IMPACT OF MACROECONOMIC POLICIES ON POVERTY ALLEVIATION IN PAKISTAN

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Abstract

This paper provides strategy to explain the macroeconomic determinants for eradicating poverty in Pakistan. An empirical analysis of macroeconomic indicators are based on the data for the year 1994 to 2005. Ordinary least square estimation was used to estimate the parameters of multiple variable regression model. Gini coefficient is used to measure the inequality in income distribution. The results suggest that per capita income, and remittances, are highly significant, developmental expenditure, and unemployment rate have significant affect to alleviate poverty. Elimination of poverty is impractical without the increase in per capita income. The paper comes to the conclusion that government should promote investment in social and developmental projects, creating job opportunities, increasing individual per capita income, and capturing the improvement in the individual standard of living.

Keyword: Poverty, Gini coefficient, per capita income, remittances, OLS

JEL Classification: C12, C13, O11, O15, I3

I. Introduction

Majority of the population in developing countries including Pakistan is disproportionately located in rural areas. According to Todaro (2006, p.238), on average about 80 percent of all targeted poverty groups in Asia and Africa resides in rural areas. Most rural people depend on agriculture for their livelihoods. In Pakistan, rural areas have higher poverty and worse human development indicators than urban areas (IFAD, 2001). It is severe among household engaged in agriculture, casual labor, informal business, and livestock owners. Principal cause of hunger and under nourishment is the poverty. The food and agriculture organization of United Nations estimates that the number of hungry people worldwide has reached 963 million or roughly 15 percent of the estimated world population (Pakistan Economic survey 2009, p.127). Pakistan is faced with multifaceted dilemma. Illiteracy is high among

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women in rural areas of Pakistan, having limited economic option and access to social services. Yet they play a major role in household economy and providing care to their families.

In the 1960s rural agriculture and technology of less developed countries was in a need of mutation as it was yielding low growth rate (Schultz, 1964). Pakistan made its transformation in form of scientific and technological inputs like seeds, fertilizers, pesticides, and water having high yielding varieties (HYV) accompanied by greater mechanism of agriculture like tube-wells and tractors. This puts Pakistan wheat and rice Green Revolution Modern Variety (GRMV) production at a faster rate than was the case for South Asia generally (Robert E, Evenson, 2005). In 1970 vast overseas immigration of rural people largely to Middle Eastern countries had an important impact on the rural sector. A survey investigates that about 63 percent of foreign workers come from non urban areas (Gilani et al, 1981). This increases the inflow of remittance into the Pakistan and had significant impact on the rural wages.

From the 1980's Pakistan skilled strong growing of financial development as GDP greater by more than six percent yearly. This was achieved due to restricting the government intervention, recovery of private market, denationalization, providing economic and welfare measures to Islamize the economy and accomplishing rapid increase of remittance flow into the economy (Amjad and Kemal, 1997, p.42). It is unfortunate that Pakistan experienced significant increase in poverty in 1990's due to sluggish growth, lack of safety precautions, destabilizing macroeconomic methods, loss of the circulation of remittances from offshore workers, shedding of surplus labor by state own enterprises and impoverish governament. It shows ample evidence that poverty which reduces rapidly in Pakistan in the 1970's and 1980's has return in 1990's (Amjad and Kemal, 1997; Ali and Tahir, 1999).

The poverty and development cannot be examined without related changes in the agriculture sector. In 1970 the farming market such as its resource utilization, production structure, technology and land tax has undergone significant changes which have affected the structure of rural society, and building the investment in social and physical infrastructure for rural areas. The process of farming alteration has been altered by the government wrong policies regarding agriculture subsidies taxes, price support, land tenure system, control of farm marketing program, processing industries and the influence of landed elite (Chaudhry, Malik and Ashraf, 2006, p.265).

Rural poverty prevails to be linked with the lack of property in rural areas. The unequal area possession leads to be one of the major causes of poverty as poverty levels are high among landless households followed by non-agriculture households. The landless households are high in rural area. About 75 percent own no land in the nation suggesting highly skewed land ownership pattern (Anwar, T, Sarfaraz K, Qureshi, and Ali Hammad, 2004). It is suggested that farming will continue to be one of the most important sectors of Pakistan for years to come to ameliorate poverty. It can be increase by easy excess of small farmer to credit availability of quality fertilizer, pesticides, tractor, harvest services improvement in education system and the farmer education (Bhutto W. A, Bazmi A. A, 2007). The high increase in the food prices in the last three years has pushed 11 million people into a state of hunger and poverty. If no policy action is taken the number will increase to 22 million people over the next four years (Hussain A, 2008).

2. Pakistan and Poverty

According to World Bank (1995) significant government programmes Bait-ul-Mal[1] accounted about 0.05 percent of the GDP in 1994-95 and Zakat[2] and Usher[3] for 0.2 percent of GDP in 1993-94. The rural population tends to be less educated, less healthy, experiencing poorer service delivery, poor access to public goods, and limited employment opportunities. Pakistan ranks 134 in human development index, the participation rate at primary education level is about 70 percent, out of which 50 percent of the students drop out by the fifth grade. Only 32 percent have access to potable water and 38 percent have availability to sanitation (Amjad and Kemal, 1997). Pakistan is an agriculture country whose major reservoirs of poverty exist in rural areas. Rural individuals major activity is farming for which they are reliant for their living. Although the rural area is devoted to the production of basic commodities especially the staple food for which the income elasticity of demand is low. A reduction in poverty will shift production to other goods and services with greater income elasticity of demand or a significant increase in productivity.

The most important section of this study is to estimate the economic policies at the macro level, which plays a significant role in ensuring the process of economic growth and development translates itself into real improvements in people living standard, not just reducing poverty and meeting minimum nutritional needs but ensuring adequate access to education, health services so as to combat early mortality, high rate of disease, and very high levels of illiteracy. . The poor in Pakistan like all human beings have a innovative potential and can increase welfare and output in the economy yet being provided by basic necessities. The paper explores the influence on poverty of factors such as agriculture growth rate, economic growth, unemployment rate, inflation rate, remittances, per capita income and the development expenditure on social services. Macroeconomic policies are not only significant in altering economic performance, in terms of increasing efficiency and growth trends, but also ensure more equitable distribution of gains from economic development. The paper provides analysis and possible public action to address the poverty crisis in Pakistan.

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[1] Means treasury which can be used as a subsidies to the poor.

[2] An Islamic levy of 2.5 percent of the total wealth paid by the every individual those who have minimum wealth equal 87 grams of gold.

[3] An Islamic levy of 10 percent of the gross produce of non irrigated land and the 5 percent of irrigated land.

3. Economic Literature Review

Despite significant improvements extreme poverty is still dominant in developing countries. Close to one billion people live on less than \$1 per day at purchasing power parity and some 2.7 billion i.e over 40% of the world population live on less than \$2 a day[4]. Elimination of extreme poverty and high and even income inequality are the core problems of developmental policies. The non economic manifestations of inequality including inequalities of power, prestige, status, gender, job satisfaction, working conditions, degree of participation, freedom of choice, self esteem, and freedom to choose also widened the gap of poverty (Todaro 2006).

In 1970s the increase in the migration of rural labor largely to the Middle Eastern countries has a significant impact on the rural wages in order to relieve poverty. First most of the emigrants were below the poverty level, but after migration no such households can be ranked as poor. Secondly the emigrants send part of their income to help his needy family which created public security in the private sector (Gilani et al, 1981).

The first attempt to explain poverty trends in Pakistan with the help of macro determinants was made by (Amjad and Kemal 1997). The influence of macroeconomic factors on poverty such as economic growth, agriculture growth, and terms of trade for agriculture sector, inflation rate, industrial production, employment, wages, remittances, subsidies and the tax structure along with analyzing the impact of structural adjustment programmes on poverty alleviation, concludes that remittances and employment are the major variables explaining changes in poverty. The paper also pursued that polices under structural adjustment programme tend to increase poverty due to declining growth rates, withdrawal of agriculture subsidies, increase in indirect taxes, decline in employment and public expenditure on social services. The paper poverty eradication strategy was the promotion of informal sector enterprises.

Market plays an important role in livelihood of inadequate. If countries adopted policies based on market forces, abolishing government marketing and commodity boards, making domestic agriculture trade more liberal. Poor farm owners will have more access to the demands of markets and susceptible to their volatility (IFAD, 2001). Pakistan is an agriculture utilizing majority of the rural population for their living. The alterations of Pakistan economy withrespect to agriculture are shown in Table 1.

[4] World Bank uses poverty reference lines set at US \$1 and US \$2 per day in 1993. See Todaro 2006 p.208-209

Table 1. Role of Agriculture in Pakistan Economy

Year	Percentage share of Agriculture in GDP	Percentage of Rural labor Force	Percentage of Rural Population
1960	5.1	68	85
1970	2.4	59	78
1980	5.4	57	74
1990	4.4	52	71
2000	3.2	47	69
2008	4	36	64

Source: Pakistan Economic Survey (Various Issues).

The importance of agriculture sector is declining but its contribution is significant still it engages 36 percent of the country labor force. A vast majority of population which is 64 percent depends on agriculture for its income.

There should be micro and small scale enterprises related to livestock and agriculture sector to alleviate rural poverty in Pakistan (Chaudhry, Malik and Ashraf, 2006). The rural poverty tends to be strongly correlated with the lack of assets in rural area which is the principal asset in the rural economy of Pakistan. The household data set available PHIS 2001-2002 highlights that discrimination in inequality of field ownership threats to be found as dominant issues to promote poverty degree. The lower revenue scale were found to be higher having unequal field ownership for cultivation of crop as compared with the non farming household. (Anwar et al, 2004). The result shows that 42.97 percent rural population was poor in 2001-2002. This implies that out of 145 million 55 million individual were poor in Pakistan of these 37.4 million individuals were located in rural areas. The paper investigate that unskewed distribution of land, fair and enforceable tenancy contract, rural public work programmes and access to credit is critical in reducing Pakistan rural poverty.

The agriculture sector of pakistan is facing problems of rising population, shrinking argiculture land depletion of water reservoirs, inadequate infrastructure and wide spread land degradation. The Pakistan economic indicators are shown in Table 2.

Table 2. Economic indicators of Pakistan

Fiscal Year	Population Growth Rate %	GDP Growth Rate %	Agriculture Growth Rate %
1993-94	2.28	4.4	5.20
1994-95	2.24	5.1	6.60
1995-96	2.40	6.6	11.72
1996-97	2.34	1.7	0.12
1997-98	2.36	3.5	4.52
1998-99	2.23	4.2	1.95
1999-00	2.20	3.9	6.09
2000-01	2.11	1.8	2.20
2001-02	2.13	3.1	-0.10

Fiscal Year	Population Growth Rate %	GDP Growth Rate %	Agriculture Growth Rate %
2003-04	2.40	7.5	2.30
2004-05	2.26	8.6	6.70

Source: (Bhutto W. A, Bazmi A. A, 2007)

The increase in population is gradually depleting natural resources putting major constrains on the efforts to alleviate poverty (Bhutto W. A, Bazmi A. A, 2007). It is evoke that to relieve poverty the productiveness in farming sector can be enhanced through the provision of series of inputs which includes easy access to micro finance for small farmers, availability of quality fertilizers, pesticides, harvest services, tractor, and the farmer education. The author concluded that rapid rise in populace needs to be controlled to improve farming productiveness having considerable impact on poverty in Pakistan rural areas.

The growth alone cannot decrease poverty particularly when the inequality is deteriorating at the same time (Cheema Raza A, and Maqbool H. Sial, 2010). Both play an important role in alleviating poverty. If inequality declines during the progression process some part of progression is counteract. The paper suggests that policies geared towards poverty alleviation must include strategies to improve income distribution and sustainable economic growth. High poverty elasticity with respect to inequality measures confirms the importance of inequality in poverty reduction efforts (Jamal H, 2006). The author explores the linkage between poverty, growth and inequality in the context of Pakistan by using the time series macroeconomic data for the period 1979 to 2002. The empirical analysis shows that inflation, sectoral wage gap, progressive tax, terms of trade in favor of manufacturing exacerbate inequality, investment and development expenditure on social services, play a significant role in reducing inequality as shown in Table 3. The results show positive correlation between GDP per capita and income inequality. Growth no doubt plays important role in poverty alleviation but for development agenda inequality also matters. Distributional concerns could be the basis for new policy plan to nurture progression with equity. The degree of inequality affects the degree of poverty as well the growth elasticity of poverty.

Table 3. Determinants of inequality (Gini Coefficient)

Explanatory Variables	Coefficient	t-statistics	Signifinance
GDP Per Capita	0.081	3.59	0.0027
Inflation (Food Prices)	0.088	10.49	0.0000
Manufacturing to Agriculture Wage Gap	0.023	3.71	0.0021
Direct to Indirect Tax Ratio	-0.024	-5.20	0.0001
Developmental Expenditure on Socail Services	-0.015	-2.07	0.0566
Investment	-0.037	-2.35	0.0329
Manufacturing to Agriculture Terms of Trade	0.046	1.90	0.0768

Source: Jamal H, 2006

The poor in Pakistan has creative potential, yet they being denied the minimum of food, basic necessities, such as education, heath, and employment opportunities (Hussain, A 2008). The paper argues that poverty is based in the institutional structure of community and state in Pakistan. The papers investigate that major government expenditure is on military, bureaucracy, while spending less on education, health and developmental purposes. The stable democratic government is the path to sustainable and equitable economic growth.

The Grameen bank of Bangladesh providing micro credit facility proved successful for rural poverty alleviation. Tiny collateral free loans were provided to the poor to judge their capacity to use that money and observe their behavior. The poor bring income in circulation to accelerate the growth of their wages that assisted them sleek their usage and demonstrated trusted in returning the borrowed money without any exceptions. Grameen is heading fast to the maximum poor and helped them against multifaceted poverty so it is desired in Pakistan through an effective institutional mechanism (Nabeel A. Goheer, 1999). Pakistan has implemented various structural adjustment and stabilization programmes most prominently in 1988-91, 1993-96, and 1997-2000 aimed at creating friendly market, reducing fiscal and balance of payment deficits. It contained rationalization of tariff structure, import liberalization, de-regulating investments, and foreign exchange, financial reforms, reduction in subsidies, and deprivation of public assets. These programmes fail to improve level of efficiency, and their impact on employment and poverty is uncertain (Kemal, A. R. 2001).

4. Methodolgy, Data, Model and Hypothesis

4.1. Methodology

The study examines the relationship between poverty and macroeconomic determinants of poverty using the data for the years collected from Pakistan economic survey. The primary rationale of the study is to reduce the gap of income inequality in the society, improve standard of living by creating access to education, health services, reducing mortality rate and provide productive employment opportunities in labor surplus economy investing in human resource development and development in social services. Macroeconomic Indicators i.e. Explanatory variables are GDP gross domestic product growth rate, ARG agriculture growth rate, UNEMP unemployment rate, CPI consumer price index, REMT remittances, PCI per capita income, and DE developmental expenditure on social services. The dependent variable is the GINI gini coefficient.

4.2. Data Source

The quantitative data has been used for this study. The data used in empirical analysis are sourced from Pakistan economic survey and the Pakistan ministry of finance. Cross sectional data of poverty and its macroeconomic determinants is estimated for the period from 1994-95 to 2005-06. The data for agriculture growth rate, unemployment rate, and consumer price index, are in terms of percentage of gross domestic product. The data of remittances is in million dollars, per capita income and developmental expenditure in million rupees.

4.3. Model and Hypothesis

Multiple regression analysis is used with respect to correlates of poverty i.e. macroeconomic indicators. Multiple correlation measures the degree of association between dependent variable and the explanatory variables jointly. Following is the multiple regression model specification:

$$G_i = \beta_1 + \beta_2 GDP_i + \beta_3 ARG_i + \beta_4 UNEMP_i + \beta_5 CPI_i + \beta_6 REMT_i + \beta_7 PCI_i + \beta_8 DE_i + e_I$$

OLS Ordinary least square estimation is used to estimate the parameters of multiple variable regression model.

The basic hypothesis which we are testing is in terms of even distribution of income in the economy promoting economic growth. For this overall significance of the multiple regression model is tested. The joint hypothesis for overall significance is given by

Ho: Improvements in macroeconomic determinants do not lead to equal distribution of income.

H_I: Improvements in macroeconomic determinants will lead to equal distribution of income.

$$Ho: \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$$
$$H_I: \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 \neq 0$$

The analysis of variance (ANOVA) is used to test the overall significance of the joint hypothesis: The F-statistics. After testing the overall significance of multiple regression model the macroeconomic variables are individually tested against the income inequality. The hypothesis testing for individual regression coefficients are shown in Table 4

Table 4. Hypothesis Testing for Individual Regression Coefficients

Macroeconomics Indicators	
GDP Growth Rate	**Hypothesis**
Ho: Increase in GDP growth do not alleviates poverty H_I: Increase in GDP alleviates poverty	$H_O: \beta_2 = 0$ $H_I: \beta_2 \neq 0$
Agriculture growth rate	**Hypothesis**

Macroeconomics Indicators	
H_O: Increase in agriculture growth do not alleviates poverty H_I: Increase in agriculture growth alleviates poverty	H_O: $\beta_3 = 0$ H_I: $\beta_3 \neq 0$
Unemployment rate	**Hypothesis**
H_O: Employment opportunities do not declines poverty H_I: Employment opportunities declines poverty	H_O: $\beta_4 = 0$ H_I: $\beta_4 \neq 0$
Consumer price index	**Hypothesis**
Ho: Decrease in Inflation do not decline poverty H_I: Decrease in Inflation declines poverty	H_O: $\beta_5 = 0$ H_1: $\beta_5 \neq 0$
Remittances	**Hypothesis**
Ho: Foreign remittances do not reduces poverty H_I: Foreign remittances reduce poverty	H_O: $\beta_6 = 0$ H_1: $\beta_6 \neq 0$
Per Capita Income	**Hypothesis**
Ho: Increase in per capita income do not reduces poverty H_I: Increase in per capita income reduces poverty	H_O: $\beta_7 = 0$ H_1: $\beta_7 \neq 0$
Developmental Expenditure	**Hypothesis**
Ho: Flow of developmental expenditure will not alleviates poverty H_I: Flow of developmental expenditure will alleviate poverty	H_O: $\beta_8 = 0$ H_1: $\beta_8 \neq 0$

The individual testing is through usual T-Test. The econometric problems multicollinearity is detected through variance inflation factor while autocorrelation is tested through Durban Watson statistics.

5. Results and Discussion

The data is analyzed through Gretl and SPSS software. Table 5 shows the elasticity in income inequality with respect to various macroeconomic determinants. The overall model is significant as P - value is less than 0.05. This suggests that improvement in macroeconomic determinants have the ability to alleviate poverty.

Table 5. ANOVA of Independent Variables

Model	Sum of Square	df	Mean square	F	Sig
Regression	0.027	7	0.004	13.91	0.013
Residual	0.001	4	0.000		
Total	0.028	11			

Predictors: (Constant): GDP, ARG, UNEMP, CPI, REMMT, PCI, DE
Dependent Variable: GINI

Table 6 shows the coefficient of determination R^2. Its shows that the variations in the macro economic determinants have 95 percent variation in reducing the income inequality.

Table 6. Model Summary

R	R square	Adjusted R Square	Std. Error of the estimate	Durban-Watson
0.979	0.958	0.886	0.01720	2.94

Predictors: (Constant): GDP, ARG, UNEMP, CPI, REMMT, PCI, DE
Dependent Variable: GINI

The Durban Watson test statistics lies close to zone of indecision i.e. in between 4 - du and 4 - dl reflecting no conclusion. The results regarding the individual tested variable need to be interpreted with extreme caution.

Table 7. OLS Estimation of Individual Variables

	Coefficient	Std. Error	t-ratio	P-Value	
Const	0.947137	0.076702	12.3283	0.00025	***
GDP	-0.0153972	0.00604146	-2.5486	0.06340	*
ARG	0.00153362	0.00278865	0.5500	0.61162	
UNEMP	-0.0464492	0.00345016	-4.0254	0.01579	**
CPI	-0.00791533	0.011539	-2.2942	0.08347	*
REMT	8.88373e-05	1.32364e-05	6.7116	0.00257	***
PCI	-7.27051e-06	1.32774e-06	-5.4758	0.00541	***
DE	-0.046079	0.0134435	-3.4276	0.02659	**

Dependent Variable: GINI
Note: *Indicates that the coefficients are significant at the 1 percent level.
**Indicates that the coefficients are significant at the 5 percent level.
***Indicates that the coefficients are significant at the 10 percent level

The variables developmental expenditure, per capita income, and GDP growth rate have correct sign according to their hypothesis. Remittances, consumer price index, unemployment rate and agriculture growth rate have opposite sign with income inequality which put grounds for further assessment and cross country research. Though consumer price index, unemployment rate are significant while remittances highly significant. The strongest message which emerges from the result is that beside per capita income, and GDP growth rate, the flow of remittances is most significant in explaining changes in poverty levels in the economy. The magnitude of the effect of developmental expenditure is also significant in alleviating poverty by providing employment through public works and indirectly crowding in private investment. The fact that agriculture sector is not significant is because agriculture sector contribution in economy is more but its income generation is less as compared with the service sector. The empirical result suggests that remittances, per capita income, developmental expenditure, and decline in unemployment and GDP growth have significant effect to alleviate poverty in Pakistan.

Table 8 shows that no severe multicollinearity exists except for remittances whose value is a bit high from 10. The other weakness may be the limited number of observation. The variables reinforce each other impact in a significant manner. However running any multiple variable regressions, given the number of observations, would not be meaning.

Table 8. Variance Inflation Factors

Mimimum Possiblevalue = 1.0 Values > 10.0 may indicate a collinearity problem	
GDP	6.463
ARG	4.157
UNEMP	5.506
CPI	5.364
REMMT	10.164
PCI	5.713
DE	5.420

6. Conclusion and Future Implications

Poverty reduction has been prior for development policy. Increase in per capita income is the main tool for fighting poverty. In Pakistan the benefit of economic growth first goes to rich and in the phase two the poor starts to benefit when the ruling class starts spending their gain. More equal distribution of income and asset can foster economic growth, where high inequality can retard it. Inflation in food prices exacerbates poverty. The high rate of inflation particularly above the level of 10 % hurts the poor. The government needs to control inflation rate. Public expenditure on health, education and nutrition increases the human capital endowment of the poor and affects on their empowerment. Growth in investment is essential to generate employment opportunities. Public investment by providing infrastructure plays a significant role in reducing gap between income inequalities. From the last few years the corruption level in Pakistan is significantly increasing. The tax structure is seriously flawed hammering the poor segment of the society. The increasing imbalance between government revenue and government expenditure has resulted it public debt, reduction in investment and decreasing the employment opportunities. There is a need to empowering poor access to the market, land for the landless poor, access to microfinance, heath policy for the poor, education for development, institutional policies stabilizing crop sector growth, sustainable growth in manufacturing sector in order to eliminate rural poverty in Pakistan. One of the major reasons for rural poverty is their large household; government must accelerate efforts to control the population growth rate.

Another important factor for alleviating rural poverty is the developmental expenditure on social services, especially in the rural areas. The social action programmes need to be assessed to increase human development providing a lot of white collar jobs. There is a need to create potential for investment opportunities in Pakistan. The investment projects should be beneficial for the poor segment of the society. The labor force of Pakistan needs to be transformed into skilled labor through promoting human resource development. Heavy load shedding in the rural area have put majority of the rural labor force jobless.

Remittances play a significant role is reducing income inequality in Pakistan but they are not speculated to might work well in the long term as they are decreasing along with the countries strict visa regime. The power shortage has increased the unemployment especially among the unskilled labor working in the informal sector. The government needs to take presumptive measures to increase the electricity generation. If no such action is taken against the power production it will badly hurts the economy in the future. Per capita income needs to be improved to alleviate poverty in both rural and urban sector of the economy.

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