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Poverty across the Agro-Ecological Zones in Rural Pakistan

*G.M. Arif and Munir Ahmad**

INTRODUCTION

The poverty concern has been intensified by an emerging general consensus that rapidly declining poverty trends during the 1980s had got reversed in the beginning of the 1990s and continued to scale up indiscriminately in Pakistan. Based on this surge and the trends of Pakistan's economic performance, it is being argued that this destitution is likely to be persistent and may become a permanent gesture of this nation. Poverty has therefore emerged as a major challenge constraining the economic development of the country. In order to cope with this peril, the government of Pakistan is presently in the process of preparing a national poverty alleviation strategy.

Historically, poverty has mainly concentrated in rural areas of the country, which are diverse in terms of climate, land fertility, availability of water for irrigation, level of integration with urban sector, population growth and skill levels. Most of the studies relating to poverty focused on the analysis of rural/urban disparities. However, the existing considerable variability in agricultural productivity levels in different cropping zones suggest that it could be a useful exercise that accommodate these variations while examining the extent and the nature of poverty in the country. Recently, a few studies have considered these variations and determined the incidence of poverty in the 1980s and the 1990s at the ecological zone levels. The main objective of the paper is to review these studies in order to examine the changes in incidence of poverty across the agro-ecological zones of the country.

CLASSIFICATION OF RURAL AREAS INTO AGRO-ECOLOGICAL ZONES

Pakistan has two main cropping seasons: Kharif and Rabi. Cotton, rice, maize, sorghum and sugarcane are Kharif crops, while wheat, oilseeds, grams and barley are Rabi crops. Pickney's (1989) classification of rural areas into agro-climatic zones is based primarily on the Kharif crops, because wheat is the dominant crop in the Rabi season virtually in all areas of the

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country. Classification of districts into agro-climatic zones is reported in Appendix table 1, which shows that one major division is between the areas suited to rice and areas suited to cotton. There are four distinct cotton or rice zones: cotton/wheat Punjab (zone 3), cotton/wheat Sindh (zone 6), rice/other Sindh (zone 7) and rice/wheat Punjab (zone 1). Pickney (1989) termed one zone centred around Faisalabad as the mixed zone (2), since no single crop dominates the area. In the classification, Barani areas are considered as a separate zone because of their dependence on rainfall (zone 5). Having similar cropping pattern and climate, the D.I.Khan district of NWFP is included in the low-intensity zone of Punjab (zone 4). This zone is situated on the left bank of the Indus in Punjab, which has relatively less developed irrigation facilities and thus low cropping intensities. The remaining districts in NWFP and Balochistan are included in the last two zones (8 and 9). Pickney argues that in spite of the fact that these districts of NWFP and Balochistan are agro-climatically heterogeneous, they are not disaggregated because they contribute only 6.3 and 1.2 per cent of wheat production, respectively.

TRENDS IN POVERTY

Studies undertaken during the last four decades to assess the extent and nature of poverty have in general been based on data sets generated by the Household Integrated Economic Surveys (HIES)¹, the earliest relate to 1963-64. To view the poverty trends, the last four decades are generally grouped into two broad periods: 1963/64-1987/88 and 1987/88-1998/2000. Various conclusions can be drawn from the first period, i.e., 1963/64-1969/70.

The first is that the overall poverty levels as well as poverty in rural areas increased, while the urban areas experienced a declining trend. Higher growth rates particularly in the manufacturing sector were the main factors in reducing poverty in urban areas during the 1960s. In spite of the government efforts to revamp the sector through Land Reforms Act of 1959, providing subsidies to encourage the use of fertilizer, providing plant protection services, encouraging farm mechanization, the introduction of Green Revolution during the mid 60s, the completion of the Mangla Dam in 1967 making more water available for irrigation and the resulting expansion in agriculture sector, the poverty increased in rural areas during this period. The reasons for this trend could be the following: the terms of trade remained more or less in favor of the industrial sector; greater income inequality since the major beneficiaries of the technological breakthrough at the very outset and of subsidies provided to agriculture were the large farmers; and the early beneficiaries of the nonagricultural sector's expansion were the urban people, not the rural.

The second relates to the period from 1969/70 to 1979 that witnessed a declining trend in poverty levels both in rural and urban areas. The third is that this declining trend in poverty continued till 1987-88. A number of factors including the 1972 land reforms, increase in urban employment and wages due to a boom in the construction sector and more importantly

¹Or named previously as the Household Income and Expenditure Surveys.

the inflow of workers' remittances from the Middle East started in the mid-1970s led the poverty levels to decline.

The poverty trends, however, reversed in the 1990s as shown by the recent studies conducted by Amjad and Kemal (1997), Ali and Tahir (1999), Jafri (1999), and Arif et al. (2001).² These studies have estimated the poverty at least for the three years including some years of the 1990s and the results are summarized in table 1. All of these studies used the basic needs approach to determine the trends in poverty.³ According to Amjad and Kemal, the overall poverty increased by 5 percentage point during the period 1987-88 and 1992-93. They observed a general increasing trend in rural areas. As regards the urban areas, results of this study show that the poverty increased from 15 percent in 1987-88 to about 19 percent in 1990-91 and then declined in 1992-93 to a level of 15.5 percent. The study by Ali and Tahir (1999) also shows an increase in both rural and urban poverty during the same period.

Table 1. Poverty trends in the 1990s in Pakistan.

| Year | Amjad and Kemal (1997) | Ali and Tahir (1999) | Jafri (1999) | World Bank (2000) | Arif, Nazli and Haq (2001) |
|---------|------------------------------|----------------------------|-----------------|-------------------------|----------------------------------|
| 1987-88 | 17.32 | 19.18 | 29.2 | 37.0 | - |
| 1990-91 | 22.10 | 23.0 | 26.1 | 34.0 | - |
| 1992-93 | 22.40 | 28.11 | 26.8 | 25.0 | - |
| 1993-94 | - | 27.93 | 28.7 | 28.0 | 27.4 |
| 1996-97 | - | - | - | 24.0 | 29.6 |
| 1998-99 | - | - | - | - | 35.2 |

Jafri (1999), who estimated poverty for five years (1986-87; 1987-88, 1990-91, 1992-93 and 1993-94), shows that poverty declined between 1987-88 and 1990-91, but it increased during the next two survey years, 1992-93 and 1993-94. Arif et al. (2001) provides the poverty estimates for the years of 1993-94, 1996-97 and 1998-99 at the three levels that are overall, urban and rural. They show that poverty has increased from 27 percent in 1993-94 to about 30 percent in 1996-97; it increased further to 35 percent in 1998-99. Consequently, they concluded that at the end of the last decade more than one-third of the total households in the country were below the poverty line, while for the rural areas this figure was about 40 percent (table 2).

In sum, the results of all the four studies discussed above indicate that the trends in poverty during the 1990s move in the same direction. The only difference among them is that of the timings of poverty increase. Amjad and Kemal, and Ali and Tahir show an increase in poverty since the late 1980s, while Jafri shows that this increase has occurred since the early 1990s. Arif et al. indicate that this increasing trend continued at the end of the last

²Arif et al. (2001) have extended the earlier work carried out by Qureshi and Arif (2001).

³However, these studies differ markedly in their methodologies used to compute poverty lines. These methodologies have been discussed by Arif (2001).

Table 2. Poverty trends in the 1990s by rural and urban areas in Pakistan.

| Period | Rural-urban areas | Poverty incidence (P_0) | Poverty gap (P_1) | Poverty severity (P_2) |
|---------|-------------------|-----------------------------|-----------------------|----------------------------|
| 1993-94 | Total | 27.4 | 5.31 | 1.6 |
| | Rural | 29.9 | 6.67 | 1.8 |
| | Urban | 23.1 | 4.82 | 1.4 |
| 1996-97 | Total | 29.6 | 5.8 | 1.7 |
| | Rural | 31.6 | 6 | 2.1 |
| | Urban | 27.4 | 5.9 | 1.1 |
| 1998-99 | Total | 35.2 | 7.58 | 2.47 |
| | Rural | 39.8 | 8.39 | 2.6 |
| | Urban | 31.7 | 9.67 | 3.5 |

Source: Computed from the 1993-94 and 1996-97 HIES data sets; for 1998-99, Qureshi and Arif (1999)

decade.⁴ Therefore, it can be concluded that poverty, which declined rapidly in the 1970s and 1980s, has returned in Pakistan in the 1990s. This rise in poverty can be explained through macro-level factors such as demographic dynamics that affect the labour force and dependency ratio, employment levels, real wage rates, workers' remittances, assets ownership and access, and inflationary impact on food availability.

Despite the general consensus regarding the rise in poverty in the 1990s, it is however not an easy task to determine the precise estimates regarding the current level of poverty in the country. Only few studies have estimated the incidence of poverty for the late 1990s. Jamall and Ghaus-Pasha (2000) estimated the incidence of poverty, based on the basic needs approach, at 31 percent in 1996-97, while the level of poverty for this year, according to Arif et al. (2001), was about 30 percent. As noted above, for the 1998-99 period, first Qureshi and Arif (2001) and then Arif et al. (2001) have shown the incidence of poverty at 35 percent. According to the Government of Pakistan's Three Year Poverty Reduction Programme 2001-2004, 29 percent of the total population was below the poverty line in 1999-2000. However, this estimate appears to be on a lower side for two reasons. First, it takes into account only one component of the basic needs, that is food; and second, it uses a relatively lower threshold for calorie-intake (2150). The level of poverty would be certainly higher than 29 percent if the basic needs approach is used to determine the poverty line. Based on the available

⁴However, results of these four studies are different from the results of the World Bank study, which shows almost a continuous declining trend in poverty since the late 1980s. The World Bank study shows a continuous decline in poverty between the 1987-88 and 1992-93 periods. In urban areas, this declining trend continued till 1996-97 period. At the national level as well as in rural areas, after a modest increase in 1993-94, poverty declined again in 1996-97.

estimates it can be said that 30- 35 percent of the total population was poor in the late 1990s, suggesting that 40-47 million people were living below the poverty line.

RURAL-URBAN DIFFERENTIALS

As noted earlier, poverty in Pakistan has historically been higher in rural areas than in urban areas. Table 2 highlights some of the interesting points concerning the poverty trend in the 1990s. First, poverty increased overall in rural as well as in urban areas of the country between the 1993-94 and 1998-99 periods. As noted earlier, at the end of the last decade, more than one-third of the households in the country was below the poverty line; while, this level is about 40 percent for the rural areas. Second, the rise in poverty in the 1990s was relatively higher in the rural sector than that in the urban sector. As a result, the rural-urban gap in poverty levels increased modestly from about 6 percent in 1993-94 to 8 percent in 1998-99. Third, more than 70 percent of all poor people in the country live in rural areas (Arif et al. 2001).

POVERTY ACROSS THE AGRO-CLIMATIC ZONES

Incidence of poverty for the nine agro-ecological zones for 1993-94 and 1998-99 is presented in table 3. These estimates show that the rural poverty in 1993-94 was highest, i.e., 34 percent, in cotton-wheat zone of Sindh followed by rice-wheat zone of Punjab and other NWFP. Rural poverty was observed to be the lowest, i.e., only 14 percent, in the *barani* Punjab. In 1998-99, rural poverty was highest in Balochistan, i.e., 54 percent, followed by rice-wheat Punjab, cotton-wheat Sindh, low intensity Punjab and cotton-wheat Punjab. However, the *barani* Punjab again shows the lowest level of poverty.

Table 3. Incidence of food poverty (head-count ratios) by agro-climatic zones (rural only), 1993-94 and 1998-99.

| Agro-climatic Zones ^a | 1993-94 | 1998-99 |
|----------------------------------|---------|---------|
| Rice/wheat Punjab | 33.1 | 47.7 |
| Mixed Punjab | 21.0 | 31.4 |
| Cotton/wheat Punjab | 25.4 | 36.5 |
| Low intensity Punjab | 24.2 | 32.6 |
| Barani Punjab | 13.8 | 27.5 |
| Cotton/wheat Sindh | 34.1 | 39.4 |
| Rice/other Sindh | 26.9 | 36.8 |
| Other NWFP except D.I.Khan | 28.7 | 28.2 |
| Balochistan except Nasirabad | 21.9 | 54.4 |

Source: Qureshi and Arif (1999).

The results of Qureshi and Arif study support some of the results and contradict other findings of a study by Malik (1992) for the years of 1984-85 and 1987-88. In both studies poverty was the lowest in *barani* Punjab. But the two studies differ in the highest level of poverty. According to Malik, rural poverty was observed highest in the cotton-wheat zone of the Punjab followed by the low intensity zone during 1984-85; while, the pattern was same for the 1987-88 year. On the other hand, the results of Qureshi and Arif (1999) study indicate that the rural poverty in 1998-99 was highest in Balochistan followed by cotton-wheat zone of Sindh, low intensity Punjab and cotton-wheat Punjab.

Despite these differences both of these studies lead to the same conclusion: rural poverty was relatively low in those areas where people had opportunities to support their income from nonagricultural sources like *barani* districts—Attock, Jhelum, Chakwal and Rawalpindi/Islamabad, which are closely integrated with their urban sectors and have strong linkages with the services sector (Malik 1992). These districts are considered among the most developed in the country. Moreover, migration, particularly overseas, might have played an important role in controlling poverty in *barani* areas, which had a long history in sending its workers abroad. Results of the study carried out by Gazder et al. (1995) based on the two data sets, 1990/91 HIES and 1991 PIHS also support this view. They desegregated rural Punjab into North and South and indicated that rural South Punjab had an extremely high incidence of poverty of close to 50 percent. The incidence of poverty in rural South Punjab was statistically significantly higher than in both rural north Punjab and rural Sindh.

POVERTY IN ECOLOGICAL ZONES AND STATUS OF FARM HOUSEHOLDS

Qureshi and Arif (1999) have classified the households covered in the 1993-94 HIES and 1998-99 PSES data into two categories— farm and non-farm. This classification was based on the reported 'industrial status' of the head of household. If the status was agriculture, a household was considered as a farm household. The rest of the households in the two samples were grouped into the non-farm category, including those, whose industrial status was not reported. The results are presented in tables 4 and 5. In table 4, farm and non-farm households were separated into rural and urban areas and the reported estimates refer to food poverty. Table 5 focuses on rural areas and shows the estimates of incidence of poverty for the years 1993-94 and 1998-99 for farm and non-farm households, using the basic needs approach. One can draw four main conclusions from the results presented in tables 4 and 5:

1. In 1993-94 non-farm households were poorer than the farm households in rural areas;
2. In 7 out of the 9 agro-climatic zones farm households were better off than the non-farm households;

3. The differences in the incidence of poverty between the farm and non-farm households were particularly higher in the Punjab and NWFP— for example, as compared to 22 percent of head-count ratio for farm households, 40 percent of non-farm households in rice-wheat zone of Punjab were below the poverty line in 1993-94, and similarly in cotton-wheat zone of Punjab incidence of poverty was 11 percent higher in non-farm households than in farm households;
4. In 1993-94 non-farm households were less poor than the farm households only in two zones: barani Punjab and Balochistan (excluding Nasirabad). Estimates of poverty based on the 1998-99 PSES data set had similarities as well as differences with the results based on the 1993-94 HIES data set. In both data sets non-farm rural households were relatively poorer than the farm households in three provinces—Punjab, Sindh and NWFP. According to the 1998-99 PSES, rural farm households were also better off in Balochistan. It can be concluded that farm households were generally better off than non-farm households.

Table 4. Incidence of food poverty (head-count ratios) by province, rural/urban area and farm status of households in Pakistan.

| Province/rural/urban | | 1993-94 | | 1998-99 | |
|----------------------|-------|-----------------|---------------------|-----------------|---------------------|
| | | Farm households | Non-farm households | Farm households | Non-farm households |
| Pakistan | Rural | 23.3 | 28.6 | 27.5 | 40.3 |
| | Urban | 18.8 | 19.4 | 23.1 | 26.1 |

Source: Computed from the 1993-94 HIES and 1998-99 PSES primary data sets.

Table 5. Incidence of food poverty by agro-climatic zones and farm status in Pakistan.

| Agro-climatic zones | 1993-94 | | 1998-99 | |
|----------------------|----------------|--------------------|----------------|--------------------|
| | Farm household | Non-farm household | Farm household | Non-farm household |
| Rice/wheat Punjab | 21.6 | 39.9 | 22.3 | 33.1 |
| Mixed Punjab | 16.9 | 25.8 | 30.5 | 34.6 |
| Cotton/wheat Punjab | 19.9 | 31.4 | 35.2 | 44.7 |
| Low intensity Punjab | 15.3 | 28.3 | 40.2 | 63.4 |
| Barani Punjab | 15.7 | 12.5 | 3.9 | 10.1 |
| Cotton/wheat Sindh | 33.4 | 34.2 | 20.4 | 32.2 |
| Rice/other Sindh | 25.7 | 27.1 | 19.5 | 14.6 |
| Other NWFP | 23.0 | 32.3 | 31.7 | 31.1 |
| Balochistan | 33.0 | 21.1 | 31.3 | 26.7 |

Source: The 1993-94 HIES and 1998-99 PSES primary data sets.

RURAL POVERTY: A REAL CHALLENGE

The persistence of high level of poverty in rural areas is considered to be one of the major causes of migration of people from rural to urban areas. The urban informal sector acts as a sponge for the rural labor that cannot find jobs in the formal sector of urban areas. The informal sector is characterized by lower wages and poor working conditions. The rural people who move to large urban centers usually live in slum areas, where according to some estimates, more than 35 percent of the total urban population reside in unhealthy and poor living conditions. In this way urban poverty is largely a reflection of rural poverty. The growth of urban areas in the absence of sustained rural growth will reinforce the rural-urban disparities and would not benefit the poor.

Agricultural growth in rural Pakistan also does not benefit effectively the large majority of the farming communities because of the extremely uneven distribution of land and a large number of people even lack access to land. In such a situation it appears difficult to eliminate rural poverty only targeting the higher growth in the agricultural sector. Effective agrarian reforms would potentially be an important solution, but one should not underestimate the political difficulties involved in this process. Mass migration to urban areas is also an unappealing prospect; it would probably result in simply shifting the poor from rural to urban sector. A dynamic labor-intensive agriculture combined with a modernized nonagriculture sector can only lead to reduction in rural poverty through better employment and income opportunities and a resulting growth, and its egalitarian distribution.

CONCLUSIONS

The major objective of this paper was to review the studies relating to poverty analysis in Pakistan. The results of these have shown that the poverty has increased during the 90s—overall as well as in rural and urban areas, after experiencing downward trends during the 80s. Besides, the gap between rural and urban poverty has also widened. The recent estimates show that more than one-third of our population lives in extreme poverty, and around 70 percent of these unfortunate people reside in rural areas. The results based on agro-ecological divisions of the country indicate that poverty is lowest in the *barani* areas of the Punjab because of better opportunities in terms of employment in other sectors, particularly, the services sector as well as overseas migration. The highest is observed in Balochistan may be due to nonavailability of irrigation water and low rainfall making dwellers more vulnerable to droughts seriously affecting the crops and the livestock which are the main sources of their livelihood.

Poverty is widely spread in irrigated areas of the country particularly in Southern Punjab and Sindh where feudal system still prevails. Job opportunities outside agriculture are limited and migration within the country or overseas is not a common phenomenon in these areas of the country. On the one hand there is a need to carry out more research to understand better the phenomenon of poverty across the agro-ecological zones, and on the other, poverty alleviation programs should focus on those areas where the incidence of poverty is alarmingly high.

Appendix table 1. Distribution of districts covered in the 1993-94 HIES and 1998-99 MIMAP survey according to agro-climatic zones.

| Zone No. | Agro-climatic zones | Districts |
|----------|---|--|
| 1. | Rice/wheat Punjab | Sialkot, Gujrat, Gujranwala, Sheikhpura, Lahore and Kasur |
| 2. | Mixed Punjab | Sargodha, Khushab, Jhang, Faisalabad, Okara and Toba Tek Singh |
| 3. | Cotton/wheat Punjab | Sahiwal, Bahawalpur, Bahawalnagar, Rahim Yar Khan, Multan, Vehari and Khanewal |
| 4. | Low intensity Punjab | Dera Ghazi Khan, Rajanpur, Muzaffargarh, Leiah, Mianwali, Bhakkar and Dera Ismail Khan |
| 5. | Barani Punjab | Attock, Jhelum, Chakwal, Rawalpindi and Islamabad |
| 6. | Cotton/wheat Sindh | Sukkur, Khairpur, Nawabshah, Hyderabad, Tharparkar and Sanghar |
| 7. | Rice/other Sindh | Jacobabad, Larkana, Dadu, Thatta, Badin, Shikarpur, Nasirabad and Karachi |
| 8. | Other NWFP (Except D.I.Khan) | Swat, Dir, Peshawar, Kohat, Karak, Mansehra, Abbottabad, Kohistan, Mardan and Bannu |
| 9. | Other Balochistan (Except Nasirabad) | Quetta, Sibi, Kalat and Mekran |

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