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Growth and Distribution Performances in Developing Economies

S. I. Cohen

Abstract- Measurement of development performance in terms of the joint development goals of economic growth with income redistribution in developing economies encounter theoretical and empirical complexities involving causal relationships and trade-offs between the two goals with long gestation periods, next to valuation problems, random variations and comparability obstacles. The paper accommodates for these complexities by pursuing country comparisons in the context of six world development regions, focussing on leading countries within each region, considering more and longer periods, and using ordinal rankings of both goals. Results show four Asian countries (India, China, Indonesia and Vietnam) with highest ranking scores, and Brazil and South Africa with lowest scores.

I. Introduction

The joint development goals of growth with redistribution (GWR) can be fully derived from welfare theory. There is wide agreement that higher economic growth with a fairer redistribution of endowments and incomes are the cornerstones of development policy, actions and performance.cf. Cohen (2015) However, the empirical evaluation of country performance along the lines of GWR encounters several complexities and is problematic. This paper contributes to resolving the problem.

While growth and redistribution considerations can be commonly integrated in many development policies and actions, a simple joint measurement of GWR performance for a county for a specific year faces many complexities due to intricate relationships between growth and distribution over time and space, and may not be feasible. There are four complexities which we shall list. The complexities lead us to approach the measurement of GWR performance in a grossly fashion, making use of the regional context of individual countries and doing that over longer periods.

*The first complexity*lies in the schism between the postulates of welfare theory and their implementation in the real world The First Theorem of Welfare Economics states that, the market prices are equilibrium prices whereby it is impossible to make a change without making someone worse off, making the resulting competitive market equilibrium as most efficient and Pareto-optimal. Under these conditions and other things remaining the same, higher economic growth is guaranteed to be efficiently done.

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The Second Theorem of Welfare Economics emphasizes that any such competitive equilibrium is defined in terms of given initial endowments; and thus states that any Pareto-optimal state is an equilibrium for some initial distribution of endowments. The significance of the theorem is that if the postulated assumptions are fulfilled in a real market economy, then economic efficiency will be guaranteed by market forces. In some sense, the competitive market equilibrium is by no means optimal in the absolute sense because the outcome depends entirely on the original distribution of endowments. The second theorem suggests that the initial distribution of endowments can be reset beforehand at the socially desired pattern, after which market forces will take care of efficient allocation. The role of the state would then be restricted to applying a priori lump-sum transfer payments which are consistent with the desired initial distribution of endowments.[i]

The reset beforehand does not work in this way in the real world. The process is reversed in the real world. What happens is that governments go for economic growth and tend to review the income distribution situation at the end of the year and reset this ex-post, giving due consideration to the perception of a desirable initial distribution and unintended differential outcomes during the year. Transfers are then affected in consistency with the resetting. If the resetting is well-done and duly implemented, then the model of the perfect market economy can be described to stand firm with regard to the equity dimension, even though this happens with a lag in time. And should the government be non-responsive, it can be argued that it will be replacedin time by a responsive government which could correct the distribution ex-post. And this involves again more time lags. The political complications and the time lags make the measurement of the simultaneous performance of growth with redistribution for a particular year less meaningful. The evaluation of GWR over a period of time of a decade or so seems to be more meaningful and useful.

The second complexity relates to the resetting of the desirable distribution. It is not easy to reach consensus on the desired distribution norms in relation to growth (which is specific for the country/region and year/periods concerned; and there can be wide differences on the distribution norms within one and the same country and over time. Recognition of these limitations requires giving more consideration to the

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regional context in which the specific countries find themselves; and our classification of the world development regions in eight regions can be helpful in this respect.

As for complexities surrounding divergent norms, these are partly mitigated by considering extended years of observation in approaching the GWR performance measurements for the specific countries and regions.

The third complexity relates to the empirical relationship between economic growth and income distribution in the course of economic development, whereby in the early stages of economic development growth tends to associate with regressive distribution while as the country becomes richer growth slows and associates with progressive distribution. The relationship is known as the Kuznets curve, and is due to Kuznets (1955).[ii] Performance evaluation of GWR for a specific country needs to give due consideration to the development stage and the regional context of the country concerned; which renders a simple comparison across countries for a certain year less compelling.

The *fourth complexity* is in some sense the opposite of the Kuznets curve. Some economists perceive long term economic development in terms of strategies that redistribute endowments so as to elevate higher economic growth and progressive income distributions. This can be rightly named the Tinbergen-strategy, given the pronounced role that this cause effect relationship play in Tinbergen's writings, see Dekker (2021).[iii] Economic growth accounting (next section) does show that growth in factor productivity may contribute more than growth in factor inputs to the growth the GDP. When it is recognized that growth in factor productivity is basically the extension of human skills endowments and technology, it follows that Tinbergen-strategies can have significant positive effects on economic growth. Since these GWR strategies have long gestation lags, it follows that GWR performance evaluation for countries which apply such strategies become meaningful when the evaluation period is long enough; and this need not hold for other countries. The complication makes simple comparisons between divergent countries less conclusive.

The four complexities impose limitations on GWR performance measurement and the reaching conclusive results. The task is made easier when the GWR performances are evaluated in the context of regional comparisons and over a longer period of time. The paper does that and will be able to reach some considerate conclusions on GWR performances. Section 2 is an overview of development performances at the regional level. The performance analysis of economic growth is extended to examine the decomposition of growth into factor inputs and factor productivities, while performance analysis of income distribution is extended to poverty reduction. Section 3 will elaborate on development performance at the country level along the GWR perspective. Section 4 will make an attempt at ranking country performances along the GWR perspective. Section 5 concludes.

II. Overview of Development Performances by Region

GWR performances are best evaluated in the context of regional comparisons and over a longer period of time. We follow largely the regional classification commonly used by the World Bank and the United Nations which divides the development world into six regions. (1) East Asia and Pacific (EAP), (2) South Asia (SA), (3) Central Asia and Caspian (CAC), (4) North Africa and Middle East (MENA), (5) Sub Saharan Arica (SSA), and (6) Latin America and Caribbean (LAC).We select and focus on the six leading countries in the six region, giving a total of 36 countries. Selection is based on the country"s rank in its. respective region in terms of GDP and population, weighted equally. Results are in Table 1.

Table 1: Leading Countries by Development Region

EAP	SA	CAC	MENA	SSA	LAC
China	India	Turiye	Egypt	Nigeria	Brazil
Indonesia	Pakistan	Iran	Saudi Arabia	S. Africa	Mexico
Philippines	Bangladesh	Kazakhstan	Algeria	Ethiopia	Argentina
Thailand	Sri Lanka	Uzbekistan	Iraq	Congo DR	Colombia
Malaysia	Nepal	Azerbaijan	UAE	Angola	Venezuela
Vietnam	Bhutan	Tajikistan	Morocco	Sudan	Peru

This section gives an overview of regional performance in terms of economic growth and income distribution. Starting with economic growth, table 2 gives GDP growth and GDP per capita growth over various periods. The data show the two Asian regions of EAP and SA to perform better than other regions in terms of the growth of GDP and GDP per capita. At the other end are the GCC, MENA, SSA, and LAC regions with lower economic growth performances, the lower performance being due to different forces specific for the regions. The structural transformation of the MENA economy from agriculture to industry was noted to be stagnant.

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The region was also handicapped by political instability. The SSA region showed depressing performances: economic growth in SSA is lowest and has declined over time, partly due to increases in oil prices but also political unrest, civil wars and state interventions aggravated the situation. There is a reversal in SSA as indicated by a moderate recovery in the years 2000-5.

The better performances in economic growth in EAP and SA are partially accounted for by more significant structural transformations from agriculture to industry in EAP and SA, as well as early and stronger shifts from import protection to export promotion in EAP and SA; see previous sections.

Table 2: Annual Growth Rates of GDP and GDP Per Capita over 5 Decades 1960-2012.

Region, years	GDP	GDP per capita	Region, years	GDP	GDP per capita
EAP			MENA		
1961-1970	4.7	2.5	1961-1970	8.5	5.7
1971-1980	6.6	4.5	1971-1980	5.1	2.3
1981-1990	7.6	5.8	1981-1990	3.0	0.0
1991-20002001-2012	8.4 6.0	7.1 4.7	1991-20002001-2012	4.0 4.8	1.8 1.6
SA			SSA		
1961-1970	4.4	2.0	1961-1970	4.9	2.3
1971-1980	3.0	0.7	1971-1980	3.7	0.8
1981-1990	5.6	3.4	1981-1990	1.9	-1.0
1991-20002001-2012	5.2 5.9	3.2 4.3	1991-20002001-2012	2.3 6.6	-0.3 4.2
CAC			LAC		
1961-1970	..	..	1961-1970	4.9	2.6
1971-19801981-19901991-20002001-2012	.. .. -1.2 7.5	.. .. -2.4 6.0	1971-198011981-19901991-20002001-2012	3.7 1.9 2.3 4.0	3.2 -0.9 1.7 2.7

Source: World Bank at http://devdata.worldbank.org/query. Col. 1 and col. 2 give average annual growth rates of GDP and GDP per capita in constant prices of US $ of 2000 for four ten-year periods. The fifth period of 2000-2012 is the mean of the largest six countries in the region.

Economic determinants of the better performance of the two Asian regions, EAP and SA, as compared to other regions are highlighted also by an analysis of growth accounting factors covering the period 1960-94, in table 3. For EAP, annual GDP growth of 7.0 percent over the years 1960-94 is accounted for by annual growth in the labor and capital factors of production of 2.3 percent, and 3.4 percent, and annual growth in total factor productivity for the remaining 1.3 percent. The SA region enjoyed annual growth in total factor productivity of 0.8 percent. In the other three regions of SSA, MENA and LAC, productivity growth was negative or slightly positive: -0.6, -0.3, and 0.2, respectively. [iv]

Table 3: GDP Growth Accounting, All Values are in Growth Rates

Region	GDP	Labor	Capital	Factor Productivity
East Asia & Pacific (EAP)	7.0	2.3	3.4	1.3
South Asia (SA)	4.2	1.6	1.8	0.8
Central Asia & Caspian (CAC)	..	..	..	..
Middle East, N. Africa (MENA)	4.5	2.3	2.5	-0.3
Sub Saharan Africa (SSA)	2.9	1.8	1.7	-0.6
Latin America & Caribbean (LAC)	4.2	2.2	1,8	0.2

Source: Adapted from Cohen (2015) pp. 202. The GDP growth accounting equation is growth rate of GDP = growth rate of labor + growth rate of capital + growth rate of total factor productivity. The equation is applied to the six development regions

It is interesting to note that in economic growth accounting the contribution of the rise in factor productivity is substantive. Rise in factor productivity is primarily the extensive and intensive upgrading of skills and technology which in essence is the enrichment of labor, and the population at large, with greater human capital endowments. This equivalent to a progressive redistribution of skill endowments among the population; and a demonstration of how progressive redistribution of skill endowments enhances economic growth. The regional results in the table suggest that there was more attention and effort given to the progressive redistribution of skill endowments in enhancing economic growth in EAP and SA regions

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than is the case for the other development regions; allowing the two Asian regions to achieve higher economic growth.

Turning to income distribution, the question is how did the development regions combine higher wellbeing (that is growth in GDP and GDP per capita) with performance on the dimensions of income distribution and poverty reduction? Table 4 gives the answers, but there is a statistical problem that has to be clarified before studying the table. Table 4 presents the mean of these indicators for the leading six countries in each region in the past four decades. Note that there is a difference between the consolidated regional total and the regional mean for the indicators on income distribution and poverty reduction it is not feasible to estimate consolidated regional totals; the calculations are regional means of the six leading countries per region.

To start with, compare the mean annual growth of GDP per capita with the mean Gini index, columns 3 and 4. In the Asian regions, while EAP did better than SA in GDP per capita growth, the SA did better than EAP in restraining tendencies towards more income inequalities. MENA had a moderate to low GDP pc growth combined with a reduction in income inequalities. SSA also had a moderate to low GDP pc growth but the increases in income inequality in SSA were among the highest in the developing world.LAC entered the 1950s with a higher GDP pc and a more unequal income distribution than other regions. Between 2000 and 2012, LAC had a GDP pc growth of 2.1% that went together with an unchanged Gini index at 53.2%, which is still the highest among the development regions.

Another relevant indicator of income inequality is the ratio of income shares of the richer top 20 percent of the population (T20%) to the poorer bottom 20 percent of the population (B20%), column 5. This indicator, denoted as T/B (20%), has increased most in SSA and LAC. This indicator modified to apply to 10 percent of the population, (that is T/B 10% in column 6), shows even greater tendencies towards income inequality, again led by SSA and LAC. Situations where low income growth combines with significant and increasing concentrations of income go together with persistent dualism in the economy and weak integration in the system.

Next, is column 7 which displays the inequality to growth ratio (ITG). The ratio divides the change in the average Gini index between periods t and t-1, by the average growth in the GDP per capita in period t, and comes close to representing a quasi form of an inequality growth elasticity. Results show ITG is positive but less than one, meaning that distribution worsens with higher wellbeing but at a diminished rate. ITG fell from 0.78 to 0.09 in EAP, and increased from 0.47 to 0.80 in SA, in the last two decades. Other regions show contrasting results but the data is incomplete to draw hard conclusions. CAC shows no change. MENA shows negative elasticities in the early period turned into no change in the later period. SSA has insufficient data, and LAC shows a positive elasticity in the early period turned into no change in the later period.

Another dimension of the distribution problem is the poverty ratio in column 8.This is the share of poverty headcounts at 1.25 dollar a day in purchasing power parity in the population. In EAP in 2000-2012, the poverty ratio is reduced by -1.37% per annum (that is, (31.2%-14.8%)/12 years).

It is reasonable to expect that the poverty ratio fall more when the GDP per capita grows more. To evaluate the pace of the fall we add a last column 9 defining the poverty change to growth ratio PTG , which is a poverty reduction elasticity, defined as PTG= (annual reduction in poverty ratioin period t)/(annual growth rate of GDP pc in periodt). For the EAP in period 2000-2012, the results show a PTG elasticity of -0.29 (that is, -1.37% / 4.7%). The poverty reduction elasticity for SA in 2000-12 was higher at -0.48, which can be expected given the greater poverty base. EAP and SA appear to be more effective than other regions in reducing the poverty ratio as their income levels grow higher. At the other end, SSA and LAC are least effective in combining reduced poverty with higher wellbeing. This is in one sense more severe in the case of SSA where the poverty ratio is remarkably high; but also as severe in the other sense that the elasticity is remarkably low in LAC given its much high level of GDP pc. The two regions of CAC and MENA have the lowest poverty ratios; at their lowest unavoidable level. This makes the poverty reduction elasticity irrelevant in this contest.

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Table 4: Relative Indicators of Growth and Distribution, 1980-2012. In Percent

Periods	GDP per Capita Annual Growth		Gini Index	(T/B) 20%	(T/B) 10%	Inequality Change to Growth, ITG (a)	Poverty Ratio	Poverty Change to Growth, PTG (b)
	Region Totals	Mean						
EAP: 1981-1990	5.8	3.8	36.3	6.3	9.7		44.6	
1991-2000	7.0	4.5	39.8	7.6	12.2	0.78	31.2	-0.25
2000-2012	8.0	4.7	40.2	7.8	12.5	0.09	14.8	-0.29
SA: 1981-1990	3.1		31.1	4.6	6.8		50.5	
1991-2000	3.3	3.1	32.6	4.8	7.3	0.47	48.7	-0.05
2000-2012	5.2	4.3	36.0	5.8	8.9	0.80	24.0	-0.48
CAC: 1981-1990	..	..	..	..	..		..	
1991-2000	3.9	-2.4	38.1	7.8	14.3	..	3.6	
2000-2012	6.0	6.0	35.9	6.2	10.0	0.05	3.4	-0.00
MENA:1981-1990		-1.1	40.5	9.4	16.5		2.7	
1991-2000	1.8	1.0	38.0	7.0	11.5	-5.3	4.0	0.11
2000-2012	2.8	1.6	35.4	6.2	9.9	-0.6	2.2	-0.09
SSA: 1981-1990	-1.3	-1.1	42.0	6.2	9.4		..	
1991-2000	-0.6	-1.4	46.2	12.1	21.0	n.a.	49.1	..
2000-2012	2.1	4.2	44.2	11.2	19.1	-0.5	40.8	-0.16
LAC:1981-1990	-0.5	-1.1	50.7	15.0	31.4		10.7	
1991-2000	1.5	1.4	53.5	17.1	41.5	2.0	9.6	-0.07
2000-2012	2.0	2.7	52.0	17.8	45.7	-0.5	8.7	-0.03

Source: World Bank at http://databank.worldbank.org/.With the exception of column 1 that gives GDP pc growth figures based on consolidated regional totals, all other columns are regional averages of each region's six leading countries, which are practically fully representative for all regions, though less so for MENA and SSA. Periodical figures are averages of available yearly observations for the specified period in the leading countries. While the World Bank provides total poverty ratios for EAP and SA based on regional totals, there are only simple averages available for other regions. To maintain the same basis for regional comparisons for this indicator, and for the other income distribution indicators, we kept to simple averages.[v]

(a) The ITG ratio is the change in the average GINI index between periods t and t-1/ average growth of GDP pc per annum in period t. For example, for EAP 2012, this is (40.2-39.8) / (4.7) = - 0.09. (b) The poverty change to growth ratio, PTG, is the reduction in poverty ratio over period t normalized per one year, divided by the average growth of GDP pc per annum in period t. For example, for EAP 2012, this is [(15.4-32.0)/12 years]/[4.7] = - 0.29.

III. Growth with Redistribution Performances by Region and Country

Excessive conflicts between the twin goals of growth and redistribution are generally perceived to be undesirable. Countries that combine maximum reductions in income inequality with maximum rates of economic growth are envied by others. This section will assess the performance of the six leading countries in each region. This is done in table 5 which is compacted to include GDP growth pc, Gini Index, Poverty ratio, and the two analytical indicators of inequality change to growth ratio ITG and poverty to growth ratio, PTG. These two analytical indicators are close to representing notions of elasticities.

Table 5 considers GWR performances in East Asia Pacific (EAP). China's GDP and GDP per capita growth rates per annum were remarkably higher than the other countries, and the difference between the two rates was the lowest, which is due to success in restraining population growth. The higher economic growth in China has been associated with a higher rise in income concentration in China, when compared to other EAP countries. The Gini index in the period 2000-2012 shows a higher concentration of income distribution in China, at 42.4, compared to an average for EAP of 40.2. The association of unequal income redistribution with higher growthis a common phenomenon in the early phases of economic development. The results show ITG ratios of 0.6 and 1.1 for China and Indonesia, implying about a half to one percent increase in the Gini index (increase in income inequality) for an additional growth of one percent in GDP pc. The other EAP countries show falls in Gini (progressive distribution effects) accompanying economic growth and higher levels of wellbeing.

The poverty ratio is highest in Vietnam, Indonesia, and Philippines, lowest in Thailand and Malaysia and is about average in China, which can be seen as reflecting differences in general levels of wellbeing. The poverty change to growth elasticity (PTG ratio), column 9, highlights the significance of trickle down effects in the individual countries. PTG has higher trickle down effects in rates in Malaysia and Thailand, and lower rates in China and Philippines.

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Table 5: EAP: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG Ratio	PTG Ratio
Country Periods	GDP pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
China	8.7	36.8	49.9	9.4	42.4	17.4	0.60	-0.6
Indonesia	3.3	29.9	48.5	3.9	34.3	22.6	1.13	-1.1
Philippine	0.6	44.7	25.7	2.9	43.8	21.0	-0.31	-0.5
Thailand	4.0	43.6	3.9	3.6	40.8	0.8	-0.78	-1.6
Malaysia	4.6	48.4	1.4	2.8	43.4	0.2	-1.79	-2.8
Vietnam	5.9	35.6	56.7	5.3	36.4	26.6	-0.64	-0.8
Mean	4.5	39.8	31.0	4.7	40.2	14.8	-0.30	
Stdv s	2.5	6.3	22.3	2.3	3.6	10.5		
Vrcf v	0.55	0.16	0.72	0.49	0.09	0.71		

Source: http://databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Table 6 is on South Asia (SA). In 2000-2012 the GDP growth per capita of 4.3 percent was accompanied by an increase in the Gini index of 2.4 percentage points. pp. The ITG is calculated at 0.58, meaning that for a one percent income growth there is a rise in inequality of half a percent. India is close to this figure at 0.52. Sri Lanka and Nepal show regressive affects at 1.0 and 1.2, Bangladesh and Pakistan show progressive effects at 0.3 and -0.2. The differences can be rationalised in terms of systemic features. The average poverty reduction elasticity, PTG, in the SA region is around 1, with an average poverty ratio of 24%. It can be calculated that if GDP pc growth can be sustained at 4% pa, the poverty ratio of 24% (on the defined basis of 1.25$ per person) can be reduced to zero in some 5 to 6 years.

Table 6: SA: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG Ratio	PTG Ratio
Country Periods	GDP pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
India	3.8	30.8	49.4	5.4	33.6	37.2	0.52	-0.4
Pakistan	1.4	31.6	47.3	2.2	31.1	25.5	-0.23	-1.7
Banglade	2.5	31.3	63.1	4.5	32.7	23.4	0.31	-1.2
Sri Lanka	4.0	33.9	15.7	5.1	39.2	6.3	1.04	-1
Nepal	2.4	35.2	68.0	2.5	38.3	39.0	1.24	-1.4
Bhutan	4.4	38.0	..	6.3	41.2	12.7		
Mean	3.1	32.6	48.7	4.3	36.0	24.0	0.58	-1.1
stdv s	1.1	1.7	18.3	1.5	3.7	11.9		
vrcf v	0.34	0.05	0.38	0.35	0.10	0.49		

Source: http://databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Table 7 is on the CAC region. For most of the Central Asia and Caspian region (CAC) the period 1990-2000 was a period of transition from a Communist /Russian regime to a development/national regime in the XSIR countries. GDP and GDP pc declined in these countries by annual rates that reached -10.0%. Recovery came in 2000-2012 allowing some of these countries to reach growth rates of 12%, i.e. Azerbaijan. GDP growth pa and GDP pc growth pa for the whole region in 2000-2012 amounted to 7.5% and 6.0%. In spite of this high income growth the Gini index has fallen on average from 38.1 to 35.9 as most of the ex-Soviet countries in the region moved on and left the transition period behind. The ITG ratio is negative at -0.53. The underlying tendency of more equality with higher growth after a distribution regressive transition period is a systemic property. The poverty ratio is not relevant in the CAC region, i.e. the poverty ratio in the richer countries of Kazakhstan and Azerbaijan stood at 0.1 and 0.4 in 2011.

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Table 7: CAC: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG Ratio	PTG Ratio
Country Periods	GDP pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
Turkiye	2.3	41.5	5	3.1	41	4.4	-0.16	-0.3
Iran	2.9	43.6	1.3	3.2	38.3	0.7	-1.66	-1.2
Kazakhsta	-2.4	34.0	4.6	6.9	32.8	2.0	-0.17	
Uzbekistan	-1.9	45.3		5.5	35.6	..	-1.76	
Azerbaijan	-5.3	35.0		11.6	35.1	3.4	0.01	
Tajikistan	-9.8	29.0		5.8	32.4	6.56	0.59	
Mean	-2.37	38.1	3.63	6.01	:35.9	3.42	-0.53	
Stdv s	4.35	5.81	1.66	2.85	3.01	2.01		
Vrcf v	-1.84	0.15	0.46	0.47	0.08	0.59		

Source: http: //databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Table 8 is on the Middle East and North Africa (MENA). Performance in terms of growth of the GDP is fairly similar among MENA countries and the variation tends to fall. While the topic of income distribution would apply to most countries of MENA, it is not applicable in the context of the six countries of the Gulf Cooperation Council (GCC). In the oil rich labor shortage GCC there are ample income resources for the nationals to the extent that the income distribution issues are acknowledged to be statistically irrelevant, and such notions as Gini index are nonapplicable for the nationals. The migrant population forms the majority of the population in most GCC. As far as the non-GCC are concerned, Gini indexes available for Egypt and Morocco show stable income distributions. The limited availability of data restricts further analysis of inequality trade-offs and poverty reduction in MENA.

Table 8: MENA: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG ratio	PTG ratio
Country Periods	GDP pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
Egypt	2.6	31.6	2.9	2.7	31.5	0.9	-0.037	-2.1
Sd Arabia	0.8	..	..	2.7	..	..		
Algeria	-0.2	35.3	6.8	2.2	36.6	..		
Iraq	..	..	..	3.2	30.9	2.8		
UAE	0.6	..	..	-5.0	..	..		
Morocco	1.0	39.3	4.6	3.8	40.8	4.4	0.395	
Mean	1.0	35.4	4.8	1.6	34.4	2.7		
Stdv s	0.9	3.2	1.6	3.1	4.6	1.5		
Vrcf v	0.97	0.09	0.34	1.94	0.13	0.54		

Source: http: //databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Table 9 is onSub Saharan Africa (SSA). Economic growth of the Sub Saharan African region up to the year 2000 was least among the developing world. The association between frequent political instabilities and slow economic growth in SSA has been noted, tested empirically and found significant in various studies.[vi] There is tension between insiders (those identified with the political establishment), and various groups of outsiders. The distinction between insiders and outsiders is often based on kin groups, ethnic origin, regional and religious affiliation. As violence erupts, economic infrastructure is hit most. Besides, in an unstable political environment, the allocation of economic resources is distorted. Some governments, and their running heads, are known to have diverted national resources to non-developmental ends and/or personal gains. Under these circumstances, the investment climate is weak, and openness to foreign direct finance and trade is discouraged. Add to this a high population growth. The result was an average annual growth of the GDP per capita that was negative in the years before 2000, table 8. The period 2000-20012 brought a turnaround in economic growth making it possible to achieve GDP growth rates pa of 8.3% in Nigeria, and 3.5% in South Africa.

Income inequality as represented by the Gini Index increased in Nigeria between 1980 and 2000 by

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some 7%, but appears to have stabilized at the level of 46 % in 2012; which is generally in line with the average for the whole SSA region. However, performances in the SSA region are full with diversity. For example, the Gini Index continued rising in South Africa to make its income distribution become one of the most unequal in the world, at 65% in 2012. The South African path does not conform to the normal path consistent with economic theory, and can be best explained in terms of socio-economic systemic features typical for South Africa. At the opposite end, Ethiopia shows diminished income concentration around a Gini Index which has a value of only 32% in 2012; this is one with the least income concentration in the world, and coinciding with a growth in the GDP per capita of 5.8% in de period 2000-12, giving an ITG ratio of -.57; which can is accountable solely in terms of systemic properties.

Table 9: SSA: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG Ratio	PTG Ratio
SSA	GDP pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
Nigeria	0.4	45.7	65.2	5.5	45.9	43.7	0.036	-0.5
S. Africa	-0.8	57.9	24.0	2.0	65.3	15.6	3.700	-1.5
Ethiopia	-0.6	35.0	58.1	5.8	31.7	34.8	-0.569	-0.6
Congo DR	-8.3	..		1.5	44.4	87.7		
Angola	-1.6			6.9	42.7	43.4		
Sudan	2.6	..		3.4	35.3	19.8		
Mean	-1.4	46.2	49.1	4.2	44.2	40.8	1.056	-0.8
Stdv s	3.5	9.7	18.7	2.1	11.1	24.5		
Vrcf v	-2.53	0.21	0.38	0.50	0.25	0.60		

Source: http://databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Table 10 is on Latin America and Caribbean (LAC). The table shows for all six leading countries similar growth rates of GDP per capita. Distribution tendencies differ. Three countries (Brazil, Mexico, Peru) reverse their positive ITG of 1990-2000 (i.e. regressive distribution tendencies) into negative ITG in 2001-2012 (i, e, progressive distribution tendencies). The other three countries (Argentina, Colombia, Venezuela) show an apposite switch. In all three countries the ITG ratio is positive implying a shift towards more inequality, and is consistently associated with a positive PTG ratio rise, meaning that the poverty ratio has increased with economic growth.

Table 10: LAC: Performance Indicators of Growth and Distribution, Averages of Period. %

	1991-2000			2001-2012			ITG Ratio	PTG Ratio
LAC	GDP Pc,	Gini Index	Poverty Ratio %	GDP pc, Growth	Gini Index	Poverty Ratio %		
Brazil	0.3	59.5	13.3	2.3	57.3	8.8	-0.957	-1.2
Mexico	1.7	50.5	6.1	1.1	48.4	2.2	-1.909	-4.8
Argentina	3.2	48.2	3.2	3.5	49.3	5.3	0.314	1.6
Colombia	1.0	55.4	12.3	2.8	57.8	14.0	0.857	0.4
Venezuela	0.0	46.3	8.8	1.9	47.7	13.4	0.737	2.3
Peru	2.2	60.8	14.1	4.6	51.5	8.4	-2.022	-0.7
Mean	1.4	53.5	9.6	2.7	52.0	8.7	-0.497	+0.4
Stdv s	1.1	5.6	4.0	1.1	4.2	4.2		
Vrcf v	0.80	0.10	0.42	0.42	0.08	0.49		

Source: http://databank.worldbank.org/. Annual growth rates of GDP and GDP pc are in constant prices of 2000.

Tables 5 to 10evaluated changes in GWD for the six development regions, based on mean values, and produced results on country variations within ear region. Table 11goes further and summarizes results for the variation coefficient, *v,* which is an important source of information for assessing regional homogeneity and convergence tendencies. Low values of *v* represent homogeneity, and decreasing values of *v* over time indicate integration and convergence. With slight exceptions, each of the six regions shows that its

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member countries are converging to the regional modes over the two decades. However, the degree and speed of integration vary between the regions. The three regions that show the highest uniformity among their member countries and integrative tendencies are LAC, and CAC, followed by and EAP. In all three regions, the values of v for the two indicators of growth and distribution fall down over the last 2 to 3 decades. It is not surprising that to observe high uniformity and integrative tendencies in the LAC countries given their long and shared history together. But it is surprising to note the high uniformity and integration in the Central Asia and Caspian region (CAC) which was never treated as a regional group. It is also interesting to find that mong the widely spread and highly populous group of countries in Asia that the South Asia region shows less variance in performance than the EAP. The MENA region shows high diversity in the growth of GDP per capita which is due to the presence oil rich small population high growth, though the region is more uniform regarding distribution, again excluding the GCC countries where the distribution goal is not relevant and is not data accessible. Finally, the Sub Saharan region appears to be the most diversified scoring highest variation coefficients and these show that they increase over time. One and the other supports the idea of viewing the Sub Saharan Africa region as consisting of an upper belt (led by Nigeria) and a lower belt (led by South Africa). This would bring more sense in the analysis. Notwithstanding there are significant differences between individual countries within the two belts.

Table 11: Variation Coefficients for Growth and Distribution in the Development Regions, Two Periods

	1991-2000		2001-2012	
Region	Annual Growth of GDP Per Capita	Gini Index	Annual Growth of GDP Per Capita	Gini Index
EAP	1.15	0.47	0.49	0.40
SA	0.34	0.15	0.35	0.26
CAC	-1.84	0.38	0.47	0.28
MENA	0.97	0.21	1.94	0.31
SSA	-2.53	0.40	0.50	0.57
LAC	0.80	0.37	0.42 0.80	0.33

Sources: Tables 5 to 10.

IV. Performance Ranking of Developing Countries in Terms of Growth with Redistribution

In the preceding sections, comparative performance of a specific country was reviewed in its regional context. Ideally, one would like to view an assessment for all developing countries ending up with a ranking of countries over several periods with respect to their achievement of GWR. Such a ranking faces measurement problems, most of which can be partially resolved as proposed below.

1. One problem is the arbitrariness of any one year ranking. This is largely solvable by considering evaluation periods that cover several years, and apply ranking over more periods.
2. A second problem is the presence of observations with abrupt or outlier values that may distort representation. The problem is solvable by ignoring outliers but this distorts the coverage. A better solution is by abiding to ordinal ranking instead of cardinal numerals
3. A third problem lies in the scale normalization of the two goals of growth and redistribution. This is complex given the trade offs in early and later phases of economic development which differ by country. The problem is solvable by tracing ranking over more periods to catch the trade off transformation, and by applying ordinal instead of cardinal ranking.
4. A fourth problem is that of fixing preferential weights for the growth and redistribution objectives so as to obtain a unified general performance index. The problem is solvable by working initially with equal weights and supplemented by simulated weights.

The performance ranking of individual countries in table 12took into consideration the remedies mentioned above. The ranking is done for two periods, each period consisting of about ten years: thus 1991-2000, and 2001-2012. There is a limited number of countries that have data for all these years on the two objectives of economic growth and progressive redistribution (i.e. lower Gini index). The number of countries with the required data counts 30 out of the list of 36 leading countries. The performance ranking of countries is done along ordinal numbers separately for the economic growth objective and for the progressive redistribution objective. The country with the highest economic growth scores 30 on the growth objective. Similarly, the country with the lowest Gini Index scores 30 on the redistribution objective. Finally, equal weights are applied for the ordinal rankings of the growth and redistribution objectives by simply calculating the

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average of the two scores to obtain a unified performance index of growth with redistribution.

With regard to the period of 1990-2000, out of a maximum score for the GWR index of 30, the highest scores are found for India, Indonesia, China and Vietnam, ranging between 26.5 and 23.5. The lowest score is for South Africa and Brazil at 4.0 and 5.5.

In the next period of 2001-2012 the four countries of India, Indonesia, China and Vietnam continue to score high between 23.0 and 20.0 but are now joined with higher scorer countries of the CAC region, namely Kazakhstan, Uzbekistan, Azerbaijan, and Tajikistan, next to Ethiopia, with scores of around 26.0. The lowest scores are continued to be found among South Africa and Brazil with even lower levels at 2.0 and 4.5. They are joined at the lower end by Mexico and Venezuela with scores of 3.5 and 3.5.

The results over the two periods show an increasing gap between high and low performing countries in the combined area of growth with redistribution. Especially in the cases of South Africa, Brazil, Venezuela and Mexico the rank performances in terms of growth and redistribution have been falling relative to other countries. Most of the other 26 countries show rank improvements in growth and/or redistribution.

Table 12: Performance Rankings of Growth with Redistribution Index for Thirty Countries, Two Periods

	Country score1991-2000			Country score 2001-2012		
	GDP Per Capita Annual	Gini index Inversed	GWR Index	GDP Per Capita Annual	Gini Index	GWR Index
China	30	17	**23.5**	29	11	**20.0**
Indonesia	23	29	**26.0**	17	23	**20.0**
Philippines	11	11	11.0	11	9	10.0
Thailand	26	12	19.0	15	15	15.0
Malaysia	28	6	17.0	10	10	10.0
Vietnam	29	18	**23.5**	21	20	**20.5**
India	25	28	**26.5**	22	24	**23.0**
Pakistan	14	26	20.0	5	30	17.5
Bangladesh	19	27	23.0	18	26	22.0
Sri Lanka	24	24	24.0	20	16	18.0
Nepal	18	20	19.0	7	18	12.5
Bhutan	27	16	21.5	27	12	19.5
Turkiye	17	14	15.5	12	14	13.0
Iran	21	13	17.0	13	17	15.0
Kazakhstan	3	23	13.0	28	25	**26.5**
Uzbekistan	4	10	7.0	24	21	**23.0**
Azerbaijan	2	22	12.0	30	22	**26.0**
Tajikistan	1	30	15.5	26	27	**26.5**
Egypt	20	25	22.5	8	29	18.5
Algeria	7	19	13.0	4	19	11.5
Morocco	13	15	13.0	16	13	14.5
Nigeria	10	9	9.5	23	8	15.5
S. Africa	5	3	**4.0**	3	1	**2.0**
Ethiopia	6	21	13.5	25	28	**26.5**
Brazil	9	2	**5.5**	6	3	**4.5**
Mexico	15	5	10.0	1	6	**3.5**
Argentina	22	7	14,5	14	5	9.5
Colombia	12	4	8.0	9	2	5.5
Venezuela	8	8	8.0	2	7	**3.5**
Peru	16	1	8.5	19	4	11.5

V. Concluding Remarks

Welfare economics teaches that the appraisal of economic growth is not independent from the appraisal of the income distribution underlying it. The joint development goals of growth with redistribution (GWR) can be fully derived from welfare theory. As such, growth with redistribution form the cornerstone of development policy, actions and performance.

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While growth and redistribution considerations can be commonly integrated in many development policies and actions, a joint measurement of GWR performance at the country level faces many complexities due to intricate relationships between growth and distribution, and may not be feasible. There are four complexities. First, nations (via their current and future governments) tend to go first for growth, and subsequently evaluate the impact of growth on distribution, and when needed governments may take posterior actions in time to rebalance the distribution. This renders a joint measurement of growth with redistribution performances at one and the same year an incomplete exercise.

Second, consensus on the distribution norm in relation to growth (which would function as the evaluation base) is specific for the country/region and year/periods concerned.

Third, economic growth and income distribution tend to move along the Kuznets curve during the process of economic development, which makes performance evaluation dependent on the stage of economic development, and that complicates simple comparisons.

Fourth, as redistribution of endowments enhances economic growth along the lines of Tinbergen strategy, which require long gestation periods; yearly comparisons of GWR performance among divergent countries are less meaningful.

This chapter accommodated for the above complexities and limitations by applying what can be called considerate comparisons of GWR in the context of regional development and over longer periods than commonly done. The results show that the LAC countries Brazil, Mexico, Venezuela and South Africa are caught in the trap of a moderate to low economic growth with most regressive income distribution among the studied thirty leading developing countries. Having in mind that the four countries belong to the upper income per capita compared to other developing countries, the results suggest that the four countries have difficulties and fare failing in switching sides along the Kuznets curve. At the other end, China, Indonesia, Vietnam and India (the EAP and SA regions), and some ex-Soviet countries in Asia appear to be the best performers regarding GWR over three decades of economic development. Their positive performances on GWR suggest that they have made good use of the Tinbergen strategy (redistribute endowments to facilitate growth) in their development plans.

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Endnotes

[i] For related discussion of welfare theory theorems, see Cohen (2001).

[ii] The Kuznets hypothesis has been subjected to many empirical investigations, some more supportive than others. The interested reader can refer to Kanbur (2000) and Garth (2006).

[iii] The Tinbergen strategy is advocated by many development economists who were closely associated with the World Bank starting with Chenery (1974) and Stiglitz (2006), among others

[iv] See calculations in Bosworth and Collins (1996), and reviews in Crafts (2001).

[v] The total poverty rates are higher than the averages in EAP and SA reflecting the weights of China and India in the two regions. For example, for EAP in 2012 the total poverty rate is 17.9 while the average is 15.4; the difference for SA in 2012 is greater: 37 and 23, respectively. The difference between the total and the average tend to disappear in the other regions where divergence in country sizes is much less.

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