

An Investigation of Poverty, Income Inequality and Their Shifters at Household Level in Pakistan

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Abstract The causes of poverty and inequality are complex and multidimensional, based on diverged social, economic, political and demographic shifters. In a country like Pakistan, people generally are deprived of health, education, clothing, housing and human rights. Therefore, it is the need of hour to determine factors affecting the household poverty and inequality. This study presents the facts and figures associated with the household poverty and inequality level using data set of PSLM 2008-09. On the base of consumption expenditures; 34.6%, 40.2% and 25.2% households were considered as chronic, transient, and non-poor respectively. Poverty line was constructed by converting the 1.25 USD into domestic currency by using the average exchange rate of 2008-09. The Results of the Multinomial logit model revealed that land and Livestock as an asset, male headed households, middle level of education, employment status and woman empowerment significantly reduced the chances of transient poverty. Income distribution is deteriorated in this time period by increasing the gulf between the lower and upper income households.

Keywords: *chronic, transient, inequality, livestock*

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1. Introduction

The ultimate purpose of all economic reforms and policies are to increase the human development. Economic growth is considered to be the main contributor for the sustained human development (Ranis and Stewart, 2005) [29] and it is the key objective of all economic policies (Asad and Ahmad, 2011) [3]. Due to the increased importance and link between poverty and income inequality (Banerjee and Newman, 1994) [10] it has become a focal point for the policy maker's (Cheema and Sial, 2012) [12]. The Failure and success of government economic policies depend on the extent of poverty. So it is necessary to categorize the vulnerable population of the country for the public well being.

Along with growth in Pakistan a very little care attended towards poverty, and other socioeconomic factors (Chaudhry et al., 2009) [13]. Bourguignon and Chakravarty (2003) [11] argued that poverty as an issue arises because everyone desires to identify poverty's edge for all characteristics like income, consumption on health, food and education. In spite of the fact that every nation desires to reduce both poverty and inequality, there is a lack of consensus on how to plan a holistic approach to tackle this problem (Alesina, 1994) [4]. Hence the emphasis on time and era is that to have more concern on this burning issue.

There is often lack of clarity to define the poverty with its occurrence (Shepherd and Prowse, 2008) [32]. However, this study focuses on the chronic as well as transient poor households. Households below the poverty line supposed as chronic while transient poverty is connected with the incapability of households to sustain their consumption level when there is any shock in income or individual conditions (Jalan and Ravallion, 1998) [22].

Since 1960's numbers of studies conducted to measure poverty and inequality over time in Pakistan, mostly without seriously taking into account the factors of both. Chaudhry et al. (2009) [13] used logit model to estimate poverty by using the income poverty line developed by Malik (1998, 1996) [26,27] and inflated it with current prices of the same survey year. They found that land holdings, age of household head and educational level increase the severity of poverty. Siddiqui and Mehmood (2011) [34] initiated that year of schooling of households, access to drinking water and energy were verified as a determinant of poverty and inequality within the rural and urban premises. Addison (2007) [8] also checked the impact of different exogenous variables like per capita income, female household head, and population aged 65 and above and educational status on poverty.

Inequality with poverty in Pakistan is also a vital subject for policy makers (Haq and Bhatti, 2002) [19] because the gap is increased between the provinces over the time (Jamal, 2003) [23]. Moreover, inequality in

Pakistan is mostly confined to the income and consumption and it is estimated by Naseem (1973) [28], Khundkar (1973) [24], Mahmood (1984) [25], Ahmad (2000) [1] and Anwar (2005) [6] over the time period by using diverse inequality indices.

Following Ravallion (1998) [30] households are the basic unit to calculate poverty. Household consumption can be expressed in the form of expenditure function. Let i th household is expressed as Y_i , and then an expenditure function may be denoted as:

$$Y_i = P \cdot Q = e(p, x, u_y)$$

Where P is a vector of prices of goods and services and Q is a vector of quantity as well. Minimum expenditures e as a function, x is the shifters of poverty while u_y is the utility level of the households. Y_i is the available expenditures of the households needed to achieve the utility at a given price level. In order to compute the consumption expenditure of the i th household it is assumed that all members of the house have equal need. The Poverty line for the i th household is the minimum point of consumption. Chen and Ravallion (2008) [15] used purchasing power parity (PPP) prices of 2005 to convert 1.25 USD in order to estimate the population below the poverty line for 15 poorest countries. In terms of USD 2.00 Godoy and Dewbre (2010) [16] and World Bank (2008) [38] also defined three requirements for the estimation of poverty

- Total consumption of goods and services by the individuals
- Exchange rate to convert US dollar into local currency
- Price of goods in domestic currency

Like them, in this study Consumption of households compared with the official poverty line that was Rs 104.95 per person per day in the year of 2008-09. Poverty is estimated by forming the poverty index Z that determines the poverty status of each household based on the poverty line. Poverty index is categorized as.

If $Z_i < 1$, then $Z = 0$, household is supposed to be chronically poor.

If $Z_i \geq 1 \leq 1.2$, then $Z = 1$, household is transient poor.

If $Z_i > 1.2$, then $Z = 2$, household is said to be non poor.

Where Z -Score = Y_i / R

Z_i = poverty index of i th household.

Y_i = available expenditures of i th household.

R = required expenditures.

Furthermore, this approach has been criticized due to the unavailability of economic rooted theory, not inflating the poverty line in terms of domestic currency prices and as a perceptible measure of Purchasing power parity (PPP) and exchange rate. In one of the earliest work by Ravallion and Chen (2007) [31] found that dollar poverty line is considerably simple to compute the poverty in domestic currency. Although the issue of averaging and stability of PPP exchange rate is there.

The basic objective of our study is to determine the contribution of each shifters of poverty and income inequality among different poverty bands at household level in Pakistan. The accomplishment of this study is based on the dollar poverty line developed by the Chen and Ravallion (2008) [15]. Using micro data of

expenditures, we performed an econometric analysis of poverty shifters and inequality as well.

2. Materials and Methods

The data used for the study is Pakistan Social and Living Standards Measurement Survey (PSLM) 2008-09. The poverty status of household is mostly checked by regression analysis of logit or probit model (Hashmi and Sial, 2005) [17]. Therefore in econometric analysis, Multinomial logit model an extended form of the logit model is carried out. In Equation form multinomial logit model with three dependent variables and different explanatory variables is.

$$Y_{(a,b)i} = \ln \frac{\Pr(Y = a, b)}{\Pr(Y = c)}$$

$$= \alpha_{a,b} + \sum_{j=1}^J \beta_{(a,b)j} (Z)_{ij} \dots \dots \dots$$

Where; Y = dependent variable while
 $N = a, b, c$ are the three different categories of poverty.
 Here it determines the probability of i th household facing one of the j th outcomes (of being chronically poor, transient poor or non poor).

$$\Pr(F_j) = \ln \Pr(F = 1, 2)$$

$$= \frac{1}{1 + e^{- \left(\begin{array}{l} \beta_0 + \beta_1 \text{reigon} + \beta_2 \text{age_fac} \\ + \beta_3 \text{h_head} + \beta_4 \text{head_edu} \\ + \beta_5 \text{dwelling_type} + \beta_6 \text{own_house} \\ + \beta_7 \text{asset_own} + \beta_8 \text{occupation} + \beta_9 \text{w_dec} \end{array} \right)}}$$

Where $(J) = 0, 1, 2$
 β = coefficient of explanatory variables
 Multinomial logit model estimates the log odd ratio like the logit model.

$$\ln \frac{p(\text{Poverty} = \text{Transient})}{p(\text{poverty} = \text{Chronic})}$$

$$= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

$$\ln \frac{p(\text{Poverty} = \text{Non - poor})}{p(\text{poverty} = \text{Chronic})} \quad (\text{Hoffmann, 2004}) [21]$$

$$= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

3. Results and Discussion

Table 3.1 articulated the situation of poverty in Pakistan; as 34.6 percent of households are extremely poor. These are the poor that experience deprivation for a long time period (Hulme and shepherd, 2003) [18]. The households that are just transient poor and reside on the edge of the poverty line while a little bit shock could trip them into the well of extreme poverty. Poverty estimated by Chen and Ravallion (2008) [15] was about 22.5 percent population of Pakistan below the 1.25\$ poverty line in 2005 that percentage was much better as compared to its neighboring countries like India, Nepal and Bangladesh where poverty was 41.6, 54.7 and 50.5 respectively.

Table 3.1. Distribution of the households according to their poverty status in Pakistan (2008-09)

Poverty band	Frequency	Percent
Chronic poor	5142	34.6
Transient poor	5981	40.2
Non poor	3750	25.2

Table 3.2. Multinomial Logit Analysis. Socio Economic Shifters Affecting Poverty Status of the Households

Independent Variables	Transient / Chronically poor	Odd Ratio's	Non poor / Chronically poor	Odd Ratio's
Intercept	1.052	-	.531	-
Male=1	-.035**	.966	.281**	1.324
Female=2	0b	-	0b	-
Above 60 years=1	-.544**	.581	-.935*	.392
40-60 years=2	-.332**	.718	-.908*	.404
30-40 years=3	-.211**	.810	-.626*	.535
Less than 30 years=4	0b	-	0b	-
Above 12 years edu=1	-.055**	.946	-.123	.884
10-12 edu=2	-.154**	.857	-.100	.905
Middle= 3	-.293**	.746	-.106	.900
Primary=4	-.183	.833	-.082	.921
Illiterate=5	0b	-	0b	-
Land=1	-.699**	.497	-.940**	.391
Livestock=2	-.587**	.556	-.845**	.429
Land & livestock=3	-.299	.742	-.365**	.694
Neither land no livestock	0b	-	0b	-
Employer=1	-.261	.770	.092*	1.097
Employee=2	.114**	1.211	.148***	1.160
Other =3	0b	-	0b	-
W_dec=1	-.281	.755	-.203	.816
Shared_dec=2	-.630*	.533	-.554	.575
No_dec=3	0b	-	0b	-
Own=1	-.078	.925	-.035	.965
Rent=2	0b	-	0b	-
Independent=1	.053	1.055	.069	1.072
Apartment=2	.089	1.093	.195	1.215
Compound=3	0b	-	0b	-

*significant at 1%, ** 5% and *** 10%

The Results of the multinomial logit model in case of negative association of educational level, house ownership, and asset ownership to the probability of being poor is related to the panel data results of Arif et al (2011) [9]. Coefficients of male headed households, age factor of

households, asset ownership and educational status (above primary level) is significant at 95 percent confidence level in case of transient poor households. While occupational status, asset ownership and male headed households also significantly impact the non poor households. It is revealed that when the household head is a male likelihood of transient poor reduced as compared to the houses where heads is female. Chaudry et al. (2009) [13] showed that gender type has significant impact on poverty level of households. While poverty reduced in the averaged aged group of 30 to 40 years. It supports the fact that as more adults concerned with income cohort chances of poverty reduced. Qureshi and Arif (2001) [37] also showed that poverty rises gradually within the age level between 49 years of age.

In the developing countries rural households; people used to live in joint family system, only the education of household head is not only matter (Scott, 2000) [36]. That is the reason average educational level was taken as a shifter of poverty. The average education level of household's was also inversely related to the poverty level. However Middle passed households had more chances to be not transient poor. Maximum absorption of poverty is found within the lowest level of education (Qureshi and Arif, 2001) [37].

The ownership of both land and livestock reduced the chances by being transient poor. There were significantly less chances to be transient poor when households had only land. The Same results were found by Hashmi and Sial (2005) [17]. A household had both land and livestock considered more non poor as compared to the household had only land and livestock. Findings of (Arif et al., 2011) [9] also indicated the same picture. The ownership of both land and livestock reduced the chances by being transient poor. Occupational choice is also being negatively related to transiently poor in case when the households were employers. Others occupational groups with self-employed status have also a significant level of incidence poverty. However, such results are demonstrated by Arif and Bilquees (2006) [5] who found negative relation in type of working of household head and transient poverty. They defined in reference of panel data that many households may be active in economic term but in spite of that they may not be able to come out of poverty.

Participation of women in decision making like about education, buying food, medicine and purchasing of clothing is also a strong shifter in the sense that a woman can make a better decision than the male counterpart. With the lower status woman had a trend of low power over different holdings, low health services, poor mental health and lesser self respect (Smith, 2005) [35]. Table 3.2 revealed in the houses where the woman is the only decision maker chances of transient poverty reduced and condition of non poor households increased. House ownership and dwelling type had no significant impact on the condition of the poverty of the households.

However, the results of this study are according to the common economic theories except the woman's decision making alone in some matters of life. Assets holding, educational level and occupation reduced the chances of poverty by increasing the average income as well as consumption of the households. (See Chaudhry, 2003, Siddique, 2009) [14, 33]

4. Measurement of Inequality

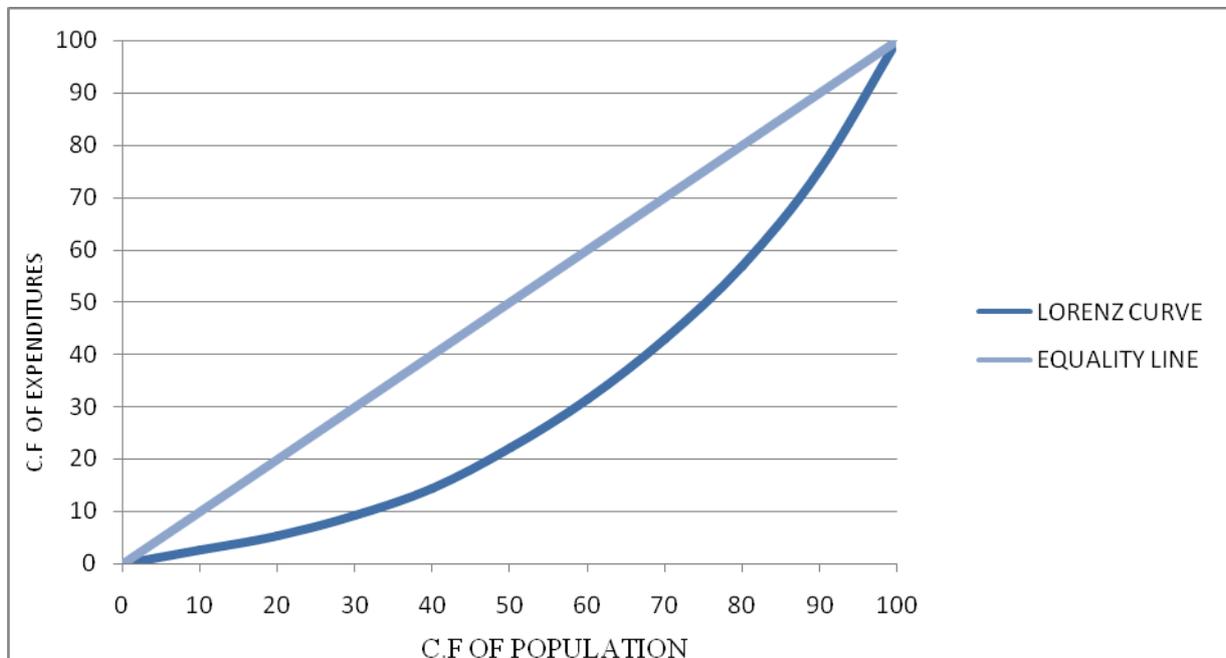
Poverty is a pervasive issue that accredited to the unequal distribution of income. There are many methods for the estimation of inequality among individuals or households (Atkinson, 1970) [7]. One of the most commonly used measure of inequality is Gini coefficient based on the Lorenz curve.

$$GiniCoefficient = \frac{Area\ between\ lorenz\ curve\ and\ diagonal}{Total\ area\ under\ diagonal}$$

Zero value of the Gini indicates perfect equality while 1 value of Gini coefficient shows perfect inequality. In this study value of Gini coefficient (0.43) is a little bit high as compared to the other studies (Anwar, 2005 & Haq and Zia, 2006) [6,20]. It is shown from table 4.1 that the lowest 10 percent holds only 2.63 percent while Top 10 percent of the households had 24.87 percent of the total sample income shares.

Table 4.1. Income Distribution among households according to PSLM (2008-09) in Pakistan

Population (percentage)	Income (percentage)	Population (Cumulative)	Income (Cumulative)
Lowest 10	2.63	10	2.63
Next 10	2.62	20	5.26
Next 10	3.91	30	9.17
Next 10	5.28	40	14.44
Next 10	7.63	50	22.08
Next 10	9.38	60	31.47
Next 10	11.52	70	42.99
Next 10	14.0	80	57.00
Next 10	18.13	90	75.13
Top 10	24.87	100	100
Gini coefficient= 0.43			



Graph 1. Lorenz Curve for Income Distribution

5. Summary and Conclusion

Using PSLM data 2008-09, this study has attempted to find out the shifters of poverty and inequality at the household level in Pakistan. The Household’s categorized as chronic, transiently and non poor on the base of the dollar poverty line. A significant large number of households were supposed as transient poor. About 40 percent of the households due to any external and internal shock may trip below the poverty line.

Multinomial logit model was used to find out the effect of different shifters on the household’s poverty status. Some of the factors were deep and some were not the causal factors of poverty status of the households. Whereas, the analysis highlights the importance of Woman empowerment, age factor, land and livestock ownership with the educational level as a poverty shifter

significantly reduced the incidence of transient poverty. Another problem related to poverty is inequality, while 0.43 value of the Gini coefficient showed high income inequality. Top 10 percent of the households had captured a big amount of total sample income. While lowest group of households covered a small amount of the sample income.

References

- [1] Ahmad, M. (2000). Estimation of distribution of income in Pakistan using micro data. *The Pakistan Development Review*. 39(4): 807-824.
- [2] Ahmad, M. (2001). Income inequality among occupations/professionals in Pakistan-Estimates based on household income per capita. *The Lahore Journal of Economics*. 7(1): 89-106.
- [3] Asad, A. and Ahmad, M. (2011). Growth and Consumption Inequality in Pakistan. *Pakistan Economic and Social Review*. 49(1): 69-89.

- [4] Alesina, A. (1994). *Income distribution, political instability and investment*. NBER Working Paper No. 3668.
- [5] Arif, M.G. and Bilquees, F. (2006). *Chronic and transitory poverty in Pakistan. Evidence from a longitudinal household survey*. MIMAP Technical Paper Series No. 19
- [6] Anwar, T. (2005). Long-Term Changes in Income Distribution in Pakistan: *Evidence Based on Consistent Series of Estimation*. CRPRID, Islamabad.
- [7] Atkinson, A. B. (1970). On the measurement of inequality. *Journal of Economic Theory*.
- [8] Addison, H. (2007). Empirical analysis of poverty and inequality in West Virginia. The Selected Papers of Addison. *Journal of Rural and Community Development*. 7(2): 118-130.
- [9] Arif, M.G., Iqbal, N. and Farooq, S. (2011). *The persistence and transition of rural poverty in Pakistan: 1998-2004*. PIDE Working Paper No. 74: Pakistan Institute of Development Economics, Islamabad, Pakistan.
- [10] Banerjee, A. and Newman, A. (1994). Poverty, incentives and development. *Am. Econ.* 82(2): 211-215.
- [11] Bourguignon, F. and Chakravarty, S. (2003). The measurement of multidimensional poverty. *Journal of Economic Inequality*. 1(1): 25-49.
- [12] Cheema, R. A. and Sial, H.M. (2012). Poverty, income inequality and growth in Pakistan: A pooled regression analysis. *The Lahore Journal of Economics*. 17(2): 137-157.
- [13] Chaudhry, S. I., Malik, S. and Hassan, A. (2009). The impact of Socio economic and demographic variables on poverty: A village study. *The Lahore Journal of Economics*. 14(1): 39-68.
- [14] Chaudhry, S.I. (2003). *An empirical analysis of determinant of poverty rural poverty in Pakistan. A case study of Bahawalpur district with special reference to Cholistan*. Unpublished PhD Thesis. The Islamia University of Bahawalpur, Pakistan.
- [15] Chen, S. and Ravallion, M. (2008). *The developing world is poorer than we thought, but no successful in the fight against poverty*. World Bank Policy Research Working Paper Series.
- [16] Godoy, C. and Dewbre, J. (2010). *Economic importance of agriculture for poverty reduction*. OECD Food, Agriculture and Fisheries Working Paper No. 23.
- [17] Hashmi, A. A. and Sial, H. M. (2005). Trends and determinants of rural poverty: A logistic regression analysis of selected districts of Punjab. *The Pakistan Development Review*. 47(4): 909-923.
- [18] Hulme, D. and Shepherd, A. (2003). Chronic poverty and development policy. *Special Issue of World Development*. 31(3):55-75.
- [19] Haq, R. and Bhatti, A. M. (2002). *Estimating poverty in Pakistan: The non food consumption share approach*. Pakistan Institute of Development Economics. Research Report No. 183.
- [20] Haq, R. and Zia, U. (2006). Governness and pro-poor growth: Evidence from Pakistan. *The Pakistan Development Review*. 45(4): 761-776.
- [21] Hoffman, J. P. (2004). *Generalized Linear Models: An Applied Approach*. Boston New York San Francisco.
- [22] Jalan, J. and Ravallion, M. (1998). Transient poverty in post reform in rural china. *Journal of Comparative Economics*. 26(2): 338-357.
- [23] Jamal, A. (2006). Does inequality matter for poverty reduction? Evidence from Pakistan's poverty trends. *The Pakistan Development Review*. 45(3): 439-459.
- [24] Khandkar, S. (1973). Pro poor growth in Pakistan. *The Pakistan Development Review*. 28(4): 458-499.
- [25] Mahmood, Z. (1984). Income inequality in Pakistan. An analysis of existing evidence. *The Pakistan Development Review*. 23(2): 975-992.
- [26] Malik, M. H. (1988). Some new evidences on the incidence of poverty in Pakistan. *The Pakistan Development Review*. 27(4): 509-516.
- [27] Malik, S. (1996). Determinants of rural poverty in Pakistan: A micro study. *The Pakistan Development Review*. 35(2): 171-187.
- [28] Naseem, S. M. (1973). Mass poverty in Pakistan: Some preliminary findings. *The Pakistan Development Review* 12(4): 317-360.
- [29] Ranis, G. and Stewart, F. (2005). *Dynamics links between the economy and human development*. DESA Working Paper No. 8.
- [30] Ravallion, M. (1998). Issues in measuring and modeling poverty. *The Economic Journal*. 106: 1328-1343.
- [31] Ravallion, M. and S. Chen (2007), China (Uneven) progress against poverty. *Journal of Development Economics*.
- [32] Shepherd, A. and Prowse, M. (2008). *Agriculture growth, Poverty dynamics and markets*. Background Paper for the Chronic Poverty Report 2008-09.
- [33] Siddiqui, A. M. (2009). Determinants of poverty in Pakistan: Finding from survey data 2005. *European journal of Social Sciences*. 12(1): 1-23.
- [34] Siddiqui, M. and Mahmood, T. (2011). The food poverty and its causes in Pakistan. *The Pakistan Development Review*. 3(1):171-187.
- [35] Smith, S. C. (2005). Ending Global Poverty: A Guide to What Works. *Journal of Development Economics*. 6(1): 65-78.
- [36] Scott, A. (2000). Do living wage ordinances reduce urban poverty? *Journal of Human Resource*. 38(3): 357-369.
- [37] Qureshi, S. K. and Arif, G. M. (2001). *Profile of Poverty in Pakistan 1998-99*. MIMAP Technical Paper Series No.5.
- [38] World Bank (2003). *Poverty in Pakistan: Vulnerabilities, Social Gaps, and Rural Dynamics*. Washington DC.