	302	9.063	17.971	2.667	318.75
fdi	366	3.225	4.867	-4.173	62.264
remit	322	4.117	7.391	0.001	63.295
aid	226	4.921	5.771	-9.546	36.317
resource	372	0.365	0.482	0	1
corrupt	301	2.560	0.867	0	5

Std. Dev: Standard Deviation.

Appendix 2. Data Sources and Definition

Variables	Description	Source
qgi	Quality of Growth Index. It is a composite (arithmetic mean) index of sub-indexes capturing the "growth nature" aspect and the "desirable social outcomes" aspect	Authors' own calculations
qgi_geo	Geometric mean-based Quality of Growth Index. It is a composite (geometric mean) index of sub-indexes capturing the "growth nature" aspect and the "desirable social outcomes" aspect	Authors' own calculations
fragile	Dummy variable equaling one if a country is considered as a fragile country	IMF (2011) based on World Bank classification
resource	Dummy variable equaling one if a country is considered as a endowed with natural resources	IMF (2012)
credit	Domestic credit offered by banks to private sector, as percent of GDP.	World Development Indicators (WDI)
inflation	Inflation rate, measured as annual change in the CPI index	World Development Indicators (WDI)
bureau	Quality of the Bureaucracy. Index of the institutional strength and quality of the bureaucracy, ranging from 0 to 4.	International Country Risk Guide (ICRG, 2009)
corrupt	Control of Corruption. Index assessing the control of corruption within the political system. It ranges from 0 to 6.	International Country Risk Guide (ICRG, 2009)
govstab	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).	International Country Risk Guide (ICRG, 2009)
Law	Rule of Law. Index assessing the strength and the impartiality of the legal system, as well as the popular observance of the law.	International Country Risk Guide (ICRG, 2009)
aid	Official development Aid actually disbursed, as percent of GDP	Guillaumont and Tapsoba (2012)
fdi	Foreign direct investment, measured as Net Inflows of Foreign Direct Investments, as percent of GDP	World Development Indicators (WDI)
remit	Workers' remittances and compensation of employees (Percent of GDP), calculated as the sum of workers' remittances, compensation of employees, and migrants' transfers.	World Development Indicators (WDI)

Appendix 3: Categorization of countries

Categories	Panels	Countries	Number
Income Levels	Low Income	"Burundi, Benin, Burkina Faso, Bangladesh, Central African Republic, Ethiopia, Ghana, Guinea, The Gambia, Equatorial Guinea, Kenya, Kyrgyz Republic, Lao PDR, Madagascar, Mali, Mozambique, Mauritania, Malawi, Niger, Nigeria, Nepal, Pakistan, Rwanda, Senegal, Sierra Leone, Chad, Togo, Tajikistan, Tanzania, Uganda, Uzbekistan, Vietnam, Yemen, Congo Democratic Republic, Zambia".	36
	Middle Income	"Albania, Argentina, Armenia, Azerbaijan, Bulgaria, Belarus, Bolivia, Brazil, Botswana, Chile, China, Cameroon, Congo Republic, Colombia, Costa Rica, Cuba, Djibouti, Algeria, Ecuador, Egypt, Gabon, Georgia, Guatemala, Honduras, Indonesia, India, Iran, Jordan, Kazakhstan, Sri Lanka, Lesotho, Lithuania, Latvia, Morocco, Moldova, Mexico, Mongolia, Malaysia, Namibia, Nicaragua, Panama, Peru, Philippines, Poland, Paraguay, Romania, Russia, Sudan, El Salvador, Swaziland, Syria, Thailand, Tunisia, Turkey, Uruguay, Venezuela, South Africa".	57
	Lower Middle Income	"Albania, Armenia, Azerbaijan, Bolivia, China, Cameroon, Congo Republic, Colombia, Djibouti, Algeria, Ecuador, Egypt, Georgia, Guatemala, Honduras, Indonesia, India, Iran, Jordan, Sri Lanka, Lesotho, Morocco, Moldova, Mongolia, Namibia, Nicaragua, Peru, Philippines, Paraguay, Sudan, El Salvador, Swaziland, Syria, Thailand, Tunisia"	35
	Upper Middle Income	"Argentina, Bulgaria, Belarus, Brazil, Botswana, Chile, Costa Rica, Cuba, Gabon, Kazakhstan, Lithuania, Latvia, Mexico, Malaysia, Panama, Poland, Romania, Russia, Turkey, Uruguay, Venezuela, South Africa"	22

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