Growth and Income Distribution for Poverty Reduction:
Pakistan's Experience

Policy Brief 1

Haroon Jamal

UNDP Pakistan

"The views expressed in signed articles are those of the authors and do not necessarily reflect those of the United Nations."

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.

Mr. Haroon Jamal is Technical Advisor at Social Policy and Development Centre (SPDC). He has a Masters degree in Commerce and a Masters in Applied Science in Economics from Karachi University. He has over 28 years of teaching and research experience and has 25 publications in internationally refereed journals. He has also served the Applied Economics Research Centre, University of Karachi, for more than 19 years in the capacity of Research and Senior Research Economist and Associate Professor. Mr. Jamal has taught a variety of courses and guided M.Phil theses on various issues. He has worked on research assignments for World Bank, Asian Development Bank, International Food Policy Research Institute, Government of Pakistan and other national institutions.

Typeset : Myriad Pro
Design and Printing by Identity Design House
identity.t@gmail.com

CONTENTS

Figures:

Tables:

Summary

The end of the 1990s brought increased emphasis on bringing the benefits of growth to the poor. Along with this emphasis on poverty reduction through accelerated growth, a favorable shift also appeared in policy literature towards redistribution of income and assets. Keeping this in perspective, an integration of distributional concerns with a priority on poverty reduction could be the basis for a future policy agenda in Pakistan to foster economic growth with equity.

Recent international empirical evidence validates that income and asset inequality affect aggregate output and its rate of growth. However, it is reasoned that there does not exist an unavoidable trade-off between growth and equity and distribution can be pursued as an additional policy objective to enhance the poverty reducing effect of growth.

In this study, Pakistan's empirics on growth and inequality are scrutinized in terms of poverty decomposition into growth and distribution components and assessment of growth in terms of its distributional neutrality with the help of widely-used methodological and statistical tools.

Kuznet's hypothesis which argues the inevitability of inequality as a byproduct of growth is also tested using time-series data. The econometrical results for the existence of Kuznet's hypothesis in Pakistan indicate that continued higher growth may result in lowering inequality. The negative and significant coefficient associated with the square per capita GDP variable confirms that higher levels of development have an inverse relationship with inequality in accordance with Kuznet's hypothesis.

However due to some data limitations, the exercise is notional and results should be contemplated accordingly.
Decomposition of poverty into growth and inequality components answers the question of what poverty outcomes would be under distributional neutrality. The results presented in this research suggest that unequal distribution has blunted the poverty impact of growth in a high growth scenario. During low growth episodes, an increased poverty incidence indicates that a larger proportion of population has fallen into the poverty trap.

High economic growth that occurred during the early 2000's led to poverty reduction but was not accompanied by lowering inequality. The evaluation of growth during 2000 suggests that the rich benefited much more than the poor. This eventually resulted in a lower reduction of the poverty incidence. On the contrary, the poor have been more adversely affected during a low growth scenario during the 90's. The decomposition results also confirm and quantify this phenomenon.

Pakistan's evidence supports the thesis that economic growth alone does not guarantee sustained poverty reduction. The recent evidence of high growth during the 2000s in Pakistan clearly indicates that without equity consideration, the benefit of growth may impede the rate of poverty reduction. For "pro-poor growth" to take place, policies must be both pro-growth and pro-equity.

1. Introduction

In recent years, vast literature on the links between income inequality and economic growth has flourished. In earlier literature, the conventional wisdom was that income inequality promotes economic growth. This premise was based on Keynes' idea that average propensity to save increases with income level so that by re-distributing income in favor of the rich, the economy-wide average propensity to save would rise thereby promoting economic growth. That is, ceteris paribus, the fraction of GDP devoted to capital formation would increase.

Supported by initial research findings, two main arguments are described in the literature to explain why income redistribution will reduce the rate of economic growth. The first is that redistribution is typically accompanied by a progressive income tax structure which adversely affects incentives. This in turn is likely to reduce investment and lead to a reduced work effort. The second contention is that as those on high incomes tend to have a higher savings rate than those on low incomes; redistribution will reduce the rate of savings and hence reduce investment and growth. Therefore, it was maintained that distribution policies give rise to distortions in the economy resulting in inefficiencies substantial enough to adversely affect the overall well being of society.

The above contention of positive relationship between inequality and growth has been challenged by empirical evidence based on rigorous testing of more recent cross-country data. For instance, Knowles (2001) reconfirms the negative effects of inequality on growth using updated and more comparable inequality data.

The emerging consensus now is that inequality is harmful for growth, however disagreement exists on the underlying mechanisms.There are at least three main arguments in support of a negative effect of inequality on growth. These routes or mechanisms have been summarized in Perotti (1996). The first argument is that an unequal distribution of income will lead to pressure for redistribution through higher government expenditure and distortionary taxes. This would reduce the growth rate. The second argument is that inequality may lead to socio-political instability, which in turn will reduce investment and growth. The third argument is that in the presence of imperfect capital markets, inequality will reduce investment in human capital and this will also in turn reduce growth.

Although empirical evidence predominantly suggests that inequality is bad for growth (Naschold, 2002), it is reasoned that there does not exist an unavoidable trade-off between growth and equity. The World Development Report (2000/01) concludes that better distribution is possible without a reduction in economic growth. Given that there is no trade-off per se between growth and equality, it follows that distribution can be pursued as an additional policy objective to enhance the poverty reducing effect of growth. The removal or correction of the various anti-poor institutional constraints and policy-induced biases is likely to actually improve market efficiency while promoting equity. For instance, social policy ensuring adequate provision of education and health services to the poor can improve their productivity and contribution to the economy.

Therefore, the conclusion drawn is that poverty reduction is not a function of high or low growth but rather of distribution sensitive growth.

This research assesses the distributional characteristics of growth in Pakistan by applying statistical techniques suggested in the empirical literature on redistribution and growth. It also quantifies the relative role of income distribution in Pakistan's poverty reduction. Section 2 succinctly describes the situation analysis in terms of poverty, inequality and growth trends in Pakistan. The paradigm which justifies primacy of growth through Kuznet's famous thesis is appraised in section 3. The analysis of poverty decomposition into growth and income distribution components is provided in section 4. Section 5 evaluates Pakistan's growth with respect to its 'pro-poorness'. The last section summarizes major findings.

2. Situation

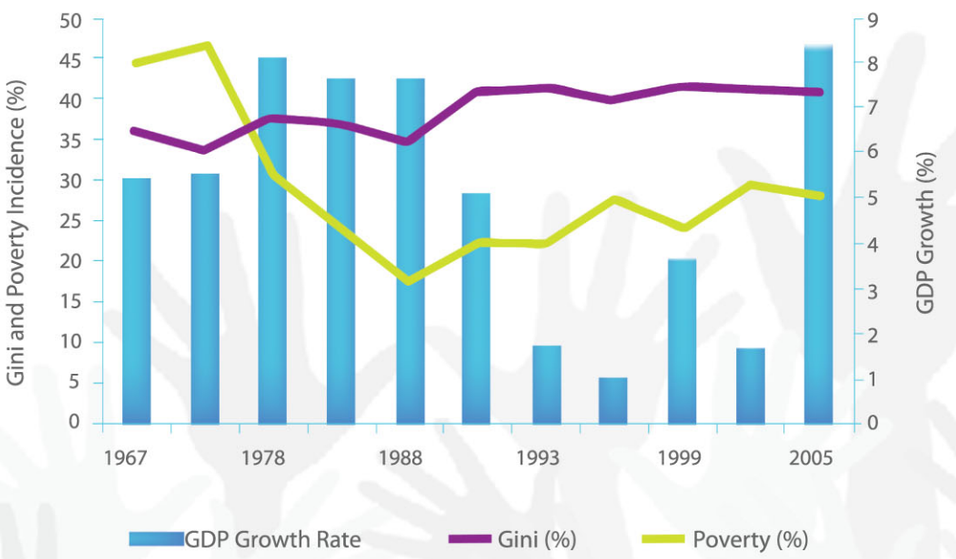
There is a consensus among development economists that Pakistan has never had a very strong, coherent and clear economic vision about its development and growth policies. An overview of Pakistan's development experience unfolds three basic approaches; first is the growth-oriented development model without meaningful regard for equity considerations, second is the 'growth with equity' strategy that was primarily state-managed and the third is an eclectic route driven alternatively by expediency and constraints. The decade of the 1960s is characterized by the first approach and the period from 1973-77 by the second approach. Subsequent periods have been marked by an absence of vision and direction as reflected in policy-making and investment decisions.[1]

To comprehend the development outcome in terms of growth, poverty and inequality, trends in real GDP, the Gini coefficient and headcount (poverty incidence) over the period 1967-2005 are sketched in Figure-1.

In terms of growth-inequality nexus, the phenomenon of low level of inequality with high level of income is evident from the figure. High growth rates during 1978 and 1988 are associated with lower Gini magnitudes, while low growth over relatively a long spell resulted in higher magnitude of the Gini coefficient. Similarly, high growth rates during 2001-2005 period has resulted in a slight decline in the Gini magnitude. The inverse relationship between poverty and growth is, however more discernible, especially in the growth episode of the 80's.

Figure 1

GDP Growth, Income Inequality (Gini Coefficient) and Poverty Incidence



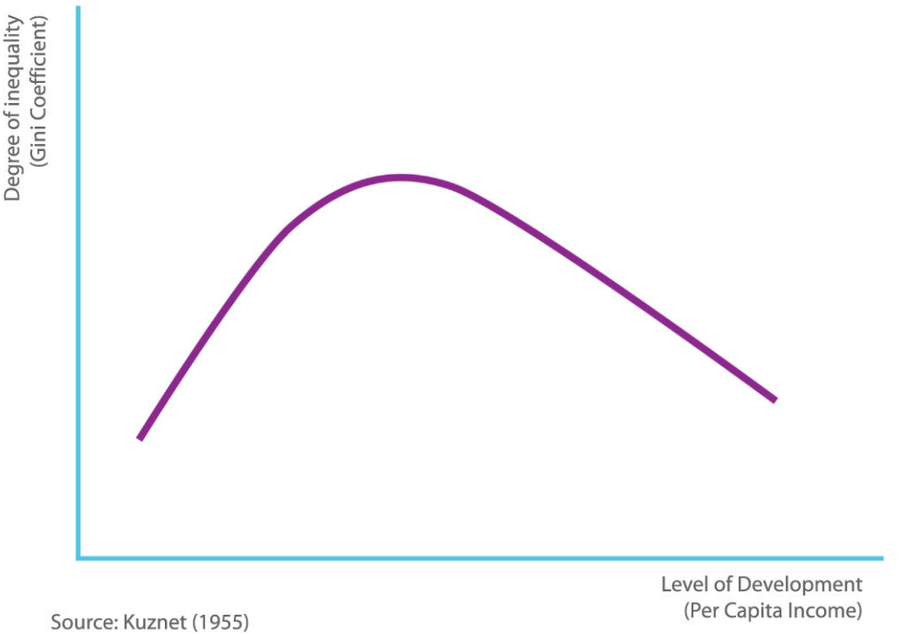
Source: Data are obtained from Pakistan Economic Survey (various issues)

1 For a detail review see Zaidi (2005), SPDC (2004) and Hasan (2007).

3. The Inevitability of Engaging with Inequality

The conceptual validation of the inevitability of inequality as a byproduct of growth is drawn from the Kuznet thesis propounded in 1955. The hypothesis predicts an increase in inequality during early periods of growth and a reduction in inequality as the economy reaches a higher stage of development. The growth-inequality relationship was charted in what came to be well-known as the inverted U-shaped Kuznet's Curve (Figure-2).

Figure-2
Kuznet's Curve



Source: Kuznet (1955)

The U-curve philosophy downplays the present in expectation of a better promised future. The thesis maintains that economic growth is fundamental to the development process, and that the objective of poverty reduction can only be achieved by allowing the benefits of growth to ultimately trickle down to the poor.

The 'trickle-down' paradigm presumes a built-in vertical flow from the rich to the poor. It assumes that the benefits of economic growth would, in the first round, accrue to the upper income land- and capital-owning groups (mainly a minority of the population), and the ensuing saving and investment by these households would, in subsequent rounds, accrue incomes to relatively lower income households (mainly artisans, workers, peasants etc.).

Kuznets' hypothesis has received significant attention in the literature on economic growth and distribution of resources. Although many scholars believe that Kuznets hypothesis is a fair approximation of movements in income inequality during the process of economic growth in a country, not all of them agree on the extent to which empirical studies support the hypothesis. Saith (1983), for example, is skeptical about the validity of the paradigm and argues that the "U-Hypothesis is more of a hindrance than an aid" to understand the relationship between economic development and income inequality. Nonetheless, there is a huge list of investigators whose empirical studies have offered varying degrees of support for Kuznet's hypothesis.

The most recent addition in the literature on Kuznet's hypothesis is the work of Barro (2008).He concludes, "International data confirm the presence of the Kuznets curve —an inverse-U shape relationship between income inequality and per capita GDP". Income inequality first rises but subsequently declines with per capita GDP. He further finds that the Kuznets curve is reasonably stable from the 1960s through the 2000s.

Several theoretical models have been used to econometrically test Kuznet's hypothesis, however most of the empirical work is based on the specification in which inequality is related (regressed) to the level of per capita income (GDP) and its square. Barro (2008) also used this specification and found a significant positive effect on the Gini coefficient from the log of per capita GDP and a significantly negative effect from the square of the log of per capita GDP.

Most of the evidence used to prove Kuznet's hypothesis is obtained from cross-country international data sets as sufficient time-series data of an individual country are generally not available. Here, an attempt is made to test Kuznet's hypothesis by using Pakistan's time series data of growth and inequality[2]. Table-1 reports Pakistan's empirics in terms of relationship between per capita GDP and the Gini coefficient.

2 The series of Gini coefficient is interpolated for missing years. Regression method is used to interpolate Gini coefficients. For methodology see Jamal (2006).

Table-1
Estimation of Kuznet Curve
Dependent Variable: Log (Gini*100)

Explanatory Variables	Coefficient	t-Statistic	Significance
GDP Per Capita	4.340790	20779928	0.0156
Squared GDP Per Capita	- 0.253756	- 2.728827	0.0172
Other Determinants of GINI			
Inflation (Food Prices)	0.071201	5.140820	0.0002
Direct to Indirect Tax Ratio	- 0.004807	- 0.571617	0.5773
Manufacturing to Agriculture Wage Gap	0.016591	2.093576	0.0565
Developmeny Expenditure on Social Services	- 0.014364	- 3.168946	0.0074
Investment	- 0.057622	- 3.926647	0.0017
Manufacturing to Agriculture Terms of Trade	0.061750	2.596119	0.0222
Dummy Variable (1985 to 1988 = 1)	0.003707	1.937623	0.0747
Intercept	- 15.46034	- 2.368474	0.0340
R-Squared	0.998	F-statistic	1145.71
Adjusted R-squared	0.997	Probability (F)	0.0000
Durbin- Watson stat	1.622	Observations	23

Notes: All variables are in logarithmic form and statistically significant except proxy of progressive taxation.

LM and ARCH tests are applied and found no evidence of serial correlation.

The econometrical results for the existence of Kuznet's hypothesis in Pakistan indicate that continued higher growth may result in lowering inequality[3]. The negative and significant coefficient associated with the square per capita GDP variable confirms that higher levels of development have an inverse relationship with inequality in accordance with Kuznet's hypothesis. However, there are some caveats.First, almost all of the empirical research on Kuznet phenomenon is based on international cross-country data.Using time-series data of a particular country for testing the hypothesis is perhaps not apt. Second, due to a small number of observations and hence a low degree of freedom, the magnitudes of coefficients in the econometric specification are not stable and sensitive with minor changes in the data. Therefore, the exercise is notional and results should be contemplated accordingly.

3The phenomenon is also evident in Figure-1for the period 1978-88.

4. Importance of Income Inequality in Poverty Reduction

To quantify the influence of growth and inequality on poverty reduction, a conventional poverty decomposition approach is used with some modification. The approach, proposed by Ravallion and Huppi (1991) and Datt and Ravallion (1992), centers around a decomposition of changes in poverty indices (incidence, poverty gap, poverty severity etc.) into its growth and distribution components[4], in order to assess the relative role played by each.

The importance of inequality is assessed in two growth episodes; first, the period1988-98 which reflects a relatively low growth (average 4% real GDP growth) and second the period 2001-05 which is eventually a high growth period (average 6% real GDP growth). These two periods also correspond to poverty increasing and poverty decreasing eras respectively. Absolute poverty levels are estimated[5] from unit record data of four Household Income and Expenditure Surveys (HIES, 1987-88, 1998-99, 2000-01, and 2004-05). Monetary poverty lines[6] computed for these surveys are used to convert nominal household consumption into real consumption.

The magnitudes of three poverty indices (FGT aggregates) are decomposed into growth and distribution components i.e. headcount or poverty incidence (percentage of population below poverty line), poverty gap and poverty severity[7]. The decomposition results are reported in Table-2 through Table-4.

The results[8] answer the question of what the poverty outcomes would be under distributional neutrality. According to Table-2, if growth had been distributionally neutral in the 2001-05 period (high growth period), the incidence of poverty (headcount) would have declined by 6 percentage points instead of 3 percentage points. The evidence clearly reveals that unequal distribution has blunted the poverty impact of growth. Similarly in a low growth period (1988-98), poverty would have gone up by 5 percentage points instead of 6 if growth had been distributionally neutral. The magnitudes of decomposition reveal that poverty has risen by almost 84 percent due to low growth and about 16 percent due to rise in inequality for the period 1988-98.

Results in Table-2 also suggest that the role of income distribution is relatively more important in high growth periods as evident from the magnitudes of redistribution component in both scenarios.

4 A brief description of Datt and Ravallion (1992 methodology is provided in Appendix-A.

5 For details, see Jamal (2002, 2007)

6 GDP deflator for private consumption was also attempted and sensitivity of results was investigated. However, this method is preferred only for comparability of poverty figures, reported in earlier research of SPDC.

7 A brief discussion of these indices with the formulae is provided in the Appendix – B.

8 DAD software (version 4.5) is used for decomposing poverty indices. The software is designed and developed by Jean-Yves Duclos, Araar Abdelkrim and Cari Fortin of Laval University (Canada).

The redistribution component is more than double in the period 2001-05. Similar patterns with higher percentages are observed in the other two poverty measures i.e. poverty gap and poverty severity. The magnitude or relative weight of distribution coefficients is rising as we consider more 'equity-sensitive' poverty measures. For instance, in high growth periods, the income distribution canceled out the growth impact on poverty incidence (headcount) by 72 percent.

This percentage is 97 and 137 for poverty gap and poverty severity respectively. Similarly, in low growth and poverty increasing period, distribution has an effect on poverty incidence equal to 16 percent while in the case of the poverty gap and poverty severity indices, the effects are 29 and 37 percent respectively.

Table-2
Decomposition of Absolute Poverty Aggregate- Poverty Inciedence (Headcount)

Analysis Period	Absolute Level of Poverty Gap		Absolute Change	Change due to	
	Period 1	Period 2		Growth	Distributiom
Low Growth: [1988 v/s 1998]	4.684	6.940	2.292	1.626	0.666
				(71%)	(29%)
High Growth: [2001 vs 2005]	7.479	6.534	-0.945	-1.864	0.912
				(-197 %)	(97%)

Source: Author's estimates based on unit record household data (HIES).

Table-3
Decomposition of Absolute Poverty Aggregate- Poverty Gap

Analysis Period	Absolute Level of Poverty Incidence		Absolute Change	Change due to	
	Period 1	Period 2		Growth	Distributiom
Low Growth: [1988 v/s 1998]	23.429	29.915	6.486	5.442	1.044
				(84%)	(16%)
High Growth: [2001 vs 2005]	33.374	29.890	-3.484	-5.996	2.512
				(-172 %)	(72%)

Source: Author's estimates based on unit record household data (HIES).

Table-4
Decomposition of Absolute Poverty Aggregate- Poverty Severity

Analysis Period	Absolute Level of Poverty Severity		Absolute Change	Change due to	
	Period 1	Period 2		Growth	Distributiom
Low Growth: [1988 v/s 1998]	1.378	2.342	0.964	0.606 (63%)	0.358 (37%)
High Growth: [2001 vs 2005]	2.428	2.124	-0.304	-0.720 (-237 %)	0.416 (137%)

Source: Author's estimates based on unit record household data (HIES).

5. Assessing Pro-Poorness of Pakistan's Growth

5.1 Defining Pro-Poor Growth

The evaluation of economic growth to analyze whether distributional changes are "pro-poor" has become increasingly widespread in academic and policy circles. The definition of 'pro-poor growth' however is still somewhat arbitrary. International development agencies define pro-poor growth as "growth that benefits the poor and provides them with opportunities to improve their economic situation". This definition however does not provide any guidance for measurements and policy implications (faster growth vs. greater equity).From a measurement point of view, pro-poor growth can refer to either a relative or absolute concept of poverty reduction.

Thus, the debate on defining pro-poor growth has very similar characteristics to the debate on how to measure poverty (absolute or relative). This is equivalent to asking whether we should be interested in the impact of growth on absolute poverty or on relative inequality.

The absolute definition concentrates on the absolute level of growth for the poor. Growth is considered pro-poor if the poor population benefits from it in absolute terms, irrespective of how the total gains are distributed within the country in question. According to Ravallion and Chen (2003), the growth process is said to be 'pro-poor' only if poor people benefit in absolute terms. The extent to which growth is pro-poor by this definition depends solely on the rate of change in poverty. This will naturally depend in part on what happens to income distribution, but only in part — it also depends on what happens to average living standards.

Ravallion's absolute perspective of pro-poor growth is identical with the concept of poverty reducing growth and refers to t he totality of the growth process. Thus, it advocates the 'primacy of growth' paradigm and 'trickle down' philosophy. According to Ravallion and Chen (2001), it is possible that both the poor and the non-poor see a drastic reduction in income but in relative terms, the income of the poor is less severely affected than that of the non-poor. Under a relative measure, this would mean growth would have been pro-poor even though the poor have seen an absolute decrease in income. Moreover, policy interventions targeted at reducing inequality alone may hurt economic growth and have a net negative effect on society. Ravallion and Chen also argue that in operational terms, absolute measures tend to provide assessments that are more easily understood than relative ones.

The relative definition, proposed by Kakwani and others, classifies growth as pro-poor when growth implies distributional effects favoring the poor. In other words, when the poor gain from economic growth proportionally more relative to the non-poor, the nature of growth is said to be pro-poor. Thus, the relative perspective stresses the existence of a bias in favor of the poor. According to Kakwani and Pernia, 2000), pro-poor growth is described as a situation in which any distributional shifts accompanying economic growth favor the poor, meaning that poverty falls more than it would have if all income levels had grown at the same rate. Kakwani et. al. (2004) argue, "The trickle-down development, which was the dominant thinking in the 1950s and 1960s, also reduces poverty but the rate of poverty reduction may be much slower. It is the slowness of poverty reduction that has generated interest in the concept of pro-poor growth. It is now being realized that neither growth itself nor growth-enhancing policies are likely to result in a rapid reduction in poverty. Pro-poor growth raises a call for enhancing growth that also delivers proportionally greater benefits to the poor than to the rich". Therefore, the relative definition of pro-poorness has been widely used in the literature due to its intuitive appeal, but it also has limitations. As maintained by Ravallion and Chen (2001), concentrating solely on the inequality aspects and disregarding the absolute levels of growth might end up favoring growth strategies that are suboptimal for both the poor and the rich.

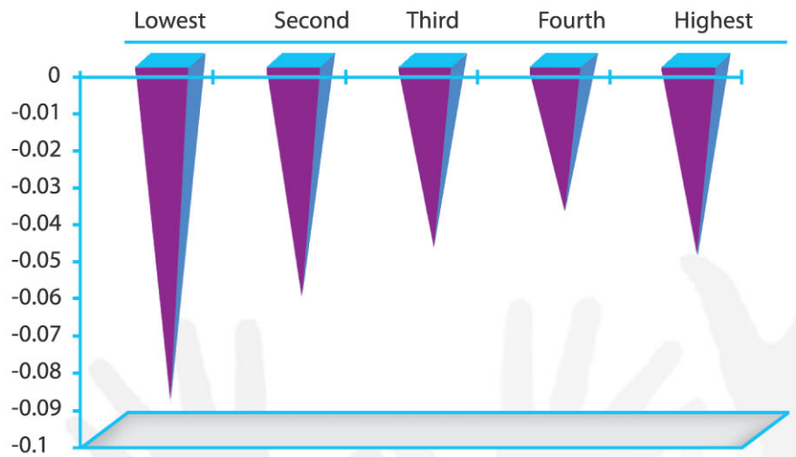
Oamani (2005) however argues that he "find(s) both their definitions problematic". He suggests identifying a benchmark first that allows gauging of the pro-poorness of growth. 'Pro-poor growth' is then defined as a growth process that reduces poverty more than the benchmark. Due to practical difficulties and subjectivity in identifying the benchmark however, most of the empirical literature on 'pro-poorness' has evolved around Ravallion's absolute perspective and Kakwani's relative perspective. For measuring pro-poorness, these authors use terms such as 'Rate of Pro-Poor Growth' (RPPG) and 'Poverty Equivalent Growth Rate' (PEGR) for the absolute and the relative perspectives respectively.

Both absolute and relative perspectives on pro-poor growth are relevant for designing different policies and routes for poverty reduction. To combine the strength of both perspectives [9], Pakistan's growth performance is evaluated in terms of absolute and relative pro-poorness for two growth episodes, 1988-1999 (low growth scenario) and 2001-2005 (high growth scenario). Estimated results are discussed in the following section in Table-7. The section also presents a brief review of Pakistan's pro-poorness assessment by earlier researchers (Table-5 and Table-6).

5.2 Evaluation of Pakistan's Growth Performance

Figures 3 and 4 are developed to portray a rough sketch of the pro-poorness of the growth process. These figures plot growth in terms of mean quintile consumption per capita. A decline in real consumption was observed during low GDP growth period of 90's (1987-88 vs.1998-99). However, Figure-3 clearly reveals that the poor (bottom quintile) have been more adversely affected as compared with top two quintiles.[10] Figure-4 summarizes growth in mean quintile consumption for the high growth episode (2001-2005). The figure confirms that relatively high growth in the years 2000-01 and 2004-05 did not go to the poor as much as to the non-poor. It is evident from the figure that the highest growth is observed in the top quintile. Both figures assert the nature of Pakistan's growth, which is evidently not 'pro-poor'.

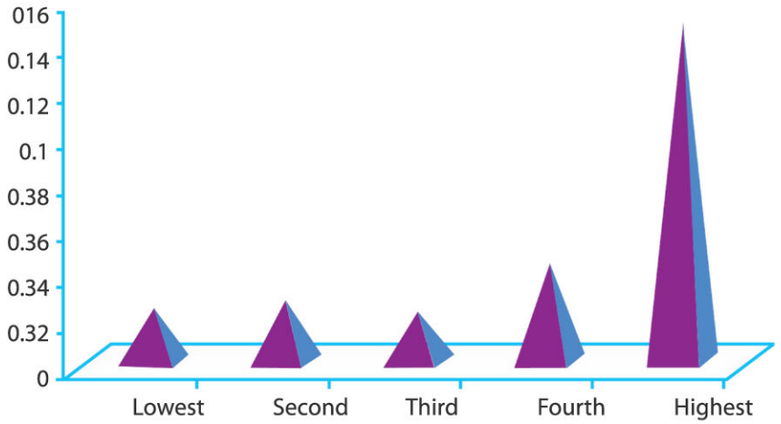
Figure-3
Growth in Average real Consumption Quintiles- [1987-88 vs. 1998-99]



9 Brief methodologies for measuring absolute and relative pro-poorness of growth are provided in the Appendix–C.

10 Traditionally in Pakistan, poverty indices are estimated using consumption data. Therefore, growth in mean quintile consumption per capita is plotted instead of mean quintile income per capita.

Figure-4
Growth in Average Real Consumption Quintiles- [2000-01 vs. 2004-05]



Pasha and Palanivel (2005) have estimated the pro-poor growth for South Asia including Pakistan by using Growth Elasticity of Poverty (GEP). They concluded that GEP in case of Pakistan was negative (anti-poor) during 70's and 80's and positive (pro-poor) during the 90's. This simple approach however does not consider distributional characteristics of growth and thus is not an attractive method. Moreover, GEP also depends completely on the poverty measure[11] considered for the pro-poorness investigation.

Son (2004) computed poverty growth curves using international data for poverty and income distribution and concluded that growth in Pakistan was pro-poor during the 60's (1964-1969) and in the early 90's (1990-1996). For other periods the nature of growth was not pro-poor. The results for Pakistan are reproduced in Table-5.

Table-5
Trends in Nature of Growth- Relative Perspective of Pro-Poorness
[Based on Group Data]

	Annual Growth Rate of Bottom					Nature of Growth
Years	20%	40%	60%	80%	100%	
1964-1969	11.4	9.12	7.63	6.25	4.54	Pro-poor
1969-1979	0.42	0.64	0.77	0.87	1.07	Not Pro-poor
1979-1985	2.94	2.85	2.89	2.99	3.02	Not Pro-poor
1985-1990	0.88	1.47	1.74	1.88	1.99	Not Pro-poor
1990-1996	3.92	3	2.18	1.5	1.39	Pro-poor

Source: Son (2004)

11 For this exercise, Pasha and Palanivel used poverty incidence (headcount).

While Son (2004) approach was based on relative criterion of pro-poor growth, Omar and Jafri (2008) assessed Pakistan's growth performance using absolute perception and estimated RPPG proposed by Ravallion and Chen (2003). They found that, "overall….growth in Pakistan was pro-poor in (the) seventies[12], eighties and 2000s, with varying degrees, and anti-poor in the nineties". They also examined growth in incomes of those beneath the poverty line (four bottom deciles). The findings of their research indicate that the bottom decile (1st decile) experienced the sharpest growth (decline) in income relative to subsequent deciles in pro-poor (anti-poor) episodes. This suggests that much of the growth (decline) in the income of the poor took place among the 'poorest of the poor'. The main results from Omar and Jafri (2008) are reproduced in Table-6.

The statistical findings (Table-6) covering both perspectives of pro-poorness are based on group data (deciles or quartiles). To avoid aggregation biases, this study quantifies the 'Rate of Pro-Poor Growth' (absolute perspective) and the 'Poverty Equivalent Growth Rate'[13](relative perspective) using unit record data of household surveys for two different political regimes and growth episodes.

Table-6
Trends in Nature of Growth- Absolute Perspective of Pro-Poorness
[Based on Group Data]

	1970s	1980s	1990s	2000s
Nature of Growth	**Pro-Poor**	**Pro-Poor**	**Anti-Poor**	**Pro-Poor**
Rate of Pro-Poor Growth	6.33	8.98	-7.13	10.45
Growth in Survey Mean	6.4	1.61	1.14	1.38
GDP Growth	5.05	6.59	5.52	4.72
Growth in Initial Deciles				
1st Decile	7.54	10.62	- 8.30	16.3
2nd Decile	5.66	8.84	- 5.57	8.98
3rd Decile	5.96	7.4	- 4.39	6.92
4th Decile	6.18	6.31	- 3.57	6.14
Source: Omar and Jafri (2008)				

12 The surveys to cover decade as follows: seventies (1979, 1987-88); eighties (1987-88, 1998-99); 2000s (1998-99,2004-05)
13 PEGR can be estimated for various poverty measures or indices. For this study headcount or poverty incidence is used to estimate PEGR. For poverty line and poverty estimation methodologies, see Jamal (2002, 2007).

Table-7 presents the assessment of Pakistan's growth in terms of pro-poorness using both perspectives. The absolute perspective[14] (RPPG) reveals that during the low growth period of the 90's, the rate of RPPG is lower than the rate of average growth. This phenomenon indicates that the nature of growth is not 'pro-poor'. According to Ravallion (2004), if the distributional shifts favor the poor, than the rate of pro-poor growth exceeds the ordinary growth.

It is evident from the table that the magnitude of RPPG is lower than the growth in real mean consumption during high growth period (2001-2005). Thus the estimation of RPPG for Pakistan confirms that the nature of growth is not 'pro-poor', even in high growth episode. The growth, although reduced[15] poverty during the period 2001-05, did not benefitlower income groups by much due to high inequality.

Table-7
Pro-Poorness Assessment in Low and High Growth Episodes
[Based on Unit Record Data]

Growth Episodes	Low Growth 1990's 1987-88 vs. 1998-99	High Growth 2000's 2001-01 vs. 2004-05
Average Real GDP Growth [National Account]	4.1	5.8
Average Growth in Real Mean Consumption Household Surveys	-5.5	8.5
Rate of Pro-Poor Growth [Absolute Perspective og Pro-Poor Growth]	-7.3	4.9
Nature of Growth	[Not Pro-Poor]	[Not Pro-Poor]
Poverty Equivalent Growth Rate [Relative Perspective of Pro-Poor Growth]	-8.1	4.0
Nature of Growth	[Not Pro-Poor]	[Not Pro-Poor]

Source: Author's estimates based on unit record data of houshold surveys (HIES)

The relative perception of pro-poorness (PEGR), which is more attractive due to giving proportionally more weights to the poor or lower income quintiles also asserts that the nature of growth was not in favor of poor for the growth periods considered in the analysis. PERG is lower than the growth in mean consumption in both growth episodes. This suggests that the non-poor benefitted more than the poor, even in a high growth scenario.

14 DAD software (version 4.5) is used for estimating GIC curves and RPPG. The software is designed and developed byJean-Yves Duclos, Araar Abdelkrim and Cari Fortin of Laval University (Canada).

15 See Pakistan Economic Survey (2005-06).

6. Key Findings at a Glance

The paper assesses the distributional characteristics of growth in Pakistan by applying statistical techniques suggested in the empirical literature on redistribution and growth. It also quantifies the relative role of income distribution by decomposing poverty aggregates into growth and distribution components. Table-8 summarizes the main findings.

Table-8
Key Findings

1. Poverty Decomposition	*Low Growth Episode* [Poverty Increased]	*High Growth Episode* [Poverty Decreased]
	1988 v/s 1998	*2001 v/s 2005*
Change in Poverty Inciedence (Headcount) due to:		
Growth	*84%*	*-172%*
Income Distribution	*16%*	*72%*
Change in Poverty Gap due to:		
Growth	*71%*	*-197%*
Income Distribution	*29%*	*97%*
Change in Poverty Severity due to:		
Growth	*63%*	*-237%*
Income Distribution	*37%*	*137%*
2. Assessment of Pro-Poorness of Growth		
Absolute Perspective of Pro-Poor Growth		
Rate of Pro-Poor Growth	*Not Pro-Poor*	*Not Pro-Poor*
Relative Perspective of Pro- Poor Growth		
Poverty Equipment growth Rate	*Not Pro-Poor*	*Not Pro-Poor*

References:

Barro Robert J. (2008); "Inequality and Growth Revisited", ADB Working Paper Series on Regional Economic Integration Number 11, Asian Development Bank

Datt, G. and M. Ravallion (1992). Growth and Redistribution Components of Changes in poverty measures: A Decomposition with Application to Brazil and India in the 1980s. Journal of Development Economics Vol. (38)

Foster, J.E., J. Greer, and E. Thorbecke, (1984). "A Class of Decomposable Poverty Measures", Econometrica, 52, pp.761 66.

Hasan, Parvez (2007), "Role of the State in Pakistan's Economy: Assessing the Past and Exploring Future Challenges", Economic and Political Weekly, May 5

Jamal Haroon (2006), "Does Inequality Matter for Poverty Reduction? Evidence from Pakistan's Poverty Trends", Pakistan Development Review, Autumn

Jamal, H. (2002), "On the Estimation of an Absolute Poverty Line: An Empirical Appraisal", The Lahore Journal of Economics, July-December.

Jamal, H. (2007), "Updating Poverty and Inequality Estimates: 2005 Panorama", SPDC Research Report No. 69, Social Policy and Development Centre, Karachi

Kakwani, Nanak and E. Pernia, (2000), 'What Is Pro-Poor Growth?' Asian Development Review. 18(1): 1-16.

Kakwani, N.C., S. Khandker and H.H. Son (2004). Pro-poor growth: concepts and measurement with country case studies. Working Paper Number 2004-1, International Poverty Center, Brazil

Knowles, S. (2001), "Inequality and Economic Growth: The Empirical Relationship Reconsidered in the Light of Comparable Data", Centre for Research in Economic Development andInternational Trade, CREDIT Research Paper Number 3, University of Nottingham

Kuznets, S., "Economic Growth and Income Inequality," American Economic Review, 45, 1955 Naschold Felix. 2002. "Why Inequality Matters for Poverty?" Briefing paper Number 2, UK Department for International Development (DFID), UK

Oamani Siddiq (2005), "Defining Pro-Poor Growth", One Pager, January, Number 9, International Poverty Centre, Brazil,

Pasha A. H. and Palanivel T.(2004); "Pro-Poor Growth and Policies: The Asian Experience", Asia-Pacific Regional Programme on the Macroeconomics of Poverty Reduction, United Nations Development Programme

Perotti, R., 1996, Growth, income distribution, and democracy: what the data say, Journal of Economic Growth 1, 149-187

Ravallion, M (2004), "Pro-Poor Growth: A Primer", World Bank Policy Research Working Paper Number 3242, World Bank, Washington DC

Ravallion, M. and Huppi, M., (1991). "Measuring Changes in Poverty: A methodological case Study of Indonesia during an Adjustment Period", The World Bank Economic Review, 5(1)

Ravallion, M. and S. Chen (2001), "Measuring Pro-Poor Growth", Policy Research Working Paper No. 2666, World Bank, Washington D.C

Ravallion, M. and S. Chen (2003), 'Measuring Pro-Poor Growth,' Economics Letters,78(1)

Saith, A., "Development and Distribution: A Critique of the Cross-Country U-Hypothesis," Journal of Development Economic, 13, 1983.

Shapley, L. (1953) 'A Value for n-Person Games', in: H. W. Kuhn and A. W. Tucker, eds., Contributions to the Theory of Games, Vol. 2, Princeton University Press.

Shorrocks, A. F. (1999) 'Decomposition Procedures for Distributional Analysis: A Unified Framework Based on Shapley Value', mimeo, Department of Economics, University of Essex.

Son, Hyun Hwa. (2004). "A Note on Pro-Poor Growth", Economics Letters, Number (82)

SPDC (2004), "Social Development in Pakistan: Combating Poverty: Is Growth Sufficient?" Social Policy and Development Centre, Karachi

World Bank (2001) "World Development Report" (2000/01), Oxford University Press, New York

Zaidi S. A. (2005), "State, Military and Social Transition: Improbable Future of Democracy in Pakistan, Economic and Political Weekly, December 3

Appendix - A

Poverty Decomposition Methodology

The modus operandi, to decompose the changes in poverty indices (incidence, poverty gap, poverty severity etc.) into its growth and distribution components is as follows:

Let P* denote the measure of poverty in period 2 in only mean consumption which has changed since period 1 without any change in relative consumption level; that is, P* is obtained by applying the period 2 mean to the period 1 distribution. Similarly, let P** denote the poverty level in period 2 if only the distribution (Lorenz curve) had shifted since period 1, leaving the mean consumption unchanged. In practice, the redistribution component is calculated by multiplying each observation in the period 2 dataset by the ratio of the period 1 to the period 2 mean consumption. The observed change in poverty between the two periods can then be decomposed into growth and distributional effects as follows:

$$Pt2 - Pt1 = (P^* - Pt1) + (P^{**} - Pt1) + [\text{Residual}]$$
$$= [\text{Growth effect}] + [\text{Distribution effect}] + [\text{Residual}]$$

The growth component captures the effect of the changing level of mean expenditure between t1 and t2, while maintaining the t1 distribution. The redistribution component shows the effect of the changes in distribution, while maintaining mean expenditure at its t1 level.

The decomposition method proposed by Ravallion and Huppi (1991) also computes a residual component, which they explain as the interaction of growth and redistribution process. Shorrocks (1999) modified this decomposition method using the concept introduced by Shapley (1953). The advantage of this method is the elimination of the residual component or "black box" that remains unexplained in conventional decomposition techniques. Due to criticism on the residual term, the modified decomposition method proposed by Shorrocks (1999) is used for the following analysis.

Appendix - B

Poverty Aggregates (indices) used in the Decomposition Analysis

Various poverty aggregates (indices) are used to proxy the status of a group of individuals. A class of functional forms, which has been suggested by Foster, Greer, and Thorbeke (FGT), uses various powers of the proportional gap between the observed and the required expenditure as the weights to indicate the extent of and level of intensity of poverty. The higher the power, the greater the weight assigned to a given level of poverty. It therefore, combines both the incidence and intensity. FGT indices are very popular and widely used in the empirics on Pakistan poverty.

The following formula is used for measuring various poverty aggregates.

$$P^{\alpha} = (1 / N) \sum [(Z - EXP) / Z]^{\alpha}$$

Where;

P^{α} = Aggregation measure

N = Total number of households

EXP = Observed household expenditure

Z = Poverty line

Σ = Summation for all individuals who are below the poverty line

Putting $\alpha = 0$, the formula shows the proportion of households whose consumption fall below the poverty line. This is the most popular measure, namely the Headcount Index or incidence of poverty. However, it assigns equal weights to all the poor regardless of the extent of poverty. Putting $\alpha = 1$, the Proportionate Gap Index or Poverty Gap (PG) is calculated. It measures the average distance from the poverty line. Although, PG shows the depth of poverty, it is insensitive to the distribution among the poor. Putting $\alpha = 2$, FGT2 index is calculated. This index takes into account inequality amongst the poor and shows the poverty severity by assigning greater weights to those households who are far from the poverty line.

Appendix - C

Methodology for Measuring Pro-Poor Growth

Absolute Perspective[16]**:** The measure of the rate of pro-poor growth proposed by Ravallion and Chen (2003) equals the ordinary rate of growth times a "distributional correction" given by the ratio of the actual change in poverty over time to the change that would have been observed under distribution neutrality. If the distributional shifts favor the poor, then the rate of pro-poor growth exceeds the ordinary rate of growth. If the shifts go against the poor then it is lower than the ordinary rate of growth. Thus, one can think of the second measure of the rate of pro-poor growth as the first measure times the ordinary rate of growth. We can write the following simple equation for the rate of pro-poor growth (RPPG):

Rate of pro-poor growth = Distributional correction x Ordinary growth rate

For distributional correction component, they proposed to estimate 'Growth Incidence Curve' (GIC) which was first used by Ravallion and Chen (2001) in the pro-poor growth concept. The GIC gives rates of growth by percentiles of the distribution of income. Growth Incidence Curve may be derived as follows:

$$g_t(p) = \left[\frac{L_t\ (p)}{L_{t-1}(p)}\ (\gamma_t + 1)\right] - \overline{1}$$

where $\gamma_t = (\mu_t / \mu_{t-1})$ is the growth rate in μ_t. It is evident from the equation that if the Lorenz curve (L) does not change, then $g_t(p) = \overline{\gamma_t}$ for all p. Also $g_t(p) > \overline{\gamma_t}$ if and only if $\gamma_t(p)/\overline{\mu_t}$ is increasing over time. If $g_t(p)$ is a decreasing (increasing) function for all *p* then inequality falls (rises) over time for all inequality measures satisfying the Pigou-Dalton transfer principle. If the GIC lies above zero everywhere $(g_t(p) >$ for all *p*), then there is first-order dominance of the distribution at date *t* over *t*-1. If the GIC switches sign then one cannot in general infer whether higher-order dominance holds by looking at the GIC alone.

The GIC establishes the pattern of income growth and assesses whether it is pro-poor or not. For example, if first order dominance holds and GIC is positive at each percentile, then one can infer that growth is pro-poor and that the inequality is an increasing (decreasing) function of p. On the other hand, if second order dominance holds and GIC is positive up to the p_{th} percentile (up to a given poverty measure), one can safely conclude that growth is pro-poor only. Therefore, the GIC directly measures absolute poverty while also illustrating inequality-related growth shifts.

16 For detailed methodology see Ravallion and Huppi (1991) and Ravallion and Chen (2001, 2003).

Relative Perspective : The poverty reduction depends on two factors. The first factor is the magnitude of economic growth rate; the larger the growth rate, the greater the poverty reduction. The second factor[17] is the distribution of benefits of growth; if the benefits of growth go more to the poor than to the non-poor, then the poverty reduction will be larger. This implies that the policy of maximizing growth alone will not necessarily lead to a maximum reduction in poverty. The idea of "poverty equivalent growth rate" (PEGR) takes into account not only the magnitude of growth but also how much benefits the poor receive from growth. It is demonstrated that the proportional reduction in poverty is a monotonically increasing function of the PEGR; the larger the PEGR, the greater the proportional reduction in poverty. Thus, the maximization of PEGR will lead to a maximum reduction in poverty.

Unit record household data for any two periods is required to estimate the PEGR. The poverty measure θ is fully characterized by the poverty line z, the mean income μ and the Lorenz curve L(p). That is

$$\theta = \theta[z, \mu, L(p)]$$

Suppose the income distributions in the initial and terminal years have mean income $\mu 1$ and with the Lorenz curves $L_1(p)$ and $L_2(p)$, respectively. An estimate of total poverty elasticity can be estimated by

$$\delta = \{[Ln\,[\theta\,(z, \mu_2, L_2(p)] - Ln[\theta\,(z, \mu_1, L_1(p)]\}/\overline{\gamma}$$

where $\overline{\gamma}$ is given by $\gamma = Ln\,(\mu_2) - Ln\,(\mu_1)$, which is an estimate of growth rate of mean income. An estimate of PEGR is given by $\gamma^* = (\delta / \eta)\overline{\gamma}$, where δ is an estimate of the growth elasticity of poverty, which should satisfy $\delta = \eta + \xi$. ξ is an estimate of the inequality effect of poverty reduction. Kakwani's poverty decomposition methodology can then be used to calculate η and ξ by following formulae:

$$\eta = \tfrac{1}{2}\,[(Ln\,[\theta\,(z, \mu_2, L_1(p)) - (Ln\,[\theta\,(z, \mu_1, L_1(p)) + (Ln\,[\theta\,(z, \mu_2, L_2(p)) - (Ln\,[\theta\,(z, \mu_1, L_2(p))]$$

and

$$\xi = \tfrac{1}{2}\,[(Ln\,[\theta\,(z, \mu_1, L_2p)) - (Ln\,[\theta\,(z, \mu_1, L_1(p)) + (Ln\,[\theta\,(z, \mu_2, L_2(p)) - (Ln\,[\theta\,(z, \mu_2, L_1(p))]$$

which will always satisfy $[\delta = \eta + \xi]$ This methodology can be used to estimate the PEGR for the entire class of poverty measures. The proportional reduction in poverty is equal δ to $\overline{\gamma}$,and , which is equal to $(\eta\,\gamma^*)$. Since η is always negative (unless $\mu_1 = \mu_2$), the magnitude of poverty reduction will be a monotonically increasing function of γ^*; the larger, the greater percentage reduction in poverty between the two periods. Thus, maximizing γ^*will be equivalent to maximizing the percentage reduction in poverty.

17 For detailed methodology see Kakwani and Pernia (2000) and Kakwani , Khandker and Son (2004).