

The Pakistan Development Review
43 : 4 Part II (Winter 2004) pp. 895–909

Transition of Poverty in Pakistan: Evidence from the Longitudinal Data

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1. INTRODUCTION

Interest in the dynamics of income and consumption at the household level has increased in the developing countries as measures of living conditions at a point in time are not necessarily a good indicator of its stability over time. For many purposes it is important to adopt a dynamic perspective, distinguishing between extremely, chronically or transitory poor.

In Pakistan studies of poverty at a point in time provide very valuable information about its nature, characteristics and distribution. However, given the fluctuations in many dimensions of poverty such as school enrolment, nutritional status and income, these studies are unable to capture the dynamics of this phenomenon, making it impossible to analyse the factors associated with the poverty transition, i.e., movement into and out of poverty.

Only a few studies have addressed the issue of poverty transition in Pakistan. Arif (2003) used the PSES¹ longitudinal data to examine the dynamics of poverty. He found that only a quarter of the poorest households moved out of poverty between the two periods, 1998-99 to 2000-01. This transition was relatively slow in rural areas. However, a substantial proportion of the households just below the poverty line moved out of poverty while the group of households just above the poverty line experienced a rapid decline in welfare. Baulch and McCulloch (1998) using five rounds of IFPRI² panel data set for rural Pakistan, found that only 3 percent of the household were poor in all five years, though 58 percent were poor in at least one period, suggesting a very high degree of movement into and out of poverty. McCulloch and Baulch (1999) employed IFPRI household food security panel data of four districts of rural Pakistan and explored the characteristics which

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¹*Pakistan Socio-economic Survey*.

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have the greatest influence upon a household being chronically or transitory poor. Kurosaki (2004) employed a two period longitudinal data set in the three villages of the North-West Frontier Province of Pakistan to investigate the vulnerability of consumption level of the households to risk as a characteristic of dynamic poverty. Estimated result showed that the ability to cope with negative income shocks was lower for household that were aged, landless and did not receive remittances regularly.

The present study has employed longitudinal data of the Pakistan Socio-economic Survey (PSES) to analyse the transition of poverty for the periods, 1998-99 and 2000-01. Socio-economic characteristics by poverty transition status are also analysed.

This paper is structured as follows. Section 2 specifies the data and methodology. Section 3 presents the estimation results. The final section summarises the paper.

2. DATA AND METHODOLOGY

Data

Longitudinal data are good way of looking at intertemporal variation in living conditions of households and their members in ways that cannot be achieved by repeated cross section surveys. The empirical part of this study uses the 'Pakistan Socio-economic Survey' household panel data set generated in two rounds by Pakistan Institute of Development Economic. Round I was carried out in 1998-99 (3564 households) while the Round II (2863 households) was carried out in 2000-01. The universe of the PSES is representative at the national as well as for urban and rural areas of Pakistan. To examine the poverty transition between these two periods, the analysis is based on the 2723 households that were surveyed in both the rounds of the PSES. 960 of these households are urban while 1763 are rural. Weights for respective years are used to make the sample representative at the national level.

Methodology

Poverty analysis involves three choices: choice of a suitable welfare indicator, choice of a poverty line and choice of a poverty measure. In the present study, per capita per month consumption expenditure is used as welfare indicator. The poverty lines developed by Qureshi and Arif (2001) for the year 1998-99, which are based on the basic needs approach, are applied. These poverty lines are per capita per month consumption expenditure of Rs 692.26 for all Pakistan, Rs 672.5 for rural areas and Rs 874.1 for urban areas. To get the poverty lines for the period 2000-01 these lines are adjusted by the consumer price index.

A good summary index of poverty should possess three properties as described by Sen (1976). One, the index must be sensitive to the relative number of poor, capturing the *incidence of poverty*. Two, the index must be sensitive to the average level of income of the poor, indicating their *average deprivation*. Three, the index must be sensitive to the distribution of income among the poor, indicating their degree of relative deprivation. The Fosterer, Greer and Thorbecke (1984) poverty measure possesses all these three properties. This measure, $P_{(\alpha)}$, may be defined:

$$P_{(\alpha)} = \frac{1}{n} \sum_{i=1}^q [(Z - Y_{it}) / Z]^\alpha$$

Where Z is the poverty line, Y_{it} is the household consumption expenditure of individual i in period t . q is the number of poor households ($Y_{it} < Z$), and n is the total number of households. α is a parameter which takes on a value greater than or equal to zero ($\alpha \geq 0$). As α gets larger, the measure becomes more sensitive to the income circumstances of the “poorest poor”. If $\alpha = 0$ then $P_0 = H = q/n$. This is the “head-count ratio,” which is simply the proportion of population that has expenditure below the poverty line. If $\alpha = 1$ then $P_1 = HI$ where $I = (Z - Y_{it})/Z$ and Y_{it} is the average household per capita expenditure of individual i in period t . This is the “income gap ratio”, which captures the average expenditure shortfall of the poor. If $\alpha = 2$ then FGT measure is sensitive to the distribution of income within the poor. Its inclusion in the measure captures relative deprivation of the poor.

Transition of poverty occurs whenever a household’s income crosses the poverty line. An increase in income that moves a household over the poverty line is defined as an exit or movement out of poverty, while a decrease in income that moves a household’s income below the poverty line is defined as an entry or movement into poverty.

Transition of poverty has been examined by a few studies such as Kemal (2003); Arif (2003); Hussain (2003); Kurosaki (2001) and Baulch and McCulloch (1998) for Pakistan. They have categorised the households according to their poverty status. The present analysis is based on the quartile categorisation of Arif (2003) and Hussain (2003). These quartiles are:

- (1) The absolute poor.
- (2) The transitorily poor.
- (3) The non-poor.

The Absolute Poor

The absolute poor households are considered to be those households whose per capita per month expenditure (Y_{it}) is less than 0.75 of the poverty line Z . It is subdivided into two groups:

- (i) The extremely poor:

$$Y_{it} \leq 0.5 z$$

- (ii) The chronically poor:

$$0.5 z \leq Y_{it} < 0.75 z$$

The Transitory Poor

The transitory poor households are considered to be those households whose per capita per month expenditure is greater than 0.75 of the poverty line but less than 1.25 of poverty line. It is sub-divided into two groups:

- (i) The transitory poor:

$$0.75 z \leq Y_{it} < z$$

- (ii) The transitory vulnerable:

$$z \leq Y_{it} < 1.25 z$$

The Non-poor

The non-poor households are considered to be those households whose per capita per month expenditure is greater than 1.25 of the poverty line. It is subdivided into two groups:

- (i) The transitory non-poor:

$$1.25 z \leq Y_{it} < 2 z$$

- (ii) The non-poor:

$$Y_{it} > 2 z$$

Using these quartiles, the transition of poverty is analysed for Pakistan for the period 1998-99 and 2000-01 using the PSES panel data. To further simplify the analysis, the sampled PSES households are re-classified into four categories according to the changes in household poverty status across the two years as applied by Arif (2003). These categorised are:

- (i) 'always poor'
(poor in both periods, 1998-99 and 2000-01)
- (ii) 'entering poverty'
(poor households entering in poverty in 2000-01)
- (iii) 'exiting poverty'
(poor households exiting poverty in period 2000-01)
- (iv) 'always non-poor'
(non-poor in both periods, 1998-99 and 2000-01).

Poverty Rates

Poverty rates are calculated between the two years as:

$$\text{Poverty Rates} = NP_{t-1} + [(En_t - Ex_t)] / N_t$$

Where NP_{t-1} is no of poor households in period $t-1$, 1998-99.

En_t is no of poor households entering in poverty in period t , 2000-01.

Ex_t is no of poor households exiting from poverty in period t , 2000-01.

N_t is the total number of households in period t , 2000-01.

3. ANALYSIS

This section summarises the major findings of the study. Table 1 gives the information regarding the FGT poverty indices in two periods. On the whole about 36 percent of the households of Pakistan were in the state of poverty in the year 1998-99. This percentage increased to 39 in the year 2000-01 (an increase of 7.4 percent). The level of poverty as measured by the headcount index as well as its increase over the two periods is higher for the rural areas. Absolute poverty and the percentage change in rural poverty are relatively higher in both years than the urban poverty. The percentage change is 8.9 percent and 11.4 percent in the urban and rural areas respectively. The headcount index does not consider the distribution of consumption among the poor. An understanding of this distribution is necessary to distinguish between the chronic and transitory nature of poverty. Income gap ratio (P_1) and severity of poverty index (P_2) are the other two FGT measures which take into account poverty intensity and income distribution among the poor. The table shows that if 8 to 11 percent of the income is transferred to the poor, the average income of the poor households would rise above the poverty line. This also implies that the intensity of poverty is high in Pakistan. Therefore the poverty reduction strategy should focus not only on the prevalence of poverty but also on the depth and severity of poverty. All the three indicators of well-being, P_0 , P_1 , and P_2 show an increasing trend in all the areas.

Table 1

	<i>Poverty in Pakistan (%)</i>					
	1998-99			2000-01		
	P_0	P_1	P_2	P_0	P_1	P_2
Pakistan	36.3	7.9	2.5	39.0	8.3	3.1
Urban	33.7	9.0	3.1	36.7	9.4	3.9
Rural	39.4	8.5	2.6	43.9	10.7	4.0

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

Table 2 presents the six categories of poverty status for 1998-99 and 2000-01. Although a small percentage of households in the sample are extremely poor, percentage of such households increased over time in all areas combined as well as in urban and rural areas separately. This table also shows that transition was relatively high among those households that were just below or above the poverty line. This transition was high in urban areas as compared to rural areas. It is also worth noting that a large percentage of households fall in the categories of transitory poor and transitory non-poor.

Table 2

Poverty Spectrum by Region (% of Households)

Poverty Spectrum	1998-99			2000-01		
	Pakistan	Urban	Rural	Pakistan	Urban	Rural
Extremely Poor	1.3	1.9	1.2	2.6	3.3	2.7
Chronically Poor	12.2	13.7	13.1	16.9	17.5	18.6
Transitory Poor	22.8	18.1	25.1	19.5	15.9	22.5
Transitory Vulnerable	18.5	16.8	20.5	15.5	13.0	16.5
Transitory Non-poor	29.6	29.6	28.6	26.6	26.0	27.7
Non-poor	15.7	19.9	11.4	18.9	24.3	11.9
Total	100	100	100	100	100	100

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

Table 3 shows the percentage change in poverty between the two periods. In the urban areas, an increase was observed in extremely poor, chronically poor and non-poor households from 1998-99 to 2000-01, indicating that the poor become poorer and the rich become richer. In rural areas extremely poor households increased drastically while only a small change was observed in non-poor households. It also implies that poverty in extremely poor households increased more sharply in rural areas.

Table 3

Percentage Change in Poverty Spectrum (%)

Poverty Spectrum	1998-99 to 2000-01		
	Pakistan	Urban	Rural
Extremely Poor	100.0	73.7	125.0
Chronically Poor	38.5	27.7	41.9
Transitory Poor	-14.5	-12.0	-10.4
Transitory Vulnerable	-16.2	-22.6	-19.5
Transitory Non-poor	-10.1	-12.4	-3.1
Non-poor	20.4	22.1	4.4
Total	7.4	11.8	11.4

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

Table 4 presents a poverty transition matrix with six categories of poverty status in each year for Pakistan. It shows the number of households in and out of poverty in a particular period, broken down by their poverty status in a previous period. Thus it is easy to see the percentage of poor or non-poor in both period along with the percentage who have escaped from poverty and those who have entered poverty. The diagonal cells of this matrix display the percentage of those households whose poverty status did not change. It is evident from the off-diagonal cells that transition was relatively high among those households who were just below or above the poverty line.

Table 4

Poverty Transition between 1998-99 and 2000-01: Pakistan

1998-99 Poverty Status	2000-01						Total
	Extremely Poor	Chronically Poor	Transitory Poor	Transitory Vulnerable	Transitory Non-poor	Non- poor	
Extremely Poor	26.7	44.0	14.3	6.0	6.0	3.0	100
Chronically Poor	9.5	38.9	29.0	10.8	10.5	1.4	100
Transitory Poor	3.4	29.1	27.6	16.9	19.4	3.6	100
Transitory Vulnerable	1.8	16.2	23.6	24.7	23.5	10.3	100
Transitory Non-poor	0.4	7.7	15.8	16.6	38.9	20.7	100
Non-poor	0.2	1.1	4.7	6.4	30.2	57.3	100
Total	100	100	100	100	100	100	100

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

Table 5 portrays the poverty transition by region between 1998-99 and 2000-01. About one quarter of the population remained poor while 40 percent to 50 percent of households remained non-poor during this period. About 32 percent of the households that were poor in 1998-99, were able to escape from poverty while about 25 percent of non-poor households fell into poverty in 2000-01, indicating that poverty in Pakistan is not a transitory phenomenon. The transition also resulted in a high poverty rate for rural areas.

Table 5

Poverty Transition by Region (%)

Poverty Status	2000-01		
	Pakistan	Urban	Rural
Always Poor	23.2	22.9	26.5
Exit from Poverty	11.6	10.9	12.9
Enter in Poverty	15.8	13.8	17.4
Always Non-poor	49.4	52.2	42.9
Total	100	100	100
Poverty Rates	4.3	3.6	4.9

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01* □

Socio-economic Dimensions of Poverty Transition

Transition of poverty is closely related to socio-economic characteristic of the households such as school enrolment, child labour, employment status and indebtedness of the households. Poverty in all its aspects is the major cause of low school enrolment and a high level of child labour force participation [Khan (2003)]. School enrolment between the ages of 5–16 (1–10 grades) is an important outcome related to poverty transition. A child may enrol or drop out of school as a result of household's exit from or entry into poverty. Table 6 shows net enrolment rate at the primary level (age 5–10 years) and secondary level (age 11–16 years) net enrolment rate for different poverty status. It is indicated that 'always poor' children have low school enrolment. The negative effect of poverty on secondary level enrolment is more pronounced for girls. It is also explored that when households enter in poverty the school enrolment declined while the exit of poverty increased the school enrolment between the two periods. Thus the data presented in Table 6 clearly show that poverty transition and gender have a significant effect on school enrolment.

Table 6

Poverty Transition: Net School Enrolment Rate (1–10 Grades)

Poverty Status	Primary (Class 1–5) (Age 5–10 Years)			Secondary (Class 6–10) (Age 11–16 Years)		
	Male	Female	Both	Male	Female	Both
Always Poor	50.0	43.0	55.8	44.6	27.5	36.4
Exit from Poverty	63.2	48.0	56.0	62.2	38.0	51.4
Enter in Poverty	52.4	45.4	49.1	45.7	35.0	40.2
Always Non-poor	70.1	67.2	69.0	69.0	57.0	63.2
Total	59.1	52.2	56.0	57.0	41.2	49.2

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

A child is defined as a person who is 5–15 years old as the age 15 coincides with the end of school age. Likewise, the cut-off age between the infancy and childhood is age 5. Child labour is defined as "the participation of school-age (5–15) in the labour force, i.e., work for wage or in household enterprise to earn a living for themselves or to support household income". According to child labour survey 1996, among the 40 million children aged 5–14 years, 3.3 million, i.e., 8.3 percent are economically active in Pakistan. It is assumed a negative relation between per capita income and child labour. Poverty compels the parents to get their children drop out of school and send them to work [Khan (2003)]. Table 7 displays the percentage of child labour in each poverty status by urban and rural areas. It is analysed that those households who are 'always poor' have high percentage of child labour in all areas. In rural areas percentage of child labour is relatively high as compared to over all Pakistan. Thus it is concluded that poverty in all its aspects is the major cause of high level of child labour force participation.

Table 7

Poverty Transition: Child Labour (Age ≥ 5 and ≤ 15 Age)

Poverty Status	2000-01		
	Pakistan	Urban	Rural
Always Poor	10.0	11.0	9.5
Exit from Poverty	8.3	3.9	9.9
Enter in Poverty	10.0	7.3	8.6
Always Non-poor	6.9	5.5	8.7
Total	8.7	7.6	9.2

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

Poverty and labour market are strongly related because market earnings are among the main source of income for workers and the absorption of the unemployed in labour market can pull a poor household out of poverty. In Pakistan where there is no adequate social security network available, unemployment leads to poverty, particularly for those working in the low wage informal sector. Table 8 shows the transition of poverty by employment status of the head of the household. There is little difference in labour market activity of the heads of the 'always poor' and 'always non-poor' households. This may be due to the fact that most of the poor are employed in the low paid informal sector and a very small percentage is employed in the formal sector. Nasir (2001) pointed out that majority of the poor are working as farm labour and the percentage of self-employed workers running small establishments is also high among the poor work force participants. The table also demonstrates that those who enter poverty have a smaller percentage of employed and a higher percentage of inactive heads of the households as movement from employment to unemployment increases the poverty level.

Table 8

Poverty Transition: Labour Market (Head of the Household)

Poverty Status	2000-01			Total
	Employed	Unemployed	Inactive	
Always Poor	76.8	5.6	17.6	100
Exit from Poverty	77.5	5.1	17.4	100
Enter in Poverty	73.6	6.1	20.3	100
Always Non-poor	75.6	5.8	18.6	100
Total	76.4	5.8	17.8	100

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

The most important determinant of consumption is household income. Income fluctuates due to exogenous shocks such as drought, flood, price changes in the commodity markets, sickness/injury to the bread earner and policy changes. However, households can smooth consumption over time by liquidation of asset or borrowing. As poverty in Pakistan increased between 1998-99 and 2000-01, percentage of households under debt also increased from 22 percent to 51 percent. A positive impact of credit on poverty alleviation is if credit is used for income generating activities. Mostly the informal loans taken on high interest rates by these households are for the consumption purposes as availability of institutional loans to the poor is constrained. According to UNDP (2003), loans taken by the households in Pakistan have predominantly been used for meeting consumption needs. The proportion of loans used for consumption purposes is 56.8 percent in case of extremely poor and 65.1 percent in case of poor households for the urban areas. These figures for the rural areas are 69.0 and 57.5 percent respectively. Table 9 shows proportion of households under debt in Pakistan. The table indicates that the households which remained poor in both the periods were highly indebted. The households which entered or exited poverty were also indebted while the households that remained non-poor in the two periods were less indebted. This is particularly true for the urban areas.

Table 9

Poverty Transition: Households under Debt (%)

Poverty Status	2000-01		
	Pakistan	Urban	Rural
Always Poor	57.8	55.4	57.5
Exit from Poverty	55.8	44.4	59.9
Enter in Poverty	56.9	48.7	57.8
Always Non-poor	45.0	36.5	50.5
Total	51.2	44.1	55.0

Source: Computed from the *Pakistan Socio-economic Survey, 1998-99 and 2000-01*.

SUMMARY AND CONCLUSIONS

This paper investigates the transition of poverty in Pakistan using the PSES longitudinal data for the years 1998-99 and 2000-01. The results indicate that poverty in both urban and rural areas of Pakistan has increased over this period, no matter which of the three measures of poverty discussed in previous sections is used. The poverty spectrum analysis reveals that about 20 percent households in the urban and rural areas are below the 75 percent of poverty line and may be classified as chronically poor, 16 percent households in urban areas and 22 percent households in rural areas are transitory poor, while 26 percent households in urban areas and 28

percent households in rural areas are transitory non-poor. The households which are just above or below the poverty line and hence are classified as transitory poor and transitory vulnerable are more at risk to income shocks. Analysis of poverty entries and exits over these two periods show that many households enter in poverty while fewer households exit through poverty.

Socio-economic dimensions of poverty transition highlight that poverty compels the parents to let their children drop out of school and join workforce. The negative effect of poverty on school enrolment is more pronounced for girls. The employment status of the head of the household who are 'always poor' suggests that most of the poor are employed in low paid informal sector. It is also found that poor households smooth their consumption over time through borrowing.

The main message that emerges from this study is that poverty reduction should focus on the extremely vulnerable households and should try to reduce entry into poverty while increasing exit of poverty. It is also evident from this study that problems like low school enrolment, child labour and indebtedness of the poor cannot be handled without reducing descent of the households into poverty.

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