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The relationship between growth and poverty in forecasting framework: Pakistan's future in the year 2035

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ABSTRACT

Forecasting poverty in the future is mostly a matter of forecasting economic growth. The objective of the study is to examine the inter-temporal link between growth and poverty in Pakistan, over the next 25 years period i.e., from the years 2011 to 2035. The generalized version of variance decomposition and impulse response analysis is employed in this study to test the temporal causality among poverty measures (i.e., head count ratio, poverty gap and squared poverty gap), growth measures (i.e., average household income, industry value added and agriculture value added) and income inequality to see if the growth of income and poverty measures contains considerable information to predict each other, on the sectoral level of Pakistan i.e., rural, urban and national level. The results of variance decomposition analysis show that household counts initially accounts for a considerable portion of the forecast error variance of average household income in all rural, urban and at national level respectively. Household counts have the highest impact on average income in Pakistan (approximately 93.2%), followed by urban region (approximately 90% in average) and the lowest in rural areas (approximately 82.3%) both in short- and long-run. Impulse response analysis demonstrates that growth, poverty measures and income inequality are so strongly knitted to one another that any positive shock to any one of them would be beneficial on the one hand and may be harmful on the other hand. The vicious cycle of poverty can only be scratched by giving consistent positive shocks to growth and negative shocks to income inequality.

1. Introduction

Forecasting poverty in the future is mostly a matter of forecasting economic growth. Bourguignon and Morrisson (2002) claimed that economic growth by far the greatest impact on global poverty inequality. According to Hillebrand (2009, p.1),

> "Strong economic growth is the key to future poverty reduction..... Forecasts of future economic growth rates and poverty rates are necessarily speculative and depend on a large number of assumptions about human behavior and policy decisions that are impossible to know in advance."

Economists have long relied on the neoclassical growth model (Solow, 1956) to think about economic growth. Economic growth, in Solow's framework, depends on changes in the capital stock (machinery, buildings, roads, communication lines, etc.), changes in the labor force, and changes in technology. In this model diminishing returns eventually set in and growth slows unless technological change intervenes to keep productivity increasing. Later researchers, especially Romer (1987, 1990), Grossman and Helpman (1991), and Barro and Sala-i-Martin (1995) have attempted to "endogenize" growth theory by trying to explain theoretically (and demonstrate empirically) the causal forces underlying technological progress, especially investment in research and development, but also institutional factors such as protection of property rights, regulation of international trade, and taxation. An important corollary of the extended neoclassical growth model for poverty analysis is the convergence concept. It is implicit in the neoclassical growth model that poor countries should grow faster than rich countries and should eventually catch up per capita income and output. Most long run economic growth forecasts are based on modeling exercises that use neoclassical, endogenous growth theory and the convergence concept.

According to Zaman et al. (2012a), p., 1224,

> "Poverty is a function of a number of factors, however, identifying such factors, particularly those with a policy dimension, is likely to aid in highlighting policy measures to combat poverty."

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Sustained growth on a consistent basis is needed to reduce poverty in developing countries like Pakistan. Macroeconomic stability is, of course, a pre-requisite for the sustained economic growth but it is not sufficient to reduce poverty (Zaman et al., 2012b). Pakistan's experience shows that economic growth does not necessarily translate into poverty reduction. Indeed, an increase in real per capita income was a dominant source of reduction in poverty in the late 1970s and throughout the 1980s. However, that was not the case in the 1960s. During that period, despite a rise in per capita income and a decline in income inequality, poverty increased both in the urban and rural areas, and the rise in rural poverty far exceeded the rise in urban poverty (Zaman and Ahmed, 2008). Poverty in Pakistan has historically been elevated in rural than urban areas. Poverty rose more harshly in the rural areas in the 1990s, and in 1999 the prevalence of rural poverty (36.3%) was significantly higher than urban poverty (22.6%) (Zaman et al., 2011a). The overall statistics of poverty at national level during the 1964–2011 is given in Table 1.

Urban poverty is distinct from rural poverty with respect to its prevalence, economic, demographic and political aspects. According to a World Bank (2006) report, urban population of Pakistan is 35% of the total population and its annual average growth rate is 3.4% (1990–2005), which is much higher than South Asia's 2.8% in the same period. Such expansion of urbanization presents an intimidating task of tackling the issues of urban poverty. According to GoP (2011), poverty estimates were high in the 1960s and came down in the 1980s, but again moved upwards in the 1990s before falling rapidly after 2000. Anwar (2008) concludes that high inflation eroded the gain made in poverty reduction by pushing people close to the poverty line to below the poverty line. High inflation and financial crises and recession in domestic economy can cause positive shift in poverty measures.

The UNDP (2011) ranks Pakistan at 145th with HDI value of 0.504. The report shows gradual increase in the value from 0.503 in 2010 to 0.499 in 2009, though Pakistan's rank has slipped a little during 2011. Other composite indices place Pakistan at a lower rank. The inequality adjusted poverty index is 0.346 and multi-dimensional poverty index for Pakistan is 0.264. These indices weight inequality and non-income dimensions of poverty more. PSLM (2011) shows mixed results in terms of the education enrolment indicators. Literacy rate (10+) has improved from 57% in 2008–09 to 58% and adult literacy improved from 54% to 55% in the same period, while primary and middle school gross enrolment rate also registered a one percentage point improvement. However, slippage on the primary and secondary net enrollment rate is an area of concern for policy makers, particularly after devolution of the subject to the provinces.

The government of Pakistan is committed to a sustained poverty reduction strategy and to allocate a minimum of 4.5% of GDP to social and poverty related expenditures. The government prioritized 17 pro-poor sectors through the Medium Term Expenditure Framework (MTEF) which provides a link between the policy priorities and the budget realties. Expenditure on pro-poor sectors in 2007–08 stood at 5.6% of GDP, 7.5% in 2008–09, 7.6% in 2009–10. Total expenditures in 2010–11 were 6.9% of GDP (GoP, 2012). Table 2 shows the social protection programs in Pakistan.

The agriculture sector continues to be an essential component of Pakistan's economy. It currently contributes 21% to GDP. Agriculture generates productive employment opportunities for 45% of the country's labor force and 62% of the rural population depends upon this sector for its livelihood. It plays a vital role in ensuring food security, generating overall economic growth, reducing poverty and the transforming towards industrialization (GoP, 2012). Fig. 1 shows the agriculture growth rate in Pakistan from 2005 to 2012.

The manufacturing sector posted a growth rate of 3.56% during the current fiscal year July–March 2011–12 compared to 2.96% of the same period last year. A modest improvement was seen in large scale manufacturing (LSM) in July–March 2011–12 as the quantum index of manufacturing (QIM) increased by 1.05% against the target of 4% compared to growth of 0.98% during the same period last year (GoP, 2012). The Pakistan Poverty Alleviation Fund (PPAF) is yet another element of the country's poverty reduction strategy. The PPAF is dedicated for micro credit, enterprise development, community based infrastructure and energy projects, livelihood enhancement and protection, social mobilization, and capacity building (World Bank, 2005). The overall disbursements for core operations during the period of July–December 2012 were Rs. 8.5 billion (GoP, 2012).

Pakistan Poverty Alleviation Fund is dedicated for micro credit, enterprise development, community based infrastructure and energy projects, livelihood enhancement and protection, social mobilization, and capacity building. The overall disbursements for core operations during the period of July–December 2012 are Rs. 8,490 million. Government has also taken various micro-finance initiatives in collaboration with all stakeholders to generate employment opportunities and to eliminate poverty (GoP, 2012).

Poverty is a multidimensional phenomena that manifests itself not only through the normative indicators of income, savings or assets but extends to deprivations in areas of essential healthcare, gender weakness and repression, illiteracy, infant mortality, food and malnutrition, sanitation and basic hygiene, etc. In Pakistan too, poverty reveals itself in many forms—it is the poverty of income, poverty of exclusion, poverty of opportunities, and poverty of access. Thus tackling poverty becomes an indomitable task necessitating multivariate approaches catering to specific needs of the target population. Experience in Pakistan has shown that poverty mitigating programs produce superior welfare outcomes if micro-interventions are planned with a holistic vision and implemented in a sequenced fashion (PPAF, 2012).

The above discussion confirms a strong linkage between growth and poverty within multivariate framework that incorporates agriculture value added and industrial value added as a proxy in the model for overall development policies pursued by Pakistan (Zaman et al., 2010a). In this paper an analysis has been carried out to find a statistical relationship between growth and poverty in rural, urban and national level over the period of next 25 years i.e., 2011 to 2035 in Pakistan using secondary data from 1964 to 2011. This study does not include all dimensions and factors of the growth-poverty problem but limited to the following variables:

- Poverty measures: The headcount index, the poverty gap index and the squared poverty gap index belong to a family of poverty

Table 1
Headcount measures for Pakistan (1963–64 to 2010–11).

Years	Malik (1988a, 1988b) 2550 calories	Amjad and Kemal (1997) 2550 calories	World Bank (2009) $1.25 per day	FBS (2001) 2550 calories	Official poverty line 2350 calories
1964	40.24				40.2
1967	44.50				44.5
1970	46.53				46.5
1979	30.68				30.6
1985	24.49				24.5
1988	–	17.32	37.4	–	17.3
1991	–	22.10	34.0	–	22.1
1993	–	22.40	25.7	26.6	24.9
1994	–	–	28.6	29.3	27.7
1997	–	–	24.0	26.3	24.5
1999	–	–	32.6	32.2	30.6
2002	–	–	35.8	–	34.5
2005	–	–	22.5	–	23.9
2006	–	–	–	–	22.3
2008					22.7*
2011					23.1*

Source: Anwar and Qureshi (2002), World Bank (2009), GoP (2011) and * author's calculation on the basis of forward interpolation.