Factors Contributing Towards Rural Poverty (A Case Study of Upper Sindh, Pakistan)

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Abstract: Using primary data collected from 307 sample households in five districts of upper Sindh, this paper attempts to look at the incidence, depth and severity of poverty in the rural areas of upper Sindh. The paper also looks at the rural specific and household specific variables in an attempt to determine their contribution in raising (or otherwise) the per – capita income of rural populace. We used, land ownership, household size, education level of household head, age of household head, dependency ratio, participation ratio, other productive assets and female male ration as our explanatory variables and regress it on per capita income. We found that except the female male ratio rest of the variables have significant roles in influencing the household per-capita income. We also found that some of the landless household do also escaped from poverty and some of the land owning households are still poor. This is interesting given that in rural areas land is considered to be most important assets to escape poverty and it is also considered as a very important symbol of social status and political power for those who own it. This highlights the fact that apart from the land assets, investing on other productive assets and non-farm activities such education and increasing the participation rate of rural people will help them to escape poverty.

1.   Introduction

Poverty is one of the major challenges faced by Pakistan since its independence in 1947. At the time of independence in 1947, over two fifths of our population was poor (Muhammad Irfan 2003). During some periods of the Pakistan's history of over six decades, poverty was brought under some control for example the head count ratio ranged between 17 to 22 in the period 1987 1993, and reduced from 34.5% in 2001 to 22.3% in 2005-6. However it increased in the period 1996-2001 ranging from 31% to 34.5% in 2001 (Economic Survey of Pakistan 2010-11). Recent estimates again show that the poverty head count is again on increasing trend. The Economic Survey 2010-11 reveals that increase in poverty is directly related to the level of food inflation and factoring food inflation of last five years in accordance with given formula reveals that 41.2 percent or 74.16 million Pakistanis are living below poverty line. This is supported by another interesting recent study documented in a book, Poor Economics, consisting of research on the resources available in various countries about the people, living in rural and urban areas, who earn one dollar per day. For Pakistan the book reveals that against national per capita income of $1254, the poor who account for 42 percent of the total population earn only $400 per capita; they have literacy rate of 29.7 percent, against national average of 69.6 percent; their household size is 9.75, against national average of 6.5. The "Poor Economics" reveals that national statistics do not reveal the real plight of the poor as their status on all social and economic indicators is almost half the national average.

The statistics give an insight into the economy of the poor. The poor earning $1 (both urban and rural) a day spend 67 of their income on food in rural region and 64 percent in urban area. The national average of the amount of income spend on food is 40.3 percent. Although over 85 percent of the rural population has access to electricity but only 54.1 percent of the poor in rural areas have access to electricity. Only 9.9 percent of the people earning $1 a day have access to tap water in rural and 47.8 percent in urban areas against national average of 88 percent. Latrine facilities are available to 40 percent of the rural population in Pakistan but the rural poor have only 37.7 percent access to this facility. In urban areas, 90 percent of residents enjoy latrine facility but only 82.3 percent urban poor have the facility. The average immunization of children against measles is 85 percent while only 40.8 percent of rural poor children and 53.5 percent of urban poor children are immunized against measles.

With these facts and figures in mind, we study a large number of rural-specific and household-specific variables in order to determine their role in raising levels of living of rural population and analyse the poverty and inquality rate in rural areas of upper Sind. The study is organised in a way that he details on the

methodology and sources of data are given in the following section. A discussion on the main variables and hypothesis are presented in section 3, followed by results of the study in section 4. Conclusions and policy considerations are given in the final section.

2.   Data and Methodology
2.1.   The Study Area

Northern Sindh has been home to very ancient civilisations and, has hosted, through the millennia many people of different ethnicities, castes, languages, and religions. The five districts (Sukkur, Shikarpur, Jacobabad, Khairpur and Ghotki) of Northern Sindh have a population of about 6 million, over two-thirds of which live in rural areas. A vast majority of rural households in the area depend on agriculture, based primarily on land irrigated by the water drawn through canals from the Indus River. Likewise, a vast majority of cultivators are small landowners and landless sharecroppers (*haris*) since land ownership is acutely concentrated. Land concentration tends to dominate the rural economic and social structures and relationships. The social structure of most rural communities is also influenced by the tribal lineages and kinships. However, a common feature that binds most people together, whether they are Balochi or non-Balochi, or belong to one caste or another, is their common language, Sindhi. As in other areas of rural Pakistan, women generally carry a disproportionately higher burden of work and have little role in decision making, this adversely affecting their lives and wellbeing. Nonetheless, the situation is changing with expansion in education and health, infrastructure, transportation facilities, urbanisation, and increased access to information through mass media like radio and television.

2.2.   Data source and methodology

The data used in this paper were collected by the Rural Support Programmes Network (RSPN) to document the socio economic profile of 307 households in 20 villages of five districts of upper Sindh in 2008. The five districts include: Sukkur, Ghotki, Khairpur, Shikarpur, Jacobabad, Larkana, Nowsheroferoze, Shadad Kot and Kashmore. The sample was stratified in two steps. In the first step, 4 villages were drawn randomly from the list of villages in each selected districts. In the second step of sampling, in each village, 8-18 households were randomly selected in each selected village for the household interviews. The sample households and district wise distribution is presented in annex- I.

The important survey instruments were household level questionnaires. The questionnaire collects information on almost all aspects of household socio-economic indicators, including, household roster, demography, education status of household members, health status of household members, income level and sources of income, quantity and value of assets etc. However for this study we have selected some of the important variable discussed in the next section and conducted the data analysis using SPSS.

To calculate the incidence of poverty we used the commonly used measure of absolute poverty in developing countries, namely Head Count Ratio (HCR) - the proportion of the households/population with income per capita below the national poverty line defined by the Government of Pakistan. The poverty line income of Rs.1,123 was used by for 2007-08 is estimated by inflating the poverty line income of Rs 944.5 for the year 2005-06 given in the PSLM 2005-06.[1]

To construct a measure of poverty that takes into account inequality among the poor, we used FGT index for $\alpha=2$ [Foster et al. (1984)] commonly known as squared poverty gap ratio.

Gini coefficient have been used to calculate income inequality and inequality in land holding. For the calculation of the Gini coefficient and lornz curve we used the software (Wessa, P. (2012), Free Statistics Software, Office for Research Development and Education, version 1.1.23-r7, URL http://www.wessa.net)

Per capita rural income is considered to be an important measure of the level of living and, hence, is used as the key/dependent variable here. The hypotheses as outlined in the next section are tested using multiple regression analysis technique.

3.   The Choice of Explanatory Variables and Hypothesis

The explanatory variables used here are mostly adopted for similar study conducted in one village of Punjab province titled Determinants of Rural Poverty in Pakistan: A Micro Study by Shahnawaz Malik (1996). However, we have refined the indicators according the data available with us.

Land ownership (LO): The ownership is considered to be the main factor capable of pulling a household/individual out of poverty (Malik 1996). Similarly according to the World Bank (1998-99), the head count ratio of poverty among the rural landless was 40.3%, while for those owning land it was 28.9%. The variable used here is the land ownership per household in acres. On the basis of the role it plays in a rural economy, we hypothesise that landownership has an income-enhancing (poverty-mitigating) role.

Other Productive Assets (OPA): Apart from landholding, other productive assets such as Livestock,

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[1] The CPI figures are taken from the Economic Survey of Pakistan, 2008, as 7.8 percent for 2006-07 and 10.3 percent for 2007-08.

machinery (tractor, tube-well, etc.), business and trees, also contribute in raising the earnings of the households owning them. These are measured in terms of rupee value of total assets. We hypothesis that other productive assets have an income-enhancing role.

Household Size (HSZ): The evidence shows that the proportion of poor households in the total number of households of a given size rises with an increase in household size upto 7-8 persons, and then gradually declines [Anand (1977); Gaiha and Kazmi (1981)]. One reason may be that the proportion of children (≤14 years) tends to be high over this range. In other words, the number of potential earners in a household increases beyond this range. As the average number of members per household in our survey happens to be slightly over 6, i.e., less than the range after which earnings start picking up, we hypothesise that a higher household size has a poverty-increasing role.

Education (EDU): It is generally believed that the best investment of all is the one made in people. According to human capital models, education is an important dimension of non homogeneity of labour. Hence, high educational attainment may imply a larger set of employment opportunities, and specifically in a rural context a better awareness of the full potential of the new agricultural technology and associated agricultural practices. We have taken the household education status as proxy for the education of the household. We have scaled the education level of household head as: no education 0, literate (but no school) 1, primary 2, middle 3, matirc 4 and post matric 5. In view of its potential role we hypothesise that the higher the educational attainment of the household head, the higher the per capita income of the household.

Dependency Ratio (DEP): For a given household size, a larger number of children and old age members would imply a smaller number of earners in the household. In the present analysis, the dependency ratio is defined as the ratio of number of members (up to10 years and >55 years) to household size. We hypothesise that the higher the dependency burden, the lower the per capita income.

Participation Rate (PAR): The participation rate is the first of the two employment variables used in the analysis. According to Lipton (1983), the higher is illness, disability, income per capita, intensity in customs and religious beliefs, status, and the general welfare level and asset holding, the lower are the participation rates in the LDCs. In other words, comparing the non-poor and the poor, the positive incentive given by poverty to participation outweighs the negative effect on it of the higher unemployment rates normally prevailing amongst the poor. Hence, they participate more than the non-poor. A comparison of the poor and the extremely poor, however, suggests that the damage that extreme poverty does to the ability to participate (due to illness, disability, etc.) often tends to push the extremely poor's participation rates below those of the poor. This implies that the extremely poor's ability to participate would be less than the poor's but more than that of the non-poor. In the present analysis, the participation rate is defined as the ratio of number of workers to number of adults in a household. In accordance with the above arguments, the participation rates are expected to give results.

Female-Male Ratio (FMR): Female-male ratio is the second of the two employment variables used in the analysis. In view of the fact that female members in a household in rural Pakistan are mostly constrained by their customs and religious norms from work outside the household, their attitude to participation is rather discouraging. This suggests that a high female-male ratio may be poverty-enhancing.

Age of Household Head (AGE): The age and sex composition is important in a household in the determination of the attitude towards work. The age of the household head has a similar role as the sex composition, discussed above, in determining income per capita in an LDC like Pakistan. Income per capita and age of household head can be assumed to have a positive relationship over the age bracket of 25 to 45 years, and a negative relationship beyond this bracket. However, since the sample household heads tends to young age (with average age of 38 years), we assume a positive relationship between these two variables.

4. Results
4.1. Descriptive Statistics

The demographic characteristics of the sample households are presented in table 1. The sample households have a population of 2,214 of which 47% are adults (over 18 years) and nearly 53% are male. The female to male ratio is low at (89:100) and the difference between the poor and non-poor households is small (92: 100 and 86:100). The average size of the poor households is larger (7.6 persons) than of the non-poor (6.9 persons). It seems that the family size sees to fall as the level of income per capita rises and this relationship is statistically significant.   The average age of household head is young with an average age of 38.3 years.   Another interesting feature of the household composition in the poor and non-poor households is that the proportion of not working population is higher in the non-poor households but the dependency ratio is higher among the poor household. One of the reasons is as working age is taken over 10 years, and in poor households the proportion of working over 10-18 years is higher (16%) as compare to the non-poor (11%).

Table 1: Demographic composition of sample household members

Indicators	Poor	Non-Poor	Total
Total Households	131	176	307
Total Population	993	1221	2214
Household Size	7.58	6.94	7.21
Female: Male	0.92	0.86	0.89
Average age of household Head	38.27	38.33	38.31
Dependency Ratio	0.42	0.35	0.38
Not working/Household	0.82	1.02	0.93
Household Work/Household	2.03	1.86	1.93
Working/Household	1.71	1.70	1.70

In table 2, we have presented the extent of land ownership and other productive assets. Land is considered to be the most valuable asset in rural areas – it is also a very important symbol of social status and political power for those who own it. Nearly 59% of the sample household don't own land with more than two-third among the poor and slightly higher than half among the non-poor. The data presented in Table 2, also suggest that the distribution of landholding is highly skewed as shown by the value of Gini coefficient, which is 0.52. The survey data provides us with some interesting information. We find that not all the 59% landless households are in poor category, rather 52% of the non-poor also don't own land not all the poor are landless. In fact nearly one-third of the poor do also own land. However a larger proportion of the poor households (86%) have small size of land (up to 2 acres). While a large proportion (as compared to the poor) of the non-poor households have land size more than 2 acres. None of the poor households have land size more than 12.5 acres but 8.2% of the households among the non-poor household even have larger than 12.5 acres of land.

Apart from land the non-poor households also have higher value of other productive assets (livestock, machinery, business and trees) as compared to the poor households: the value of other productive assets per households is Rs. 61,313 among the poor households and Rs. 180,082 among the non-poor households – almost three times higher than the poor households.

Table 2: Household Land and other Productive Assets

Land ownership / Other Productive Assets	Poor	Non-Poor	Total
Total Households	131	176	307
% of Household owning land:	32.06	48.30	41.37
up to 1 acre	30.95	22.35	25.20
>1-2	45.24	15.29	25.20
>2-5	19.05	36.47	30.71
>5-12.5	4.76	17.65	13.39
>12.5-25	-	7.06	4.72
>25	-	1.18	0.79
Landless households (%)	67.94	51.70	58.63
Land Gini coefficient: 0.52			
Total Other Productive Assets (Rs.)	8,032,020	31,694,350	39,726,370
Other Productive Assets/Household (Rs.)	61,313	180,082	129,402

As shown in Table 3, the average annual income of the sample households is Rs. 136,694 with an average annual per capita income of Rs. 18,954 (~ to Rs. 1579.5 per capita per month). However, the average annual per capita income of the poor households is 38.5% of the non-poor households per capita income. The sample data shows that the distribution of income among the surveyed households is more unequal than reported for the rural areas of the country. The Gini coefficient is 0.33 in the sample households as compared to 0.25 for the rural areas of Pakistan in the same year – 2007-8 (Economic Survey of Pakistan 2010-11).

Table 3, also presents the incidence (headcount), depth (poverty gap ratio) and severity (square poverty gap ratio) of poverty in the sample households. Based on the official poverty line (as discussed earlier) 103 out of 307 households (43%) are poor. This is significantly higher than the national average of 27%

reported by the national level statistics for rural area. The annual per capita income of the poor significantly lower than the average annual per capita income for the overall sample. The poverty gap ratio also signifies this difference with 23%. The value of FGT is at 8%.

Table 3: Household income and poverty level

Values	Poor	Non-Poor	Total
Total Number of Households	131	176	307
Total Annual Household Income (Rs.)	10,016,619	31,948,286	41,964,905
Average Annual Income/household (Rs.)	76,463	181,524	136,694
Annual Per capita Income (Rs.)	10,087	26,165	18,954
Poverty Rate (HCR): 42.67			
Poverty Gap Ratio: 0.23			
Square Poverty Gap Ratio (FGT): 0.08			
Gini Coefficient of Income: 0.33			

4.2.   Regression Analysis and Hypothesis testing

For testing our hypothesis given in section 3, we used following general formulation of multivariate log-linear relationship:

$Y = BX + U$

where 'Y' stands for vector of 'n' observations on dependent variable, 'B' is the coefficient vector, 'X' stands for matrix of observations on explanatory variables and 'U' represents the error vector. The variables used here are defined as follows:

(i) the dependent variable is measured as income per capita (log);

(ii) the explanatory variables such as LO, OPA, HSZ, EDU, DEP, PAR, FMR, and AGE as defined above; and

The regression was carried out using SPSS 14 and the results are presented in Table 4. The explanatory power of our regression equation, as measured by $R2$ is significantly high at 0.4 and the joint test of significance, F-test, is accepted at 1 percent level.

The results suggest that the coefficients on LO, HSZ, OPA, and EDU are significant at 1% level and the coefficients on DEP, PAR and FMR are significant at 5% level and have signs in accordance with our hypotheses. The coefficient of FMR have the correct signs where as the results are insignificant.

Table 4: The determinants of Rural Income/capita -Log linear Regression Results

Explanatory Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Intercept	4.109	.065		63.253	.000
LO	.017	.004	.253	4.577	.000
HHS	-.017	.003	-.333	-6.478	.000
OPA	2.61E-007	.000	.282	4.951	.000
EDU	.044	.006	.348	7.491	.000
DEP	-.139	.057	-.125	-2.449	.015
PAR	.171	.085	.107	2.019	.044
FMR	-.017	.013	-.058	-1.253	.211
AGE	.002	.001	.099	2.138	.033

R^2: 0.40   F-test: 25.39 (Sig. 000)

Note:

The dependent variable is rural income/capita.

LO = Landownership (area in acres). HSZ = Household size.

OPA = Other Productive Assets. EDU = Household head's education level.

DEP = Dependency ratio. PAR = Participation rate.

FMR = Female male ratio. AGE = Age of the household head.

5.   Conclusion

1. This study shows the poverty and inequality levels differ from region and regions and even among districts. The national level poverty estimate doesn't give a true picture of the regions and sub regions. There is need to analysis the poverty and inequalities at lower level for improve local level policies.

2. Although land is considered to be the important assets to bring the poor out of poverty but our finding suggests that land is not the only policy instrument to bring people out of poverty. There are landless non-poor households and poor households with land.

3. Ownership of other productive assets such as machinery, livestock, business and trees have are most important factor contributing in the income of the households as compared to all other variables included in the model.

4. Household education level, household size and dependency ratio and age of household were also found to be significantly influence the per capita income in the rural areas.

Annex –I: Sample districts, villages and number of households

Districts/villages	Number of Sample households
Gothki	**61**
Abdul Rahim Mirbhar	18
Allah Dad Arbani	8
Al-Shaikh	17
Muhib Malik	18
Jacobabad	**61**
Karam Ali Lashari	18
Landi Said	18
Mullah Sodo Buriro	8
Qadir Bux Soomro	17
Khairpur	**62**
Babar Loi	18
Faqir Muhammad Tunio	8
Murad Ali Jatoi	18

Pir Fazil Shah	18
Shikarpur	**62**
Chak Fouji	8
Makhoolpur	18
Peer Bux Lehi	18
Salehpur	18
Sukkur	**61**
Bajwa	18
Ghulam Kandhro	8
Jhanja	17
Nihal Khan	18
Grand Total	**307**

References

1. Abhijit V. Banerjee and Esther Duflo, (2011), *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. Random House India.
2. Anand, S. (1977) Aspects of Poverty in Malaysia. *Review of Income and Wealth* Series
3. Economic Survey of Pakistan (2010-12), Government of Pakistan, Finance Division, Economic Adviser's Wing, Islamabad.
4. Foster, J. *et al.* (1984) A Class of Decomposable Poverty Measures. *Econometrica* 52:
5. Gaiha, R., and N. Kazmi (1981) Aspects of Poverty in Rural India. *Economics of Planning* 17: 74–112.
6. Irfan, M. (2003) Poverty and Social Safety Nets: A Case Study of Pakistan. Pakistan Institute of Development Economics, Islamabad. (MIMAP Technical Paper Series No. 15.).
7. Lipton, M. (1983) Labour and Poverty. World Bank. (World Bank Staff Working Paper.
8. Malik, S. (1996) Determinants of Rural Poverty in Pakistan: A Micro Study,The Pakistan Development Review 35 : 2 (Summer 1996) pp. 171—187.
9. World Bank (1998-99).

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