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# **Inclusive Growth Revisited: Measurement and Determinants**

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The call for inclusive growth has been unanimously broadcasted by policy makers across the world. The Arab Spring, the growing divide between Main Street and Wall Street in advanced economies, and the "three-speed" world economy have placed inclusive growth at the forefront of policy debates. However, efforts to measure and assess the determinants of inclusive growth have remained limited. What is inclusive growth? How can the micro and macro dimensions of inequality and growth be integrated to reflect both the pace and distribution of economic growth? What has driven inclusive growth in emerging markets?

#### What Is Inclusive Growth?

Inclusive growth refers to both the pace and distribution of economic growth. For growth to be sustainable and effective in reducing poverty, it needs to be inclusive (Berg and Ostry 2011a; Kraay 2004). The Commission on Growth and Development (2008) notes that inclusiveness-a concept that encompasses equity, equality of opportunity, and protection in market and employment transitions-is an essential ingredient of any successful growth strategy. However, attempts to measure inclusive growth have remained limited. Traditionally, poverty (or inequality) and economic growth analyses have been conducted separately. Recent work indicates that there may not be a trade-off between equity and efficiency, as suggested by Okun (1975), and "that it would be a big mistake to separate analyses of growth and income distribution" (Berg and Ostry 2011b). This paper attempts to integrate the two strands of analyses by developing a unified measure of inclusive growth. Ianchovichina and Gable (2012) describe inclusive growth as raising the pace of growth and enlarging the size of the economy by providing a level playing field for investment and increasing productive employment opportunities.

This note presents a measure of inclusive growth that is in line with the absolute definition of pro-poor growth, but not the relative definition. Under the absolute definition, growth is considered to be pro-poor as long as poor people benefit in absolute terms, as reflected in some agreed measures of poverty (Ravallion and Chen 2003). In contrast, under the relative definition, growth is pro-poor if and only if the incomes of poor people grow faster than those of the population as a whole; that is, inequality declines (Dollar and Kraay 2002; IMF 2011). By focusing on inequality, the relative definition could lead to suboptimal outcomes for both poor and nonpoor households. For example, a society attempting to achieve pro-poor growth under the relative definition would favor an outcome characterized by average income growth of 2 percent, where the income of poor households grew by 3 percent over an outcome where average growth was 6 percent, but the incomes of poor households grew by only 4 percent. The dynamic measure of inclusive growth proposed here allows an analysis of income distribution that can distinguish between countries where per capita income growth was the same for

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the top and the bottom of the pyramid by accounting for the pace of growth.

A recent flurry of media and political attention toward rising inequality across the globe has generated a tremendous amount of interest on its causes and consequences. While the rise in inequality in the Organisation for Economic Co-operation and Development (OECD) and some emerging markets is well documented, there is debate on the causes and even more controversy on the consequences and what should be done about it. A number of recent papers have associated the rising inequality with technological change, financial deepening, and certain aspects of globalization (Acemoglu and Autor 2011; Aizeman, Lee, and Park 2012; IMF 2007). Foreign trade can exacerbate inequality by rewarding industries and firms that are able to compete in the global marketplace, while punishing those that cannot. Technological progress has also been widely put forth as a structural driver of inequality. Skilled workers are better able to adopt and use new and improved technology than other unskilled workers, thereby increasing the skill premium and widening the wage gap between skilled and unskilled workers. The divide between Main Street and Wall Street epitomizes the recent thinking on the role of financial deepening in fueling inequity.

Welfare considerations of high inequality extend beyond the effect on growth and macroeconomic stability, but they remain relevant to understanding whether macroeconomic fundamentals and structural change (broadly defined) affect inclusive growth. For example, current debate on austerity and growth, or recent calls to slow the pace of financial deepening and globalization, may reduce income inequality, but could slow inclusive growth as well. It is vital to assess the dynamics and determinants of inclusive growth, keeping in mind that the goal of reducing inequality is not to hurt the rich at the expense of the poor.<sup>1</sup>

A unified measure of inclusive growth allows researchers and policy makers to identify growth determinants and prioritize country-specific constraints to build inclusive growth. To do this, the next section develops a measure of inclusive growth using a macro social mobility function following the micro literature on income distribution. This note also documents the evolution of inclusive growth, focusing on emerging markets and low-income countries. Lastly, this note examines the sources of inclusive growth in emerging markets and low-income countries.

#### Measuring Inclusive Growth

To integrate equity and growth in a unified measure, this note proposes a measure of inclusive growth based on a utilitarian social welfare function drawn from consumer choice literature, where inclusive growth depends on two factors: (i) income growth and (ii) income distribution. Similar to the consumer theory where the indifference curves represent the changes over time in aggregate demand, this analysis decomposes the income and substitution effect into growth and distributional components. The underlying social welfare function must satisfy two properties to capture these features: (i) it is increasing in its argument (to capture growth dimension) and (ii) it satisfies the transfer property—any transfer of income from a poor person to a richer person reduces the value of the function (to capture distributional dimension).

The macro measure of inclusiveness is based on the micro concept of a generalized concentration curve following Ali and Son (2007). The population is arranged in the ascending order of their income, called the social mobility curve. Let  $\overline{y}$  be the average income of the bottom *i* percent of the population, where *i* varies from 0 to 100 and  $\overline{y}$  is the mean income.  $\overline{y}_i$ is plotted for different values of *i* (curve AB in figure 1). Since a higher curve implies greater social mobility, growth is inclusive if the social mobility curve moves upward at all points. However, there may be degrees of inclusive growth depending on: (i) how much the curve moves up (growth) and (ii) how the distribution of income changes (equity), that is, how the curvature of the social mobility curve changes. This feature of the social mobility curve is the basis of the proposed integrated measure of inclusive growth. Thus, if two generalized concentration curves do not intersect, they could be ranked on social mobility, that is, inclusive growth.

To illustrate the point made above, figure 1 depicts two social mobility curves with the same average income  $(\overline{y})$ , but different degrees of inclusiveness, that is, different income distribution. Social mobility curve A1B is more inclusive than the social mobility curve AB, because the average income of the bottom segment of the society is higher. If both terms are positive  $(d\bar{y} > 0, d\omega < 0)$ , growth is unambiguously inclusive (AB shifting to A1B1 in figure 2); similarly, if both terms are negative ( $d\bar{y} < 0$ ,  $d\omega < 0$ ), growth is unambiguously noninclusive (AB shifting to A4B4). However, there could be a trade-off between  $\overline{y}$  and  $\omega$ . If the first term is positive but the second term is negative, higher social mobility is achieved at the expense of reduction in equity. In figure 1, this case can be illustrated by the shift of the social mobility curves from AB to A2B2. Similarly, if the first term is negative but the second term is positive, then higher social mobility is achieved at the cost of contraction in average income-in figure 1, this case can be illustrated by the shift of the social mobility curve from AB to A3B3.

To capture the magnitude of the change in income distribution, this analysis uses a simple form of the social mobility function by calculating an index (or social mobility index) from the area under the social mobility curve:

#### Figure 1. Shifts in Social Mobility Curve



#### **Table 1. Inclusiveness Matrix**

$d \overline{y} > 0$	$d \omega > 0$	Unambiguously inclusive				
$d \overline{y} > 0$	<i>d</i> ω < 0	Higher per capita income at the expense of equity (could be inclusive if the percentage change in $\overline{y}$ > the percent change in $\omega$				
d	d ω > 0	Equity objective is achieved at the cost of average income contraction				
$d \overline{y} < 0$	$d \omega < 0$	Unambiguously noninclusive				
Source: Authors' calculations						

Source: Authors' illustration.





Source: Authors' calculations.

*Note:* The chart measures proportionate average annual change. The period used is the early 1990s to the latest available data. Size represents the initial size of the economy (GDP per capita), that is, the legend represents countries with purchasing power parity (PPP) GDP per capita below 420; 5,000; 10,000; and 14,621, respectively. Different regional codes are denoted by different colors.

$$\bar{y}^* = \int_0^{100} \bar{y}_i \, di$$

The greater the  $\overline{y}$ ,\* the greater the measure of inclusive growth. If the income of everyone in the population is the same (that is, if income distribution is completely equitable), then  $\overline{y}$ \* will be equal to  $\overline{y}$ . If  $\overline{y}$ \* is lower than  $\overline{y}$ , it implies that the distribution of income is inequitable. So, the deviation of  $\overline{y}$ \* from  $\overline{y}$  is an indication of inequality in income distribution, which is represented by  $\omega$  (unlike Gini, a higher value of omega represents higher income equality). Formally,  $\omega$  is defined as follows:

$$\omega = \frac{\bar{y}^*}{\bar{y}}.$$

For a completely equitable society,  $\omega = 1$ . Thus, higher value of omega (closer to one) represents higher income equality. Rearranging,

$$\bar{y}^* = \omega * \bar{y}.$$

Inclusive growth requires increasing  $\overline{y}$ ,\* which could be achieved by: (i) increasing  $\overline{y}$ , that is, increasing average income through growth; (ii) increasing equity through  $\omega$ ; or (iii) a combination of (i) and (ii). Differentiating the above equation:

$$d\bar{y}^* = \omega * d\bar{y} + d\omega * \bar{y}$$

where  $d \bar{y}$  is the change in the degree of inclusive growth.<sup>2</sup> Growth is more inclusive if  $d \bar{y}^* > 0$ .

# Tracking the Evolution of Inclusive Growth

Relatively few countries have achieved strong inclusive growth. Previous studies have focused on the convergence (or lack thereof) of the distribution of income across the world (see Dollar and Kraay [2003] and Sala-i-Martin [2006]) or the rising level of inequality (see IMF [2007]). This note sheds light on both of those aspects by mapping out the change in inclusiveness or social mobility across countries over the last few decades. While cross-country comparisons of inequality are generally plagued by problems of poor data reliability, lack of coverage, and inconsistent methodology, this analysis relies on income distribution data from the latest World Bank Povcal database constructed by Ravallion and Chen (2003) for a large number of emerging markets using a more rigorous approach to filtering individual income and consumption data for differences in quality than other commonly used databases.

The limited gains in inclusiveness are explained by relatively low growth in some countries and widening inequality in others. A decomposition of inclusiveness following table 1 shows that there is a wide dispersion of possible outcomes. These dispersions are depicted in figure 2, where most countries fall into the two quadrants that show higher per capita income and a lower/or higher level of inequity, suggesting that there is no simple trade-off between growth and equality. In most cases, economic growth shifted the indifference curves upward, and there have been very few intersections of social mobility curves, suggesting unambiguous gains in inclusiveness. However, the relative magnitude of shift and curvature of indifference curves both matter.

China's inclusive growth is primarily a growth story. Rapid growth in per capita income has benefitted everyone, but the gains have been much greater for the rich (as depicted by negative value on equity [omega] and steepening of the social mobility curve). Thus, in China, high growth has eclipsed the growing inequality to produce a large upward shift of the social mobility curve and higher inclusive growth. A similar story holds for India, where high growth has benefitted everyone, but equity has gone down. On other hand, the increase in inclusiveness in Brazil, Mexico, Malaysia, and Thailand has come from growth as well as improvement in equity (positive omega), but growth has not been fast enough to benefit the entire population as much as in China.

Across emerging markets as a whole, the heterogeneity in economic growth performance and income distribution outcomes provide insight to the growth-equity trade-off. Conventional wisdom suggests that growth comes at the price of rising inequality, but regions differ in their growth-equity trade-off. In some instances, strong growth has been achieved without compromising equity.

## Sources of Inclusive Growth

While there is broad agreement on the basic policies important for growth and reducing poverty, little is known about what may foster inclusive growth. Rapid growth is unquestionably necessary for substantial poverty reduction (see Kraay [2004] and Lopez and Servén [2004]), but for inclusive growth to be sustainable in the long run, it should be broad-based across sectors and equitable (see Berg and Ostry [2011a]). This is even more important because some of the key determinants of growth (for example, education, openness, and financial depth) established in the literature (Barro and Lee 2000; Dollar and Kraay 2003; Levine 2005) have been associated with higher inequality (Barro 2000; IMF 2007), thus begging the question, what proximate factors support inclusive growth?

Panel regressions of the unique measure of inclusive growth on a broad sample of emerging markets provide insights into the proximate determinants of inclusive growth. The measure of inclusive growth, or  $\overline{\partial y_{,}}^{*}$  is explained by a set of standard control variables used in cross-country growth

#### Table 2. Panel Regression: Emerging Markets

Dependent variable: growth in inclusive growth									
	1	2	3	4	5	6	7		
Lag GDP per capita (logs)	-0.211** (0.0904)	-0.203* (0.107)	-0.300*** (0.101)	-0.468*** (0.139)	-0.605*** (0.184)	-0.528** (0.198)	-0.558*** (0.145)		
Education	0.397** (0.149)	0.309* (0.180)	0.120 (0.205)	0.261* (0.151)	0.783*** (0.280)	0.173 (0.220)	0.560** (0.235)		
Trade openness	0.246** (0.1000)	0.194* (0.114)	-0.0442 (0.120)	0.418*** (0.133)	0.223 (0.240)	0.0130 (0.0970)	-0.00118 (0.0943)		
Credit to GDP	-0.160 (0.144)	-0.164 (0.174)	-0.0390 (0.171)	-0.0176 (0.186)	-0.0822 (0.0946)	0.112 (0.146)	-0.137 (0.184)		
Government consumption	-0.718 (0.866)	-0.340 (0.956)	-0.394 (0.731)	0.367 (0.616)	-2.849*** (0.571)	-0.00748 (1.003)	-1.250 (0.905)		
Investment	0.949** (0.438)	1.030 (0.646)	0.945 (0.582)	0.786 (0.650)	-0.141 (1.102)	0.439 (0.781)	1.018** (0.485)		
Inflation	-0.0275* (0.0143)	-0.0280* (0.0143)	-0.0227* (0.0129)	-0.0830*** (0.0110)	-0.0524*** (0.00326)	-0.00349 (0.00270)	-0.00129 (0.00313)		
GDP volatility	-2.126** (1.065)	-2.175** (1.076)	-0.991 (0.875)	0.223 (1.781)	-1.604 (2.065)	-0.788 (1.066)	-1.235 (1.042)		
Financial openness		0.000547** (0.000274)							
FDI			0.0101*** (0.00248)						
ICT				-0.718 (0.432)					
REER deviations					-0.00245*** (0.000779)				
Infrastructure quality						0.131*** (0.0385)			
Service export sophistication (logs)							0.500*** (0.165)		
Goods export sophistication (logs)							0.390* (0.216)		
Constant	5.123** (2.167)	4.899** (2.587)	7.453*** (2.443)	12.06*** (3.579)	15.43*** (4.370)	12.46** (4.902)	5.816** (2.573)		
Observations	261	234	234	111	98	139	146		
R-squared	0.263	0.284	0.376	0.285	0.514	0.150	0.288		
Number of countries	99	89	89	36	63	49	58		

Source: Authors' compilation.

Notes: Both country and time effects are included. \*, \*\*\*, and \*\*\* denote significance at the 10 percent, 5 percent, and 1 percent level, respectively. Robust t-statistics are in parentheses. Openness is trade openness; investments are fixed investments (percent of GDP), followed by government consumption (percent of GDP). Financial deepening is private sector credit to domestic sector (percent of GDP); education is Barro-Lee years of schooling above age 15; ICT is the total stock of ICT software- and hardware-related investments as a share of total capital stock; FDI is total FDI (liabilities) capital stock; infrastructure quality is the database developed by World Bank; inflation is consumer price index annual percentage change. Export sophistication uses United Nations Conference on Trade and Development Comtrade data for manufactured goods and balance of payments. IMF for service exports.

and inequality literature in a non-over-lapping, unbalanced five-year panel of 143 countries from 1970–2010.

Consistent with results in Barro and Lee (2000) and Dollar and Kraay (2003), table 2 shows that lower initial incomes (conditional convergence), trade openness, fixed investment, moderate inflation and output volatility, and a better-educated workforce have helped countries achieve more inclusive growth. Foreign direct investment (FDI) has a significantly positive impact on inclusive growth, as in IMF (2007), while information and communication technologies (ICTs) in the total capital stock do not have a discernible impact; the latter could also reflect the lack of data on ICT investment in many emerging markets and low-income countries. Financial openness more generally also shows a positive association with inclusive growth. Interestingly, financial deepening, measured by the credit-to-gross domestic product (GDP) ratio, has a negative impact, as in IMF (2007), but is not statistically significant. This could be because inclusive growth encompasses both the pace and distribution of growth, while previous findings, such as Levine (2005), positively linked financial development to growth, while IMF (2007) associated it with greater inequity.

Structural transformation and moving up the value chain in both goods and services have also attracted lot of attention in terms of driving economic growth (Anand, Mishra, and Spatafora 2012; Hausmann, Hwang, and Rodrik 2007). In addition to modernizing manufacturing, the globalization of services is increasingly a driver of economic growth in emerging markets (Mishra, Lundstrom, and Anand 2011). The results in this note illustrate that countries that upgraded either manufacturing or service sophistication had higher inclusive growth. Sophistication in service exports, driven by forces of globalization in computing and information networks, seems to have a greater impact on inclusive growth.

The deviation of the Real Effective Exchange Rate (REER) from its purchasing power parity (PPP)–implied level is negatively associated with inclusive growth, suggesting a role for competitiveness. Infrastructure quality, as measured by Calderon and Servén (2004) and Seneviratne and Sun (2013), also plays a positive role in fostering inclusive growth, possibly by reducing the cost of doing business and creating employment.<sup>3</sup> The importance of competitiveness through indicators such as the deviation of the REER from its PPP-implied level and infrastructure quality should be interpreted with caution given the limited observations.

# What Should Policy Makers Take Away and Do?

This note quantifies and integrates two strands of literature to define inclusive growth. This approach is in line with the absolute definition of pro-poor growth and goes beyond just focusing on distribution issues. The integrated measure developed in this paper is useful to delve deeper into the patterns of and study the sources of inclusive growth. The methodology here directly links the micro and macro dimensions of inequality and growth to reflect both the pace and distribution of income growth.

Macroeconomic stability, human capital, and structural changes are key determinants of inclusive growth in emerging markets. The standard economic growth drivers in the literature, such as conditional convergence, education levels, and fixed investment are important, while the role of technological change emphasized in the literature has a less discernible impact. The weak data on technology and research and development spending in emerging markets may explain the indiscernible impact; however, these transitions in production capabilities are mirrored through product and service sophistication measures that foster inclusive growth. Moving up the value chain in both goods and services exports helps foster inclusive growth, so the focus should not only be on export promotion, but the quality of exports, including services. This could be even more important in the future, as technological changes are increasingly making service activities more productive, digitally tradable, and integrated across global supply chains.

In terms of structural change and globalization, trade openness and FDI foster inclusive growth, with a potentially positive role played by financial openness, which warrants further analysis. However, financial deepening could have a negative impact, as in IMF (2007), possibly related to its association with financial crises, although the impact is not statistically significant. Macroeconomic stability is reinforced as a key ingredient for inclusive growth. Drivers of connectivity, business creation, and job growth measured as quality of infrastructure and competitiveness (REER deviations from PPP) are also important for inclusive growth.

Looking forward, there are a number of unresolved issues and areas for future research. Many countries responded to the global financial crisis through large fiscal stimuli and/or bank bailouts, which are being withdrawn or met with austerity. The relationship between fiscal consolidation and inclusive growth is an area worthy of study. The availability of more granular data will be important to analyze the evolution of inclusive growth at the national and subnational levels by providing a local lens to view inclusive growth. Secondly, regarding job creation, it will be important to understand the links between unemployment and labor market institutions that foster inclusive growth; for example, the design of collective bargaining programs and rights for workers might play crucial roles in reaching inclusive growth goals in both advanced and emerging markets. Lastly, the speed of technological advancement, its reach and access, and the channels through which it can foster or hinder inclusive growth, are additional areas for future research. Policy makers at national and regional agencies, as well as global strategies such as program design for post-2015 Millennium Development Goals, must target and track the evolution of inclusive growth. Latest developments in technology, open data, and open government initiatives may offer greater government transparency, economic capabilities, and civic participation. The aspirant for inclusion must keep growth as a primer, since inclusive growth is about both the pace and distribution of growth.

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## Notes

Inclusive growth can also conceptually go beyond traditional lines of poverty change and should also reflect changes in the size and distribution of the middle class (Birdsall 2010).
Inclusive growth is defined as the change in the social mo-

bility index  $d \overline{y}$ ,<sup>\*</sup> which is used here interchangeably. 3. The lack of consistent historical (un)employment data in emerging markets precluded the estimation of a link between employment and inclusive growth, as stressed by Ianchovichina and Gable (2012).

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