Rural Poverty Dynamics in Pakistan: Evidence from Three Waves of the Panel Survey

G. M. Arif

and

Shujaat Farooq

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS
ISLAMABAD

C O N T E N T S

List of Tables

(iv)

1. INTRODUCTION

Poverty analysis in developing countries, including Pakistan, has generally focused on poverty trends based on cross-sectional datasets, with very little attention being paid to its dynamics—that is, transitory or chronic poverty. The transitory poor are those who move out of or fall into poverty between two or more periods, while the chronic poor remain in the poverty trap for a significant period of their lives. Static measures of households' standard of living do not necessarily provide a good insight into their likely stability over time. For instance, a high level of mobility into or out of poverty might suggest that a higher proportion of a population experiences poverty over time than the cross-sectional data might show.[1] It also implies that a much smaller proportion experiences chronic poverty relative to those enumerated on cross-sectional observations in a particular year [Hossain and Bayes (2010)]. Thus, the analysis of poverty dynamics is important if we are to uncover the true nature of a population's wellbeing. Both micro- and macro-level socio-demographic and economic factors are likely to affect poverty movements and intergenerational poverty transmission [Krishna (2011)].

A close look at the data on poverty levels and trends in Pakistan for the last five decades leads to two broad conclusions: first, poverty reduction has not been sustained; rather, it has fluctuated remarkably. Second, a large proportion of the population is found around the poverty line, and any micro/macro shock (positive or negative) is likely to have pushed them into poverty or pulled them out of it. Pakistan's poverty reduction strategies do not, however, generally address this dynamism of poverty. This is because the existing poverty literature on Pakistan is prolific in terms of descriptive studies based on cross-sectional household surveys, such as the Household Integrated Economic Survey (HIES), while studies on poverty dynamics, which need longitudinal datasets, are scant.

[1]See, for example, Adelman, *et al.* (1985), Gaiha and Deolalikar, (1993) for India; Jalan and Ravallion (2001) for China;Sen (2003) and Hossain and Bayes (2010) for Bangladesh; Kurosaki (2006), Arif and Bilquees (2007), Lohano (2009) and Arif, *et al.* (2011) for Pakistan.

The few available studies on poverty dynamics in Pakistan are generally based on two rounds of a panel household survey.[2] Their contribution to knowledge is substantial, but data on more rounds (waves) uncovers the dynamics more effectively. For example, the incidence of chronic poverty has generally been higher in two-round surveys than in surveys that comprised more than two rounds, suggesting that there could be only a small proportion of the population that remained poor for an extended period. Effective and accurate policies based on a philosophy of inclusiveness, can thus at least alleviate chronic poverty from the country, which would be a tremendous socioeconomic achievement for a developing country such as Pakistan.

The major objective of this study is to analyse the dynamics of rural poverty in Pakistan, using the three waves of a panel household survey carried out by the Pakistan Institute of Development Economics (PIDE) in 2001, 2004, and 2010. This analysis of poverty dynamics is important from a micro- and macro-perspective. From a micro-perspective, demographic dynamics and changes in household assets can have an impact on poverty movements. Similarly, the macroeconomic situation, which fluctuated greatly between 2001and 2010—with moderate growth during the first six years of the decade and sluggish growth with double-digit inflation, particularly food inflation since 2007—is likely to have affected household wellbeing. The two major natural disasters that occurred during 2005–10 (the earthquake and floods), may also have had a lasting impact on the living standard of the population.

The rest of the paper is organised as follows. Section 2 presents a brief review of the literature on poverty dynamics, followed by a discussion on data sources, an analytical framework, and sample characteristics in Section 3. Cross-sectional poverty estimates are discussed in Section 4, and the dynamics of rural poverty and its determinants are examined in Sections 5and 6, respectively. Section 7 concludes the paper.

2. A BRIEF LITERATURE REVIEW

The findings of studies on poverty dynamics in different parts of the world over the last four decades are summarised in Appendix Table 1. The 'never-poor' category in the last column of the table shows the percentage of households (or population) that did not experience any episode of poverty during the different waves of the survey concerned. In contrast, the 'always-poor' category represents chronic poverty—the proportion of households (or population) that remained poor in all rounds of the survey concerned. Although based on the table alone, it is not possible to identify a direct association between the number of waves and the proportion of households in the 'never-

---

[2]See, for example, Kurosaki (2006), Arif and Bilquees (2007), Lohano (2009) and Arif, *et al.* (2011).

poor' category or 'always-poor' category, the data does show that, as the number of waves increases, the proportion of the chronic poor and 'never-poor' generally declines with a corresponding increase in the transitory poor.

The literature identifies several factors associated with poverty dynamics. Changing household socio-demographic and economic characteristics are considered key drivers of chronic and transient poverty. Among demographic characteristics, larger household size and/or dependency ratios are associated with chronic poverty since they place an extra burden on a household's assets and resource base [Jayaraman and Findeis (2005); Ssewanyana (2009)]. Changes in household size and age structures (young, adult, and elderly) are also linked with movements into and out of poverty because of their distinct economic consequences [Bloom, *et al.* (2002)]. Additional children not only raise the likelihood of a household falling into poverty, but also lead to the intergenerational transmission of poverty due to a reduction in children's school attendance and its regressive impact on poorer households [Orbeta (2005)]. Households headed by females are more likely to be chronically poor [John and Andrew (2003)]; the majority of these women are serially dispossessed (divorced or widowed), which may therefore promote intergenerational poverty [Corta and Magongo (2011)]. Patriarchal in heritance systems also put females at a disadvantage [Miller, *et al.* (2011)].

A number of studies show that increases in human capital reduce the likelihood of being chronically poor or transitory poor. Evidence from the literature arises in the context of the household head's level of education [Wlodzimierz (1999); Arif, *et al.* (2011)] and children's education in overcoming persistent poverty [Davis (2011)]. Formal education alone does not matter; innate disadvantages and lack of skills are also significantly associated with chronic poverty [Grootaert, *et al.* (1997)]. Inadequate dietary intake also triggers loss of body weight and inhibits physical growth, especially among children [Hossain and Bayes (2010)]. Households with permanently disabled persons are more likely to face persistent poverty [Krishna (2011)].

Both chronic and transient poverty are closely associated with the tangible and less-tangible composition of a household's assets (Davis, 2011). These can be viewed in terms of land ownership [Jalan and Ravallion (2000); Arif, *et al.* (2011)], livestock ownership [Davis (2011)], possession of liquid assets [Wlodzimierz (1999)], remittances [Arif, *et al.* (2011)] and access to water, sanitation, electricity, and the ability to effectively invest in land [Cooper (2010)]. Mobility of land ownership is highly linked with transient poverty [Hossain and Bayes (2010)]; the amount of inherited land from parents is a significant predictor of remaining non-poor [Davis (2011)]. Location also plays a vital role in the opportunities available to households. Those living in remote areas with less infrastructure and other basic facilities are more likely to be chronically and transitory poor [Deshingkar (2010); Arif, *et al.* (2011)]. Asset-less households are more likely to fall into poverty if the economy is not doing

well and/or the distribution of assets is highly unequal [Hossain and Bayes (2010)]. Land distribution in Pakistan is highly skewed, even more so than income [Hirashima (2009)]—about 63 percent of rural households are landless while only 2 percent own 50 acres or more, accounting for 30 percent of the total land [World Bank (2007)].

Households face a variety of risks and shocks, e.g., macroeconomic shocks, inflation, natural disasters, health hazards, personal insecurity, and socially compulsive expenses such as dowries. Customary and ceremonial expenditure on marriages and funerals can sometimes push households into long-term poverty [Krishna (2011)]. Using a six-wave dataset from rural China, Jalan and Ravallion (2001) find a significant fall in household consumption followed by a shock; the higher the severity of the shock, the longer it takes to recover from it. In agricultural regions, loss of land, floods, and lack of irrigation systemscan also push households into poverty [Sen (2003)]. Based on alife history analysis in rural Bangladesh, Davis (2011) finds that a variety of shocks at various points in life determine the pattern of transient poverty and the intergenerational transmission of poverty.

3. DATA SOURCES, ANALYTICAL FRAMEWORK, AND SAMPLE CHARACTERISTICS

In a longitudinal or panel survey, the same households (or individuals) are interviewed during different rounds or waves. This study uses three waves of a panel dataset. The first round, the Pakistan Rural Household Survey (PRHS),was carried out in 2001 in rural areas of 16 districts selected from all four provinces: Attock, Faisalabad, Hafizabad, Vehari, Muzaffargarh, and Bahawalpur in Punjab; Badin, Mirpur Khas, Nawabshah, and Larkana in Sindh; Dir, Mardan, and Lakki Marwat in Khyber Pakhtunkhwa(KP); and Loralai, Khuzdar, and Gwadar in Balochistan. The second round of the PRHS was carried out in 2004,but was restricted to ten districts in Punjab and Sindh. As a result of security concerns, the panel districts in KP and Balochistan were excluded from the second round. The third round, which was conducted in 2010, covered all 16 original panel districts. An urban sample was also added to the third round, and it was renamed the Pakistan Panel Household Survey (PPHS).The sample may, however, have over represented the poorer regions. For example, in Punjab, the sample includes six districts, three of which are located in southern Punjab, the province's poorest region. In Sindh, the more urbanised districts—where poverty is likely to be low, such as Karachi and Hyderabad—are not included in the sample.

The second and third rounds of the panel survey include interviews with split households. A split household is a new household where at least one member of an original panel household has moved out permanently, for instance to live separately with his/her family or due to the marriage of a female member.

Only households that had split within a sampled village were interviewed, i.e., the survey did not follow the movement of panel households or their members out of a sampled village because of the high costs involved. The size of the sample for each round is shown in Table 1. The total size varies from 2,721 households in 2001 to 4,142 households in 2010 [for more detail, see Nayab and Arif (2012)].

Table 1

Households Covered During the Three Waves of the Panel Survey

Region	PRHS 2001	PRHS 2004			PPHS 2010				
		Panel Households	Split Households	Total	Panel Households	Split Households	Total Rural Households	Urban Households	Total Sample
Pakistan	2721	1614	293	1907	2198	602	2800	1342	4142
Punjab	1071	933	146	1079	893	328	1221	657	1878
Sindh	808	681	147	828	663	189	852	359	1211
KP	447	–	–	–	377	58	435	166	601
Balochistan	395	–	–	–	265	27	292	160	452

Source: Nayab and Arif(2012).

Four features of the three rounds of the panel data are noteworthy. First, urban households, which were included in the third round held in 2010, are not panel households. We thus exclude them from our analysis. The urban sample is, however, used for the cross-sectional poverty estimation. Second, split households are not strictly panel households, particularly those where a female has moved out due to marriage. Matching split households with their original panel households is not straightforward. Thus, we also exclude split households from the analysis. Third, only rural sampled households in Punjab and Sindh are covered in all three rounds, so our analysis of the three-wave data is restricted to these two provinces. Fourth, for the analysis of all rural areas covering the four provinces, panel data is available for the 2001 and 2010 rounds.

A major concern is sample attrition. Table 2 presents attrition rates for the different rounds. Between 2001 and 2010, the rate was around 20 percent while that for 2004–10 was as high as 25 percent. The attrition rate in Balochistan is higher than that for other provinces. A legitimate concern in panel datasets involves the level of sample attrition and the degree to which attrition is non-random. A skewed exit from the panel household might generate a non-representative sample, which could lead to biased estimates. For the three waves of the panel dataset, an analysis of the sample attrition rates was found to be random because it did not show significant differences between the attritors and non-attritors for a set of interested indicators, particularly consumption and poverty [Nayab and Arif (2012)]. Thus, the attrition in the panel data is not a pervasive problem when obtaining consistent estimates.

Table 2

Sample Attrition Rates of Panel Households (Rural)

Region	2001-2004	2001-2010	2004-2010
Pakistan	14.1	19.6	24.9
Punjab	12.9	17.1	23.8
Sindh	15.7	18.3	26.2
KP	–	16.1	–
Balochistan	–	33.2	–

Source: Nayab and Arif (2012).

We use all three rounds of the panel survey as cross-sectional and longitudinal data sets. We include all the sampled households in the cross-sectional analysis, but only panel households in the poverty dynamics analysis. As noted earlier, split households are excluded in the latter, although, ideally, for comparison purposes, they should be merged with those households from which they were separated (merging a household from which a woman has moved out after her marriage is not, however, straightforward).

The study uses the official poverty line for2001 and 2004, inflating it for 2010.[3] The used poverty lines are: Rs 723.4 per adult per month for 2001,Rs 878.64 for 2004, and Rs 1,671.89 for 2010. All three waves of the panel dataset include detailed consumption modules covering all aspects of consumption, including food and non-food items. The household is the unit of analysis used, but the data is weighted by household size for poverty estimation. We use the 'spell approach' to measure the dynamics of poverty with a two-step analysis. In the first step,we examine the change in poverty status over2001 and 2004,2004 and 2010,and 2001 and 2010. The four categories of change in poverty status between any two periods are: (i) never poor, (ii) poor in two periods, (iii) moved out of poverty, and (iv) moved into poverty. In the second step, all three waves of the panel dataset are used to explore poverty dynamics and four categories are recorded:(i) poor in all three periods (chronic), (ii) poor in two periods, (iii) poor in one period, and (iv) never poor.

The determinants of poverty are examined in using multivariate analyses. The following three equations are estimated:

$$PD_{01-10\,i} = \alpha_i + \alpha_1 I_i + \alpha_2 Hd_i + \alpha_3 Rg_i + \mu_{2i} \qquad \ldots \qquad \ldots \qquad \ldots \quad (1)$$

$$PD_{04-10\,i} = \alpha_i + \alpha_1 I_i + \alpha_2 Hd_i + \alpha_3 shock_i + \alpha_4 Rg_i + \mu_{3i} \qquad \ldots \qquad \ldots \quad (2)$$

$$PD_{01-04-10\,i} = \alpha_i + \alpha_1 I_i + \alpha_2 Hd_i + \alpha_3 Rg_i + \mu_{4i} \qquad \ldots \qquad \ldots \qquad \ldots \quad (3)$$

---

[3]The Planning Commission of Pakistan measured the official poverty line using the Pakistan Integrated Household Survey (PIHS) 1998/99 dataset, based on 2,350 calories per adult equivalent per day.

In Equations 1 and 2, the dependent variables $PD_{01\text{-}10\ I}$ and $PD_{04\text{-}10i}$ represent the change in poverty status between two rounds (2001 and 2010,2004 and 2010) with the four categories mentioned. Equation 3 includes all three waves of the panel (2001, 2004, and 2010), where the dependent variable has three outcomes: (i) poor in three periods (chronic poor), (ii) poor in at least one period (transitory poor),[4] and (iii) never poor. On the right-hand side of equations 1–3, we incorporate individual, household, and community characteristics. Vector I_i measures the characteristics of the household head (gender, age, education), vector Hd_i measures household characteristics (household size, dependency ratio, household structure, agriculture, and livestock ownership), and Rg_i measures the province of residence. In Equation 2, we add a shock variable to examine the impact of natural, inflationary, and business shocks on poverty and poverty dynamics. Equations 1 to 3 provide a dynamic analysis of poverty where the dependent variable has more than two outcomes; we therefore apply multinomial logistic regression.

Table 3 presents data on selected socioeconomic variables, as reported in the three waves of the panel survey. According to the PPHS2010 (third wave), the average household size was 7.6 members—7.8 in rural areas and 7.1 in urban areas. Between 2001 and 2010, the average household size in rural areas declined marginally. Although the overall proportion of female-headed households is low (4.8 percent), it doubled between 2004 and 2010amongboth cross-sectional and panel households. This could be attributed to male out-migration or the death of male household heads, which would have transfer red headship to their widows. The mean age of household heads has increased marginally overtime. More than 80 percent of rural households are headed by illiterates or persons with upto primary education (Table 3). Only 4 percent of rural households are headed by persons with more than 10 years' education.

Data on landownership shows a decline in medium landholdings (3–10 acres), with an increase in small landholdings (≤3 acres) among panel households. The distribution of inherited land could be a major contributing factor in this decline. More than two thirds of the sampled households own livestock; a modest decrease in the ownership of large animals is observed, while in the case of small animals, ownership increased between 2001 and 2004 period but declined to the 2001 level in 2010. Ownership of housing is universal, and there is a marked change from *kaccha* (mud) houses to *pucca* (cement/brick) houses. However, the mean number of persons per room remained around fourwith no considerable change over time (Table 3). There is no major difference between rural and urban areas in the average number of persons per room.

---

[4]'Poor in two periods' and 'poor in one period' are combined here.

Table 3

Socioeconomic Characteristics of Sampled Households
(2001, 2004, and 2010)

Characteristics	Cross-Sectional Analysis					Panel Households (rural Punjab/Sindh only)		
	2001	2004	2010			2001	2004	2010
	Rural	Rural	Rural	Urban	Overall			
Average household size	8.0	7.7	7.8	7.0	7.6	7.9	7.9	8.1
Female-headed households(%)	2.5	2.2	4.1	4.3	4.2	2.4	2.3	4.8
Mean age of household head (years)	47.2	47.5	48.5	46.8	48.0	47.2	48.6	51.3
Education level of household head (%)								
0-5 years	80.0	83.0	76.0	61.0	71.0	80.7	80.3	78.0
6-10 years	16.0	13.0	18.0	25.0	20.0	15.5	15.2	17.0
11 or more years	4.0	4.0	6.0	15.0	9.0	3.8	4.5	5.0
All	100	100	100	100	100	100	100	100
Land ownership (%) by category								
Landless households	49.1	57.5	56.6	91.2	67.4	48.1	48.8	48.2
Small landholder (upto 3 acres)	22.7	17.9	19.1	3.0	14.1	20.4	21.3	24.2
Medium landholder (> 3 to 10)	17.4	15.1	14.0	3.3	10.7	19.0	18.5	15.8
Large landholder (> 10 acres)	10.8	9.6	10.3	2.5	7.8	12.5	11.4	11.9
All	100	100	100	100	100	100	100	100
Housing unit ownership (%)	94.4	–	94.3	83.1	90.8	97.2	–	95.4
Livestock ownership (%)	72.2	73.6	67.1	16.1	51.2	73.9	75.6	72.6
Large animal ownership (%)	59.2	59.5	55.6	10.9	41.6	40.2	61.8	61.7
Small animal ownership (%)	42.9	50.4	43.6	9.7	33.0	65.7	51.8	49.1
Housing structure (%) by category								
Kaccha	61.8	–	47.1	16.8	37.6	57.2	–	48.1
Mixed	21.5	–	27.6	22.1	25.9	27.0	–	21.7
Pucca	16.7	–	25.3	61.1	36.5	15.8	–	30.3
All	100	100	100	100	100	100	100	100
Number of persons per room	3.9	–	4.0	3.7	3.9	4.4	–	4.3

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.

4. POVERTY TRENDS: A CROSS-SECTIONAL ANALYSIS

Table 4 presents data on the cross-sectional incidence of poverty for all three rounds of the panel survey. It also reports the incidence of poverty separately for Punjab and Sindh, where all the rounds of the survey were carried out. Overall, poverty in 2010 is estimated at 20.7 percent—22.4 percent in rural areas and 16.6 percent in urban areas. Estimates for rural Punjab and Sindh show that poverty decreased from 31.3 percent in 2001 to 24.1 percent in 2004, but increased to 27 percent in 2010. When we take into account the data for all the provinces, which is available for 2001 and 2010, Table 4 shows a decline in poverty by 5 percentage points from 27.5 percent in 2001 to 22.4 percent in 2010.The key message of the cross-sectional analysis is that, as in the past, poverty has fluctuated in the last decade. However, when poverty at present (in 2010) is compared with 2001, the data indicates a modest overall decline. This suggests that the benefits of economic growth during the first half of the last decade (in terms of poverty reduction) largely disappeared during the second half.

Table 4

*Poverty Incidence: Cross-Sectional Analysis of Three Waves of
Panel Survey (2001, 2004, and 2010)*

Survey Year	All Provinces	Punjab and Sindh
2001 (rural only)	27.5	31.3
2004 (rural only)	–	24.1
2010 (rural)	22.4	27.0
2010 (urban)	16.6	–
2010 (all)	20.7	–

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.

Table 5presents poverty trends in rural Punjab and Sindh for panel households only. Panel A of the table excludes split households but includes the original households from which the former had separated. Panel B also excludes the latter, leaving only pure panel households without any split. This type of classification is likely to capture the effect of demographic change (splitting) on household wellbeing.[5] The trends are similar: poverty, which was 29.5 percent in 2001 declined to 23.6 percent in 2004, but increased to 26.6 percent in 2010 (panel A in Table 5). However, the fluctuation is more pronounced when poverty estimates are based on pure panel households (Panel B). Poverty in rural Punjab and Sindh declined sharply from 29.5 percent in 2001 to 21.8 percent in 2004, and then jumped to 28 percent in 2010. The change (or decline) in poverty levels between 2001 and 2010 is marginal at only 1.5 percentage points.

Table 5

*Incidence of Rural Poverty in Punjab and Sindh: Cross-Sectional
Analysis of Panel Households (2001, 2004, and 2010)*

Panel A	2001	2004	2010
Punjab and Sindh	29.5	23.6	26.6
Punjab	20.2	18.4	20.9
Sindh	40.2	29.2	32.6
Southern Punjab	26.2	23.4	34.1
North/central Punjab	14.6	13.8	8.2
(N)	1395	1395	1395
Panel B			
Punjab and Sindh	29.5	21.8	28.0
Punjab	17.6	16.9	20.6
Sindh	42.6	27.0	35.4
Southern Punjab	25.0	22.5	35.1
North/central Punjab	11.7	12.4	8.3
(N)	1092	1092	1092

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.
Note: Panel A includes the same households covered in the three waves of the survey. Split households are excluded except those original households from which one or more households had split. Panel B excludes all split households, including original households.

---

[5]However, in this study, we examine only the differences in poverty incidence between different types of households, and leavea thorough investigation for subsequent analyses.

The other key implication of panel B in Table 5 is that the changes in poverty status in Punjab and Sindh are dissimilar, and that, even within Punjab, the situation in southern Punjab is markedly different from other parts of the province. In northern and central Punjab, poverty remained at virtually the same level between 2001 and 2004, but declined considerably between 2004 and 2010 (Table 5, panels A and B).In southern Punjab and Sindh, it declined between 2001 and 2004, and then increased between 2004 and 2010. In southern Punjab, the increase in poverty between 2004 and 2010 is much larger than the decline between 2001 and 2004, thus showing a net increase between 2001 and 2010. Although it is difficult to explain these regional differences in poverty, a number of studies point to poor physical and soft infrastructure [Arif, *et al.* (2011)], less diversified resources with highly unequal land distribution [Malik (2005)], poor market integration, low urbanisation and poor industrialisation, and fewer remittances in southern Punjab and Sindh as the key differentiating factors compared to northern and central Punjab.

5. RURAL POVERTY DYNAMICS

As noted earlier, only two-wave data (2001 and 2010) is available for all the provinces, whereas three-wave data exists for Punjab and Sindh. Our analysis of rural poverty dynamics is carried out in three steps. In the first step, we examine the movement into or out of poverty by the number of waves, two or three. In the second step, we carry out a bivariate analysis of poverty dynamics in the context of different socio-demographic characteristics, followed by a multivariate analysis in the third step. This section covers the analysis based on the first two steps, while the next section covers the third step. Table 6 gives the results of rural poverty dynamics on the basis of two-wave data for three periods: 2001–04, 2004–10, and 2001–10. Both the 2001–04 and 2004–10 waves contain data for only Punjab and Sindh while the 2001–10 round has information on all four provinces. The table categorises poverty as (i) poor in two waves, (ii) moved out of poverty, (iii) fell into poverty, and (iv) never poor.

Around 9 percent of the sampled population remained poor in two rounds or waves, while approximately 60 percent falls in the 'never-poor' category (those who did not experience poverty during the two given rounds). The remaining 30 percent either moved out of poverty or fell into poverty. Those who moved out of poverty out number those who moved into poverty in 2001–04 and 2001–10. In 2004–10, however, more people fell into poverty than those who escaped it. It appears this that the period 2004–10 witnessed a net increase in poverty, while the other two periods, 2001–04 and 2001–10 marked a decrease in poverty. One might argue that the benefits of economic growth in the first half of the last decade in terms of poverty reduction largely disappeared during the second half.

Table 6

Rural Poverty Dynamics Using Two-Wave Data

Poverty Dynamics	2001-04 (Punjab and Sindh only)	2004-10 (Punjab and Sindh only)	2001-10 (all provinces)
Poor in two waves	9.72	8.63	9.08
Moved out of poverty	18.19	13.09	15.86
Fell into poverty	13.70	17.98	13.25
Never poor	58.39	60.30	61.82
All	100.0	100.0	100
(N)	(1422)	(1395)	(2146)

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS 2010.

Poverty estimates based on three waves of data are presented in Table 7, which shows different dynamics from the two-wave data. The first and most important piece of information is that, during the first decade, more than half the rural population (51percent) in the two largest provinces, Punjab and Sindh, remained poor in at least one period. Within this group, the major share is categorised as one-period poor (31percent), although a considerable proportion, around 17 percent, was poor in two periods. The chronic poor, i.e., those who remained poor in all three waves, account for only 4 percent, which is less than half the population that remained poor in two waves. The three-wave data is spread over 10 years—2001 to 2010. So, during this decade, only a small proportion of households remained continuously poor. These findings are supported by earlier studies that show that an increase in the number of waves of a survey panel leads to a reduction in chronic poverty and a rise in transient poverty (see Appendix Table 1).

Table 7

Poverty Dynamics by Region (Rural) Using Three Waves
(2001, 2004, and 2010)

Change in Poverty Status	Total Sample (Sindh and Punjab)	Punjab			Sindh
		Total	Central and Northern (excl. South)	Southern	
3-period poor (chronic)	4.01	3.71	1.06	6.46	4.32
2-period poor	16.60	10.34	6.17	14.65	23.12
1-period poor	30.90	23.97	17.41	30.76	38.12
Never poor	48.48	61.98	75.36	48.14	34.44
All	100.0	100.0	100.0	100.0	100.0
N	(1395)	(792)	(417)	(375)	(603)

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS 2010.

Some interesting regional differences in poverty dynamics emerge from Table 7. Chronic poverty (being poor in all three waves) is almost non-existent in northern/central Punjab—only 1percent. Movement into and out of poverty is also relatively low in this region since three quarters of the population falls in the 'never-poor' category. However, the situation in southern Punjab and Sindh is quite different and alarming, especially in rural Sindh where about two thirds of the population has lived below the poverty line for one or more periods and only one third falls in the 'never poor' category. This suggests that rural poverty is more persistent in Sindh and southern Punjab than in northern/central Punjab. Four broad conclusions can be drawn from the three-wave data analysis:

(1) When we consider a longer period, e.g., the last 10 years, the proportion of the population that ever lived below the poverty line during this period is much larger (51percent) than that yielded by cross-sectional survey datasets.

(2) Moving into and out of poverty is a common phenomenon in rural Pakistan, and directly depresses the desired status of 'never poor'.

(3) The good news is that only a small proportion of the population has continuously lived in a state of poverty for 10 years, suggesting that, when a household experiences a decline in wellbeing, it has certain coping mechanisms with which to improve its living standards.

(4) Rural poverty appears to be more persistent in Sindh and southern Punjab, particularly the former, than in northern/central Punjab.

Who are the chronic or transitory poor (those who move into or out of poverty)? Table 8 presents demographic and other characteristics of households stratified by the number of times they have been poor. The persistence of poverty—in terms of the higher incidence of chronic poverty and lower chances of staying 'never poor' and moving into or out of poverty—is more common among households headed by less educated persons and owning no land or livestock, suggesting that rural poverty in Pakistan is structural. As in other parts of the world and consistent with earlier studies, family size and dependency ratios are linked to poverty dynamics. Larger families and higher dependency ratios are associated positively with chronic poverty and negatively with the desired state of 'never-poor'. Movement into and out of poverty is also more common among larger households with higher dependency ratios than with smaller households (Table 8). More female-headed households are chronically poor than male-headed households, although the proportion of female-headed households who did not experience poverty in the last 10 years (never poor) is much larger (67 percent) than the corresponding proportion of male-headed households (48 percent). It is thus difficult to jump to the conclusion that female-headed households are necessarily worse off than male-headed households.

Table 8

Poverty Dynamics by Selected Characteristics Based on Three-Wave Data

Characteristics in 2001	Three-period poor	Two-period poor	One-period poor	Never Poor	All
Sex of household head					
Male	3.7	16.8	21.1	48.4	100
Female	7.0	13.4	12.8	66.8	100
Family size					
1-4	0.7	13.9	22.7	62.7	100
5-7	3.0	11.2	27.7	58.1	100
8-9	4.9	15.8	30.1	49.3	100
10+	4.3	21.9	34.9	38.9	100
Dependency ratio					
Low	0.8	10.1	22.9	66.2	100
Medium	4.3	16.2	34.5	45.0	100
High	5.5	22.1	33.5	38.9	100
Education of household head					
0 to 5	4.0	19.4	31.4	45.2	100
6-10	3.3	5.8	26.9	64.0	100
Above 10	0.0	3.7	32.6	63.5	100
Remittances					
No	3.8	17.0	30.5	48.6	100
Yes	0.0	5.0	41.6	53.4	100
Livestock					
No	5.3	21.2	32.4	4.11	100
Yes	3.3	15.5	30.2	51.0	100
Land ownership					
No land	5.1	24.1	34.2	36.6	100
Some land	2.8	11.0	28.1	58.1	100

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.

6. DETERMINANTS OF RURAL POVERTY DYNAMICS

We examine the determinants of rural poverty dynamics separately for two-wave and three-wave data, but apply the multinomial log it technique to both, given that there are more than two categories of dependent variable in both cases. As reported earlier, the change in poverty status based on the two-wave panel dataset is recorded in four categories: (i) poor in two periods, (ii) moved out of poverty, (iii) moved into poverty, and (iv) never poor. In the analysis of three waves, poverty dynamics are given in three categories: (i) poor in three periods (chronic), (ii) poor in one or two periods, and (iii) never poor. The 'never poor' category is used as the reference category. For the two-wave data, we carry out a separate multivariate analysis for 2001–10 and 2004–10. In the former, as noted earlier, overall poverty declined, while in the latter, it

increased. Despite this major difference in overall poverty trends, the share of chronic poverty remained unchanged (around 9 percent) in both periods. In the analysis of three-wave data, we use all three rounds (2001, 2004, and 2010) of the panel survey.

Following the poverty dynamics literature on multinomial logit models, we regress the correlates of a base year on the poverty dynamics with four sets of independent variables. The first set includes the characteristics of household heads (age, age-squared, sex, and education). Demographic and health factors constitute the second set, while households' economic status (land and livestock ownership, housing unit structure, and room availability)form the third set of independent variables. Regional and provincial dummies are used as the fourth set. Not all these correlates are available for all three rounds, so there are minor variations in independent variables across the models. Differences in selected independent variables between two periods are also incorporated in different models, i.e., in household size, dependency ratio, education of household head, and ownership of land and livestock. Based on the PPHS 2010 dataset, we include a shock variable for the 2004–10 analysis to cover the last five years.

6.1. An Analysis of the Two-Wave Data

Using the two-wave data, we estimate four multinomial logit models, the results of which are presented in Tables 9-10. In Model 1, whichcovers2001–10, the household head's sex shows no significant association with poverty dynamics. The household head's age is, however, negatively associated with movements into poverty, while age-squared is positively associated with poverty dynamics. This suggests that an increase in the household head's age initially empowers the household through increased economic activity, keeping it from falling into poverty, but that in old age, this effect is weakened, raising the probability of the household falling into poverty. The education of the household head has a significant and negative association with all three poverty states, suggesting, on one hand, that households headed by literate persons are less likely to be chronically poor or to fall into poverty. On the other hand, they are also less likely to escape poverty. It is not easy to explain this phenomenon since education is considered an important factor in helping individuals and households move out of poverty. A possible explanation is that, since the reference category is 'non-poor', the sampled households headed by educated persons are relatively likely to stay non-poor. It also indicates that education is not sufficient to make the transition from poor to non-poor.

Two household-level demographic variables—family size and dependency ratio—have a positive and statistically significant association with chronic poverty and the probability of falling into poverty. In terms of movements out of poverty, the dependency ratio is insignificant, but household size has a positive and significant sign, suggesting that it helps households make

Table 9

Multinomial Logit Model: Effects of 2001 Socioeconomic Characteristics
on Rural Poverty Dynamics (2001–10)

	Model1			Model2		
Correlates (2001)	Chronic Poor/Non-poor	Moved out of/Non-poor	Moved into/Non-poor	Chronic Poor/Non-poor	Moved out of/Non-poor	Moved into/Non-poor
Sex of household head (male=1)	–0.95	–0.694	0.499	–1.199**	–0.813**	0.222
Age of household head	–0.03	0.031	–0.044**	–0.007	0.036	–0.032
Age^2 of household head	0.00	0.000	0.000**	0.000	0.000	0.000
Education of household head	–0.08*	–0.038**	–0.049*	–0.094*	–0.040**	–0.084*
Household size	0.14*	0.139*	0.037**	0.218*	0.123*	0.119*
Dependency ratio	0.24*	0.084	0.133**	0.560*	0.171	0.370*
Household with one member abroad(yes=1)	–2.69	–0.246	–0.670	–2.823	–0.203	–1.224
Housing structure (pucca=1)	–0.94*	–0.443*	–0.451*	–0.880*	–0.454*	–0.467*
Electricity connection (yes=1)	–0.56*	0.096	0.161	–0.401**	0.162	0.122
Toilet facility (yes=1)	–0.62**	–0.778*	–0.202	–0.628**	–0.766*	–0.158
Animals (number)	–0.04*	–0.118*	0.002	–0.156*	–0.120*	–0.067*
Landholdings(acres)	–0.12*	–0.034*	–0.029*	–0.119*	–0.036*	–0.041*
Number of rooms per person	–2.11*	–2.295*	0.137	–3.607*	–2.402*	0.099
Presence of disabled person (yes=1)	0.21	0.057	–0.404	0.222	0.047	–0.491
Southern/northern Punjab	1.55*	0.139	1.469*	1.391*	0.218	1.501*
Sindh/northern Punjab	1.94*	0.744*	1.397*	1.466*	0.814*	1.140*
KP/northern Punjab	–1.06**	–1.147*	–0.649**	–1.424*	–1.064*	–0.853*
Balochistan/northern Punjab	1.52*	0.993*	0.865*	1.586*	1.101*	0.780*
Constant	–1.81	–1.477**	–2.112*	–2.113**	–1.436	–2.602*
Difference in household size	–	–	–	0.131*	–0.031	0.139*
Difference in dependency ratio	–	–	–	0.373*	0.094	0.290*
Difference in education of household head	–	–	–	0.021	–0.013	–0.074*
Difference in landholdings	–	–	–	–0.016	–0.006	–0.030*
Difference in no. of animals	–	–	–	–0.141*	0.000	–0.085*
LR chi-2	678.13 (54)			825.30 (69)		
Log likelihood	–1827.00			–1706.83		
Pseudo R^2	0.1565			0.1947		
N	2,124			2,080		

Source: Authors' estimates based on micro-data from PRHS2001and PPHS2010.
Note: *denotes significance at 5 percent, **denotes significance at 10 percent.

the transition out of poverty. It seems that household size helps this transition, probably when the dependency ratio is low with the addition of an adult working member. Thus, the target could be to lower the dependency ratio primarily through a decline in fertility, which is still high in Pakistan, particularly in rural areas.

The household-level economic variables (ownership of land and livestock, housing structure *(pucca)*, and availability of rooms) have a significant and negative association with both chronic poverty and falling into poverty. However, they also have a significant and negative association with movements out of poverty. This association is also difficult to account

for, although a possible explanation is that households in a better economic position in terms of land, livestock, and housing are less likely to remain poor for long or to fall into poverty than stay non-poor. In other words, they were relatively likely to be non-poor between the given two rounds (2001–10).

The regional dummies have some interesting features. During 2001–10, the population of southern Punjab was more likely than that of northern/central Punjab to be chronically poor or to fall into poverty. The dummies for Sindh and Balochistan are similar to southern Punjab except that they also have a significant and positive association with making a transition out of poverty. KP's population was less likely than that of northern/central Punjab to be in chronic poverty or to make a transition into or out of poverty (Table 9).This supports the bivariate analysis, which showed larger poverty movements in southern Punjab and Sindh than in northern/central Punjab. It also underscores the vulnerable situation in Balochistan.

In Model 2, we add differences to the values of five correlates (household size, dependency ratio, education, landholdings, and number of animals) between the 2001 and 2010 period. There is no major change in results when compared to Model 1, except that the sex of the household head, which was insignificant in Model 1, becomes significant in Model 2. The reverse is the case for the age (age-squared) of the household head. Male-headed households are less likely than female-headed households to be in chronic poverty or to move out of poverty. However, all the new variables—difference in two periods—show a significant and expected relationship with poverty dynamics. The difference in household size, for example, has a positive relationship with chronic poverty or falling into poverty. Its relationship with moving out of poverty is not significant. The same is the case for the dependency ratio.

The difference in landholdings and education has a negative and significant association with moving into poverty. The difference in livestock ownership also shows a negative association with chronic poverty as well as with falling into poverty (Table 9). This suggests that not only are households' initial socio-demographic conditions correlated with poverty dynamics, changes in these conditions overtime impact movements in poverty as well. Thus, our key finding is that a positive change in households' socio-demographic and economic conditions can lead to some positive outcomes in terms of improving their wellbeing. These findings are, to some extent, consistent with Davis (2011) who shows that tangible assets (land and livestock) are important protective assets compared to less tangible assets (education and social networks).Our analysis, however, shows the importance of both types of assets for poverty reduction.

Table 10 presents the multinomial logit results for the rural poverty dynamics for 2004–2010. It is worth repeating that the 2004 round of the PRHS covered Punjab and Sindh, so Models 3 and 4 are limited to rural areas in these two provinces. The findings of these models are not very different from those of Models 1 and 2, with some exceptions. The sex of the household head, which was insignificant earlier, is now significant: male-headed households were less likely than female-headed households to be chronically poor. The new variable 'loan obtained last year' has a negatively significant association with moving out of poverty. Thus, borrowing did not help households escape poverty between 2004 and 2010. Based on household perception data, natural shocks were likely to have pushed them into poverty. Similarly, households who had faced an inflationary shock in the last five years were more likely than households who had not faced it to be chronically poor or to fall into poverty. These results are consistent with earlier studies.[6]

6.2. An Analysis of the Three-Wave Data

Table 11 presents the multinomial logit results based on the three-wave panel data, where the dependent variable has three categories: (i) chronically poor (poor in three periods), (ii) poor in one or two periods, and (iii) never poor. The latter is used as the reference category. The correlates are from the 2001 round of the PRHS, and the difference in selected variables between the 2001 and 2010 periods is also included in the analysis. The findings are more consistent than the analysis based on the two-wave data. For example, the household head's level of education has a significant and negative relationship with chronic poverty or being poor in one or two rounds (Model 5). So, in the long run, say a decade, education is a very strong factor in keeping households in the desired status of 'never poor'. Household size and dependency ratios have a positive association with chronic poverty as well as with being poor in one or two periods. All economic variables, such as ownership of land and livestock, structure of housing units *(pucca)* and availability of rooms, have a significant and negative association with chronic poverty or being poor in one or two periods. In terms of regions, both rural Sindh and southern Punjab are more likely than northern or central Punjab to be in chronic poverty or to be poor for one or two periods. The entry of five variables showing a difference between 2001 and 2010 does not affect the overall results (Model 6). These variables also have a significant association with the poverty dynamics: an increase in household size or dependency ratio worsens household wellbeing while a positive change in household assets (land and livestock) improves it.

---

[6]Jalan and Ravallion (2001), Sen, (2003), Davis (2011), Lawrence (2011).

Table 10

Multinomial Logit Model: Effects of 2004 Socioeconomic Characteristics on 2010(Rural)

Correlates (2004/05)	Model3			Model4		
	Chronic Poor/Non-poor	Moved out of/Non-poor	Moved into/Non-poor	Chronic Poor/Non-poor	Moved out of/ Non-poor	Moved into/Non-poor
Sex of household head (male=1)	–16.328*	–0.707	–1.014	–16.339*	–0.700	–0.511
Age of household head	0.010	–0.005	–0.042	0.021	0.005	–0.048
Age^2 of household head	0.000	0.000	0.000	0.000	0.000	0.000
Education of household head	–0.055	–0.063*	–0.045**	–0.072**	–0.077*	–0.073*
Household size	0.200*	0.150*	0.124*	0.266*	0.126*	0.204*
Dependency ratio	0.310**	0.227**	0.204**	0.460*	0.307**	0.264**
Household with one member abroad(yes=1)	–30.879	–0.621	–0.008	–31.823	–0.506	0.012
Animals (number)	–0.152*	–0.051*	–0.019	–0.232*	–0.045**	–0.128*
Loan obtained last year	–0.106	–0.378**	0.269	–0.155	–0.370**	0.281
Landholdings(acres)	–0.076*	–0.008	–0.061*	–0.082*	–0.014	–0.101*
Unexpected shock (no shock as ref.)						
Natural shock	–0.046	0.491	0.785**	0.022	0.473	0.691**
Inflation shock	0.344**	0.397	0.425	0.269**	0.315	0.463**
Business and other shock	1.311	0.155	0.579	1.240	0.201	0.560
Southern/northern Punjab	1.324*	0.487	1.640*	1.281*	0.479	1.320*
Sindh/northern Punjab	1.526*	–1.067*	1.989*	1.159*	1.055*	1.410*
Constant	–21.097	–2.852*	–2.096**	–21.456	–2.884*	–2.484**
Difference in household size	–	–	–	0.122*	–0.055**	0.231*
Difference in dependency ratio	–	–	–	0.198	0.081	0.067
Difference in education of household head	–	–	–	0.001	–0.020	–0.053
Difference in landholdings	–	–	–	–0.040	–0.020	–0.108*
Difference in no. of animals	–	–	–	–0.098*	0.001	–0.164*
LR chi-2	253.68 (45)			353.44 (60)		
Log likelihood	–853.273			–783.07		
Pseudo R^2	0.1294			0.1841		
N	997			978		

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.
Note: *denotes significance at 5 percent, **denotes significance at 10 percent.

Table 11

MultinomialLogit Model: Effects of 2001Socioeconomic Characteristics on Change in Poverty Status between 2001 and2010 (Rural Punjab and Sindh) Based on Three Waves

Correlates (2001)	Model5		Model6	
	Chronic Poor/ Non-poor	Transitory Poor/ Non-poor	Chronic Poor/ Non-poor	Transitory Poor/Non-poor
Sex of household head (male=1)	–0.941	–0.289	–1.039	–0.517
Age of household head	–0.012	–0.040**	–0.008	–0.028
Age^2 of household head	0.000	0.000**	0.000	0.000
Education of household head	–0.122*	–0.047*	–0.155*	–0.064*
Household size	0.221*	0.152*	0.331*	0.190*
Dependency ratio	0.285**	0.147**	0.564*	0.355*
Household with one member abroad	–3.755	0.382	–2.866	0.574
Housing structure (pucca=1)	–0.904*	–0.343*	–0.804**	–0.313*
Electricity connection (yes=1)	0.197	–0.142	–0.097	–0.122
Animals (number)	–0.182**	–0.066*	–0.313*	–0.099*
Landholdings(acres)	–0.107*	–0.049*	–0.106**	–0.047*
Number of rooms per person	–1.603	–0.757**	–2.078	–1.346*
Presence of disabled person(yes=1)	–1.295	–0.235	–1.282	–0.155
Southern/northern Punjab	1.484*	0.719*	1.369*	0.720*
Sindh/northern Punjab	1.401*	1.269*	0.894	1.110*
Constant	–2.779	0.006	–2.980**	–0.196
Difference in household size	–	–	0.159*	0.064*
Difference in dependency ratio	–	–	0.331**	0.251*
Difference in education of household head	–	–	0.007	–0.046*
Difference in landholdings	–	–	–0.062	–0.022**
Difference in no. of animals	–	–	–0.170*	–0.044*
LR chi-2	361.70 (30)		419.39 (40)	
Log likelihood	–940.01		–880.55	
Pseudo R^2	0.1613		0.1923	
N	1,382		1,343	

Source: Authors' estimates based on micro-data from PRHS2001, PRHS2004, and PPHS2010.

Note: *denotes significance at 5 percent, **denotes significance at 10 percent. The split households covered in 2004 and 2010 are included in the estimation of poverty.

Our investigation of rural poverty dynamics through the two- and three-wave data suggests that the latter gives a more consistent explanation of the change in poverty status over time than the former. It is particularly difficult, using two-wave data, to assess which factors contribute to transitions out of poverty. Another important message of this analysis is that, not only are a household's initial socio-demographic conditions crucial in explaining poverty dynamics, changes in demographic, economic, and human capital-related factors play a key role in changing household well-being.

7. CONCLUSIONS

This study has used the three rounds of the panel surveys conducted in 2001, 2004, and 2010 to examine poverty dynamics in rural Pakistan. These rounds have also been used as cross-sectional datasets to examine trends in rural poverty. We have estimated poverty using the official poverty line. Based on the spell approach, chronic and transient poverty was estimated separately for two and three waves of the panel data. For the two-wave analysis, panel households were grouped into four categories: (i) never poor, (ii) poor in two periods, (iii) moved out of poverty, and (iv) moved into poverty. For the three-wave analysis, the sampled households were grouped into (i) the chronic poor, (ii) poor in one or two periods, and (iii) never poor.

The data points to fluctuations in poverty—a decline in 2001–04 and a rise in 2004–10.Based on the two-wave panel, the analysis has revealed that around 9 percent of households remained poor in two periods. Poverty declined to only 4 percent when three-wave data was taken into account. Poverty movements based on three waves of the panel dataset show that more than half the rural population in Punjab and Sindh remained poor for at least one period:31 percent were categorised as one-period poor and around 17 percent were poor in two periods. In rural Sindh, about two thirds of the population experienced at least one episode of poverty in the last 10 years.

The findings of the multivariate analysis showed that demographic variables, household size, and dependency ratios have a significant positive association with chronic poverty and with the likelihood of falling into poverty. Economic variables such as the ownership of land and livestock, housing structure (*pucca*), and the availability of rooms have a significant and negative association with chronic poverty. Both inflationary and natural shocks are likely to keep households either in chronic poverty or to push them into a state of poverty. As expected, a change in demographic and economic factors at the household level affects poverty dynamics. The demographic burden increases the probability of falling into poverty while a positive change in economic status improves households' wellbeing.

The real challenge is sustaining poverty reduction. Policy interventions for the chronically poor may not be the same as for the transitory poor (those moving into or out of poverty). The former may need financial assistance in the short term to smooth their consumption such as the Benazir Income Support Programme or the distribution of *zakat*, but such programmes may not be sufficient to help them escape poverty. The latter could be targeted through interventions in the labour market to increase their employability and productivity. This can be done through a multi-sectoral approach that aims to: improve human capital and the employability of the working-age population; create assets for the poor, the provision of microfinance being one source; lower the dependency ratio by reducing fertility; and minimise the risks associated

with shocks (inflation, flood, drought, etc.). Village-level infrastructure and rural-urban linkages have also been effective in influencing poverty dynamics in other developing countries. Northern Punjab in Pakistan is a successful case where better human capital, strong rural-urban linkages, and access to international labour markets have played a role in controlling rural poverty. Poor rural areas in the country should be targeted for specific intervention based on a multi-sectoral approach through the improvement of human capita land creation of assets, and by addressing demographic concerns and developing village-level infrastructure and rural-urban linkages.

Appendix Table 1

Number of Waves and Dynamics of Poverty in Different Parts of the World

Country	Time Frame	Number of Waves	Source	Welfare Measure	Always Poor	Sometimes Poor	Never Poor
Chile (eight rural communities)	1968- 1986	2	Scott, 2000	Income per capita	54.1	31.5	14.4
Pakistan (IFPRI)	1988-2005	2	Lohano, 2009	Income per capita	41.3	43.1	15.6
South Africa	1993-1998	2	Carter, 1999	Expenditure per capita	22.7	31.5	45.8
Ethiopia	1994-1995	2	Dercon and Krishnan, 2000	Expenditure per capita	24.8	30.1	45.1
Pakistan (PSES)	1998-2000	2	Arif and Faiz, 2007	Expenditure per capita	22.4	28.8	48.8
Pakistan (PRHS)	2001-2004	2	Arif, *et al.*, 2011	Expenditure per capita	11.3	32.2	56.5
Uganda	1992-1999	2	Ssewanyana, 2009	Expenditure per adult	18.4	44.5	37.1
Ethiopia	1994-95, 1997	3	Abbi and Andrew, 2003	Expenditure per adult	21.5	16.8 (2 periods) 19.4 (1 period)	51.1
India (NCAER)	1968-1971	3	Gaiha, 1989	Income per capita	33.3	36.7	30
India (NCAER)	1970/71- 1981/82	3	Bhide and Mehta, 2006	Real per capita expenditure	21.3	17.3	61.3
Indonesia	1993,1997, 2000	3	Widyanti et al., 2009	Per capita household Expenditure	4.2	30.1	65.7
Zimbabwe	1992-1996	4	Hoddinott et al., 1998	Income per capita	10.6	59.6	29.8
Uganda	1992-1996	4	John and Andrew, 2003	Expenditure per capita	12.8	57.3	30
Pakistan (IFPRI)	1986-1991	5	McCulloch and Baluch, 1999	Income per adult equivalent	3	55.3	41.7
China (rural)	1985 -1990	6	Jalan and Ravallion, 1999	Expenditure per capita	6.2	47.8	46

REFERENCES

Abbi, M. Kedir and Andrew McKay (2003) Chronic Poverty in Urban Ethiopia: Panel Data Evidence. Paper prepared for International Conference on 'Staying Poor: Chronic Poverty and Development Policy', University of Manchester, UK, 7 – 9 April 2003.

Adelman, Irma, K. Subbarao, and Prem Vashishtha (1985) Some Dynamic Aspects of Rural Poverty in India. *EPW*, September, 1985: 106–116.

Arif, G. M. and Faiz Bilquees (2007) Chronic and Transitory Poverty in Pakistan: Evidence from a Longitudinal Household Survey. *The Pakistan Development Review* 46:2, 111–127.

Arif, G. M., Nasir Iqbal, and Shujaat Farooq (2011) The Persistence and Transition of Rural Poverty in Pakistan, 1998-2004. Pakistan Institute of Development Economics, Islamabad. (PIDE Working Papers Series, 2011:74).

Bhide, S. and A. K. Mehta (2006) Correlates of Incidence and Exit from Chronic Poverty in Rural India: Evidence from panel data. In A. K. Mehta and A. Shepherd (eds.) *Chronic Poverty and Development Policy*. New Delhi: Sage Publication.

Bloom, David E., David Caning and Jaypee Savilla (2002) The Demographic Dividend, A New Perspective on the Economic Consequences of Population Change. Population Matters.

Carter, M. (1999) *Getting Ahead or Falling Behind? The Dynamics of Poverty in Post-apartheid South Africa*. University of Wisconsin.

Cooper, E. (2010) Inheritance and the Intergenerational Transmission of Poverty in sub-Saharan Africa: Policy Considerations. University of Oxford, Manchester, UK: Chronic Poverty Research Centre (CPRC). (CPRC Working Paper 159).

Corta, da L. and Joanita Magongo (2011) Evolution of Gender and Poverty Dynamics in Tanzania. Manchester, UK: Chronic Poverty Research Centre (CPRC). (CPRC Working Paper 203).

Davis, Peter (2011) The trappings of poverty: the Role of Assets and Liabilities in Socio-economic Mobility in Rural Bangladesh. Chronic Poverty Research Centre. (CPRC Working Paper, 195).

Dercan, Stefan and Pramila Krishnan (2000)Vulnerability, Seasonality and Poverty in Ethiopia. *Journal of Development Studies* 36:6, 82-100.

Deshingkar, Priya (2010).Migration, Remote Rural Areas and Chronic Poverty in India. (CPRC Working Paper 163).

Gaiha, Raghav (1989) Are the Chronically Poor also the Poorest in India. *Development and Change* 20.

Gaiha, R. and A. B. Deolaiker (1993) Persistent, Expected and Innate Poverty: Estimates for Semi Arid Rural South India. *Cambridge Journal of Economics* 17:4, 409–21.

Grootaert, Christiaan and Ravi Kanbur (1997) The Dynamics of Welfare Gains and Losses: An Africa Case Study. *Journal of Development Studies* 33:5, 635–57.

Hirashima, S. (2009) Growth-Poverty Linkage and Income-Asset Relation in Regional Disparity: Evidence from Pakistan and India. *The Pakistan Development Review* 48:4, 357–386.

Hoddinott, John, Trudy Owens, and Bill Kinsey (1998) Relief Aid and Development Assistance in Zimbabwe. Report to United States Agency for International Development, Washington D.C.

Hossain, M. and Abdul Bayes (2010) *Rural Economy and Livelihoods, Insight From Bangladesh*. Dhaka: AH Development Publishing House.

Jalan, J. and Martin Ravallion (1999) Do Transient and Chronic Poverty in Rural China Share Common Causes? Paper presented as IDS/IFPRI Workshop on Poverty Dynamics, IDS, April 1999.

Jalan, J. and M. Ravallion (2000) Is Transient Poverty Different? Evidence for Rural China. *Journal of Development Studies* 36:6, 82–99.

Jalan, J. and M. Ravallion (2001) Household Income Dynamics in Rural China. The World Bank. (Policy Research Working Paper Series 2706).

Jayaraman, Anuja and Jill L. Findeis (2005) Disaster, Population and Poverty Dynamics Among Bangladesh Household. Annual Meeting of the Population Association of America.

John, A. Okidi and Andrew McKay (2003) Poverty Dynamics in Uganda: 1992 to 2000. (CPRC Working Paper No 27).

Krishna, Anirudh (2011) Characteristics and Patterns of Intergenerational Poverty Traps and Escapes in Rural North India. (CPRC Working Paper No 189).

Kurosaki, T. (2006) The Measurement of Transient Poverty: Theory and Application to Pakistan. *Journal of Economic Inequality* 4, 325–345.

Lawrence Bategeka (2011) Public Expenditure for Uganda from a Chronic Poverty Perspective. Chronic Poverty Research Centre. (Working Paper Number 222).

Lohano H. R. (2009) Poverty Dynamics in Rural Sindh, Pakistan. Chronic Poverty Research Centre. (Working Paper Number 157).

McCulloch, Neil and Bob Baulch (1999) Distinguishing the Chronically From the Transitory Poor-Evidence from Pakistan. Institute of Development Studies, University of Sussex. (Working Paper No. 97).

Miller, Robert, Francis Z. Karin And Mary Mathenge (2011) Family Histories and Rural Inheritance in Kenya. Chronic Poverty Research Centre. (Working Paper No. 220).

Nayab and G. M. Arif (2012). Pakistan Panel Household Survey: Sample Size, Attrition and Socio-demographic Dynamics. Pakistan Institute of Development Economics, Islamabad. (Poverty and Social Dynamics Paper Series, PSDPS-1).

Orbeta, Jr. Aniceto (2005) Poverty, Vulnerability and Family Size: Evidence from the Philippines. (ADB Institute Discussion Paper No. 29).

Scott, C. (2000) Mixed Fortunes: A Study of Poverty Mobility Among Small Farm Households in Chile, 1968-86. In B. Baulch and J. Hoddinott (eds.) *Economic Mobility and Poverty Dynamics in Developing Countries*. Frank Cass Publishers: 25–53.

Sen, B. (2003) Drivers and Escape and Descent: Changing Household Fortunes in Rural Bangladesh. World Development 31:3, 513–534.

Singh, R. P. and Hans Binswanger (1993) Income Growth in Poor Dry Land Areas of India's Semi-arid Tropics. Indian *Journal of Agricultural Economics* 48:1. Jan-March. Sridhar V., Statistics, *Frontline*, November 24, 2001.

Sewanyana, Sarah N. (2009) Chronic Poverty and Household Dynamics in Uganda.Chronic Poverty Research Centre. (Working Paper No. 139).

Widyanti, W., A. Suryahadi, S. Sumarto, and A. Yumna (2009) The Relationship Between Chronic Poverty and Household Dynamics: Evidence from Indonesia. (CPRC Working Paper No. 32).

Wlodzimierz, Okrasa (1999) Who Avoids and Who Escapes from Poverty during the Transition? Evidence from Polish Panel Data, 1993-96. (World Bank Policy Research Working Paper 2218).

World Bank (2007) Pakistan Promoting Rural Growth and Poverty Reduction. Sustainable and Development Unit South Asia Region. (Report No. 39303-PK).