Dynamics of Poverty in Rural Punjab: A Case Study of Rural Area of Tehsil Samundri

Irum Naz, Sadia Ali and Babar Aziz[1]

Abstract

Present study is an attempt to analyze the causes of absolute and relative poverty in Pakistan. Data for the study has been taken from a household survey in a village named 142-GB Tehsil Samundri, District Faisalabad. Its results show that 67 percent of the households are poor in absolute terms. The incidence of relative poverty is 52 percent, 62 percent and 67 percent at 50 percent, 66.6 percent and 75 percent of average per person income, respectively. Binary logistic regression analysis, using international poverty line was used to analyze the causes of both type of poverty. The results indicate that land, education, occupation, dependents, livestock and female participation are the significant determinants of absolute poverty. Furthermore, land, livestock and female participation has intensified the incidence of relative poverty, whereas education has decreased it.

I.   Introduction

The concept of absolute poverty is based on two concepts: subsistence and basic needs approach. Subsistence approach presented a limited picture of poverty that is only in terms of physical requirements whereas basic needs approach broadened the concept and included social needs also. But with the passage of time, it was realized that concept of absolute poverty was more appropriate for developing countries, it had nothing to do with the phenomenon of poverty found in developed world. Circumstances of developed countries and growing attention towards inequality required poverty definition in relative terms. Relative poverty referred to low level of

---

[1] The authors are research scholar & Lecturer at Department of Economics, GC University Faisalabad and Associate Professor at Department of Economics, Forman Christian College (A Chartered University) Lahore, respectively. E-mail: babaraziz@fccollege.edu.pk

income or consumption as compared to average income or consumption level in a particular country[2].

Pakistan is located in South Asia. It is the 6th most populous country of the world with a population growth rate of 1.8 percent per year (GOP, 2009-10). The incidence of absolute poverty in Pakistan declined during 1970s and 1980s but rose during 1990s then it tended to decrease. Poverty decreased from 30.6 percent in 1999 to 22.3 percent in 2006 (GOP, 2003 and 2008). The incidence of relative poverty was 39 percent in 1984-85 which increased to 52.3 percent in (2001-02) at 75 percent of national average per capita expenditures (Anwar, 2005). Pakistan had been a poor country since its creation but the incidence of poverty remained higher in rural areas as compared to urban areas (World Bank, 2002; GOP, 2003, 2008). According to latest estimates, incidence of rural poverty was 27 percent and of urban poverty was 13 percent (GOP, 2008).

In lower income countries, agriculture growth was found to be more influential towards poverty reduction as compared to non-agriculture growth (Christiaensen *et al.*, 2006). Agriculture is the primary occupation in rural Pakistan. It employed near about 44 percent of total work force and 60 percent of the rural labor force was engaged in agriculture sector (GOP, 2008). Over all agriculture productivity played a significant role in determining poverty. It was found that agriculture productivity had negative relationship with rural poverty in Pakistan (Hussain and Ishfaq, 1997). It is also explored that the proportion of poor in agriculture sector is greater as compared to other sectors in Pakistan[3]. In rural areas of Pakistan higher incidence of poverty was found among share croppers (48 percent) and lower among owner cultivators (25 percent)[4]. The findings of Arif *et al.* (2000) revealed that incidence of poverty was higher among agricultural laborers (46 percent) as compared to non-farm wage employees (34 percent).

Land is the principle asset in rural agrarian economy of Pakistan. It was found that landlessness was the main determinant of rural poverty in Pakistan (Malik, 1996; Chaudhry, 2003; Anwar *et al.*, 2004). Distribution of land was unequal in Pakistan. It was found that in rural areas of Pakistan, 67.23 percent households were landless. 32.67 percent households owned less than 1 hectare of land. Just 0.1 percent households owned 1 hectare and

---

[2] See, Rio (2006), for a detailed discussion on the subject.
[3] For example, see, Jan et al. (2008).
[4] See, for instance, Anwar et al. (2004).

above landholdings. The over all Gini coefficient for land distribution was 0.62 (Anwar *et al.*, 2004).

Non-farm occupation possessed a central position in decreasing poverty not only among landless households but also for landholding households as it enabled households to over come risk and uncertainty attached with agriculture income. Non-farm income had been associated with poverty. The incidence of poverty was found to be higher among non-farm households as compared to farm households (Qureshi and Arif, 2001).

Characteristics of the household head such as age gender, education, occupation also played a significant role in determining poverty. It was found that households with female heads were more likely to be poor as compared to household with male heads (Awan et.al., 2008). This was mainly attributed to discriminatory atmosphere prevailed in labour markets. Earnings of the individuals in non-farm occupations depended mainly on their education attainment. It is generally agreed that education attainment reduced the chances of poverty but relationship between the two is not so simple. There existed two-fold relationship between education attainment and poverty. At one side education reduced the chances of poverty and on the other hand poverty is a big impediment in education attainment. In case of Pakistan, proportion of poor decreased significantly with the increase in education attainment of individual worker or household head. It was found that households whose heads had obtained at least 10 years of schooling were less likely to be poor as compared to households with illiterate heads (Qureshi and Arif, 2001). Attainment of professional education reduced the probability of poverty significantly as compared to primary education (Awan *et al.*, 2008). Besides this household head's wealth holdings like assets ownership and livestock holdings etc. were found to be negatively related with poverty (Chaudhry, 2003) whereas household size was positively related with poverty (Qureshi and Arif, 2001 and Chaudhry, 2003).

Poverty analysis in Pakistan mostly confined to absolute poverty. Only the studies of Anwar (2005) analyzed relative poverty. A number of studies had also analyzed determinants of absolute poverty (Malik, 1996; Qureshi and Arif, 2001 and Chaudhry, 2003). The aim of the present study was to analyze absolute and relative poverty and their determining factors.

Rest of the paper is organized as: section II discusses data and methodology used in the paper. Section III, IV and V are meant for the results of empirical analysis and discussion. More specifically, section III highlights

the profile of poverty in that specific region. Section IV analyzes the determinants of absolute poverty using FGT measures and regression analysis. Section V analyzes determinants of relative poverty with the help binary logistic regression analysis. Section 6 discusses the conclusions and suggested policy implications followed by references and result tables in the appendix.

II.   Data and Methodology

Keeping in mind the nature, scope and objectives of the study primary data was employed. A detailed household questionnaire was developed after the pre-testing. Data was collected from the Tehsil Samundri of District Faisalabad. The selected village comprised of 450 households from which a sample of 104 households was drawn by using stratified random sampling technique as it assured the representation of all groups in the sample. The population was divided mainly between landholders and landless households and then sub samples were drawn from each group randomly.

2.1.   Indicator of Welfare

It had been a controversial topic in all research studies concerning poverty analysis that what would be the indicator of welfare (*e.g.* either income or consumption)? The present study selected income over consumption due to the following reasons:

- It was found that households did not maintain proper record of consumption expenditures.
- Most of the households tended to over estimate their consumption expenditures.
- Consumption expenditures were seasonal in nature. The seasonal variations in consumption expenditures were not observable and cannot be adjusted easily whereas the variations in income were comparatively observable and can be easily incorporated.
- Nature of expenditures varied from household to household. Poor households tended to spend more on food items as compared to clothing, education, health etc. So due to the inconsistent behavior of the households, it was very difficult to sketch out any sort of comparison among the consumption expenditures of various households.

- Moreover, respondents gave clear and relatively reliable information about income as compared to consumption[5].

2.2. Poverty lines

Determinants of absolute poverty were analyzed using international poverty line of 1 US dollar ($) per day, per person income. Poverty line was set at Rs. 2454.625, per month, per person income. It was derived from the dollar price of rupee (80.70 Rs.) during surveyed months.

Determinants of relative poverty were also analyzed. Average per person income of sampled households was taken as approximation of relative poverty. The study used three cut off points of half, two third and three forth of average per person income of the sampled households as three relative poverty lines following previous study of Anwar (2005). Average income of the households was 3221 rupees. So per person income of 1610, 2145 and 2416 rupees were used as relative poverty lines respectively at 50 percent, 66.6 percent and 75 percent of average per person income.

2.3. Foster Greer and Thorbecke (FGT) Decompositions of Poverty

FGT measures were utilized to see the prevalence of absolute and relative poverty among sampled households. However variables were decomposed only for absolute poverty. There were three forms of FGT measures namely head count, poverty gap and poverty gap squared. They measured respectively poverty incidence, poverty depth and severity. They were calculated with the help of following formulas:

(i) Head Count $= q/n$, Where q = number of poor and n = sample size

(ii) Poverty Gap $= \dfrac{1}{n}\sum_{i=1}^{q}\left(\dfrac{Z-Y_i}{Z}\right)$, Where Z = Poverty Line, Y_i = income of the ith poor and q = number of poor

(iii) Poverty Gap Squared $= \dfrac{1}{n}\sum_{i=1}^{q}\left(\dfrac{Z-Y_i}{Z}\right)^2$

Head count index is the most widely used and simple method to measure poverty. It simply gave the percentage of the people falling below poverty line but it violated the principles of distributional sensitivity, population

---

[5] Malik (1996), Javad et al. (2001) and Chaudhry (2003) have also made use of income as indicator of welfare.

independence and strong monotonicity. In other words it failed to take into account the intensity of poverty and distributional aspects. Poverty gap and poverty gap squared fulfilled all the four criteria namely anonymity, population independence, monotonicity and distributional sensitivity (Anwar, 2005; Todaro and Smith, 2008).

2.4.   Description of Explanatory Variables

Explanatory variables were same for both absolute and relative poverty models. Characteristics of the household head such as age, gender, education and household characteristics like landholding, occupation, dependents, earners and livestock holdings were used as explanatory variables. Age of the household head was measured in years. Gender of the household head was approximated by a qualitative variable named gender (male = 1, female = 0). Land variable was approximated as total land holdings of the household in acres. Education variable was approximated by educational years of household head. Occupation variable was measured by a qualitative variable named occupation (1 if both occupations, 0 otherwise). Variables dependent and earners were measured by the number of dependents and earners in a household. Impact of female participation in income generation was also approximated by a qualitative variable named participation (1 if female participation, 0 otherwise). Livestock variable was measured in rupees by the market value of the total livestock holdings of the household.

In logistic regression analysis, dependent variable assumed the value of 1 for poor households and zero for non poor households. Here dichotomous dependent variable was used. So we can not use OLS to estimate the regression parameters so maximum likelihood method of estimation is used. Traditionally qualitative response models can be estimated by three methods: (a) linear probability model (b) logit model (c) probit model.

The main criticism on the linear probability model is that it gives rise to heteroscedasticity problem and there is no guarantee that probability will lie between 0 and 1 but most important thing is that in this model, probability is linearly related with explanatory variables. To avoid this problem dependence is made on the logit and probit models. In these models probability remained between 0 and 1 and here probability is none linearly related with explanatory variables. Probit model is sensitive of normality assumption whereas logit model assumes a logistic distribution. So logit model is used in the present study. The specification of the logistic model is as follows:

$$P_i = E\left(\frac{Y = 1}{X_i}\right)$$

Here $Y = 1$ means that a particular household was poor and X denotes the set of explanatory variables used. Here P_i is the conditional probability that a particular household was poor. In context of logit model it is:

$$P_i = E\left(\frac{Y = 1}{X_i}\right) = \frac{1}{1 + e^{-(\beta_o + \beta X_i)}}, \text{ Let } Z_i = -(\beta_o + \beta X_i), \text{ and } P_i = \frac{1}{1 + e^{-Z_i}}, \text{ and}$$

$$P_i = \frac{e^{Z_i}}{1 + e^{Z_i}}.$$

If P_i gives the probability of being poor then $(1 - P_i)$ will give the probability of not being poor, which is as $1 - P_i = \frac{1}{1 + e^{Z_i}}$. The ratio of the poor to non poor is written as $\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i}$, where $\frac{P_i}{1 - P_i}$ is called the odd ratio in favor of being poor. Taking the natural log of the odd ratio we obtain $L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = Z_i$, hence we know that $Z_i = \beta_o + \beta X_i$. So we can say that L_i is linear in parameters and in explanatory variables denoted by X_i. The point of advantage of this model is that here only L_i the logit is linearly related with X_i but not the probabilities.[6]

III.   Profile of Poverty

All the three measures of poverty i.e. poverty incidence, poverty gap and poverty severity were utilized to understand the varying nature of absolute poverty among sampled households. Table 1 (see appendix A) showed relationship between poverty and explanatory variables, and also indicates a cyclical relationship between age and poverty. Incidence of poverty was higher among female headed households as compared to male headed households. Results are consistent with that of Awan *et al.* (2008).

---

[6] For further explanation, see, Gujarati (2004).

There existed negative relationship between poverty and land holding of household. Higher incidence of poverty was found among landless households. 95 percent landless households were poor. They needed 58 percent of the poverty line (additional income of 1424 rupees) to escape poverty. All the three measures decreased sharply with the increase in per person land holding and it was very interesting that poverty vanished with the per person land holding of 3 acres and above. Result is consistent with the previous finding of Anwar *et al.* (2004).

Education was also found to have negative relationship with poverty. Highest incidence of poverty was found among households with illiterate heads. Poverty incidence decreased with the increase in education attainment so is the case with poverty depth and poverty severity measures. Results are consistent with that of Qureshi and Arif (2001) and Awan *et al.* (2008). The incidence of poverty was 5 percent among the households with higher educated heads. They needed 2 percent of the poverty line (additional income of 49 rupees) to escape poverty and there was lowest income inequality among these households.

Highest incidence of poverty was found among households depending on only non farm occupation. Result is consistent with the findings of Qureshi and Arif (2001). Incidence of poverty was also higher among households depending exclusively on farm income. Incidence of poverty was lower in the households adopting both farm and non farm occupations. Poverty depth and severity measures were also lower. It was concluded that adoption of both occupations by a households reduced the risk of poverty.

A positive relationship was observed between the number of dependents and poverty. Poverty measures increased with the increase in the number of the dependents in a household. All the three measures of poverty were lower among households with 2 and less dependents as compared to households with 7 and more dependents. Result is consistent with the findings of Jan *et al.* (2008).

Number of earners in a household was negatively related with poverty. The incidence of poverty decreased with the increase in the number of earners. 79 percent incidence of poverty was found among the households with one earner and it decreased to 50 percent for households with 4 and more earners. Poverty depth and severity were also lower in the households with more earners as compared to households with one earner but the incidence of poverty was not sufficiently lower to reach some meaningful conclusion

roughly one can say that there existed negative relationship between poverty and number of earners.

Incidence of poverty was only 6 percent among the households that also had female earners among male earners. It was lower as compared to 78 percent of other households. Poverty gap of 0.3 percent (additional income of just 7 rupees) among households with female participation was also sufficiently lower from the 45 percent (additional income of 1105 rupees) of other households. It was concluded that female participation in a household reduced the chances of falling below poverty line.

Incidence of poverty decreased with the increase in livestock holdings. In households with higher valued livestock holdings incidence of poverty was lower sufficiently as compared to households with lower valued livestock holdings.

It is concluded that gender, land, education, occupation, female participation, number of earners and livestock were negatively related whereas number of dependents was positively related with poverty. Variable age showed cyclical relationship with poverty.

Table 2 (see appendix A) showed that 67 percent of the sampled households were poor. Poor households needed 38 percent of the poverty line (additional income of 933 rupees) to come above poverty line and there existed 25 percent income inequality among poor households.

Table 3 (see appendix A) showed that 52 percent households were relatively deprived at lower cut off point. Relative deprivation increased sharply by 10 percent at medium cut off point. It was highest at highest cut off point of 75 percent.

IV. Determinants of Absolute Poverty

In order to understand the complex nature of poverty and to be more confident about the determinants of poverty binary logistic regression analysis was also performed using Minitab. Table 4 (see appendix A) showed results of binary logistic regression analysis of absolute poverty.

Dependent variable assumed the value of 1 for a household living on and below poverty line and 0 otherwise. Age of the household head, gender of the household head, total land holding of the household, education attainment of the household head, occupation of household, number of dependents, number of earners, female participation and total monetary value of livestock

holdings of household were used as explanatory variables. Results indicated that land, education, occupation, number of dependents, female participation and livestock holdings were significant in determining poverty as indicated by the FGT measures of poverty.

It was found that variable number of dependents was positively related with the probability of being poor and was significant at 5 percent level. Probability of poverty increased with the increase in number of dependents in a household. Jan *et al.* (2008) assessed the impact of dependency burden on poverty with the help of two explanatory variables namely number of household members below 10 years of age and number of members above 60 years of age. But these variables tended to under estimate the dependency burden of household. It is not necessary that all dependents fall with in the above mentioned two groups of age. However their results showed that these two variables were positively related with poverty. Same was indicated by the findings of the present study.

Variables land, education, occupation, female participation and livestock were significantly and negatively related with the probability of poverty. Land and female participation were significant at 5 percent level whereas education, occupation and livestock were significant at 10 percent level.

Results indicated that there existed significant negative relationship between poverty and land holdings as indicated by the table 3 (see appendix A) of profile analysis. Recent studies of Chaudhry (2003), Anwar *et al.* (2004) and Jan *et al.* (2008) on determinants of poverty also indicated that there is a negative relationship between poverty and land holdings.

Education attainment of the household head possessed negative relationship with the probability of poverty. Probability of poverty among sampled households decreased with the increase in educational years of household heads. Results were consistent with the findings of Wodon (1999), Chaudhry (2003), Owuor *et al.* (2007) and Awan *et al.* (2008). Findings of the Awan *et al.* (2008) showed that probability of poverty of employed person decreased significantly with the increase in education attainment. It was found that professional education reduced the chances of falling below poverty line by 99 percent as compared to primary education.

Chaudhry (2003) measured education variable with the help of education codes. Education codes were in the form of 0, 5 and 10 where 0 was

assigned to illiterate members, 5 for educated up to secondary level and 10 up to college/university level. Sum of these points was divided by the household size. However, findings revealed that education codes were also negatively related with poverty.

Results of profile analysis given in table 3 (see appendix A) showed that households depending on only non farm or only farm occupation were more likely to be poor as compared to households adopting both occupations. Results of regression analysis also showed that households with adoption of both farm and non farm occupations were less likely to be poor as compared to households with adoption of single occupation.

Livestock holdings were negatively related with the probability of poverty. Probability of poverty among sampled households decreased with the increase in monetary value of livestock holdings of households. Results were consistent with the findings of Kenala (2006) and Owuor *et al.* (2007). Findings of the Chaudhry (2003) showed that livestock was significant in the income function model but was insignificant in the logistic regression.

The variable female participation showed that households with female participation were less likely to be poor as compared to households with no female participation. The variable age and gender possessed correct signs but were not significant whereas results regarding number of earners seemed to be biased. According to results, it was positively related with the probability of poverty whereas its expected sign was negative as indicated by the results of profile analysis. One explanation for this positive relationship is that in the present case a sufficient number of households were living in extended family structure with large families and dependents. Moreover, in poor households there was greater tendency towards unskilled works in early ages.

It is concluded that households with landholdings, educated heads, both occupations, less number of dependents, female participation and higher valued livestock holdings were less likely to be poor. Results also supported the findings obtained from poverty profile analysis.

V.   Determinants of Relative Poverty

Table 5 (see appendix A) showed that 52 percent relative deprivation was mainly due to lack of education. It was negatively related with poverty and highly significant at 1 percent level. Although coefficient for land variable was also significant at 10 percent but education was more influential. This was due to the fact that attainment of education increased the earnings of

households in non-farm sector. Households with less educated household heads were more likely to depend on farm or low yielding non-farm activities. That resulted in low productivity and earnings. Higher level of education increased the chances of adoption of non farm occupations (Arif et.al., 2000). It is concluded that severe deprivation in households was due to low tendency towards education attainment.

Further contribution of 10 percent in relative deprivation was due to influencing forces of land and dependency burden. Here the significance of education reduced and of land increased due to skewed distribution of land. Number of dependents was positively related with poverty. Here dependency burden was dominating factor. Distribution of land was highly skewed as indicated by previous studies on rural Pakistan (Chaudhry, 2003 and Anwar *et al.*, 2004). This skewed distribution of land contributed to relative deprivation greatly. Land ownership enabled household to obtain food items in the form of wheat and vegetables at least for their own needs whereas landless households had to purchase these items. This could be the reason due to which landlessness always remained a significant determinant of poverty in Pakistan as well as in the rest of world (Wodon, 1999; Malik, 1996; Javad *et al.*, 2001; Geda *et al.*, 2005; Chaudhry, 2003; Zamal, 2008 and Jan *et al.*, 2008).

Relative deprivation was highest (67 percent) at highest cut off point (75 percent). Contribution of 5 percent in relative deprivation was due to differences in occupation, female employment and livestock holdings. Findings of Adams (1995) indicated that livestock was the chief asset of poor and was significant in reducing income inequality. It was recognized as equalitarian source of income. The difference between their results and present findings was due to the fact that they analyzed livestock income but here we analyzed monetary value of livestock holdings not obtained income. This showed that better off households were also having higher possessions of livestock along with land. However, livestock along with female participation and occupation contributed a little to over all inequality. In table 7 (see appendix A), female participation in income generation (1 if household included a female earner, 0 otherwise) was dominating factor that increased relative deprivation significantly. This was due to the fact that rich households were more likely to educate their female members and bring them in practical field.

96

Results indicated that land, education, occupation, livestock and female participation were significantly and negatively related whereas variable number of dependents was positively related with relative poverty.

It was concluded that education was primary determinant of relative deprivation. It was significant in all the three regression analyses. Education was the principle factor in explaining relative deprivation. Land was also significant in all regressions but it was less influential than education in regression 1 but more in other two regressions. This was due to the skewed distribution of land ownership. Relative deprivation became severe due to adoption of single occupation, no female participation and lower livestock holdings.

VI.   Conclusions and Policy Implications

It was found that 67 percent of sampled households were poor in absolute terms. Incidence of relative poverty was also high. Land was the most powerful determinant of rural poverty. Land reforms are required to deal with this problem. Education and livestock holdings helped to decrease poverty among landless households whereas numbers of dependents was likely to increase the incidence of poverty. Quality of education can be improved by establishing primary and secondary education commissions. Study pointed out to the increasing importance of non-farm occupations although highest incidence of poverty was found among households depending exclusively on non-farm income but majority of the households adopted both farm and non-farm occupations. Adoption of both occupations reduced poverty significantly. There is a dire need to create linkages between farm and non-farm sector in rural areas. Results indicated that households with educated working women were better-off than others. Female employment and literacy can be increased by providing the facilities of separate transportation, micro credit and child care centers. Moreover, studied area, proved to be a good representative of rural Pakistan as all findings of study supported the findings of previous studies.

Reference

Adams, R. H. Jr. (1995). Sources of income inequality and poverty in rural Pakistan. International Food Policy Research Institute, Report number 102.

Anwar, T. (2005). Prevalence of relative poverty in Pakistan. *The Pakistan Development Review*, *Vol. 44(4),* pp. 1111-1131.

Anwar, T., S. K. Qureshi & H. Ali (2004). Landlessness and rural poverty in Pakistan. *The Pakistan Development Review*, *Vol. 43(2),* pp. 855-874.

Arif, M., Nazli, H. & Haq, R. (2000). Rural non-agriculture employment and poverty in Pakistan. *The Pakistan Development Review, Vol. 39(4),* pp. 1089-1110.

Awan, M. S., Malik, N. & Sarwar, H. (2008). Impact of education on poverty reduction. EABR & TLC Conferences Proceedings, Rothenburg, Germany.

Chaudhry, I. S. (2003). An empirical analysis of the determinants of rural poverty in Pakistan: A case study of Bahawalpur district with special reference to Cholistan. Pakistan Research Repository, Higher education commission Pakistan.

Christiaensen, L., Demery, L. & Kuhl, J. (2006). The role of agriculture in poverty reduction: An empirical perspective. *World Bank Policy Research Working Paper No. 4013.*

Geda, A., Jong, N. D., Kimenyi, M. S. & Mwabu, G. (2005). Determinants of poverty in Kenya: A household level analysis. University of Connecticut, Department of Economics, *Working Paper Series,* Working paper No. 2005- 44.

GOP (Various issues). Pakistan Economic Survey. Economic Advisor's Wing. Finance Division, Islamabad.

Gujratti, D. N. (2004). *Basic Econometrics*. New York: McGraw Hill, Fourth Edition.

Hussain, T. S. M. & Ishfaq, M. (1997). Dynamics of agriculture productivity and poverty in Pakistan. *CMER Working Paper Series*, Working Paper No. 97-14, Center for Management and Economic Research Lahore.

Jan, D., Chishti, A. & Eberle, P. (2008). An analysis of major determinants of poverty in agriculture sector in Pakistan. American Agricultural Economics Association Annual Meeting, Orlando, FL, July 27-29, 2008.

Javad, M., Sadeghi, M., Toodehroosta & Amini, A. (2001). Determinants of poverty in rural areas: Case of savejbolagh farmers in Iran. Economic Research Forum, *Working Paper,* Working paper No. 0112.

Kenala, B. F. (2006). Household poverty dynamics in Malawi. Munich Personal RePEc Archive, *MPRA Paper No. 1222*.

Malik, S. (1996). Determinants of rural poverty in Pakistan. *The Pakistan Development Review*, *Vol. 35(2),* pp. 171-187.

Owuor, G., Ngigi, M., Ouma, A. S. & Birachi, E. A. (2007). Determinants of rural poverty in Africa: The case of small holders' farmers in Kenya. *Journal of Applied Sciences*, *Vol. 25(1),* pp. 33-45.

Qureshi, S. K. & Arif, G. M. (2001). Profile of poverty in Pakistan, 1998-99. Pakistan Institute of Development Economics Islamabad, MIMAP Technical Paper Series No. 5.

Rio, D. J. (2006). Compendium of best practices in poverty measurements. Expert Group on Poverty Statics, Rio group.

Todaro, M. P. & Smith, S. C. (2008). *Economic Development.* Dorling Kindersley (India) Pvt. Ltd.

Wodon, Q. T. (1999). Micro determinants of consumption, poverty, growth, and inequality in Bangladesh. The World Bank Publications.

World Bank (2002). Poverty in Pakistan in the 1990s: An interim assessment. The World Bank Publications.

Zamal, N. (2008). Farm development and rural poverty comparison among villages in Kulon Progo Regency of Yogyakarta special province of Indonesia. Munich Personal RePEc Archive, MPRA Paper No. 9963.

<u>Appendix A: Tables of Empirical Results</u>

Table: 1. Foster Greer and Thorbecke (FGT) Decompositions of Poverty

Variables	Head Count (%)	Poverty Gap (%)	Poverty Severity (%)
Age (years)			
30 and less	66	33	20
31-40	66	40	28
41-50	66	33	21
51-60	66	47	36
61-70	66	34	21
71 and above	100	51	26
Gender			
Male	67	37	25
Female	100	59	43
Land(Acres)			
Landless	95	58	42
Less than 1	75	38	24
1 - < 3	27	12	6
3 and above	0	0	0
Education (Years)			
Illiterate	95	72	56
Primary	87	50	33
Secondary	68	28	15
Higher Education	5	2	1
Occupation			
Only Farm	92	58	39
Only Non Farm	95	59	43
Both	36	14	7
Dependents (Numbers)			
2 and Less	27	15	8
3-6	71	39	26
7 and above	72	44	31
Earners (Numbers)			
One	79	46	32
2-3	55	30	20
4 and above	50	21	15
Female Participation			
Yes	78	45	30
No	6	0.3	0.01
Livestock Holdings (Rupees)			
Null	61	30	18
10000 and Less	93	65	48
11000-30000	67	34	22
Above 30000	40	19	11

Source: Calculated from Author's Household Survey, 2008.

Table: 2. FGT Decompositions of the whole Sample

Poverty Incidence (%)	Poverty Depth (%)	Poverty Severity (%)
67	38	25

Source: Calculated from Author's Household Survey, 2008.

Table: 3. Incidence of Relative Poverty among Sampled Households

Poverty Incidence (50 Percent)	Poverty Incidence (66.6 Percent)	Poverty Incidence (75 Percent)
52	62	67

Source: Calculated from Author's Household Survey, 2008.

Table: 4. Determinants of Absolute Poverty in Rural Pakistan
(Results of Logistic Regression Analysis)

Predictor	Coefficient	Std. Error	Z-stat	Odd Ratio
Age (Years)	0.057	0.0433	1.32	1.06
Gender (Dummy)	-17	14233	-0.00	0.00
Land (Acres)	-0.363**	0.173	-2.10	0.70
Education (Years)	-0.544*	0.297	-1.83	0.58
Occupation (Dummy)	-2.867*	1.469	-1.95	0.06
Dependents (No.)	1.430**	0.659	2.17	4.18
Earners (No.)	1.219	0.815	1.50	3.38
Participation (Dummy)	-4.710**	2.104	-2.24	0.01
Livestock (Rupees)	-1.244E-05*	6.4117E-06	-1.94	1.00
Constant	17	14233	0.00	2415

Dependent Variable = assumed the value of 1 if poor and 0 otherwise.
***, ** & * significant at 1, 5 & 10 percent respectively.

Table: 5. Determinants of Relative Poverty
(Results at 50 Percent of Average Income)

Variables	Coefficients	Std. Error	Z-stat	Odd Ratio
Constant	3.074	2.331	1.32	
Age (Years)	-0.02914	0.03062	-0.95	0.97
Gender (Dummy)	2.787	1.888	1.48	16.22
Land (Acres)	-0.15598*	0.09392	-1.66	0.86
Education (Years)	-0.5553***	0.1886	-2.94	0.57
Occupation (Dummy)	0.0166	0.7465	0.02	1.02
Dependents (No.)	0.2365	0.1451	1.63	1.27
Earners (No.)	-0.0358	0.4264	-0.08	0.96
Participation (Dummy)	-23	4418	-0.01	0.00
Livestock (Rupees)	1.2275E-10	2.9153E-06	0.00	1.00

Dependent variable =1 if relative poor at 50 percent, 0 otherwise.
***, ** & * significant at 1, 5 & 10 percent respectively.

Table: 6. Determinants of Relative Poverty
(Results at 66.6 Percent of Average Income)

Variables	Coefficients	Std. Error	Z-Statistics	Odd Ratio
Constant	26	12606	0.00	
Age (Years)	-0.00237	0.03748	-0.06	1.00
Gender (Dummy)	-15	12606	-0.00	0.00
Land (Acres)	-0.2430**	0.1030	-2.36	0.78
Education (Years)	-1.1384**	0.4924	-2.31	0.32
Occupation (Dummy)	-1.525	1.068	-1.43	0.22
Dependents (No.)	1.0217***	0.3913	2.61	2.78
Earners (Numbers)	-0.8121	0.6640	-1.22	0.44
Participation (Dummy)	-28	3935	-0.01	0.00
Livestock (Rupees)	-3.373E-06	4.1193E-06	-0.82	1.00

Dependent variable =1 if relative poor at 66.6 percent, 0 otherwise.
***, ** & * significant at 1, 5 & 10 percent respectively.

Table: 7. Determinants of Relative Poverty
(Results at 75 Percent of Average Income)

Variables	**Coefficients**	**Std. Error**	**Z-Statistics**	**Odd Ratio**
Constant	17	14233	0.00	
Age (Years)	0.05710	0.04333	1.32	1.06
Gender (Dummy)	-17	14233	-0.00	0.00
Land (Acres)	-0.3633**	0.1733	-2.10	0.70
Education (Years)	-0.5444*	0.2970	-1.83	0.58
Occupation (Dummy)	-2.867*	1.469	-1.95	0.06
Dependents (Numbers)	1.4302**	0.6593	2.17	4.18
Earners (Numbers)	1.2189	0.8152	1.50	3.38
Participation (Dummy)	-4.710**	2.104	-2.24	0.01
Livestock (Rupees)	-1.244E-05*	6.4117E-06	-1.94	1.00

Dependent variable =1 if relative poor at 75 percent, 0 otherwise.
***, ** & * significant at 1, 5 & 10 percent respectively.