An Investigation of Pre and Post Reforms Poverty Reduction in Pakistan (1964-2006)

Khalid Zaman
Lecturer, Department of Management Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan. Email: khalid_zaman786@yahoo.com, khalidzaman@ciit.net.pk

Waseem Ikram
Assistant Professor, Department of Management Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan. Email: drwaseem@ciit.net.pk

Mehboob Ahmed
Professor, Department of Management Sciences, Foundation University Institute of Engineering & Management Sciences, Fauji Foundation Educational Complex, Rawalpindi, Pakistan. E-mail: mmehboobahmad@gmail.com

Abstract
The aim of this study is to investigate the pre and post reform poverty reduction in Pakistan. A consistent time series of poverty estimates from 1964-2006 has been developed in order to facilitate the analysis of poverty trends, together with data on income inequality. This research has attempted to analyze Pakistan’s poverty and inequality statistics in terms of pro-poor growth scenarios. The study demonstrates that poverty outcomes differ widely relative to the overall rate of growth across pre and post reform periods and at overall national level in Pakistan. The study concludes that economic growth alone does not guarantee sustained poverty reduction. The Government should form policies that are more directed towards pro-growth and pro-poor for the welfare of the state.

Keywords: Poverty; Economic Growth; Inequality; Average Income of the Lowest Quintile; Share of the Lowest Quintile; Poverty Elasticity; Pro-Poor Growth

JEL Classification Codes: C32; I32; O47

I. Introduction
Pakistan is a diverse economy that includes agriculture, chemical, food processing and other industries. During the last two decades, Pakistan’s economy has suffered due to international political disputes, a fast growing population, high inflation rate, mixed levels of foreign investment, confrontation with neighboring country like India etc. Poor saving rates, low exports, inadequate investment in socio-economic infrastructure etc accounts for the fall in growth rates in 1980s. Poor Governance in Pakistan during 1993-94 had created uncertainty and lack of transparency in Government policies resulting into
loss of time and money through government corruption which created an unfavorable environment for private sector investment. Flight of capital had decreased overall productivity in the economy along with lower level of GDP growth rate making investment unhealthy. On one hand, there is a narrow tax base while on the other; there is a massive leakage in the tax collection system with corruption unlimited.

The multifaceted problems of the economy, society and state reached a critical point in late 90’s. This problem of slow growth in the real economy persist to-date. Current year trade deficit surpassed 5 billion dollars and current account deficit around 3 billion dollars. National savings has an alarming decrease as percentage of GDP. As against 17.6 percent of 2003-04, these have gone down to 13.7 percent of GDP in 2005-06. Thus, the burden of governmental mismanagement and corruption was passed on to the different sectors of Pakistan. Growth targeting measures could not realize the set objectives due to significant uneven socio-political environment.

The Household Integrated Economic Survey (HIES) – a component of Pakistan Social and Living Standards Measurement (PSLM) Survey provides important data on household income, consumption expenditure and consumption patterns at national and provincial level with rural-urban breakdown. The information pertaining to income and expenditure of the households are used to estimate poverty. The HIES is specifically designed to monitor poverty status of population by collecting information on consumption expenditure at the household level. The poverty line is based on 2350 calories per adult equivalent per day. It is also comparable with poverty line of 2001-2002 as it was also based on 2350 calories and calculated from Pakistan Integrated Household Survey (PIHS). The poverty line of 2005-06 is adjusted by the inflation rate during the period 2004-05 (Pakistan Social Standard and Living Management (PSLM) Survey, 2005-06, Government of Pakistan).

The latest estimate of inflation - adjusted poverty Line is Rs.944.47 per adult equivalent per month – up from Rs.878.64 in 2004-05. The degree of poverty differs substantially depending on the definition used. The most commonly used measure of poverty is the headcount ratio. It is also known as the incidence of poverty and gives the proportion of the total population falling below the poverty line. The poverty line is derived in Pakistan on the basis of income which can provide daily intake of 2250 calories per person (2450 calories per adult equivalent in rural areas and 2150 in urban areas). According to the caloric-based poverty (headcount ratio), the incidence of poverty declined sharply from 46.5 percent in 1969-70 to 17.3 percent in 1987-88. However, poverty has increased significantly in the 1990s— rising from 17.3 percent in 1987-88 to 22.4 percent in 1992-93 and further to 34.6 percent in 2001-02. The recent estimates suggest that poverty has declined sharply 10.5 percentage points in 2004-05 and further decrease to 1.5 percent in 2005-06 (source: Economic Survey of Pakistan, 2007-08).

Diverse summary measures are used to describe and quantify inequality. The Gini coefficient is by far the most popular statistical indicator of inequality. The Gini coefficient varies from zero (complete equality) to 1 (complete inequality), the more unequal the income distribution, the higher the Gini coefficient. On average, income distribution has worsened over the last three and a half decades. However, decade-wise analysis suggests that income distribution improved in the 1960s—the Gini coefficient declined from 0.386 in 1963-64 to 0.33 in 1970-71; but worsened in the 1970s. Income
distribution improved in the 1980s but deteriorated sharply in the 1990s. The Gini coefficient increased from 0.346 in 1986-87 to 0.42 percent in 2005-06.

To discuss these concerns, the paper is organized as follows. Section 2 provides literature review. Objectives and hypothesis of the study is in Section 3. Data and Methodological frame work is presented in Section 4. Results and Discussions are described in Section 5. The final section concludes the study.

II. Literature Review

Development Economics has a broader view, that the benefits of economic growth are equally distributed across all segments of the society. This is indeed the well-known “trickle down” hypothesis, dominant in the 50s and 60s. Strengthening the hypothesis, the results derived from a number of recent studies suggest that economic growth reduces general and overall poverty. Among these studies, Dollar & Kraay’s (2001) paper has gained much attention. This cross-country regressions study has been criticized of being shallow and of depicting only an average picture of the relations between growth and poverty and averaging gross differences of economy and population across the nation.

The relationship matrix about growth and inequality has also been debated extensively. Simon Kuznets - 1955, discovered an inverted U pattern between per capita income and inequality based on a cross-sectional analysis of several countries. With the rise of per capita income, inequality first declines and then grows. The major driving force was presumed to be structural change. Kuznet assumes that the labor shifts from a non-productive agriculture to less productive industrial sector, with a constant shift towards a more productive and differentiated modern industrial sector. Kuznet asserted that with quality data sets and improved testing techniques further verifications of the hypothesis regarding a targeted nation can be verified. Kuznet’s inverted U has been challenged and seems to have evaporated [Anand & Kanbur (1984), Fields (1989), Deininger & Squire (1996)]. Deininger & Squire (1996) attempted a comprehensive test on Kuznet hypothesis, rejecting earlier conformity and provided that there was no evidence of an inverted U curve for individual countries.

The pro-poor growth argument has its roots in the pro-distribution arguments given by Chenery & Ahluwalia - 1970s. In 1974 their model of “redistribution with growth” was regarded as the inception point of global debate on pro-poor growth, which culminated the critique of the trickle – down hypothesis. In 1990, pro-poor growth was re-coined as ‘broad-based growth’ in the World Development Report, but this term since had not gained significant momentum. A number of studies have attempted to redefine and measure a pro-poor growth, including Kakwani and Pernia (2000); McCulloch, et al. (2000); Ravallion & Chen (2003) and Son (2003), with yet no significant discoveries.

Ravallion & Chen (2003) suggest that pro-poor growth is partly defined on the basis of first-order dominance condition. Similarly, a pro-poor growth measure proposed by Son (2003) determined to be pro-poor / not pro-poor, by stochastic dominance curves. The greatest advantage of applying this partial approach is valid for all poverty lines and poverty measures. The studies including McCulloch & Baulch (2000); Kakwani & Pernia (2000), Ravallion & Chen (2003) advocate the full approach. Kakwani & Pernia (2000) proposed an index to measure the degree of pro-poor index. This index is known as the Pro-Poor Growth Index (PPGI). Pro-Poor Growth Index (PPGI) is derived from the
relation between total poverty reduction and poverty reduction in the case of distribution-neutral growth. In fact, this relation is expressed as the ratio of poverty elasticity, i.e., if greater than one then, growth scenario is pro-poor. Foster and Szekely (2000) conclude that positive value of elasticity indicates that growth is good for the poor. Kakwani and Son (2004) argued that to achieve rapid reduction in poverty, the Poverty Equivalent Growth Rate (PEGR) is to be maximized instead of normal growth rate alone.

Saboor, A (2004) examines the rural poverty, agriculture growth and income inequality in Pakistan. The author of this research has adopted poverty equivalent growth rate on rural areas of Pakistan during 1991 to 2002. Son (2006) proposed a methodology to assess the pro-poorness of government fiscal policies, in view of introducing marginal reforms. The author first derives the poverty elasticity for the general class of population, and then applies the idea of poverty elasticity. The research proposes pro-poor index for assessing government expenditure and tax policies. The proposed methodology was adopted in Thailand in 1998 Socio-Economic Survey.

Son & Kakwani (2006) measured the impact of price change on poverty, by taking entire class of additive separable poverty measures. This impact was captured as price elasticity of poverty, expressing a new price index for the poor (PIP). Son & Kakwani – 2007, examined global estimates of pro-poor growth. The objective was to present a cross-country analysis of pro-poor growth in 80 countries through 237 growth spells, during the period of 1984-2001. This research confirms the association between growth patterns and economic identified as significant determinants of growth and inequality.

After reviewing the above cited literature, need arises for bridging the gap between the economic growth, poverty and income inequality in the context of pro-poor growth index. Economic growth is necessary but it is not sufficient to make any significant dent to poverty. The paper makes an effort to identify possible elements of pro-poor economic growth in terms of poverty and inequality statistics. Economic growth and growth-oriented policies necessary for sustained poverty reduction do not guarantee that it will occur at the country level. For “pro-poor growth” to take policies must be both pro-growth and pro-poor.

The study finds out the interrelationship between growth, poverty and inequality in pre and post reform periods, and at overall national level by first obtaining a consistent time series on poverty measures for all Household Income and Expenditure Surveys / Pakistan Integrated Household Survey from 1964-2006. In the previous studies on Pakistan, with the exception of Amjad & Kemal - 1997, researchers have dealt with the data for very limited time period and have used different poverty lines. In order to achieve the desired objectives; this study analyses the multiple regression method on a long-term data expending more than over four decades.

III. Objectives of the Study
The main objectives of this study is

i. To analyze changes in poverty and how it has been affected by the economic growth in Pakistan.

ii. To examine the magnitude of growth and how much benefit the poor receive from the growth.

iii. To study an index of pro-poor growth.
There is an invariant relationship between the rate of growth and the rate of poverty reduction. The same rate of growth in per capita income is not always associated with the same rate of poverty reduction. Viewed in this context, the main hypothesis of this study is to test whether this is true in case of Pakistan. The study intends to test it.

IV. Methodological/Analytical Frame Work

The study uses the official poverty line defined in terms of 2350 calories (Economic Survey, 2008). It is, however, adjusted by taking into account inflation before calculating consistent time series. For inequality measures the study has made use of micro data generated by Federal Bureau of Statistics and calculated by Anwar (2005). In order to achieve the desired objectives, the study analyses the inter-relationships between growth and poverty reduction by using regression method.

There is no denying the fact that the economic growth is an effective anti-poverty tool. But the extent to which growth benefits the poor depends upon a number of factors. Bourguignon, (2002 & 2003) opines that sustained poverty reduction can be achieved through redistribution policies alongside economic stagnation, growth associated with progressive distributional changes will have a greater impact in reducing poverty than growth which leaves the distribution unchanged. There are two main causes for this. The first is simply the direct positive impact that progressive distributional change has on poverty reduction for any given rate of growth. There is, however, a second, indirect and positive impact of a fall inequality. Even in the absence of distributional change a given growth rate will have a larger poverty reducing impact if initial inequality is low.

Hence, reductions in inequality increase the elasticity of poverty reduction with respect to future growth, and progressive distributional change has both a contemporaneous impact on poverty and a lagged impact by increasing the rate of poverty reduction implied by future growth. Further, it is perfectly possible that regressive distributional change can offset the contemporaneous benefits of growth to the poor and reduce the poverty impact of future growth.

More formally,

\[ P = P(y, L(p)) \]  

Where \( P \) is a poverty measure (which for simplicity can be assumed to belong to the Foster-Greer-Thorbecke (FGT) (1984) class, \( y \) is per capita income and \( L(p) \) is the Lorenz curve measuring the relative income distribution. \( L(p) \) is the percentage of income enjoyed by the bottom \( 100 \times p \) percent of the population.

Change in poverty can be decomposed into:

\[ dP = \partial P / \partial y \, dy + \partial P / \partial L(p) \, dL(p). \] (2)

After some straightforward manipulation (2) can be written as:

\[ dP / P = \gamma dy / y + \phi dL(p) / L(p) \] (3)

Where \( \gamma \) is the growth elasticity of poverty, which measures the percentage change in poverty that takes place when average income increases by one percentage point, and \( \phi \) is the inequality elasticity of poverty, which measures the percentage change in poverty as a result of a one percent change in the share of income of the lowest \( p \)th percentile.
In principle both \( \gamma \) and \( \phi \) can be expected to be negative. That is, both growth and progressive distributional change will lead to poverty reduction with the relative importance of each factor given by the respective elasticities. For example, if \( \gamma > \phi \), a one percent change in income will have a larger impact on poverty reduction than a one percent reduction in inequality. In contrast, if \( \gamma < \phi \), a one percent reduction in inequality will have a larger impact on poverty than a one percent change in income. Bringing together elasticities and magnitude of change one can also express the condition by which poverty will increase as:

\[
\gamma dy/y < \phi dL(p)/L(p)
\]  

Observe that (4) does not restrict growth to be negative. In principle it is possible for poverty to increase even when growth is positive. The lower the growth rate the more likely that poverty will increase when inequality increases.

Under the assumption that changes in inequality shift the Lorenz curve by a constant proportion of the difference between the actual share in total income accruing to each income group and equal shares. Kakwani & Son (2004) show that

\[
\partial G / \partial y < 0, \partial G / \partial \gamma > 0, \partial \phi / \partial y > 0, \text{ and } \partial \phi / \partial G < 0 \quad \text{where } G \text{ is the Gini index.}
\]

Both the impact of a given growth rate on poverty reduction and the impact of progressive distributional change on poverty reduction with the level of development and decrease with the level of inequality of the country. Pro-poor Growth Index has proposed by Kakwani & Pernia in 2000. The growth elasticity of poverty (\( \eta \)) detain the percentage change in poverty when there is a 1 percent change in growth – provided the growth process does not change inequality.

\[
\eta = \frac{\Delta(HCR)/HCR}{\Delta(AHHI)/AHHI} = \frac{d \ln(HCR)}{d \ln(AHHI)}
\]  

(5)

The distribution effect (\( \zeta \)) confines the percentage change in inequality when there is a 1 percent change in growth – provided the growth process does not change poverty.

\[
\zeta = \frac{\Delta(GINI)/GINI}{\Delta(AHHI)/AHHI} = \frac{d \ln(GINI)}{d \ln(AHHI)}
\]  

(6)

Where

- \( HCR = \) Head Count Ratio (proxy for poverty)
- \( AHHI = \) Average Household Income (proxy for economic growth)
- \( GINI = \) GINI Coefficient (proxy for income inequality)

The pro-poor growth index or PPGI (\( \theta \)) is the ratio of the total poverty elasticity (growth effect + distribution effect) to the growth elasticity of poverty.

\[
\delta = \frac{\partial}{\partial y} \left( \frac{\partial L(p)}{\partial y} \right) = \eta + \zeta
\]  

(7)

\[
\theta = \frac{\delta}{\eta}
\]  

(8)
Growth index is pro-poor (anti-poor) if the change in inequality that accompanies it reduces (increases) total poverty. Thus, growth index is pro-poor (anti-poor) if the total elasticity of poverty is greater (less) than the growth elasticity of poverty.

V. Results and Discussions

Evidence from Pakistan is based on multivariate regression framework by analyzing time series data for 43-year period (1964-2006). The analysis explores the linkages between growth, income inequality and poverty in pre and post reform periods and at overall country level, and establishes the relationships between macroeconomic and structural correlates of inequality.

Pre-Reform Period (1964-1979)

The pattern of change in poverty in Pakistan expose that overall poverty significantly increases from 40.24 percent to 49.13 percent from 1964 to 1972. Poverty fluctuated in the urban areas and declined from 44.53 to 42.55 percent of the population while increase from 38.94 to 53.35 percent in the rural areas during the same period. Afterward, in 1972 to 1979, there was a marked decline in poverty. The major emphasis of the Bhutto regime was to protect the workers, nationalization policies, foreign remittances and rural development programmes which played a major part in decline of poverty.

The analysis establishes poverty to be a function of growth and distribution. In the formulation of the regression equation, $\Delta Y$ represents the average household income, while distribution is represented by Gini coefficient (G) and share of income of the lowest quintile ($\alpha_{20}$). The available estimates of absolute poverty in Pakistan are discrete in nature, with gaps in the estimates. The total number of observations for poverty estimates is 7 & 12 during in pre & post-reform period, for that reason, using interpolation technique to detect missing values among the periods. The total number of observations on hand for estimation purpose at this instant is 16 & 27 respectively.

Table 1  Determinants of population below the poverty line at National Level in pre-reform periods (1964-1979)

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta Y$</td>
<td>-0.355*</td>
<td>----------</td>
<td>----------</td>
<td>-0.489*</td>
<td>-1.269*</td>
</tr>
<tr>
<td></td>
<td>(-8.348)</td>
<td>----------</td>
<td>----------</td>
<td>(-8.863)</td>
<td>(-8.863)</td>
</tr>
<tr>
<td>$\Delta Y_{20}$</td>
<td>----------</td>
<td>-0.639*</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>(-8.457)</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>(1-G) $\Delta Y$</td>
<td>----------</td>
<td>----------</td>
<td>-1.214***</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>(-2.101)</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>$\Delta \ln(G)$</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>1.975***</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2.223)</td>
<td>----------</td>
</tr>
<tr>
<td>$\Delta \ln(\alpha_{20})$</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>-3.682*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(-6.145)</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.788</td>
<td>0.815</td>
<td>0.274</td>
<td>0.751</td>
<td>0.845</td>
</tr>
<tr>
<td>F-statistic</td>
<td>48.06</td>
<td>47.456</td>
<td>3.277</td>
<td>27.305</td>
<td>35.845</td>
</tr>
<tr>
<td>Observations</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>
Note: Dependent variable is percentage change in headcount poverty; \( Y = \log \text{of average income} \); \( Y_{20} = \log \text{of average income of the lowest quintile} \); \( G = \text{Gini coefficient} \); \( \alpha_{20} = \text{share of income of the lowest quintile} \).

All the models are estimated with the inclusion of a constant. \( t \)-values are in parenthesis. *, **, ***: Significant at 1%, 5% and 10% respectively.

Table 1, column (1) details the result of a sophisticated model that associates the percentage change in poverty to growth only. Column (2) to column (5), confine the impact of mutually growth and distributional changes on poverty. In column (2), it retreat changes in poverty on growth at the income levels of the lowest quintile of the population. The foremost thing is that, one percent increase in the average income of the lowest quintile, poverty is likely to reduce by 0.64 percent in pre-reform period, it is greater than 54.1 percent than the average household income i.e., it reduces poverty by 0.35 percent. The explanatory power of an equation, as measured by adjusted \( R^2 \) is significantly high. The overall test of significance, F-test, is accepted at 1 percent level. The results of equation (1) and (2), suggest that all variables have the proper signs according to their proposition and coefficients of average household income (\( \Delta Y \)) and average income of the lowest quintile (\( \Delta Y_{20} \)) are significant at 1 percent. According to the outcome, growth in terms of average household income and average income of the lowest quintile has the significant effect to alleviate poverty at some stage in pre-reform period.

Likewise the results in column (3), (4) and (5) offer a well-built case for the relevance of inequality to poverty reduction. The elasticity of poverty reduction with respect to joint effect of average income and the income equality in equation (3) is likely to reduce the poverty by 1.21 percent. While in accumulation to growth in equation (4) includes the changes in the (log) Gini exclusive of any parameter restrictions depicts that poverty decline by 0.489 percent and increase by 1.975 percent. The specification reported in the last column (5) - where in addition to growth we include changes in the (log) share of income of the lowest quintile of the population – gives the best fit.

**Post – Reform Period (1980-2006)**

From the start of 1980s, Structural Adjustment Programme (STAP) was launched with the help of the International Monetary Fund and the World Bank. The programme endeavored to correct the instability at its source through the structural transformation of the economy. The main goals of STAP were to generate short and long-term macroeconomic stability, incentive reforms through liberalization, and investment in social development. It was clear that during the period of STAP, society would have to go through painful economic readjustments to long-standing practices. The stabilization measures would reduce the GDP growth rate, and result in low employment generation and an adverse effect on poverty alleviation. The reduction in the protection provided to domestic industry, as well as the reduction in subsidies and large-scale privatization of nationalized enterprises, was expected to create employment losses in those sectors and an adverse effect on the poverty situation. Auxiliary measures to deregulate major crops, particularly wheat, would reduce the indirect food subsidy to the urban and rural poor, which could also raise the poverty level. Table 2 illustrates the regression apparatus in the post-reform period.
Table 2 Determinants of population below the poverty line at National Level in post-reform periods (1980 to 2006)

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔY</td>
<td>0.195***</td>
<td>(2.403)</td>
<td>0.054</td>
<td>0.209**</td>
<td></td>
</tr>
<tr>
<td>ΔY_{20}</td>
<td>0.162***</td>
<td>(2.101)</td>
<td>1.685</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1-G) ΔY</td>
<td>1.685</td>
<td>(1.160)</td>
<td>1.332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δln(G)</td>
<td>1.332</td>
<td>(1.079)</td>
<td>-0.650***</td>
<td>(-2.123)</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted R^2: 0.323  0.210  0.157  0.335  0.512
F-statistic: 5.775  3.778  1.987  3.523  4.912
Observations: 27  27  27  27  27

Table 2 reveals that one percentage augments in the average income of the lowest quintile; poverty is likely to reduce by 0.162 percent, whereas average household income reduces poverty by 0.195 percent as point out in equation (1) & (2) respectively. The explanatory power of an equation, as computed by adjusted R^2, is low. The overall test of significance, F-test, is established at 5 and 10 percent level. The domino effect of equation (1) and (2) are considerable at 10 percent. According to the result, growth in terms of average household income and average income of the lowest quintile has the significant upshot to alleviate poverty in post-reform period but these results are weaker than pre-reform period, due to a fusion of socio-political factors. The results in column (3) & (4) are insignificant while equation (5) turn into significant at 5 and 10 percent respectively.

National level (1964-2006)

Economic growth helps to raise long term or permanent incomes, and it is therefore, a necessary condition to pull poor people out of poverty permanently, although it is by no means a sufficient condition. The regression apparatus has been functional for overall national level.

Table 3 Determinants of population below the poverty line at National Level (1964-2006)

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔY</td>
<td>-0.319**</td>
<td>(-2.557)</td>
<td>-0.498*</td>
<td>-0.799*</td>
<td></td>
</tr>
<tr>
<td>ΔY_{20}</td>
<td>-0.879*</td>
<td>(-4.895)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1-G) ΔY</td>
<td>-2.975*</td>
<td>(-3.698)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δln(G)</td>
<td>1.875***</td>
<td>(2.123)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δln(α_{20})</td>
<td>-1.208*</td>
<td>(-4.259)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In Table 3, the elasticity between average income of the lowest quintile and poverty has been estimated by -0.879 percent, even though, it is greater than 36.2 percent than the average household income that reduces poverty by 0.319 percent. The explanatory power of an equation, as calculated by adjusted $R^2$ is significantly high. The overall test of significance, F-test, is accepted at 1 percent level. The outcomes of equation (1) and (2) are significant at 1 percent. According to the result, growth in terms of average household income and average income of the lowest quintile has the significant effect to alleviate poverty. The elasticity of poverty reduction with respect to combined effect of average income and the income equality in equation (3) is prone to reduce poverty by 2.975 percent. Equation (4) illustrates that poverty decline by 0.498 percent because of increase in economic growth while increase by 1.875 percent as a result of increase in income inequality. The measurement accounted in the last column offers the best fit.

Three summary messages materialize from this analysis.

i. Growth is good for the poor; inequality changes also are empirically relevant in explaining changes in poverty.

ii. The income of the lowest quintile of the population does an excellent job of tracking changes in absolute poverty.

iii. The data suggest that both the explanatory power and the coefficient estimates of the regressions are not invariate to the length of spell chosen as an observation in the pre and post reform period. Higher elasticities and better fit are associated with national level intervals. Table 4 reviews different phases of growth at nation wide level.

**Table 4  Evidence on Pro-Poor Growth**

<table>
<thead>
<tr>
<th>Negative Growth / Inequality Rises</th>
<th>Positive Growth / Inequality Rises</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anti-poor recession</strong></td>
<td><strong>Broadly Shared Growth</strong></td>
</tr>
<tr>
<td>Pre-reform period (U) [1964-1979]</td>
<td></td>
</tr>
<tr>
<td>Rural (1964-2006)</td>
<td></td>
</tr>
<tr>
<td>Urban (1964-2006)</td>
<td></td>
</tr>
<tr>
<td>Overall (1964-2006)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Growth / Inequality Falls</th>
<th>Positive Growth / Inequality Falls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pro-poor recession</strong></td>
<td><strong>Pro-poor biased growth</strong></td>
</tr>
<tr>
<td>Pre-reform rural (1964-1979)</td>
<td>Post-reform period (N) [1980-2006]</td>
</tr>
<tr>
<td></td>
<td>Post-reform period rural (1980-2006)</td>
</tr>
</tbody>
</table>

Source: Calculated by the authors.

* N represents National; R represents Rural while U represents Urban.

The outcome of Table 4 demonstrate that pre-reform period from 1964-1979 was considered to be the anti-poor recession, attributable to the weaker economic growth and higher income inequality. While in post-reform period, i.e. 1980-2006, explains “pro-poor biased growth” caused by the positive economic growth and falling income inequality. This situation in National level was different then the rural level. Depressing economic growth and declining income inequality has been observed in pre-reform
period, whereas increasing economic growth along with decreasing income inequality has been reported in the post-reform period in rural level situation. Pre-reform period in the urban sector, was considered to be a period of anti-poor recession, whilst higher growth along with increasing income inequality is categorized as the “broadly shared growth period” in post-reform urban sector. The overall nation wide status becomes unsatisfactory, due to the fall in economic growth and the rise in income inequality; this period seems to be as an “anti-poor recession period”.

VI. Summary and Conclusion
Rapid and prolong economic growth can play an important role in achieving a reduction in poverty. This research suggests that economic growth is not sufficient but necessary to achieve the objective of poverty reduction. This research conceptualized the idea of Pro-Poor Growth which takes into account not only the size of growth but also how much benefits the poor receive from growth.

Our empirical results lead to major conclusions:

i. In the long run absolute (headcount) poverty is better explained by both growth and income distribution than by growth alone. The average income of the lowest quintile predicts headcount poverty quite well.

ii. In pre-reform period, economic growth reduces poverty by 0.489 percent while inequality increases poverty by 1.975 percent. Inequality effect is larger than the growth effect for increasing poverty.

iii. In post reform period, economic growth increases poverty by 0.21 percent whilst share of lowest 20 percent income decreases poverty by 0.65 percent.

Based on these results we deem that the search for ways to attain growth that benefits the poor should be a priority objective of public policy in Pakistan. Economic growth and pro-growth policies are central to this objective, but they are not adequate. Pakistan should also seek out and implement policies and public actions that increase the benefits of growth to the poor. Progressive distribution change can have an important impact on the rate of growth on incomes of the poor. Public policy needs to be both pro-growth and pro-poor. Pakistan government should adopt a mixture of growth enhancing and direct poverty alleviation policies so that we can achieve a maximum reduction in poverty. The future research in this area may be conducted, in an industry specific manner. Primary data and case study method may be implied.

References


