

# Inclusive Growth: When May We Expect It? When May We Not?

KUNAL SEN\*

---

Episodes of economic growth that lead to reductions in poverty and inequality are relatively rare in developing countries. In this paper, we examine the institutional foundations of such growth episodes. We argue that the institutional factors that lead to accelerations in economic growth will be different from those that lead to growth maintenance and avoidance of growth decline, and that the institutional preconditions for growth accelerations suggest that these growth episodes may not be inclusive. We present empirical evidence drawn from descriptive and cross-country econometric analyses that support these theoretical propositions.

*Keywords:* inclusive growth, institutions, growth accelerations, growth maintenance, poverty, inequality

*JEL codes:* E02, O40, P48

---

## I. Introduction

It is now well recognized that sustained economic growth that is inclusive will ensure poverty reduction as well as a reduction in inequality. While many developing countries have witnessed rapid economic growth in the recent decades, relatively few of these countries have been able to ensure that the economic growth process has been inclusive of the poor (Ali and Zhuang 2007; Klasen 2004, 2010). In contrast to the large literature on the determinants of economic growth, there is relatively little understanding on the preconditions for inclusive growth, by which we mean economic growth that leads to reductions in poverty and/or inequality.

Much of the literature on inclusive growth has tended to focus on the factors such as lower inflation, greater gender equality, and creation of productive employment for the poor as determinants of inclusive growth (IPC 2007). However, such factors are merely the proximate determinants of inclusive growth and cannot be regarded as the deep determinants of inclusive growth. In the theoretical literature on the determinants of economic growth, institutions are defined as “the rules of the game or more formally, the humanly devised constraints that shape human interaction” (North 1990, p. 3). They are now widely regarded as the fundamental cause

---

\*Professor of Development Economics at IDPM, and Associate Director at the Brooks World Poverty Institute (BWPI), University of Manchester, United Kingdom. I thank the co-managing editor, Maria Socorro Bautista, and the two referees for their helpful comments, as well as the discussants in the *Asian Development Review* workshop held in Manila in March 2013.

of economic growth—the fundamental cause being “the factors potentially affecting why societies make different technology and accumulation choices” (Acemoglu 2009, p. 20).

As the recent literature on the causes of growth makes clear, better regulations and laws provide firms with incentives to invest in productive activities and to develop new goods and production technologies. This leads to greater factor accumulation and technological change (Hall and Jones 1999; Acemoglu, Johnson, and Robinson 2005). However, whether well-functioning institutions can also be regarded as key determinants of inclusive growth is an issue that has received little attention in the academic and policy literature. It is not obvious that the growth process engendered by better institutions will be inclusive of the poor, and whether institutional improvements such as better protection of the rights of private investors will be poverty and inequality reducing. For example, Kraay (2006) finds that improvements in the quality of institutions can lead to greater pro-poor growth, while Amendola, Easaw, and Savoia (2013) show that stronger property rights can exacerbate inequality. Therefore, the inclusiveness of growth processes that are caused by better quality institutions are a matter of conceptual and empirical debate.

Parallel to the developments in our theoretical understanding of the causes of growth, there has been a realization in recent years that the emphasis in the previous growth empirics literature on long-run growth or levels of income (such as in the report of the Commission for Growth and Development 2008) is not compatible with the “stylized facts” of economic growth (Pritchett 2000). As Jones and Olken (2008, p. 582) point out, “almost all countries in the world have experienced rapid growth lasting a decade or longer, during which they converge towards income levels in the United States.” Conversely, nearly all countries have experienced periods of abysmal growth. Circumstances or policies that produce 10 years of rapid economic growth appear easily reversed, often leaving countries no better off than they were prior to the expansion.

Long-run growth averages within countries mask distinct periods of success and failure, and while the growth process of all “developed” economies is well characterized by a single growth rate and a “business cycle” around that trend (at least until the recent crises), this is not true of most countries in the world (Kar et al. 2013). Massive and discrete changes in growth are common in developing countries, and most developing countries experience distinct growth episodes: growth accelerations and decelerations or collapses (Jerzmanowski 2006). The recent empirical literature has highlighted the need to differentiate between different phases of growth in a particular country—that is, our understanding of the causes of growth needs to take into account the fact that the causes of growth accelerations may well be different from the factors that maintain growth, once it has ignited in the country (Rodrik 2005).

In this paper, we provide a conceptual framework for understanding the causes of inclusive growth, drawing from both the theoretical literature on institutions and

the empirical literature on growth phases. We argue that the institutional preconditions of early-stage growth accelerations (that is, when a country has begun to witness positive growth after a prolonged period of stagnation or collapse) may be such that inclusivity of growth may not be particularly evident. During a growth acceleration, formal institutions are either non-existent or function ineffectively. Informal institutions, repeated bilateral relations between politicians and bureaucrats on one hand and investors on the other, solve the credible commitment problem that can lead to investment and growth. However, these informal institutions by their nature are not inclusive and favor certain firms and households over others. As a consequence, growth accelerations are unlikely to be inclusive.

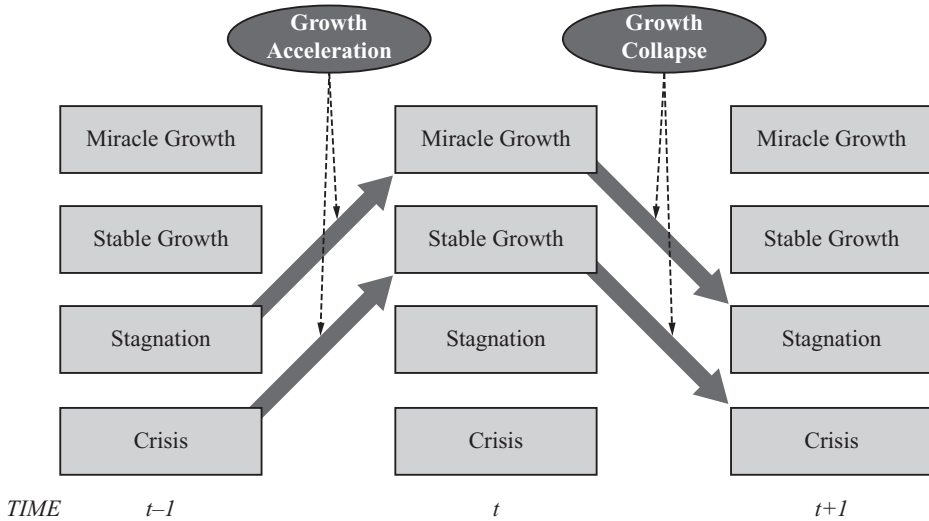
On the other hand, inclusive growth is more likely to result when a country is in growth maintenance phase—that is, when growth rates are positive for some time—especially if inclusive formal economic and political institutions are to emerge in the country. The emergence of inclusive formal institutions not only leads to a greater likelihood that growth will be maintained, but will also ensure that economic growth is broad-based (Acemoglu and Robinson 2012). We then present empirical evidence that supports our main theoretical propositions using a panel of 42 countries for which we have data on poverty, inequality, and institutional quality for the period 1984–2010.

The rest of the paper is as follows. Section II conceptualizes economic growth as transitions between growth phases, differentiating between the determinants of growth accelerations and of growth maintenance. Section III draws from the recent theoretical literature on institutions and economic growth to obtain testable hypotheses on the institutional preconditions of inclusive growth across growth phases. Section IV examines the behavior of poverty and inequality across different growth phases to see whether the outcomes of inclusive growth differ across these phases. Section V provides a descriptive analysis of the relationship between institutions and the inclusiveness of growth across growth phases. Section VI tests our main hypotheses using econometric analysis. Section VII concludes.

## II. Understanding Economic Growth as Transitions in Growth Phases

As the recent empirical literature on economic growth shows, economic growth in many developing countries involves discrete and quantitatively massive transitions between periods of high growth, periods of negative growth, and periods of stagnation. To fix our ideas on transition paths around growth regimes, we provide a simple sketch of these transition paths in Figure 1. Using a rough and ready way to demarcate growth regimes, we classify growth regimes into four categories: (i) a growth regime which we call “miracle growth,” where the average increase in per capita income is 5% per annum or more; (ii) a growth regime which we call “stable growth,” where the average increase in per capita income is between 0% and 5% per

Figure 1. Transition Paths between Growth Phases



Source: Author's representation.

annum; (iii) a growth regime which we call “stagnant growth,” where the average increase in per capita income is around 0% per annum; and (iv) a growth regime which we call “growth crisis,” where the average change in per capita income is negative.

Figure 1 makes clear that a complete characterization of the growth process in any particular country needs an understanding of the factors that lead to growth acceleration (that is, the transition from stagnation or crisis to stable growth or miracle growth) as well as the factors that lead to the avoidance of growth collapses and the maintenance of positive growth (that is, the ability of the country to stay in stable growth or miracle growth in consecutive periods). It is not obvious that the factors leading to growth acceleration will lead to growth maintenance as well. As Rodrik (2005, p. 3) argues:

Igniting economic growth and sustaining it are somewhat different enterprises. The former generally requires a limited range of (often unconventional) reforms that need not overly tax the institutional capacity of the economy. The latter challenge is in many ways harder, as it requires constructing a sound institutional underpinning to maintain productive dynamism and endow the economy with resilience to shocks over the longer term.

Once we view economic growth as transitions between the above growth phases and, in particular, the transitions from crisis/stagnant growth to stable/miracle

growth, the key questions that need to be asked relate to: (i) the institutional determinants of growth acceleration and how they differ from the institutional determinants of growth maintenance; and (ii) how poverty and inequality behave during growth accelerations and growth maintenance. We turn to these two issues in the next two sections.

### III. The Institutional Determinants of Inclusive Growth

A recent set of papers has tried to go beyond the proximate determinants of economic growth such as macroeconomic stability and trade openness to study the fundamental causes of economic growth across countries, and in particular, the importance of economic and political institutions (most notably, Acemoglu, Johnson, and Robinson 2001). These papers have mostly focused on the institutional determinants of economic growth and not on whether these institutional factors may affect the inclusiveness of growth. Nor have they distinguished between different phases of economic growth—in particular, between growth acceleration and growth maintenance. In this section, we review the literature on institutions and growth and explore the possible implications of this literature for our understanding of the institutional determinants of inclusive growth. In particular, we ask whether the nature of growth with respect to its inclusiveness will be different during early stage growth accelerations compared to phases when growth has already ignited and is being maintained.

Acemoglu and Robinson (2008, 2012) have provided an influential theoretical argument on why institutions can be seen as fundamental causes of economic growth. In their theory, economic growth may accelerate initially under extractive economic institutions such as insecure property rights and regulations that limit entry to markets and extractive political institutions that concentrate power in the hands of a few with limited checks and balances. However, it is unlikely for economic growth to be maintained and be broad-based without the emergence of inclusive economic and political institutions. Inclusive economic institutions feature secure property rights for the majority of the population (such as smallholder farmers and small firms), law and order, markets that are open to relative free entry of new businesses, state support for markets (in the form of public goods provision, regulation, and enforcement of contracts), and access to education and opportunity for the great majority of citizens. Inclusive political institutions allow broad participation of the citizens of the country, uphold the rule of law, and place constraints and checks on politicians along with the rule of law.

Once inclusive economic and political institutions emerge, economic growth may be maintained for a long time. However, political and economic elites may not have a strong incentive not to change extractive institutions if they personally benefit from the presence of these institutions. In contrast, inclusive and political

institutions will be more likely to prevail once they emerge. This is true because with the emergence of such institutions (e.g., democratization and secure property rights for the majority of the population), strong economic performance will be the likely result, reinforcing the welfare-enhancing effects of these institutions. The persistence of extractive institutions may explain why developing countries see boom–bust growth, as these institutions are not likely to lead to long-run sustained growth. Moreover, extractive institutions by their very nature are not conducive to inclusive growth processes.

Sen (2013) argues that the institutional determinants of early-stage growth accelerations may be different from the institutional determinants of growth maintenance. When a country has witnessed a prolonged period of stagnation or crisis previous to an acceleration in economic growth, formal institutions are either not present or, when present, are weakly enforced. Informal institutions—bilateral repeated relationships between politicians and investors where the politician protects the investor from expropriation of his profits in return for rents—may help solve the credible commitment problem in the absence of strong formal institutions and may get economic growth started (Grief 1993). A similar point is made by Pritchett and Werker (2013), who argue that a move from “disordered deals” to “ordered deals” that are available to investors—where deals are personalized relationships between economic agents, and the move from disordered to ordered deals is a shift from unpredictable to more predictable relationships—are both necessary and sufficient for economic growth to accelerate, and by De Dios and Ducanes (2013) who argue that different types of institutions may be necessary at different levels of economic development for a particular country.<sup>1</sup>

However, for economic growth to be maintained, formal institutions need to emerge and/or be properly enforced. Also, personalized relationships between politicians and investors should not be confined to a few investors, but be made available to a wider set of investors. Pritchett and Werker (2013) call this a move from “closed” to “open” deals.

An important implication of the earlier discussion is that the growth processes associated with informal institutions or “ordered deals” are unlikely to be inclusive, as the very nature of these institutions and deals implies that they are exclusionary, possibly leaving out large parts of the productive poor. Thus, it can be hypothesized that the process of growth acceleration will not be necessarily inclusive, and that more inclusive processes of growth may have to wait until the economy enters a growth maintenance regime. Whether economic growth is inclusive in the growth maintenance phase will depend on the emergence of inclusive economic and political institutions—the greater the degree of inclusivity of these institutions, the more inclusive economic growth will be.

---

<sup>1</sup>For a similar argument in the context of economic development, see North, Wallis, and Weingast (2009).

The rather sparse literature on the stylized facts of pro-poor growth also helps us to understand the nature of poverty dynamics around growth traverses. While the positive relationship between economic growth and poverty reduction (if measured using the headcount ratio) is clearly seen in the cross-country data (Ravallion 2012), poverty reduction is more likely to occur when economic growth occurs in long spells rather than in short spells. This suggests that a move from a stagnant/crisis growth regime to a stable/miracle growth regime is not enough for poverty reduction unless the country stays in the stable/miracle growth regime for some time—that is, if the country avoids a growth decline in the initial period following a growth acceleration.

There is now an emerging quantitative literature on the determinants of growth accelerations and why some countries maintain high growth while other countries witness growth collapses. With respect to growth accelerations, Hausmann, Pritchett, and Rodrik (2005, p. 328) find that standard growth determinants such as major changes in economic policies, institutional arrangements, political circumstances, or external conditions “do a very poor job of predicting the turning points.” They argue that growth accelerations are caused predominantly by idiosyncratic and often small-scale changes.

Pritchett (2000) points out that slow-moving determinants of growth, such as improvements in the quality of institutions, or time-constant factors, such as geography, are less likely to explain the frequent shifts from one growth phase to another that we observe in many developing countries. Jones and Olken (2008) show that changes in institutional quality are not associated with either growth accelerations or declines, where institutional quality is measured by a lower level of corruption and better rule of law.

On the other hand, Berg, Ostry, and Zettelmeyer (2012) find that growth duration (that is, the avoidance of growth collapses) is positively related to the presence of democratic political institutions in the country, along with the degree of equality of income distribution. Jerzmanowski (2006) finds that better institutional quality improves the possibility that a country will remain in a stable or miracle growth phase and will be less likely to suffer a growth collapse. Finally, using cross-country panel data, Sen (2013) shows that the institutional determinants of growth accelerations are different from those of growth maintenance and that improvements in formal institutions are unable to explain growth accelerations. These findings suggest that growth accelerations may occur in countries that have weak institutions, but at the same time, weak institutions may limit the sustainability or maintenance of economic growth.

However, these studies do not look at the relationship between institutional quality and the inclusivity of growth accelerations and growth maintenance. We examine this relationship later in the paper. But first, we examine whether poverty and inequality—the two critical dimensions of inclusive growth—differ across the growth acceleration and growth maintenance phase.

#### IV. Patterns in Poverty and Inequality in Growth Phase Transitions

In this section, we examine the behavior of inclusive growth during growth acceleration and during growth maintenance phases. We take inclusive growth to be a process of growth that leads to lower poverty and/or less inequality.<sup>2</sup> As Klasen (2010) notes, there are conflicting definitions of inclusive growth, with some definitions using a process-oriented approach and others using an outcome-oriented approach (e.g., Ali and Son 2007, McKinley 2010).<sup>3</sup> Our definition is outcome oriented and mostly guided by the availability of comparable data. The aim is to examine how inclusive growth has been for as many countries as possible for the longest sample period. Since we are interested in understanding the relationship between institutions and inclusive growth across different growth phase transitions within countries, we are similarly constrained by the availability of reliable time-series data on institutions.

For the poverty and inequality data, we use the *World Development Indicators* from the World Bank. We draw data on purchasing power parity GDP from the Penn World Tables. These are available for a subset of the countries from 1982 in most cases. Time-series data on institutions are obtained from the International Country Risk Guide (ICRG) database widely used in the institutions and growth literature.<sup>4</sup> The first year of the data is 1984 and the last is 2010.

We first need to identify years comprising growth breaks for our sample of countries for which we have comparable poverty and inequality data. We use the years of growth breaks that are provided in Kar et al. (2013), who use a combination of a statistical procedure and a filter-based approach to identify the breaks. We provide details of this methodology in Appendix 1. The years of growth breaks for the countries for which we have poverty and inequality data before and after the break are presented in Appendix 2.

For the poverty measure, we use the income share of the bottom 20% of the income distribution and the headcount ratio (in percent of the population) at \$1.25 a day. For the inequality measure, we use the ratio of income share of the bottom 10% to the income share of the top 10% and the Gini coefficient. For the

---

<sup>2</sup>In our econometric analysis, we will use a measure of inclusive growth, which is the average of poverty and inequality. This would imply that an episode of economic growth that reduces poverty but increases inequality will not be considered as an episode of inclusive growth.

<sup>3</sup>Some definitions of inclusive growth take it to be an increase in the equality of opportunity (e.g., Ali and Zhuang 2007, Sugden 2012). However, in our view, greater equality of opportunity is a determinant of inclusive growth and a consequence of greater inclusiveness of institutions but is not inclusive growth per se. It should also be noted that we do not include nonmaterial dimensions of inclusive growth such as expanded education and health in our measure (e.g., Sugden 2012, Rauniyar and Kanbur 2010), as the institutional determinants of inclusive growth mostly relate to the material dimensions of inclusive development.

<sup>4</sup>A vast number of studies have used these measures in testing for the effects of institutions on economic growth. Prominent among them are Knack and Keefer (1995); Hall and Jones (1999); Acemoglu, Johnson, and Robinson (2001); Glaeser et al. (2004); and Rodrik, Subramanian, and Trebbi (2004).



institutional quality measures, we use the degree of corruption, rule of law,<sup>5</sup> and democratic accountability. The rule of law captures to some degree the inclusiveness of economic institutions—a higher prevalence of law and order would imply that more households and firms would be able to engage in economic transactions (Dixit 2009), while democratic accountability captures the inclusivity of political institutions. The degree of corruption captures the overall institutional environment in the country in question.

We now examine the trends in the poverty and inequality measures for a sample of countries for which we have identified the year of growth acceleration and the subsequent period of growth maintenance. To study the behavior of poverty and inequality before and after growth acceleration and during growth maintenance, we can only use the countries listed in Appendix 2 for which we have at least one set of observations on poverty and inequality before the year of growth acceleration and another set of observations during or after the growth acceleration.<sup>6</sup> We have 24 countries that match this criterion.<sup>7</sup> A positive feature of the countries in our sample is that they are drawn from all regions of the developing world and can be said to provide a representative picture of inclusive growth patterns during growth accelerations.

Table 1 presents the annual percentage change in the income share of the bottom 20% of the income distribution (column 1), the headcount ratio at \$1.25 a day (column 2), the ratio of top to bottom 10% of the income distribution (column 3), and the Gini coefficient (column 4) for the 24 sample countries during their growth acceleration phase. We also compute three summary statistics that capture the responsiveness of poverty and inequality to the change in the growth rate during the growth acceleration phase.<sup>8</sup> The first statistic—the percentage change in the income share of the bottom 20% (as in column 1) to the change in the growth rate—measures the response of income shares of the bottom 20% of the income distribution to a growth acceleration (column 5). The second statistic—the percentage change in the headcount ratio (as in column 2) to the change in the growth rate—measures the response of poverty to a growth acceleration (column 6). The third statistic—the percentage change in the Gini coefficient (as in column 4) to the change in the growth rate—measures the response of inequality to a growth acceleration (column 7).

---

<sup>5</sup>The rule of law measure in ICRG comprises two subcomponents: the law subcomponent, which is a measure of the strength and impartiality of the legal system, and the order subcomponent, which is an assessment of the popular observance of the law.

<sup>6</sup>For poverty and inequality data before the growth acceleration year, we choose the year for the data which is at least 3 years before the year of acceleration, and for the poverty and inequality data during and after the growth acceleration, we choose the year which is not more than 8 years after the growth acceleration year. It should be noted that our choice of years for the data is constrained by the lack of available data for the countries in our sample.

<sup>7</sup>The years for the pre-acceleration poverty and inequality data are given in Appendix 3a.

<sup>8</sup>We obtain the pre-break and post-break growth rates from Kar et al. (2013). These are provided in column 8 of Table 1. The growth rates are ordinary least squares growth rates, where GDP per capita is regressed on a linear time trend and a constant.

Table 1. Behavior of Poverty and Inequality during Growth Accelerations (GA)

Countries	Annual Change							Change in Growth Rate during GA (8)
	Income Share, Bottom 20% (1)	HCR, \$1.25 a day (- means decrease) (2)	Ratio of Income Share, Top 10% to Bottom 10% (3)	Gini (4)	Income Share of Bottom 20% Response to GA (5)	HCR Response to GA (6)	Gini Response to GA (7)	
Bangladesh	-2.6	-3.6	6.2	4.8	-1.14	-1.55	2.68	2.3
Brazil	2.2	-3.1	-3.3	-0.1	1.48	-2.06	-2.21	1.5
PRC	-1.4	-0.1	3.7	2.9	-0.70	-0.05	1.83	2.0
Colombia	0.2	3.2	0.1	0.5	0.08	0.08	0.04	3.2
Costa Rica	0.2	3.2	0.1	0.5	-2.12	1.00	0.04	3.8
Dominican Republic	-8.1	-2.8	18.5	6.1	0.26	-0.75	4.86	3.6
Ecuador	0.9	-32.0	2.8	0.6	-4.55	-8.88	0.77	2.7
Guatemala	-12.5	-14.5	19.3	1.1	-3.20	-3.72	4.96	3.9
India	0.5	-1.4	-0.8	-0.6	0.31	-0.90	-0.52	1.5
Iran	3.2	-2.1	-5.6	-2.1	0.32	-0.21	-0.55	10.2
Jordan	-3.9	n/a	8.6	3.7	-0.53	n/a	1.18	7.3
Madagascar	0.8	-3.2	3.0	2.0	0.31	-1.20	1.12	2.7
Malaysia	2.2	-9.9	-4.1	-1.1	0.37	-1.68	-0.70	5.9
Mexico	6.2	-23.3	-11.6	2.0	1.94	-7.29	-3.62	3.2
Morocco	-0.1	12.7	0.5	0.1	-0.02	3.84	0.14	3.3
Nicaragua	5.0	-7.6	-8.4	-2.2	0.68	-1.03	-1.14	7.4
Nigeria	-6.8	2.3	11.1	2.5	-0.82	0.28	1.33	8.3
Panama	10.6	-7.6	-31.7	-0.4	2.16	-1.56	-6.47	4.9
Paraguay	3.8	3.5	-3.5	-0.2	0.96	0.87	-0.88	4.0
Peru	-0.1	1.6	-0.2	-0.2	-0.01	0.24	-0.03	6.9
Poland	-1.0	-24.1	0.7	0.9	-0.17	-3.95	0.11	6.1
Romania	-2.3	60.6	5.5	3.8	-0.28	7.48	0.68	8.1
Tanzania	-0.2	1.9	0.2	0.3	-0.04	0.48	0.04	4.0
Zambia	10.8	-1.7	-14.1	-1.8	1.52	-0.24	-1.98	7.1
<b>Average</b>	<b>-0.2</b>	<b>-1.3</b>	<b>0.6</b>	<b>1.1</b>	<b>-0.13</b>	<b>-0.56</b>	<b>0.34</b>	<b>4.7</b>

GDP = gross domestic product, HCR = headcount ratio, n/a = not available, PRC = People's Republic of China.

Notes:

- (i) Annual change is equal to log change/T where T is the number of years between the 2 years before and after the acceleration.
- (ii) Income share of bottom 20% response to GA is column (1) as a ratio of column (8).
- (iii) HCR response to GA is column (2) as a ratio of column (8).
- (iv) Gini response to GA is column (4) as a ratio of column (8).
- (v) Change in growth rate during GA is the difference between the pre- and post-break growth rate of GDP per capita obtained from Kar et al. (2013).

Sources: World Bank (2013); Kar et al. (2013); author's calculations.

We find that for several of the countries, the response of the income shares of the bottom 20% to a growth acceleration was such that the bottom 20% were *worse off* during the growth acceleration: for example, Bangladesh, the People's Republic of China (PRC), Dominican Republic, Guatemala, Jordan, Nigeria, Poland, and

Romania. In contrast, there is more evidence of a decrease in headcount poverty during a growth acceleration: 15 out of the 23 countries (Jordan does not have data on the headcount poverty ratio) witnessed a decline in headcount poverty during a growth acceleration. However, when we observe the behavior of inequality as captured by the Gini, we find that several countries witnessed an increase in inequality in the growth acceleration—a total of 14 countries.

If we were to use the headcount ratio as the metric of poverty and the Gini coefficient as the metric of inequality, only 8 out of 24 countries—one-third of the sample—witnessed both a fall in poverty and inequality during growth accelerations. On average, the share of the bottom 20% and the headcount ratio fell by 0.2% and 1.3% per annum, respectively, and the Gini coefficient increased by 1.1% per annum for our sample of countries. This implies that if we use the income share of the bottom 20% of the income distribution as the metric of poverty and the Gini coefficient as the metric of inequality, the average country exhibited a *worsening* of inclusive growth during a growth acceleration phase.

Table 2 presents the annual percentage change in the income share of the bottom 20%, the headcount ratio at \$1.25 a day, the ratio of top to bottom 10%, and the Gini coefficient, as well as the three summary statistics as in Table 1, for the same set of countries during their growth maintenance phase.<sup>9</sup> In this case, the three summary statistics provide the response of the income share of the bottom 20%, the headcount ratio, and the Gini coefficient to the magnitude of growth during the growth maintenance phase (column 8 in Table 2).<sup>10</sup> Here, we find many more countries witnessing an increase in the income share going to their bottom 20% (14 countries) as well as a fall in the \$1.25 a day headcount ratio (19 countries). Several countries also witness a fall in inequality, whether measured by the top 10% to bottom 10% shares or by the Gini coefficient (13 countries in the first case, 14 countries in the second case).

There is evidence of a higher degree of inclusive growth in the growth maintenance phase—the income share of the bottom 20% increases by 0.7% per annum on average, the headcount ratio declines, on average, by 6.2% per annum and the Gini falls, on average, by 0.2% per annum. Twelve countries show a decline in both headcount poverty and inequality (as measured by the Gini) during the growth maintenance phase. Whichever metric one uses for poverty (the headcount ratio or

<sup>9</sup>For this exercise, the year of the poverty and inequality data is the last year in the growth maintenance phase for which data was available. The years are provided in Appendix 3b.

<sup>10</sup>We obtain the data on the magnitude of growth during the growth maintenance phase for each country from Kar et al. (2013). The magnitude of growth is calculated by taking the difference between the actual growth rate and the predicted growth rate if growth had not accelerated, and timing this with the duration of the growth phase. Predicted growth rate is obtained by running a separate prediction regression for each growth transition and predicting a country's growth rate on the basis of its previous growth and its level of per capita income. See Kar et al. (2013) for further details and justification of the manner growth magnitudes are calculated. It should be noted from Table 2 that the PRC witnesses the largest magnitude of growth followed by Malaysia, Iran, and India. This is a product of high growth rates during growth maintenance (relative to past growth) and the long duration of the growth phase in these countries.

Table 2. Behavior of Poverty and Inequality during Growth Maintenance (GM)

Countries	Annual Change							Magnitude of Growth during GM (8)
	Income Share, Bottom 20% (1)	HCR, \$1.25 a day (- means decrease) (2)	Ratio of Income Share, Top 10% to Bottom 10% (3)	Gini (4)	Income Share of Bottom 20% Response to GM (5)	HCR Response to GM (6)	Gini Response to GM (7)	
Bangladesh	0.2	-2.4	-0.4	-0.3	0.02	-0.22	-0.03	11
Brazil	3.1	-7.7	-5.0	-1.4	1.56	-3.87	-0.68	2
PRC	-3.2	-10.0	6.1	1.5	-0.03	-0.09	0.01	114
Colombia	5.3	-12.5	-13.9	-1.2	0.66	-1.57	-0.15	8
Costa Rica	0.4	-6.3	-0.4	0.5	0.04	-0.63	0.05	10
Dominican Republic	0.6	-5.2	-1.8	-0.4	0.02	-0.16	-0.01	32
Ecuador	6.1	-15.0	-10.4	-1.8	0.68	-1.66	-0.20	9
Guatemala	2	-5.9	-2.7	-0.4	0.67	-1.97	-0.12	3
India	-0.4	-1.4	1.1	0.7	-0.01	-0.03	0.01	51
Iran	1.3	-6.1	-2.3	-0.8	0.02	-0.11	-0.01	55
Jordan	1.3	-16.5	-2.5	-1.1	0.1	-1.27	-0.08	13
Madagascar	-2.6	3.6	-0.1	-1.4	-2.56	3.62	-1.37	1
Malaysia	-0.3	n/a	0.2	-0.1	-0.01	0	0	63
Mexico	-1.6	-6.5	3.7	-0.3	-1.57	-6.53	-0.29	1
Morocco	0	-12.3	1.3	0.4	0	-0.88	0.03	14
Nicaragua	2.2	-0.7	-4.5	-1.6	0.22	-0.07	-0.16	10
Nigeria	0.5	0.5	-0.1	0.5	0.27	0.26	0.23	2
Panama	3.7	-6.5	-5.9	-1.1	0.12	-0.22	-0.04	30
Paraguay	3.4	-9.9	-5.4	-1.0	0.11	-0.33	-0.03	30
Peru	-1.4	-6.1	2.3	0.4	-0.05	-0.23	0.02	26
Poland	-1.0	3	2.6	1.5	-0.02	0.07	0.03	46
Romania	-0.4	-16.6	0.8	0.4	-0.01	-0.46	0.01	36
Tanzania	-1.1	-3.1	2.4	1.2	-0.07	-0.20	0.07	16
Zambia	-1.6	1	2.1	0.9	-0.10	0.06	0.06	16
<b>Average</b>	<b>0.7</b>	<b>-6.2</b>	<b>-1.4</b>	<b>-0.2</b>	<b>0.01</b>	<b>-0.69</b>	<b>-0.11</b>	<b>25</b>

HCR = headcount ratio, n/a = not available, PRC = People’s Republic of China.

Notes:

- (i) Annual change is equal to log change/T where T is number of years between the 2 years before and after growth maintenance. The years for each country are provided in Appendix 3b.
- (ii) Income share of bottom 20% response to GM is column (1) as a ratio of column (8).
- (iii) HCR response to GM is column (2) as a ratio of column (8).
- (iv) Gini response to GM is column (4) as a ratio of column (8).
- (v) Magnitude of growth during GM (column [8]) is obtained from Kar et al. (2013), and is the product of the difference between actual and predicted growth if the GM had not occurred and the duration of the GM phase (in years). The figures in col. (8) are in percentages.

Sources: World Bank (2013); Kar et al. (2013); author’s calculations.

the income share of the bottom 20%) and using the Gini as the metric for inequality, the average country exhibits inclusive growth during the growth maintenance phase.

## V. The Relationship between Institutions and the Inclusiveness of Growth

In this section, we provide a descriptive analysis of the relationship between institutional quality and the inclusiveness of growth as a precursor to the econometric analysis. Our core hypotheses are as follows: (i) that there will not be a significant reduction in poverty and inequality during a growth acceleration, while there may be a more significant reduction of poverty and inequality during a growth maintenance episode; and (ii) that the responsiveness of poverty and inequality will be greater, especially in a growth maintenance phase, if there is an improvement in institutional quality.

We explore these hypotheses in this section using simple bivariate scatter plots of the relationship of poverty and inequality response to growth acceleration (GA) and growth maintenance (GM) and changes in our measures of institutional quality during GA and GM.<sup>11</sup> In Figures 2 and 3, we plot the relationship between headcount poverty and inequality (Gini) responses to GA and changes in corruption, rule of law, and democratic accountability during a GA phase. In Figures 4 and 5, we plot the relationship between headcount poverty and inequality (Gini) responses to GM and changes in corruption, rule of law, and democratic accountability during a GM phase.

From Figure 2, we find that the relationship between poverty response to GA and changes in corruption, rule of law, and democratic accountability during a GA is either flat or even positive. In the case of inequality response to GA, we find that its relationship with changes in corruption, rule of law, and democratic accountability during a GA is flat or weakly negative (Figure 3). Thus, improvements in institutional quality, wherever they have occurred during GA, do not seem to be strongly associated with declines in poverty and inequality during a GA phase.

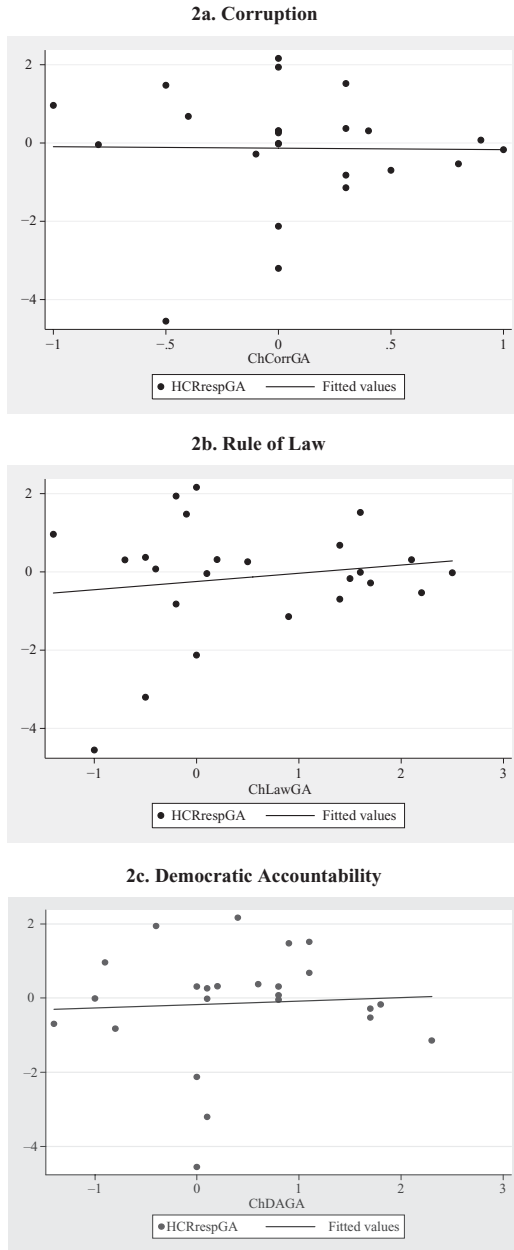
In contrast, when we observe the relationship between the responses of poverty and inequality to GM and institutional change during GM (Figures 4 and 5, respectively), we see that there is a strong negative relationship between poverty response and improvements in democratic accountability (Figure 4c), and between inequality response to a GM and decreases in the degree of corruption (Figure 5a) and improvements in the rule of law (Figure 5b).<sup>12</sup>

In sum, there is suggestive evidence that the behavior of poverty and inequality is different during growth acceleration and growth maintenance and that improvements in institutional quality are more likely to be associated with declines in poverty and inequality during growth maintenance. In the next section, we investigate these relationships more systematically using multivariate regression methods.

<sup>11</sup>As we have annual data on institutional quality from ICRG (unlike the poverty and inequality data), we first take 5-year averages of corruption, rule of law, and democratic accountability before and after the growth break. We then take the difference between the pre-break and post-break 5-year averages.

<sup>12</sup>However, the positive relationship between inequality and democratic accountability in GM is counterintuitive.

Figure 2. Responsiveness of Poverty (Headcount Ratio, HCR) to Institutional Change during Growth Acceleration (GA)



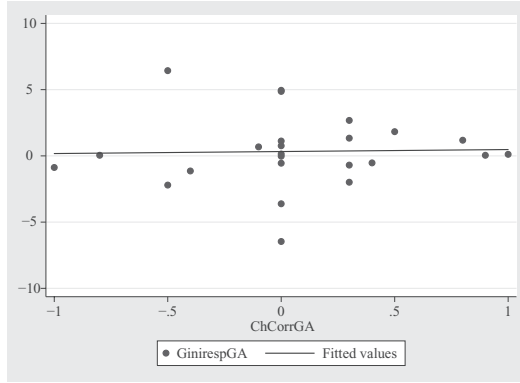
ChCorrGA = change in corruption measure during GA, ChDAGA = change in democratic accountability measure during GA, ChLawGA = change in rule of law measure during GA, HCRrespGA = HCR response to GA.

Note: Fitted values are obtained from ordinary least squares regression of HCRrespGA to changes in institutional variables.

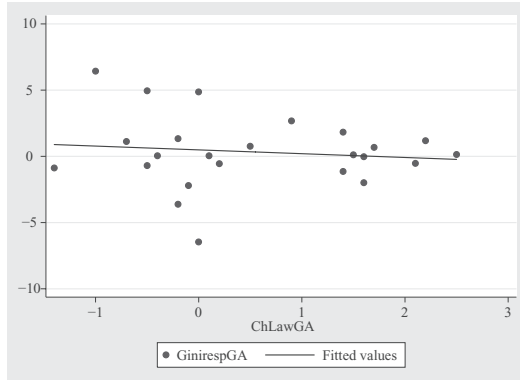
Source: Author's calculations.

Figure 3. Responsiveness of Inequality (Gini) to Institutional Change during Growth Acceleration (GA)

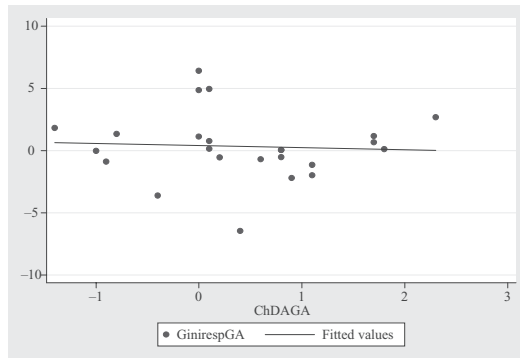
3a. Corruption



3b. Rule of Law



3c. Democratic Accountability

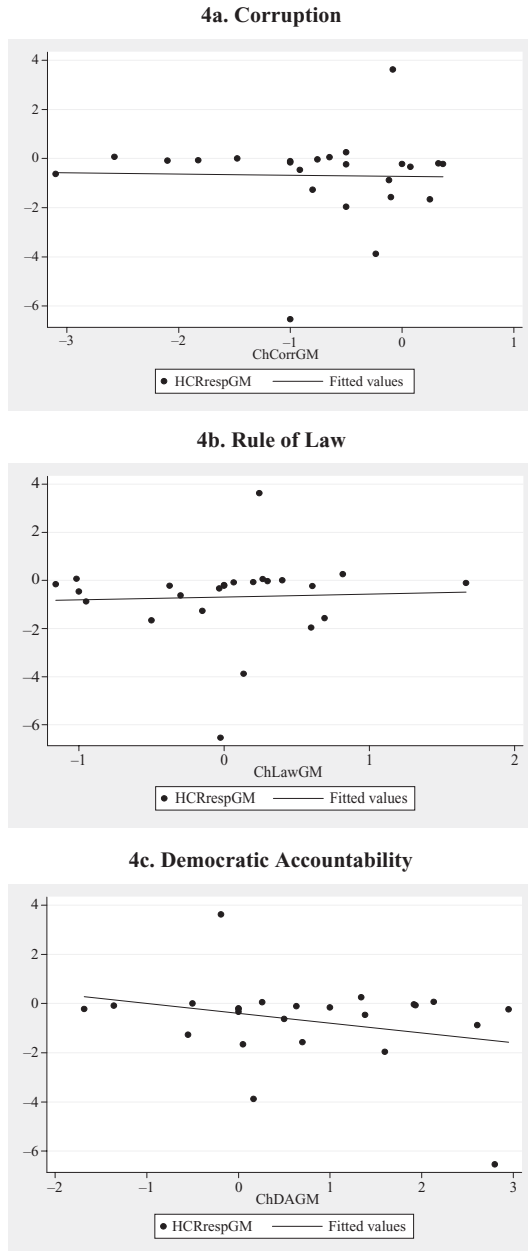


ChCorrGA = change in corruption measure during GA; ChLawGA = change in rule of law measure during GA, ChDAGA = change in democratic accountability measure during GA, GinirespGA = Gini response to GA.

Note: Fitted values are obtained from ordinary least squares regression of GinirespGA to changes in institutional variables.

Source: Author's calculations.

Figure 4. Responsiveness of Poverty (Headcount Ratio) to Institutional Change during Growth Maintenance (GM)

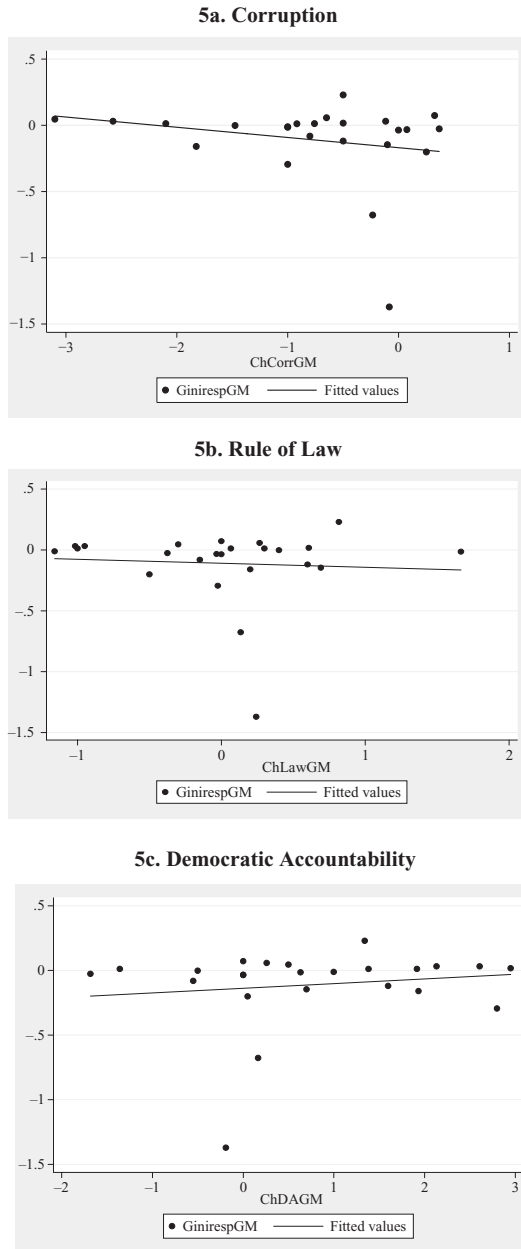


ChCorrGM = change in corruption measure during GM, ChDAGM = change in democratic accountability measure during GM, ChLawGM = change in rule of law measure during GM, HCRrespGM = HCR response to GM. Note: Fitted values are obtained from ordinary least squares regression of HCRrespGM to changes in institutional variables.

Source: Author's calculations.



Figure 5. Responsiveness of Inequality (Gini) to Institutional Change during Growth Maintenance (GM)



ChCorrGM = change in corruption measure during GM, ChDAGM = change in democratic accountability measure during GM, ChLawGM = change in rule of law measure during GM, GinirespGM = Gini response to GM.

Note: Fitted values are obtained from ordinary least squares regression of GinirespGM to changes in institutional variables.

Source: Author's calculations.

## VI. Econometric Analysis and Results

In this section, we undertake econometric analysis to assess the validity of our main hypotheses. Reiterating our main theoretical propositions, we expect that inclusiveness of growth will be less evident during growth accelerations; that growth maintenance phases will be more likely to lead to inclusive growth; and that the extent of inclusive growth during growth maintenance will be positively associated with improvement in the inclusivity of institutions, though less so in the case of growth acceleration.

To test these hypotheses, we first construct a composite variable for inclusive growth (*POVINQ*) which is the sum of the headcount ratio and the Gini. The idea behind this simple measure is that it captures both the poverty and inequality dimensions of inclusive growth. Using this measure, a growth episode can be termed inclusive if both poverty and inequality are falling, or if the fall in poverty is greater than the increase in inequality where both variables are moving in different directions (and vice versa). We then run regressions of the following form:

$$POVINQ_{it} = A_1 + A_2 * GA_{it} + A_3 * GM_{it} + A_4 * GA_{it} * INST_{it} + A_5 GM_{it} * INST_{it} + A_6 * INST_{it} + A_7 Z_{it} + error_{it} \quad (1)$$

where *POVINQ* is our measure of inclusive growth, subscript *i* denotes the country, and subscript *t* denotes time.

We use panel data for countries where we have at least three observations of poverty data (one before the acceleration, one after the acceleration, and one much later during growth maintenance) and where we have data on institutions from 1984 to 2010 (we exclude all advanced market economies). There are 42 countries in all including countries that did not see a growth acceleration during 1984–2010 and countries that had growth maintenance for all the years for which we have poverty and inequality data.

The variable *GA* captures the growth acceleration phase and is a dummy variable that takes the value 1 for the year when growth acceleration occurred, 0 otherwise. The variable *GM* captures the growth maintenance phase and is a dummy variable that takes the value 1 for all intervening years between a growth acceleration and a growth decline. If there had been no growth decline following growth acceleration, the dummy remains equal to 1 for the rest of the period of analysis. The variable *INST* is a measure of institutional quality. As in the previous section, we use 3 different measures: corruption (higher values denote less corruption), rule of law, and democratic accountability. We also interact *GA* and *GM* with our different institutional quality variables—this captured by the interaction variables *GA \* INST* and *GM \* INST*. Finally, we let *Z* be a vector of control variables. Our unit of time is one year, and the panel is unbalanced due to the lack of data on poverty and inequality for some country-years.

Based on our hypotheses, we would expect that  $A_2$  to be either statistically insignificant or negative and significant, while  $A_3$  would be negative and significant. Moreover, if  $A_2$  and  $A_3$  turn out to be both negative, then  $A_3$  would likely be greater in magnitude than  $A_2$ . We expect  $A_4$  to be statistically insignificant and  $A_5$  to be negative and significant, as we expect that improvements in institutional quality would not affect inclusive growth in a growth acceleration phase, but would do so in a growth maintenance phase. The direct effect of the institutional quality variable on inclusive growth can be expected to be positive, so the coefficient  $A_6$  would be negative and statistically significant.

We use three controls that are standard in the growth/poverty/inequality empirics literature: (i) the ratio of government consumption spending to GDP (*GOVT-CONS*); (ii) the openness of the economy, as measured by the ratio of total exports and imports of goods and services to GDP (*OPEN*); and (iii) a dummy for oil-exporting economies (*OILEXP*). Government social expenditures (e.g., on education and health) may lead to more inclusive growth. However, reliable panel data on government social expenditure is not available, and we are confined to using government consumption expenditures as a proxy (Iradian 2005). Greater openness may lead to more inclusive growth, though this has been debated (Winters, McCulloch, and McKay 2004). Oil-exporting countries would have a higher share of revenue from natural resources, and this may allow them to spend more on the social sector, leading to more inclusive growth. However, this may also bias growth away from labor-intensive sectors, which may lead to less inclusive growth (Sachs and Warner 1999).<sup>13</sup>

We present our results in Table 3. In the first column, we regress *POVINQ* on *GA* and *GM*, along with the control variables—*GOVTCONS*, *OPEN*, and *OILEXP*. We use ordinary least squares estimation, with standard errors corrected for country-level clustering.<sup>14</sup> We find the growth maintenance phase to be associated with declines in inclusive growth, but not the growth acceleration phase.

In the second column, we include the corruption variable (*CORR*) and its interaction with *GA* and *GM*. While corruption does not have a direct effect on inclusive growth (in that a lower degree of corruption does not lead to faster declines in poverty/inequality), we find that countries that had seen declines in the degree of corruption in their growth maintenance phase also witnessed declines in poverty/inequality. That is, the coefficient on the interaction term ( $GM * CORR$ ) is negative and statistically significant. In contrast, a decline in the degree of corruption

<sup>13</sup>High levels of literacy are also expected to lead to more inclusive growth. However, the commonly used Barro–Lee data is only available quinquennially, and using this data reduces the number of observations in our panel data considerably from around 350 observations to less than 70.

<sup>14</sup>It should be noted that we cannot include country and year fixed effects. In the case of the former, the *GM* variable will be washed out for countries where growth acceleration occurred at an early stage. In the case of the latter, the *GA* variable will be washed out, as many countries experienced growth accelerations simultaneously.

Table 3. **Regression Results**

Variables	(1)	(2)	(3)	(4)
Constant	69.04*** (19.55)	71.72*** (4.99)	86.32*** (4.89)	71.08*** (5.50)
<i>GA</i>	1.70 (4.20)	-0.70 (1.10)	1.75 (1.18)	-1.40 (1.21)
<i>GM</i>	-3.65** (2.10)	-4.53*** (1.33)	-5.10*** (1.39)	-5.67** (1.41)
<i>CORR</i>		-1.24 (0.85)		
<i>GA * CORR</i>		0.85 (4.91)		
<i>GM * CORR</i>		-3.11* (1.89)		
<i>LAW</i>			-6.17*** (0.90)	
<i>GA * LAW</i>			0.90 (4.65)	
<i>GM * LAW</i>			-3.21** (1.63)	
<i>DA</i>				-0.26 (1.25)
<i>GA * DA</i>				3.02 (4.54)
<i>GM * DA</i>				-3.86** (1.47)
<i>GOVTCONS</i>	-0.51* (0.24)	-0.61* (0.21)	-0.63* (0.22)	-0.62* (0.21)
<i>OPEN</i>	0.01 (0.02)	0.04 (0.03)	0.03 (0.03)	0.04 (0.03)
<i>OILEXP</i>	2.06 (3.62)	2.08 (3.65)	2.16 (4.11)	2.24 (3.87)
R square	0.22	0.31	0.32	0.28
Number of observations	350	350	350	350

\*\*\* = significant at the 1% level, \*\* = significant at the 5% level, \* = significant at the 10% level, CORR = corruption, DA = democratic accountability, GA = growth acceleration, GM = growth maintenance, GOVTCONS = government consumption, LAW = rule of law, OPEN = openness, OILEXP = oil exporter.

Note: The dependent variable is the composite measure of inclusive growth *POVINQ*, the sum of the headcount ratio and the Gini coefficient. Figures in parentheses are t-ratios, with robust standard errors corrected for country-level clustering.

Source: Author's estimates.

in the growth acceleration phase does not seem to be associated with a reduction in poverty/inequality. The coefficient on the interaction term (*GA \* CORR*) is not statistically significant.

In column 3, we include the rule of law (*LAW*) in the regression, by itself and in interaction with *GA* and *GM*. Interestingly, we see that improvements in the rule of law has a direct negative effect on poverty and inequality, as the coefficient on *LAW* is negative and statistically significant. The coefficient on the interaction term

for *GA* and *LAW* is not statistically significant, but the coefficient on the interaction term for *GM* and *LAW* is negative and significant.

Finally, in column 4, we include democratic accountability (*DA*), by itself and in interaction with *GA* and *GM*, and obtain similar results as for corruption and the rule of law. Our results suggest that poverty/inequality reduction is more likely to occur during the growth maintenance phase. In addition, improvements in institutional quality in this phase—whether in the form of lower corruption, greater rule of law, or greater democratic accountability—are likely to contribute to further reduction in poverty/inequality. In contrast, growth acceleration appears unlikely to lead to poverty/inequality reduction, independent of institutional quality improvements.<sup>15</sup>

## VII. Conclusions

The achievement of inclusive growth in the developing world is a significant challenge for policy makers in international development. What are the fundamental causes of inclusive growth, and when may we expect to witness inclusive growth during a growth experience of a particular country? This paper examines the institutional preconditions and argues that the inclusiveness of growth varies across growth phases within countries. It derives some possible testable hypotheses from the recent literature on institutions and provides empirical evidence that support the hypotheses.

When may we expect inclusive growth? It is most likely to be witnessed when economic growth for a particular country has accelerated and the country is in growth maintenance phase and when inclusive institutions have emerged. When may we not expect inclusive growth? It is unlikely to be witnessed at the onset of economic growth, especially if the acceleration in economic growth has been caused by informal or extractive institutions. Our findings imply that from a policy perspective, in countries that have not yet witnessed a growth acceleration or where growth is on a decline, it is arguably more important to get growth started, as the inclusivity of growth may have to come later. Once growth has accelerated, it is important to facilitate the emergence of inclusive institutions as the greater the inclusivity of institutions, the more likely that economic growth will be inclusive.

---

<sup>15</sup>We also do further robustness tests of our results. First, we use different timings of growth accelerations as in Berg, Ostry, and Zettelmeyer (2012) and Jones and Olken (2008). Secondly, we construct a different growth acceleration variable, where the dummy takes the value 1 for the year of the growth acceleration and the 2 years following it. Our results do not change with these changes in the construction of the growth acceleration and maintenance variables. Finally, we calculate *POVINQ* with different weighting given to poverty and inequality with no change in our results.

## References

- Acemoglu, Daron. 2009. *Introduction to Modern Economic Growth*. Princeton: Princeton University Press.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. The Colonial Origins of Comparative Development. *American Economic Review* 91(5): 1369–1401.
- . 2005. Institutions as the Fundamental Cause of Long-Run Growth. In Philippe Aghion and Steven Durlauf, eds. *Handbook of Economic Growth*. pp. 386–472. Amsterdam: Elsevier North-Holland.
- Acemoglu, Daron, and James Robinson. 2008. The Role of Institutions in Growth and Development. Working Paper No. 10. Washington, DC: Commission for Growth and Development.
- . 2012. *Why Nations Fail: The Origins of Power, Prosperity and Poverty*. New York: Random House.
- Ali, Ifzal, and Juzhong Zhuang. 2007. Inclusive Growth: Towards a Prosperous Asia. *ERD Working Paper Series No. 97*. Manila: Asian Development Bank.
- Ali, Ifzal, and Hyun Hwa Son. 2007. Measuring Inclusive Growth. *Asian Development Review* 24(1): 1–31.
- Amendola, Adalgiso, Joshy Easaw, and Antonio Savoia. 2013. Inequality in Developing Economies: the Role of Institutional Development. *Public Choice* 155(1–2): 43–60.
- Bai, Jushan, and Pierre Perron. 1998. Estimating and Testing Linear Models with Multiple Structural Change. *Econometrica* Vol. 66(1): 47–78.
- Berg, Andrew, Jonathan Ostry, and Jeromin Zettelmeyer. 2012. What Makes Growth Sustained? *Journal of Development Economics* 98(2): 149–166.
- Commission for Growth and Development. 2008. *The Growth Report: Strategies for Sustained Growth and Inclusive Development*. Washington, DC: World Bank.
- De Dios, Emmanuel, and Geoffrey M. Ducanes. 2013. Institutions and Governance. In Hal Hill and Maria Socorro Gochoco-Bautista, eds. *Asia Rising: Growth and Resilience in an Uncertain Global Economy*. pp. 49–75. Cheltenham: Edward Elgar.
- Dixit, Avinash. 2009. Governance Institutions and Economic Activity. *American Economic Review* No. 99(1): 5–24.
- Glaeser, Edward, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2004. Do Institutions Cause Growth? *Journal of Economic Growth* 9(3): 271–303.
- Grief, Avner. 1993. Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition. *American Economic Review* 83(3): 525–548.
- Hall, Robert, and Charles I. Jones. 1999. Why Do Some Countries Produce So Much Output per Worker Than Others? *Quarterly Journal of Economics* 114(1): 83–116.
- Hausmann, Ricardo, Lant Pritchett, and Dani Rodrik. 2005. Growth Accelerations. *Journal of Economic Growth* 10(4): 303–329.
- International Poverty Centre (IPC). 2007. Analysing and Achieving Pro-Poor Growth. *Poverty in Focus Policy Brief No.10*. <http://www.ipc-undp.org/pub/IPCPovertyInFocus10.pdf>
- Iradian, Gabris. 2005. Inequality, Poverty and Growth: Cross-Country Evidence. *IMF Working Paper No. WP/05/28*. Washington, DC: International Monetary Fund.
- Jerzmanowski, Michal. 2006. Empirics of Hills, Plateaus, Mountains and Plains: A Markov-Switching Approach to Growth. *Journal of Development Economics* 81(2): 357–385.
- Jones, Ben, and Ben Olken. 2008. The Anatomy of Start–Stop Growth. *Review of Economics and Statistics* 90(3): 582–587.
- Kar, Sabyasachi, Lant Pritchett, Selim Raihan, and Kunal Sen. 2013. *The Dynamics of Economic Growth: A Visual Handbook of Growth Rates, Regimes, Transitions and Volatility*.

- Effective States and Inclusive Development (ESID) Research Centre, University of Manchester. Available: <http://www.effective-states.org/>
- Kerekes, Monika. 2012. Growth Miracles and Failures in a Markov Switching Classification Model of Growth. *Journal of Development Economics* 98(2): 167–177.
- Klasen, Stephan. 2004. In Search of the Holy Grail: How to Achieve Pro-Poor Growth? In Bertil Tungodden, Nicholas Stern, and Ivar Kolstad, eds. *Toward Pro-poor Policies: Aid, Institutions, and Globalization, Proceedings from the Annual World Bank Conference on Development Economics Europe Conference 2003*. pp. 63–94. New York: Oxford University Press.
- . 2010. Measuring and Monitoring Inclusive Growth: Multiple Definitions, Open Questions and Some Constructive Proposals. *ADB Sustainable Development Working Paper Series* No. 12. Manila: Asian Development Bank.
- Knack, Stephen, and Philip Keefer. 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics* 7(3): 207–227.
- Kraay, Art. 2006. When is Growth Pro-poor? Evidence from a Panel of Countries. *Journal of Development Economics* 80(1): 198–227.
- McKinley, Terry. 2010. Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country Progress. *ADB Sustainable Development Working Paper Series* No. 14. Manila: Asian Development Bank.
- North, Douglass C. 1990. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.
- North, Douglass C., John Joseph Wallis, and Barry R. Weingast. 2009. *Violence and Social Orders*. Cambridge: Cambridge University Press.
- Pritchett, Lant. 2000. Understanding Patterns of Economic Growth: Searching for Hills among Plateaus, Mountains and Plains. *World Bank Economic Review* 14(2): 221–250.
- Pritchett, Lant, and Erick Werker. 2013. Developing the Guts of GUT (Grand Unified Theory): Elite Commitment and Inclusive Growth. *ESID Working Paper* No. 16/12. University of Manchester: Effective States and Inclusive Development Research Centre. Available: [www.effective-states.org](http://www.effective-states.org)
- Rauniar, Ganesh, and Ravi Kanbur. 2010. Inclusive Development: Two Papers on Conceptualization, Application, and the ADB Perspective. Asian Development Bank, Manila, Philippines. Available: <http://kanbur.dyson.cornell.edu/papers/ADBCompendiumInclusiveDevelopment.pdf>
- Ravallion, Martin. 2012. Why Don't We See Poverty Convergence? *American Economic Review* 102(1): 504–523.
- Rodrik, Dani. 2005. Growth Strategies. In Philippe Aghion and Steven Durlauf, eds. *Handbook of Economic Growth*. pp. 967–1014. Amsterdam: Elsevier North-Holland.
- Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. 2004. Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development. *Journal of Economic Growth* 9(2): 131–165.
- Sachs, Jeffrey D., and Andrew M. Warner. 1999. The Big Rush, Natural Resource Booms and Growth. *Journal of Development Economics* 59(1): 43–76.
- Sen, Kunal. 2013. The Political Dynamics of Economic Growth. *World Development* 47:71–86.
- Sugden, Craig. 2012. Is Growth in Asia and the Pacific Inclusive? *ADB Economics Working Paper Series* No. 317. Manila: Asian Development Bank.
- Winters, Alan, Neil McCulloch, and Andrew McKay. 2004. Trade Liberalization and Poverty: The Evidence So Far. *Journal of Economic Literature* 42(1): 72–115.
- World Bank. 2013. *World Development Indicators*. Washington, DC.

## Appendix 1: Identifying Breaks in Growth Rates

The empirical literature that studied growth phase transitions can be classified under two distinct approaches: the “filter-based” approach (Hausmann, Pritchett, and Rodrik 2005) and the “statistical break test-based” approach. The former approach identifies growth breaks on the basis of subjectively defined rules, while the latter approach uses estimation and testing procedures that identify growth breaks in terms of statistically significant changes in (average) growth rates. Some studies use a combination of the two approaches.

The contributions that have adopted the statistical approach have mostly used the Bai–Perron methodology (1998) which locates and tests for multiple growth breaks within a time series. In this method, an algorithm first searches all possible sets of breaks (up to a maximum number of breaks) and determines for each number of breaks the set that produces the maximum goodness of fit. The statistical tests then determine whether the improved fit produced by allowing an additional break is sufficiently large, given what may be expected by chance (Jones and Olken 2008). Starting with a null of no breaks, sequential tests of  $k$  versus  $k+1$  breaks allow one to determine the appropriate number of breaks. Bai and Perron (1998) determine critical values for tests of various sizes and employ a trimming parameter, expressed as a percentage of the number of observations, which constrains the minimum distance between two breaks. Examples of the statistical-based method to identify growth breaks are Jones and Olken (2008) and Kerekes (2012).

Both filter-based and statistical-based methods have their limitations. The simple rules that are used in filter-based methods are often ad hoc and downplay the inherent volatility in income data for developing countries. This leads to an identification of a breakpoint in the per capita income series when there actually may be none. A key limitation of the statistical-based method which uses the Bai–Perron tests for structural breaks is that the latter has low power, leading to rejection of structural breaks even when they are “true” breaks.

In order to address the limitations of the filter-based and statistical-based methods, Kar et al. (2013) combine both these methods in a manner that retains the strength of both methods, while attempting to compensate for the weaknesses of each. In order to capture a larger number of “true” breaks than may be provided by the application of the Bai–Perron method, they propose a two-step method that first uses the Bai–Perron estimation technique to identify potential breaks and then uses a “filter” to confirm the genuine breaks.

The first step entails using the Bai–Perron technique to estimate the best “potential” breaks for 125 countries (all countries with population of over a threshold of seven hundred thousand and based on data availability on purchasing power parity GDP per capita since at least 1970 in the Penn World Tables, version 7.1). Kar et al. (2013) assume a minimum distance of 8 years between 2 breaks to minimize the possibility of conflating business cycles with breaks in growth rates (see also Berg, Ostry, and Zettelmeyer 2012). They also assume that countries with 40 years of



data can have a maximum of 2 breaks, countries with 50 years of data can have a maximum of 3 breaks, and countries with 60 years of data can have a maximum of four breaks.

Once the “potential” breaks have been estimated, the second step of the methodology uses the following filter in order to confirm the genuine breaks: (i) if an up break follows another up break or a down break follows another down break, then a 1% change would classify the break as a genuine break; (ii) if an up break follows a down break or a down break follows an up break, then a 3% change would classify the break as a genuine break; and (iii) in case of the first break, since it is not known whether it follows an up break or a down break, a 2% change would classify as a genuine break.

Using this methodology, Kar et al. (2013) find a total of 318 breaks (both up breaks and down breaks) from a group of 125 countries. The identification of breaks in economic growth allows them to identify the years when a particular country is witnessing a growth acceleration or growth deceleration, and if the country has witnessed a growth acceleration previously, how long the country is in a growth maintenance phase—the period between the year of growth acceleration (an up break) and the year of growth deceleration (a down break).

## Appendix 2: Years of Growth Breaks

Country	Year of Growth Break
Bangladesh	1998
Brazil	2002
China, People's Republic of	1991
Colombia	1994
Costa Rica	1991
Dominican Republic	1991
Ecuador	1999
Guatemala	1988
India	1993
Iran	1988
Jordan	1991
Madagascar	2002
Malaysia	1987 (down break in 1996)
Mexico	1989
Morocco	1995
Nicaragua	1995
Nigeria	1987
Panama	2002
Paraguay	2002
Peru	1992
Poland	1991
Romania	1994
Tanzania	2000
Zambia	1994

Note: Breaks only for the period 1984–2010.

Source: Kar et al. (2013).

**Appendix 3a: Year for which Poverty and Inequality Data are Obtained from  
*World Development Indicators* prior to Growth Acceleration**

<b>Country</b>	<b>Year of Growth Break</b>
Bangladesh	1992
Brazil	1997
China, People's Republic of	1987 (1993)
Colombia	1999
Costa Rica	1986
Dominican Republic	1988
Ecuador	1995
Guatemala	1987
India	1987 (1994)
Iran	1986 (1990)
Jordan	1987 (1992)
Madagascar	1999 (2005)
Malaysia	1984
Mexico	1984 (Gini – 1992)
Morocco	1991 (1999)
Nicaragua	1993 (1998)
Nigeria	1986 (1992)
Panama	1998
Paraguay	1999
Peru	1986 (1994)
Poland	1987 (1992)
Romania	1989
Tanzania	1992
Zambia	1993 (1996)

Note: Years in parentheses are years in which data on Gini is available.

**Appendix 3b: Year for which Poverty and Inequality Data are Obtained from  
*World Development Indicators* for the Latest Year of Growth  
Maintenance**

<b>Country</b>	<b>Year of Growth Break</b>
Bangladesh	2010
Brazil	2009
China, People's Republic of	2005
Colombia	2010
Costa Rica	2009
Dominican Republic	2009
Ecuador	2010
Guatemala	2007
India	2006
Iran	2006
Jordan	2011
Madagascar	2009
Malaysia	2009
Mexico	2008
Morocco	2007
Nicaragua	2005
Nigeria	2010
Panama	1998
Paraguay	2010
Peru	2009
Poland	2009
Romania	2009
Tanzania	2007
Zambia	2006