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Pakistan

Poverty Assessment

Poverty in Pakistan: Vulnerabilities, Social Gaps, and Rural Dynamics

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Poverty Reduction and Economic Management Sector Unit
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CURRENCY AND EQUIVALENTS

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ACRONYMS AND ABBREVIATIONS

ADBP	Agricultural Development Bank of Pakistan	NRSP	National Rural Support Program
AKRSP	Agha Khan Rural Support Program	NWFP	North West Frontier Province
BHU	Basic Health Unit	OLS	Ordinary Least Squares
CBO	Community-Based Organization	OPD	Outpatient Department
DFID	Department for International Development (UK Government)	OPP	Orangi Pilot Project
EOBI	Employees Old-Age Benefits Program	ORS	Oral Rehydration System
FATA	Federally Administered Tribal Areas	PBM	Pakistan Bait-ul-Maal
FBC	Federal Bank for Cooperatives	PIHS	Pakistan Integrated Household Survey
FFE	Food-for-Education Program	PPAF	Pakistan Poverty Alleviation Fund
GDP	Gross Domestic Product	PRHS	Pakistan Rural Household Survey
GER	Gross Enrollment Rate	PSU	Primary Sampling Unit
GIC	Growth Incidence Curve	PTA	Parent-Teacher Association
HBFC	House Building Finance Corporation	QPS	Qualitative Poverty Survey
HIES	Household Income and Expenditure Survey	RHC	Rural Health Clinic
IFPRI	International Food Policy Research Institute	RSP	Rural Support Program
IMF	International Monetary Fund	SAP	Social Action Program
I-PRSP	Interim Poverty Reduction Strategy Paper	SBP	State Bank of Pakistan
KAIRP	Katchi Abadi Improvement and Regularization Program	SRSP	Sarhad Rural Support Program
MFI	Microfinance Institution	TC	Tehsil Council
NCB	Nationalized Commercial Banks	UC	Union Council
NER	Net Enrollment Rate	ZC	Zilla (district) Council
NGO	Non-Government Organization		

Vice President:	Mieko Nishimizu, SARVP
Country Director:	John W. Wall, SACPK
Sector Director:	Sadiq Ahmed, SASPR
Sector Manager:	Ijaz Nabi, SASPR
Task Manager:	Tara Vishwanath, SASPR

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Preface

This report is a culmination of work that began in September 2000 with the drafting of a concept paper identifying issues crucial to understanding poverty in Pakistan, in which the country's government, local researchers and NGOs were all involved.

The issues that were identified during this consultative process addressed particularly the country's rural sector, impediments to service delivery, and institutional and political constraints, in preparation for the design and implementation of a new integrated quantitative-qualitative survey under the aegis of the Poverty Assessment work – Pakistan Rural Household Survey (PRHS) and an associated Qualitative Survey of Poverty.

The PRHS is a nationally representative, multi topic, rural household survey covering 16 districts with a sample size of about 2,800 households distributed among approximately 180 villages. Approximately one third of the sample consists of households that were part of a panel dataset collected by IFPRI between 1986-1991. In addition to a very detailed rural module to uncover determinants of rural poverty, it also included a detailed community questionnaire, as well as facility questionnaires for schools and rural health centers.

The Qualitative Survey of Poverty enriches and informs analyses based on quantitative information from PRHS. It consists of detailed case studies and was designed to understand constraints to collective action to mitigate poverty, by examining the social dynamics and groupings in communities and how they impede or improve access to institutions, services, and markets. In-depth fieldwork was conducted in six villages in Punjab and Sindh, drawn from the universe of communities where the PRHS was administered.

The insights and findings of this report are primarily based on analyses of three data sources: several rounds of Pakistan Integrated Household Survey (PIHS) and Household Income Expenditure Surveys conducted regularly by the Federal Bureau of Statistics (FBS), Pakistan; the Private School Census undertaken by the FBS, and the aforementioned PRHS and the integrated qualitative survey, which was undertaken in the context of the World Bank's Poverty Assessment, in collaboration with the Pakistan Institute of Development Economics and the Sustainable Development Policy Institute. The report also references secondary sources as appropriate to its needs, but should not be considered a comprehensive survey of the literature on the topics covered.

The report has evolved in cooperation with the PRSP initiatives undertaken in Pakistan. Further, several strands of the report have been disseminated and discussed during the process of preparation. The most notable forums for discussion have been the National Poverty Workshop in March 2001, the Human Development Forum in January 2002, and the Regional Poverty Workshop in March 2002, all held in Islamabad.

Broadly, the report should be seen as being part of an evolving effort to increase policy makers' understanding of poverty in Pakistan. It attempts when possible to provide policy recommendations for such individuals, but also points to important outstanding issues that should be the subject of future work. This includes expanding the understanding of urban poverty; conducting a Public Expenditure Review to identify the inefficiencies associated with public spending, deepening and clarifying specific strategies addressed to human development and rural areas; assessing the impact of poverty programs, and understanding enduring institutional constraints in the context of the full implementation of Pakistan's devolution reforms. The World Bank looks forward to continue working with our clients in the pursuit of these issues.

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Executive Summary

1. In the last three years, the Government of Pakistan has brought about macroeconomic stability and has implemented wide-ranging structural reform to spur economic growth. Perhaps the most important example of restructuring is the devolution initiative which, when successfully implemented, holds promise for improved access to critical public services for the poor. In addition the poverty reduction strategy prepared by the country highlights needed improvements in education, health and water sectors. Further the Government took two major initiatives – Khushal Pakistan (a comprehensive poverty intervention) and Khushali Bank (a microcredit bank) – as nationwide efforts to address poverty and vulnerability.
2. This report is a detailed examination of poverty trends and their underlying causes. The analysis covers the 1990s, documenting the underlying causes of the deficiencies in the social agenda. In doing so, it highlights the critical priorities for poverty reduction that the ongoing reform program will need to incorporate.
3. The Government of Pakistan faces challenges and opportunities unprecedented in its history. The level of poverty in the country has not appreciably changed in the ten years preceding 1999, despite having fallen in the previous ten. The educated and well off urban population lives not so very differently from their counterparts in other countries of similar income range, or even of their counterparts in Western countries. However, the poor and rural inhabitants of Pakistan are being left behind. This is shown by many social indicators in ways that, unless sharply improved will leave Pakistan falling further below other countries' performance in the future.
4. Largely based on data collected by Pakistani agencies and institutes¹, the report analyzes the social gaps and fissures that are becoming ever more pronounced. It identifies constraints that impede economic and social progress and suggests policies for the future.
5. One third of the population can be classified as poor in 1999, and somewhat more in rural areas. The country's education and health indicators are depressed when compared to other countries of similar per capita income or rate of growth, and reveal large regional, urban/rural, and gender disparities.
6. The differences between urban and rural education and health indicators are closely associated with the high incidence of poverty in the 1990s. The raising and narrowing of health and education differences, this report argues, is the way the government can move towards its goal of poverty reduction and macroeconomic growth.
7. For example, Pakistan, in comparison to other countries of similar income, had a 23 percent lower share of the population with access to sanitation. The gender gap in literacy has not decreased since 1970, as it has in comparator countries. School enrollment is lower in Pakistan, adult illiteracy is greater, and child mortality is higher.

¹ The Government of Pakistan has produced a candid and analytical assessment of the challenges it faces in a paper called the Interim Poverty Reduction Strategy Paper ("I-PRSP"). Their effort, which is a strategy not an assessment, differs somewhat from the thrust of this paper, but the effort is strong and well taken, and in large part agrees with the message in this paper.

8. The most significant feature of the social gap is the variance of social indicators between the rich and the poor. Lagging national social indicators are in large part a direct result of very low health and educational outcomes among the poorer segments of its population in comparison to its richer segments, whose indicators are almost on a par with those of developed countries. For example, primary gross enrollment rates among the top three deciles, by per capita consumption, are around 90 percent, whereas that among the bottom three deciles is around 50 percent. As argued in this report, these outcomes reflect a failure of public service delivery. The poor cannot afford to substitute private for public services, so they are disproportionately affected. Also, to the extent the rich no longer use public services, they exert little pressure on the public service to be responsive in terms of quality or amount of spending.

9. The problems in public service delivery can be linked to the fact that in the competition for the allocation of public spending, social spending has been squeezed. For the past two decades a rising debt service burden along with continued substantial defense expenditure in the face of stagnant revenues has left little fiscal capacity to meet the rising needs of basic social services. During the 1990s, overall government revenue fell from 17 percent of GDP in 1991 to around 16 percent in 1998 and 1999. Even though defense spending fell from 6 percent of GDP in 1991 to below 5 percent in 1999, interest expense rose from 5 percent to 7.3 percent over the same period. As a consequence, compared to other countries at its income level, Pakistan allocates 42 percent lower health spending per capita. Furthermore, the failure of public services can also be traced to a record of poor implementation of public programs, which has eroded their quality. This report introduces an interesting hypothesis that these patterns of spending are the result of political choices that reflect the voting blocks prevalent in Pakistani elections.

10. Much research has shown that there is a correlation between educational attainment and economic growth in developing countries. The low level of education must therefore be understood as slowing economic growth. Similarly, the chronic child malnutrition in rural areas, which appears to have not changed in severity in 15 years, impedes the economic prospects of affected adults in their later lives. The report thus argues that low education and health indicators have themselves been part of the reason that Pakistan's economic growth rate has not been sustained through the 1990s.

11. Growing debt has also contributed to the slowing down of economic growth. External borrowing financed short term and unsustainable spurts in growth in the 1980s. With increased debt servicing, fiscal space shrank, which contributed to stagnation in the latter half of the 1990s, further increasing the burden imposed by the debt.

12. Therefore debt management inescapably has become a major priority of recent governments. This report argues that cutting spending on the social sector is not the solution, as it will only ensure that poverty remains well entrenched. What is needed is a sustained and coordinated effort to address the obstacles that have hitherto prevented Pakistan from making better use of its limited resources. This report argues that obstacles to the implementation of public policies need to be removed, and the underlying issues of governance addressed. Furthermore, particular attention should be paid to Pakistan's rural sector, which is home to most of the country's poor, and also exposes a number of specific challenges to poverty reduction.

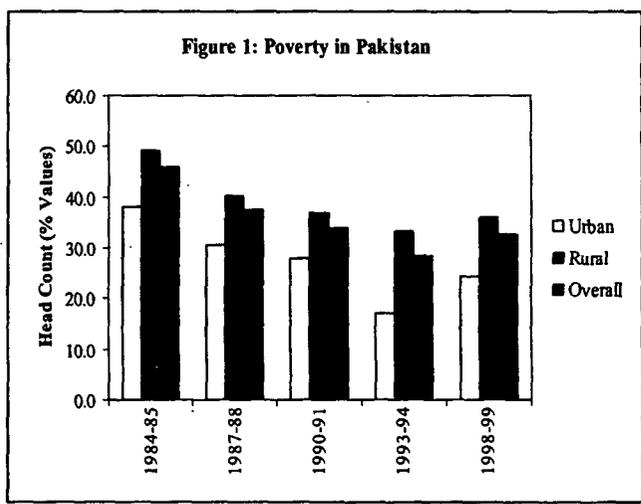
13. The chapters of this report discuss a number of specific ways in which government spending and policy decisions contribute to the social gap. These range from allocation and quality of spending in health and education to the range of barriers to market access confronting the rural poor. Chapter one introduces the main themes of the report, placing them in a cross-country context. Chapter two provides an anatomy of poverty, exploring its evolution through the 1990s, outlining problems related to its measurement, and discussing dynamic factors that influence how people identified as poor

either fall into or escape from their circumstances. It also explores the broader dimensions and possible social determinants of poverty; exploring the social characteristics associated with lack of consumption and pointing to the influence of human capital on poverty. Chapters three and four then more deeply examine the dynamics of the most important social sectors - education and health, and of the most neglected target areas –the rural sector. Chapter five places the findings of this report in the context of Pakistan’s own Interim Poverty Reduction Strategy, summing up priorities for poverty alleviation, highlighting areas for further research, and identifying relevant challenges and lessons for stakeholders, including governments and NGOs. A summary of the main chapter findings and suggestions follows below.

Poverty, Growth and Inequality

14. How does the fact that Pakistan enjoyed positive if low to moderate rates of growth during the 1990s square with its persistent poverty rate? There is in fact a significant link between economic growth and poverty in the country - as measured in terms of consumption. However, the benefits conferred by periods of positive growth have been curtailed by increasing volatility in rural areas and inequality in urban areas.

15. Between 1984-85 and 1987-88, substantial poverty reduction took place, as a result of strong growth performance that led to sizeable increases in mean consumption, along with reduced inequality in rural areas. From 1987-88 to 1990-91, lower growth rates combined with slight worsening of inequality led to smaller gains in poverty reduction. This pattern was carried into the 1990s, when large variations in growth rates led to fluctuations in consumption poverty. During the later part of the 1990s, growth performance dropped off considerably, which led to a worsening of the poverty situation. On balance, the incidence and severity of overall poverty remained almost unchanged between the beginning and the end of the decade (1990-91 and 1998-99). Disaggregating by region, while urban poverty fell between 1990-91 and 1998-99, rural poverty held at about 36 percent, widening the rural-urban gap. This is of particular concern because 71 percent of Pakistanis live in rural areas.



16. Inequality trends have also played a part in explaining poverty changes. The period of the greatest abatement of poverty, between 1984-85 and 1987-88, was also marked by the sharpest fall in the index of inequality (gini coefficient of per equivalent adult consumption expenditure) for the country as a whole. By 1998-99, the gini was at a level slightly higher than in 1990-91, with inequality in urban areas increasing sharply by 1998-99.

17. Accordingly, a growth-inequality decomposition of changes in poverty incidence using household data reveals that in urban areas some of the potential gains in poverty reduction arising out of growth in mean consumption between 1990-91 and 1998-99 were negated by rising inequality. In rural areas on the other hand, mean consumption did not increase between 1990-91 and 1998-99, and whatever minimal net reduction in poverty occurred during the period was due to a slight shift towards more equal distribution of consumption.

Vulnerability and Poverty in Pakistan

18. The high volatility of poverty rates during the 1990s, especially in rural areas, suggests that a large share of the population may be classified as transient poor--i.e. households that move in and out of poverty in response to economic shocks. Analysis in Chapter 2 suggests that in 1998-99, these "transients" may have accounted for a substantial proportion of observed poverty, with as much as 43 percent of the total population clustered within a small range of 75 to 125 percent of the poverty line.

19. There is a need to understand the consumption dynamics that drive vulnerability but which cannot be determined on the basis of static cross-sectional indicators. Chapter 2 uses IFPRI (International Food Policy Research Institute) panel data to develop a dynamic measure of vulnerability, defined as the *ex-ante* probability of falling into poverty during a specified period of time. The analysis focuses specifically on the risk imposed by weather-related shocks, which are the most significant causes of income volatility in Pakistan and particularly its rural areas. It finds both a high incidence of vulnerability in Pakistan, as well as a close overlap with poverty: 56 percent of all sampled households were found to be vulnerable, 75 percent of those classified as vulnerable were also chronically poor, and 87 percent of all chronically poor households were vulnerable.

20. Furthermore, the correlates of vulnerability appear, not surprisingly, to overlap considerably with those of poverty. These include more unequal land ownership and less diversification of agricultural income. These factors also are likely to explain strong regional effects observed in the IFPRI data, with the lowest levels of vulnerability prevailing in the canal colony areas of Punjab, and the highest in the southern irrigated plains in the province of Sindh, where land ownership is both more unequal and incomes less diversified than in the northern province.

21. However, there are also some apparent differences between the correlates of vulnerability and poverty. IFPRI panel data correlating household characteristics with vulnerability broadly indicates that ownership of assets like land, machinery or livestock clearly mitigates vulnerability. However, land ownership by itself mitigates vulnerability the least, pointing up the prevalence of thin markets for land and collateral in rural areas, and the importance of livestock, which has the greatest impact on vulnerability, in smoothing household consumption.

22. This analysis carries a number of implications. Given the importance of weather related risks, policies that expand access to non-farm sources of income may be quite important, and these may benefit from being geographically focused in light of the significant regional correlates of vulnerability. In this context, the preliminary results call for continued analytical focus towards understanding better how income risk differs across regions, and how that should influence the targeting of poverty programs.

Household and Socially Based Linkages to Poverty

23. As noted, lagging and uneven growth and inequality help to explain poverty trends. But it is also clear that some factors weaken the link between growth and poverty, particularly for some segments of society, for instance by making them vulnerable to risk. Data from the household surveys in the 1990s, including qualitative information on social dynamics, offer some evidence on these multi-dimensional aspects of poverty. The economic and social factors identified below are considered to be particularly relevant in this context. The constraints imposed by these factors are further

exacerbated by rule of law problems associated with governance that exist in the country, in terms of the costs and obstacles they create for the poor.²

24. Skewed pattern of landownership: More than one-half of the rural population in Pakistan is landless. The incidence of rural poverty is highest among those who own no land and falls steadily as the ownership of land increases. Over 40 percent of landless households are poor and together constitute 70 percent of the rural poor, while less than 3 percent of households owning 10 acres or more are poor.

25. Poor educational attainment: 42 percent of the population living in households with illiterate heads is poor, compared to 21 percent of those in other households. Net primary enrollment rates are 59 percent for the non-poor, and 37 percent for the poor, and are otherwise particularly low among poor female children in rural areas.

26. Poor health and fertility indicators: The poor are less likely to access health facilities – the incidence of medical consultation for diarrhea among children is 79 percent for the poor compared to 84 percent for the non-poor. Similar or larger gaps exist in various measures of access to maternal health care; 15 percent of married women of ages 15 to 49 in the lowest expenditure quintile have ever used contraceptives, compared to 25 percent of those in the highest quintile.

27. Disadvantageous consumption patterns: The low level of human development of the poor is reinforced by the fact that they have to allocate a larger share of their expenditures towards necessities like food, fuel and lighting than do the better off. Consequently they are able to spend less on items, such as healthcare or education, which could boost their long-term earning potential.

28. Poor access to critical infrastructure: As many as 24 percent of the poor rely on potentially unsafe sources for drinking water, compared to 19 percent of the non-poor; only about 52 percent of the poor live in households connected to electricity, compared to 76 percent of non-poor households.

29. Restrictive social grouping: Individuals and households are part of wider social groupings, defined by kinship or caste characteristics. According to case studies based on qualitative data on labor markets in rural Pakistan, (illustrated in Chapter 2) the associated importance of social collateral can be a critical determinant of the opportunities and vulnerabilities to which an individual or a household is exposed. Social grouping also matters for issues like access to schooling, and collective action, e.g., to secure community access to services.

Education in the 1990s

30. The poverty analysis above provides some indication of the nature and extent of poverty in Pakistan, not just as a measure of consumption, but also as an index of human development. Educational attainment is among the most valuable benefits of such development because it is an important determinant of whether someone living in poverty is likely to improve their circumstances.

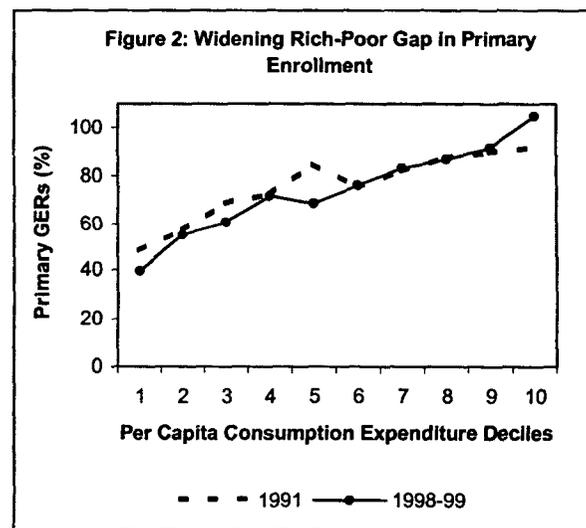
31. Among the most salient educational trends in Pakistan during the 1990s is the fact that while the primary gross enrollment rate (GER) improved until the middle of the decade, it then stagnated. A GER of 69 percent around 1998-99 was well short of the target of 88 percent by 1997-98 set by the country's ambitious Social Action Program – and lowest among countries in the region. Throughout

² Chapter One provides some evidence on how Pakistan ranks poorly on certain indices of government effectiveness and rule of law, compared to other countries with similar levels of income – factors that are likely to have the most significant impact on the poorer sections of the population.

the decade, enrollment showed significant rural-urban differences, and while Pakistan's large gender gap closed slightly, this was in part due to some declines in male enrollments. In addition, throughout the period there were widening differences between relatively wealthier and poorer households, though a noteworthy expansion of private schooling in the Pakistan has taken place across all income levels.

32. The primary net enrollment rate (NER) – a better measure for educational attainment – tells an even starker story.³ Primary NER for the entire country was 51 percent in 1998-99, which included a large rural-urban gap (67 percent to 45 percent) and a sizeable male-female gap (57 percent to 44 percent). Primary NER for girls in rural areas is as low as 36 percent. The gender gap persists across the rural regions of all four main provinces, with rural Sindh and Balochistan having particularly low female enrollments.

33. Educational attainment is closely related to poverty. As Figure 2 shows, improvements in enrollment during the decade occurred primarily among those who were relatively well off, and large gaps in literacy and enrollment rates, as well as in other indicators of educational attainment like dropout rates, divide the poor and the non-poor. Another important educational trend in Pakistan is an observed increase in the share of the private sector in schooling over the years, to the extent that it is clearly no longer an elite phenomenon. Private share in primary enrollment (*excluding* enrollment in religious schools or *madrassas*) increased across all deciles, from 14 percent to 23 percent between 1991 and 1998-99, and in secondary enrollment from 8 percent to 17 percent.



34. As discussed further, this trend is significant because there is a strong indication that private schooling may not only be a financially viable way to extend access to schooling but is also particularly successful in increasing female enrollment. There are however outstanding issues of quality measurement that need to be addressed if this is to be an efficient option.

35. The fact that the spread of education has been slow and marked by wide disparities over the 1990s is particularly debilitating. Education impacts earnings, particularly in the non-agricultural sector and in the urban economy. Beyond individual benefits however, investments in education also yield large household externalities: parents' education, and notably, mother's literacy and education are associated with lower infant mortality rate, higher enrollment rates of children, and smaller gender differences in enrollment of children. Education externalities also impact earnings; education of household members is found to have a significant positive impact on labor earnings, especially for those employed in the non-agricultural sector. The presence of these externalities carries a powerful policy implication – namely, the importance of the *spread* of literacy and education among the population.

³ The net enrollment rate measures the proportion of children of the relevant age group (primary/secondary, etc.) who are enrolled in school at a level that is correct for their age – a definition that takes into account grade repetition or late entry.

Determinants of School Attendance

36. Both supply and demand factors are important in determining school attendance. On the supply side, a multivariate analysis of school participation establishes that access to school facilities is critical; the probability of a girl attending school is increased by 15 percent by the presence of an appropriate primary school within 1 km. of the village.

37. However, evidence also shows that merely providing school facilities is clearly not sufficient to increase enrollment. First, because the quality of available schooling is also a crucial determinant of school participation, and second, because demand side considerations - which are in turn influenced by issues of quality and access - are also important.

38. It is clear first, that the mere existence of a school does not imply that it offers quality education, or even that it meets the minimum standards of a functional school. In fact, results from the PRHS facilities survey demonstrate wide spread quality problems, ranging from teacher absenteeism to lack of amenities. For instance, no classes were being held in 34 out of the 200 schools surveyed, 48 percent of the remaining lacked drinking water, and 77 percent lacked adequate supply of textbooks. Not surprisingly, such conditions impact school enrollments. Among girls of primary school age in communities with schools with adequate amenities, the net enrollment rate is 42 percent, in comparison to 32 percent in communities where the local girl's school lacks amenities.

39. Second, a multivariate analysis of school participation confirms the importance of such demand factors as economic status in determining the probability of a child attending school: it increases significantly if he/she belongs to a higher expenditure group. Parents' education is also important: having a mother who attended school makes it 23 percent more likely for the child to attend school. Evidence also suggests that household social attitudes may have a role in determining school attendance, particularly for girls. Responses of households in the PIHS (1998-99) point up that parental disapproval is more frequently cited as a reason for girls never attending or leaving school than it is for boys, by a margin of 39 percent and 18 percent vs. 6 percent and 4 percent in rural and urban areas respectively.

40. That social attitudes play an important part is also indicated by evidence that gender gaps in school enrollment are, to a large measure, prevalent among poor and well-off households alike. While net primary enrollment rate among the poor and the non-poor are 37 and 59 percent respectively, a gender gap of 13 percentage points exists for both groups. Further, controlling for a host of factors - including household economic status, parents' education, availability of schools, household demographics and community infrastructure characteristics - a girl child in *rural* areas of the country between ages 6 and 14 is found to be 24 percent less likely to be enrolled in school than a boy child.

41. It is of course important to note that demand side responses, including factors like parental disapproval, are not independent of supply factors: parents may well have little incentive to send their children to non-functioning schools, or send their girl child to distant schools. However, the interplay of both supply and demand side factors only emphasizes the importance of crafting comprehensive educational policies in Pakistan, focusing on institutional reforms to expand availability and to improve quality of education facilities, as well as providing appropriate demand side incentives to households to send their children to school.

42. In the context of further education reform, the shift to private schools deserves close scrutiny. It presents opportunities for alleviating pressure on the public school system, and improving enrollment indicators, in particular for girls. If the chief advantage of private schooling - greater choice and

competition – is to be realized, households need further assistance in ascertaining the quality of schooling, possibly through national testing standards.

Health in the 1990s

43. While various health indicators in Pakistan (computed from PIHS of 1998-99) have shown improvements since the beginning of the decade, important challenges remain. For instance, even after steady improvement through the decade, infant mortality per thousand live births in Pakistan is 83, compared to 70 for India and 61 in Bangladesh. Overall, health indicators for Pakistan also tend to be lower in rural areas than in urban areas, and for the poor relative to those better off. They also tend to improve with women's education and where relevant, with access to safe water and sanitation. There is evidence of chronic malnutrition among a number of sampled villages, which has remained unabated for 15 years.

44. *Infant mortality* (per 1000 live births): mortality rate among infants (of age 1 or less) of 83 in 1998-99 compares favorably with 127 in 1991, which represents a considerable achievement for the country. There remain outstanding challenges in the form of the need to close large gaps – between rural and urban areas on the one hand, and between infants born of women with some education, and those born of women with no education on the other. Infant mortality rates are also significantly lower for households with access to proper sanitation facilities. *Incidence of diarrhea* among children of age 5 and under (in 30 days preceding the survey), considered an important indicator of child health and a common cause for mortality, also exhibits improvement, having fallen from 25 percent in 1991 to 12 percent in 1998-99. Large gaps exist for this indicator also, particularly between rural and urban areas.

45. While the incidence of awareness about contraception methods among married women of childbearing age has increased sharply from 1991 to 1998-99 (38 percent to 92 percent), the increase in actual use of contraception (10 percent to 20 percent) has not been proportional to the expansion in knowledge. As expected, there are wide differences in use of contraception between rural and urban areas, economic status and the woman's education. Also, incidence of pre-natal medical consultation among married women (of age 15-49) is found to be low in general (31 percent). There are very large differences between rural and urban regions, and within regions among various expenditure groups, as well as women of differing literacy levels. Similar patterns are observed for other indicators, like proportion of deliveries unassisted by trained personnel, and incidence of post-natal consultation.

46. A particularly worrying health issue, as identified by the PRHS survey, is the prevalence of chronic child malnutrition in rural areas. 2001 data shows that, by the time a child reaches age 5, he/she has a 62 percent probability of being stunted, 45 percent probably of being underweight, and 12 percent likelihood of being wasted. There are also significant regional variations in child nutritional status, with districts in rural Sindh and Balochistan faring the worst. Compared with data from the IFPRI studies, the 2001 findings show that incidence of child malnutrition has remained virtually unchanged over 15 years in the four rural districts included in the IFPRI survey. Such evidence of persistent child malnutrition is significant because numerous studies conducted in other developing countries strongly indicate that poor childhood nutrition impacts the productive life of the adult, and that interventions later in their adolescence are ineffective remedies.

What Determines Health Outcomes?

47. While various household characteristics like education, social attitudes, cultural mores and access to information play a role in determining health outcomes, availability and quality of facilities appear to be most important. According to household data, a whole range of health indicators, from infant

and child mortality rates to indicators of female health are found to be better for villages with a hospital, dispensary or clinic, or for that matter, any health facility or health worker. 31 percent of the rural population lives in villages that do not have such access.

48. In addition, an important finding of regression analysis based on PRHS data is that community wealth, not household characteristics, is likely to be most important to a child's health – as determined by height and weight. In light of household data findings, it is a reasonable conjecture that this may be in large part because wealthier communities command better facilities. Regardless of what specific factors explain inter-community differences in anthropometric outcomes, the very impact of these differences suggest that health policies should target relevant health care interventions, including preventive care initiatives, to poorer communities.

49. Moreover, just like in education, quality of health facilities is a critical factor. Evidence from other sources indicates serious questions about the quality of service provided by public facilities, especially in rural facilities like the Rural Health Centers and Basic Health Units. Patterns of outpatient visits and personnel records, used as rough and preliminary estimations of quality, indicate that the health facilities differ considerably in terms of usage across communities. Secondary sources indicate that a dearth of qualified doctors in rural areas remains a serious issue and there are serious questions about public facilities where rampant absenteeism of medical personnel and severe shortages of equipment and medicines are reported. In light of this evidence, expanding the availability of health facilities must be accompanied by measures to improve quality of service.

Governance, Patronage and the Political Economy of Service Delivery

50. As seen above, in education and health alike, under-provision of public facilities, along with poor quality of existing facilities, are important factors constraining human development. As argued in this chapter, this is largely attributable to two factors. The first of these are skewed incentives set by the non-formal parameters of political competition in rural areas, which reduce the willingness of elected politicians to provide quality universal public goods. Second, there is also evidence of social resistance that appears to reduce demand for certain services by some constituencies, in particular education for girls.

51. At the core of the first problem is the observation that elected officials have more incentives to provide targeted benefits to specific individuals or groups rather than public goods to a wider and more anonymous set of beneficiaries, of which universal public education is an example. These incentives are partly explained by the characteristics of rural politics. Rural politicians can easily identify their supporters and target them with benefits because the distance between communities in rural areas makes it easy to do. Also, since rural areas are dominated by voting blocs, patronage is often a more effective political strategy than the provision of well functioning public services. Thus educational inputs flow in a manner more consistent with a patronage model: schools are built for the jobs and profit opportunities that construction provides; teacher postings are based less on merit and more on how best to provide jobs to supporters. There are, in contrast, few incentives to increase access or to promote accountability of service providers for the quality of education.

52. A second issue, which compounds the above problem, is that the use of certain social services may not be a high priority for many Pakistani households. As indicated previously, this appears to be the case particularly for the education of girls. From the point of view of elected officials there may therefore be little political incentive to enhance access to this service. This also has implications for institutional reforms such as devolution, as discussed below.

Pakistan's Devolution Reforms: Significance for Service Delivery

53. Improving the accountability and incentive mechanisms of public service delivery is one of the primary objectives of the comprehensive plan of devolution being implemented in Pakistan. The plan aims to reform what is considered to be an over-centralized government, in order to improve decision-making, accountability and service delivery. It envisages creating full-fledged district governments with legislative and financial powers, serving below the federal and provincial levels. Yet this devolution effort can be expected to succeed only to the extent that it solves fundamental governance problems that have bedeviled earlier efforts to improve service delivery. In particular, it will succeed if local government officials exhibit a greater interest in improving the provision of public goods than in targeting private goods; and if they are better placed to improve parental incentives to educate girls. A thorough analysis of the impact of devolution on service delivery and incentives of administrators and parents awaits further evaluation.

54. To date, there is reason for being somewhat optimistic about devolution boosting official interest in improving the provision of public goods. However, it is less clear if they will be better placed to improve parental incentives. The optimism stems from the possibility that the institutional changes introduced by devolution are likely to reduce incentives for patronage. A second reason for optimism is that with devolution, there are potentially more checks operating on officials who try to provide patronage. To this end, it may provide a positive change to the incentives of government decision makers regarding delivery of public goods. However, a necessary pre-condition for such optimism is that elections at the local level be competitive.

55. Pessimism about devolution stems from the unlikelihood that it can solve problems of social resistance to girls' education. Experiences in other countries suggest that when incentives of local governments are few, or even perverse, due to local opposition to reform, the involvement of higher-level governments becomes necessary. Such interventions can take different shapes: outright subsidies to households to send their daughters to school would be one example; another would be cross-sectoral incentives to districts, perhaps in the form of provision of goods (such as infrastructure) that are heavily demanded. There may also be a need for central government monitoring to ensure that informal incentives and greater local powers do not subvert the new formal rules of political competition. Notably, of course, the ability of the central government to safeguard the integrity of the devolution process will depend on the extent to which the government itself is effective and exercises good governance. In order to evaluate the kind of incentives that local governments are in fact subject to, and the kind of higher-level interventions that may accordingly be necessary, further information and more detailed analysis is necessary.

56. In addition to resistance to girl's schooling, there are other social obstacles to service delivery that are exacerbated by local governance failures, and which may therefore in some cases require intervention from federal authorities. For example, the qualitative study undertaken for this report finds that interaction of caste relationships and public services can produce a range of outcomes, with very different policy implications. While in some cases, properly functioning public facilities tend to eradicate caste-based differentials, in other areas there is evidence that existing social hierarchies compromise the very functioning of these public services. In these areas, true *public* access to these services is likely to become possible only through political empowerment of marginalized groups, possibly aided by supra-local initiatives.

The Rural Nexus: Productivity and Poverty

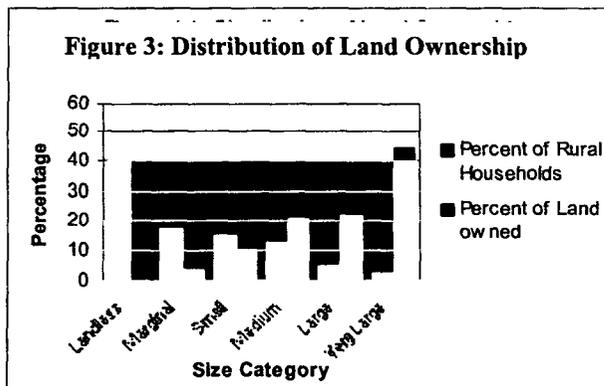
57. Since two-thirds of the poor reside in rural areas and their poverty is both deeper and more severe than urban poverty, any poverty reduction strategy must focus on the rural economy and its specific

problems. Although rural households earn their livelihoods from a number of sources, most are linked directly or indirectly to agriculture, including the bulk of non-farm activity. Agriculture also contributes a quarter of the country's GDP, employs almost half of the labor force, and has a significant impact on the country's balance of payments. Given this, it is of particular concern that growth in agriculture has not alleviated rural poverty in recent years. While macroeconomic sectoral data shows that value-added in the agricultural sector grew about 4.2 percent per year over the 90s, outpacing the population growth rate of 2.5 percent, rural poverty of about 36 percent in 1998-99 was unchanged from that in 1990-91. Moreover, there was almost no consumption growth for all expenditure groups of the rural population during this decade, which translates to little change in consumption inequality over the decade. In contrast, a very similar growth rate of agriculture in the 1980s did lead to a substantial decline in rural poverty.

58. On the face of it, this points to a rural puzzle for the 1990s – a disconnect between agricultural growth and trends in rural consumption and poverty. As noted earlier, part of the explanation seems to lie in the volatility of growth during the decade, which made it difficult for many households to benefit from growth. A rigorous and comprehensive analysis of the remainder of the growth-poverty nexus was unfortunately not possible using the data available to this report, though it is being undertaken in the context of ongoing Bank work. However, the report does address a central facet of this apparently weak link between agricultural growth and rural poverty reduction, which is the fact that agricultural productivity is, in an absolute sense, low in Pakistan, with considerable scope for improvement. This report therefore surveys the constraints to farm productivity, i.e., the limitations on access to productive resources; principally, land, irrigation, soil fertility, and credit.

59. A major theme of its findings is the role played by unequal asset ownership in undermining agricultural productivity – particularly unequal ownership of land. Figure 3 shows that distribution of land is highly skewed in rural Pakistan (using the Pakistan Rural Household Survey (PRHS) 2001 sample). This has a substantial negative impact on agricultural productivity, and also has indirect effects on the agricultural resource base. There is accordingly considerably scope to for policy interventions aimed at both decreasing poverty and increasing agricultural productivity.

60. The analysis identifies a number of mechanisms through which asset inequality and low productivity are linked. A recurrent theme is that inequality in asset ownership, particularly land, may be far more than a distributional concern; it may affect productivity. There are direct effects of land inequality on productivity resulting from frictions in the land purchase and leasing markets. Because of these problems, inequality in household land ownership translates (though far less than acre-for-acre) into inequality in operated area per household. Since evidence presented in Chapter 4 suggests that households with larger operated area have lower yields, land inequality leads directly to lower productivity.



Note: Marginal ≤ 2 acres of land, small >2 and ≤ 5 , medium >5 and ≤ 15 , large >15 and ≤ 40 and very large >40 acres.

61. There are also more indirect effects of land inequality on productivity, some of which receive empirical support from the PRHS. For example, corruption on Pakistan's public canal irrigation system is widely viewed as a constraint on agricultural productivity. Large landowners often engage

in wasteful rent-seeking behavior, using their influence with irrigation officials to manipulate the water distribution in their favor.

62. Land inequality can also lower incentives to invest in land. The skewed distribution of land leads to tenancy, mostly on share basis, which provides lower incentives for investment in soil fertility than under owner-cultivation. Soil degradation, due to waterlogging and salinity, is significant in rural Pakistan, particularly in Sindh province and in southern Punjab. As a consequence of pervasive land tenancy, available medium and longer-term measures to combat soil salinity are rarely undertaken, resulting in loss of cultivated area and low yields.

63. Last, due to collateral requirements, land-poor households are mostly excluded from the formal credit market, which can finance precisely the long-term productive investments in land and agricultural machinery that can raise them out of poverty. As a result, unequal land ownership may lead to entrenched rural poverty.

64. In terms of mitigating the impact of unequal land ownership, an important observation is the strong dependence of the landless on non-agricultural sources for income, which implies that the non-farm sector is an important avenue for poverty reduction efforts.

65. As discussed, while much of this evidence on rural productivity and poverty is of a preliminary nature and should therefore be viewed at least partly as merely laying out a roadmap for future analytical work on rural Pakistan, it does furnish some useful observations, with policy implications that are further discussed below.

Policies and Priorities for Poverty Reduction

66. The analysis in this report highlights three critical areas of intervention that should be a focus of poverty reduction strategies for Pakistan. The crosscutting theme of *social protection* is vital in order to mitigate the vulnerability, which affects a large share of households in rural and urban areas alike. This is in turn closely linked to Pakistan's persistent and on many fronts widening social gap, particularly in education and health. Hence the importance of strategies to improve *human development* indicators. Given the disproportionate weight and depth of rural poverty, there is also the need for a *well-coordinated rural strategy*.

67. Broadly, the ensuing recommendations emphasize common themes: improving access to markets for credit that mitigate vulnerability; removing institutional obstacles to service delivery – particularly topical in the context of Pakistan's recent political devolution reforms; improving access to land and other assets in the context of rural poverty, and furthering better coordination among mutually reinforcing policies. The importance of improving the monitoring of program outcomes is also noted. These objectives are broadly consistent with the Interim Poverty Reduction Strategy Paper drawn up the Government of Pakistan.

68. In addition to the critical areas of focus covered by this report and Pakistan's I-PRSP, it will also be necessary to formulate policies that address the specific nature of urban poverty, and to collect additional information and research to support this work. For lack of such information, this chapter covers this issue mainly in the cross-sectoral context of social protection strategies to manage risk. Yet it is clearly informed by underlying dynamics requiring more attention.

Social Protection: Managing Risk and Reducing Vulnerability

69. Risk mitigation can aim to provide mechanisms that insure against inevitable shocks, for instance by addressing market failures in financial markets by improving access to credit. Microfinance institutions are one prominent example of such a tactic, as discussed further. But many risks are difficult to eliminate entirely. Therefore, there is a need for mechanisms that enable the poor to cope with the impact of a shock *after* it has occurred, through programs like social assistance, public works and cash transfers. Given the government's institutional and financial constraints, the social protection strategy for the immediate future has to involve existing programs like public works, targeted assistance, and programs that involve the use of informal community-based institutions. Their performance to date and outstanding challenges are noted here.

70. The principal formal social protection program in Pakistan is the publicly administered Zakat cash transfer system. However, the impact of Zakat funds on poverty and vulnerability has been limited, mainly because of the small amount of aggregate transfers. Zakat collections as a proportion of GDP amounted to only 0.2 percent by 1992-93, implying that even if all the benefits had gone to the lowest quintile of households, the income of this group would have been augmented by 2 percent. During 2000-01, about 2.5 million beneficiaries received assistance from Zakat, which may be large in absolute numbers but is a small proportion of the estimated 40-50 million of poor or vulnerable people in Pakistan. To compound the problem, there is evidence of poor targeting, due to problems in identification of eligible beneficiaries, partly because of patronage at the local level. The system of collection and disbursement of Zakat has been recently reorganized to improve its efficacy by strengthening the institutional framework for implementation and monitoring of the program and by raising the amount of grants to beneficiaries. The government expects that an additional 1.5 million beneficiaries will be added to the current list of around 2.5 million Zakat recipients. The revitalized Zakat system will also provide funds to beneficiaries not only to fulfill basic needs but also to rehabilitate the recipients, by assisting in small-scale commerce or other means of suitable livelihood.

71. Public works programs in Pakistan in the past inadequately smoothed consumption in periods of high unemployment, in part due to their capture by patronage politics. Examples of such programs are the Rural Works Program (1962-72) and the Peoples Works Programs (1972-83). In this context it is encouraging that the government's recent Khushal Pakistan Program (KPP) incorporates active community participation in program selection. Funds are allocated under the Program to the districts through provincial governments. Total budget allocation to the KPP was Rs.5.2 billion in 2000-01 and about Rs.7 billion in 2001-02. The schemes under the Program are identified and selected at the district level through active community participation, and the projects are managed and implemented in partnership with the communities.

72. Improvements can be made now even though systematic evaluation of the Khushal Pakistan Program will be possible only after the program has been in operation for some time. Some crucial aspects need to be considered in the design and implementation of the Program in order for it to attain its social protection objectives. Critical challenges include ensuring targeting efficiency, maximizing employment and stabilization (income smoothing) benefits, and creating community infrastructure beneficial to the poor. Experiences in other countries have shown that delivery of benefits, as well as cost-effectiveness, can be enhanced by effective organization at the local level. Since the ongoing devolution program in the country can help strengthen local governments and build capacity, the success of the Khushal Pakistan Program will be linked to that of the broad devolution exercise.

73. Microfinance offers considerable promise. However, at present, the microfinance programs that exist in Pakistan are unable to cover a vast majority of the poor. Evidence suggests that it would be beneficial to expand coverage, deepen alliances with formal market institutions such as banks, and

regularize public support for some programs. The main impetus to microfinance has so far come from the NGOs, primarily the rural support programs. In view of the heightened demand for microcredit in poor communities, the Government and donors have realized the need for ensuring the supply of sufficient funds on a sustainable and institutionalized basis. To channel the funds, two major on-lending institutions have been set up and distanced from the Governmental bureaucracy through the involvement of the NGOs and the private sector. While the Pakistan Poverty Alleviation Fund (PPAF) has adopted the method of wholesaling credit through selected NGOs, the Khushali Bank initiative has incorporated retailing credit to the individual borrower through a newly created microcredit bank with the cooperation of nationalized commercial banks and local organizations.

74. For the long-term sustainability of microcredit, as well as to create conditions conducive to scaling up these programs, links between such institutions and formal markets must be strengthened. In keeping with this objective, the State Bank of Pakistan (SBP) has envisaged licensing of three categories of microcredit institutions at national, provincial and district levels as public or private limited companies. This will enable them to raise capital and generally exploit opportunities in the formal sector. Given that SBP surveillance of these institutions needs to be flexible due to their operational needs, it will be necessary to develop a regulatory framework suitable for them. Moreover, in order to eliminate inefficiency and reduce the costs of delivery of borrowed funds, there may also be a need to foster competition in the microfinance market. Integrated public policies can support such efforts by providing technical and financial support in the start-up phase, and in the long term, by creating an enabling legal and regulatory framework for such institutions.

75. There is also clearly a need to broaden forms of social protection specific to urban areas. One of the more neglected, yet important, correlates of urban poverty and vulnerability is the lack of secure and adequate housing. 40 percent to 60 percent of the urban population lives in katchi abadis or non-regularized subdivisions on agricultural land. Since they lack a clear title to land, they cannot access formal long-term credit for housing, e.g., from the House Building Finance Corporation (HBFC). Government housing programs have been relatively unsuccessful in tackling this problem, due to a variety of reasons, including lack of trust of government on the part of the beneficiary, lack of community participation, and lack of capacity and capability in the implementing agencies. In addition, there are no avenues for credit available to low-income groups and the poor for housing. However, innovative non-governmental initiatives like the Orangi Pilot Project (OPP) and carefully designed government programs like the Sindh Katchi Abadi Authority have been more successful. A key reason is that they have relied on communities' involvement in finding solutions to housing problems, accessing the services of the line departments, and networking with the technical experts. Notably, since PIHS data does not cover the urban informal sector and slum settlements where most of urban poverty exists, obtaining such data should be a priority for the future.

Focus on Human Development: Education and Health

76. In order to improve the status of human development in Pakistan, it will be imperative to increase the availability of facilities, along with correcting the institutional failures that have hampered quality of service delivery in the past. While finances are a constraint, the mere availability of funds will not ensure significant improvements, as seen from the experience of the Social Action Program (SAP) in the recent past. SAP was launched in 1992/93, with the aid of donor financing and technical assistance, with the objective of social development in four target areas – elementary education, basic health care, family planning, and rural water supply and sanitation. The program has had some successes: improvements have occurred in health indicators, access to related infrastructure, immunization, and availability of Lady Health Workers. However, the gains have been marginal and especially so in education that has been the major area of focus. The program appears to have succeeded more in terms of enhanced funding and more physical facilities, rather than in ensuring

delivery of quality services by creating accountability. Consequently, the impact on enrollments and other measures of school attainment have been limited, as evident from the trends described before.

77. One reason for these disappointing outcomes is the politicization of the distribution of benefits under SAP. Not only was there tampering with the agenda of implementation, but the mechanisms through which SAP was to be implemented provided powerful vehicles for patronage, to the detriment of community participation and often in direct conflict with the planned goals. Future reform efforts must directly address the incentives for distorted implementation that hampered implementation of SAP.

78. Ongoing reforms in Pakistan have sought to address some of the critical constraints in education service delivery, by focusing on the core institutional factors that have limited the success of efforts like SAP. The government's Education Sector Reform strategy emphasizes national assessments and training, specifically aimed to close the "achievement" gaps that arise out of poor standards and lack of qualified teachers. The aforementioned devolution plan, on the other hand, is in large part expected to address accountability issues in service delivery, including education and health. As discussed above, the institutional changes introduced by devolution could increase the incentives of local government to improve service delivery, weakening the systems of patronage that have often dominated in the past. Yet it is clear from both domestic and international experience that devolution is no panacea. More information is needed, and it is clear that the impact on education and health will only become apparent over a long time horizon.

79. The optimism about devolution must also be tempered by the realization that local level decision-making may not always be enough. As discussed above, this is especially true with regard to demand-side problems like parental resistance to child education and in particular to girls' education. Interventions may likely require significant resources and involvement of higher-level governments, perhaps through instruments like outright subsidies to households. Experience in Nepal and Bangladesh shows that girls' enrollment can be improved by paying families to send their daughters to school. In Pakistan, this approach is being tested in isolated World Food Program initiatives in Balochistan and NWFP and now in the Government of Sindh's education sector reform program.

80. The increased role of private schools in Pakistan, though yet insufficiently studied, may offer opportunities for public-private partnerships, especially in urban areas where private schools are relatively prevalent. While private schools are naturally more likely to attract the relatively well off because of cost considerations, in selected areas there may be a role for providing public subsidies – either in the form of vouchers to parents for the education of children at selected private schools or as direct subsidies to private schools – that encourage school enrollment of poor children. One example is the Quetta Urban Fellowship Program, where private schools controlled by the community in poor urban neighborhoods were encouraged to establish new facilities for girls through subsidies paid directly to the schools. The program had a positive impact on female enrollment, increasing girls' enrollment in the target neighborhoods by around 33 percent. In a wider sense however, it should be noted that the efficiency of private schooling is highly dependent on the ability of households to observe the quality of services offered. While existing evidence on this is mildly optimistic, if yet inadequate, there is clearly a need for the implementation of universal school standards and tests concomitant to any publicly assisted expansion of private schooling.

81. The success of private schools also provides lessons for public policy. Among others, their experience shows that contrary to prevailing public wisdom, it may be *more important* to have a school close by than to have a single-sex institution, since households feel more uncomfortable about sending their girls to single-sex institutions that are far away than to co-educational schools that are close to the village. Second, private schools emphasize the importance of recruiting women teachers.

More than 50 percent of all teachers in the private educational sector are women, which has had an impressive impact on the enrollment of girls. Increasing the percentage of female teachers in a school from 0 to 100 increases female enrollment from 22 percent to 52 percent. Notably, initiatives drawing on these lessons have already been shown to work in Balochistan, and corroborating evidence at the national level provides considerable further grounds for optimism.

82. Private-public sector partnerships can also be advanced in health, as recognized partly by the government's Health Policy. However, expanding the scope of such partnerships is contingent on improving information about the functioning of private health facilities in Pakistan, a topic on which no national data is currently available. Indeed, more generally, the crafting of a comprehensive health strategy for Pakistan needs to be informed by adequate health data, which is currently lacking. For instance, a priority for the government should be the development of a disease monitoring and information gathering system that would regularly gather information on relevant health indicators and impose rigorous standards of record maintenance in health facilities.

83. In regards to specific priorities for health policy in Pakistan, it is important to note the need for improvements in preventive health care and for increased targeting of poor communities. According to PIHS (1996-97), only about half of the children in the country were immunized in 1996-97, including only about 40 percent of children belonging to households in the lowest income quintile. In view of such shortcomings, the government's medium term health strategy is rightly focused towards raising public sector health expenditures, concentrating on prevention and control programs, especially in the area of reproductive health, child health, nutrient deficiencies and communicable and infectious diseases. Programs include adoption of strategies against TB and malaria, measures for preventing the spread of Hepatitis B, HIV, and AIDS through immunization and public health campaigns. It also promotes targeted interventions that focus on disadvantaged sections of society, especially in rural areas, through programs like Lady Health Workers Program and Women Health Project.

84. A community based focus for health policy is also in line with the observation made in Chapter 3, that community-specific characteristics, such as wealth and possibly the presence of quality health facilities, strongly determine health outcomes among Pakistani children. This is particularly the case for the noted chronic deficiencies in child anthropometrics, e.g., height and weight in rural communities – a symptom indicative of malnutrition and other health problems. There is accordingly a clear need to target health interventions at poorer communities.

Coordinated Rural Strategy

85. As seen above, improving productivity and reducing poverty and vulnerability in the rural region will require strong improvements in access to land, credit, and infrastructure – particularly water - as well as expansion of opportunities in the non farm sector. A reassessment of land reform efforts in Pakistan is clearly needed, with previous reforms having been largely unsuccessful and indeed hurting many marginal farmers. Notably, tenancy still persists in about 70 percent of cropped area in Sindh, which is characterized by strong feudal power. In light of the failure of formal banking institutions in rural finance, improving access to credit will require both encouragement and evaluation of the variety of NGO and micro credit institutions, modeled on the Agha Khan Rural Support Project (AKRSP), that have come up in Pakistan in recent years. While their lending model addresses fundamental market failures in credit markets, there are outstanding questions about their long-term solvency and impact.

86. In regards to the extension of water provision and irrigation, the government's water sector program has recently focused on creating additional storage capacity through dams, canals and lining

of watercourses. The long run benefits of this appear likely to run into diminishing returns without fundamental institutional reforms in water management such as those the Government has designed into its National Drainage Program, which has yet to be adopted beyond pilot areas. The present pricing and delivery of canal water encourages rent seeking and wastage. Inequities in access to canal irrigation, for this and other reasons, are reinforced by land inequality. Larger land owners are often able to skew local water allocations in their favor, while the poor, paying both regular water charges and bribes, suffer lower productivity due to uncertain and low water supplies.

87. Overall, it is therefore clear that strong inter-linkages exist among the main issues shaping the rural economy, and that these must be considered when designing policy. These policies should seek to rationalize public delivery systems, in addition to increasing public investments in the management of land and water resources, and to create an environment which encourages private on-farm investment and the rational and equitable use of rural resources, involving substantial community organization and participation. Such policies should also be accompanied by efforts to improve access to land in particular, as well as to other assets. For instance, merely improving access to land is unlikely to have the intended results without improving access to inputs and credit.

88. In summation, there is need for broad-based and coordinated policy reforms, which seek to address critical areas. *First*, it will be of critical importance to create assets for the poor, given the negative impact of highly unequal distribution of land and other key assets on investment and productivity. Any concomitant interventions need to address the reasons why previous attempts at land reform have not succeeded in affecting redistribution, or ensuring security of tenure, and did in fact entail adverse consequences for the rural poor. *Second*, given the severe restrictions on institutional credit, improving access to credit is another critical area for public intervention – a difficult challenge in an environment where asset inequality is severe. One approach that many countries have adopted, and that Pakistan is moving towards, is microcredit. While this represents an enormous opportunity, there is a need to examine carefully the strengths and constraints of micro-finance institutions (MFIs). A *third* priority area for public policy should be improving opportunities in the labor-intensive non-farm sector. A *fourth* challenge would be to improve public expenditure and management of agricultural infrastructure and resources, particularly water resources. In this context, there is a need to rationalize expenditure administration – providing incentives that induce private investment in water and land management. These can be done in a framework of a community driven development process that encourages decentralized decision-making and structures of responsibility.

Conclusion

89. This report is part of an ongoing project to understand poverty, growth and human development in Pakistan. It argues that if the country does not close its social gap, its long-term ability to grow economically, alleviate poverty and sustain its debt will be fundamentally compromised.

90. Spanning social, economic and fiscal difficulties, the country's current predicament is not rooted in a discrete set of policies amenable to rapid rectification, but in structural factors linked very often to issues of governance. It is within this context of a broader failure of policy and implementation that one should understand Pakistan's inability to take sufficient advantage of the growth that it has enjoyed in the past, to attract investment, build enough infrastructure, or to promote adequate advances in social indicators. Over the past decade, stagnating poverty and a persistent, even widening, social gap are direct legacies of these failures.

91. As this report strongly suggests, issues of governance, for instance in the form of the lack of accountability, are at the heart of many of the difficulties encountered in mitigating poverty and

broadening access to social services in Pakistan. Neither debt reform nor the mere availability of donor funds is likely to dispel these problems. The strategies and tactics outlined by this report take this into account, emphasizing the need to consider and implement concomitant policies in a comprehensive, mutually reinforcing manner. The Pakistani government's ongoing governance reforms are perhaps the strongest indication of its commitment to this process. The World Bank hopes to continue lending its support and looks forward to sharing and discussing its findings and recommendations with other stakeholders in Pakistan's development.

1. Looking Beyond the Deficit: Social Gaps and Sustainable Development in Pakistan

1.1 Pakistan's fiscal deficit is the subject of much concern. Servicing the country's public debt absorbs a disproportionate share of public resources, renders it vulnerable to debt traps, and dampens economic growth. Yet as argued in this report, in terms of its impact on development and poverty reduction, Pakistan's fiscal deficit is overshadowed by a wider, and in the longer run, much costlier gap - a social one.

1.2 Over the last few decades, economic growth in Pakistan has not produced commensurate social improvements. The country's social indicators are both below those of other developing countries with similar per capita incomes and have improved more slowly than those of countries with similar growth rates. The social gap is intimately linked to Pakistan's persistently high incidence of poverty over the 1990s - particularly in rural areas. Growing evidence also suggests that not only has economic growth not narrowed the social gap, but that the social gap itself is partly responsible for the slow-down in economic growth in the 1990s. The social gap is therefore a critical long-term constraint on sustainable development *and* poverty alleviation.

1.3 In October 1999, a major economic reform program was launched by the Government of Pakistan to address the macroeconomic and structural constraints that impede economic and social progress. In many respects the content of this reform program recognized this social gap and introduced mechanisms to reduce it. Over the last three years, such reforms have brought about macroeconomic stability accompanied by wide-ranging sectoral initiatives to spur economic growth. Even more important from the viewpoint of addressing the social gap is the devolution program which, when successfully implemented, holds promise for improved access to critical public services for the poor. In addition, the poverty reduction strategy prepared by the country highlights needed improvements in education, health and water sectors.

1.4 The analysis in this chapter identifies the macro economic and public expenditure policies over the previous decade that impinged on the social sectors. It highlights the critical challenges that the ongoing reform program will need to incorporate to reverse the trends particularly in poverty and human development. The chapter introduces and places in a cross-country context themes that are documented more fully in the remainder of the report. The main theme is that social services are significantly underprovided in Pakistan, whether one uses as a benchmark either countries with similar per capita incomes or countries with similar records of growth. As argued, the predominant explanation for this is that fiscal policies and practices pursued since 1980 (or earlier), have been characterized by a notably low social spending, on the one hand, and by poor implementation on the other.

1.5 An important argument of this chapter is that these patterns of misallocation and inefficiency in public spending are the result of skewed incentives confronting political decision makers, which have reduced their interest in supporting certain kinds of public programs and actions that would improve the welfare of all Pakistanis, including the poor. This includes neglect of improving universal access to and the quality of schooling and health. Moreover, these incentives have also impeded efforts to reform the governance environment, in order to address inefficiencies in the implementation of fiscal policies that appear to affect all public sector spending in Pakistan.

Poverty, Growth and the Social Gap

1.6 The social gap can be shown most starkly by looking at the extremes. Between 1950 and 1999, the country enjoyed annual average per capita income growth of 2.2 percent, tripling the average income of its citizens, which by 1999 exceeded that of a third of the world's other countries. From 1960 to 1998, the country was also the world's third largest recipient of official development assistance, lagging only India and Egypt. During this time it received \$58 billion in aid, including 22 IMF and World Bank adjustment loans, and considerable bilateral assistance from the United States and other countries.¹

1.7 Despite this, Pakistan's social indicators have failed to match its economic progress. Some have actually deteriorated over time. For instance, female primary school enrollment is 40.5 percent lower than in comparable countries. Social indicators in rural areas are also lagging. At 47 percent, for instance, poverty in the rural NWFP province is more than twice that of urban Sindh, at 19 percent.²

1.8 Lack of education and access to health and other public services are closely and causally related to material poverty. For example, at 43 percent, the illiterate, especially in rural areas, suffer a far higher poverty rate than the college-educated, at 6 percent. If one is to address poverty in Pakistan, it is therefore imperative to focus on bridging its social gap, bridging differences among rural areas and provinces, and men and women.

Income and the Social Gap

1.9 Lagging social performance cannot be completely explained either by the idea that as a poor country, Pakistan does not have the resources to do better, or that it has not grown fast enough to make up for its relatively poor initial social conditions. Table 1.1 shows the lag in health indicators in Pakistan compared to other countries at its income level. It has 36 percent lower births attended by trained personnel, 11 percent more babies born with low birth weight, 42 percent lower health spending per capita, 1.6 percent less of GDP spent on public health, 27 more infant deaths per thousand, 19 more child deaths per thousand, and a 23 percent lower share of population with access to sanitation.

1.10 As shown in Table 1.2, the country's relatively poor education performance disproportionately affects girls and women. Relative to what one would expect given the country's income per capita, it has 20 percent fewer children of elementary school age enrolled in primary school. This gap is entirely due to the disparities in the education of girls: 40 percent fewer girls of elementary school age attend primary school than in countries with comparable incomes. Similarly, the 14 percent shortfall in secondary enrollment is explained mainly by the 20 percent shortfall for females. Tertiary enrollment is also unusually low, although equally so for both males and females. There are nearly 5 more students per teacher in Pakistani schools, in part because public spending on education is 1.4 percent lower than expected. All of these figures are reflected in high rates of illiteracy, particularly for women: the share of the population that is illiterate is 24 percent higher than one would expect based on Pakistan's per capita income; the figure is 32 percent for women.

Table 1.1: Health indicators in Pakistan relative to comparable countries

Variable	% difference between actual indicator and indicator consistent with Pakistan's income per capita
births attended by trained personnel, 1998	36.54
percent low birth weight 1990s	11.63
log(health spending per capita PPP\$ 1990s)	-0.56
public health spending as percent of GDP 1996	-1.62
infant mortality 1998	27.43
under-5 mortality 1998	18.95
Hospital beds per 1000 people 1990s	-1.57
% of population with access to sanitation 1990s	-23.73
% of rural population w/ access	-25.07
% of urban population w/ access	-17.23

Table 1.2: Education indicators in Pakistan relative to comparable countries

Variable	% difference between actual indicator and indicator consistent with Pakistan's income per capita
gross primary enrollment 90s	20.84
Female enrollment	-40.50
male enrollment	-2.19
gross secondary enrollment 90s	-13.60
Female enrollment	-20.47
male enrollment	-9.03
illiteracy rate 90s	24.42
Female	32.18
male	16.29
Daily newspapers per 1000 people, 1995	-14.08
public spending on education as percent of GDP, 1990s	-1.37
pupil teacher ratio 1989-97	4.63

Note: The percentage is the coefficient on the Pakistan indicator variable in regressions of the health/education variable that also control for per capita incomes over the relative time period (*negative number means Pakistan's actual indicator is less than that predicted by its income*). The coefficients are all statistically significant at the 5% level.

Growth and the Social Gap

1.11 Countries that grew at a rate comparable to Pakistan over the past two decades also achieved greater improvements in social indicators, as figures 1.1 and 1.2 demonstrate. The charts indicate changes in infant mortality and the gap between female and male illiteracy in the relation to moderate growth in incomes of selected countries.³ Infant mortality in the control group declined by 73 percent from 1960 to 1998. In Pakistan, the same amount of growth resulted in a decline less favorable by 43 percent, as shown in Figure 1.1. Figure 1.2 shows that the difference between female and male illiteracy in Pakistan actually increased from 1970 as income per capita increased, while it declined sharply in the group of other countries.

Figure 1.1: Income and infant mortality in Pakistan and comparison sample, 1960-98

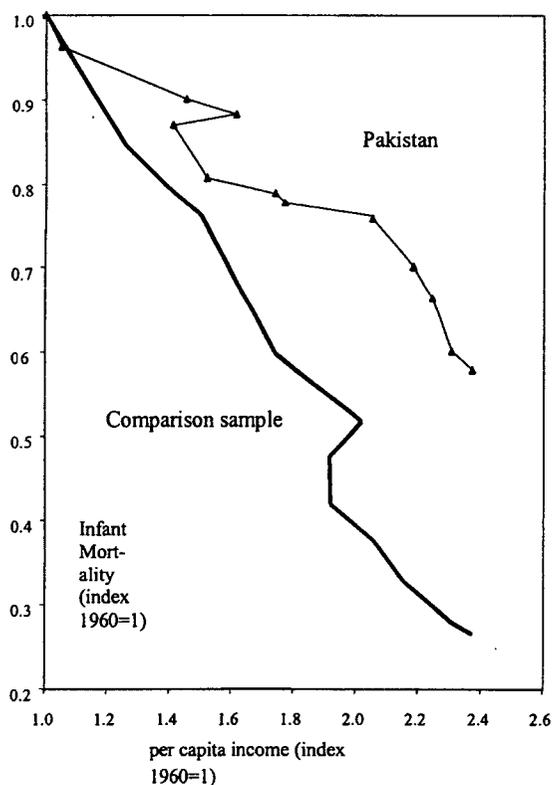
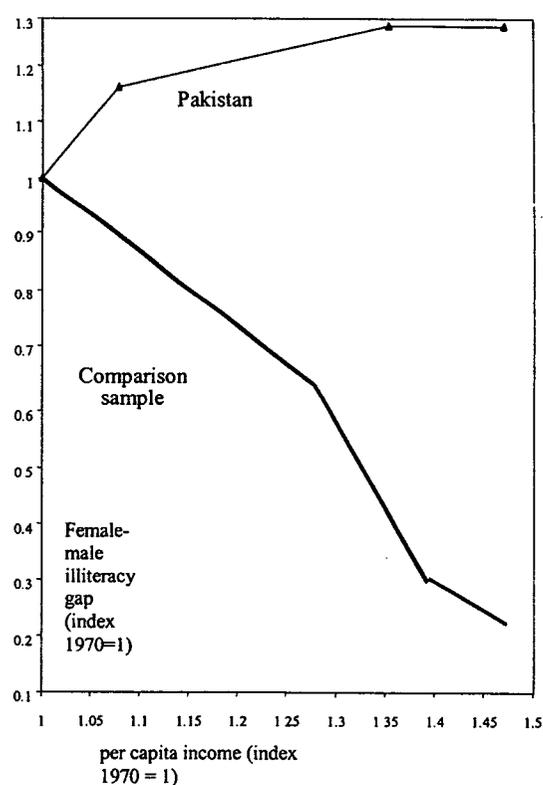


Figure 1.2: Income and female-male illiteracy gap in Pakistan and comparison sample, 1960-98



Regional Comparisons and the Social Gap

1.12 As Table 1.3 shows, Pakistan's record falls short of countries with similar incomes and growth patterns, including other countries in the region. School enrollment is less, adult illiteracy greater and the infant and child mortality rates higher than in Bangladesh, India and Sri Lanka. The earlier income comparisons are equally valid here. Bangladesh, a poorer country than Pakistan, exhibits social indicators that are in some cases substantially better (infant and child mortality) and in no cases significantly worse than Pakistan's.

Table 1.3: Regional Comparison of Select Human Development Indicators

	% of children (age 11-15) currently enrolled in school*		Adult Illiteracy (age 15+), 1999/2000**		Mortality rate per 1000 1998/99**	
	Male	Female	Male	Female	Infant	Under-5
Bangladesh	62	66	48	70	73	96
India	73	58	32	55	70	83
Pakistan	63	41	42	73	83	116
Sri Lanka			6	11	15	19

Note: All Pakistan figures are for 1998-99 (PIHS). Sources for other countries are as below:

* Bangladesh: 1995-96 (HIES); India: 1995-96 NSO 52nd round; ** World Development Indicators

Intra-Country Disparities and the Social Gap

1.13 The above tables and figures conceal significant disparities among regions and rural and urban areas, which are in many instances at least as stark as the differences in performance between Pakistan and other developing countries. For instance, Pakistan's social gap with respect to female primary school enrollment is nearly of the same magnitude as the urban/rural gap in the Sindh province, where only 25 percent of girls living in rural areas are enrolled, compared to 62 percent in urban areas.⁴ Similarly, while female literacy stands at only at 55 percent in urban Sindh it reaches the low of 11 percent in rural NWFP, and 7 percent in Balochistan. While access in Pakistan to rural sanitation - drainage - is already 25 percent lower than in countries with comparable income levels, there are gaps of 40 percent across its regions. For instance, only five percent of rural residents of Balochistan have access to drainage.

Explaining the Social Gap: Inadequate Social Spending

1.14 Pakistan's fiscal policies do not reflect the imperative of improving social indicators. Per capita health expenditure, for instance, is currently only \$2 – well below regional and international comparators. This is partly due to the constraints imposed by the country's heavy debt burden and unusually high defense expenditures. Social spending seems to have borne the brunt of the adjustments to these other expenditures.

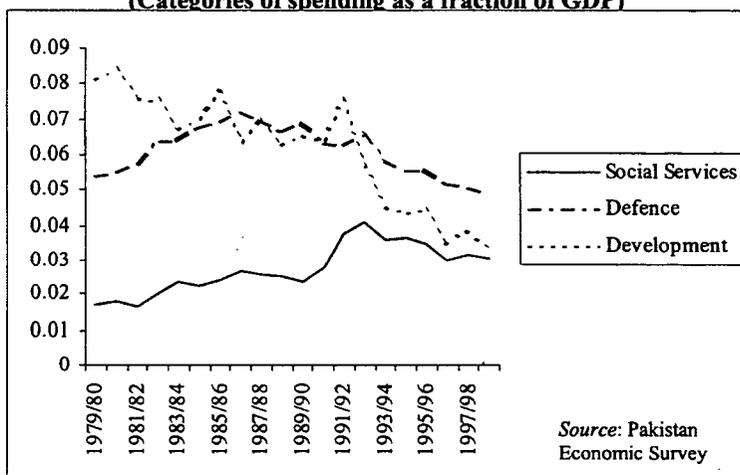
1.15 The problems in public service delivery can be linked to the fact that social spending has suffered in the competition for the allocation of public spending. For the past two decades a rising debt service burden along with continued substantial defense expenditure in the face of stagnant revenues has left little fiscal capacity to meet the rising needs of basic social services. During the 1990s, overall government revenue fell from 17 percent of GDP in 1991 to around 16 percent in 1998 and 1999. Even though defense spending fell from 6 percent of GDP in 1991 to below 5 percent in 1999, interest expense rose from 5 percent to 7.3 percent over the same period. In fact, from 1987 to 1999, the non-interest component of the government budget fell from 22 percent of GDP to 15 percent. Indeed, devising fiscal remedies and securing new financing to enable the government to service its external and domestic debt and to cover its projected deficit has preoccupied recent administrations.

1.16 In the first four decades of Pakistan, other types of "discretionary" spending, such as public investment, have historically fared better than social spending on health and education in the competition for resources. As Figure 1.3 shows, throughout the 1980s, social spending – comprising largely of recurrent spending on items such as teacher salaries, textbooks and medicines – hovered around 2.5 percent of GDP, while development spending – largely for public investment or infrastructure such as roads, irrigation and buildings – consumed around 7 percent of GDP. This gap between development and social spending significantly reduced after 1991-92, as shown in Figure 1.3. The fiscal compression

due to the rise in the interest rate and fall in fiscal deficit was absorbed by a fall in development expenditure. The relative insulation of social spending from downward pressures during this period was largely due to an infusion of \$2 billion in external assistance from 1993-98, in support of the Social Action Program. Even with the additional funds, however, the country's per capita allocation of \$2 for health and \$8 for education is clearly insufficient and less than the amount envisioned when the SAP was conceived.

1.17 Looking across the decade of the nineties, development spending fell from 6.4 percent of the GDP in 1991 to 3 percent in 1999 – a level slightly higher than that of social spending – partly contributing to a reduction of the overall fiscal deficit from around 9 percent to 6 percent of GDP over the same period of time. Even so, cross-country comparisons indicate that social spending continued to remain insufficient. For example, education spending was approximately 1.8 percent of GDP in Pakistan in 1998 but public investment was still 2.5 percent of GDP. In Sri Lanka, on the other hand, education spending was 5.3 percent of GDP, compared to a public investment of 2.6 percent of GDP. In short, Sri Lanka devoted almost twice the resources to education as to public investment; Pakistan dedicated less than 75 percent, even after the apparently precipitous decline in development expenditures in the 1990s.⁵

**Figure 1.3: Social service expenditures in Pakistan
(Categories of spending as a fraction of GDP)**



**Table 1.4: Benefit of Public Education Spending
Per Capita: 1998-99⁶**

Per Capita Consumption Exp. quintiles	% Shares		
	Primary	Secondary	Tertiary
1	185	55	10
2	219	85	27
3	194	101	39
4	180	124	65
5	110	122	187
Average	178	97	65

Source: PIHS (1998-99)

Table 1.5: Distribution of Public Expenditure on Education: 1998-99

Per Capita Consumption Exp. quintiles	% Shares			
	Primary	Secondary	Tertiary	Total
1	20.9	11.4	3.1	14.8
2	24.7	17.6	8.1	19.5
3	21.9	20.7	11.8	19.6
4	20.3	25.5	19.9	21.7
5	12.3	24.9	57.0	24.5
Total	100.0	100.0	100.0	100.0

Source: PIHS (1998-99)

1.18 The relative lack of attention to social spending in Pakistan has had particularly adverse consequences for the poor, since social services tend to benefit the poor disproportionately. For instance, in the case of Pakistan, a rough benefit-incidence analysis of public expenditure on education reveals that spending on primary education, in particular, is strongly pro-poor (Tables 1.4 and 1.5). This is however not the case for spending on secondary and tertiary education, primarily because of the low participation of the poor at such levels.

1.19 It is important to note that the static benefit-incidence presented above is quite limited in regard to measuring the impact of public spending. In particular, such an exercise takes the usage rate of public

services as given, not taking into account the dynamic effects of spending an additional dollar on the use of public services.⁷ Thus Tables 1.4 and 1.5 are merely indicative of the importance of the *nature* of social spending from the point of view of its impact on the poor.

1.20 The critical importance of the nature and quality of public spending in determining social indicators is also highlighted by a recent World Bank study of local public expenditures for Punjab, the most populous province in Pakistan (Box 1.1). The study indicates that the province's poor social indicators result not only from low spending on the social sector, but also from inefficiencies in the use of the limited resources thus provided. This kind of analysis is needed for the country as a whole, and will be conducted as a part of the planned Public Expenditure Review for Pakistan in the near future.

Box 1.1: Patterns of Low and Inefficient Social Spending: The Case of Punjab

Home to close to 60% of Pakistan's population, Punjab province is a microcosm of the social gap in the country. According to a recent World Bank study of local public expenditures, the province's poor social indicators result from a) low spending on the social sector and b) inefficiencies in the use of these limited resources.

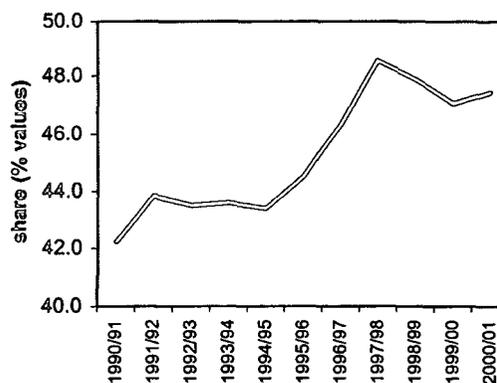
Punjab's educational budget, at about 2.1% of provincial GDP, is only about half the share allocated by countries with similar incomes, and about two-thirds of what is spent in neighboring India and Sri Lanka. Actual spending is even less than these budget targets indicate, falling short by as much as a quarter in recent years. Despite the explicit aim of the Social Action Program to boost expenditures, average real spending per student was stagnant during the 1990s. The amount allocated to non-salary inputs such as teaching materials, a critical determinant of school quality, has also remained very low – in 1997/98, 97% of the elementary education budget was spent on teacher salaries. Moreover, restrictions on the use of the non-salary budget – particularly withholding funds from School Management Committees (SMCs) that do not have a member trained in the use of public funds – have resulted in underspending of the already limited budget allocations for non-salary expenditures.

Punjab's health expenditure of approximately 0.5% of provincial GDP is similarly low by international standards – the average expenditure for all low and middle-income countries is roughly 2% of GDP. At about a third of total expenditures, allocations for non-salary inputs are insufficient, with the result that government health facilities routinely run out of medicine and other supplies. For example, in the last quarter of 1999, half of the primary health care facilities in the province reported that supplies of three essential drugs had been completely exhausted.

Source: Pakistan: Reforming Punjab's Public Finances and Institutions (World Bank, 2001)

1.21 Given that, as mentioned before, aggregate social sector spending has been deficient in Pakistan, it will be particularly important to improve the impact of such spending on the poor. Expanding the share of primary education in education spending is one example of ways to ensure such impact. To see where Pakistan stands in this regard, it is useful to look at the pattern of distribution of education spending over the years. As Figure 1.4 shows, the share of primary education in education spending evinces an increasing trend during the 1990s. While of late this share has declined somewhat, by and large education spending has grown more pro-poor since the mid-90s, with an increased focus on primary education.

Figure 1.4: Share of Primary in Public Spending on Education: 1990s



Problems of Public Sector Management and Implementation

1.22 As the case of the Punjab illustrates, poor management and implementation have exacerbated the ill effects of scarce allocations for social programs in Pakistan. This was also the case for the Social Action Program that was launched in the mid 1990's by the government and donors, to improve education and health outcomes in Pakistan. Resources that were allocated to social spending over the past decade under the aegis of this program were used inefficiently, and failed to have the expected impact on a rupee per rupee basis.

1.23 As detailed in this section, Pakistan in fact exhibits persistent problems in many dimensions of governance that are relevant for sound public spending: leakage, licit and illicit; difficulties with bureaucratic structure and quality; weaknesses in the rule of law, and opacity in government decision making. The World Bank's recent Pakistan Development Policy Review confirms the importance of these problems, which have also been recognized by the Pakistani government in the context of its devolution reforms and I-PSRP.

1.24 These and other issues specific to health and education in the 1990's are treated more extensively in Chapter 4 of this report. However, implementation problems are a daunting challenge in social policy in part because they are endemic across all areas of public policy in Pakistan. This section reviews some of these other implementation failures, ranging from public investment to economic policy reforms, which have themselves undermined the resources available for social spending, either directly (waste in public investment) or indirectly (flawed and incomplete implementation of liberalization, stifling the expected growth benefits).

1.25 For instance, the large infrastructure component of public expenditure in the eighties did not generate benefits commensurate with their cost. This was, in the first instance, because many of the projects were not conceived with broad economic and social goals in mind. Their benefits were further reduced because operations and maintenance budgets did not keep pace, which eroded the growth creating potential of such investments.. Therefore, instead of promoting growth, development expenditures in the 1980s simply added to the growth-suppressing debt burden of the 1990s. That is, development expenditures in the 1980s, which could have been growth promoting and expanded the envelope of resources available for social spending, instead shrunk the envelope.

1.26 Roads and irrigation provide examples of this neglect. Between 1987/88 and 1994/95 federal maintenance expenditures as a percentage of network requirements for Pakistan's National Highway System fell from 52 percent to 34 percent (World Bank 1997b). A 1998 survey revealed that two-thirds of the national highway network was in poor or very poor condition (World Bank 1998d). Currently, maintenance allocations are estimated at 75 percent of requirements in Punjab, and 50 percent in NWFP, Sindh, and Balochistan, resulting in a backlog estimated at 20 percent of the total network length at the federal level, and 30-50 percent at the provincial level. For investments in transport infrastructure to pay off, they must reduce transport costs. There is little evidence that this has been the case here, at least over the medium- and long-term.

1.27 Data from irrigation reveals similar patterns. In Punjab, the gap between O&M requirements and actual expenditures is roughly 30-40 percent, resulting in poorly maintained drains, distributional and link canals, and barrages (World Bank, 2001). As a result there are considerable delivery inefficiencies; only 35-40 percent of available supplies reach the fields. There are also inequities in water availability, in particular shortages at the points farthest from canal heads, and waterlogging and salinity that ruin large areas of productive land.

1.28 Efforts to reform the economy have also been undermined by related governance issues. Although successive civilian governments in the late 1980s and early 1990s introduced extensive measures to liberalize trade in order to encourage export-led growth, an anti-export bias remains. Successive rounds of tariff reforms reduced the maximum tariff rate from 225 percent in 1988 to 45 percent by 1997 and quantitative restrictions were lifted on 332 of 400 items. However, the tariff structure continued to be characterized by substantial differences among rates. This resulted in large and unpredictable *de facto* differences in effective protection across commercial sectors and activities. For example, imports of plant and machinery competing with the domestic engineering industry were charged a rate of 35 percent, as compared to the 10 percent tariff on non-competing capital goods (World Bank 1998b).

1.29 The tariff regime sent mixed signals to producers and exporters. The complexity and non-transparency of the tariff regime was further exacerbated by ad-hoc exemptions and concessions, which allowed considerable scope for discretion and corruption in customs administration. Exports rose from approximately 10 percent of GDP in 1985 to approximately 15 percent in 1995; but they have stagnated since. In keeping with the spirit of the economic reform program, the current government has rationalized the existing tariff structure to reduce duties on a range of imported inputs for domestic industry. In addition, the tariff structure has been substantially simplified, which is expected to improve valuation, clearance, and customs administration, thus addressing the aforementioned problems of non-transparency and governance

1.30 Problems of implementation also arise due to lack of management capacity in the public sector. In the opinion of many within the Government the quality of the civil service has steadily eroded over time. A recent World Bank study (1998a) pointed to a over-staffed and under-skilled civilian bureaucracy; an over-centralized organizational structure and inappropriate skills mix; seriously eroded internal accountability and lack of accountability to the public. This was exacerbated by widespread corruption and excessive political interference in the functioning of the civil service. Since 1999, the government has adopted a strategy that addresses the aforementioned concerns. The strategy involves giving more autonomy to the Federal Public Services Commission to enhance its independence and improve accountability for merit-based recruitment and other personnel management decisions. Public financial management has been much improved by structural reform and the use of Ad Hoc Public Accounts Committees. Furthermore, the National accountability Bureau has been established with powers to investigate and prosecute, which is expected to enhance accountability and reduce corruption.

1.31 To some extent, political factors may also impede implementation of public sector policies. For instance, public expenditure allocations, such as the selection of infrastructure projects without sufficient attention to maintenance and sustainability, may be driven by incentives that govern local political dynamics. Further discussion of such local dynamics follows below.

Political Economy and Social Spending: A New Hypothesis

1.32 Pakistan is currently implementing or contemplating the implementation of substantial political restructuring, including devolution. A key motivation of such reforms is to improve the performance of the Pakistani government in serving the needs of its citizens – most of who are poor and have had little access to social services compared to the poor in other, similarly- situated countries. The effectiveness of these reforms, both those that are underway and are currently contemplated, depends on the degree to which they address the incentive problems that seem to have driven past allocation and implementation decisions in fiscal policy, as discussed below. That is, future reforms will succeed to the extent that they correct the problems in political economy that have undermined past policies.

1.33 Traditional explanations of the incentives of political decision makers in Pakistan have focused on elite capture of the state and the fractionalization of the society. The elites, benefiting little from public spending directed at the poor, and in some cases threatened by it (education), were said to block fiscal reforms. Evidence reviewed here suggests a different story. Elected legislators were very concerned about demonstrating their effectiveness in delivering government benefits to constituents. However, their incentives were such that they focused attention on goods and services that could be targeted as patronage to supporters - such as infrastructure - rather than true public goods, like universal access to public education or the rule of law and bureaucratic quality (key to successful implementation). Their incentives to improve education and health were further dampened by demand issues: the low support among some voters for these services, particularly for girls.

Traditional explanations of the political economy of the social gap

1.34 The deepest and most pervasive poverty in the country is rural, and it is worst in areas that have been traditionally considered as “feudal”, such as rural Sindh. A strong association between landlessness and poverty supports this link. Among the 70 percent of the population that do not own any land, the poverty rate is 35 percent, while it is only 13 percent among the 6 percent who owned at least 4 hectares of land. Conversely, 75 percent of the poor owned no land, and among those characterized as poor, only 2 percent owned more than 4 hectares of land. It is not surprising, then, that the first explanations of persistently low social indicators in Pakistan would reference the particular social and economic landscape of rural areas.

1.35 Rural elites have always had exceptional influence in Pakistan - whether by marriage or other family ties to state officials in either military or civilian governments, or because of constitutionally mandated over-representation in the elected legislature. The characteristics of these elite vary. In general, elites have had relatively little interest in enhancing their constituents’ access to education, or in ensuring that the poor could obtain the protection of the law without elite intervention. In some other cases, in particular concerning the poorest parts of rural Pakistan, elected politicians were large semi-feudal landowners, who would have had weak incentives to advocate better government for their constituents.⁸ Prominent in virtually all government coalitions, this “rural gentry” is said to have captured 70 percent of the seats in local elections in December 2000.⁹ Their success until this year in blocking federal taxation of their incomes is cited as evidence of their influence.¹⁰

1.36 The political hold that landlords exert on rural inhabitants is easily overstated. First, landlords are not a monolithic class and compete vigorously among themselves for political office. Many landlords, including the most feudal, lost their parliamentary seats in the 1990s. Second, anthropological evidence shows that rural inhabitants were less reliant on landowners in the 1990s than earlier - if not necessarily by choice. For example, they were less able to turn to landlords for support in the event of family illness since the offspring of traditionally powerful landlord families now spend more time in the city and are unavailable for traditional landlord “services.”

1.37 A careful survey of 125 primary schools in selected rural locales provides one indication that failures in the provision of government services are particularly acute in rural Pakistan, but underlines as well the difficulty of tracing these failures back to landlords. In surprise visits, Gazdar (2000) found that a quarter of the schools surveyed were not open;¹¹ there were no teachers present at all in 19 per cent of them, and only one teacher was present in 35 per cent.¹² Only 38 percent of the schools were classified as “functional”, according to the least demanding of criteria,¹³ only a quarter of the schools had electricity, and only half had a latrine.¹⁴

1.38 Specific landlord influence was visible in several of these cases, but it was neither unambiguously pernicious, nor was it sufficient to explain the pervasive breakdown of the educational system that was

observed. For example, one local landlord worked hard to install a school in his area, but was also obliged to ensure that a female relative received a teaching assignment there. He could not override the familial obligation to keep her employed when it turned out that she did not attend classes. In some cases, school buildings were used for the landowners' personal purposes. However, in other cases, when, for instance, the landlords' children attended the school, they tended to function better.

1.39 It is also easy to overstate the extent to which political and rural elites ignore the poor. Rather, the evidence suggests that they are selective in what they provide the poor. Although rural constituencies have been denied universal access to public services - such as schooling and better health facilities - they do not seem to have lagged in access to other public goods. Potable water (Box 1.2) is an example of elected officials' emphasis on providing targeted benefits. Similarly, new public investments and major rehabilitation projects are preferred over more cost-effective maintenance

Box 1.2: The Paradox of Access: Water, but no Education

Potable water can be targeted to specific groups, giving it many of the characteristics of a private good. Moreover, water projects have high value in terms of job provision, another private good. Finally, once potable water systems are constructed, access to them, and their continued viability, are not particularly vulnerable, in the way that education is, to patronage-driven political decisions. The provision of water projects would seem, therefore, to be consistent with political incentives in Pakistan. In fact, compared to countries with similar incomes per capita and population characteristics, access to potable water in Pakistan in 2000 was 25 percentage points higher than expected – compared to 20 percentage points less, in the case of primary school enrollment.

1.40 Accordingly, it appears that regardless of whether they are elected or non-elected, public officials in Pakistan have historically not ignored their constituents, including poor per se, but rather have emphasized providing limited services to them, such as infrastructure. Moreover, as the last section indicates, both in periods with and without elections decision makers have preferred the targeted aspects of infrastructure (such as the ability to use infrastructure projects to provide jobs or contracts) rather than the untargeted spillover benefits. As a consequence, they tolerated very high levels of leakage and inefficiency. To further understand why the poor are unable - and in some instances apparently disinclined - to contest this situation, we need to move beyond the framework of landlord domination of the political process.

Distortions in the competition for the votes of the poor

1.41 Poor performance in public expenditures stretches over the 1980s, with a non-elected government, and the 1990s, with elected governments. The key distinguishing feature of non-elected governments is the inability of citizens to hold them accountable on a regular basis. This leaves such governments freer to pursue policies that were at odds with citizen interests, which seems to have been the case of public expenditure policies in the 1980s. However, going forward, and in view of the importance of elected local governments under devolution, the important phenomenon to analyze is the source of poor governance of public expenditure under the elected governments of the 1990s.

1.42 From the point of view of citizens, the preferred political candidate or party is - in any country - the one that can credibly promise the best public services at the least cost. The first difficulty in electoral politics has been that political parties have not been able to make credible claims regarding their performance in service provision. In office, neither of the major parties worked hard to improve service provision. Also, in electoral campaigns national policies towards service provision and other broad policy issues are rarely raised.

1.43 As a consequence, from the point of view of citizens whether rich or poor, the only guarantee of government responsiveness comes from the presence in government of some official with whom they have a personal connection. This means that the success of legislators or other politicians depends on their personal reputation for providing goods, jobs and government access to individuals with whom they have had contact. Such legislators have little interest, as a consequence, in providing public goods that benefit a broad range of the public.

1.44 The second characteristic of electoral politics in Pakistan that undermines the provision of public services to the poor is the impermanence of elected governments. This shortens the political horizons of decision makers, and reduces the penalty to them of renegeing on any electoral promises that they do make. Notably, in other countries, where political parties are well developed and constitutional government has been observed over several electoral generations, the costs to political parties of renegeing on policy promises are much higher. Hence, policy promises of parties are much more important, electorally, than they are in Pakistan, and the role of individual relationships in politics is much less.

1.45 The local elite are often powerful because they *can* make credible promises to local residents. They have a local reputation that is independent of the comings and goings of national governments. The ability of local voters to trust local representatives is not a solution to all problems, as the experience of Pakistan in the 1990s clearly shows. Local elites may not be competitive. Although, in principal, any local resident could develop a relationship for helping others and of intermediating successfully with government, in more feudal areas of the country the local elite could easily discourage competition. Even if local elites compete with each other, none has an incentive to make promises regarding government expenditures that benefit people outside of their area, since they cannot get credit for such policies. Nor do they have an incentive to make promises that will not yield short run benefits realizable before the fall of the government in question. Finally, even within their community, they have an incentive to favor those with whom they have a personal or family/*biraderi* (kinship group) relationship, exactly because personal relationships are the most important currency of political competition. Accordingly, they have a strong preference for making promises about infrastructure, or to solve specific problems (such as conflicts with the police) rather than systemic problems (the quality of policing in a jurisdiction).

Box 1.3: Politics, rent-seeking and local elites: the nexus between a *nambardar* and the police

The *nambardar* of the village Akalipur in Faisalabad – one Shahid Jat – saw his role as being a mediator between the residents of the village and state authority. According to him the most important problem for which people asked his help was dealing with the police. Without some form of intermediation the police did not pursue any case. According to Shahid his main advantage as an interlocutor was his position as *nambardar*. This gave him access, but thereafter he had to rely on his social connections and tactics in order to obtain results. Shahid Jat was also a key player in electoral politics of the village and was regarded as the head of one of the two factions that contended for position.

Local opinions about Shahid Jat and his intermediary activities were divided along factional lines. It was generally accepted that Shahid took money in order to get work done through the police. His supporters were of the view that money was required in order to bribe the police. His opponents thought that Shahid acted as a commission agent for the police. They accepted that the police did charge bribes for simple matters, but were of the view that it was possible, also, to get things done through political connections and leverage. They held that Shahid was justified in charging commissions from other people but that he ought to work for people free of charge, on the basis of social and political goodwill. He could either demand money for his intermediation or ask for a vote, but not both. In the recent elections Shahid was defeated.

Source: Gazdar (2002). 'A Qualitative Survey of Poverty in Rural Pakistan: Methodology, Data, and Main Findings'

1.46 Box 1.3 illustrates the position of the local elite, the role they fill in intermediating with authorities outside of the community, and the political opportunities available to them because of their local role as social and political intermediaries. It also demonstrates that local elites may have to make a tradeoff between using their position to launch a political career and using it to extract rents from local citizens.

1.47 The importance of locally important people in the political calculations of national and provincial government leaders is evident in the efforts that these leaders make to recruit them as candidates for elected office; to secure their endorsement when elections take place; or simply to secure their cooperation in the implementation of public policy. Indeed, governmental concerns about the behavior and allegiances of local elites have been evident in every government, extending to the most recent local elections.

1.48 These characteristics of political competition in Pakistan explain why spending on infrastructure, such as market roads and water, is large in proportion to the share of the total population living in rural areas. These public goods have two important distinguishing characteristics: they provide immediate and easily assessed benefits in the form of construction jobs and flow of services – especially important where political instability is great and current politicians are unable to credibly promise future benefits to constituents. And they can be narrowly targeted to supporters – especially important where voters, particularly rural or poor voters, perceive that their ability to obtain goods and services from the state depends on personal relationships.

1.49 Public goods such as universal access to education and health, including broad improvements in the quality of teachers or curricula, do not share these two characteristics. As public goods, improved curricula and better oversight of school performance can less easily be targeted and are not easily sustained over a long period of time without additional effort. Moreover, the benefits of political efforts to maintain highways or improve school quality are difficult for constituents to perceive in the short run, further reducing their utility to policy makers with short horizons. More importantly, the larger and more concentrated the effects of an expenditure, the easier it is for constituents to give credit for it to their personal representative. Small expenditures, such as maintenance on a highway in good condition, could as easily be the product of some government-wide policy with which the local representative has had little to do.

1.50 The incentive structure that induces elected officials to under-supply public goods should not be viewed as an indictment of democratic politics per se, since it is not necessarily a characteristic of other democratic systems around the world. Many democratic governments, such as the state of Kerala in India, have emphasized investments in education and health. It is rather the specific informal rules of electoral competition in Pakistan that has uniquely shaped the incentives of the legislators. In any case, non-elected governments in Pakistan have traditionally placed no greater weight on the welfare of the rural poor than have elected governments. Second, insofar as local elites are the only interlocutors with the government that the rural poor have at their disposal, their potential marginalization under non-elected governments may not benefit the poor, since the poor have no other way of exerting leverage on national level policy makers and officials, whether elected or military.

The poor and the demand for public goods

1.51 While there are structural reasons for elected officials to expend greater effort on procuring physical infrastructure for their constituents, there is also evidence that their constituents themselves may prefer spending on infrastructure relative to improved education and health. For example, in systematic surveys and, especially, in informal contacts, the rural poor frequently place access to water ahead of improvements in access to and the quality of education. Indeed, the Pakistani poor evidence a very low demand for female education by international standards. Accordingly, political representatives predictably prefer infrastructure spending to service delivery.

1.52 However, if public policy were oriented towards the efficient provision of desired infrastructure, such as water resources and market roads, one would not expect to see empty school buildings, considerable waste and leakage in infrastructure construction, and stark breakdowns in the maintenance

and operation of physical infrastructure once provided. The prevalence of these more negative phenomena suggests that more is at work than skewed demands for public services on the part of the poor. The short horizons of political decision makers and their focus on targeted goods rather than broad public policy issues (such as improved implementation) provide some explanation for these problematic aspects of infrastructure provision.

1.53 While the foregoing analysis argues that the poor do have some, though inadequately transmitted, influence on public policy outcomes, it is still the case that the rich have more significant influence. If they expressed a demand for high quality public services, one might expect these to emerge rapidly. However, it is abundantly clear that the rich have opted out of the public system, as in many other countries, and have not used their considerable political power to improve public policies that benefit the poor.

Dual Constraints: Closing the Social Gap Under Constraint of Fiscal Deficit

1.54 Pakistan's fiscal crisis has captured most of the attention of economic policy makers. And, clearly, its high debt, low growth, and high real interest rate payments are a volatile mix that could lead to explosive debt increases in the near future. In the 1980s and early 1990s, the emerging debt and growth crisis was disguised by substantial external flows. These flows, from international lenders and remittances, dropped off long ago: official remittances from migrant workers declined from over 10 percent of GDP at their peak in 1983 to 2.3 percent by 1996, creating the crisis atmosphere now surrounding the national debt.¹⁵ However, the newly emergent crisis atmosphere surrounding debt is matched by the chronic, but more silent crisis of the growing social gap.

1.55 The argument in this section is not that fiscal objectives should be compromised in order to address Pakistan's social gap. Rather, it is that by attacking the governance problems that are at the root of this gap, Pakistan would work also to spur economic growth that will mitigate the fiscal crisis. In the past, governance problems have precipitated a vicious circle: a focus on fiscal policies that de-emphasized social spending; were implemented with excessive leakage and insufficient attention to efficiency and equity; and eventually gave rise to serious fiscal and social gaps. A different strategy, focused on governance reforms, can create a virtuous circle, in which growth is accelerated and resources are freed for spending, helping to effectively close both social and fiscal gaps.

1.56 Governance problems were the main reason that deficit-funded public investments of the 1980s failed to yield long-term growth dividends. If these dividends had been realized, the debt incurred would now constitute a small fraction of GDP and debt service payments would today be much less onerous. For example, if the \$58 billion in development assistance provided to Pakistan between 1960 and 1999 had been invested during this time to yield a moderate real return of 6%, it would have grown into assets equal to \$239 billion in 1998, and Pakistan's GDP would have been much higher than its present level. Instead, this debt now stands at 92 percent of GDP, and is in and of itself a constraint on growth.

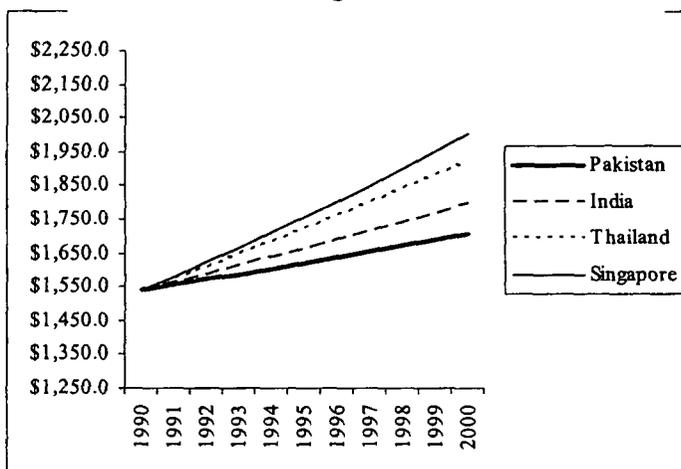
1.57 Governance reforms that are specifically directed at improving the implementation of social spending should close the social gap by increasing the amount of real resources allocated to meeting needs "on the ground." In addition, by closing the social gap, the country should indirectly incur growth payoffs that would increase resources available for debt reduction.¹⁶ One set of estimates looking at the effect of education on growth, controlling for other factors, finds that a ten percentage point increase in secondary school enrollment is associated with a 0.5 percentage point increase in yearly per capita growth.

1.58 Social spending is embedded in the fabric of government and society, however, so successful governance reforms will have to be comprehensive and broad in their scope. Reforms that reduce waste

and leakage in all areas of fiscal policy, especially in development, and that deepen the rule of law have direct effects on the efficiency of spending, which relax the fiscal constraint that exacerbates the social gap. Such reforms also increase growth by expanding the size of the pie available for debt reduction.

1.59 The engine of growth is universally regarded as investment, which is obstructed when the governance environment is weak. Both individuals and firms, poor microenterprise entrepreneurs and multinationals, have borne the brunt of weak governance when they attempt to deal with the police or judicial institutions, or in times of civil unrest that have precipitated serious deterioration in the rule of law, as in Karachi in the 1990s. Just as the poor are forced to compete for targeted infrastructure investments, firms are forced to compete for exemption from onerous regulation or, more commonly, from the arbitrary imposition of unjustified regulatory requirements. Firms see their own labor costs rise and competitiveness decline when their workers lack the educational basics. Firms, like the poor, are exposed to the tremendous insecurities of crime or to abusive behavior by public officials. Like the poor, entrepreneurs understand that success (or, in the case of the poor, avoidance of catastrophe) requires strong personal relationships with government officials who can protect their interests. This is the antithesis of the rule of law and lies at the root of poor service delivery, the vulnerability of the poor, and the reluctance of investors to enter the country even in more tranquil times in which the pressures of international conflict are absent.

Figure 1.5: Governance impacts incomes: benchmarking Pakistan's record



1.60 In view of its uncertain governance environment, it is not surprising that Pakistan has failed to reap substantial private investment from its significant liberalization efforts. Governance uncertainties have a strong negative impact on growth, as Figure 1.5 illustrates. The *International Country Risk Guide*, published by Political Risk Services (Syracuse, New York), rates countries according to bureaucratic quality, rule of law and corruption; three key components of the governance problems that afflict Pakistan. A five point increase in the ICRG ratings, on a scale of 1 to 18, is associated with a one percentage point increase in the yearly rate of per capita income growth in the countries surveyed.

1.61 Figure 1.5 quantifies the cost of poor governance for Pakistan.¹⁷ It shows that if Pakistan had exhibited similar performance with respect to the rule of law, bureaucratic quality and corruption as Singapore during the 1990s, per capita income in the year 2000 would have been \$300 higher.

Re-addressing the Social Gap

1.62 The remaining chapters of this report discuss the many specific ways in which government spending and policy decisions contribute to the social gap. They range from allocation concerns in health and education, to a range of barriers to market access that confront the rural poor. However, in designing policies to remove these barriers, continued attention must be paid to the governance environment and to

the incentives of all of the actors whose support is necessary to make reform successful. These policies must also be focused on economic growth, but growth that is more sustainable than that experienced in the 1980s.

1.63 Social sector reforms that ignore the difficulties that the poor face in holding government accountable, and the important role that local elites play in this regard, are unlikely to be successful. The Social Action Program, for example, grew out of recognition by both donors and the Pakistani government that targeted action on social service delivery was needed to address poverty. However, the design of the program did not reflect the obstacles to improved service delivery that existed “on the ground” nor the gap between the reforms that were envisioned and those that either the poor or their political representatives sought to secure. This incomplete understanding of the relevant social and political context meant that the SAP placed excessive emphasis on the creation of parent associations that could not exercise influence, and dedicated insufficient human and financial resources to circumventing and overcoming institutional and social obstacles.

1.64 The lack of accountability can be improved by increased democratization, decentralization, and transparency. However, these labels hide a wide array of potential reforms, only some of which may be useful. In the case of Pakistan, the simultaneous improvement of the investment climate and the prospects for poverty reduction will emerge when narrow groups that have been able to target benefits to their and their constituents’ interests are forced to take into account broader needs, including the needs of women and other disadvantaged groups and classes. Not all democratic governments – and certainly not all non-democratic governments – achieve this. However, growth, development and poverty alleviation demand it.

1.65 While emphasizing the importance of good macroeconomic policies and the need for continuing attention to the fiscal gap – in regards to which particular attention should be focused on promoting growth through governance reforms – the rest of the report will focus on the complementary factors that are critical to ensure that growth benefits the poor. In doing so, successive chapters analyze the most salient social and poverty related characteristics of Pakistan, drawing primarily on household data from various surveys, to identify areas where public policy can make a difference.

1.66 Chapter two provides an anatomy of poverty, exploring its evolution across the 1990s, outlining problems related to its measurement, and discussing dynamic factors that influence how people identified as poor either fall into or escape their circumstances. It also explores the broader dimensions and possible social determinants of poverty; exploring the social characteristics associated with lack of consumption and pointing to the influence of human capital on poverty.

1.67 Chapters three and four more deeply examine the dynamics of the most important social sectors - education and health, and of the most neglected target areas –the rural sector. Chapter three points to the strong impact of educational attainment and health on earnings. Using education as a case example, this chapter outlines how governance problems and political economy considerations impede service delivery, with particularly adverse consequences for the poor. Chapter four identifies the major policy challenges of the rural sector, including the need for a coordinated strategy that address some critical constraints such as access to assets, particularly land, access to credit, non-farm opportunities and infrastructure. Chapter five concludes the report by collating priorities for poverty alleviation, and identifying relevant challenges and lessons for stakeholders, including governments and NGOs.

1.68 The report does recognize the fact that successfully addressing the specific issues noted herein may be conditional on wider reforms being undertaken in Pakistan, as outlined in the recent Development Policy Review. It proceeds on the understanding that it is nevertheless important to broach these issues. Moreover, in this regard, the report closely references the Government of Pakistan’s own I-PRSP,

recognizing the considerable commitment already shown by the government towards addressing the underlying problems discussed in the report.

¹ In 1995 dollars; not counting the adjustment loan the multilaterals are making in the years 2000-2001.

² Headcount index, Pakistan Integrated Household Survey. Further discussion of the scope and measurement of poverty in Pakistan follows in Chapter 2.

³ The control group is chosen as the third of the sample ordered by growth and centered on Pakistan. The initial year income per capita index set equal to unity for all countries. This group is called "comparison sample" in the figures. The index of per capita income and infant mortality are then plotted, set to 1 in the initial year. By construction, the index of per capita income will reach the same point at the end of the period in the control group as in Pakistan: since Pakistani growth over the period is precisely the average of the comparison sample, if all countries start at a common 1960 or 1970 index = 1, and have the same growth rates, they must end at the same index of per capita income in 1998.

⁴ The source of all the regional urban/rural by gender data is the 1998/99 Pakistan Integrated Household Survey (PIHS).

⁵ The World Bank country office is the source for education expenditures in 1998 in Pakistan. *Government Financial Statistics* is the source for the remaining three expenditure information. 1998 is the latest year for which data is available for all variables.

⁶ Benefit of primary public education spending per capita for expenditure decile 'k' is calculated as (total public expenditure on prim schooling/total number of public primary school students in population) x (number of primary public school students in decile k/total population in decile k); similarly for benefit of secondary and tertiary spending.

⁷ For example, expenditure on building or upgrading a primary school may lead to an increase in future enrollment in nearby areas – an impact not captured by looking at existing enrollment rates, which is what the static benefit-incidence analysis does.

⁸ Hussain (1999), p. 19, argues more strongly for the pervasive and negative influence of semi-feudal landlords on the Pakistani state.

⁹ http://wb.eiu.com/report_full.asp?valname=CRBPK2&title=Country+Report+Pakistan#7

¹⁰ Talbot (1998), p. 37-38. The government is introducing an agricultural income tax as of this writing (March 2001), but it is too soon to tell how effective it will be at mobilizing revenue from landlords.

¹¹ Gazdar (2000), p.46

¹² *Ibid.*, p.51

¹³ *Ibid.*, p.55

¹⁴ *Ibid.*, p.50

¹⁵ While official figures capture only a fraction of the total inflows, there is no reason to think that the unofficial remittances evolved in a different direction over this period.

¹⁶ Barro (1998) shows that health, education, and fertility indicators significantly affect growth outcomes

¹⁷ See footnote 3 for a discussion of the methodology used in these simulations, with the variable of interest now being governance instead of enrollment. The governance indicator used in the growth regressions is an average of three International Country Risk Guide Indicators – rule of law, bureaucratic quality, and corruption. The time period is 1984–99.

2. Understanding Poverty in Pakistan

2.1 Though having abated in the 1980's, poverty in Pakistan was as high at the end of the 1990's as at the beginning of the decade, and continued to be marked by sharp differences across the country's provinces, and its rural and urban areas. This stagnating and uneven development is also reflected in average consumption data and inequality measures during this time. To some extent, these trends can be seen as dovetailing the wider macroeconomic performance of the national economy, and being susceptible to the same factors that constrained its performance, as mentioned in Chapter One. A better understanding of poverty however entails a more in-depth examination of poverty and its characteristics at the level of the household, which is the focus of the analysis in this chapter. In addition to the impact of lagging macroeconomic growth and inequality on poverty, this chapter emphasizes micro-level factors as well as social determinants that have an important impact on the overall persistence of poverty in the country.

2.2 The chapter begins by examining national and regional trends and patterns of poverty over the past decade, highlighting the methodological issues that attend to poverty measurement, and comparisons across surveys, particularly in the Pakistani context. The most urgent of these is the question of how poverty is determined. Notably, though a consensus on the choice of poverty line for Pakistan is expected to emerge soon, there is currently no such agreed analytical standard for the country.¹ However, a sensitivity analysis shows that regardless of what standard is adopted, the pattern of poverty over the years observed remains more or less the same.

2.3 In providing a blueprint for understanding poverty, this chapter also emphasizes looking beyond its static measures, with a view of understanding and measuring income dynamics, risk and vulnerability in Pakistan. These issues are highlighted through a discussion of methods and data resources for analyzing poverty dynamics, to measure the extent of vulnerability in rural Pakistan. A large section of the rural population of Pakistan population is indeed found to be vulnerable to weather shocks – individuals who are at a high risk of becoming poor in the aftermath of a shock.

2.4 The chapter goes on to discuss the determinants that sustain the pattern of vulnerability and poverty, focusing on micro-factors such as household asset and land ownership in rural areas, the characteristics and constraints of poor households - particularly as regards health and educational attainment, and their forms of employment. In addition it also discusses the social determinants that frame these patterns, focusing on the importance of labor market discrimination, and the poor's vulnerability to weak rule of law.

Poverty: Measurement, Incidence and Trends for the 1990s²

2.5 According to head count measures, 32.6 percent of the Pakistani population were currently living in poverty at the end of the 1990s. Despite improving briefly during the intervening years of the decade, this figure is now more or less the same as at its beginning. The depth and severity of poverty has also remained more or less constant, and while urban poverty fell, rural poverty stagnated, widening the gap between city and countryside. There were also persistent differences in incidence across Pakistan's provinces, linked primarily to average consumption indicators in rural areas, and to inequality in urban ones. Notably, though there is not yet a consensus on a poverty line for Pakistan, the choice of such a line does not seem to substantially affect the general patterns and trends observed here. The analysis also points to a large group of transient poor, clustered around any given poverty line, who are particularly vulnerable to adverse income and risk dynamics.

2.6 The World Bank's poverty estimates for Pakistan in the 1990s have been constructed using Household Income and Expenditure Survey (HIES) data for the year 1993-94, and PIHS for 1998-99 (see Box 2.1 and the *Annex* for a discussion on the data sources and caveats). Focusing on the findings from the 1990s, the summary tables also include poverty related statistics from 1990-91, and for the sake of tracing a historical pattern, some estimates for the years 1984-85 and 1987-88.

Box 2.1: Household Data Sources and Caveats

Poverty data anomalies, like the poor themselves, will always be with us. The poverty trends reported in this chapter are derived from the Pakistan Integrated Household Survey (PIHS) (1998-99) and the Household Income and Expenditure Surveys (HIES) for previous years. The HIES – designed to measure household consumption and incomes only – were conducted independent of the PIHS until 1998-99, when the two were combined into a single integrated PIHS. There exists a high degree of comparability between PIHS 98-99 and HIES for previous years, since the consumption questionnaires, sample sizes and sampling methodologies are highly comparable for both the surveys. However, there are some caveats that must qualify the comparison of poverty estimates across surveys (more details on these caveats and their implications can be found in the *Annex* to Chapter 2):

- The sample size for HIES of 1990-91 was substantially smaller than those in subsequent years. However, comparison of poverty estimates is justifiable since the sample size in 1990-91 was large enough to be nationally and regionally representative
- In the 1998-99 PIHS, many of the food items consumed by households are reported as fortnightly figures, unlike in previous surveys where monthly consumption figures were reported for all – this may affect the comparability of household consumption estimates.
- The average household sizes, particularly for households in the lowest expenditure categories, are higher in the 1998-99 PIHS compared to the HIES from 1992-93 to 1996-97. This difference may be the result of differences in field techniques of data collection between the different surveys.³
- For specific regions within provinces, estimating poverty trends may be problematic. This is particularly true for rural Balochistan, for which the poverty estimates in 1998-99 are low enough to be out of trend with those from previous years, and also seem inconsistent with other important indicators of well-being, where Balochistan scores well below the national averages. Poverty measurements for rural Balochistan are probably undermined by sampling errors, caused by the highly dispersed nature of the population, as well as non-sampling errors due to factors like seasonality in consumption. For this reason, any conclusion based on this problem data are avoided.

While the data for all the aforementioned years have been analyzed (i.e. 1992-93, 93-94, 96-97 and 98-99), recognizing the problems of comparison across surveys, poverty estimates from *only certain select years* (1993-94 and 98-99) have been reported in this chapter. Moreover, poverty estimates from HIES for 1984-85, 87-88 and 90-91 have been reported, using Poverty Assessment for Pakistan (World Bank, 1995) as the source. Consistency in methodology for estimating poverty has been rigorously maintained across all the years, including 1990-91 and prior years.

The main source for national data for all human development indicators in this Report (Chapter 3) is also the PIHS, for the latest year available (1998-99). In some cases, for the sake of comparison over time, statistics are also reported from World Bank (1995) and official Government of Pakistan documents that report findings from PIHS of previous years, namely 1991, 95-96 and 96-97. Again, rigorous consistency in methodology is ensured between the estimates from these sources, and those computed for this Report. Designed to measure poverty and human development outcomes, the PIHS is representative at the national and regional (rural/urban) levels for all years. Moreover, the survey is representative at the level of individual provinces and regions (rural/urban) within each province for all years excluding 1991. As alluded to above, some questions have been raised about the representativeness of the PIHS for specific areas like rural Sindh and Balochistan, and a careful study of survey methodology and field practices is in order to examine what improvements may be necessary to address any valid concerns. That said, the existing design of the PIHS does indicate it to be a largely reliable and representative source for poverty and human development outcomes at the national, provincial and regional levels for Pakistan.

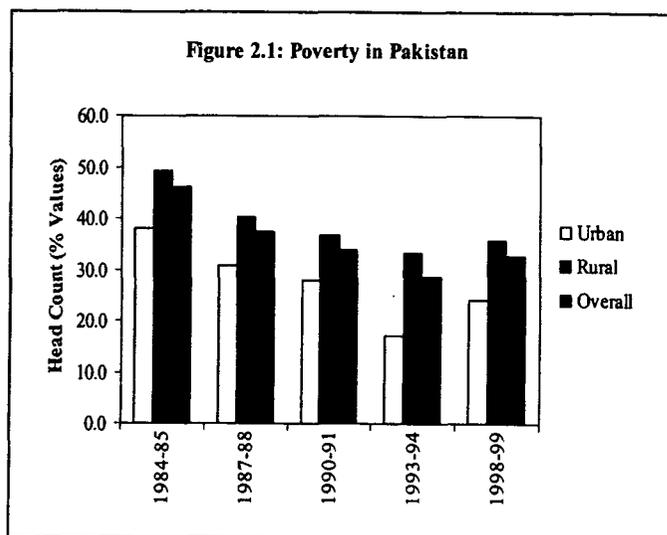
2.7 In order to get a complete picture of poverty in households, it is important to look at all three indices of poverty: the head-count ratio, the poverty gap, and the squared poverty gap. The head-count ratio counts the number of poor as a proportion of the total population. The poverty gap index measures the depth of poverty; it increases if there is a reduction in welfare - defined as a reduction in per equivalent adult expenditure - in one poor household, even if the number of the poor in the household remains the same. The squared poverty gap measures the severity, or extent of poverty. It increases if there is a transfer from one poor household to another household that is relatively better off, but still qualifies as poor, even if the average welfare of the two households remains the same.

Table 2.1: Poverty Estimates for Pakistan

		1984-85	1987-88	1990-91	1993-94	1998-99
Headcount Rate	Urban	38.2	30.7	28.0	17.2	24.2
	Rural	49.3	40.2	36.9	33.4	35.9
	Overall	46.0	37.4	34.0	28.6	32.6
Poverty Gap	Urban	9.2	6.1	5.7	3.0	5.0
	Rural	11.9	8.3	7.8	6.4	7.9
	Overall	11.1	7.7	7.1	5.4	7.0
Severity of Poverty	Urban	3.10	1.80	1.70	0.78	1.51
	Rural	4.10	2.50	2.40	1.87	2.51
	Overall	3.80	2.30	2.20	1.55	2.2

Note: Data source for all tables and figures in this chapter, unless otherwise specified, are PIHS (98-99) or HIES (all other years)

2.8 The national poverty head-count ratio in 1998-99 is estimated to be 32.6 percent, which is very close to the 34 percent estimated for 1990-91 in World Bank (1995). This is in sharp contrast to the previous decade, when poverty is found to have declined sharply, particularly between 1984-85 and 1987-88. Analysis for the intervening years of the 1990s - between 1990-91 and 1998-99 - show a high year-to-year volatility in poverty rates; an overall headcount rate of 29 percent is reported for one of those years, namely 1993-94. (Table 2.1 and Figure 2.1). The poverty gap and the severity of poverty also exhibit similar patterns (Table 2.2). While the estimates suggest some reduction in poverty between



1990-91 and 1993-94, by approximately 5 percentage points, followed by an upward spike of 4 percentage points to 1998-99, these movements should be qualified by some concerns about the comparability of the surveys used.

Table 2.2: Incidence of Poverty by Province and Region During 1990s

	Urban			Rural			Overall		
	90-91	93-94	98-99	90-91	93-94	98-99	90-91	93-94	98-99
Punjab	29.4	18.4	26.5	38.5	31.9	34.7	35.9	28.2	32.4
Sindh	24.1	13.9	19.0	30.8	31.5	37.1	27.6	23.4	29.2
NWFP	37.0	26.5	31.2	40.6	39.8	46.5	40.0	37.9	44.3
Balochistan*	26.7	16.5	28.4	20.9	37.5	24.0	22.0	35.2	24.6
Azad J & K	.	.	14.5	.	.	15.7	.	.	15.6
N. Areas	.	18.4	22.6	.	31.9	37.9	.	28.2	36.5
FATA	.	13.9	.	.	31.5	44.5	.	23.4	44.5
National	28.0	17.2	24.2	36.9	33.4	35.9	34.0	28.6	32.6

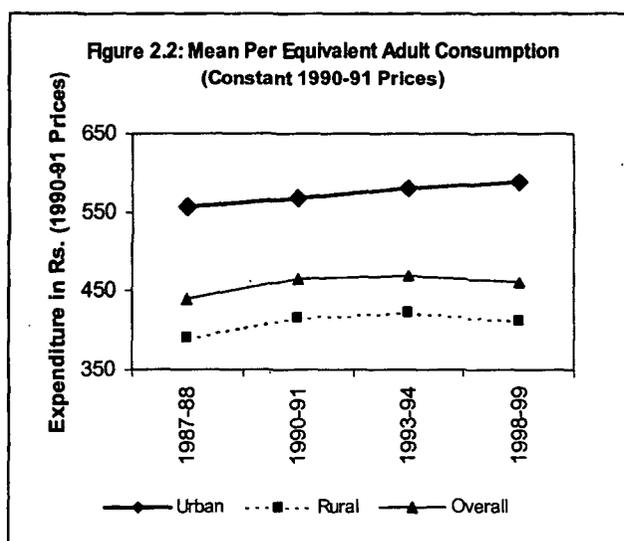
* May be less reliable than other estimates in table due to low density of population (See Annex 2.3)

2.9 Comparability of surveys across the years is largely ensured by the fact that the questionnaires on consumption and sampling methodology changed very little across surveys, and that the analysis maintained complete methodological consistency across the years. Some specific issues however limit comparability – perhaps most importantly, the average household sizes, particularly for poorer households, are somewhat higher in the 1998-99 PIHS compared to previous HIES years, which may reflect differences in survey field practices (see Box 2.1). While this is important to note, it is found unlikely to seriously compromise the estimated poverty *trends*. Changes in household size *could* affect trends through the impact of economies of scale in household consumption on poverty estimates. But, as shown in Annex 2.2 (and referred to in the next section), overall poverty trends are *robust* to reasonable adjustments of consumption expenditures for economies of scale in consumption arising from household size.

2.10 The caveats notwithstanding, one can thus draw the general conclusion that poverty in Pakistan remained unchanged between the beginning and the end of the decade. Moreover, indications are that after declining during the intervening years, poverty increased rapidly towards the later part of the decade. Such findings are also broadly consistent with those from other poverty studies in Pakistan, which employed different poverty lines and methodologies.

2.11 In all the years studied, rural poverty is found to be much higher than poverty in the urban areas. Comparing 1990-91 and 1998-99, it also seems that while urban poverty has fallen, rural poverty has remained stagnant, with the result that the rural-urban gap has increased somewhat over the decade.

2.12 Mean per equivalent adult expenditures at constant prices seem to be consistent with the stagnation in poverty that is observed (Figure 2.2), remaining almost unchanged from 1990-91 to 1998-99. Consistent with the poverty trends in urban and rural areas, mean expenditure has increased in urban areas more than in the rural areas. In rural areas it actually fell slightly from



1990-91 to 1998-99. Analysis of intervening years also shows relatively high volatility of mean per equivalent adult consumption across years in rural areas, compared to stable consumption with an increasing trend in urban areas.

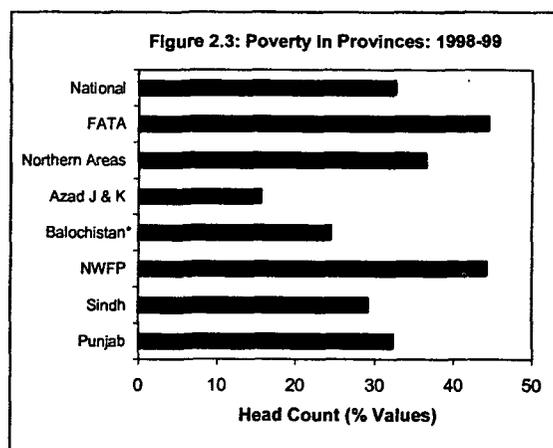
2.13 The lack of growth in rural consumption and poverty reduction during the 1990s is in sharp contrast to rapid growth in rural consumption during the later part of the 1980s – a period that also saw sharp fall in rural poverty. Moreover, the 1990s also saw growth in value added in agriculture, to the tune of a compounded average of 4.5% annually, which compares well with agricultural growth in the 1980s. This raises the important question as to why agricultural growth in the 1990s did not lead to the kind of growth in rural consumption and reduction in poverty as it did in the 1980s. While increasing inequality in rural Pakistan in the 1990s could provide an explanation for this puzzle, as a later section will show, inequality in consumption as measured by gini coefficients in fact did not increase in rural Pakistan in the 1990s.

2.14 Addressing this puzzle, which necessarily involves reconciling the findings from household data with those from macroeconomic sectoral data, would require understanding how the benefits of growth were distributed among the rural population.⁴ In doing so, for one thing, it will be imperative to identify the sources of income, farm and non-farm, of the rural population and to measure the changes in productivity and incomes over time. Such analysis has not been attempted in this report due to lack of credible micro-data for the time horizon of the 1990s on rural incomes and their sources. An agricultural strategy paper planned for the future will have to undertake such detailed analysis in addressing this issue of apparent disconnect between agricultural growth and rural consumption during the 1990s.

Poverty in the Provinces

2.15 A regional breakdown of poverty also reveals persistent differences across its major provinces, with the southern Sindh province, and the northern North West Frontier Province faring the best and worst, respectively. With some qualification, rural-urban differences in the incidence of provincial poverty persist across all survey years. Regional mean consumption figures appear to be quite a good indicator of exigency, particularly in rural areas, but inequality in consumption plays a greater role in explaining differences in urban poverty between provinces.

2.16 According to most recent estimates, at the provincial level, NWFP is the poorest of the major provinces, Punjab is poorer than Sindh, and Balochistan has the lowest poverty rate (Figure 2.3). This pattern is also reflected to some extent in estimates from 1990-91 and 1993-94 (Table 2.2). The notable difference is that Balochistan has a higher poverty rate than Punjab or Sindh for two of those years. NWFP appears to be the poorest among all provinces during these years, with rural poverty especially, remaining very high throughout the period. The pattern of poverty in Punjab and Sindh over the years is more or less in keeping with that of the country as a whole.



*May be less reliable than estimates for other provinces due to low density of population (See Annex 2.3)

2.17 It is instructive to look at mean consumption and inequality figures (Table 2.3), to see if any consistent patterns emerge that explain differences in poverty incidence across provinces. While the variation in mean consumption across provinces is broadly consistent with poverty rates, in both urban and rural areas, there is much greater variation in inequality of consumption across provinces in urban areas as compared to rural areas, suggesting that inequality plays a greater role in explaining differences in urban poverty between provinces, than it does differences in rural poverty.

Table 2.3: Mean Per Equivalent Adult Expenditure (Monthly, 1990-91 Prices) – 1998-99

	Punjab	Sindh	NWFP	Balochistan*	Azad J & K	N. Areas	FATA	National
Urban	599.4	592.4	535.2	464.7	620.2	541.8	.	589.1
Rural	420.6	398.8	372.4	440.1	494.9	382.4	355.6	410.8
Overall	472.1	482.7	396.3	443.3	504.9	397.5	355.6	460.9
Inequality (Gini): Mean Per Equivalent Adult Expenditure – 1998-99								
Urban	37.0	33.0	34.6	25.5	28.9	29.4	.	37.0
Rural	25.7	24.6	24.5	22.5	21.7	20.9	20.3	25.7
Overall	30.6	30.4	27.1	22.9	22.6	22.7	20.3	30.6

* May be less reliable than other statistics in table. See Annex 2.3

2.18 A case in point is the Punjab and Sindh – two large provinces that are home to 55 and 35 percent of the country's urban population, respectively. While the two states have very similar urban mean consumption, the consumption gini coefficient that measures inequality, is about 12 percent higher for urban Punjab. This partly explains why the incidence of poverty in urban Sindh is substantially lower than that in Punjab. Azad J & K, with the highest mean consumption and lowest inequality, naturally exhibits the lowest urban poverty incidence. At the other end of the spectrum is NWFP, where substantially lower than average mean consumption, and a high consumption gini, translates into the highest urban poverty rate in the country.

2.19 Since the gini coefficient for per equivalent adult consumption in rural areas shows little variation across provinces in 1998-99, the incidence of rural poverty across provinces varies consistently with mean consumption. The rural areas of Sindh, NWFP, the Northern Areas and FATA are characterized by mean consumption levels well below the national rural average, which translate into poverty rates above the national average.

2.20 Rural-urban differences in incidence of poverty persist in the major provinces across all survey years, with the notable exception of Balochistan in 1998-99.⁵ Sindh by far exhibits the largest rural-urban gap in poverty incidence, with a rural head count that is 1 percent above the national rural average, and an urban head count that is 5 percentage points below the urban average. While Balochistan stands out as the only province with a rural poverty head count lower than the urban on in some years (including 1998-99), this finding should be qualified. Indeed, there are difficulties in measuring poverty in Balochistan – arising out of difficulty in sampling a vast area with highly dispersed population, as well as possible large seasonal variations in consumption – that affect the comparability of its estimates across years, with those of other provinces (see Box 2.1 and Annex 2.3).

Methodological Issues in Measuring Poverty⁶

2.21 The measurement of poverty in Pakistan is slightly complicated by difficulties in establishing a consensus on a poverty line for the country. These are not considered to have impaired the utility of the analysis in this report, but some discussion of the methodological concerns surrounding the measurement of poverty is therefore particularly important.

2.22 Generally, the measurement of poverty follows the well-known notion of comparing household consumption expenditures with a pre-decided poverty line defined in terms of aggregate household expenditure. This includes expenditures on all non-durable goods and services, and expenses on services and repair charges of household effects.⁷ The household expenditures thus obtained are adjusted for price differences between urban and rural regions, making it possible to compare expenditures used separate urban and rural poverty lines that are also defined in terms of expenditures.

Adjustments for Household Size and Composition

2.23 In order to measure welfare at an individual level, household expenditure should be adjusted according to household size and composition. In the Pakistani case, the correction for composition was done via a correction by the per adult equivalent in the household.⁸ However, in calculating poverty estimates, the expenditures were not corrected for household size, which implies that the estimates do not make any allowance for economies of scale in household consumption. By itself, this would be a cause for concern, particularly with relation to any analysis about the demographics of poverty.⁹ However, since this report will not attempt such examination of demographics as related to poverty, a detailed investigation of the kind of scale adjustment suitable for the current PIHS data Pakistan is not conducted for this report.

2.24 That said, it is important to explore the sensitivity of the poverty measures, and more importantly the poverty trends, to adjustments for the “scale effect” in consumption. Such investigation, using a reasonable range of parameters, reveals that poverty trends during the 1990s remain almost unchanged – for rural and urban Pakistan alike – with scale effects (see Annex 2.2). Although poverty estimates for individual years tend to decrease with such scale adjustment, the movement of poverty rates from year to year are similar to that in the absence of such adjustments. In the light of these results, the estimates without such adjustments are considered to provide a satisfactory picture of poverty trends. Moreover, these estimates are comparable with the historical estimates of poverty in the years preceding 1992-93 – which were computed without taking into account scale effects – that makes it possible to look at poverty trends over the entire time horizon starting in the mid-1980s.

Poverty Lines Used for the Analysis

2.25 The poverty line for every year is the “basic needs” poverty line, which was used for the estimates in the 1995 Poverty Assessment, using HIES data up to 1990-91, and was in turn based on modifications of the poverty line developed by Ahmad (1993). The poverty line was adjusted for inflation for every year in the analysis. The guiding principle behind this poverty line is to take the line “as the cost of achieving a minimum bundle of basic needs, in which calorific needs are included alongside other purchasable needs such as fuel, housing and clothing”.¹⁰

2.26 This report arrived at a poverty line – which was necessary for purposes of its analysis -- while recognizing that Pakistan does not yet have such an officially recognized standard. The line adopted is consistent with two important conditions that poverty lines should satisfy, and on which consensus has however been reached. First, holding the poverty line constant in terms of purchasing power across the years covered in the analysis ensures comparability over time. Second, poverty is defined not only by household members’ (lack of) calorie intake, but also by the ability of the household to meet its basic non-food needs. The poverty line was established following an exhaustive analysis of available options, as a part of background work undertaken for the World Bank’s preceding Pakistan Poverty Assessment.¹¹

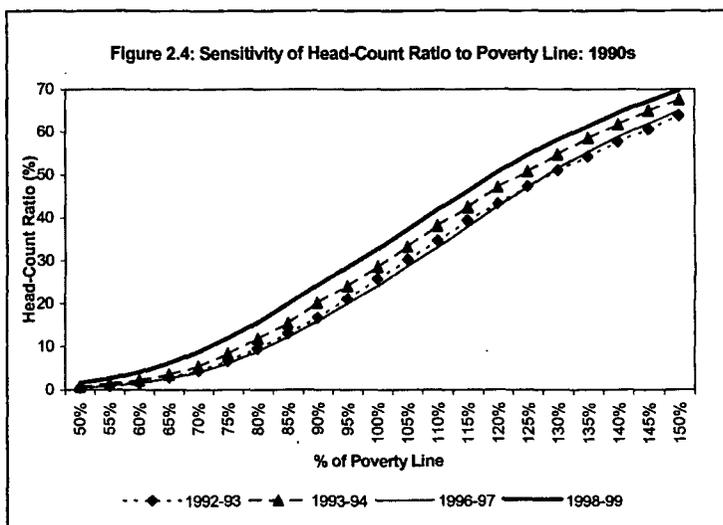
2.27 Importantly, for the sake of consistency across future studies, and in order to facilitate the monitoring of poverty trends over time, it will be imperative to eventually establish an informed consensus on a poverty line for Pakistan. To this end the report welcomes the considerable progress that has been made towards reaching a consensus on this issue in recent times. Having said that, it is also the

case that given the subjective judgments that invariably inform the choice of poverty lines, such measures should best be employed in comparative contexts. Relative rankings, rather than absolute numerical values, should be used to gauge changes and differences in poverty across different times and locations. Thus, even if there are disagreements over the suitability of the poverty line adopted by this report, this should not detract from its central story. It is also worth noting that the estimates and trends of poverty in Pakistan reported here are broadly consistent with those of other works employing the same data, but different poverty lines.

Sensitivity of Head Count Ratios to Choice of Poverty Lines

2.28 Since the choice of poverty line is essentially subjective, it is useful to examine how poverty estimates respond to adjustments of this line. A sensitivity analysis illustrates this clearly and also shows that the observations of this report appear quite robust to any adjustments. Figure 2.4 graphs the head count ratio for urban and rural Pakistan in 1998-99 against different levels of poverty lines.¹² It shows as

evident the fact that rural poverty is greater than urban poverty, irrespective of the level of the poverty line. However, it turns out that the rural head count is more sensitive to the choice of poverty line than the urban head count, as evident from the steeper slope of the line corresponding to rural head-count. The sensitivity analysis also validates the comparison across years. From Figure 2.4, the head-count ratio in 1993-94 is always higher than those in 1992-93 and 1996-97, irrespective of any choice of poverty lines between 50 and 150 percent of the actual lines. By the same token, the head-count ratio in 1998-99 is unequivocally greater than in the other three years.



2.29 A broad picture of the extent and nature of poverty in Pakistan is also obtained by looking at the distribution of the population around the poverty line. It turns out that as much as 43 percent of the Pakistani population is distributed between 75 and 125 percent of the poverty line. Given this proximity to the poverty line it is possible that small shocks could translate into large changes in the observed static poverty rate. This may explain, at least in part, the large movements in the rural poverty rate over the 90's, a decade characterized by substantial exogenous weather shocks. A following section on vulnerability examines this in more detail.

Poverty, Growth and Inequality

2.30 In light of the fact that Pakistan enjoyed positive if low to moderate rates of growth during the 1990's, it is worth asking how growth and its distribution affected poverty. As detailed in this section, there is evidence of a significant link between economic growth and poverty in the country - as measured in terms of consumption - and between inequality and poverty. While growth promoted poverty reduction in urban areas, some of the gains were wiped out by rising inequality. In rural areas on the other hand, stagnation in growth between the beginning and the end of the decade, combined with volatility during the intervening years, sustained poverty. While growth is therefore likely to be important for poverty

reduction in Pakistan, its direct benefits to many poorer constituencies has been curtailed by volatility and inequality.

The Role of Growth and Inequality in Explaining Poverty

2.31 Though economic growth has largely failed to translate into commensurate development of human capital in Pakistan, as discussed in Chapter 1, growth and consumption poverty appear to be strongly and immensely linked. This is consistent with the international evidence reviewed in the same chapter. In addition, the evidence below links poverty to income inequality, which worsened appreciably in urban areas during the 1990's, but saw only moderate changes in rural areas. The latter however experienced considerably more volatility in consumption.

2.32 It is instructive to look at poverty trends in relation to macroeconomic growth patterns. As mentioned before, the period between 1984-85 and 1987-88, and that between 1987-88 and 1990-91, saw poverty reduction make large inroads. These also coincided with periods of high growth in *per capita* GDP, at average annual per capita rates of 4.1 percent and 2.8 percent respectively. In the nineties, annual average per capita growth was around 2 percent between 1990-91 and 1993-94, when poverty declined by 5 percentage points. In contrast, poverty *increased* by 4 percentage points over the period 1993-94 to 1998-99, when per capita GDP grew only at an annual average rate of 1.4 percent. Further analysis shows that even within this period, the largest increase in poverty took place between 1996-97 and 1998-99, when per capita GDP grew at an annual rate of less than 1 percent. This evidence supports the point made in Chapter 1: growth and poverty reduction tend to go together in developing countries, and Pakistan is no exception.

2.33 While macroeconomic growth seems to be associated with observed movements in aggregate poverty rates, regional trends can be better understood by looking at growth in *consumption* from *household data*. Consumption data reveals that urban areas have experienced relatively higher growth in mean consumption than rural areas (see Figure 2.3). Notably, rural areas are also subject to much greater volatility in adult consumption, which translates into correspondingly larger fluctuations in rural poverty rates.

2.34 Associations between inequality and poverty are also important to explore. Nationwide, inequality worsened slightly between 1990-91 and 1998-99, as measured by the gini coefficient of per equivalent adult consumption (Table 2.4).

Table 2.4: Inequality – Gini Coefficients (Per Equivalent Adult Consumption Expenditures)

	1984-85	1987-88	1990-91	1992-93	1993-94	1996-97	1998-99
Urban	31.4	31.6	31.6	31.6	30.2	28.4	35.3
Rural	26.3	24.0	26.7	25.2	24.6	23.8	25.1
Overall	28.4	27.0	28.7	27.6	27.6	26.3	29.6

However, the aggregate figures mask substantial differences in the evolution of rural and urban inequality. Irrespective of whether one takes 1990-91 or 1996-97 as the reference period, urban inequality had worsened considerably by 1998-99, while rural inequality fell slightly between 1990-91 and 1998-99.

2.35 Analysis based on standard methodology confirms that growth in average consumption, as well as changes in distribution has had significant impact on changes in poverty levels in Pakistan. Based on a method developed in recent literature, growth-redistribution decomposition of changes in poverty estimates are conducted for various periods between surveys.¹³ The small decrease in poverty incidence over the entire period, between 1990-91 and 1998-99, is found to be almost entirely due to a slight redistribution of consumption from higher expenditure groups to lower expenditure groups. In any case, the change in poverty over this period is quite small, and not much can be inferred from the results.

2.36 However, the decompositions for urban and rural regions separately are more informative. For urban areas, the observed decline in poverty over the period is entirely due to the consumption growth component, and the redistribution effect has in fact had the opposite effect. If the distribution of consumption in urban Pakistan could be held constant at the 1990-91 level, growth that actually occurred would have reduced the poverty headcount by around 8 percentage points, compared to the observed 4 points. The opposite is true for rural Pakistan, where a slight reduction in inequality, along with no growth in consumption, resulted in a small net reduction in poverty of around 1 percentage point.

2.37 Consistent with the picture of stagnant poverty for Pakistan as a whole, growth incidence curves (GICs) drawn for the country reveal almost no change in consumption for most expenditure centiles between 1990-91 and 1998-99 (Figure A-2.2, Annex). Even the largest change in consumption that occurred in the form of a reduction among the bottom decile, amounted to a rather low average annual rate of less than 0.4 percent.

2.38 The aggregate picture however, just as it is with the growth-inequality decomposition, masks the considerable differences between the rural and urban regions. The GICs drawn separately for urban and rural Pakistan paint a picture consistent with the above decomposition exercise (Figures 2.5 and 2.6). For rural Pakistan, the curve indicates that very little growth in per capita consumption occurred for all expenditure groups between 1990-91 and 1998-99. While all expenditure groups between the 10th and the 70th percentile experienced slight growth, growth was negative for the very poor as well as the relatively well off. For urban regions, the GIC indicates clearly that growth occurred primarily among the relatively well off over the decade. The average annual growth rate in consumption among the bottom 20 percent and the middle 20 percent (between 40th and 60th percentile) of the distribution were negative 0.6 percent and 0.1 percent respectively; in contrast, the average annual growth for the top 20 percent was 1.2 percent. Thus while rural Pakistan suffered from lack of growth in consumption, urban regions experienced consumption growth that was not pro-poor during the 1990s.

2.39 The decompositions of poverty changes for successive time periods for which household data were available, during the 1990s throw further light on the role of growth and inequality in influencing poverty (Figure 2.7). In urban areas, both growth in mean consumption and changes in the distribution had sizeable impact on poverty, often in opposing directions.¹⁴ In rural areas, it is noticeable that rise and fall in poverty in intervening years have pretty much followed movements of the growth component, with the redistribution component remaining relatively small.

Figure 2.5: Growth Incidence Curve (Rural): 90-91 to 98-99

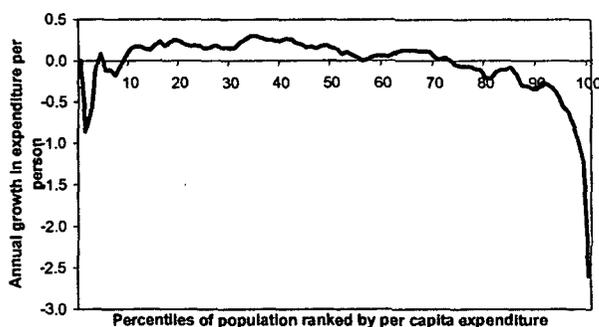
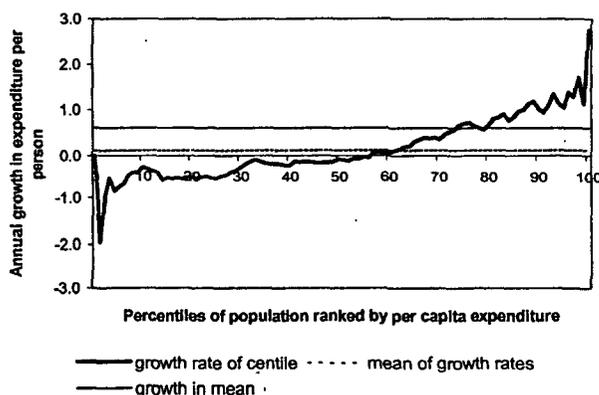


Figure 2.6: Growth Incidence Curve (Urban): 90-91 to 98-99



2.40 Thus both growth and distributional changes were important during the 1990s, particularly with respect to differing patterns of poverty in rural and urban areas. While growth promoted poverty reduction in urban areas, some of the gains were wiped out by rising inequality. In rural areas on the other hand, stagnation in growth between the beginning and the end of the decade, combined with volatility during the intervening years, were the main factors impeding poverty reduction. Notably, in the light of the experience in rural areas, a primary objective of public policy aimed at mitigating poverty and vulnerability, should be to promote growth and reduce fluctuations in rural consumption. In urban areas, a major challenge would be to ensure that the benefits of growth are distributed more broadly among the population.

2.41 An important corollary of this section is that although there is a relationship between growth and poverty in Pakistan, it is also clear that even rapid growth does not touch many poor, in part because of changes in inequality and fluctuations in income. Understanding these dynamics and the manner in which they prevent households from benefiting from growth should be an integral part of a poverty analysis if it is to provide concrete recommendations for future policy initiatives. However, the static measures of poverty hitherto employed in this chapter do not tell us much in this regard. The following sections attempt to bridge this gap.

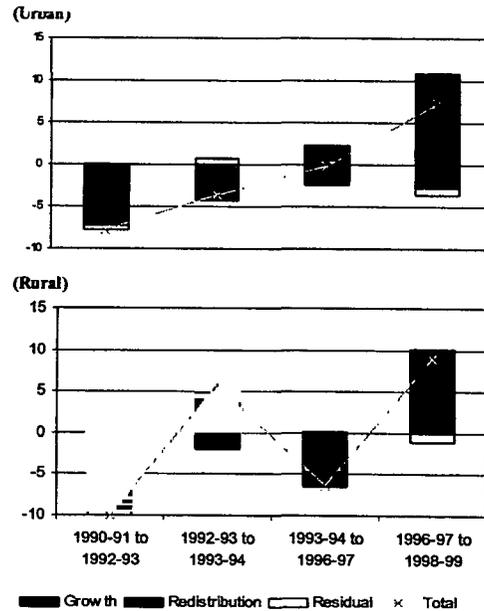
Income Dynamics, Risk, and Vulnerability

2.42 Income volatility is a defining feature of life for many citizens in developing and transitional economies. While its precise causes differ among countries and over time, it imposes many substantial and often unavoidable risks. Private and social efforts to mitigate these risks can also be quite costly in the absence of well-developed markets for credit and insurance. Indeed, a number of recent studies using panel data have suggested considerable “churning” under the surface of aggregate poverty and income statistics. This movement of households into and out of poverty suggests that a substantial proportion of observed poverty at any given time might be ‘transient’ in nature. The clustering of households around the poverty line described in a preceding section is certainly indicative of such a possibility in the context of Pakistan. However, our real interest is in the extent to which uninsured risk plays a causative role in creating or sustaining welfare losses and in the policy levers which might be most effective at reducing such losses.

2.43 While there are many possible ways to identify uninsured risk and, consequently, more than one possible definition of “vulnerability”, it seems useful from a policy perspective to obtain a measure based on the variability of consumption expenditures, since it is the inability to smooth consumption in the face of income fluctuations which is, to a substantial degree, at the heart of concerns about the role of vulnerability in creating or sustaining poverty. Notably, if households were able to adequately smooth expenditures, static poverty measures would tell us most of what we need to know about the poor.

2.44 However a measure of vulnerability based on consumption variability entails two general difficulties. First, one must estimate the extent of consumption variability due to exogenous income shocks, as distinct from the variability due to measurement error, preference shocks, and endogenous

Figure 2.7: Decomposition of the change in poverty incidence



adjustments to shocks (e.g., labor supply, transfers). Second, one must formulate a meaningful measure of ex-ante vulnerability based on the result of step 1.

Examining vulnerability to weather- induced shocks

2.45 The first issue is addressed by combining household consumption data with 20 years of monthly rainfall measurements to estimate the exogenous component of consumption variability. Rainfall shocks are not only exogenous to households, but because they are covariate, i.e. tend to cause and accompany general declines in local incomes, they are difficult to insure in local markets. Using information on household farm assets, the exogenous component of the consumption variance is therefore allowed to vary by household (e.g., because households with more irrigated land may have lower consumption variability). The second issue is addressed by developing a measure of household vulnerability that can be used to ascertain vulnerability ex-ante, i.e. before the shock in question. Vulnerability is accordingly defined as the *probability* that a household experiences at least one episode of poverty over a defined time period, and vulnerable households as those for whom that probability exceeds a threshold value.¹⁵

2.46 In the context of rural Pakistan, the focus on weather-related shocks is of particular importance since these were by far the most important adverse events reported by communities sampled by the recent representative rural survey (PRHS 2001). Over 63 percent of all villages in the survey experienced at least one severe drought over the past five years. Many experienced repeated droughts, with 2000 being the worst drought year. A third of all villages experienced floods, most in 1998. This year saw a drought in the monsoon season being followed by late rains and floods. Since a disproportionate fraction of the poor reside in rural areas, these weather shocks are a particularly useful focus for the study of rural vulnerability in Pakistan, and can form the basis for thinking through concrete policy measures to reduce such vulnerability.¹⁶

2.47 The vulnerability estimates, derived from the IFPRI panel survey data (from 1986 to 1991), are used to examine the characteristics of vulnerable households and to compare vulnerability with notions of chronic and transient poverty.¹⁷ A household is classified as chronically poor if its mean expenditure level is below the poverty line. Transient poverty is then the variation of observed expenditure around its time mean (both chronic and transient poverty are defined using the squared poverty gap as the empirical poverty measure).¹⁸

2.48 First, it is important to note that the measure predicts actual episodes of poverty extremely accurately (see appendix) This implies that expenditure volatility induced by weather shocks had a substantial impact on household welfare, even in areas with canal irrigation. In fact, winter rainfall in the season preceding the agricultural year, which we use as a rough proxy of expected water levels in the canal system, has a substantial effect on expenditures, highlighting the importance of rainfall for canal water supplies.

**Table 2.5. Vulnerability and Poverty by agro-climatic zones
(using IFPRI panel; poverty line=Rs. 2580, TimeHorizon =2 years)**

	Percentage Households			
	Vulnerable	Poor: using measured expenditure	Chronically poor	Transiently poor
Northern irrigated plains	29.1	47.2	34.3	12.9
Barani plains	46.1	42.0	25.9	16.1
Dry mountains	67.3	58.1	46.7	11.4
Southern irrigated plains	71.0	61.0	46.4	14.6
All	56.1	53.4	39.7	13.7

2.49 Second, there is a strong variation in levels of vulnerability (Table 2.5). While less than a third of all households in the northern irrigated plains of the Punjab, essentially the canal colony areas, were classified as vulnerable, over two-thirds were classified as vulnerable in the southern irrigated plains of

Sindh province and the dry mountains of the North-west. These regional patterns look much less stark, however, if one relies only on observed poverty levels. The picture is not much changed if one focuses on the chronic component of poverty, although differences in observed poverty appear to be largely a result of differences in chronic poverty levels rather than in transient poverty. The vulnerability measure thus seems to capture something quite distinct from the static poverty measure as well as from the measure of transient poverty.

2.50 This exercise also highlights the importance of making an analytical distinction between vulnerability, chronic poverty, and transitory poverty. Box 2.2 brings out these distinctions sharply, and goes on to show that vulnerability to poverty in rural Pakistan is very much a product of both low mean expenditure levels and variation in expenditure due to shocks. Moreover, the analysis indicates that a significant fraction of the total variation in expenditure can be explained by exogenous weather shocks.

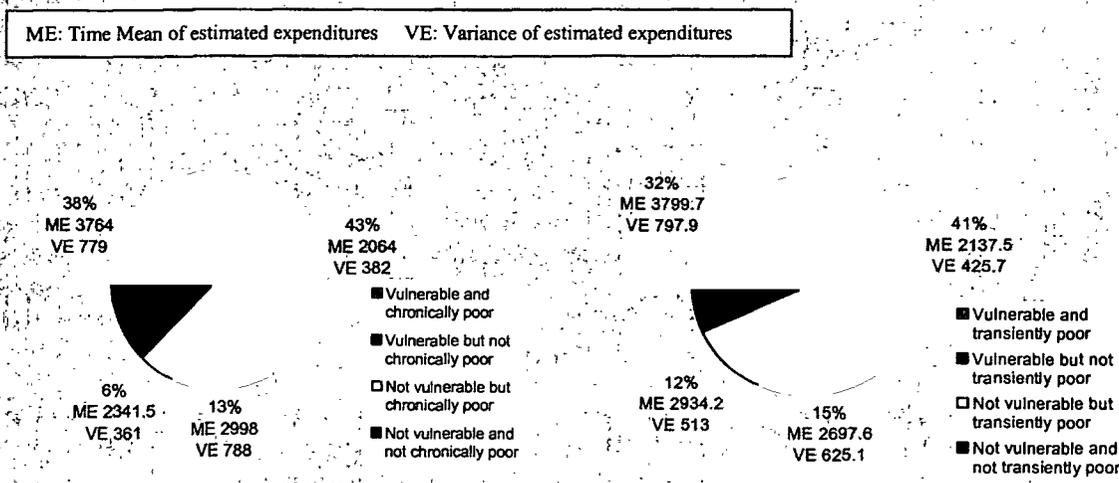
Box 2.2: Vulnerability, Chronic Poverty, and Transitory Poverty

The difference between vulnerability and chronic poverty becomes clearer from looking at the figure below. It is found that close to a quarter of all vulnerable households are not chronically poor. These households are vulnerable mainly due to the high variance of expenditure relative to its mean. In contrast, among the chronically poor, some 13 percent are not vulnerable. These households are poor mainly because of low mean expenditures with very little variance around this low mean.

Looking now at vulnerability and transitory poverty, chart 2 shows that among households classified as vulnerable, more than a quarter experienced no transitory poverty over the time period of the panel, while among households classified more than a quarter of those who experienced transitory poverty in a given year were not classified as transiently poor, over a quarter were not classified as also vulnerable. Once again, households who were classified as vulnerable had relatively low mean expenditure levels, combined with a high variance of expenditure, while those who experienced transitory poverty had higher mean expenditure levels and a lower variance of expenditure. This difference points to the key difference between poverty and vulnerability. Vulnerability is the *ex-ante* risk of falling into poverty, while any poverty outcome, chronic or transient, is an *ex-post* measure of household well-being.

To better understand the significance of this, it is instructive to compare vulnerability and transient poverty levels for households grouped by distance from the poverty line. It is found that a large fraction of households (57 percent) are clustered just around the poverty line (.75-1.25 times the poverty line). Among these households, as one might expect, a very large fraction (69 percent) are vulnerable. On the other hand, only 2 percent of households with mean expenditure levels larger than 1.25 times the poverty line are classified as vulnerable, though some did experience an episode of transient poverty. Finally, as one might also expect, all households with mean expenditure levels below .75 percent of the poverty line were classified as vulnerable although they had a substantially smaller variance of estimated expenditures. This suggests that vulnerability to poverty in rural Pakistan is very much a product of both low mean expenditure levels and variation in expenditure due to shocks.

Figure: Vulnerability and Poverty (using IFPRI data)



2.51 It is clear that the vulnerability measure based on weather related shocks is able to predict welfare shocks quite accurately, and allows one to distinguish between observed poverty at a point in time, and the risk of a welfare shock due to income variability. In addition, some insights the coping strategies available to vulnerable are available from the qualitative survey (QPS). The discussion in Box 2.3, drawn from the QPS, underscores the ways in which coping strategies vary across income groups and regions. In regions where agricultural production is less significant (Barani or rainfed areas), and income diversification is a necessary condition of survival among the asset poor, weather shocks appear to increase reliance on wage work outside agriculture. In contrast, credit played a key role in sustaining consumption in areas where agricultural production was a substantial component of the rural economy. Agricultural wage workers and tenant farmers survived mainly by taking credit from their landlords or from shopkeepers, and landlord credit was largely available only in areas with high inequality in land ownership. Other than non-farm wage work in the village and credit, sales of livestock and out-migration in search of wage work also appear to be key coping strategies.

Box 2.3: Drought-Related Shock: Insights from Case Studies of Two Villages

The qualitative survey allowed insights into the effects of the drought in two very different types of agro-climatic zones. The village of Raheema in Attock district relied on rain-fed (*barani*) agriculture. Shah Alam in Nawabshah, on the other hand depended almost entirely on canal-irrigated farming. Both areas suffered from the effects of the drought in the year of the survey. The failure of the rains during the *rabi* 2000-2001 season had severely reduced the wheat crop in Raheema. This shock was compounded with another – a hailstorm destroyed much of the following *kharif*'s maize crop. Shah Alam felt the effects of the drought through a sharp reduction in the supply of canal water. The shortage was particularly severe in 2001, though it had persisted since around 1998. Both Raheema and Shah Alam had relatively unequal agrarian structures. The poorest in Raheema were landless families, who depended on tenant farming and casual wage labor for their livelihoods. The twin adverse shock of drought and hailstorm had negative impacts on both types of activities. Wheat yields were around a quarter of their usual levels, and the maize crop was entirely destroyed, and was good only for green fodder. The loss of the crops also affected the casual labor market. There was no harvesting labor to be found during the year. The poor had coped largely by working at casual wage labor jobs, mostly in construction, and some away from home. They had borrowed food from shopkeepers in the village and in the nearby market towns. Some had been forced to part with their assets, mostly livestock.

In Shah Alam, the poorest were landless sharecroppers and laborers, as well as small landowners. The main impact of the on-going water shortage on agriculture was a decline in the sown area. There was also a change in cropping patterns as water-intensive sugarcane was replaced with wheat and cotton. A positive impact (on future productivity) was that land previously made uncultivable by waterlogging had been reclaimed for future use. Landlords had shifted their tenants around in order to make optimal use of the canal water that was available. Most tenants were getting less land than before, and some were not given any land at all. Tubewells had been installed and these had raised the cost of crop production. It was widely believed that tubewell water was saline and that it was going to ruin the land after two or three years of cumulative increases in the salt content of the soil. This had not yet kicked in and yields on the lands that were cultivated remained close to their historic averages. Those among the poor who remained tenants saw their earnings decline as a result of getting less land, and due to the higher costs of production. Many of them borrowed grain from the landlords against future crops. There were some who no longer worked as tenants, and were mostly seeking work as casual laborers. Harvest time work was still available for both wheat and cotton. There were reports, also, of families migrating to work for landlords who had managed to secure water supplies. Even within the area of Shah Alam there was evidence in one area of out-migration and in another of in-migration.

The drought affected the conditions of the poor very differently in the two areas. The differences were partly due to the technology of irrigation – rain-fed in one and canal-based in another. Differences were also due to the initial conditions in which the poor found themselves. The poor in Raheema were mostly low caste wage laborers, relying on diverse agricultural and non-agricultural activities for sustenance. The diversity of their pre-shock livelihoods was understandable, given that agricultural productivity is relatively low and varied in the *barani* areas. The livelihoods strategies, therefore, had already internalized the environmental hazards. There was no strong credit or insurance relationship with the landlords. In Shah Alam, large land holdings provided a cushion against a total collapse in productivity. Large landlords attempted to use their water allocations optimally by restricting cultivation to part of their holdings, and moving tenants around in order to achieve this goal. They also managed the allocation of water to their different tenants optimally. Landlords retained an interest in holding on to their tenants in anticipation of future improvements in water supply, and therefore were willing to extend consumption-smoothing credit.

Source: Gazdar (2002). "A Qualitative Survey of Poverty in Rural Pakistan: Methodology, Data, and Main Findings"

Household Determinants of Vulnerability and Poverty

Household Determinants of Vulnerability

2.52 In order to ask how household vulnerability correlates with household characteristics, it is important to understand whether the correlates of vulnerability are in any way distinct from the correlates of 'transient' or 'chronic' poverty. Accordingly, vulnerability, chronic poverty and transient poverty were regressed on a range of household assets, household composition and education variables, and location and year dummies.

2.53 The focus is mainly on 4 types of assets; land, livestock, farm assets like tractors, and other durables, which included vehicles, refrigerators and sewing machines. The evidence shows all four types of assets significantly reduce vulnerability, however there are important differences across asset types. First, while land ownership has a negative effect on vulnerability, its effect on vulnerability and transient poverty is much smaller than its effect on chronic poverty. This suggests, as expected, that land is less likely to be used to protect consumption in the face of covariate shocks, and is consistent with a relatively thin market for the purchase and sale of land in rural Pakistan. In contrast, the ownership of farm assets like tractors and other vehicles has a significantly negative effect on both vulnerability and chronic poverty, but appears to have no effect on transient poverty. This suggests that the effect of farm assets on vulnerability works through its effect on chronic poverty. Finally, livestock ownership has a much larger negative effect on vulnerability as compared to both chronic and transient poverty. This seems to provide some evidence that households use livestock sales to buffer consumption.

2.54 It is also apparent that household composition has an effect; households with young kids and dependents are more likely to be vulnerable. Interestingly however, qualifying observations from cross sectional data noted below, it also appears that education lowers vulnerability only if at least one household member has a post-secondary education.

2.55 Finally, as expected, location has a significant effect on vulnerability, according to the pattern evident from Table 2.5. Households in district Badin in Sindh, and district Dir in the dry mountain region, have a significantly higher probability of being vulnerable as compared to households in district Faisalabad (in canal colony Punjab). In contrast, location has much smaller effects on both chronic and transient poverty.

2.56 The noted differences in the sample between Sindh and Punjab throw into some relief earlier observations from previous section. As noted, the lowest level of vulnerability was in the northern irrigated plains, essentially the canal colony areas of Punjab, while the highest levels were in the southern irrigated plains, the province of Sindh. While a large fraction of cultivated area in both regions is canal irrigated, the regions are substantially different in several respects. Importantly, these include sharp differences in the degree of inequality in land ownership. While land is held in small and relatively equal holdings in the canal colony areas of the Punjab, much of Sindh is characterized by a high degree of inequality in land ownership.

2.57 Another notable difference is that there is substantial diversification of income across farm and non-farm sources in central and *Barani* Punjab while there are few, if any, opportunities for non-farm employment in much of Sindh. In addition, external transfers appear to play some role. As expected, the rainfed plains of northern Punjab have a higher percentage of vulnerable households. Nonetheless, levels of vulnerability there are lower than in southern Sindh. This appears to be due in large part to remittance income from migrants to the Gulf, and again, increasing levels of diversification out of agriculture. These characteristics are discussed in more detail in the rural poverty chapter of this report.

2.58 While much more remains to be understood about the dynamics of poverty and the coping strategies used by households, the analysis thus far is at least suggestive of the importance of risk induced shocks to household welfare and underscores the need for forward-looking and pro-active policies that focus on poverty prevention, at least partially through reducing exposure to income risks. The analysis indicates that programs that increase income diversification, particularly through the development of non-farm enterprises, and increase opportunities for wage labor, are likely to be quite important. It also underscores the importance of a rational and efficient use of available assets like land and irrigation water. These issues are explored in greater detail in Chapter 4. Finally, the analysis also points to regional differences in exposure to weather related shocks, and available coping strategies, which should influence the targeting of poverty programs.

Poverty and Associated Household Characteristics

2.59 While the previous subsection examined the determinants of *vulnerability* among households, this part of the analysis explores the range of characteristics associated with *poverty* among households, using cross-section data from the nationally representative PIHS survey. These include lack of land ownership in rural areas, employment characteristics of household head, lack of educational attainment by the head of the household, as well as various indicators of human development.

Employment, and the informal sector

2.60 PIHS data illustrate some aspects of the relationship between poverty and employment status (Table 2.6). In urban and rural areas alike, the incidence of poverty is relatively high in categories that are largely comprised of owners of small enterprises or providers of services in the (non-agricultural) informal sector. This points to the importance of addressing factors that constrain incomes and induce vulnerability in the informal sector, as an integral part of public policies aimed at reducing poverty. This would be especially critical in urban areas, since about 29 percent of the urban population live in households whose heads are self-employed or own-account workers. These numbers do not even fully reflect the importance of the informal sector, as they exclude the large proportion of the population which is comprised of households whose heads are categorized here simply as “paid employees”, or who are likely to be employed in the non-agricultural informal sector.²⁰

Table 2.6: Incidence of Poverty by Employment Status of Household Head (1998-99)¹⁹

Employment Status of Head	Urban		Rural		Overall	
	Head Count	% of Population	Head Count	% of Population	Head Count	% of Population
Not working	22.6	19.0	33.9	16.0	30.3	16.9
Employer	4.0	3.9	31.5	1.0	14.9	1.8
Own account worker	25.5	10.4	44.6	6.3	37.2	7.5
Self-employed	27.7	18.2	39.7	13.1	35.5	14.6
Paid employee	25.3	44.9	39.6	27.0	34.0	32.0
Owner cultivator	.	.	27.5	25.0	27.2	18.7
Sharecropper	.	.	40.7	10.3	39.9	7.7

Land Ownership

2.61 The fact that in rural areas, the incidence of poverty is relatively low among households whose head is an owner-cultivator or employer also underscores the crucial link between land ownership and rural poverty, particularly when coupled with the fact that the highest poverty rates in rural areas are found among households headed by paid employees (comprised largely of agricultural wage workers) and sharecroppers.

2.62 As prefigured by the earlier discussion of variations in vulnerability between the Punjab and Sindh, the ownership of assets, particularly of land, can be a critical means of alleviating poverty and buffering economic shocks. Indeed, land ownership in most developing countries, including Pakistan, is one of the most important factors associated with the economic status of rural households.²¹ This is starkly

Land Ownership (Hectares)	Urban		Rural		Overall	
	Head Count	% of Population	Head Count	% of Population	Head Count	% of Population
No land	24.6	91.1	40.3	61.4	34.6	69.6
>0 to 0.4	15.9	0.9	31.8	8.1	31.1	6.1
>0.4 to 1	21.1	2.0	35.4	10.3	34.4	8.0
>1 to 2	14.4	1.4	29.5	5.9	28.2	4.6
>2 to 4	9.8	1.8	22.4	7.0	21.3	5.5
>4	16.3	2.9	12.8	7.4	13.2	6.1

shown in Table 2.7. At 40 percent, the poverty head count ratio among rural households that do not own any land is much higher than the 32 percent of even those who belong to the lowest category of landowners. Tellingly, the ratio falls sharply as land ownership increases.

2.63 While the implications of skewed land ownership will be discussed in further detail in Chapter Four, two observations are worth briefly rehearsing here. On the one hand, persisting inequality in land ownership could help explain the recent stagnation in rural poverty and the volatility in rural expenditures and poverty observed in this chapter. As noted above, expenditure volatility is likely to be higher among landless households because they lack assets to sell or to use as collateral in the event of distress. Also, vulnerability can itself perpetuate inequality, if volatility in rural incomes leads to distress selling of land by poor farmers, leading to greater ownership concentration.

Poverty and Household Composition

2.64 As noted earlier, evidence indicates that households with young children and dependents are more likely to be vulnerable. Not surprisingly, the incidence of static poverty is also higher among households with higher dependency ratios, i.e. a higher number of dependents as compared to the number of earners in the household: 1.52 for the poor, compared to 1.04 for the non-poor.²² Moreover, such differences are robust to adjustments for economies of scale in household consumption (for a reasonable range of the scale parameter – see Table A-2.10, Annex). Fertility data reveals that the difference in dependency ratio between poor and non-poor households is partly explained by the presence of more children in former households. The average number of births occurring to a married woman of age 15 to 49 belonging to a poor household is measured to be 4.9, compared to 3.9 for similarly aged women in non-poor households. The presence of a relatively large number of children may also reduce the ability of poor households to invest in the development of every child, with long-term negative consequences for their welfare.²³

Expenditure Composition of the Poor

2.65 It is also instructive to note that one characteristic of poverty that tends to perpetuate it over time is the set of systematic differences that distinguish the expenditure patterns of poor and non-poor households. Table 2.8 shows that the poor in Pakistan allocate a relatively large share of their expenditures towards food, and especially in urban areas, towards fuel and lighting. At the same time, the poor spend less on goods and services that might constitute investment in physical or human capital, including medical care, education, housing and transport.

2.66 These expenditure patterns also give a rough idea of the vulnerability of the poor to income and price shocks, translated for instance through food and fuel prices. Though this is not mapped by the analysis based on the IFPRI panel, cross sectional evidence clearly show that the high share of food in consumption expenditure of the poor, especially in rural areas, underscores the impact that changes in the

former in particular can have on rural consumption and poverty. In urban areas, the large share of their expenditure that is allocated to fuel points up another vulnerability.²⁴

Table 2.8: Share of Selected Expenditure Categories in Household Consumption (1998-99)

Important Expenditure Categories	Urban			Rural			Overall		
	Non-Poor	Poor	All	Non-Poor	Poor	All	Non-Poor	Poor	All
Food	40.89	48.06	42.18	50.17	53.81	51.17	47.12	52.51	48.49
Housing	18.40	13.08	17.39	8.72	7.29	8.28	11.76	8.42	10.86
Clothing & Footwear	6.46	7.96	6.73	8.16	9.35	8.49	7.60	9.05	7.98
Fuel & Lighting	6.61	8.14	6.89	7.23	7.71	7.36	7.02	7.77	7.21
Medical Care	3.67	2.98	3.54	4.67	3.97	4.46	4.35	3.76	4.19
Educational/ Professional	6.03	4.69	5.78	3.21	2.74	3.07	4.26	3.23	4.00
Transport & Travel	4.01	2.56	3.82	3.08	2.43	2.92	3.40	2.45	3.20

Educational attainment

2.67 The incidence of poverty is highly correlated with the literacy, and education attainment of the head of the household (Table 2.9) - further also to the findings of the IFPRI panel data on the importance of post-secondary education for mitigating vulnerability. This has serious implications for long-term poverty reduction, since poor educational attainment tends to be passed on to children. 42 percent of the population living in households with illiterate heads is poor, compared to 21 percent of those in households with literate heads. Notably, the difference in poverty rates between households with literate heads and those with illiterate heads is greater for urban households than for rural households, consistent with the idea that literacy is likely to have higher returns in urban areas. The poverty rate also decreases progressively as the education of the head increases. While households whose heads have never been to school account for 52 percent of the population, 68 percent of the total number of poor of Pakistan live in these households.

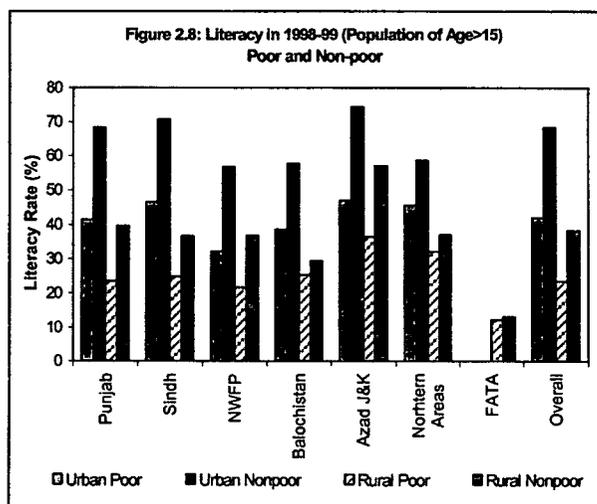
Table 2.9: Incidence of Poverty by Education of Household Head (98-99)

	Urban		Rural		Overall	
	Head Count	% of Population	Head Count	% of Population	Head Count	% of Population
Non-Literate	39.5	36.4	42.9	61.4	42.3	54.4
Literate	15.4	63.6	25.1	38.6	21.3	45.6
No Schooling	38.8	34.1	43.3	59.0	42.5	52.0
Cl. 1-5 (Primary)	26.8	17.4	30.7	18.4	29.6	18.1
Cl. 6-9 (Middle)	18.7	14.6	25.8	10.5	23.3	11.6
Cl. 10-11 (Matric)	13.0	16.5	20.0	7.5	16.8	10.0
Cl. 12 (Intermed.)	8.2	6.3	17.6	1.7	12.1	3.0
College and above	4.5	10.9	6.5	2.7	5.3	5.0

Poverty and Human Development

2.68 Poverty in all countries is generally associated with low levels of human development, as evidenced by various indicators of health, education and access to services. These indicators express both to the multiple dimensions of poverty, and the concrete constraints that perpetuate it. By all evidence, Pakistan is no exception. Illiteracy, primary enrollment rates, basic health indicators and access to infrastructure are markedly lower for the poor. While the issue of human development will be addressed in detail in subsequent chapters, it will be relevant here to briefly describe how it correlates with consumption poverty.

2.69 It is not only the case that overall literacy rates in Pakistan are low in relation to countries with similar incomes per capita. In addition, the poor fare particularly badly compared to the rest of population (Figure 2.8). The overall literacy rate among the poor is 28 percent, well below the rate of 49 percent for the non-poor. An added important aspect of this is the extremely low level of literacy among poor rural women (9 percent), in comparison to 21 percent for the non-poor. This has wide-ranging adverse implications, given the importance of a mother's education for the educational attainment and health of children. Figure 2.8 shows that gaps in literacy rates between the poor and the non-poor persists across all provinces, but are slightly lower for rural areas than for urban areas.



2.70 Net primary enrollments also follow a similar pattern (Table 2.10). While net primary enrollment rate in Pakistan is 37 percent for the poor, it is 59 percent for the non-poor. This pattern persists across rural and urban regions of all provinces.²⁵ And again,

Table 2.10: Net Primary Enrollments of Poor and Non-Poor

	Urban			Rural			Overall		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Poor	48.4	50.7	49.6	41.7	25.0	33.4	43.0	30.2	36.6
Non-Poor	77.3	70.8	74.0	61.7	44.8	53.6	66.0	52.3	59.3

enrollment is particularly low among poor female children in rural areas – 25 percent compared to 45 percent for the non-poor. This highlights the enormous constraints the poor face in developing skills that might enable them to move out of poverty. While it is difficult to distinguish cause and effect in the relationships between low educational attainment and economic status, the evidence suggests that the poor are trapped in a cycle of low income and low human capital that perpetuates their deprivation.

2.71 A similar story can be told about health indicators. Numerous studies have ranked Pakistan quite low in terms of various health outcomes, even among comparable developing countries.²⁶ Both infant mortality (mortality at age 1 or less) and child mortality (at age 5 or less), at 83 and 116 per 1000 live births respectively, are high compared to other developing countries in the region. Furthermore, 41 percent of births are unattended by any trained or professional personnel, such as doctors, nurses or trained dais, which is associated with a high risk to the health of the mother and the child. An important aspect of all of these indicators is the large gap between rural and urban areas, suggesting much higher health risks for the former.

2.72 In regards to the vulnerabilities associated with poverty, which are further discussed in Chapter 3 of this report, it is also worthy of notice that the poor are found to be exposed to higher degrees of health risk, even in comparison to the rest of the country. They have less access to safe water, sanitation and drainage facilities compared to the rest of the population (Table 2.11). As much as 24 percent of the poor

Table 2.11: Access to Drinking Water and Sanitation for Poor and Non-Poor

	Source of Drinking Water			Drainage System			Toilet	
	Piped	Outside Closed	Open Source	Under-ground	Open Drain	No Drain	In Home	Outside Home
Poor	18.7	57.3	24.0	7.8	29.8	52.4	40.9	59.1
Non-Poor	28.2	53.1	18.6	17.2	34.3	48.5	61.0	39.0

rely on potentially unsafe sources for drinking water, compared to 19 percent of the non-poor. Only 8

percent of the poor have access to underground drains, compared to 17 percent for others; 59 percent of the poor live in households with no toilets, compared to 39 percent for the rest of the population. The numbers also show that access to safe water, drainage and sanitation is inadequate for the country as a whole and that the poor, as expected, fare even worse than the rest of the population. The general lack of amenities translates into health risks that result in considerable losses in terms of human capital and productive potential, and adversely impact the ability of future generations to better their situation.

2.73 Lack of access to infrastructure is indeed a general problem for the poor, with likely direct consequences for both their direct well-being and productivity. While access to electricity is inadequate for all sections of the population, especially in rural areas, only 52 percent of the poor have electricity connected to their household, compared to 76 percent of the non-poor (Table 2.12). Similar large gaps are also observed in regards to access to gas and phone facilities.

Table 2.12: Connectivity to Electricity, Gas and Phone

	% of Population Living in Households Connected to		
	Electricity	Gas	Phone
Poor	52.2	10.9	7.4
Non-Poor	76.0	22.9	22.2

Social Determinants of Poverty: Labor Markets and the Rule of Law

2.74 Economic mobility and income dynamics are not driven solely by economic shocks, and vulnerability to risk is not merely a function of the economic attributes of a household or individual; they are also outcomes of social processes, shaped by the nexus of informal and formal legal and social institutions. The following section considers these social determinants of poverty, including issues related to labor markets highlighted in the previous section, as well as the broader impact of the rule of law. The latter is important firstly because it to a great extent frames and circumscribes other social dynamics, and second because while issues such as graft, government effectiveness and rule of law are commonly discussed in the context of growth and private sector development, they also directly impact the poor, especially due to the regressive nature of the costs they impose. While these problems are not as easily quantifiable as other concomitants of poverty, a rich and fairly compelling set of qualitative data provides considerable insight about their relevance to the dynamics of poverty in Pakistan.

Economic Mobility and Social Grouping

2.75 Individuals and households are part of wider social groupings that can be critical determinants of the opportunities and vulnerabilities to which an individual or a household is exposed. Quantitative data, especially relating to purely economic characteristics such as income, consumption or wealth are not very useful in understanding these social dynamics of poverty. Qualitative data, on the other hand, can be very instructive in this regard.

2.76 Categories such as ethnicity, caste, and kinship provide useful frames of reference for discussing the kind of social groupings that might be relevant to an understanding of poverty dynamics. There are at least three ways in which these characteristics – abbreviated for convenience as "social grouping" – might matter. Firstly, if a social grouping is hierarchical, one might expect discrimination against particular subordinated groups on the part of the state machinery, as well as market structures. Secondly, even if there is no current discrimination on the basis of social grouping, a history of past discrimination might have inscribed a correlation between social affiliation and economic opportunity. Thirdly, even horizontal social groupings may influence collective action; if such groupings are stable and strong, and act as natural loci of solidarity, they might facilitate certain types of social and economic transactions, and impede other types, influencing the distribution and quality of public goods, including those that mitigate poverty.

Social Norms, Groups and Labour Market Distortions

2.77 As noted in the previous section, employment diversification, certain kinds of informal employment - and the labor market distortions they signal - are both associated and indeed correlated with vulnerability and poverty. This would lead one to ask: how might social norms and social organization affect the functioning of markets in general and labor markets in particular, and what might be the implications for poverty? There are a number of possibilities: There might be overt or hidden discrimination against certain groups, based on group-based prejudice (gender, racial or caste stereotyping, for example), and there might be official sanction for such discrimination in some cases. Or it might simply reflect widespread social prejudice. All these phenomena are evidenced in Pakistan, as in other societies. And as this section details, there is strong survey evidence that social groupings such as caste, kinship groups and *biradris* affect the functioning of its labor markets. Policy options to remedy such problems can include some combination of legal reform, cultural change, and positive discrimination in public sector employment. Notably however, the viability of such reforms would to some extent be conditioned on the broader efficacy of the rule of law.

2.78 The economics of discrimination might be understood in two ways. Firstly, if it is costly to obtain information about the characteristics of an individual worker, more easily observable group characteristics, or prejudices, might be used by employers to rank and screen employees. There might be any number of feedback mechanisms that actually encourage individuals belonging to a particular group to conform to their perceived group characteristics, or prejudices about these group characteristics. Secondly, employers might prefer to hire workers with some level of social collateral - i.e. those over whom they might be exercise some potential leverage through common social networks. The notion of social collateral - which is more commonly used with reference to credit markets - is applicable also to labor markets if employers face high monitoring costs. Notably, both these propositions - social grouping as screening signal, and social grouping as source of social collateral - relate to situations where employers value information on potential employees - i.e. where skill, effort, and trustworthiness are important.

2.79 To evaluate these explanations, a World Bank qualitative survey was undertaken in six districts in Pakistan with the aim of addressing social grouping and labor market clustering. It found that employment opportunities appeared to be closely correlated with caste, kinship or prior social grouping. This held true across a range of sectors and jobs. Notably, the active decisions leading to a clustering of economic activity around specific social groupings primarily concerned the inclusion of particular groups rather than the exclusion of others - supporting the importance of social "collateral" rather than the "screening" hypothesis noted above.

2.80 In almost every case, the use of *sifarish*, or personal recommendation and guarantees, was a significant factor in the history of job clustering. Social collateral was found to be important from the employers' point of view even in relatively low-skill, casual jobs. This revealed the weakness of the overall institutional environment vis-à-vis the prior strength and robustness of social groupings, confirmed by the fact that *sifarish* appeared to work also largely through close caste and kinship networks. The group, therefore, was clearly significant as a determinant of economic opportunity and mobility, and therefore also an important feature of poverty traps. Box 2.4 illustrates this vividly.

2.81 These findings have two types of policy implications. First, it is clear that in some cases there is scope for legal action and possibly even positive discrimination in the favor of some historically marginalized groups. Second, however it is also apparent that the labor market distortion associated with social group clustering is related to the weakness of other institutions, particularly in the realm of the rule of law and contract enforcement.

Box 2.4: Dogar truckers and Christian brick-kiln workers in Faisalabad

In a survey village in Faisalabad, there had been substantial diversification from agricultural livelihoods, but along lines clearly distinguishable by social grouping, which had in turn locked members of these groups into different bounds of economic opportunity.

Quite recently, a number of families belonging to the Dogar – historically one of the main local cultivating castes - had entered the transport business. The first truck worker was a Dogar man with a small holding of land, who used to drive a horse-cart to the local market town. There he had made acquaintances with other transporters and eventually acquired a job working on a truck as a *klendar* in the early 1970s. He had then gone on to acquire a share in a truck, and finally ended up with a fleet of vehicles. Since then, the Dogar have acquiring over 60 trucks among them. A number of local men, most of whom were also Dogar, work on these trucks as drivers and *klendar* – a cleaner or driver's mate. Collectively, the Dogar now run a sophisticated transport operation from Faisalabad to Karachi.

A far less advantageous part of the economic spectrum was occupied by over 20 low caste Christian families, who had until recently worked as farm servants, but whose main occupation had increasingly become working at a brick-kiln in a neighboring village. The first person from the village to work in a kiln was a Christian man. He began in mid-1980s, and was then followed by a number of other Christian low caste men. At the time of the survey there was at least one person from practically every Christian family working at a kiln, most of them as indebted piece rate workers.

Source: Gazdar (2002). "A Qualitative Survey of Poverty In Rural Pakistan: Methodology, Data, and Main Findings"

Poverty and the Rule of Law

2.82 As indicated in the earlier discussion about labor market distortions in Pakistan, problems such as discrimination are in many instances proscribed by the broader problem of weak rule of law – a fact that must also be addressed by any reforms that would mitigate such distortions. But weak rule of law is also in and of itself a determinant of poverty. While issues such as graft, government effectiveness and legal effectiveness are commonly discussed in the context of growth and private sector development, they also directly impact the poor, and especially due to the regressive nature of the costs they impose. In light of this, it is particularly notable that though relatively poor countries such as Pakistan rarely score high in third-party evaluations of each these issues, on a scale ranging from -2.5 to 2.5 Pakistan ranks nearly one half a point lower than would be expected, given its income per capita.²⁷

2.83 Violations of the law affecting the poor are commonly but not systematically reported in Pakistan. They could be classified by three categories; lack of access to essential services and institutions, expropriation of assets, and vulnerability to coercion/lack of protection of rights. The first arises from the fact that the poor, like all Pakistanis, must pay for goods, services or bureaucratic approvals that are meant to be provided for free, if they are provided at all. In either case, the effect is regressive and affects the poor hardest. Such problems are particularly prevalent in the education system: schools often require documents such as birth certificates, evidence of legal residential status, or national identity cards. The first for instance, are needed to enroll in primary school, or to take its matriculation exam. Yet many poor families have no such documents, and for many, particularly urban squatters, some are simply impossible to obtain.

2.84 These are also cases whereby government officials expropriate the already meager assets of the poor; a fact rarely noted in poverty assessments, but which is at least as important as the other violations to which the poor are vulnerable. An extreme, but not uncommon example is the often-reported phenomenon of false arrests, in which bribes are demanded as a condition for a release from custody. State-officials also often demand bribes in return for providing documents, or to provide licensing allowing the conduct of economic activities. In each of these cases, the poor are by definition least able to cope with the added costs.

2.85 A third category of problem is the extent to which the poor are vulnerable to coercion in the labor market. The prototypical and extreme case is that of bonded laborers in the brick industry. Rural Sindh is frequently reported to have a large number of private jails housing rural workers – as many as 4,500.

Some argue that these jails are simply used by landlords to extract below-market wages from workers. Others argue that landlords use these jails to enforce repayment of loans that they have made to workers. In either case however, there is an obvious rule of law problem.²⁸

2.86 There are potentially many other similar issues. For example, coercion, as well as information and transportation costs, may obstruct the entry of competitive credit providers or middlemen into rural areas. Accordingly incumbents either use force to restrict competitors, or employ force as a critical element of contractual relations, such as the case of informal credit provision in Karachi. Notably, landlord influence is sufficiently great in parts of rural Pakistan that they can avoid arrest, allowing them to exert extra-legal pressure on workers and tenants to compel them into accepting unfavorable contracts. Again, in each of the above case of legal violations, their effects are likely to most severely impact the poor.

Rent seeking and the rule of law

2.87 The classical account of rule of law problems treats it primarily as one of arbitrary rent-seeking, and rent-creating, behavior on the part of state officials. Accordingly, a decline in the rule of law leads to a redistribution of resources from private citizens to state officials. This of understanding focuses on share of rent in individual citizen-official transactions. However, it is possible also to examine the problem of the rule of law at another level, namely the way in which its persistent failure might be associated with high costs of dispute resolution, which also lead to the legitimization of informal mechanisms of enforcement and arbitration. Accordingly, “bad equilibria” can be formed in which the failure of the law legitimizes informal arbitration, and the preponderance of informal arbitration makes it more difficult to establish the authority of the rule of law. Although some might welcome the existence of informal arbitration as evidence of a private response to state failure, the poverty implications of such situations cannot be ignored; informal arbitration is likely to reinforce rather than weaken existing social and political inequalities, and act as a poverty trap. Boxes 2.5a and 2.5b provide examples of this.

Box 2.5a: How Informal Mediation Reproduces Inequalities (I)

Sakeena Shaikh from the village of Nawabshah, was kidnapped and shot dead. There were contrasting views over the facts of the case put forward by the woman's family and their supporters, and by the supporters of the alleged murderer, Jan Mohammed Baloch. Sakeena's family were poor landless tenants and Jan Mohammed was connected to their landlord. A case was filed with the police against Jan Mohammad and number of his named accomplices. In parallel, a process of arbitration and negotiation ensued between the deceased woman's family and the family of the alleged killer, presided over by an influential landlord and politician from the area, one Sardar Fateh Khan. Their kinsman and village head Saleem Shaikh represented Sakeena's family. The arbitration proceeded on the premise that Jan Mohammad had a case to answer. His liability for the killing was fixed at 300,000 rupees, plus another 100,000 for the aggrieved party's costs. Jan Mohammad's family appealed to Fateh Khan to reduce the penalty on the grounds that they were very poor. Fateh Khan had spoken to Salim Shaikh about this matter and they had agreed to waive the 100,000 rupees. Some local residents were of the view that Salim had sold Sakeena's family short, while others held that under the circumstances he had got them a good deal, because Jan Mohammad Baloch's kinsmen were thought to be close allies of Fateh Khan. Clearly however, the case had legitimized and reinforced the lines of power and authority in the area. Salim's position within the community had been enhanced, and he had formed an affiliation with Sardar Fateh Khan, supporting him in recent elections on the condition that the case be expedited.

Source: Gazdar (2002). "A Qualitative Survey of Poverty in Rural Pakistan: Methodology, Data, and Main Findings"

Box 2.5b: How Informal Mediation Reproduces Inequalities (II)

Wali Mohammad was from the Kammi caste of Kumhar (potter) around Hafizabad. His village was dominated economically and politically by cultivator caste Bhatti landlords, while the Kammi groups occupied its lowest social and economic positions. Modern technology and changing tastes had reduced the demand for the traditional services provided by the Kumhars. Wali Mohammad's family, however, owned some donkeys and in the 1980s they like many other Kumhars began to offer haulage services to local farmers. Though uneducated, Wali Mohammad was entrepreneurial and expanded the haulage work.

After a few years, Wali developed a connection with a trader named Hafiz who encouraged him to also start financial intermediation with the farmers. Wali started maintaining accounts between them and Hafiz. Over eight years Wali and his brothers expanded their capital base; they bought more animals, and acquired residential land. Then one year Hafiz renege on a payment on the pretext that someone acting on Wali's behalf had already collected that payment from him. The farmers trusted Wali and went with to see Hafiz who first refused to honor the credit, and then, when pressed, agreed to take the matter to informal arbitration – known as *deraydari*.

The case was taken to the *dera* of Javed, a well respected trader but also Kumhar by caste like Wali. Javed decided in Wali's favor and fixed Hafiz's liability at 120,000 rupees. Hafiz got upset and refused to accept the verdict, saying that he would not allow a Kammi like Javed to be his arbitrator. There was an impasse and Wali considered taking the matter to the police. They however told him to try and settle the matter again through informal channels. Wali again went to see Hafiz to negotiate. He return home after three days, extremely sick, and died soon afterwards. According to Wali's family and their Bhatti patrons, Hafiz had poisoned Wali. No police case was registered however. Notably, Hafiz was well connected with one of the main political factions of the area, from whom he received support and protection.

There was consensus in the village that Wali and his family had suffered great injustice. However, the Bhatti farmers were primarily interested in recovering their own money. They continued to pursue the case in various forums - but not the courts - and then purely as a matter of financial impropriety. Wali's family had lost their business and almost all of their assets, and was now once again working as casual laborers. Hafiz, despite the seriousness of the charge against him, continued his trading; his reputation did not appear to have suffered irrecoverable loss.

Source: Gazdar (2002). "A Qualitative Survey of Poverty in Rural Pakistan: Methodology, Data, and Main Findings"

2.88 All these categories of problems are of course interlinked. The poor are vulnerable to coercion in part because protection from official authorities are among the public services they are poor are often deprived of. In this regard, it is instructive to note that one close observer of policing found survey evidence detailing the prevalence of "burking": the non-registration of cases, in order to show lower incidence of crime. This practice may be prevalent in as many as 40 percent of criminal offences in Pakistan.

2.89 As the discussion of political economy in the next chapter makes clear, common to all of these violations is the fact that serious political obstacles make it difficult for the poor to seek remedy. Relative to non-poor households, the poor are likely to have less recourse to government officials. Reports of false arrests, for example, are rarely associated with higher income individuals and almost uniformly with low-income people. In sum, there is considerable, albeit non-systematic evidence that the state, rather than mitigating the vulnerability of the poor to economic shocks, is itself the source of substantial shocks.

2.90 Accordingly, one objective of the World Bank field survey currently being conducted, as well as that of ongoing focus group interviews, is the collection of more systematic information on these vulnerabilities. The evidence from this work will enable further quantification of the gravity of the problem and facilitate the formulation of solutions. Notably, although reform of the police is far beyond the purview of this poverty assessment, there are more modest steps that could be recommended, including the removal of costly administrative hurdles, tightened administrative oversight of service delivery to the poor, and establishing ombudsmen or other parallel offices to whom the poor can turn for protection.

Conclusion

2.91 As detailed in this chapter, the aggregate incidence of poverty in Pakistan at the end of the 1990's stood at 33 percent of the population – a figure that had hardly improved since the beginning of the decade. In addition, there is evidence that the depth and severity of poverty also persisted, along with sharp differences across the country's provinces, and its rural and urban areas. Indeed, indications are that the gap between countryside and city has only widened over the decade, reflecting a pattern of stagnant and uneven development. Notably, this pattern seems not to be too sensitive to the choice of poverty line that is applied to Pakistan, an important point given that there is not yet a consensus on such a measurement standard.

2.92 Building on this, the chapter attempts to collate evidence correlating and linking vulnerability and poverty in Pakistan to certain household attributes that both constitute and determine poverty, indicating the constraints that impede the ability of poor households to improve their economic status. As detailed above, these include household asset ownership; expenditure patterns reflecting inability to spend in ways that improve human capital, for example education and health; and employment patterns. Poverty is also associated with low literacy; perhaps even more importantly, the gap between the poor and the non-poor is equally large in case of primary enrollment rates, suggesting the enormous obstacles future generations face in improving their economic status. Health indicators for the country reflect the high degree of health risks that the population is exposed to, especially in rural areas. This is more marked for its poorer groups, on account of their limited access to infrastructure like safe water, sanitation, and health facilities.

2.93 Regional differences in levels of vulnerability as well as differences in coping strategies among households within regions, point to the importance of forward-looking and pro-active policies that focus on poverty prevention, at least partially through reducing exposure to income risks and less reliance on static poverty measures for targeting poverty reduction programs. In particular, it appears that programs that increase income diversification, particularly through the development of non-farm enterprises, and increase opportunities for wage labor, are likely to be quite important as is the rational and efficient use of available assets like land and irrigation water.

2.94 In this context, the high degree of inequality in land ownership is worth noting. As Chapter 4 will explore in some detail, lack of land ownership adversely affects access to credit and incentives to carry out productive investment, and a combination of these factors are likely to constrain productivity and incomes. Evidence in this chapter also point up the importance of diversifying incomes in agricultural areas, and also that distortions in labor markets may impede such strategies. In light of the broader societal considerations that often circumscribe both access to land and labor – e.g. the role that social groupings play in delineating economic opportunities - the chapter also devoted some discussion to the importance of social determinants of poverty, including the role of the rule of law.

2.95 Such findings reaffirm the need for greater promotion of comprehensive poverty reduction strategies in Pakistan. These should seek to improve access to education and healthcare for the poor, and critical disadvantaged groups such as women. Other policy implications owing to observations about disadvantageous land tenures, and vulnerability to corruption and abuses of power in both the public and private sector - are somewhat less apparent. As noted earlier they are also potentially fraught with controversy since they touch on questions of political economy. Yet this does not make these underlying issues any less pressing. And even within the limited purview of this poverty assessment, suggestions have been made about the kind of administrative reforms that may mitigate their impact.

2.96 The simple correlations presented here are not sufficient to establish causal relationships between poverty and vulnerability on the one hand, and the various factors associated with poverty on the other. Such causal relationships are however difficult to establish and doing so is arguably less important than

understanding how these various factors collectively determine cycles of poverty and vulnerability. The next chapter will consider in greater detail, two important elements in this cycle, namely education and health. It will examine the trends in these two vital dimensions of human development revealed by household data, along with further discussing the factors - including economic status - that help explain their relationship to the poverty outcomes observed in Pakistan.

¹ The regional workshop on poverty analysis and monitoring held in March, 2002 at Islamabad made substantial progress in the direction of arriving at a consensus on the choice of poverty line.

² See Annex 2.1 for information on the household surveys used for the analysis

³ Since the definition of the household members in the two surveys is exactly the same, the main reason for the differences seem to lie in the field collection techniques. One factor seems to be that while HIES data were collected by single male enumerators, interviewing mainly male household members, for PIHS there were both male and female enumerators. Whereas the PIHS data on household structure and size are very similar to the findings of the 1998 Census, the HIES data of previous years appear to be out of trend, indicating that the increase in household sizes in 1998-99 was a result of improved collection techniques.

⁴ See Chapter 4 for a more detailed discussion on this issue.

⁵ The poverty estimates for Balochistan in 1998-99 are curiously out of trend from what is observed during the other survey years, and also contradicts what is generally known about the province vis-à-vis other provinces. The likely problems with the Balochistan data for this year will be discussed later.

⁶ See Annex 2.2 for detailed discussion on the methodology of constructing expenditures and poverty lines

⁷ To ensure comparability, the expenditure aggregates for households were constructed using the same methodology used in previous poverty work by the World Bank for Pakistan. See Annex 2.2 for details on how the consumption expenditure aggregate was constructed.

⁸ Per adult equivalent is calculated by simply weighting all household members younger than 18 as 0.8, and all other household members as 1

⁹ See Lanjouw and Ravallion (1995), for a detailed analysis, using household data from Pakistan, of how adjustments for economies of scale crucially affect relationship between poverty and household size.

¹⁰ Using this method, the poverty lines for urban and rural regions in 1998-99, are Rs. 767 and Rs. 680 respectively, in per equivalent adult terms.

¹¹ As defined in Gazdar et al (1994)

¹² With "100 percent" denoting the poverty lines used in the report's calculations so far.

¹³ The so-called growth component of poverty change measures how much of the change in poverty measures is due to the variation in mean expenditure (in per equivalent adult terms) over time, holding the distribution constant. On the other hand, the so-called redistribution component assesses how much of the variation in poverty measures is due to a change in the distribution of expenditure, holding the mean expenditure constant (see Appendix for methodology; also see Ravallion and Datt (1992).

¹⁴ For example, from 1993-94 to 1996-97, the growth effect by increasing poverty, almost cancelled out the redistribution effect that reduced poverty. From 1996-97 to 1998-99, however the negative impact of the redistribution effect swamped the poverty-reducing effect of growth.

¹⁵ Consider a time horizon (T) of three periods and let the initial period be t. The probability that a household's expenditure level will fall below the poverty line at least once within the following three periods is given by: $V_{it}(T, \text{Poverty line}) = P(\text{At least one period of poverty})$. A household i is then classified as vulnerable at time t if the vulnerability measure, V_{it} , exceeds some threshold value V_0 (which, for the analysis here, is taken as 0.5). V_{it} is obtained by conditioning future probabilities of poverty on outcomes in previous periods (see Annex 2.6 for details on how the measure was constructed)

¹⁶ The analysis is based on the IFPRI rural panel study, comprising of a sample of just over 800 households in 4 districts, over a 5 year period between 1986 and 1991.

¹⁷ See Annex 2.6 for details on the methodology of measuring vulnerability, and more detailed results.

¹⁸ The definition follows Jalan and Ravallion (1998).

¹⁹ For the categories of owner-cultivator and sharecropper, share of population in urban areas are too low to be considered separately (2.6% and 0.9% respectively).

²⁰ It should be noted that some of the employment categories as defined here are too heterogeneous, e.g. the category "paid employee", which includes a diverse array of occupations, from wage labor to professionals. Further refinement of these categories by information on occupation would be needed for more rigorous analysis.

²¹ The relationship between poverty and land ownership is obviously more meaningful for the rural sector, since in urban areas only about 9 percent of people belong to households owning any agricultural land at all (Table 2.9)

²² Dependency ratio is measured by the ratio of number of household members of age 14 and less or of age 65 or more, to the number of members of age 15 to 64.

²³ In this context, it is also useful to note that higher poverty rates tends to be associated with larger household sizes, although this is at least partly a result of household expenditures not being adjusted for economies of scale in consumption. With such adjustment, the difference in average household size between the poor and the non-poor becomes smaller. That said, for reasonable values of the scale parameter, the average poor household is still marginally larger than the non-poor household (see Table A-2.10, Annex).

²⁴ Price increases of food and fuel, given the stringent budget constraints of the poor, may lead to reduced consumption resulting in greater poverty. But even before that happens, given that the demand for essential goods like food and fuel are likely to be relatively inelastic, increase in their prices may lead to even lower expenditures on health and education, with long-term consequences for poverty and vulnerability.

²⁵ See Figure A-2.3, Annex

²⁶ See Chapter 1 of this report

²⁷ See Table 5, Easterly (2001), Background Paper for the Pakistan Poverty Assessment 2001

²⁸ Notably, the policy response that is called for is distinct: in the first case, the optimal response would be for government to demolish the jails; in the second case, the optimal response is to provide lower cost contract enforcement services in rural areas.

3. Focus on Human Development: The Benefits and Political Economy of Health and Education

3.1 The poverty analysis in Chapter 2 provides some indication of the nature and extent of poverty in Pakistan, not just as a measure of consumption, but also as an index of human development. Educational attainment and health are among the most valuable benefits of such development and are also- since they constitute vital investments in human capital - important determinants of whether someone living in poverty is likely to improve their circumstances. In aggregate, the educational attainment and health of Pakistan's population is therefore crucial to the country's ability to grow economically, and alleviate poverty.

3.2 This chapter charts its progress in education and health during the 1990s, primarily using household data from the Pakistan Integrated Household Survey (PIHS), and the new survey conducted under the aegis of this report.¹ The evidence presented quantifies the significant effect that trends in education and health have exerted on the welfare and long-term economic potential of households. It also permits a systematic investigation of household characteristics that seem to explain differences in the educational attainment and health of its members – characteristics that need to be considered in the design and targeting of policy interventions.

3.3 The urgency for intervention has grown during the 1990s. Some indicators like infant mortality and contraception awareness and usage have posted significant gains, however, significant challenges remain among health indicators that are lagging behind. One of the most salient trends noted is the fact that while the primary gross enrollment rate (GER) in Pakistan improved until the middle of the decade, it then stagnated. Throughout, enrollment showed significant rural/urban differences, with poor constituents unsurprisingly faring the worst. While the gender gap in enrollment closed slightly, this was in large part, due to some declines in male enrollments. While the significance of a rapid concomitant expansion of private schooling is unclear, this is a phenomenon deserving further study.

3.4 The lack of improvement in education outcomes is particularly significant for poverty as the evidence suggests education does impact earnings in Pakistan, particularly in the urban economy, though it appears to yield less appreciable earnings benefits in rural areas. However, as widely observed, investments in education appear to yield strong household externalities, and among factors that determine whether children stay in school, parental education is the most important. Some direct policy implications follow on these observations. Particularly, the importance of targeting education benefits to ensure as wide coverage as possible, because of the high household externalities that can accrue if even only one family member is educated.

3.5 As discussed in Chapter 1, the underlying obstacles to the provision of public services such as education and health in Pakistan are embedded in its political economy. Accordingly, the last section of the chapter addresses the issue of governance and service provision, primarily using the case of education, where exhaustive data is available, as an example. The discussion, for example, identifies obstacles both in the supply and demand of education, in the former case the formal and informal institutions that govern political decision making, and in the latter cultural attitudes that appear to depress demand for education in Pakistan, particularly for girls. The last section of chapter describes the potential for the ongoing devolution reforms in Pakistan to address the institutional limitations on educational progress in the 1990s. It highlights areas where they may be particular windows for change, as well as some of the practical limitations on reforms.

Trends in Education During the 1990s, with Recent Findings²

3.6 The PIHS data collected during the 1990s (1991, 1995-96, 1996-97 and 1998-99) indicate that primary enrollment as measured by the GER, showed some improvement for the country as a whole between 1991 and 1995-96, but none thereafter. As established partly in chapter 2, enrollment rates were closely associated with poverty, and while the gender gap decreased, this was partly because male enrollments fell on net. School enrollments were lower among poor, and the poor also had relatively higher dropout rates. Private schooling increased, though the exact ramifications for this remain unclear.

3.7 In urban regions, the trends for both males and females have generally been positive, but in rural regions, enrollments among males have shown declines, while those of women have remained stagnant since 1995-96, following initial improvements. Table 3.1 shows that while primary GER increased from 81 percent to 91 percent in urban areas between 1991 and 1998-99, in rural areas it fell to 61 percent between 1995-96 and 1998-99, after having risen from 59 percent to 64 percent since 1991.

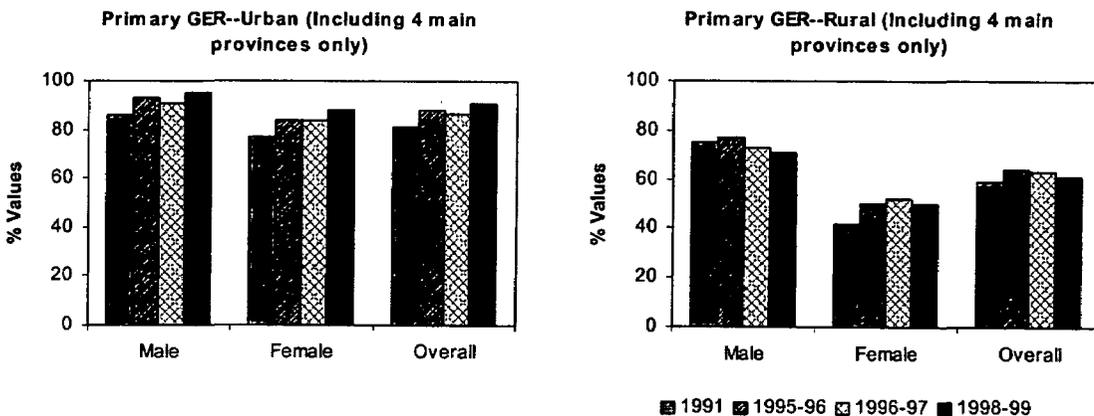
Table 3.1: Primary Gross Enrollment Rates (%)

	1991	1995-96	1996-97	1998-99
Punjab	..	73	73	76
Sindh	..	70	64	56
NWFP	.	66	68	67
Balochistan	..	63	58	58
All Four Above	..	71	70	69
Azad J & K	..	..	..	101
Northern Areas	..	..	..	75
FATA	..	..	..	39
Pakistan – Urban	81	88	87	91
Pakistan – Rural	59	64	63	61
Pakistan – Male	78	81	78	78
Pakistan – Female	53	60	61	60
Pakistan – Aggregate	65	71	70	69

Source: PIHS for relevant years³

3.8 For males, the primary GER showed little change throughout the 1990's, while for females, a marked improvement was seen between 1991 and 1995-96, followed by stagnation. Looking into male and female enrollments separately for urban and rural areas (Figure 3.1), it turns out that primary GER (a) increased for both males and females in urban areas between 1991 and 1998-99,⁴ (b) declined for males in rural areas over the period, and (c) increased for females in rural areas from 1991 to 1995-96, but remained stagnant thereafter. For the country as a whole, the rural and urban trends combined to produce an increase in GER between 1991 and 1995-96, and small declines thereafter.

Figure 3.1: Primary GERs in 1990s



3.9 Notably, even in the period 1991 to 1995-96, when primary GER increased the most, improvements fell far short of the targets set by Social Action Program (SAP), discussed earlier in Chapter 1. GER increased from 65 percent in 1991 to approximately 70 percent over this period, an average increase of about 1 percent per year. The targets set by SAP, though not directly comparable (since they address the age group 5 to 9, as opposed to the 5 to 10 bracket considered herein), suggest a growth in GER of almost 4 percentage points per year, translating into 19 percentage points over the 5 years leading up to 1997-98. At around 69 percent, the GER in 1998-99 is far short of SAP target of 88 percent, which was to have been reached by 1997-98.

3.10 Comparison across provinces shows that Punjab and Balochistan showed the greatest improvements in urban primary enrollment between 1995-96 and 1998-99, while enrollments in urban Sindh showed some decline. None of the major provinces experienced significant improvement in rural enrollments between 1995-96 and 1998-99. Indeed, there was a large decline in Sindh, and a smaller one in Balochistan. Net enrollment rates, generally considered better indicators of educational attainment than gross rates, are the highest for Azad Jammu and Kashmir, followed by Northern Areas and Punjab in 1998-99 – a pattern similar to that evinced by the gross rates.⁵ For the country as a whole, net primary enrollment in 1998-99 was approximately 50 percent, with regional and gender gaps similar to those affecting gross enrollment (Table 3.2).

Table 3.2: Net Enrollment Rates in 1998-99

	Net Primary Enrollment Rates (%)			Net Secondary Enrollment Rates (%)		
	Male	Female	Overall	Male	Female	Overall
Urban	68.5	64.6	66.5	46.7	47.4	47.0
Rural	53.6	36.4	45.2	34.9	15.8	25.6
Overall	57.2	43.6	50.5	38.3	25.1	31.9

3.11 Both male and female literacy rates increased from 1991 to 1998-99, rising from 40 percent to 58 percent for males, and 17 percent to 27 percent for females, with most provinces showing significant improvements. Accordingly however, while the gap between male and female literacy rates has shrunk somewhat over the years, it still remains very significant, especially in rural areas. Comparing across provinces in 1998-99, Azad J & K has the highest literacy rates among males and females alike, in both rural and urban areas, while FATA and Balochistan rank the lowest. The literacy rates for 1998-99 fall far short of the national targets for 1997-98 set by the SAP, which were 66 percent, 40 percent, 53 percent for males, females, and all adults respectively.⁶

Gender Gaps in Literacy and Enrollments

3.12 These numbers highlight a persistent problem in Pakistan. Historically, the country has had some of the lowest female enrollment rates in the world, resulting in wide educational gender gaps. Currently, the national female-male enrollment ratio is less than 55 percent, and only in Punjab does this ratio approach even the low South Asian average of 70 percent.⁷ This is particularly troubling because numerous studies have shown that female education has an important role to play in development. The impact of female education is transmitted in the context of the variety of social and economic roles women typically play; lower infant mortality, and also improved child nutrition and better schooling for her children, through her role as a mother; higher wages and increasing farm yields through in a capacity as a producer; and increases in the number of teachers in a region - thus decreasing the cost of education - through her potential role as an educator for future generations.⁸

3.13 While gender gaps in literacy and enrollment have been reduced to some extent over the last decade (Figure 3.1) - if partly because female enrollments have tended to increase while male enrollments

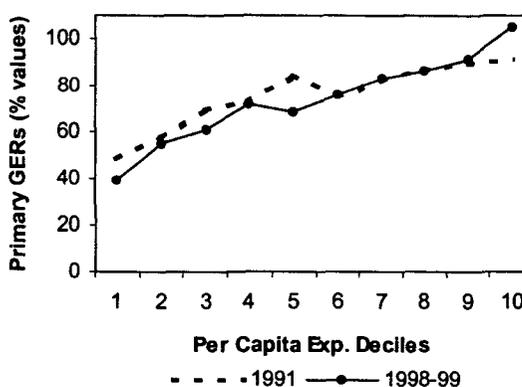
have actually fallen a little - significant gaps still remain, especially in rural areas. The gender gap in primary enrollment is much smaller for the urban areas, and has also shown more consistent improvement, with female enrollment rising faster than male enrollment. Consequently, the overall male-female gap of 18 percentage points for the four large provinces in 1998-99, is closer to that in 1996-97, and smaller than that for 1991, when it was 25 percentage points.

3.14 Preliminary evidence suggests that the gender gap in enrollment in Pakistan is less a function of poverty – being almost equally prevalent among the poor and the non-poor – than other likely factors. Social norms and practices, combined with a shortage of schools for girls and a lack of women teachers, could conspire to reduce girls’ enrollment, particularly in rural areas. Encouragingly, a nationwide study of recent record of private schooling in Pakistan suggests that low female enrollment rates may be more a reflection of the design of specific institutions, impeding girl’s access to schools, rather than an underlying reluctance on the part households to educate girls.⁹ The issue of how access is related to the observed gender gaps is an important one and will be explored in greater detail later in this chapter.

The Rich-Poor Gap in Enrollments

3.15 Educational attainment, or rather the lack of it, is closely related to poverty. This relationship has been documented to a certain extent in Chapter 2, which noted the large gaps in literacy, and net enrollment rates that distinguish the poor and the non-poor. Comparing the periods 1991 and 1998-99 (Figure 3.2), it appears that for all the lower deciles, gross primary enrollment ratios for 1998-99 are lower than those in 1991, suggesting that primary enrollment rates have fallen disproportionately among the poor over the 1990s. A very similar story is also found to apply to secondary enrollment rates also (though this is not mapped by a figure in this chapter). In fact for both primary and secondary enrollments, large improvements over the period are evidenced only in highest expenditure deciles, coupled with a fall in enrollments for the lower deciles.

Figure 3.2: Gross Primary Enrollment Ratios by Per Capita Household Expenditure



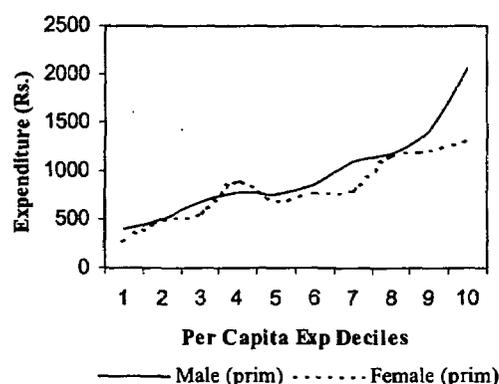
3.16 To examine more closely how school participation may be influenced by economic status, Table 3.3 lists average primary GERs in 1998-99 for every per capita expenditure decile, illustrating that both primary and secondary gross enrollment rates increase almost monotonically with expenditure. The primary and secondary enrollments can be seen to increase almost in parallel, suggesting that the likelihood of being enrolled in primary school increases at the same rate as that of being enrolled in secondary school as the household becomes relatively better-off.

Table 3.3: Gross Enrollments, Share of Private Schools in Enrollment, and Proportion of Individuals in Primary and Secondary School Age Groups – 1998-99¹⁰

Per Capita Exp Deciles	Primary Gross Ratio	Primary Private Share	Primary Age Share	Secondary Gross Ratio	Secondary Private Share	Secondary Age Share
1	40.36	9.65	21.39	15.78	4.77	13.45
2	54.68	9.26	20.20	22.98	4.62	14.52
3	60.53	13.86	18.75	29.95	7.63	13.81
4	71.65	13.32	18.68	34.33	10.06	13.65
5	69.33	17.15	16.98	37.47	11.50	12.46
6	75.78	23.60	15.89	47.70	12.66	12.77
7	83.56	24.74	14.43	50.60	14.55	12.60
8	86.49	28.39	13.93	59.10	15.90	12.62
9	92.72	35.15	11.77	65.30	22.22	11.82
10	104.60	59.94	9.90	85.02	37.45	10.65
Overall	70.53	23.35	16.20	43.15	17.16	12.84

3.17 The gap between the rich and the poor is reflected not only in the enrollment rates, but also in the pattern of spending on education, as illustrated by data from the recent rural survey for Pakistan, PRHS (2001). Figure 3.3 shows that households who are better off on the average spend more on primary schooling per child. This indicates that even when poor children are enrolled in school, they face a significant handicap that is likely to affect their educational attainment. Moreover, there is a sizeable male-female gap in per-student spending that persists across nearly all expenditure categories. The apparent gender gap in spending is also likely to reinforce the existing gaps between males and females in indicators of educational attainment, such as completion and repetition rates.

Figure 3.3: Median Per Capita Annual Expenditure on Primary Schooling

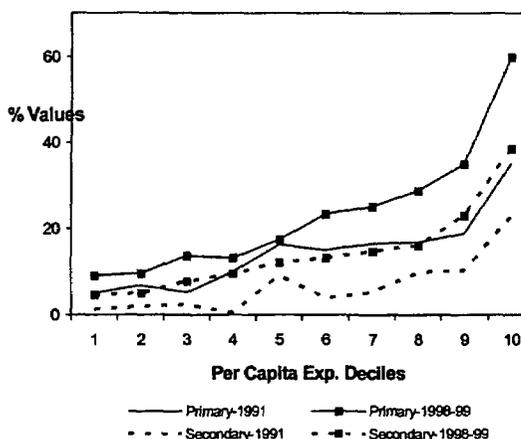


Source: PRHS(2001)

Increasing Role of Private Sector

3.18 An important educational trend in Pakistan is the observed increase in the share of the private sector in schooling over the years. According to a recent Census of Private Schools (2000), Pakistan has as many as 40,000 of such private schools, the result of a significant growth in private schooling over the 1990's.¹¹ The share of private sector in total national enrollment in primary schools increased from 14 percent in 1991 to around 23 percent in 1998-99. The private share of secondary schooling increased from 8 to 17 percent over the same period. The increases were distributed across all expenditure deciles (Figure 3.4) though most pronounced in the higher income groups, with private share in primary enrollment

Figure 3.4: Private Shares in Gross Enrollment by Per Capita Household Expenditure



growing from 5 to 10 percent for the lowest decile and from 35 to 60 percent for the highest decile. This supports evidence from previous PIHS studies, which have found for example that between 1991 and 1995-96, enrollment in non-government primary schools increased by 70 percent, compared to 4 percent in government schools.¹²

3.19 It is important to mention here that this growing importance of private schooling does *not* include enrollment in *madrassas*. The share of *madrassas* in aggregate enrollment is found to be miniscule, amounting to no more than 0.7 percent of all students currently attending school nationwide.¹³ While the more recent PRHS (2001) shows slightly higher figures, the share of all religious schools in primary and secondary enrollment still amount to only 2 and 3 percent respectively in the 130 rural communities surveyed. All available sources thus suggest that *madrassas* play a minimal role in the school enrollment patterns described here. Notably, this seems to contradict prevailing notions of a large expansion in such types of schools in Pakistan. To explain this apparent paradox, one should note that survey findings do not rule out the possibility that religious schools play disproportionate roles in certain areas, or that they offer non-formal instructions to large numbers of students outside the scope of formal schooling.

3.20 The rapidly expanding role of the private sector in educational provision in Pakistan has obvious implications for educational policy in the country, a key challenge of which will be to harness this growth for expanding access to education. Important issues related to the existing nature of private schooling, and its potential for such politics will be explored in greater detail later in this chapter.

Enrollment Profiles of School-Age Children

3.21 Gross educational enrollment figures are of course only one indicator of educational achievement, and can mask numerous quality problems in education provision. One direct indicator of this is the rate of dropouts, which is high in Pakistan. This pattern of school enrollment, also taking into account the rate at which children fall behind their appropriate grade, is therefore a crucial determinant of the status of education in Pakistan, and points up problems even deeper than those suggested by enrollment rates.

3.22 It is worrying in this regard that a large number of Pakistani children appear to enter school later than they should, and that few of those enrolled in school attend a grade that is appropriate for their age. Table 3.4 presents the detailed school enrollment profiles of children in the school-age group in the country. Nationwide, 31 percent of 5-year-old children - the prescribed age for grade 1 - attend school. The proportion rises steadily until age 11, and declines thereafter. The proportion of children who have never attended school decreases until the approximate age of 11, and remains more or less constant thereafter. The proportion of children who have attended school in the past, but have since dropped out, remains low until 10 or so, but increases rapidly thereafter.

Table 3.4: School Attendance Profile (1998-99) for Children¹⁴

Age in Years	Percentage of Children			
	Okay for Age	Behind for Age	Left School	Never Attended
5	30.9	0.0	0.2	68.9
6	32.2	14.5	0.3	53.1
7	20.9	36.7	0.4	42.1
8	17.6	43.8	0.9	37.6
9	19.3	47.2	1.4	32.1
10	17.0	45.4	3.8	33.9
11	19.7	47.9	7.6	24.8
12	13.1	43.5	11.3	32.1
13	15.4	39.5	15.0	30.1
14	14.1	32.5	21.8	31.6
15	11.3	28.7	27.0	33.0
16	0.0	33.3	32.7	34.0
17	6.5	23.9	39.9	29.8
Total	17.6	33.4	10.7	38.3

3.23 This national pattern is even more pronounced among rural students, particularly girls. Figures 3.5 and 3.6 present the enrollment profiles disaggregated by sex in rural areas. A higher proportion of children, boys and girls alike, attend school in urban areas than in rural areas.¹⁵ Moreover, the rural-urban differential is higher for girls than for boys. As a proportion of those who have attended school, dropout rates are also higher for rural areas than for urban areas, and for girls compared to boys. The rich-poor gap in educational outcomes is also reflected in detailed enrollment profiles.¹⁶ At 52 percent, the proportion of children who have never attended school is much larger among the poor than among the non-poor, for which the number is 31 percent. Poor children are also likely to fare poorly in school, with relatively higher dropout rates, and greater proportions attending grades lower than those appropriate for their age. A combination of factors accordingly appears to impede educational attainment among poor children –including late entry into school and greater likelihood of grade repetition.

Figure 3.5: School Attendance Profile for Rural Girls: 1998-99

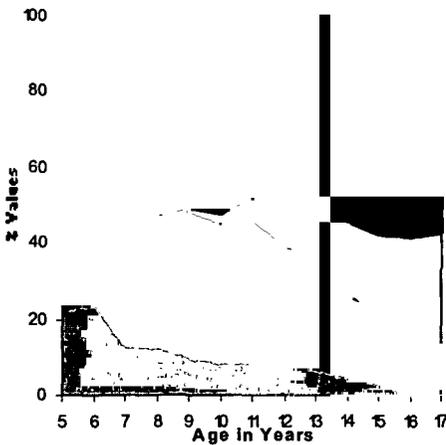
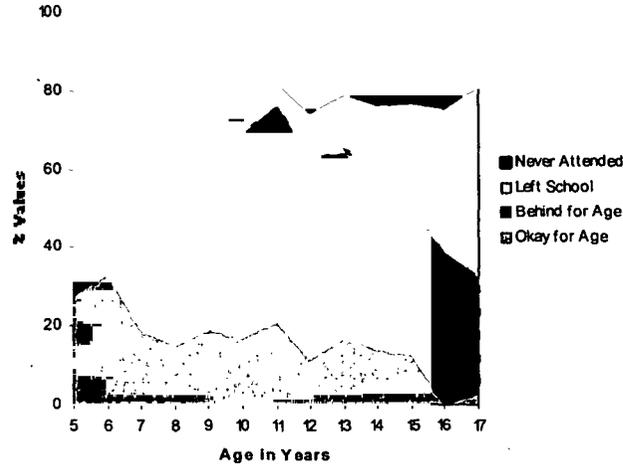
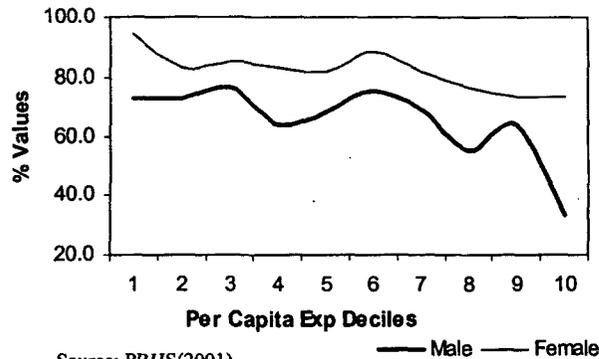


Figure 3.6: School Attendance Profile for Rural Boys: 1998-99



3.24 The recently conducted PRHS (2001) also indicates that the widening gender gap in educational attainment is starker than what enrollment rates would indicate. The proportion of individuals of age 5 to 21 who entered school, but dropped out before finishing Class 10 in the rural communities where this survey was fielded, is higher among females (32 percent) than among males (24 percent). Moreover, as Figure 3.7 shows, even among those who drop out of school, the proportion of dropouts that occur in *primary* school is higher for females than for males, no matter what the economic status of the household. While 65 percent of all male dropouts before grade 10 occur at primary level, the same is true for 79 percent of female dropouts. Given that relatively few women enter school in the first place,¹⁷ the fact that girls drop out at a higher rate than boys *and* tend to do so at an earlier stage of schooling is of high concern.

Figure 3.7: Proportion of Dropouts for Age 5-21 those dropping out in primary school



Source: PRHS(2001)

Education, Household Welfare and the Economy

3.25 There is evidence that education widely impacts the economic status and welfare of household members. Some evidence of this has already been presented; in chapter 2 it was noted that higher education of the household head is associated with lower incidence of poverty, and for certain levels of education - less vulnerability to poverty. The relationship between poverty and education for households is especially relevant in Pakistan, given its pattern of persistent poverty, and evidence that the spread of education, as measured by school enrollments and literacy rates, has been slow and marked by wide disparities.

3.26 According to the evidence presented in this section, literacy and education are seen to have general positive impact on earnings, though there are some marked variations in the benefits that it confers on women and men, and on rural vs. urban households. Broadly speaking, and as partly noted earlier in this chapter, the most salient developmental benefits of education are the externalities that it yields. Among the most important of these is the fact that health indicators like infant and child mortality, improve with the education of mothers, as do enrollment rates for male and female children alike. The evidence also points to a strong impact of education on human capital and the long-term earning potential of households. This carries strong, and familiar policy implications, particularly for policies that would promote educational attainment within a household-based framework.

Impact of Education on Labor Earnings

3.27 The impact of education on household earnings can be thought about in two ways; its direct and more immediate impact on the earning capacity of household members; as well as in terms of its externalities: whether a worker's labor earnings are affected by the educational attainment of other members of their household?¹⁸ Cross-section household data imposes limitations on the extent to which the former issue can be analyzed - the impact of education on income volatility, for instance, cannot be assessed using this data. However, it does offer some avenues for estimation, as noted below. Externalities can also be analyzed to some degree. These may arise because for certain activities, there may be benefits from having easy access to a literate household member. For instance, an illiterate urban worker who has to be aware of what are their employment opportunities, or require information in order to bargain with employers, might benefit considerably from this. And individual labor market earnings mapped by the data used in this chapter, can accordingly provide some measures of educational externalities.

3.28 Estimations that measure the effect of literacy and education on wage earnings suggest firstly that a workers' own literacy and education have positive effects on earnings for all non-farm workers. For instance among males, literate workers earn 42 percent and 9 percent more than non-literate workers in the urban and rural non-farm sectors respectively.¹⁹ Second, the externality benefits of literacy and education levels are the highest for male workers in the urban non-farm sector, and to a lesser extent for those in the rural non-farm sector. Third, benefits from own education are always stronger than externality benefits. And fourth, literacy or education variables have significant effects on earnings in the rural agricultural sector (Table A-3.4, Annex).²⁰

3.29 Moreover, in regards to educational externalities - looking only the wage earnings of *non-literate workers* (Table A-3.5, Annex) - the evidence shows that having a literate member in the family is found to have positive and significant effects on earnings of non-literate urban workers. Boosting their wages by 13 percent and 49 percent respectively this is true for males and females alike, but there are nevertheless important gender gaps. In general, literacy, as well as the (highest) education attainment among household members generates the highest positive externalities - in terms of their wages - for male urban

workers. In comparison, externalities are generally weaker for female wage earners, and for the rural non-farm sector compared to the urban sector; they are non-existent for the rural farm sector.²¹

3.30 The pattern of education being more important for wage earnings in the non-farm sector is consistent with what one would reasonably expect, given that wage earners in the farm sector are likely to consist mostly of daily wage labor engaged in activities with low or non-existent returns to education. The pattern of education having higher direct returns and externalities on earnings in the urban sector, compared to rural areas, is also consistent with expectations, since urban areas are likely to offer greater range of opportunities to workers with more education, or are better-informed about job opportunities (as a result of having educated members in the household).²²

3.31 With some qualifications, these findings are also consistent with the notion that education can improve opportunities for workers in the often better-paying non-farm sector. Workers being educated and literate are found to increase the probability that rural male and female workers alike participate in the non-farm sector vis-à-vis the farm sector. Education also confers externalities in this regard, but as noted earlier, these seem to accrue less to women while having a literate member in the household makes it more likely for a rural male illiterate worker to participate in the non-farm sector, it has little effect on the participation of rural women in either sector.

3.32 Therefore, not only do literacy and the level of education of a worker matter for earnings, the educational attainment of other household members can also confer sizeable positive externalities in the non-agricultural labor market. This evidence of intra-household externalities carries an important policy implication – namely that the *spread* or the distribution of literacy and education among the population can have a powerful impact on their welfare. A household with no education among any of its members may benefit from even one member gaining access to education, beyond the immediate gains to that particular individual. And this not only in terms of improvements to health and education of the family's children, but also in terms of better immediate earning opportunities for other members. Household focused policies must however grapple with the gender dimension of this phenomenon, since women seem to benefit less from the earning externalities than do men.

What Determines Participation in Schooling?

3.33 Given the importance of education in determining earnings and economic status, and in the light of the deficiencies in enrollments and attendance profiles identified so far, it is important to identify the factors that help explain participation in schooling. The evidence suggests enrollment is linked strongly to parent's education, both that of the mother and father. It is also linked to the ease of access, and proximity, to schools. However, no definite causality can be established in these regards. This also underlines the additional difficulty of distinguishing methodologically the extent to which lack of demand for or supply of schooling is the determinant culprit. While subjective responses lifted from the PIHS household survey offer a glimpse at the kind of factors respondents themselves use to explain why the children in question have never attended, or dropped out of school, these also reflect this ambiguity (Box 3.1).

Box 3.1: Reasons for Never Attending or Leaving School – Evidence from PIHS (1998-99)

A collation of subjective household responses outline some reasons for why their children have never gone to, or dropped of school (see Tables A-3.6 and A-3.7 in Annex). The most frequently cited reasons for never attending school were "too expensive", "parents disapproved", "child not willing" and "too far away." The first three factors are also cited frequently as reasons for leaving school, but "had to help at home or with work" emerged as more important than "too far away", especially in urban areas. In all cases, one of the main reasons cited was that education was too expensive. Parental disapproval is much less frequently cited as a reason for leaving school, as opposed to never attending school. Which is as expected, parental approval is likely to have been required for entering school in the first place.

In rural as opposed to urban areas, "too far away" is a much more common reason for never attending school, consistent with the notion that availability of schooling is more restricted in these areas. However, in both rural and urban areas, parental disapproval is more frequently cited as a reason for girls never attending school, or leaving school, than it is for boys. In rural areas, this is given as the main reason for 39 percent and 18 percent of girls have never attended, or left school. The corresponding numbers for boys are only 6 percent and 4 percent respectively. Notably, lack of female teachers is a fairly important reason for girls never attending school in rural areas. Probably reflecting the role that boys in contributing to household earnings, "Had to help at home/work" is a more frequently cited reason for them leaving school, than it is for girls. This may point to a link between child labor and school participation, which requires more careful analysis.

One should however be cautious about making distinctions between demand and supply factors on the basis of these findings. For example, even an apparently demand-related response like "had to help at home/work" could merely imply that the relative returns to work as opposed to schooling is high, because school is getting too expensive, or is perceived as being of a low quality. Thus the responses tabulated can serve, at best, as the starting point for further analysis.

3.34 On its part, data analysis of the factors that affect school participation generally indicates the importance of economic status, parents' education and access to school facilities in determining the probability of a child attending school (Table A-3.8, Annex).²³ These results are based on a multivariate analysis that it is able to differentiate among the various factors, controlling for all the other probable influences. A probit regression of school participation of children of age 6 to 14 on a range of variables was used to identify the role of each factor in explaining the probability of participation.

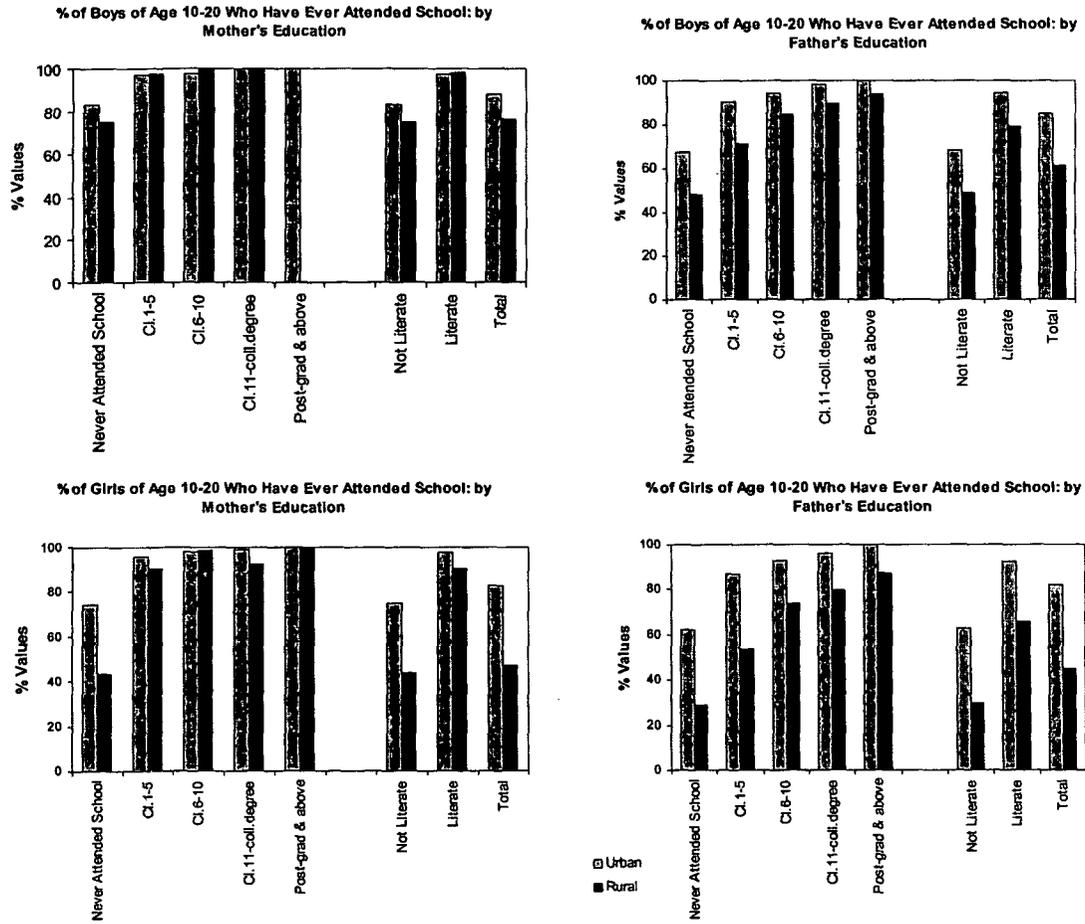
3.35 Economic status, as expected, plays an important role in explaining school participation. The marginal effect of being in a particular per capita expenditure quintile, on the probability of a child of age 6 to 14 attending school (with the lowest quintile as the reference group) is found to be quite high and statistically significant for the country as a whole, as well as for all subgroups. Nationally, the probability of a child attending school is 10 percent, 16 percent, 21 percent and 25 percent higher if his/her household belongs to the 2nd, 3rd, 4th and 5th expenditure deciles, respectively. The impact of household well being is also somewhat larger for urban households than for rural ones, and among the latter ones, more so for female children than for male children.²⁴

Impact of Parents' Education on Children's' Attainment

3.36 The analysis also finds that the parental educational attainment, particularly that of mothers, also impacts the likelihood that their children will attend school – which is generally supported by studies for other countries. In Pakistan, the marginal effects of whether the parent has ever attended school are seen to be high and significant for mother and father alike. Having a mother who has attended school makes it 23 percent more likely that a child will also do so; having a father who has attended school makes it 16 percent more likely that a child will do so. The effects of mother's schooling are also slightly stronger in rural areas, and have greater impact on female enrollment than male enrollment in these areas. However, this effect tapers off as the education attainment of the parent increases. The correlations represented in Figure 3.8 are consistent with these findings. For instance, when mothers are literate - compared to when they are not - the school participation rate is higher, and the urban-rural differential - as well as gender

differences- are significantly lower.²⁵ The strong effect of parents' education on the likelihood of a child attending school underscores the positive externalities for human development conferred by education, and female education in particular.

Figure 3.8: Parents' Education and School Participation



Access to Educational Facilities

3.37 As household responses themselves suggest, access to educational facilities is also an important determinant of school participation. Physical proximity to a school appears to be quite important, though it is not apparent that poor households are particularly disadvantaged in this respect. However, in light of the gender gap in enrollments, this may be important. To this end, it is notable that private schooling seems generally to offer better gender outcomes, in large part because they make few assumptions about the unwillingness of households to enroll girls even in co-educational institutions as long as they are close-by, and have been successful in recruiting female teachers. As further discussed, another issue which policy should address is the manner in which social barriers related to caste or class, impede access to schooling for marginal groups.

3.38 In regards to the proximity of education facilities, the aforementioned regressions of school participation show that the presence within a 1 km radius of a school offering primary education in rural

areas increases the probability of a girl attending school by 15 percent.²⁶ Similarly, the presence of a school offering all three levels of education - primary, middle and secondary - increases the probability of any child attending school by 8 percent. This is consistent with the simple cross-tabulations listed in Table 3.5: for a village with a primary school for girls within at least 1 km, the net primary enrollment rate for girls is 43 percent, compared to around 13 percent for the rest of the rural population. Similar patterns are observed for net secondary enrollment for boys and girls alike, across almost all provinces.²⁷

3.39 Given that access to school - defined as even the mere existence of schools - help explain variations in enrollment rates, it is relevant to inquire whether poorer areas tend to lack schooling facilities? Although available evidence suggests that the poor are a little more likely to live in areas more remote from school facilities that accommodate women, such differences are not very significant.²⁸ The PIHS data reveal that around 79 percent of the rural population lives in areas where there is at least one primary school for girls in or within 1 km, distance from the village (Table 3.5). For 12 percent of the rural population, the nearest school is at least 6 km. away. There are however regional variations in the proportion of the rural population with a girls' primary school located within 1 km radius. These range from 100 percent in Azad J & K to 41 percent for Balochistan. Access to primary school for boys, on the other hand, seems to be uniformly high across the country; 95 percent of the rural population lives in areas where the nearest primary school for boys is within 1 km of the village.²⁹

Table 3.5: Access to School and Enrollments in Rural Areas (1998-99)

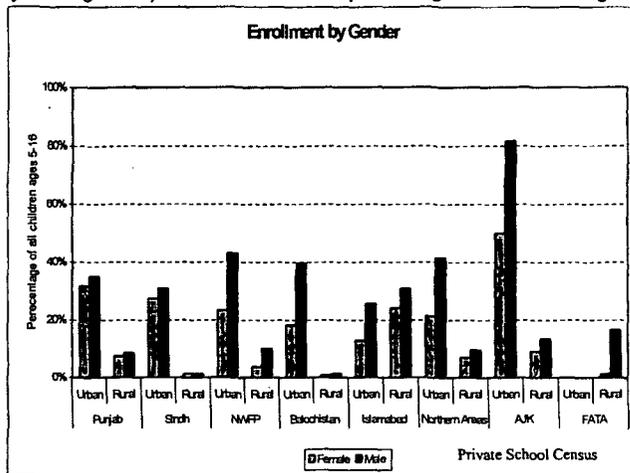
	% of Rural Population	Net Enrollment Rates
Nearest Girls' Prim. Schl.		(Net Prim. Enrl. Girls)
In PSU or <=1 km distance	78.7	43.3
Distance >1 & <6 km	9.7	13.4
Distance >=6 km	11.6	12.6
Nearest Girls' Sec. Schl.		(Net Sec. Enrl. Girls)
In PSU or <=1 km distance	25.7	28.4
Distance >1 & <6 km	38.4	15.0
Distance >=6 km	35.8	10.6
Nearest Boys' Prim. Schl.		(Net Prim. Enrl. Boys)
In PSU or <=1 km distance	95.4	55.0
Distance >1 & <6 km	3.4	29.1
Distance >=6 km	1.1	14.5
Nearest Girls' Sec. Schl.		(Net Sec. Enrl. Girls)
In PSU or <=1 km distance	39.4	54.1
Distance >1 & <6 km	34.9	40.6
Distance >=6 km	25.7	25.7

3.40 The observed differences in the availability of primary schools for girls and boys in rural Pakistan no doubt partly explain wide gender gaps in schooling outcomes. The fact that even the mere availability of a school within a short distance is associated with much higher enrollment rates speaks for the need to expand access to schools, particularly for women. As mentioned before, a recent study of private schooling indicates that low female enrollments are closely linked to institutional defects in the public school system that limits access of girls to school facilities (Box 3.2). This also points up the advantages that private schools seem to enjoy; gender differences in their enrollments are found to be low. Primarily this is because these mostly co-educational schools provide greater opportunities for girls' attendance, as well as the fact that they have been able to employ large numbers of women as teachers.

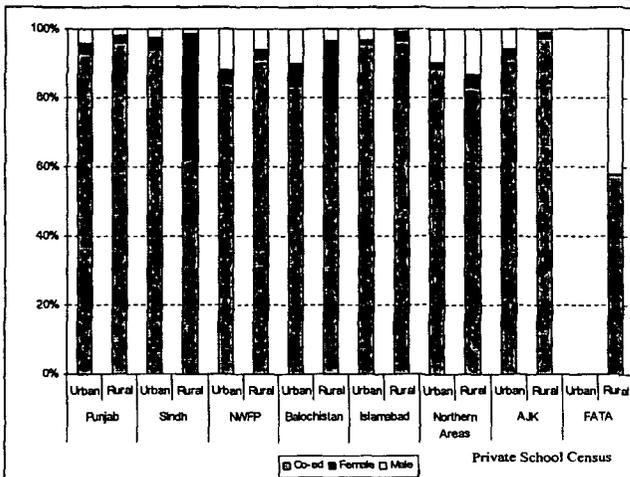
Box 3.2: Female Enrollment and Private Schooling: A Unique Opportunity?

A recent nationwide study shows that low female enrollment rates in Pakistan may be a reflection of the design of specific educational institutions. The graph shows the enrollment of boys and girls in *private schools* as a percentage of all school age pupils in the region. Encouragingly, girl and boy enrollments are roughly equal for Punjab and Sindh, the two major provinces. In Punjab particularly, gender differences in private enrollment rates are very low, with female enrollment exceeding that of males by 90 percent in some districts.

How have private schools managed to raise female enrollment ratios? First, private schools have made no assumptions regarding the ability of girls to attend co-educational schools. The majority of private schools are co-educational (see graph) and as a result, girls have *greater opportunities* for attending a school. Government schools tend to be overwhelmingly single-sex, based on the understanding that households would feel uncomfortable sending their children to co-educational institutions. What the private school experience shows is that it may be *more*



important to have a school close by than to have a single-sex institution. Households feel more uncomfortable about sending their girls to single-sex institutions that are far away than to co-educational schools that are close to the village. Second, private schools have been very successful in recruiting women. More than 50 percent of all teachers in the private educational sector are women, and in some regions -for instance Punjab - they account for more than 70 percent all teaching staff. This has had an impressive impact on the enrollment of girls. Increasing the percentage of female teachers in a school from 0 to 100, increases female enrollment from 22 percent to 52 percent. Moreover, educated women have been found to have played a pivotal role in increasing the enrollment of *male children as well*.



Also, since private schools tend to rely on educated women for their staffing needs, increasing the number of educated women in a region implies that there is greater scope for setting up a private school in the first place. Extrapolating, one could surmise that if the number of educated females in a *patwar circle* were brought to equal the number of educated males, enrollment would increase from 387 to 834 students and the number of private schools would more than double from 1.37 to 4.66.

Source: Andrabi, Das and Khwaja (2002). "The Rise of Private Schooling in Pakistan: Catering to the Urban Elite or Educating the Rural Poor?"

3.41 Thus to improve female enrollments, it may be more important to locate schools admitting girl students closer to communities, rather than to focus on single-sex institutions that cannot be universally provided. This might also help create local virtuous cycles for female education; the analysis suggests that on the one hand, increasing the number of female teachers encourages girls schooling, and on the other, an increase in the number of educated women in the community raises the number of private schools. In this respect there therefore appears to be a unique opportunity for Pakistan to radically improve the status of female education. Notably, these mechanisms have already been shown to work in Balochistan,³⁰ and corroborating evidence at the national level provides considerable further grounds for optimism. There are admittedly concerns about poor household's access to these opportunities, but as discussed later on this section, they may not be as well-founded as often thought.

3.42 Notably however, the statistics on access provided so far only measure the incidence of schools, without taking into account that the mere presence of a school may not necessarily make it equally accessible to all members of a local community. Firstly, caste or social hierarchies may influence access. A recent study finds that interaction of caste relationships and public services can produce a range of outcomes, with very different policy implications (Box 3.3). While in some cases, properly functioning public facilities tend to eradicate caste-based differentials, in other areas there is evidence that existing social hierarchies compromise the very functioning of these public services. In these areas, true *public* access to these services is likely to become possible only through political empowerment of marginalized groups.

Box 3.3: Caste and Schooling

A recent study of schooling in Pakistan collected census data on one village in the districts of Muzaffargarh, Toba Tek Singh, Chakwal, and Mardan, and provided some evidence of the importance of caste in determining enrollment patterns where public schools do not function well, more so than other factors such as land-ownership. The census included conventional demographic information such as age and gender, as well as information on individuals' educational status, as well as the caste and land-owning status of the relevant household. Educational indicators for adults over age 15 were regressed on individual characteristics, as well as household characteristics such as caste and land ownership status. In all four villages, caste dummy variables were statistically significant determinants of educational achievement, and dominated land ownership, which is commonly believed to be important. Indeed, land ownership status lost explanatory value once caste dummy variables were included. A similar exercise was then conducted in order to explain the prevailing enrollment pattern of school-age children (ages 5-15). Caste dummy variables continued to be significant and dominated land ownership status in two of the four villages - Muzaffargarh and Toba Tek Singh. In the other two villages, the caste dummy variables were no longer statistically significant.

Critical insights drawn from qualitative work that was a part of the study helps explain these regression results. The villages in Chakwal and Mardan were found to have long-standing well-functioning government schools. In Toba Tek Singh, although the government school was of a high standard, caste hierarchy and open prejudice was strong. Children from low caste families were discouraged through persistent verbal abuse on the part of other pupils as well as some teachers. In the Muzaffargarh village the government school was new and not well-established. Accordingly, the regression results were interpreted in the following way: caste was an important determinant of educational attainment in the past in all of the villages, as evidenced by the adult sub-sample. The regressions on the 5-15 age group showed that caste was still important in the village where caste discrimination was actively present, and in the village where the government school was as yet not properly established. In the two villages where the government schools were well established and functioning well, caste was no longer a factor in determining school participation.

Source: Gazdar (2000). "State, Community and Universal Education: A Political Economy of Public Schooling in Rural Pakistan"

3.43 Secondly, the mere existence of a school does not imply that it offers quality education, or even that it meets the minimum standards of a functional school. While the physical location of facilities in or near communities is important, it is worth considering that in spite of near-universal physical proximity to at least one primary school for boys, gross primary enrollment rates among boys in rural areas was only around 57 percent in 1998-99. There is reason to believe therefore that poor quality of existing schools, related to governance problems, could be important. Only by taking issues of quality and functionality of schools into account can one arrive at a proper understanding of the set of factors that determine observed outcomes in schooling.

School Quality and Performance

3.44 Evidence from various sources suggests that such quality problems are widespread and that they often arise out of institutional failures. One manifestation of this is the prevalence of schools that are non-functional, e.g. ones where teachers are not in regular attendance, or that have been appropriated by private parties for their own use.³¹ More information on such quality problems is available from the aforementioned PRHS (2001), which included a detailed facility questionnaire that was administered to all schools offering primary education in about 130 rural communities.³² While the survey finds that primary schools are present in most villages, – consistent with what was reported from the nationally

representative PIHS data – a major area of concern is the quality and functioning of schools. Table 3.6 reveals the poor status of school infrastructure and critical amenities. Only a third of the sample schools had an adequate building, measured in terms of the quality of its floors, walls, and roofs. In addition, only about half the schools had access to drinking water and toilets, a third had electricity, and only 16 percent of the co-educational schools had a separate toilet for girls.

Table 3.6: School Quality Indicators

School Infrastructure	% of Schools in Sample
Adequate Building	33
Furniture	51
Textbooks	23
Drinking Water	52
Toilets	48
Electricity	32
Separate girls toilet (co-ed facilities)	16

Source for Table 3.6, 3.7, Figure 3.9, and 3.10 is PRHS(2001).

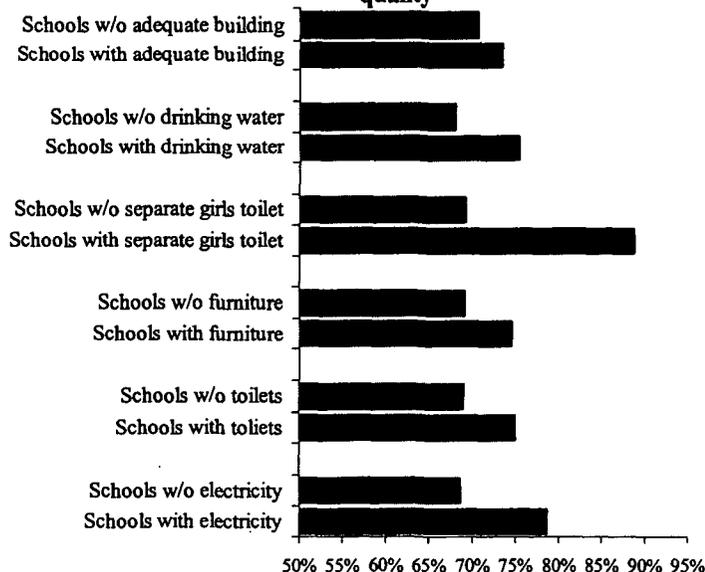
Table 3.7: Teacher Absenteeism

	Schools with no classes being held (%)	Teacher attendance in schools with classes being held (%):		
		Total teachers	Male teachers	Female teachers
Punjab	3.5	75.3	77.6	72.6
Sindh	28.6	77.5	87.3	11.1
NWFP	22.7	90.8	94.3	80.6
Balochistan	25.0	85.0	90.6	36.4
Pakistan	16.5	81.2	86.2	68.5

3.45 On teacher attendance, available evidence suggest significant problems. Out of the 206 schools surveyed in rural areas for the PRHS study, classes were not being held in 34 at the time of the visit. In other words, over 16 percent of the schools did not meet even this minimal standard of educational provision (Table 3.7).³³ Even in schools where classes were being conducted the rate of teacher absenteeism was fairly high (around 20 percent), and higher for female teachers in some areas, which is especially detrimental to the prospects for girls education in those areas. Moreover, since the majority of rural schools are single or two-teacher establishments, these aggregate numbers understate the disruption to education caused by teacher absenteeism at the individual school level. In such a school the absence of the teacher necessarily implies that a large part of the instruction will not take place at all. At the level of individual school facilities, roughly 20 percent of schools holding classes had half the total teachers absent, and 31 percent had half the female teachers absent.

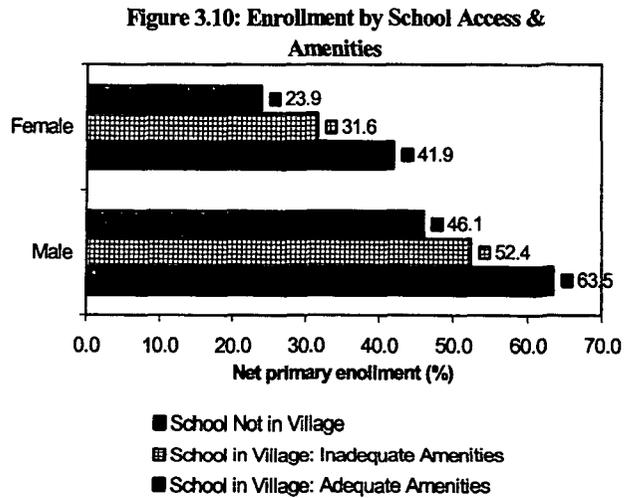
3.46 Given these problems in school quality, it is no surprise then that student attendance rates were relatively low. At the time of the visit, approximately 64 percent of enrolled boys and 61 percent of enrolled girls were observed to be present in the classroom.³⁴ The survey data revealed a negative correlation between student-teacher ratio and student attendance rates. Figure 3.9 also illustrates the negative impact that poor quality infrastructure has on the demand for education, as

Figure 3.9: Student attendance as a function of school quality



evidenced by lower student attendance rates in facilities lacking toilets, furniture, textbooks, drinking water, electricity, and an adequate building.

3.47 Likewise, there are indications that better quality of schools is associated with higher enrollments. Linking household level information on enrollment with facility level information, one finds that net primary enrollments are higher for males and females alike when the community has at least one school with adequate basic amenities, than when the school(s) lack those amenities, or when no school is present (Figure 3.10).³⁵ For example, among girls of primary age in communities where schools have adequate amenities, comprising 41 percent of all primary age girls in the sample, the net enrollment rate is 42 percent, in comparison to a rate of 32 percent when girls' school(s) in the community lacks amenities, and 24 percent when there is no girls' school in the community at all. These results indicate that quality and functionality of schools, over and above their mere presence of, matter for school participation.



Determinants of School Quality

3.48 So how does one explain the prevalence of poor quality schooling in Pakistan? In part, it is a function of economic status: PRHS data reveals that wealthier districts in general possess better school buildings. However, this in turn complicates arguments about causality. For example, lower household income could result in lower demand for schooling, or school attendance, as well as poorer school infrastructure, and any association between attendance and infrastructure would then be spurious. However for other indicators of school quality, such as the availability of the basic amenities discussed above, there is no strong relationship with per capita expenditures at the district or the community level. Therefore, it seems reasonable to posit that school quality does to some extent drive attendance and enrollment.

3.49 Active parent and community involvement in school management is widely recognized as crucial to increasing teacher accountability and improving school performance. The survey data seems to support the applicability of this notion in the Pakistani case. In the sampled communities, it was found that basic amenities, such as drinking water and toilets, were significantly higher in schools with a parent-teacher association (PTA) than in those without one. However, the survey also revealed that PTAs are far from universal in rural Pakistan, and in most cases exist only in name. While roughly 52 percent of the sampled schools possessed a PTA, the number of financially viable organizations was smaller, since only 68 percent of these PTAs received governmental grants. The PTAs on average met only once a month, a quarter had not met with the school principal in the past month, and over half had met with the principal only once.

3.50 To summarize, access to schooling, both in terms of availability and quality of schools, appears to be significant constraints on educational attainment in Pakistan. And the evidence so far has indicated that in most part there is a systemic failure of public education. In this context, and given that the private sector has played an increasingly important role in schooling in Pakistan in recent years, as seen

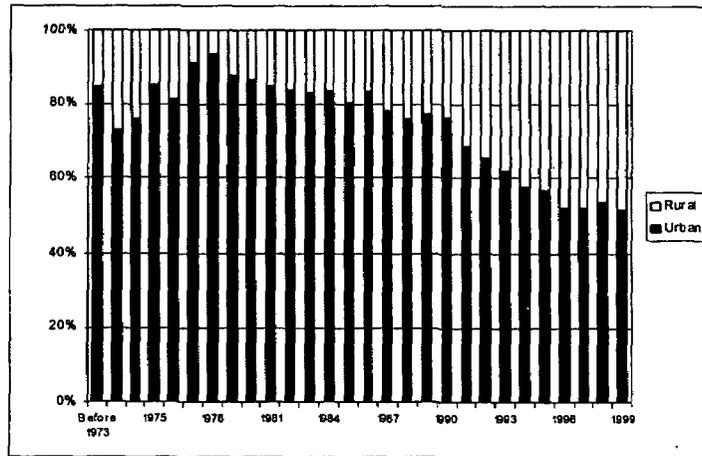
previously in this chapter, it will also be important to explore in some detail the opportunities offered by this sector in delivery of education services.

Expanding Role of the Private Sector: Reason for Optimism?

3.51 A number of questions arise over the nature and impact of private schools and their implications for regional and income equity in the delivery of public services. What for instance is the feasibility of increasing the access of rural and less well-off households to private schools? Recent history, supported by analysis of detailed data on private schools available from the Census of Private Schools (2000), provide some grounds for optimism.

3.52 Figure 3.11 shows that in Pakistan there has been a qualitative shift in the establishment and operation of private schools from 1990 onwards furthering broader access to such services - even though there is still a significant “rural-urban” divide with enrollment in urban private schools outnumbering that of rural private schools by a ratio of 3:1. Before 1990, less than 20 percent of all private schools established were located in rural regions, but from 1990 to 2000, this number has increased, and now remains stable at close to 50 percent. As a result, more than 45 percent of the schools established since 1996 are located in rural areas.

Figure 3.11: Establishment of Private Schools



Source: Private School Census (2000)

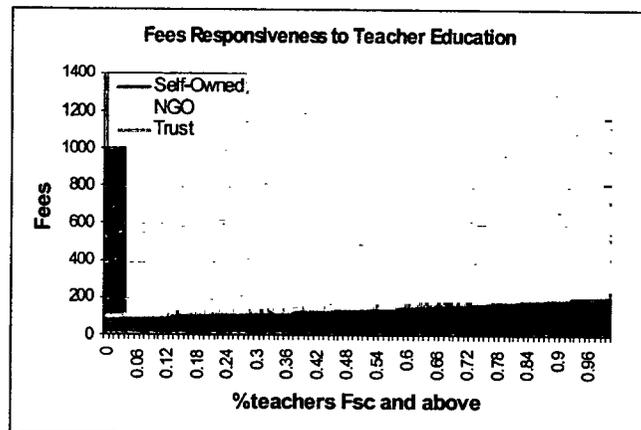
3.53 Moreover, as outlined in Box 3.4, the recent experience with private schooling in Pakistan calls into question a number of prior beliefs about its elite nature. In particular, it appears that tuition fees in private schools are not set so that they cater only to the wealthy. Also, in terms of their total cost, private schooling actually turns out to be cheaper than public schooling. Having said that, important questions still need to be addressed in order to ascertain the potential role of private sector in expanding access to quality education in Pakistan. One key area of research should be to assess of how private school *test assessment outcomes* compare to public schools, and whether these test outcomes correlate positively with prices in the private sector. This would be important because the absence of a price-quality relationship would indicate that households face problems in learning about the quality of a school, which can lead to extremely inefficient outcomes. On the other hand, the existence of a price-quality relationship would indicate that households have information to make good decisions. In that case, a policy to promote equity by targeting educational subsidies at the household level (for example, through vouchers) would also be efficient. A thorough evaluation of this issue would address the important question of whether using the private sector and providing educational subsidies to poor households can be an efficient policy lever, to some extent supplanting complete reliance on the public sector to expand primary education.

Box 3.4: Private Schools in Pakistan: Purely an Urban Elite Phenomenon?

The stereotype of elite private schools charging exorbitant fees is not borne out by the data from the Private School Survey. The median monthly tuition fee for a primary school in the rural areas ranges from an astonishingly low Rs. 53 a month in Punjab to just over Rs. 115 in Balochistan. Moreover, fees in urban areas are not much higher. For instance, the median monthly tuition fee for urban Punjab is only Rs. 71. In Punjab, these tuition fees represent 1.7 percent of average household expenditure at the rural level and 2.1 percent at the urban level. How do these figures compare to public schools? The correct benchmark for establishing the cost of private vs. public schooling is a comparison of tuition fees in private schools with fees in public schools *plus* the government outlay on spending per child. Doing so presents a telling picture: the per child government expenditure on education amounts to a staggering Rs.2,430 for all educational categories.³⁶ Even if this amount is halved to adjust for primary vs. higher educational spending, total expenditure per child in a public school costs Rs.1,200 compared to just over Rs.1000 for private schools. Is this because public schools provide higher quality education than private schools? Recent evidence suggests not. Although public school teachers are more experienced and have more training, head-teachers in private schools tend to have more years of schooling (12.7 vs. 11.3), student-teacher ratios in private schools are about half of those of public schools (24.8 vs.42.7) and private schools have better infrastructure facilities, such as toilets and classrooms with desks.

So far however, one has only looked at the *average* private school in Pakistan and in doing so, may have overlooked important variations in quality and price. In fact, a related concern with private schooling has been the non-standardization of educational provision – whether lack of regulation allows institutions to take advantage of households, many of whose children are first-generation literates - and provide poor education. It should be noted that the fact that there are low and high quality schools, with (respectively) low and high prices, is not a cause for concern from an efficiency point of view *if households can accurately gauge the quality of schooling received*: richer households would opt for more expensive and higher quality options. While this may be troubling from an equity perspective, the correct policy prescription is *not* to restrict supply options. Rather it is to increase cash resources at the household level, potentially through the use of educational subsidies (Alderman et al, 1999).

Since data on student outcomes, such as test scores, do not exist, one cannot really answer this important question of the relationship between price and quality. A possible proxy would be to examine the relationship between school fees and inputs that may be correlated to school quality, such as student-teacher ratios or teacher's education. A multivariate regression exercise that controls for district level dummies and school type shows that at least at this basic level, households are correctly evaluating educational quality, with fees decreasing with an decrease in the teacher-student ratio as well as the proportion of matriculated teachers (figure).



Source: Private School Census

Source: Andrabi, Das and Khwaja (2002). "The Rise of Private Schooling in Pakistan: Catering to the Urban Elite or Educating the Rural Poor?"

Health in Pakistan

3.54 While various health indicators have shown improvements over the 1990s, as Chapter 1 has shown, most indicators remain below the levels seen in countries with comparable levels of income. These include life expectancy, infant and child mortality rate, as well as spending indicators like expenditure per capita and government expenditure per capita on health. As noted in Chapter 2, health indicators and poor sanitation are also likely related to vulnerability and poverty in the country. On a number of grounds, the health status of the population therefore bears further scrutiny.

3.55 There are reasons for optimism on the health front: available data suggests that infant mortality has improved over the decade and evinces no significant gender gap; the incidence of diarrhea - a leading cause of infant death - has also fallen; the immunization rate has improved over the decade; and knowledge of contraception has increased significantly among married women of child bearing age and now appears near universal. However, significant challenges remain. Infant mortality rate is characterized by a large rural-urban gap; the incidence of pre-natal consultation remains low, particularly in rural areas; Oral Rehydration System, a simple, inexpensive and highly effective treatment for diarrhea is administered for only 49 percent of diarrhea incidents among children of the poor; and, in spite of much improved awareness, actual use of contraception remains low among women of childbearing age.

3.56 One significant point of this section, is its highlighting of the persistence of chronic malnutrition among a number of districts sampled by an IFPRI survey in Pakistan, with almost no improvement over the past 15 years. While the survey is not nationally representative, it provides a robust indicator of changes in household health in four separate communities over a longer period. It shows that by the time a child reaches age 5, it has a 60 percent probability of being stunted, 40 percent probably of being underweight, and 10 percent likelihood of being wasted. This is significant because numerous studies conducted in other developing countries strongly indicate that poor childhood nutrition impacts the productive life of the adult, and that interventions later on in their adolescence are ineffective in remedying this.

3.57 What determines these poor nutritional outcomes? Crucially, the section shows that the wealth or economic status of the community is likely to be more important than household specific factors in determining a child's nutritional status. It is a reasonable conjecture that this may be in large part because wealthier communities command better facilities. As discussed, this has vital implications for the targeting and design of health policies. While differences in access prove important in explaining variations in health status, the quality of facilities is also a significant problem. Tabulations of outpatient visits show considerable variation across facilities in terms of usage, with some catering to far higher populations than others. Secondary sources also confirm that while the number of doctors and health facilities in Pakistan grew in 1980 and 90, there is a dearth of qualified doctors in rural areas.

Measuring Health in Pakistan - Indicators, Analysis and Limitations

3.58 Measuring the health of a population is a complicated exercise, requiring numerous ways of gathering information- including self-reporting, clinical measures, and observation of daily life activities. In Pakistan, this problem is accentuated by the fact there is a high reliance on self-reported measurements that suffer threshold problems; richer households for instance have a lower threshold at which they would report a disease. There are also problems about definitions of morbidity, and specificities of the questionnaire used. In addition, like many developing countries, Pakistan also suffers from lack of data at district levels on mortality causes, making it hard to obtain accurate estimates of the toll exacted by specific diseases. Given these constraints, this section will focus on the specific health indicators outlined below.

3.59 Firstly, it will examine some process indicators: medical consultation, knowledge about medical practices at household level, and use of preventive medical services. These are useful in so much as they are indicative of the factors that may determine health outcomes. However, since they are jointly determined by demand, supply and knowledge, they do not tell a clear story. Some outcome indicators are therefore also analyzed. Particular attention is focused on anthropometrics - height and weight of growing children - since the nutritional well being of children is known to correlate to a number of long-term and short-term health variables. In looking at process and outcome indicators alike, equity issues will also be highlighted, across regions as well as levels of economic status.

3.60 The ensuing discussion helps identify some consequent policy priorities. Among the most basic ones it points to the importance of far better monitoring of health indicators and greater systematization of morbidity/mortality data than what is available at present, in order to provide a better analytical basis for detailed health strategies. From the policy perspective, it is also important to disentangle the sensitivity of health indicators to supply side interventions, such as improvements in access to medical care, from interventions that work through the household, either by providing income supplements or through other avenues, for instance through spreading awareness about sanitation. Notably, a number of development studies have suggested that it may actually be more beneficial to sponsor preventive public health schemes involving sanitation and clean water than to focus on access to facilities, for example by setting up new hospitals.³⁷ Indeed, it is surprising to note that there is actually very little evidence in the health literature that improvements in mortality and morbidity over the last 80 years are related more to improvements in access to health facilities rather than improvement in the overall living conditions of communities. However, as noted above and further detailed herein, an analysis of the determinants of anthropometric outcomes for children in sampled districts in Pakistan, appear to qualify this observation.

Some Process Indicators of Health in Pakistan

3.61 Self-reported process indicators of health obtained from Pakistani households point up a number of critical health issues. For some, progress has been made over the decade, though often not of sufficient magnitude. Moreover, a dearth of reliable data makes it difficult to decisively confirm such progress.

Table 3.8: Female Health Care (Related to Childbirth) -- 1998-99

	Pre-natal Consultation (%) ³⁸	Delivery Occurred at Home (%)	Delivery Unassisted by Trained Personnel (%) ³⁹	Post-natal Consultation (%)
All Pakistan	30.9	82.8	40.8	8.6
Rural	22.0	89.5	45.9	5.9
Urban	60.1	60.8	24.2	17.3
Rural Per Capita Exp. Quintiles:				
1 st Quintile	11.9	95.5	49.4	3.9
3 rd Quintile	21.8	90.3	47.4	5.2
5 th Quintile	31.9	80.3	38.3	9.7
Urban Per Capita Exp. Quintiles:				
1 st Quintile	36.4	80.7	38.7	8.4
3 rd Quintile	55.7	67.5	29.0	14.6
5 th Quintile	84.2	29.9	7.9	34.0
Literacy of Woman (Rural):				
Not Literate	18.3	..	..	4.8
Literate	49.1	..	..	14.2
Literacy of Woman (Urban):				
Not Literate	44.2	..	..	9.6
Literate	80.5	..	..	27.4

3.62 In the absence of detailed information at the individual level in Pakistan, information on *pre and post natal care*, and statistics on the *conditions surrounding childbirth* are expected to be indicative of female health. From the PIHS data of 1998-99, the incidence of pre-natal medical consultation in Pakistan is found to be low in general, with very large differences between rural and urban regions, and within regions among various expenditure groups as well as literacy status of women (Table 3.8). Similar patterns are observed in other related indicators, including the proportion of deliveries that occur at home,

the proportion that are not attended by any trained personnel, and the incidence of post-natal medical consultation. For example, among rural and urban women, 22 percent and 60 percent had pre-natal consultation respectively; in 90 percent and 61 percent of cases deliveries occurred at home; 46 percent and 24 percent of deliveries were not attended by any trained personnel; and only 6 percent and 17 percent of rural and urban women respectively went for post-natal check-up. For rural women in the lowest expenditure quintile the corresponding numbers are 12 percent, 96 percent, 49 percent and 4 percent.

3.63 The immunization rate – a significant process indicator for preventive health care – has improved significantly in Pakistan over the decade. Since immunization data are mainly self reported in surveys, monitoring the rate of completion of immunization courses (which typically involves multiple visits) can be difficult. Such monitoring can be better implemented by promoting awareness among households to maintain immunization cards for children. The PRHS survey suggests that cards were available for only about 20 percent of the children in the sample- symptomatic of lack of awareness, institutional lapses, or both.

3.64 Other important process indicators are the rate of medical consultation and the incidence of ORS, a vital and relatively inexpensive treatment used to arrest the fatal wasting effect of diarrhea among children (refer to Table 3.11 below). Stark differences are observed between urban and rural areas, and between poor and non-poor in the case of proportion of children with diarrhea who had access to medical consultation, and those who were administered ORS. 49 percent of poor and 52 percent of rural children with diarrhea were administered ORS, compared to 58 percent and 64 percent of non-poor and urban children respectively. The fact that a large proportion of so-called medical consultations are likely to comprise consultations with “informal” practitioners, including faith-healers, also suggest that the frequency of medical consultation is possibly lower than what the numbers in Table 3.11 indicate.

3.65 Finally, fertility indicators listed in Table 3.9 reveal that while knowledge of contraceptives has increased sharply among women (married, of age 15-49), increasing from 38 percent in 1991 to 92 percent in 1998-99, the increase in the related outcome indicator, namely the actual use of contraception, though substantial (from 10 percent to 20 percent), has not been proportional. As expected, there are also wide differences in use of contraception, across rural and urban areas, economic status and levels of women’s education. Such differences are also reflected in the average number of children born per woman, though the rural-urban difference in this respect is very small.

**Table 3.9: Knowledge and Use of Contraception, and Fertility
(Married Women, Age 15-49)**

	Knowledge of Contracep (%)		Ever Use Contracep (%)		Mean No. of Children Born	
	1991	1998-99	1991	1998-99	1991	1998-99
All Pakistan	38.4	92.3	10.3	19.5	5.9	4.2
Rural	..	90.1	..	14.3	..	4.2
Urban	..	98.5	..	34.1	..	4.1
By Per Capita Exp						
1 st Quintile	31.1	90.8	6.3	14.5	6.9	5.2
2 nd Quintile	35.6	92.5	8.9	17.5	6.4	4.8
5 th Quintile	41.0	94.1	11.8	24.6	5.8	3.0
By Woman’s Edu						
None	34.4	90.5	7.8	15.5	6.1	4.5
Some	63.7	98.5	26.0	33.1	4.5	2.9

Outcome Indicators for Health

3.66 While the process indicators outlined above can serve as rough and ready indicators of the status of health, particularly from the point of view of determining the spread of knowledge and awareness, it is crucial also to consider outcome indicators. *Infant mortality rate*, i.e. the mortality rate among infants of age 1 or less – is particularly critical. This indicator is also less likely to be complicated by the threshold problems discussed earlier. Encouragingly, Pakistan's infant mortality rate of 83 per 1000 live births in 1998-99 compares favorably with 127 in 1991 (Table 3.10). Furthermore, no significant gap exists between male and female children. However, there is a large rural-urban gap of 18 percentage points.⁴² An even larger gap of 34 percentage points distinguishes infants born of women with some education, and those born of women with no education, signifying the crucial role played by mother's education in the health of the child. Infant mortality rates are also significantly lower for households with access to facilities like piped drinking water, covered underground drainage systems, and toilets inside the residential building. Child (age 5 and below) mortality rates not listed here exhibit patterns very similar to that of infant mortality rates.

Table 3.10: Infant Mortality (Per 1000 Live Births)

	1991 ⁴⁰	1998-99 ⁴¹
All Pakistan	127	83
Urban	..	70
Rural	..	88
Male	..	85
Female	..	81
By Mother's Education:		
No Education	134	90
Some Education	81	56
Drinking Water:		
Piped Indoor	117	70
Outside Home, Covered	121	90
Open Source (River, Pond)	156	83
Drains:		
Covered Underground	94	54
Uncovered Open	120	86
None	141	89
Toilet:		
Yes	105	73
No	132	95

3.67 While mortality rates are important, they provide no information about morbidity. This is a serious handicap because numerous studies show that it has strong implications for household income and labor.⁴³ Since diarrhea is an important cause of morbidity in developing countries, its *incidence* among children in Pakistan is therefore an important indicator linking health and developmental outcomes. The incidence of diarrhea among all children age 5 and under within 30 days of a survey showed a marked fall between 1991 to 1998-99, falling from 25 percent to 12 percent (Table 3.11). Such comparisons across years however may be sensitive to timing of surveys, particularly if propensity for diarrhea is more acute in certain seasons. For 1998-99, the largest gaps in incidence of diarrhea were between rural and urban areas, measured by the proportion of children who had the disease in the last month, and the average number of days of diarrhea per child. However, there are no discernible differences in the incidence of diarrhea either between the poor and non-poor, or between male and female children.⁴⁴

Table 3.11: Incidence of Diarrhea for Children of Age 5 and Below
(During 30 Days Preceding the Survey) – 1998-99

	% of Children Who Had Diarrhea	Average No. Of Days of Diarrhea Per Child	Those who had Diarrhea in Last 30 Days		
			Any Medical Consultation? (%)	Use of ORS (%)	First Consultation at Govt. Facility (%)
All Pakistan	12.3	0.83	82.1	54.5	28.9
Rural	12.7	0.87	80.8	52.0	30.4
Urban	11.1	0.71	87.2	64.0	23.6
Male	12.5	0.84	82.5	56.0	28.6
Female	12.2	0.84	81.9	52.6	29.2
Poor	12.7	0.86	79.3	48.5	27.5
Non-poor	12.1	0.81	83.9	58.3	29.8

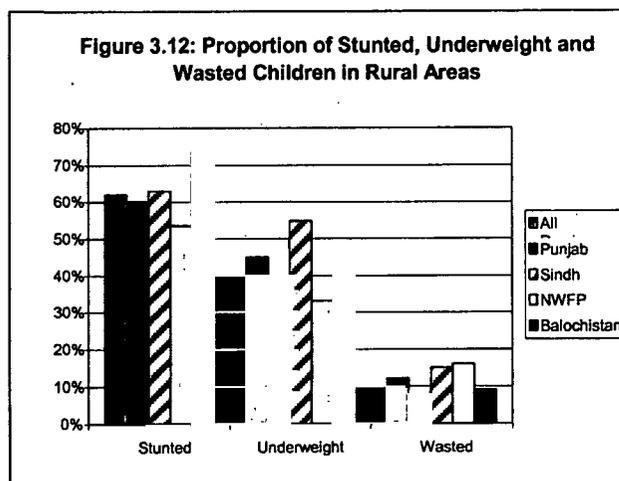
3.68 Given that child nutrition is a critical factor in determining child morbidity, as well as an individual’s future development in the course of a lifetime, it is also worthwhile to expand this inquiry into health in Pakistan, by looking at *anthropometric outcomes* among children, defined as aged less than six years. As a health indicator, these also have the advantage over data on diarrhea incidence that, while the latter suffers from concerns over the reliability of self-reporting,⁴⁶ anthropometrics, being clinical measures, are insulated from such concerns.

3.69 The specific data used draw on surveys conducted by the International Food Policy Research Institute (IFPRI) between 1986 and 1989 in four areas, and the recent PRHS (2001) survey.⁴⁷ Although the results from these surveys are not representative of the country as a whole, a key advantage in using these is that as a part of the PRHS study, a resurvey was conducted for the same households as those in the IFPRI sample, thus allowing accurate observations about changes in nutritional status over time. And although there are clear differences in household attributes over the 15 year time period, these differences are a reflection of time trends in income and infrastructure across half a generation rather than differences in the composition of the sample.⁴⁸

3.70 While it should be stressed that the results presented are preliminary and subject to revisions, they are nevertheless stark, pointing up a chronic malnutrition problem in the areas sampled, which has persisted over the 15 years covered by the IFPRI survey, without any improvement. Accordingly, by the time a child reaches age 5, they have a 62 percent probability of being stunted, 45 percent likelihood of being underweight, and 12 percent chance of being in a wasted condition. There are also significant regional variations, with Sindh uniformly faring worst of all major provinces. Notably, both female and male children appear equally affected by this trend. As will be discussed in short order, this is particularly worrying because as noted above, several studies in other developing countries argue both that poor nutrition in an individuals childhood impacts their subsequent productive life as an adult, *and* that later policy interventions are ineffective in remedying this.

3.71 The analysis uses three anthropometric measures: height-for-age, weight-for-age and weight-for-height, using data from the PRHS (2001). Each of these measures provides information on different facets of the health status of children. For instance, height-for-age is an indicator of long-term malnutrition; weight-for-height provides more information on acute or short-term fluctuations in nutritional status; and weight-for-age is an indicator of both acute and chronic malnutrition. For each of these measures, the *Z-score* based on standard growth charts are computed and used as an indicator of the nutritional status of the child, in terms of stunting, underweight and wasting.⁴⁹

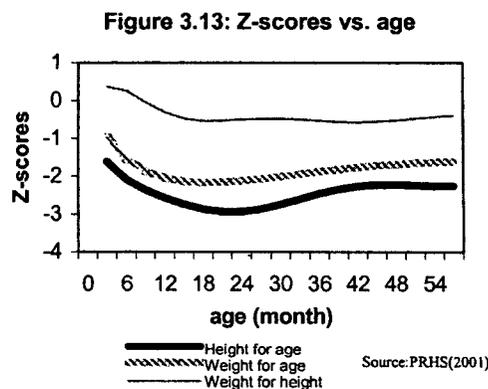
3.72 Figure 3.12 shows the overall nutritional status of children in the sample. For each child, the three measures of nutritional status are computed, each defined as a z-score of the variables less than 2 standard deviations from their respective median values. For all four districts, by the time a child reaches the age of 5, they have a 62 percent probability of being stunted, a 45 percent probability of being under-weight and a 12 percent probability of being wasted, representing high levels of chronic malnutrition in the population. More disturbing however is the complete lack of improvement in the four districts of the IFPRI sample over the 15-year period.



Indeed, there are now more children who are stunted and underweight compared to results obtained during the late eighties. As opposed to chronic nutritional deficiencies, short-term nutritional problems as measured through weight-for-height do not seem to be severe.

3.73 Furthermore, the aggregated statistics hide a significant amount of variation among the provinces. Among the four provinces surveyed, Balochistan and Sindh report the worst results, while Punjab and NWFP do significantly better in terms of weight-for-age and to a lesser extent, for height-for-age as well (Table A-3.12, Annex). Interestingly however, weight-for-height results do not follow the same patterns. Punjab reports less than the 5 percent one would expect from a normally distributed variable, and although the numbers are higher for NWFP and Sindh, they are still within reasonable bounds.⁵⁰

3.74 Figure 3.13 shows the impact of age on the z-score of the child, showing that there is a significant decline in their nutritional status from birth to an age of 2 years. As with Alderman and Garcia (1993), chronic malnutrition is found to start early in childhood with the z-score dropping rapidly from one standard deviation below the median (weight-for-age) and 1.5 standard deviations below the median (height-for-age), to between 3 and 2.5 standard deviations below the median by the second year of the child.



3.75 These findings are in accordance with research from other countries that show the importance of nutrition in early childhood and the relative inefficacy of interventions beyond the second year of the child. In light of this, it is particularly worrying that a number of studies now also show that poor nutrition in an individual's early childhood has lasting repercussions for the productive work-life of the adult.⁵¹ These findings reiterate the importance of policies that targeted nutritional programs during pregnancy and early childhood years. In areas with poor catch-up growth and when the cumulative effects of poor early nutrition on long run growth are prevalent, childhood nutrition programs can powerfully impact income growth, through their impact on morbidity and future work capacity.⁵²

3.76 In this regard, there are also important differences between the four provinces covered by the study (Figure A-3.3, Annex). While NWFP shows extremely strong catch-up growth, Balochistan shows a steep drop in the 2nd year followed by fluctuations around this level till the 5th year of the child. These results illustrate the need for a more thorough enquiry into inter-regional differences among provinces in Pakistan. Interestingly however, the gender of a child, which is typically important in several economic variables - particularly enrollment - does not seem to lead to statistically significant differences in nutritional status. One potential explanation for this result could be selection in the sample induced by higher mortality among young girls compared to boys.⁵³ While this possibility is currently under investigation, it is at this point difficult to say whether such patterns are prevalent in the infant mortality data.

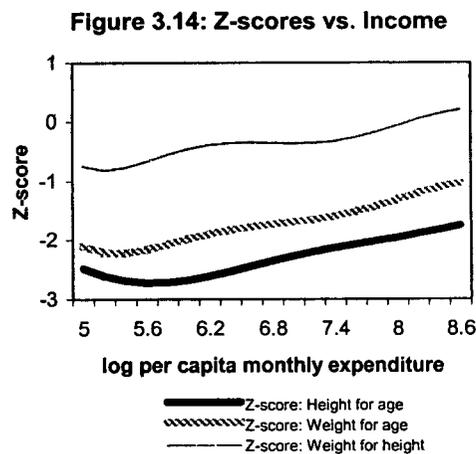
Nutritional Status and Household Expenditure

3.77 If these health outcomes are to be improved, it is vital to identify the determinants of nutritional status in Pakistan, in order to target policies accordingly. The following section addresses this imperative, focusing in particular on the potential role of household earnings vis-à-vis broader community specific factors. By decomposing the impact of income through nutrition into household effects, it asks whether better off households have children with better nutritional status - perhaps through their ability to afford

better food and health care - or whether better off communities have children with better nutritional status - through their ability to mobilize resources at the community level?

3.78 The sensitivity of nutritional status to household income is critical for the targeting of policy programs: high sensitivity would argue for the placement of programs that generate more income for households, leaving the choice of the consumption bundle and allocation of health care to the household itself. The converse would argue for the placement of programs that may be orthogonal to income with greater concentration on other correlates of nutritional status. As detailed below, this does indeed seem to be the case in Pakistan: the analysis evinces very strong community effects, and almost no household effects, indicating the prevalence of strong community based health externalities.

3.79 Figures 3.14 plots the impact of a measure of household's economic status, as measured by household consumption expenditure, on the three measures used as proxies for the nutritional status of the child. For all three there are significant positive correlations with income: an increase in the log of per-capita income from 6 to 9 improves the z-score of height-for-age by 1 standard deviation and the z-scores of weight-for-age and weight-for-height by over 1.5 standard deviations. One should note however that to draw causal implications for the importance of economic status in the determinant of childhood nutrition, there are two issues to be concerned about. First, it may be the case that average income in the community impacts on the nutritional status of the child through other resources that the community may be able to mobilize. Second, there may be concerns about the endogeneity of income at the household level: households may differ in inherent characteristics such as "entrepreneurship" that are correlated positively to both the economic status of the household, and to the well being of the child.



3.80 The first of these problems is addressed by examining specifically whether there are attributes of communities that cause them to differ systematically in the treatment of their children. Doing so yields surprising results, with profound policy implications.

3.81 Four different model specifications, including an OLS model and a model with community fixed-effects, in each case with and without instrumenting (log of) per capita expenditure, are estimated.⁵⁴ Moreover, the results for the 4 districts from the IFPRI sample are presented separately, in order to allow a comparison with results previously obtained (refer to results from these estimations in Table A-3.13a, b and c, Annex). For both height and weight-for-age, the OLS estimates of log per capita expenditure are significant and positive, particularly so in the case of the four IFPRI districts. Further, the gradient of the z-score with expenditure increases substantially once consumption expenditure is instrumented with household assets. Specifically, in the case of height-for-age, a one standard deviation increase in log per capita income improves the z-score and weight-for-age of a child at the mean of the sample by 0.23 and 0.14 respectively. The results for the IFPRI sample are far stronger, with equivalent numbers of 0.34 and 0.22.

3.82 The estimation results from the community fixed effects models show however that this strong relationship between expenditure and nutritional status, at least in the case of chronic malnutrition, is entirely driven by differences in the average per capita income across communities: richer communities have taller and less underweight children, but once the average per capita income of the community is

controlled for, there is no impact of household expenditure on z-scores of height and weight-for-age *across different households in the community*. This implies that a child in a poor household in a rich community will have a better nutritional status than a child in a rich household from a poor community, pointing towards the presence of strong externality effects within communities affecting the child's well-being.⁵⁵ This result occurs, *even though* over 70 percent of the variation in expenditure in the sample is generated by community differences, and less than 30 percent by differences across communities. In combination with the previous result, this provides strong evidence that most differences in nutritional status of children are driven by community-level, rather than household-level effects.⁵⁶

3.83 In summation, a distinct pattern can be ascribed to all of the health process and outcome indicators discussed so far.⁵⁷ Health indicators are generally much lower in rural areas than in urban areas; they also tend to improve with household characteristics like women's education, economic status and sometimes, and access to safe water and sanitation. While various other hard-to-measure household characteristics, like social attitudes, cultural mores and extent of isolation from information play a role in determining these outcomes, it is especially important to consider the importance of community characteristics, motivated by the observed importance of community-level fixed effects in explaining anthropometric outcomes.

3.84 Notably, the discussion so far begs the question of what the community level fixed effects are proxy for, i.e. what specific characteristics they represent. A reasonable hypothesis would be that that they can be seen as being interchangeable with the availability of health facilities and services.⁵⁸ According to this explanation, richer communities are in a better position to influence the location of a health facility, as well as ensure more regular, high quality operation compared to a poor village. This hypothesis is explored in the next section, in the context of an overall survey of the availability and quality of health facilities in Pakistan.

Access to Health Facilities

3.85 According to the available evidence, differences in access to health facilities, particularly for rural areas which as noted above suffer from particularly poor health indicators, are important in explaining variations in health outcomes, if not the specific nutritional status of children. In addition, quality is likely a significant problem. As a rough proxy for this variable, outpatient visits evince a considerable variation across facilities in terms of usage, with some catering to far higher populations than others. This overall pattern is supported by observations from secondary literature noting that while the number of doctors and health facilities in Pakistan grew in the 1980's and 1990's, there is still a shortage of qualified doctors in rural areas.

3.86 The PIHS (1998-99) provides information on overall access to health facilities in rural areas of Pakistan. While 38 percent of the rural population lives in villages with a government hospital, dispensary or clinic, the proportion rises to 69 percent if health workers, nurses and private practitioners are included (Table 3.12). However, availability of health facilities also varies widely among provinces.⁵⁹ In terms of the availability within a village of any kind of health facility or worker, the Northern Areas ranks the highest, while Balochistan and Sindh fare the worst. Availability of all kinds of health facilities also tends to be higher for communities in the higher expenditure deciles, indicating that relatively richer communities are also those where health facilities are more likely to be present. Such differences exist even with regards to the incidence of government facilities - less than 35 percent of the population in the bottom 2 deciles enjoy access to government health facilities in their village, compared to around 40 percent for the top 2 deciles. Such differences in the availability of health services would tend to accentuate the sharp differences in health outcomes between the poor and the relatively well off.

3.87 In fact, based on available evidence from household data, it would seem that differences in access to health facilities are important factors in explaining variations in this health status. Infant mortality and child mortality rates, for males and females alike, are lower for villages in the PIHS sample if there is in the community a hospital, dispensary or clinic - in fact, these rates are lower if any health facility exists in the village (Table 3.13). Similarly, availability of health facilities in the PSU is also associated with a higher incidence of pre-natal medical consultation for women, and higher proportion of childbirths attended by trained personnel. Therefore, as is the case with educational indicators, some critical health indicators also tend to improve in areas where there is relatively easy access to relevant services.

Table 3.12: Proportion of Rural Population with Health Facilities in Village (1998-99)

Per Capita Exp. Deciles (Rural)	Govt. Hospital, Dispensary or Clinic ⁶⁰	Any Health Facility or Worker ⁶¹
1	31.7	60.0
2	35.8	64.7
3	43.4	72.4
4	35.2	69.6
5	38.4	68.8
6	40.2	69.9
7	41.7	70.1
8	35.4	72.0
9	39.7	71.6
10	39.7	72.4
Overall (Rural)	38.1	69.2

3.88 Access to facilities, however, does not seem to matter for the nutritional status of children, as derived from the PRHS study. Results from the OLS instrumented estimation (refer to Column 10 of Table A-3.13, Annex) show that the presence or absence of health services does not impact significantly on the nutritional status of the child. This of course does not rule out the possibility that what matters for the well-being of a child is not the presence of a facility per se, but the presence of a *well-functioning* facility close to the village. As mentioned before, the mere presence of a health institution is no guarantee for how well it functions, if at all. Quality characteristics, determined mainly by institutional factors, would thus be a critical element in explaining health status across the population.

Table 3.13: Access to Health Facilities and Selected Health Indicators (1998-99)

Selected Health Indicators	Any Hospital, Dispensary or Clinic		Any Health Facility or Worker	
	In PSU	Not in PSU	In PSU	Not in PSU
Infant Mortality per 1000:	80.9	93.3	83.2	99.4
Male	83.9	93.4	87.1	95.0
Female	77.8	93.1	79.0	103.8
Child Mortality per 1000:	104.5	117.0	104.0	129.5
Male	110.7	115.3	113.3	113.6
Female	98.1	118.8	94.0	145.9
Incidence of Pre-natal Consultation (%)	25.7	19.6	26.0	13.7
% of Births Unassisted by Trained Personnel	42.4	48.3	42.9	52.2

3.89 On this front, preliminary results from the PRHS show that there is significant variability across facilities in the sample. Importantly, it was found that record-keeping at the facility level was of insufficient quality to provide important data on availability of medicines and other process indicators. The variation in the quality of the facility is thus gauged at an anecdotal level by the number of outpatient (OPD) visits for a one-year period (separated by month) for each of these facilities. The results indicate that the health facilities in the sample differ considerably in terms of usage across communities, with some facilities consistently catering to far higher OPD populations than others (Box 3.5).

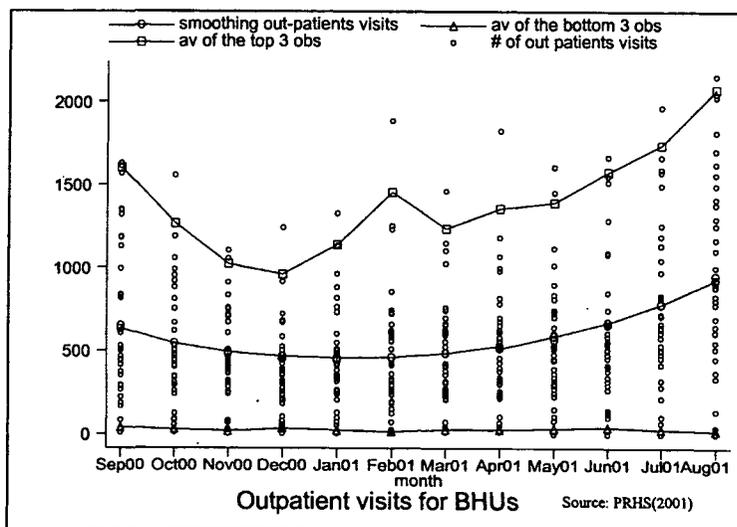
Box 3.5: Quality Variations Across Health Facilities in Rural Pakistan -- from PRHS (2001)

An evaluation to approximate the quality of health facilities in rural Pakistan was undertaken in the context of the PRHS, based on a survey component as a part of which the number of outpatient visits of facilities in sampled village were surveyed along with households. Accordingly, the total number of facilities in the sample is small, including only 12 Regional Health Centers (RHCs) and 38 Basic Health Units (BHUs). The results evince large differences across facilities.

Proportion of facilities whose rank (in terms of outpatient visits) changes by more than 4 places

month	RHCs	BHUs
Sep-Oct	0.25	0.00
Oct-Nov	0.25	0.00
Nov-Dec	0.25	0.00
Dec-Jan	0	0.1
Jan-Feb	0	0.1
Feb-Mar	0	0.1
Mar-Apr	0	0.00
Apr-May	0	0.00
May-Jun	0	0.00
Jun-Jul	0	0.1
Jul-Aug	0.25	0.00

Source: PRHS(2001)



The figure shows the pattern of outpatient visits for BHUs; for the median facility, for the average of the top 3 facilities, and for the average of the bottom 3 facilities. Both for the median and the top 3 facilities, visits follow a seasonal trend with declines during the winter months of November to March and increases during the summer and monsoon months of April to October. What is perhaps most striking however is the vast difference in the number of visits across the facilities. While the top 3 facilities regularly show more than 1,500 visits per month, the bottom 3 facilities consistently report 0 visits each month during the year preceding the survey. One explanation could be that this graph actually captures variation within facilities as opposed to variation across facilities.⁶² But the table above shows that this is not the case. For each month, less than 10 percent of BHUs change their relative ranking by more than 4 places, and the standard deviation of each facility's ranking is less than 2.

It should be noted with some caution, that the nature of information available from this component of the PRHS is limited by the lack of proper record-keeping in the facilities surveyed. This however also points to an area requiring strong improvement in these facilities, which will be critical for future attempts to monitor the functioning of such health facilities in rural Pakistan, and for identifying the specific weaknesses and bottlenecks within this system - for example with regards to availability of medicines and critical supplies.

3.90 To a certain extent, these results could be due to the number of health personnel in the facilities. As Table 3.14 shows, better facilities tend to have a greater proportion of positions filled as a fraction of positions sanctioned, although they have a lower proportion of personnel present over positions filled. Apart from this, there seem to be no systematic differences across facilities in terms of infrastructure: while the top facilities report more usable well-water and more reliable electricity, the differences remain insignificant in a sample of this size.

Table 3.14: Facility characteristics and outpatient visits

	In terms of avg. outpatient visits	positions filled/sanctioned	persons present/positions filled
<i>RHC</i>	Bottom 2	0.57	0.88
	Top 2	0.94	0.76
<i>BHU</i>	Bottom 5	0.77	0.97
	Top 5	0.99	0.71

Source: PRHS(2001)

3.91 Accordingly, the discussion so far, including that on the nutrition status of children and on the state of health facilities in the sample, points towards the importance of effects at the community level, including the quality and availability of health services, in determining the health status of the rural population. While measuring quality characteristics continues to be problematic due to the lack of proper records and the absence of health facility surveys with sufficient breadth and detail, anecdotal evidence provides some measure of such problems. Secondary sources indicate that while the number of doctors and health facilities has grown in the 1980s and the 1990s, a dearth of qualified doctors in rural areas remains a serious issue. There are also serious questions about public facilities, especially in rural ones like RHCs and BHUs, where rampant absenteeism of medical personnel and severe shortages of equipments and medicines are reported.⁶³ This underscores the serious quality problems that beset health service delivery, akin to those reported in its school facilities. The governance problems that underpin problems of access and quality in both these sectors are discussed in the following section.

The Political Economy of Service Delivery: Some Hypotheses

3.92 This section examines the political economy of poor educational and health outcomes in Pakistan, particularly in light of the 2000 devolution plan for local government in the country. As noted in Chapter 1, it is difficult to attribute Pakistan's gap in human development indicators to low income, since they suffer even in comparison to countries with similar income levels. Nor can this under-provision be attributed simply to feudal domination, as is commonly held in journalistic and policy circles in Pakistan. There is ample village-level evidence, also discussed in Chapter 1, that suggests that the rural poor do have political voice and have on occasion voted out local landlord-politicians. Moreover, the influence of landlords on local service delivery has not been uniformly pernicious. Indeed, the under-provision of education and health is particularly perplexing because there is evidence that elected officials have been eager and able to provide certain kinds of targeted goods to their constituents. As argued in Chapter 1 the problem is at least partly one of governance; decision makers have poor incentives to serve their constituents, which in the context of health and education, negatively impacts the poor.

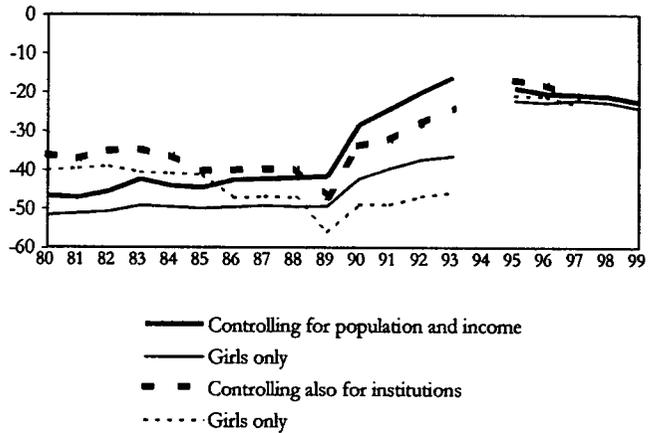
3.93 Although there are potentially many potential explanations for the failure of local service delivery, this section focuses on only two. First, elected officials demonstrate an extraordinary interest in providing targeted benefits to specific individuals or groups, rather than public goods to a wider and more anonymous set of beneficiaries.⁶⁴ Education and health have suffered in particular because of this since universal access to these services is, by definition, untargeted. Notably, the formal institutions of political competition and decision-making do not explain this incentive structure, but the unique informal rules of political competition do seem to shed light on it. Second, it also appears that many households seem to place a low value on education – particularly the education of girls – so that there may be little political incentive to enhance the access of girls to education.

Political Institutions and Governance Problems in Service Delivery

3.94 Both the formal and informal rules of political decision-making and competition influence political attitudes towards broad public goods. However, it turns out that such formal rules in Pakistan in the 1990s should have led elected officials to focus *less* on targeted benefits. Accordingly, it was informal political dynamics that seem to have mattered most.

3.95 With respect to formal institutions, in a cross-country statistical investigation, such attributes of political systems as whether they are parliamentary or presidential; whether they exhibit competitive elections; and whether they exhibit checks and balances within government – all influence decisions to provide broad public goods – in this case, encouraging primary school enrollment. This holds true even controlling for income per capita and other country characteristics, such as the percentage of the population of school age. Presidential systems have been found to discourage spending on public goods such as universal primary education; competitive elections have been found to encourage it; and multiple checks and balances, have been found – albeit more ambiguously – to reduce incentives to spend on public goods.⁶⁵ However, the gap between primary school enrollment and that of comparable countries is just as large or larger – up to ten percentage points larger – when Pakistan is compared to countries with both similar institutions and incomes as when it is compared only to countries with similar incomes. As Figure 3.15 shows, this is true both if one looks at total primary enrollment, and if one looks only at girls’ enrollment.⁶⁶

Fig. 3.15 : Actual is less than Expected Primary School Enrollment in Pakistan



Note: Negative numbers mean that actual primary enrollment in Pakistan is less than the enrollment expected based on other countries with similar characteristics. “Controlling for population and income” is actual total enrollment less the enrollment predicted by a regression. The “Girls only” line that follows in the legend charts expected enrollment for girls only. “Controlling also for institutions” is the gap using the enrollment predicted by another regression, and the paired “Girls only” line is expected enrollment for girls from that same regression.

3.96 However, while an analysis of formal institutions seems only to deepen the governance puzzle surrounding the failures of education and health in Pakistan, consideration of informal rules help to resolve it. Two features of such informal rules seem to be particularly important. First, politicians who enjoy personal credibility with voters have a significant advantage in a country where voters do not believe the promises of national political figures and parties with regard to the delivery of goods and services. However, under these circumstances, politicians have a strong incentive to provide targeted public goods only to those who believe their promises, and not to expend effort on public policies that help other citizens. Second, because of the unusually significant efforts needed to build up a personal constituency, to get people to vote, and simply to overcome a notable lack of information among voters about the political process and political competitors, elections in Pakistan are expensive. The concomitant need for campaign resources militates against policies that benefit broad interests, and favor policies targeted to narrow interests, who can in return fund political campaigns.

3.97 In order to get elected, a politician has to establish credibility with the voters, in particular the rural voters who have historically exercised significant influence on national politics in Pakistan. For example, rural constituencies have historically controlled a much larger number of seats in the legislature than their population would justify. To achieve this credibility, elected officials have to provide targeted benefits to their supporters. This is particularly the case in rural areas, where voters are less concerned about ideological and national policy issues that mobilize voters in urban areas. At the same time, it is cheaper to buy the support of poor voters with targeted benefits, and rural voters are disproportionately poor. The distance between communities in rural areas also raises the political value of targeting benefits – it is easier to site schools and water pipes close to supporters and far from non-supporters.⁶⁷ Finally, rural areas are more completely dominated by voting blocs. Influential individuals are known to control a

precise number of votes, and whether those votes are cast and how they are cast is easy to monitor. Patronage, then, is a far more effective strategy in rural areas than political strategies that rely on quality public good provision. Because Pakistan's rural constituencies are particularly poor, particularly spread out and thoroughly organized into voting blocs, the relative political benefits of providing narrowly targeted rather than broadly available public goods, are high.

3.98 Pakistani legislators have argued publicly that the provision of targeted benefits unduly dominates their political life. Wilder (1999) quotes former Members of the National Assembly from Punjab as saying: "People now think that the job of an MNA and MPA is to fix their gutters, get their children enrolled in school, arrange for job transfers...[These tasks] consume your whole day...." (p. 196); "Look, we get elected because we are *ba asr log* [effective people] in our area. People vote for me because they perceive me as someone who can help them...Somebody's son is a matric fail and I get him a job as a teacher or a government servant..... If somebody has merit they very rarely come to me.....But it's the real wrongdoers who come to me"(p. 204).

3.99 Notably, in contrast to the near exclusive dedication to resolving individual problems that Pakistani legislators exhibited before suspension of the legislature, members of the United States Congress, well-known for their incessant efforts to secure re-election, have been found to spend on average fewer than six hours per week directly and personally intervening on behalf of constituents in order to obtain favors for them or help them solve bureaucratic difficulties.⁶⁸

3.100 Elected officials in Pakistan in the 1990s also de-emphasized public goods because of their high demand for resources to fund political campaigns – resources that generally come from narrow groups that benefit from government policies in some way. While there are no exact figures on the role and magnitude of campaign finance in Pakistani politics, vote buying and the growing expense of elections are widely noted.⁶⁹ Shafqat (1999) has argued that campaign spending rose to \$120,000 per parliamentarian in the 1997 elections. To provide some context, the electoral system that most closely resembles Pakistan's is the United Kingdom's. There, spending per constituency amounted to less than \$10,000 in the 1992 elections.⁷⁰

3.101 While the incentives of political decision makers have been helpful in ensuring better access to potable water and to market roads, as noted in Chapter one, they pose significant problems for health and educational policy in Pakistan. Good quality schooling and healthcare cannot be effectively targeted to a politician's supporters and therefore fail as mechanisms for generating political support. Unlike investments in infrastructure, such as road construction and the provision of potable water, as discussed in Chapter 1, higher teacher and doctor attendance, and better teaching materials and medical equipment benefit everyone in the village, supporters and non-supporters alike.⁷¹ And, to the extent that politicians do focus on educational and health provision, they do so in a manner that is more consistent with the patronage model: schools and hospitals are built for the jobs and profit opportunities that construction provides; teacher and doctor postings are based relatively less on merit and relatively more on the political calculation of how best to provide jobs to supporters or their relatives; and few efforts are made to extend schooling access to disfavored castes when the politician relies on votes from the favored castes, as in Box 3.3.

The Demand for Social Services and Governance

3.102 Beyond the political incentives created by informal rules of political competition, it is also the case that many Pakistani households seem to place a different value on education than households in comparator countries, particularly the education of daughters. The previous sections pointed to some of the evidence for the significant social and cultural barriers to improved access to education for girls. Nearly half of all girls between 10 and 20 years old have never attended school. When asked why, the

parents of nearly 40 percent of these girls indicated that parental or elder disapproval was the main reason, though as noted again, there are problems in interpreting these subjective responses due to outstanding uncertainties about whether these may mask supply-side problems and more complex parental trade-offs between the relative costs and benefits of sending their female children to school. While it is conceivable that there are similar cultural barriers to improving health, particularly with regards to contraceptive use, the demand component of the health sector is not as well understood.

3.103 It is clear however that even if formal and informal institutional obstacles to educational supply were removed, educational improvements may be conditional on an attitudinal change among parents. From the point of view of elected officials, pushing for expanded access for girls to existing educational facilities is therefore not only of limited political utility, but presents real political hazards. Parental resistance also has implications for the success of institutional reforms such as decentralization, since experience elsewhere suggests that local officials in areas where these norms are prevalent may be singularly unable to push through reforms that increase girls' access to education.

Devolution, Governance and Service Delivery

3.104 The above concerns are particularly fraught with significance in light of Pakistan's massive devolution effort, which was launched in 2000, and sees as its main objective precisely the improvement of availability of government services to all Pakistanis. While the concomitant political reforms are only an initial step, and the crucial areas of fiscal and administrative decentralization have yet to be tackled, the preceding discussion suggests that devolution will succeed only to the extent that it solves fundamental governance problems that have bedeviled earlier efforts to improve service delivery. In particular, devolution will only succeed to the extent that local government officials exhibit a notably greater interest in improving the provision of public goods than in targeting private goods, and if they are better placed to overcome any eventual parental resistance to the education of girls. A preliminary analysis suggests some reason for optimism on the first count, and some reason for pessimism on the second.

3.105 Some observers are pessimistic that local governments will have a greater incentive to improve access to and the quality of education in their jurisdictions. Press accounts of recent union council elections note that in many places familiar "old faces" seem to have dominated the election returns. Moreover, the prevalence of "old faces" is greatest in precisely those areas of the country in which patronage rather than public good provision has been the most intense focus of political competition (e.g., in rural areas). Still, depending on how they work in practice, the institutional changes introduced by devolution could reduce the patronage incentives even of the "old guard." Information that is currently being collected in the field will help to verify whether these positive effects are, in practice, actually being realized.

3.106 One potentially important change that could improve outcomes under devolution is that local officials may only be able to fund patronage by making transfers from one set of voters *inside their jurisdiction* to another. Before devolution, patronage could be funded by transferring resources from voters outside of their jurisdiction – for example, urban voters – reducing the political costs of providing benefits to supporters. Under devolution, then, the net number of votes that a local official wins by providing patronage may drop. This is all the more true the more homogeneous are voters in the jurisdiction (for example, with respect to income, ideological orientation, or ethnic group). In this regard it is notable that the constituencies of the members of the national and provincial legislatures were likely more heterogeneous than those of the Union Nazims who comprise the new District Councils. Consequently, the Union Nazims should find patronage somewhat less desirable than earlier political decision makers. Accordingly, a Union Nazim is still likely to find it politically useful to influence

teacher appointments, but he may have a stronger incentive than the previous MNA or MPA, to ensure that such teachers show up to teach.⁷²

3.107 A necessary pre-condition for optimism, though, is that the elections at the local level be competitive. If one or two families, *biraderis* or individuals dominate electoral competition in most Union Councils throughout a District, then we would expect little change in public good provision. The cross-country empirical results demonstrate strongly that the competitiveness of elections has an extremely strong and positive effect on enrollment in primary school; the same should be true in decentralized electoral settings. If the return of the “old guard” is a consequence of their extra-institutional influence over the electoral process – i.e. if they faced no real competition – then we should expect no change in educational outcomes.

3.108 A preliminary analysis of the recently concluded local government elections provides some evidence that the local contests were generally competitive. Overall, voter turnout was a respectable 52.5 percent, which indicates that the outcome was not a forgone conclusion in many or most constituencies, and did elicit the interest of a majority of voters. In general, several candidates competed for each union council seat, and only approximately 6 percent of the candidates for the unreserved seats were elected unopposed. However, further analysis, for example of vote shares of competing candidates and variations in turnout across union councils, is required before one can say definitively that the competitive election condition has been met in local elections.

3.109 Devolution may also have created more checks on local officials who try to provide patronage. During the 1990s, decisions regarding teacher postings or reactions to teacher absenteeism could be appealed only to the provincial government hierarchy, or the MPA or MNA for that district. Under the new system, there are two types of potential checks, whose efficacy must be verified (and enhanced, where possible). First, parents can appeal to members of the Union Council (a district or Zila is comprised of many unions), who are directly elected by voters and who in turn vote for the District, or Zila Nazim, who sits at the apex of decision-making under devolution. They can also appeal to the District Nazim, to the district educational bureaucracy, or to the District Council itself, whose members are comprised of the directly elected Union Nazims and others. In practice, however, the effectiveness of these additional avenues of appeal requires further investigation.

3.110 An additional and more obvious potential check is simply that decisions of the Nazims at each level may need to be approved by the appropriate council. If the new councils are independently powerful and not controlled by the Nazims, the sheer number of Union Council members will make it more difficult for Nazims, or any individual council members, to systematically tax some groups in order to provide patronage. However, the independence of the legislative branches under devolution, and their authority, is not yet clear. In addition, there is some evidence of rules that are intended to weaken the councils relative to the Nazims. Councils have the power to impeach nazims, but beyond this the extent to which the councils can reverse or block Nazim decisions regarding the district budget, the targeting of expenditures or the conduct of the district administration, are unclear. Moreover, there are a number of laws that weaken legislative oversight. The Naib Nazim – the deputy mayor – is required to be the chair or “speaker” of the Council – by definition; however, the Naib Nazim is close to the Nazim, since they are co-elected. Second, the law imposes significant risks on Council members who move for impeachment – the failure of an impeachment motion means that the council members who moved and seconded it lose their seats. To the extent that Council authority is weak, little will prevent the Nazim from targeting his supporters at the expense of his non-supporters, to the detriment of public good provision.

3.111 Therefore, devolution can provide a positive change to the incentives of government decision makers regarding education, but only under the conditions specified above. Even in theory, though, it is

unlikely that devolution can solve the demand problems in education: resistance to standard forms of educational provision for girls. Indeed, two examples, although not perfectly comparable, indicate that overcoming social barriers to girls' education will likely require significant resources and the continued, or even increased, involvement of higher-level governments.

3.112 First, experience in Nepal and other places shows that girls' education can be dramatically improved by paying families to send their daughters to school. In these instances, poor families saw little economic return to educating girls, and monetary compensation was a natural means to persuade them to decide otherwise. In Pakistan, however, any similar program would have to set compensation at a level sufficient not only to offset the economic costs of girls' education, but also the disutility that parents attribute to sending their daughters to school.

3.113 Second, in the United States, efforts to persuade states to provide education to African-American students in the same facilities as other students eventually required federal intervention, over the objections of the representatives of these states in the national legislature. Again, the parallels with Pakistan are inexact, since African-American families were eager to educate their children and frustrated by the lack of access. The key point, though, is that significant local opposition to an education reform did not naturally dissipate as a consequence of local reform efforts, but required the intervention of a higher level government.

3.114 Difficulties in enforcing accountability for service provision emerge under devolution if local constituencies do not place a high priority on education. For example, central government efforts to reward high-performing districts with extra education funding are likely to be ineffective if parents in particular districts are uninterested in educating girls. However, solutions to this problem are available, and need not involve the level of coercion that was required to integrate schools in the US. One involves outright subsidies to households to overcome the demand problem, as in Nepal. Another involves cross-sectoral linkages: central government rewards to high-performing districts could take the form of increased assistance in the provision of goods – such as infrastructure – that are heavily demanded in the constituency. Again, however, further information is needed to evaluate the extent to which officials in the new local governments have the incentive and resources to improve educational provision on all dimensions.

3.115 The demand issue reveals another, broader concern regarding the success of devolution, which is the continuing important role of the central government. To the extent that governance problems noted above and in Chapter One are not addressed, central government efforts to, for example, provide incentives to local officials to educate girls are likely to be poorly implemented. Even more seriously, the formal institutional rules of the new system of local government may not be self-enforcing – they may require central government oversight to ensure, for example, that Nazims do not invoke extra-legal or illegal authority to circumvent formal rules. Only a central government that is itself relatively free of governance problems will reliably intervene in such cases to protect the integrity of the devolution process. Similarly, the central government can best ensure the integrity of the devolution process by allowing local governments to make their own decisions about how to implement education, health and other objectives in their jurisdictions. The central government's role would be to closely observe, to test, and to collect and publicize information about outcomes and “value for money” across the union councils. This role will be undercut if governance failures that have crippled central government performance in the past are not addressed in the future.

3.116 In concluding this chapter, it is important to note that the human development diagnostics and their implications for policy outlined here will form the basis for the discussion in Chapter 5 on the education and health sector strategies adopted by the government, in the overall framework of the I-PRSP. The objective there will be to focus on the critical issues that are likely to determine how

particular strategies of institutional reform, including the broad devolution exercise, are able to address the policy challenges identified here.

¹ Pakistan Rural Household Survey (PRHS), 2001

² All findings from PIHS (1991 to 1996-97) are from “PIHS Education Sector Performance in the 1990s” by Federal Bureau of Statistics, Government of Pakistan, Islamabad, and from Pakistan Poverty Assessment (1995), World Bank. Figures for 1998-99 are from staff calculations on PIHS/HIES (1998-99).

³ **Note:** Data source for all tables and graphs in this chapter, *unless otherwise specified*, is PIHS for the relevant years

⁴ For urban males, primary GER increased from 86 percent to 95 percent; for urban females, the increase was from 77 percent to 88 percent.

⁵ Table A-3.1, Annex

⁶ See Table A-3.2, Appendix for 1998-99 figures

⁷ Filmer et al (1998)

⁸ See Alderman and Garcia (1994), Behrman and Deolalikar (1995) and Quisumbing (1996)

⁹ Andrabi et al (2002)

¹⁰ All numbers in Figures 4.1 and 4.2, and Table 3 have been calculated taking the 4 main provinces – Punjab, Sindh, NWFP and Balochistan only – to ensure comparability between 1991 and 1998-99, since the 1991 numbers took into account these provinces only. It is easy to see that the numbers for 1998-99 by per capita expenditure deciles are very similar whether the 4 main provinces or all provinces are counted.

¹¹ The Census of Private Schools was conducted by the Federal Bureau of Statistics, GOP in 2000

¹² In urban areas, the absolute enrollment in government schools for both sexes fell by about 11 percent during 1991 to 1995-96, while that in the non-government sector increased by as much as 60 percent. In rural areas, boys' enrollment in the non-government sector increased by 131 percent over this period, while for girls the increase was 61 percent.

¹³ The share of deeni madrassas is 1.2 and 0.8 percent in primary enrollment for urban and rural regions respectively, and that in secondary enrollment is less than 0.5 percent for either region.

¹⁴ *Okay for Age:* Currently enrolled in school in a grade suitable for age or higher; *Behind for Age:* Currently enrolled in a grade lower than suitable for age; *Left School:* Have attended school, but not currently enrolled; *Never Attended:* Never went to school. Target age for Grade 1 is taken to be 6 years; target age for Grade 12 is 17 years. This is done even though technically the age for grade 1 is 5 years, to allow for more leeway in judging whether a child is enrolled in the right grade for his/her age. The same rule was adopted by the PIHS Education Report of the 1990s by the FBS.

¹⁵ Refer to Figures A-3.1 and A-3.2, Annex for enrollment profiles in urban areas.

¹⁶ Refer to Table A-3.3, Annex

¹⁷ According to PRHS (2001), 63 percent of women between ages 5 and 21 have never attended school, compared to 34 percent of males. These numbers are similar to what is seen for the same age groups in rural Pakistan from PIHS (1998-99) – a survey that is representative for the country.

¹⁸ Existing literature has found evidence that having a literate family member is like being partly literate oneself (Green et al, 1985), and that the advantages of literacy can spread to others in the household by virtue of certain kinds of decision-making on behalf of the household shifting toward the literate (Drèze and Saran, 1995); an attempt has also been made to develop a theoretical measure of literacy which captures these natural externalities (Basu and Foster, 1998)

¹⁹ The difference in wages between male literate and non-literate workers is statistically insignificant in the farm sector.

²⁰ The estimation exercise uses the maximum-likelihood Heckman selection model to correct for any “selection bias”, arising out of the fact that one only observes wage earnings for those who have chosen to enter the (paid) work force, and that some of the variables that affect earnings also affect the “participation” of the worker in the paid labor force.

²¹ A possible challenge to the findings on education externalities would be on the grounds of endogeneity of educational status of household members with respect to earnings. The so-called externality would then be the result of a positive effect of higher earnings of a wage-earner on school participation of other household members. The observed differences in externalities between farm and non-farm sector however suggest that the endogeneity argument is unlikely to explain the entire measured effects. For if it were so, one would have to believe that the effect of earnings on education is stronger for non-farm earnings than for farm earnings.

²² This exercise is similar to what has been conducted in recent literature using household data from Bangladesh (Basu et al, 2001). Some of the results from that study are qualitatively similar, e.g. that education externalities are relatively stronger in the non-farm sector and almost absent in the farm sector. That study however finds that externality benefits confer more strongly to women than to men, which is the opposite of what is found for Pakistan.

²³ However, the results should be interpreted with caution, since the analysis cannot distinguish between the supply and demand factors that interact to produce the observed patterns in enrollment, as well as endogeneity issues, for example the possibility that supply of schools may respond to demand for schools represented by existing school participation rates. In that sense, these results provide only a rough indication of the precise roles played by different factors.

²⁴ This exercise is similar to the models estimated in Filmer and Pritchett (1994). Their results for India are comparable; they estimate that the probability of a child attending school is 10 percent, 17 percent, 24 percent and 31 percent higher if his/her household belongs to the 2nd, 3rd, 4th and 5th deciles respectively, defined by wealth (and not expenditure).

²⁵ Only a small proportion of rural mothers of boys and girls alike are literate, implying that the results for those groups should be interpreted with caution. The sample sizes are much larger for all groups of fathers.

²⁶ The presence of a school is defined as the existence of a school meant for child of a particular sex. For example, for a girl child in community A, a primary school is defined to be present if there exists a girls only or co-ed school offering primary education, in or within 1 km. of the community.

²⁷ Such observations are not meaningful with net primary enrollment rates for boys, since access to primary schools for boys is very high overall, as well as quite uniform across provinces.

²⁸ Refer to Table A-3.9, Annex.

²⁹ Refer to Table A-3.10, Annex for access figures by province.

³⁰ Alderman et al (1999)

³¹ Gazdar (2000) reports that out of 125 schools visited by the survey team, only 47 out of 125 schools were classified as “fully functional” by the survey. The poor quality of schools has strong detrimental effects on attendance of students, a fact usually not reflected by the enrollment figures quoted so far.

³² This added up to 206 primary schools, mostly public.

³³ These findings from the PRHS, although based on a different sample, are roughly similar to Gazdar’s findings. The latter found that 14 percent of the 125 schools visited (i.e., 17 schools) had either a building but no school, or were reported to be “generally closed”.

³⁴ There is an interesting discrepancy in student attendance rates between those reported by headmasters and those directly observed by the survey staff. The headmaster survey revealed a much higher number – approximately 78 percent for both boys and girls. Other sources (Gazdar 2000) suggest that the true figure is closer to the one reported by direct observation. This difference perhaps highlights the incentives that headmasters have in misreporting school performance indicators.

³⁵ Note that the finding that enrollments are higher when just a facility is present in the community is consistent with previously reported findings from the PIHS (98-99).

³⁶ Figures from recurring expenditures in education (Economic Survey of Pakistan, 2000)

³⁷ Scrimshaw 1995; Filmer and Pritchett; Jensen 2001; Riley

³⁸ Pre-natal as well as post natal consultation includes any consultation with medical personnel, including traditional birth attendants.

³⁹ Refers to the proportion of deliveries not assisted by any doctor, nurse, trained birth attendant or dai, or lady health worker; these deliveries are assisted only by family members, neighbors or traditional birth attendants.

⁴⁰ From Poverty Assessment for Pakistan (1995), World Bank

⁴¹ Infant mortality rates were calculated as averages for children born in the period 1993-97, to ensure that only infants who would be of age 1 and above (if they were alive) are considered.

⁴² The rural-urban gap persists across almost all provinces, with the exceptions of Balochistan and Azad J & K, where infant mortality is actually higher in urban areas than in rural areas (see Figure A-3.6, Annex).

⁴³ Examples of such studies include Foster (1995), Case and Deaton (1998), Gertler and Grueber (1997), Schultz and Tansel (1997), and Dow et al. (1997).

⁴⁴ Moreover, curiously enough, no clear relationship between incidence of diarrhea, and indicators of sanitation, or source of drinking water for the household emerges from the household data.

⁴⁵ For detailed discussion on analysis of child nutrition using PRHS(2001), see Annex 3.2

⁴⁶ Dow et al., Murray and Chen (1992)

⁴⁷ The results presented here build on the work by Alderman and Garcia (1993), Alderman et al (2001), Haddad et al (1996), Hughes and Dunleavy (2000) and Alderman, Grosh and Glewwe (2000). The body of work by Alderman

et al. (2001) on Pakistan is particularly relevant, and will form the basis of the comparisons undertaken in this section

⁴⁸ One area of particular concern is the number of observations that are unusable at this moment. For this reason, the results are presented at the 10 percent level of significance in addition to the standard 1 percent and 5 percent levels. The analysis will be updated later by using the expanded sample following an extensive round of cleaning and re-matching (see Annex for details).

⁴⁹ All variables used in the study were measured by the surveyors and measurement error in the weight of the child was significantly reduced through the use of electronic scales with an error margin of <100 gm.

⁵⁰ These results match up with those reported by Alderman and Garcia (1993) for the IFPRI survey

⁵¹ A longitudinal study in Guatemala reported in Martorell et al. (1990 and 1995) showed that while supplements in the first two years of the childhood had significant impacts on adolescent intelligence and adult work-capacity, interventions during the later childhood years did not have any such benefits

⁵² Scrimshaw (1995)

⁵³ If it is the case that infant mortality among girls is significantly higher, the sample of children observed for each cohort will select on 'more-healthy' girls compared to boys, and this could lead us to (erroneously) conclude that there is no gender discrimination in nutrition status in our sample.

⁵⁴ Estimations are based on a reduced form household maximization program as in Alderman et al (2001). The community fixed effects model implicitly argues that there may be attributes of communities that determine the nutritional status of the child, and that may be correlated positively with expenditure.

⁵⁵ Such results have been noted, both in Alderman et al (2001) with regard to anthropometry and Hughes and Dunleavy (2000) for mortality data in Peru and India respectively. This result occurs for the PRHS sample, *even though* over 70 percent of the variation in income is generated by within community differences, and less than 30 percent by differences across communities.

⁵⁶ At this stage, one might be interested in knowing more about what the community level fixed effects proxy for (see Annex for the possible ways this can be done)

⁵⁷ See Table A-16 (Appendix) for a comparison of selected health indicators across provinces.

⁵⁸ See for instance, Thomas et al (1992)

⁵⁹ See Table A-3.14, Annex

⁶⁰ Including government hospitals, dispensaries, BHUs, RHCs, Mother & Child Clinics, and Family Welfare Clinics

⁶¹ Includes health workers, private practitioners and nurses

⁶² In other words, the number of OPD patients in each facility fluctuates with other services (such as the availability of medicines) and hence the identity of the top 3 and the bottom 3 facilities changes across the sample period

⁶³ See Chapter 7 of the report by SPDC (2000)

⁶⁴ This focus on the incentives of elected officials should not suggest that centralized, authoritarian regimes are better at providing public goods. The educational achievement gap in Pakistan was much higher under the military government in the 1980s than in the 1990s; there is no evidence that elections per se are responsible for the gap, but rather that the incentives of elected officials were not as directed as they could have been to the provision of public goods.

⁶⁵ Checks and balances reduce incentives to spend on public goods to the extent that, as the number of individuals exercising veto power over government decision-making rises, their interests become narrower and less coincident with the provision of broad public goods.

⁶⁶ The difference between the two gaps (girls only and all children) seems to have disappeared in the late 1990s. However, this is likely an artifact of the data. Through 1993, the data comes from World Development Indicators; from 1995 on, the data has been calculated from the PIHS data reported in the earlier part of this chapter. The resulting data series exhibits an unexplained jump in gross primary school enrollment for girls between 1993 and 1995 from 45.4 percent to 60 percent, and a decline in the enrollment of boys from 100 percent to 81 percent. Note also that average per capita incomes (purchasing power parity adjusted) rose 9.5 percent or \$US740 from 1995 to 1999, but only 3.3 percent in Pakistan, or \$US58. This effect alone would have caused all gaps to converge somewhat.

⁶⁷ Gazdar also points out several examples where even the intra-village location of a school was contentious and dictated by political influences, underlining the significance of the targeting influence in the location of development projects, and the political obstacles to government activities that are not easily targeted. Also see Dixit and Londregan (1996).

⁶⁸ This is the time they spend while in Washington, as opposed to their districts, to make the appropriate comparison with the citations from Pakistan: Johannes (1983)

⁶⁹ see, e.g., Wilder, page 206

⁷⁰ The information comes from Pattie et al (1995)

⁷¹ Potable water has some of the characteristics of a private good, in that it can be targeted to specific groups. Although a road per se is a public good, the construction of it can be contracted out to specific private parties in exchange for political support.

⁷² An additional advantage of devolution operates on the demand side. In Chapter 1, the point was made that more ethnically or linguistically heterogeneous jurisdictions may provide fewer public goods. The entire country of Pakistan is likely to be considerably more heterogeneous than most districts that are the focal point of government decision making under devolution.

4. The Rural Nexus: Poverty and Productivity

4.1 By 1998/99, 29 million poor people, two-thirds of all Pakistan's poor, lived in rural areas. Within rural areas, poverty in Pakistan remained more or less stagnant during the 1990's, averaging about 36 percent. Although rural households earn their livelihoods from a number sources, most are linked directly or indirectly to agriculture. So, it is indeed puzzling that agricultural productivity actually grew at an annual rate of 4.8 percent during the 90's, far outstripping the population growth rate of 2.5 percent.¹ Clearly, rural poverty is as complex a phenomenon as it is persistent. And, yet, it is important to bear in mind that, despite this growth, productivity in Pakistan's agriculture is, in an absolute sense, very low. Moreover, as argued in this chapter, there is still considerable scope for policy intervention aimed at enhancing agricultural productivity in Pakistan. Increasing the ability of cultivating households to generate income must, ultimately, be the focus of any sustainable poverty reduction strategy in rural Pakistan.

4.2 The focus of the chapter is, accordingly, on understanding the constraints to farm productivity in Pakistan, which is to say: the limitations on access to productive resources; principally, land, irrigation, soil fertility, and credit. The analysis relies largely on new data from the 2001 Pakistan Rural Household Survey (PRHS), a nationally representative survey of rural areas that covers a broad range of issues, including detailed information on farm production. Much of the evidence from the PRHS, it should be emphasized, is of a preliminary nature, and should therefore be viewed as suggestive at this stage. Nonetheless, this chapter does, at the very least, lay out a roadmap for future analytical work on rural Pakistan.

4.3 A recurrent theme of this chapter is that inequality in asset ownership, particularly land, may be far more than a distributional concern; it may affect productivity. There are direct effects of land inequality on productivity resulting from frictions in the land purchase and leasing markets. Because of these problems, inequality in household land ownership translates (though far less than acre-for-acre) into inequality in operated area per household. Since, as will be shown, households with larger operated area have lower yields and are less productive, land inequality leads directly to lower productivity.

4.4 There are also more indirect and subtle effects of land inequality on productivity, some of which receive empirical support in this chapter. For example, corruption on Pakistan's public canal irrigation system is widely viewed as a constraint on agricultural productivity. Large landowners often engage in wasteful rent-seeking behavior, using their influence with irrigation officials to manipulate the water distribution in their favor.

4.5 Land inequality can also lower incentives to invest in land. The skewed distribution of land leads to tenancy, mostly on share basis, which provides lower incentives for investment in soil fertility than under owner-cultivation. Soil degradation, due to waterlogging and salinity, is quite significant in rural Pakistan, particularly in Sindh province and in Southern Punjab. As a consequence of pervasive land tenancy, available medium and longer-term measures to combat soil salinity are rarely undertaken, resulting in loss of cultivated area and low yields.

4.6 Lastly, due to collateral requirements, land-poor households are mostly excluded from the formal credit market, which can finance precisely the long-term productive investments in land and agricultural machinery that can raise them out of poverty. As a result, unequal land ownership may lead to entrenched rural poverty.

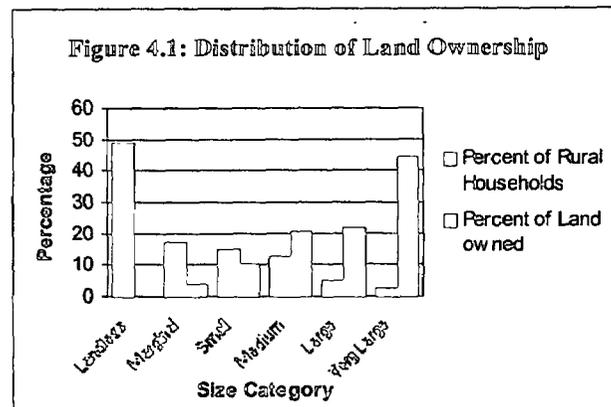
Distribution of Land Ownership and Other Farm Assets

4.7 Asset ownership, or lack thereof, is both a *cause* of poverty – because assets generate income – as well as a *consequence* of it – because ownership is the result of past investment. In light of this, understanding the distribution of asset ownership is a crucial step in understanding rural poverty. Moreover, as elaborated later in this chapter, when rural factor markets are imperfect, asset ownership also has implications beyond income distribution, in terms of its impact on production efficiency, and hence the *level* of incomes.

4.8 As detailed in this section, and further to earlier observations of this report, rural poverty does appear to be linked to unequal land ownership, yet this is clearly also not the whole story. On the one hand, the rural non-farm sector appears to be a significant source of income for many poorer households, and for those households who own land, other factors but outright ownership of land clearly also influence their level of earnings.

Patterns of landownership

4.9 Land is the paramount asset in a rural economy. However, according to the PRHS, almost one-half of rural households own no land. Figure 4.1 shows that around 2 percent of households own more than 40 acres of land and control 44 percent of the land area. Collectively, large and very large farmers control 66 percent of all agricultural land. These inequities are reflected by the Gini coefficient of land concentration, which is 0.78, which is even higher than Pakistan's overall Gini for land in 1990, which was 0.65.² Moreover, in terms of ownership of land by gender, as Box 4.1 illustrates, stark inequities are also apparent.



Note: Marginal ≤ 2 acres of land, small >2 and ≤ 5 , medium >5 and ≤ 15 , large >15 and ≤ 40 and very large >40 acres.

Box 4.1: Ownership of Land by Women

Women in Pakistan have the legal right to inherit land. Indeed, community level data indicates that in 67% of villages sampled, women do inherit land, and in 57% of villages, women enjoy ownership of land. However, household land ownership estimates tell a very different story. In the PRHS sample, only 2.8% of plots were reported to be owned by women. The evidence therefore suggests that there are gaping inequities in ownership of land across gender, and that the law on inheritance of land by women has failed at the implementation level in Pakistan

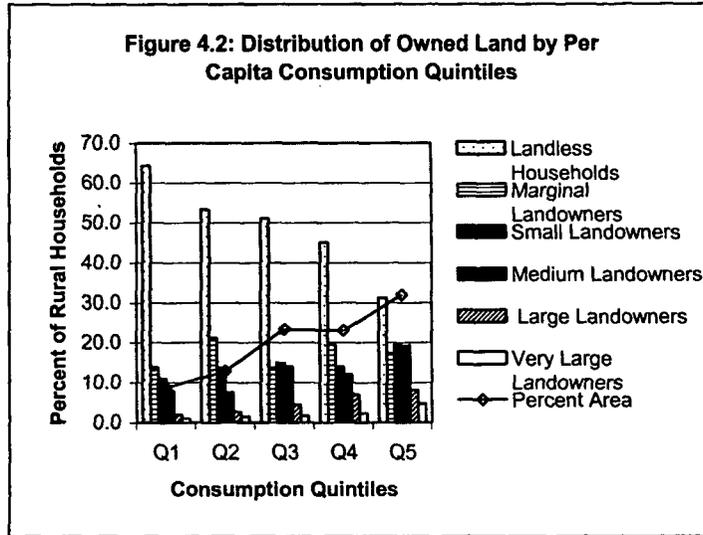
Source: PRHS (2001)

4.10 Data from the village census associated with the PRHS provides a more disaggregated picture of the distribution of land ownership in Pakistan, confirming high levels of inequality, and significant variations across the country's provinces. Overall, the census data yield a land Gini of 0.82, which is very close to that from PRHS sample itself. Table 4.1 shows the regional breakdown of the land distribution, with Ginis ranging from 0.75 in Balochistan to 0.91 in Sindh. Similar patterns are observed for the coefficient of variation in land ownership. The average landholding size is also largest in Sindh, but smallest in South Punjab.

Table 4.1 Land Inequality by Province (Village Census)

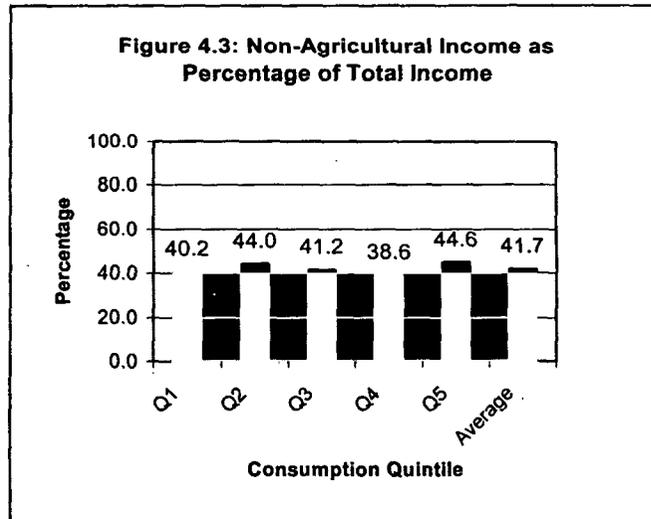
Land Owned (Acres)	Province						Average
	Central Punjab	South Punjab	Barani Punjab	Sindh	NWFP	Balochistan	
Maximum	295.0	122.9	245.9	1967	245.9	201.6	513.1
Mean	2.3	1.8	3.2	6.7	2.7	3.8	3.4
Standard Dev.	6.8	5.5	13.8	51.1	11.3	8.7	16.2
Coefficient of Variation	3.0	3.0	4.3	7.6	4.2	2.3	4.7
Gini	0.82	0.80	0.87	0.91	0.85	0.75	0.83

4.11 One would expect a strong association between poverty and land ownership, as is indeed the case in rural Pakistan. Figure 4.2 shows the distribution of households in different land size category across consumption quintiles. While 64 percent of the poorest households are landless, and own only 10 percent of land area, households in the highest consumption quintile predominately comprising small and medium farmers, own 32 percent of the area. However, the landless also account for more than half of households in the second and third consumption quintile, and a considerable proportion of the wealthiest households also happen to own no land.



Land ownership, the non-farm sector, and rural poverty

4.12 Accordingly, it is apparent that land ownership distribution is only part of the story of rural poverty in Pakistan. Figure 4.3 brings this point into focus. Overall, rural household derive an average of 44 percent of their income from non-agricultural sources, including non-farm wage earnings, non-farm enterprise income, remittances, and others. This proportion is also remarkably constant across consumption quintiles.



4.13 When households that own no land are considered in isolation, an even starker picture emerges. Landless households in the fourth and fifth consumption quintiles earn practically all their income from non-agricultural sources (Table 4.2). By contrast, those in the lowest quintile receive only about half of their income

from non-agricultural sources. The figures in Table 4.2 therefore seem to belie the typical notion of the prevalence of a vast pool of landless agricultural laborers: only a modest fraction of the total income of landless households, including those in the lowest quintiles, comes from agricultural wage labor. Indeed, wage labor does not even contribute the largest share of agricultural income, let alone total income, for poor households.

Table 4.2: Distribution of Income by Source for Landless Households

Per Capita Exp Quintiles	Non-Agri Income as % of Total Income	Sources of Non-Agricultural Income							Sources of Agricultural Income		
		Wage Income					Enter-prise %	Other %	Wage Labor %	Crop profits %	Livestock, Poultry & Dairy %
		Skilled %	Unskilled %	Govt. %	Private %	Female %					
Q1	49.1	15.5	31.0	5.6	20.6	0.6	13.3	14.0	36.2	55.5	8.4
Q2	69.1	12.6	25.5	3.7	26.7	0.7	20.9	10.7	37.3	46.5	16.2
Q3	71.0	17.8	30.6	6.5	13.8	1.3	14.4	16.9	19.3	63.0	17.7
Q4	91.4	13.5	28.9	6.5	16.0	3.0	13.2	22.0	9.3	79.5	11.2
Q5	100.0	17.3	21.2	14.1	5.7	2.8	21.5	20.1	13.6	65.7	20.7
Total	72.9	15.1	27.8	6.7	17.6	1.6	16.4	16.4	23.0	62.9	13.9

4.14 The distribution of other farm assets among cultivators is described in Table 4.3. Comparing the top and bottom consumption quintile, there is six-fold difference in the overall value of farm capital per acre cultivated, though the distribution is fairly even in the middle quintiles. Exclusive ownership of both tractors and tubewells also rises by consumption quintile, but not as rapidly as one might expect. Partly, this is an artifact of the generally low ownership rates of these assets.

Table 4.3. Distribution of Farm Asset Ownership among Cultivating Households

Consumption Quintiles	Total Value of Assets/Operated area	Percent Owning Tractor	Percent Owning Tubewell
Q1	714	1.4	5.1
Q2	1,526	2.5	9.1
Q3	1,254	3.0	6.1
Q4	1,923	5.8	9.0
Q5	4,445	8.2	11.0
Total	2,056	4.2	8.1

4.15 As shown, the distribution of land ownership is not the only part of the story of rural poverty in Pakistan. It is evident for instance that the non-farm sector can play an important part in providing income support for many poorer households. In rural areas however, most economic activity tends to be linked, whether directly or indirectly, to agriculture. Accordingly, the most important manner in which family earnings can be boosted is by increasing the returns to this sector. The remainder of this chapter therefore focuses on the constraints that cultivating households face in increased agricultural productivity. And as detailed, the interaction of patterns of unequal land ownership with other factors is important also in this regard.

Public Provision of Canal Irrigation

4.16 Cultivation in Pakistan is overwhelmingly dependent on canal irrigation.³ Although irrigation by canal substantially increases productivity, there appear to be strong absolute constraints on the extent to which it can be expanded in Pakistan in the medium to long term. This highlights a number of apparent problems in the misappropriation of existing water resources, which are linked both to the patterns of unequal landownership, as well as outstanding governance problems in the irrigation sector. First it seems

clear that the pricing regime and delivery mechanism for canal water clearly benefits those who have larger holdings. The flat rate for water leads to wasteful usage of a valuable and scarce resource. And the prevalence of rent seeking in this sector, coupled with the disproportionate ability of large land owners to influence officials of the irrigation department, allows those with larger land holdings to skew water distribution in their favor, improving their own yields, but further tightening the constraint that limited water availability imposes on smaller cultivators.

Canal Irrigation: Absolute Resource Constraints and Management Issues

4.17 Direct rainfall contributes less than 15% of the water supplied to crops and other sources of water in Pakistan, including ground water, are scarce. The recurrent drought and flood cycle over the past decade has intensified the problem of water availability and raised concerns about water storage on the one hand, and flood prevention, due to overflows, on the other. Unfortunately, studies suggest that prospects for further expansion in irrigated area through new investment appear to be quite limited. With river flows fully utilized, providing more storage in the Indus river system can increase water availability by about 14 percent at best. However, economic returns to both storage investment and investment required to develop additional canal capacity to utilize this flow, are rather low⁴.

4.18 Water sources outside the Indus system are also largely exhausted, limiting the scope for any major expansion in perennial irrigation outside the Indus basin. Finally, the ground water table in most fresh ground water areas is falling due to the expansion in tubewell use over the 1980's. This limits the potential for further investment in private or public tubewells. The limited scope for major increases in water supply both within and outside the Indus basin implies that the efficient use of currently available water supplies has to be an important component of any strategy to increase the productivity of irrigated agriculture in a sustainable way.

4.19 There are two main issues related to canal irrigation that require attention. First, current water delivery and use patterns are quite wasteful. It is estimated that the delivery mechanism has an average delivery efficiency of only about 35 to 40 percent, from the canal head to the root zone. (World Bank, 1999) Farmers also tend to use wasteful flood irrigation methods instead of drip and sprinkler irrigation, which economizes on the use of water.⁵ Second, there is a perception that there is considerable misappropriation of canal water that leads to distributional inequities and uncertain supplies of available water, imposing substantial productivity losses on the economy.

Technical Delivery Losses in Pakistan's Irrigation System

4.20 The reduction of delivery losses requires improvements in irrigation infrastructure and better maintenance of water channels. However, improvements in physical infrastructure, such as the rehabilitation of canals, the lining of water channels, and land leveling have been undertaken only sporadically, and maintenance efforts have also been quite inadequate. Thus, irrigation infrastructure is growing increasingly dilapidated. This is corroborated by a community survey in which respondents were asked about changes over the past 5 years in the quality of nine public goods and services. In nearly 50 percent of sampled villages, respondents reported deterioration in irrigation facilities, while an improvement was reported in only 11 percent of villages. This is in sharp contrast to all other services, including law enforcement, for which a much smaller fraction of villages reported deterioration over the past 5 years.

4.21 One potential determinant of this problem appears to be the poor incentives provided to provincial irrigation departments to maintain and improve the system. Studies have suggested that the budgets of the provincial irrigation department are inadequate and largely absorbed by the wage and salary costs of their employees. There is also no relationship between budgets and performance in

delivering water. This is further exacerbated by the total disconnect between water charges, water delivery, and the maintenance and upkeep costs of delivering water. *Abiana*, the charge for irrigation water, is extremely low relative to the cost of water delivery, as well as the returns to irrigation.⁶ It is therefore quite likely that this water pricing regime has distorted incentives for the efficient use of canal water resources and encouraged rent seeking behavior among both farmers and irrigation officials, as discussed below.

The Political Economy of Water Misappropriation

4.22 In addition to losses due to technical management problems, there is substantial evidence of water misappropriation. This tends to exacerbate distributional inequities and leads to substantial productivity losses, as discussed in greater detail later on in the chapter. While community participation and collective mobilization appears necessary to allow cultivators to gain access to water, such activity appears to be impeded by proximity to a large landowner, and inequality of distribution of landownership.

4.23 A qualitative survey covering six sample villages provides a broad picture of the problem. Payments to irrigation officials to ensure the delivery of sanctioned water supplies were reported as routine and endemic. Respondents also felt that water shortages for those located downstream on a distributary or minor flow, were considerably exacerbated by the routine misappropriation of canal water by upstream farmers, who paid irrigation officials to enlarge watercourse outlets, *moghas*, or managed to get new watercourses sanctioned upstream (see Box 4.2). It is worth noting that the illegal pumping of water, tampering with the *mogha*, in concert with irrigation department staff, and directly breaching the canal system through the exercise of coercive power also inflicts further physical damages to an already strained canal system.

4.24 These reports are to a large extent substantiated by examining data from the recent rural survey, (PHRS 2001) which contains unique plot-level information on access to canal water, as well as a number of watercourse characteristics, including several “non-economic” ones. The survey contains information on over 1000 watercourses. The data is used to examine how heterogeneity among cultivators on a watercourse affects water availability, as well as their capacity for collective action, and to examine the determinants of canal water availability for the two seasons of the survey – Rabi 2000-01 and Kharif 2000.⁷

4.25 First, it is worth noting that there is considerable seasonal variation in canal water availability. For example, between Kharif 1999 and 2000, ‘good’ availability of canal water falls from 68 percent of plots, to 52 percent. In Rabi 2000, only 27 percent report good availability, as compared to 52 percent in 1998 (Table 4.4).⁸ Moreover, 11 percent of all plots with access to canal water in Kharif 2000 and 25 percent of plots with access to canal water in Rabi 2000-01 reported that they were unable to exploit their turn to use irrigational facilities during the season, due to non-availability of water. Thus access to a canal does not guarantee canal water availability.

Table 4.4: Availability of water in watercourse

	Kharif		Rabi		
	1999	2000	1998	1999	2000
Canal full most of the time	39	22	26	11	10
Canal full half the time	29	30	26	17	17
Canal ½ full most of the time	17	26	16	26	14
Canal ½ full some of the time	13	18	18	27	38
No water available	2	4	14	20	21

Box 4.2 Canal Water Misappropriation: Insights from the Qualitative Survey

The three villages, Akalipur, Shah Alam and Darro are located in Faisalabad, Nawabshah and Larkana, districts respectively. Akalipur and Shah Alam were on perennial canals while Darro was on a six-monthly canal system and was supposed to receive water only during the kharif rice-growing season. In the villages, perceptions about the functioning of the irrigation system on the part of its users could be classified by three broad categories:

(i) It was considered a routine matter that irrigation officials had to be bribed in order to ensure supply of water. This was reported across all survey sites. There was evidence of some collective action on the part of users in ensuring the payment of routine bribes. In the survey site in Larkana, for example, it was reported that there were two separate *beldars* (irrigation official at the water-course level). One of these was an employee of the department. Farmers were obliged to pay him not for diverting water to them, but for not diverting their water share to someone else. He was paid, therefore, not to turn up at the water minder or to interfere with its operations. The second *beldar*, an informal worker, was paid by the farmers to be present at the minder, and to manage the water rota.

(ii) There were allegations of local misappropriation by users upstream in the canal system – notably villages further up on the distributary or minor. Irrigation officials were regarded as culprits in these cases also, but the main protagonists were thought to be users in upstream villages. The survey sites in Nawabshah and Faisalabad were both located at the tail end of their respective distributaries. In both cases, the conflict was perceived in inter-village terms. It was not possible to make finer distinctions between individual upstream users, or even between upstream villages. In both Shah Alam and Akalipur, this form of misappropriation was seen as being distinct from the "routine" corruption of irrigation officials, and from the covariate drought-shock or inter-provincial water disputes (see below).

In both cases there were allegations that water had been diverted by upstream users through the payment of bribes or by using political connections with irrigation officials. There had been attempts in both places at protest demonstrations. The "water theft from tail-enders story" was supplemented in both cases with the idea that being at the tail end was not a politically neutral technical outcome. In Akalipur there had been changes in the supply system upstream – such as the lining of watercourses – that had made the situation worse for the tail-enders. In Shah Alam new watercourses had been sanctioned to please villages that had supported local powerbrokers in elections, and the survey villages found themselves further downstream than they had been some years previously.

(iii) In the survey sites in Sindh, there was also the perception that water was being increasingly diverted to regions upstream in the river system. The main reported impact in Darro in Larkana, was a delay in the availability of canal water in the Kharif season, which was thought to be responsible for the spread of a disease known as *ulli* in the rice crop. In Shah Alam in Nawabshah, on the other hand, farmers reported that the upstream diversion of water had reduced land under cultivation.

4.26 Undoubtedly this is due, at least in part, to natural factors. However, water use appears to vary systematically with the location of the watercourse along the main channel as well as the location of the plot on the watercourse. The use of canal water decreases if the watercourse is located at the tail of the distributary or minor and if the plot is located at the tail end of the watercourse. In Kharif 2000, for example, only 5 percent of plots with watercourses at the head of a distributary/minor reported non-use, while 10 percent of those in the middle and 16 percent of those at the tail of a distributary/minor reported non-use (Table 4.5).

Table 4.5: Position of watercourse/plot and water use

		Position of watercourse on main channel			
		Head	Middle	Tail	All
Distribution of Watercourses (%)		12	62	26	...
Plots with canal irrigation that did not use canal water (%)	in Kharif '00	5	10	16	11
	in Rabi '01	25	22	32	25
Distribution of plots (%)		18	38	44	...

4.27 To explore these findings, the determinants of water availability for each season are examined below using regression analysis. In addition to controlling for location effects, it is possible to examine the effects of land ownership inequality at the watercourse and village level, heterogeneity of cultivators at the watercourse level, and the extent to which payment to irrigation officials to ensure delivery of sanctioned supplies affects water availability (Table A-4.1, Annex).

4.28 The analysis indicates that canal water availability declines significantly in both seasons if the watercourse is at the tail of the distributary or minor on which it is located. While this is consistent with the misappropriation of canal water by upstream watercourses, it does not constitute direct evidence of such misappropriation. One could argue that the outcome is also consistent with the kind of well-documented conveyance losses to which the system is subject.

4.29 However, controlling for any location effects, payment to irrigation officials significantly increases the availability of canal water. Thus water availability clearly depends on efforts to bribe irrigation officials.⁹ In addition, water availability increases significantly as the land holdings of the largest cultivators on the watercourse increase. Water availability also increases significantly as the village land gini increases. Since larger landowners are likely to be able to lobby more effectively with irrigation officials and politicians, this also suggests that water availability depends on the ability of cultivators on the watercourse to influence irrigation officials.

4.30 In summary, losses due to the poor maintenance of the infrastructure appear to be compounded by considerable mismanagement and corruption. Such rent-seeking behavior could reinforce distributional inequities and may also lead to substantial productivity losses, an issue that is examined in a later section. What appears to be clear so far is that farmers are willing to pay bribes to ensure water delivery and improved access. This is particularly significant since there is little support among farmers for a higher water rate, perhaps because farmers cannot see any link between their contribution and water deliveries or the maintenance of the system. Moreover, uncertain water supplies and flat-water charges also create an incentive to waste water. This not only constrains an expansion in production, but also penalizes cultivators who are located at the tail end of watercourses and often end up paying for water that they do not get.

4.31 Clearly, this begs the question of the extent to which collective action by cultivators reduces the maintenance and mismanagement problems discussed above. Table A-4.2 (Annex) shows the determinants of participation in the collective activity of watercourse cleaning and maintenance, and the formation of water user's groups. It is indeed found that better water availability in the Rabi season significantly increases participation in the cleaning and maintenance of the watercourse. Larger land holdings and the presence of a politician on the watercourse also increase participation significantly. Interestingly, however, the number of zaats/castes on the watercourse (one measure of heterogeneity) appears to have no effect.

4.32 Turning to the determinants of water user groups, it is found that the presence of a politician on the watercourse significantly reduces participation, as does village land inequality. While these results are quite tentative, and only 11 percent of the watercourses had a water user's group, they suggest that high levels of wealth inequality and power restrict certain forms of collective action while promoting others. In particular, forms of collective action that benefit wealthier cultivators appear to thrive on watercourses with high inequality while forms of collective action that could undermine their influence appear to be discouraged.

Soil Degradation: Waterlogging and Salinity

4.33 Waterlogging and salinity are considered to be a primary cause of low yields and low cropping intensities in rural Pakistan. Combating this growing problem would yield significant productivity gains to many rural households.¹⁰ In addition to the geographical or technical constraints to this— i.e. those that pertain to particular agricultural practices — unequal distribution of land ownership leading to the prevalence of tenancy contracts in certain areas, also appear to be important, by reducing incentives for better stewardship of soil resources among cultivators.

Soil degradation: a reversible problem

4.34 In some parts of Pakistan, notably Sindh and Southern Punjab, the soil is naturally saline and ground water tends to be brackish. However, canal irrigation and tubewell installation have substantially worsened the problem in recent years. Due to its flat topography and the lack of natural drainage in the Indus plain, repeated irrigation has led to a rise in the water table in Pakistan. This is compounded by seepage from the canal system during delivery. In areas where ground water aquifers are fresh, water lost during conveyance can be re-used by pumping, since it simply recharges the aquifer. However, in saline areas such as Sindh, not only is the water permanently lost, it also raises the water table and makes surface soils saline. However, waterlogging and salinity are largely reversible and there are large potential productivity gains from doing so.

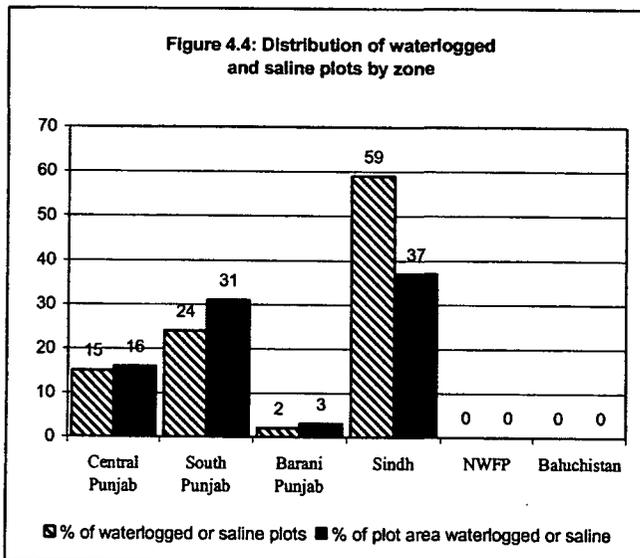
4.35 Measures to reduce soil salinity and waterlogging can be grouped into 3 categories: (1) Activities that must be undertaken collectively, by the government or a community¹¹; (2) Contractible farm level activities¹²; and, (3) Non-contractible farm level activities. The last category is of particular interest since over a third of cultivated area in Pakistan is worked by tenants who may have rather poor incentives to provide the kind of effort-intensive care that problem soils require. There are four main types of non-contractible on-farm activities: (i) Irrigation practices such as the use of more canal water, more frequent irrigations, use of better quality ground water, and pre-sowing irrigation for leaching salts; (ii) Cropping practices like the removal of a salt encrusted top layer, the planting of soil tolerant crops like Berseen, Jantar and varieties of rice, continuous cropping or leaving land fallow, and using a higher seed rate; (iii) Land preparation practices such as deeper/more ploughing, adding sand, and minor leveling to remove high spots and salt deposits; (iv) Chemical/organic practices such as the application of higher quality chemical fertilizers, use of green manure and plant stems, and the use of gypsum.

4.36 Some of these practices tend primarily to mitigate the effect of salinity on current crop yields (e.g., changing irrigation practices, leaving affected area fallow), while others have the longer term objective of solving or alleviating the underlying problem not only for the current season but also for the future (e.g., land levelling, gypsum application, manure application). These latter, 'curative' measures are more easily viewed as a form of investment¹³.

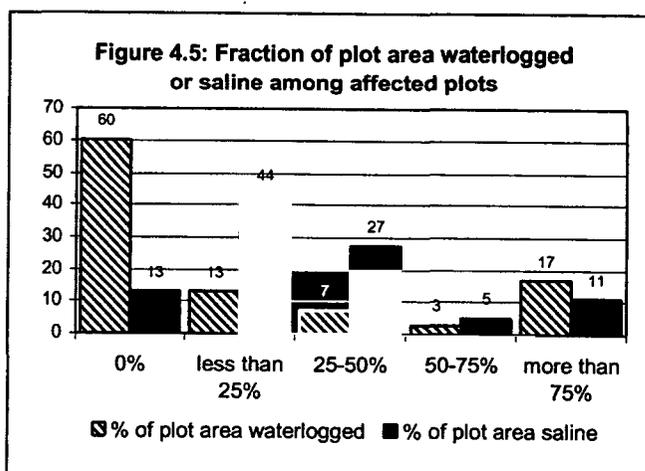
Mapping Soil Degradation in Pakistan

4.37 The PRHS 2001 collected data on salinity and waterlogging for each plot owned or cultivated by sample households. For each plot, information is available on the fraction of area affected by salinity, how long the problem has existed, the acuteness of the problem (subjectively evaluated using local terminology), and any major investments undertaken, either singly or collectively by the household to deal with it. The cultivators of each saline (or sodic) plot were also asked about their use of 26 separate farming practices (noncontractible farm level activities under items (i)-(iv) above) in the two seasons preceding the survey.

4.38 Overall, about 17% of the plots in the sample were affected by waterlogging and/or salinity/sodicity. Waterlogging and salinity are, as expected, particularly acute in Sindh and Southern Punjab. In the former, some 59% of all plots were affected by some salinity or waterlogging and 40 percent of plot area was affected on average. In the latter 24% of plots were affected and about 31% of plot area was waterlogged or saline on average (Figure 4.4).



4.39 While waterlogging was less frequent than salinity, it affected a higher proportion of plot area when it existed. In terms of the distribution of waterlogging vs. salinity problems, 60% of affected plots did not suffer from waterlogging while only 13% of affected plots were not saline. On about 43% of affected plots, 25% or less of the plot area was saline. Only 13% of affected plots had less than 25% of plot area waterlogged. At the other extreme, about 17% of plots have more than 75% of their area waterlogged, while 11% of affected plots have 75% of the area saline (Figure 4.5).



Determinants of soil degradation

4.40 Waterlogging and salinity in the Indus basin region are clearly caused by a complex of factors, ranging from poor drainage and generic salinity, to canal irrigation and poor on-farm water use. Thus, efforts to mitigate the adverse effects of waterlogging and soil salinity must be undertaken at several levels. First, a substantial investment in sub-surface drainage and the lining of distributaries is required in order to reduce the water table and protect and maintain the natural resource base of agriculture. However, drainage, as opposed to irrigation, is essentially a public good, since individuals cannot be excluded from the area-wide benefits of lowering the water table. Therefore, it appears that the public sector will have to take a leading role in developing and maintaining an integrated drainage system.

4.41 Second, large investments such as the lining of watercourses, or the reconstruction of earthen watercourses, also have a public good component and require community effort. One concern therefore is how communities can be mobilized to maintain and improve local irrigation structures. Finally, there are numerous farm level investments that can substantially reduce soil degradation. However, such investments will be made only if the structure of incentives is such that private returns to such investment justify the costs incurred. In this respect it is worrying to note that the data suggest the overall level of private on-farm investment is quite low.

4.42 Major on-farm or community-level investments were reported for 16% of affected plots. Among these, land leveling is by far the most common form of investment, accounting for 31 percent of all major

investments over the past 10 years on affected plots. This is followed by drainage, tree planting and tubewell installation (Figure A-4.1, Annex). Most investments were undertaken either by individual farmers, a large farmer in the area, or a farmer's group.

4.43 In addition, regular farm level measures - termed non-contractible since they are effort-intensive and require costly monitoring, were carried out on 22% of affected plots (Figure A-4.2, Annex). Among these measures, 11 percent of all affected plots undertook some irrigation-related measure, 16 percent implemented a specific cropping technique to mitigate salinity, and 13 percent undertook some type of land preparation practice. The data also includes information for all plots on the use of chemical and organic practices, including the application of green manure. The use of organic manure is particularly beneficial, and effects of an application last up to 3 years. Organic manure is used in over a third of all cultivated plots.

4.44 Importantly, it is worth noting that waterlogging and salinity problems and the efforts undertaken to solve them are related to the land holding status of cultivators. About 27 percent of saline plots were cultivated by tenants, however, while some sort of salinity/waterlogging mitigating practice was carried out on 85% of owner-cultivated plots, only 12% of affected sharecropped plots and 4% of affected fixed rent contract plots undertook any deliberate salinity reducing measures. This suggests that incentives to invest are considerably dampened by moral hazard problems and insecure tenure. Preliminary analysis suggests that the use of organic manure is significantly lower among tenants. In the context of ongoing rural sector work for Pakistan, the data will be used to more rigorously examine the relationship between land tenure and land degradation suggested here.

Access to Credit

4.45 A well functioning rural financial market plays a critical role in both agriculture and rural development by enabling deposit mobilization, financing production activity and investments,¹⁴ and assisting with consumption smoothing in response to production and other risks. In a world of perfect information, credit markets would obviate the impact of initial asset inequality on productivity, since all projects with sufficiently high returns would be funded by creditors. In real world credit markets, however, enforcement of repayment is always a major problem and collateral, often in the form of land, is typically required to obtain large loans. As a consequence, initial inequalities may be entrenched or exacerbated, contributing to the development of 'poverty traps'.

4.46 Specialized credit surveys, such as the Pakistan Rural Credit Survey (1985) estimate that between 40 and 50 percent of all rural households in Pakistan borrow regularly, and that farm households borrow more than non-farm households. This pattern is broadly corroborated in the PRHS 2001. Among farm households, more than three-fourths had outstanding loans during the reference period of the survey (Table 4.6). However, the distinction between formal and informal credit is extremely important. While formal loans have collateral requirements, most often in the form of land, informal lenders, enforce loan contracts largely through reputation, the interlinking of contracts and the use of family/social ties. Thus the asset poor are able to participate in informal markets much more easily.

Table 4.6: Credit Status by Farm Size Category

Farm Size Category ¹⁵	Hholds	Percent Taking Loans			Percent Constrained			Loan Amount	
		Loan	Informal	Formal	Informal	Formal	Both	Informal	Formal
	%	%	%	%	%	%	%	%	%
Landless	46.7	77.8	77.2	1.5	10.3	57.0	4.0	91.3	8.7
Marginal	18.3	73.6	72.2	5.0	7.6	33.0	2.5	74.6	25.4
Small	15.2	80.5	78.3	13.2	7.4	26.1	1.9	57.5	42.5
Medium	12.4	71.4	66.3	18.5	7.7	23.2	1.0	44.6	55.4
Large	5.1	77.7	71.9	24.0	6.6	26.4	0.0	21.1	78.9
Very Large	2.3	63.0	46.3	20.4	9.3	27.8	1.9	24.0	76.0
Average	100.0	76.3	74.2	7.6	8.8	41.5	2.8	59.1	40.9

4.47 The data show that while most borrowing households obtained informal loans, only 8 percent borrowed from the formal market. Formal loans were also concentrated among larger owners. While only 1.5 percent of households without land obtained any formal credit, more than 20 percent of large and very large owners obtained loans from formal sources.¹⁶ Moreover, the fraction of informal sector borrowers is remarkably stable across landholding size. Thus all farm households still borrow in the informal market to a substantial degree, this despite the expansion of institutional credit (see Box 4.3 for a description of the main sources of rural credit). It is worth noting, however, that the share of the formal market is quite substantial for those who succeed in getting loans. Close to three-fourths of the credit needs of borrowers who were large cultivators, and about a fourth of the credit needs of marginal cultivators, were supplied by the formal market.

4.48 The PRHS survey also asks detailed questions aimed at uncovering the extent to which credit constraints are important. Farm households who participate in credit markets are not necessarily unconstrained, nor are those that do not participate necessarily constrained. Lack of borrowing may merely indicate lack of demand for credit, and borrowers may not get all the credit they want at the going interest rate. In practice, however, it is extremely hard to assess whether a particular household is credit constrained. A household without collateral may report that it prefers to borrow from the informal market, or it may not need credit simply because it forgoes opportunities to invest that might have been taken up if credit were available. A picture of self-reported credit constraints is presented in Table 4.6. A non-borrowing household in the formal (informal) credit market, is defined to be credit unconstrained in the formal (informal) market if it (a) did not need or demand credit at the going rate of interest, or (b) preferred to borrow from the other market.¹⁷ Among borrowers in the formal (informal) market, a household is defined to be constrained in the formal (informal) market if its demand for credit at the going rate of interest was greater than the amount of credit obtained.

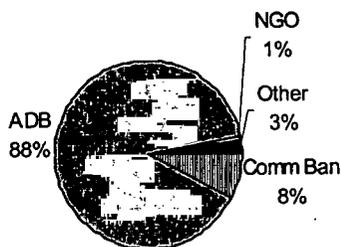
4.49 The data indicate that very few farm households (about 9%) were constrained in the informal credit market. In contrast, 42% were constrained in the formal credit market. This is broadly consistent with other studies in developing countries. The distribution of constrained households is also quite unequal across farm size categories when one looks at the formal market. While 57% of landless farmers report that they are constrained in the formal market, only 28% of very large farmers report being similarly constrained. There appears to be no such pattern in the informal market. Overall, it seems reasonable to conclude that access to institutional credit is severely restricted and that the formal credit market specializes in 'prime' risks. So is it possible to go further and conclude that informal credit markets function well?

Box 4.3: Formal and Informal Sources of Credit in Rural Pakistan

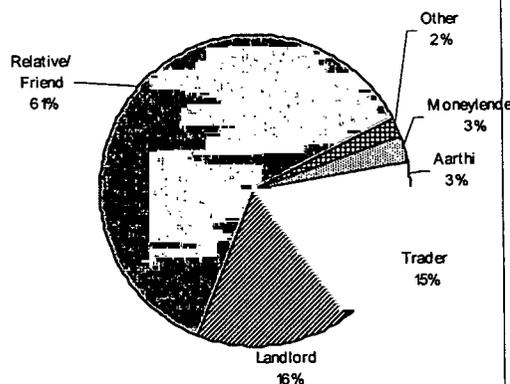
Formal sector credit for agriculture in Pakistan comes largely from the State Bank of Pakistan (SBP) and flows through three major channels: the Agricultural Development Bank of Pakistan (ADBP), the Nationalized Commercial Banks (NCBs), and the Federal Bank for Cooperatives (FBC). The ADBP is by far the largest formal lender for agricultural purposes. The figures below indicate that 88% of all formal loans were obtained from ADBP.

The informal credit market is characterized by a multiplicity of differentiated lenders and loan contracts. There appears to be three major types of non-institutional lenders in the area studied: landlords, traders, and friends and relatives. Of these, friends and relatives are the most important source of credit, with farmers reporting 61% of informal loans from this category. It is important to note, however, that most loans from friends and relatives do not appear to be reciprocal in nature. Over two-thirds of households who borrowed from friends and relatives reported that they had never given credit to their lender. The second most important category was landlords, who provided 16% of all informal loans. With the intensification of agriculture, new types of informal lenders such as middlemen traders have also become a critical presence in the rural economy, both as marketing intermediaries and as financiers of cultivation. In addition, shopkeepers, input suppliers, mills, and wholesale buyers of agricultural commodities also supply credit to informal intermediaries and farm households. The traders and shopkeepers together provided about 18% of the loans. Professional moneylenders also retain a small but important presence in the rural economy, and accounted for about 3% of informal loans.

Sources of Formal Loans

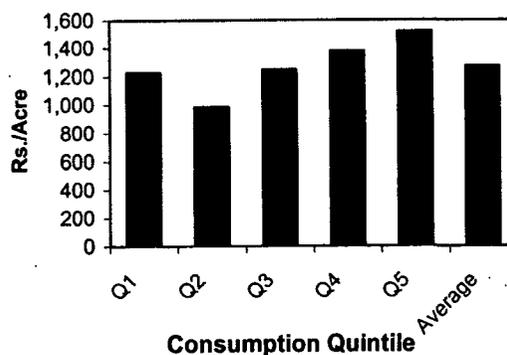


Sources of Informal Loans



4.50 The answer may well be both yes and no. First, if credit constraints were a serious problem, one would expect to see large differences in purchased input use across farmers at different wealth levels. Yet, this does not appear to be the case in Pakistan, at least for fertilizers. Figure 4.6 shows that fertilizer expenditures per acre cultivated vary little by consumption quintile. This finding is consistent with that above, showing farmers are generally able to get informal loans when they need them. This is important and worth emphasizing since it indicates that small and marginal farmers can obtain production credit for some uses at least, from informal sources. On the other hand,

Figure 4.6: Fertilizer Expenditure per Cultivated Area



however, very little land is taken on fixed rent leases and there is virtually no land sales market. The paucity of fixed rent leases, which require upfront rent payment, is quite marked in an environment where over a third of all cultivated area is leased-out. This suggests that the informal credit market is by no means adequate. This is also corroborated by the data: There is virtually no informal lending for investment or land improvement/purchase. The bulk of informal loans are in fact small consumption loans from friends and relatives and average loan size is very small. To the extent that landless tenants opt for share tenancy contracts due to credit constraints, the adverse productivity implications of inequitable land ownership become more entrenched.

4.51 Moreover, low/no interest loans from friends and relatives are obtained largely by better-off households. Marginal and small owners and landless tenants have the bulk of their credit needs met by lenders other than friends and relatives (who account for over a third of all informal credit). For example, the data also show that landless share tenants get over two-thirds of key production inputs on credit and over a half of this is from their landlords. Interest rates charged by landlords, traders and moneylenders in rural Pakistan range from 80 to over 150 percent and are often tied to the marketing of crops. Thus the poor are paying substantially more for credit than the rich, which is likely to reduce their net returns from farming.¹⁸

4.52 As the above evidence indicates, there is a clear need to reform the rural financial sector in Pakistan. However, accomplishing this in an environment where asset inequality is severe is by no means easy. One approach that many countries have adopted, and that Pakistan is moving towards, is microcredit. While this presents considerable opportunities, experience elsewhere also suggest that it can be a mistake to see microcredit as a solution for all credit problems. Rather, it is necessary to understand carefully the strengths as well and constraints of micro-finance institutions (MFIs), of which there are many types. Notably, many of these have not been able to solve the credit needs of poor farmers; in fact, very few micro-credit schemes lend for production inputs or for investment in land, a problem that certainly deserves further study. It should also be noted that Pakistan like other countries has made large investments in a village banking network. The question may be asked - does this now need to be abandoned? It is also important to ascertain if linkages between MFIs and Banks could produce more fruitful results, as discussed later in Chapter 5. In sum, the problem of rural credit in Pakistan raises a complex set of issues that require country specific analysis.

Rural Factor Markets

4.53 As noted earlier in this chapter, there is considerable inequality in the ownership of agricultural assets, notably land, in rural Pakistan. And as discussed through the earlier sections, this often accentuates constraints on agricultural productivity, such as access to irrigation. A crucial step in understanding the policy remedies that may be available to address this distributional pattern of asset ownership, is understanding the nature of leasing markets for these assets. Theoretically, if all leasing markets are unconstrained, then the distribution of productive assets across households (i.e., endowments) should be irrelevant for productivity; households with relatively large endowments of particular assets can rent them out to households with relatively small endowments. Thus, the marginal product of asset services will be equated across households - the definition of efficient markets. This is not the case however in Pakistan, where weak factor markets seem to considerably accentuate the iniquities of unequal land distribution, in part for lack of adequate legal, or institutional provisions.

4.54 To establish this, this section summarizes a series of tests of rural factor market efficiency using the PRHS data. All the analyses are based on the premise that if a household can freely lease an asset in or out (including the labor services of its own members), then ownership of the asset (household composition) should not affect factor use intensity, conditional on the market price of the factor. If there is a significant ownership effect, then its magnitude indicates the size of the factor market distortion.

Table 4.7 summarizes the ownership effects uncovered in the five most important factor leasing markets; those for land, labor, groundwater, tractor services, and thresher/combine harvester services. The results are discussed below.

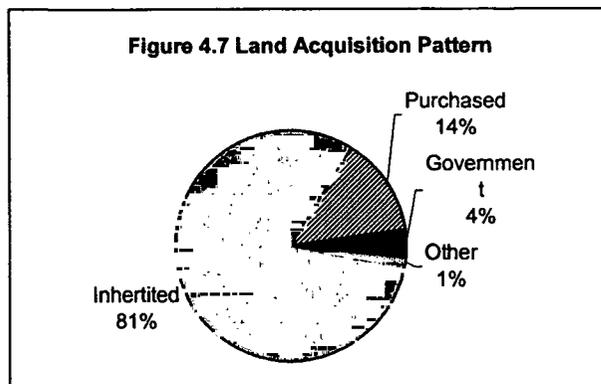
Table 4.7: The Effect of Asset Ownership on Factor Intensity

Input:	Experiment :	% change in input use	
		Kharif	Rabi
Cultivated land area	Double owned area	22	26
Labor (on-farm)	Add 1 Male age 14-59	7	5
	Add 1 Female age 14-59	3*	4*
Groundwater	Add 1 tubewell	17	15
Tractor services	Add 1 tractor (large or small)	17	16
Thresher/combine harvester services	Add 1 thresher or combine harvester	0*	0*

Notes: All inputs (except land itself) are per unit cultivated area. * Not statistically significant

Land leasing markets

4.55 One need only observe the paucity of land sales in Pakistan to realize that this market is hardly capable of bringing household landholdings into alignment with labor and other asset endowments. As Figure 4.7 indicates, the vast majority of individual plots were acquired via inheritance rather than through purchase. However, the thinness of the land sales market, so typical of the developing world, does not seem to arise from a lack of well-defined property rights. Most land is legally titled (though titles are less common in the less developed provinces of NWFP and Balochistan), and, more importantly, the owners report that they have the right to sell most of their land (see Table 4.8). More likely, land sales are scarce due to the absence of a well-developed credit market and, more fundamentally, of a supporting legal system, to provide for instance, enforcement of foreclosure, that would allow mortgage financing of land purchases.

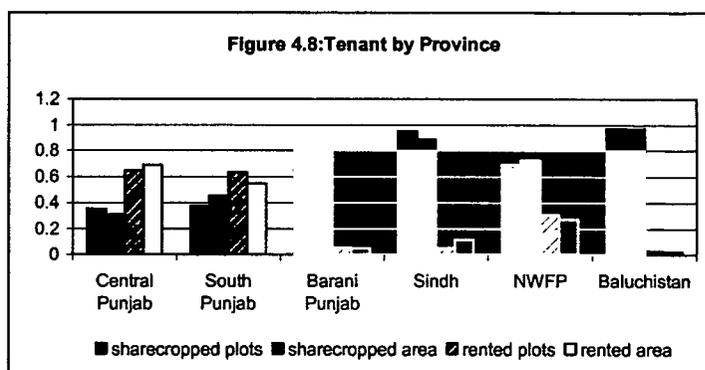


4.56 Absent an active sales markets, farmers can turn to land leasing markets, which is clearly important in rural Pakistan: of those households that own land, about one-third do not cultivate crops (this excludes uses such as orchard and pasture). Conversely, a third of households that cultivate cropland own none of it, being pure leasers. However, this does not mean that the land-lease market functions efficiently. Indeed, there is a very strong relationship between cultivated area and owned area, whether one looks at all farmers, or just those owning land. The first row of Table 4.8 indicates that, on average, for every additional acre of land owned, about one-quarter of an acre additional land is cultivated. These figures are for land owners only, though results for all farmers are similar, and are derived from regressions that also control for household composition, the value of farm equipment, and for village fixed effects, which, in particular, capture variation in the rental price of land. These results suggest significant limitations on households' ability to lease land in, or to lease it out.

Table 4.8: Property Rights over Land

Province	Ownership of Legal Title (% Area)	Right to Sell (% Area)
Central Punjab	69	87
South Punjab	93	87
Barani Punjab	80	93
Sindh	81	89
NWFP	50	99
Balochistan	59	82
National	72	88

4.57 This might be expected, given the nature of land tenancy in rural Pakistan. As Figure 4.8 indicates, sharecropping is the dominant contractual form, although not in parts of Punjab. Share-contracts typically give half, and sometimes more, of the crop output to the landlord, which attenuates the tenant's incentives to supply effort. As is well known, against this disadvantage, sharecropping does provide the tenant partial insurance against crop failure, not to mention the opportunity to cultivate without having to pay cash up front. While landlords can supervise their share-tenants to elicit higher effort (and, indeed, the data show that they do so, often intensively), supervision is costly and must therefore be counted as a disincentive to lease out. From the landlord's perspective, leasing on fixed rent is perhaps more convenient; because the fixed rent tenant is the residual claimant, he has strong incentives to supply effort, at least in the short run. However, tenants both willing to take a plot on fixed rent and able to make the up-front cash payment, are clearly few and far between.



4.58 The argument that incentive problems surrounding tenancy constrain land-leasing decisions makes sense, up to a point. Above a certain landholdings, however, a household cannot cultivate its own land without hiring in farm labor, and hired workers have even lower effort incentives than sharecroppers. Given rising marginal costs of supervising hired workers, there should be a level of land ownership beyond which area owned and area cultivated are unrelated. The data shows that this switching point occurs at an owned area of about 50 acres (Figure A-4.3, Annex). Providing additional land to households with landholdings above 50 acres would not increase their area cultivated.

Rural labor markets

4.59 Absent a perfectly functioning land leasing market, the natural question that arises is whether, through the labor market, land-labor ratios might be equated across farms, thereby restoring productive efficiency in the face of high land ownership inequality. Underlying this proposition are two critical assumptions: (1) constant returns to scale in production, and (2) all other factor markets, besides those for land and labor, are frictionless. Granting these assumptions (for now at least), it is then important to consider the issue of labor market efficiency.

4.60 Analogous to the analysis of the land leasing market, the question is whether labor used per acre on a family farm is dependent on the labor endowment of the household? During the *rabi* season, 24 percent of cultivating households hire labor, a share that rises to about 39 percent during the cash-cropping *khariif* season. Is this labor market activity sufficient to break the link between household demographic composition and farm labor usage? The answer, as reported in the second and third rows of Table 4.7, is "almost": Households with more prime-age males do apply significantly more labor to a given acre of cultivated land, but the effect is not particularly large. The effect of an additional prime-age female on labor intensity is even smaller, and not statistically significant.

4.61 While this evidence indicates that, on average, marginal products of labor on the farm do not deviate greatly from market wages, it does not necessarily imply overall productive efficiency. As mentioned, the latter conclusion requires both constant returns to scale in production and perfectly functioning markets in other factors. Though it is beyond the scope of the present analysis to test the

constant returns assumption, some evidence against the second assumption is provided below. What can be reasonably concluded from this investigation is that interventions in the rural labor market would not appreciably enhance farm productivity.

Groundwater markets

4.62 Over the past two decades, farmers in Pakistan have increasingly relied upon groundwater extracted from private (largely diesel) tubewells for irrigation, though there are stark regional differences, due largely to variation in groundwater availability. In Punjab, 74 percent of cultivating households used groundwater during the 2000-01 agricultural year, and 29 percent owned a tubewell; whereas, in Sindh, these figures are just 9 percent and 1 percent, respectively. Given the high costs of tubewell installation (about a year's income for the average farm household), it is not surprising that the rate of tubewell ownership among cultivating households—even among the two-thirds that own land—is low (around 16 percent nationwide). Consequently, groundwater markets are active, at least in Punjab. Overall, almost 30 percent of the groundwater used is purchased from other farmers.

4.63 The fourth row of Table 4.7 summarizes the analysis of efficiency in the groundwater market. Unlike the other markets studied here, groundwater use per acre is examined at the plot level rather than at the household level. This is because of the importance of location. Since it is not feasible to transport irrigation water very far through unlined field channels, access to both a tubewell and an irrigation canal is crucial in determining groundwater use. Two plots owned by the same household may have very different access to these irrigation sources. The regression analysis controls for the availability of canal irrigation and position along the watercourse, for the availability of a tubewell (regardless of ownership) near the plot, as well as for soil type and topography of the plot. However, even conditional on tubewell availability, plots cultivated by tubewell-owning households receive significantly more groundwater per acre than plots cultivated by non-owners. The misallocation of groundwater is not trivial; tubewell owners have a 15 percent higher utilization rate in *rabi* season and 17 percent higher rate in *kharif*. Of course, given the high transport cost and low density of tubewells, some imperfection in the groundwater market should be expected. The more important question, one that will be taken up later, is whether tubewell owners are more *productive* than non-owners?

Rental markets for farm machinery

4.64 Like tubewells, the vast majority of cultivating households do not own large farm machinery, yet most access the services of such machinery through rental markets. The remaining two rows of Table 4.7 report on the efficiency of these important rental markets.

4.65 Virtually all plowing is now done by tractor in Pakistan. However, only 8 percent of cultivating households own either a small tractor (under 12 horsepower), or a large one. On the other hand, well over 90 percent of these households plowed their land with a tractor during *kharif* and *rabi* seasons 2000-01. Regressions of tractor usage per acre, along the lines of the previous analyses, reveals that tractor owners employ 16-17 percent more hours of tractor services than non-owners. One possible explanation for this finding is that poorer cultivators are constrained in their ability to pay for tractor services up front, and hence do too little plowing. Alternatively, tractor rental markets may be somewhat thin, especially at certain times of the year. In this case, tractor owners, facing idle capacity, plow their own land more intensively than non-owners; more plowings are generally beneficial for yields, but there are obviously diminishing marginal returns. Once again, the salient issue is the magnitude of the impact of tractor ownership on productivity. Some productivity effect is indeed likely, as shown, though it may be too small to detect in practice.

4.66 The case of threshers and combine-harvesters is relatively clearer. These expensive machines are owned by a scant 2 percent of cultivating households. Nonetheless, in *rabi* season, when wheat is harvested, 82 percent of these households - most, but not all, of whom cultivate wheat - use threshers/combine-harvesters. There is no evidence that ownership of one of these machines affects usage, which stands to reason. After all, in contrast to plowing, one can only thresh wheat once, so owning a thresher should not lead to more intensive threshing on one's own plot.

4.67 In summation, it seems that asset ownership, in general, seems to matter for factor usage in Pakistani agriculture. Imperfections in the land leasing, groundwater, and tractor rental market suggest that a redistribution of these assets could improve productivity. Evidence of a reasonably efficient rural labor market does not belie this point. Given misallocation in three important factor markets, a perfectly functioning labor market, even with constant returns to scale, would not lead to efficient production. As already noted, however, the crucial question is how economically important are these factor market imperfections? Answering this question requires analyzing the impact of asset ownership on the profits from farming. This is the topic of the next section.

Farm Productivity

4.68 Several constraints on farm productivity in Pakistan have been identified in this chapter. Particular emphasis has been placed on the scarcity and mismanagement of canal irrigation, the problem of soil degradation, and the consequences of farm asset inequality when rural factor markets are imperfect. Credit has also been discussed, but in this case the evidence tentatively suggests that lack of access to credit does not seriously constrain input expenditure. At any rate, because of the difficulty of isolating the "exogenous" component of credit constraints, it is difficult to do more at this point.

4.69 Further to these analyses, this section analyzes the plot-level production data from the PRHS to quantitatively assess the role of canal irrigation, soil degradation, and asset inequality. The results reported in Table A-4.3 (Annex), use regressions to identify the main determinants of net revenues for *kharif* and *rabi* 2000 - with revenue from orchards and livestock excluded - as well as of yields for the major seasonal crops, rice in *kharif* and wheat in *rabi*.¹⁹

4.70 Evidence has already been uncovered of serious friction in the land leasing market. The results confirm the importance of leasing limitations for productivity. A doubling of total operated area by the household lowers per acre net revenue by 22 percent in *kharif* season, and by 38 percent in *rabi* season. Where is this large farm-size productivity effect coming from? The wheat yield regression suggests that, at least in *rabi* season, much of it is coming from variation in cropping intensity rather than allocative efficiency. In particular, a doubling in farm size reduces wheat yields by "only" 10 percent, which is far less than the 38 percent reduction in net revenue for the same season. Similar, but less dramatic, results emerge in *kharif* season, where the farm-size effect on rice yields is just 13 percent, compared to the 22 percent net revenue effect.

4.71 Evidently, households with larger operated area are leaving a larger fraction of their land fallow, especially during *rabi* season. The question is, why? One possibility is that cultivation is constrained by the availability of irrigation, so that at some point part or all of a plot is simply not worth cultivating by the owner, and certainly not by a tenant. However, the regressions hold constant the supply of irrigation to the plot. Indeed, both the availability of canal irrigation during the season and access to a tubewell are important determinants of productivity. Yet, the farm-size productivity effect remains. Of course, it is still possible, if not likely, that these variables do not capture all aspects of irrigation supply, especially in light of the fact that 2000 was a year of unprecedented drought in parts of Pakistan. If one takes these results, along with those on the land leasing market above, at face value, the policy implications are quite profound. In principle, a redistribution of land would have a sizeable positive effect on farm productivity,

both by increasing yields and by increasing land use intensity. Of course, as with all the preliminary results from the PRHS survey reported in this chapter, these findings should only be viewed as suggestive. There may be other factors, not taken into account in the regressions, that are being conflated with the farm-size productivity effect. These factors need to be investigated further in future work.

4.72 Turning now to other farm assets, tractor ownership significantly increases net revenue in *kharif* season;²⁰ the effect in *rabi* is also positive but not significant. Since the imputed cost of services from owned tractors is deducted from revenue, these findings mean that imperfections in the tractor rental market are appreciably constraining farm productivity, at least in the cash-cropping season. Once again, this might be the result of credit constraints that limit the ability to pay for such pre-harvest inputs up front, though there may be other reasons as well.

4.73 Somewhat the opposite situation prevails for tubewells, where the productivity effects of ownership are very large and highly significant only in *rabi* season. Ownership of a tubewell, holding constant access of the plot to a tubewell (whether owned or not), raises wheat yields by 30 percent and overall *rabi* season net revenues by a whopping 83 percent. The lower impact of tubewell ownership in *kharif* probably reflects the fact that groundwater is a relatively less important source of irrigation during this season.

4.74 Whereas considerable inefficiencies were detected in the tractor and groundwater markets in Section 2, this was not the case for labor: rural labor markets in Pakistan are reasonably flexible. Hence, it is not surprising that, in contrast to these other household assets, endowments of labor are unrelated to farm productivity. In particular, the number of prime-age household members, whether male or female, has no effect on net farm revenue in either season.

4.75 Results concerning soil salinity and waterlogging problems indicate very clearly their importance for agricultural productivity in Pakistan. First off, the regressions show that productivity is higher on plots with access to good quality groundwater, compared to plots with access to brackish water. This finding confirms the role of groundwater pumping in exacerbating soil salinity. As discussed earlier, farmers were also asked directly to assess the proportion of each plot affected by waterlogging and salinity. Often plots are affected by both of these problems, so the variable in the regressions is the proportion of the plot affected by *either* waterlogging or salinity. The results: a 10 percentage point increase in plot area affected by waterlogging and/or salinity leads to a 11 percent decline in productivity in *kharif* and a 12 percent decline in *rabi* seasons. Interestingly, the effect of soil degradation on wheat yields is much smaller, though still negative, suggesting that the main affect of soil degradation in *rabi* season is to limit the area of the plot that can be cultivated. Meanwhile, waterlogging/salinity have a very significant negative effect on rice yields (but not on cotton yields; these results are not reported here). This probably reflects the fact the rice tends to be grown on more saline land; first, because salinity is more pervasive in rice-growing areas and, second, because rice is more resistant to salinity.

4.76 Finally, the importance of irrigation, both canal and tubewell, for crop yields and farm profits cannot be emphasized enough. The PRHS was not designed to measure actual water usage at the farm or watercourse level, but relied rather on information from farmer recall. Despite this fact, and the relatively crude measure of canal water availability (a qualitative index ranging from zero to five), the supply of canal irrigation is found to be a significant constraint on productivity. Refining these estimates using more sophisticated survey instruments is a clear priority for future research, one that would allow the efficiency losses from the current system of canal water delivery to be adequately quantified.

Policy Conclusions

4.77 As noted in this chapter, there is considerable scope for policy intervention to improve efficiency and agricultural productivity. Particularly in remedying land ownership inequality and concomitant inequality in farm assets in rural Pakistan, which have substantial negative impacts on agricultural productivity and reinforces poverty.

4.78 First, the land leasing and land purchase markets function poorly, despite very secure ownership rights. This appears to be due to friction in a number of other markets, including quite significantly, the market for credit. As a consequence, the land rich under-use their land while the land poor cannot obtain sufficient land. This not only substantially lowers agricultural productivity, it also restricts the redistribution of wealth through markets, so that poverty can become entrenched. This suggests that the scope for market based land reforms might be quite limited since such reforms require well functioning land lease and purchase markets. On the other hand, other avenues for reform need to be explored. In particular, innovative mechanisms for improving access to credit and land for the poor need to be explored.

4.79 Second, land inequality in rural Pakistan also reinforces inequities in access to critical resources like canal irrigation. Although canal irrigation substantially increases productivity, the pricing regime and delivery mechanism for canal water clearly benefits those who have larger holdings. The flat rate for water leads to wasteful water use in a situation where irrigation water is an extremely valuable and scarce resource. In addition, the ability to influence officials of the irrigation department to divert water to the highest bidder allows those with larger land holdings to skew water distribution in their favor. This imposes three-fold costs on the poor: They must pay water charges whether or not they get water, pay bribes to get the water which is their right, and suffer lower productivity due to uncertain and low water supplies.

4.80 Finally, the analysis also shows that soil degradation, due to waterlogging and salinity, is quite significant in rural Pakistan, particularly in Sindh province and in Southern Punjab. These regions are also characterized by extremely high land inequality and large land leasing markets. As noted above, share tenancy is the dominant form of land leasing and all available evidence suggests that share tenants, particularly in an environment where tenure is insecure, have few incentives for investments in the preservation of soil quality. Thus sustainable agricultural growth in these regions may depend on reforms that increase the rational and equitable use of land resources as well as on public and private investment to reduce soil degradation.

4.81 There are numerous avenues for policy intervention in canal irrigation, drainage and soil quality preservation. The analysis suggests that reforms that aim to rationalize the water-pricing regime and change the performance incentives of irrigation officials are necessary. New public investment in irrigation infrastructure and drainage is also important. Water conservation and new investment could bring vast tracts of Barani (rain fed) land under cultivation. In addition, policies that increase incentives for private investment in soil quality preservation, both at the farm and community level, are likely to be quite important. Constraints on such investment both at the farm and community level need to be better understood.

4.82 Finally, it is important to note, as detailed early in the chapter, that more than a third of rural households now work outside the agricultural economy, or at least do not derive their income mainly from agriculture. The non-farm sector could therefore provide a potentially important avenue for poverty reduction efforts. An increase in wage and self-employment in the sector could not only provide alternative income earning opportunities for the poor, it could also improve the bargaining position of agricultural waged workers and tenants by pushing up wages. Stagnant poverty rates suggest inadequate

growth in the non-farm sector over the past decade. Improving opportunities in the labor-intensive non-farm sector should be a priority area for public policy since this sector is a major source of livelihoods and an important means of diversify incomes for the poor.

¹ Agriculture is the single largest sector in Pakistan's economy. It contributes a quarter of the country's Gross Domestic Product and employs almost half of the labor force.

² Agricultural Census for Pakistan (1990)

³ Nearly 80 percent of total cropped land is irrigated by the Indus Basin Irrigation system (IBIS) and ground water resources. Of the 18 million hectares of irrigated land in 1999-2000, about 41 percent was irrigated by canals, 39 percent by a combination of canal and tube wells and 17 percent by tube wells alone. Pakistan's irrigation system is the largest contiguous canal irrigation system in the world. It has over 1.6 million kilometers of canal, branches, distributaries, field channels and watercourses. The major source of water for irrigation is the Indus Basin Irrigation system (IBIS), to which 106 million acre feet (MAF) of water is diverted annually (at the canal heads); around 38 MAF or so is pumped from groundwater. Increases in the irrigated area were mostly achieved before 1980 when the irrigated area went from 9.25 million hectares in 1950 to 15.4 million hectares in 1983. Since the 1980s, the area irrigated by canals has remained around 8 million hectare while the additions in irrigated area have mainly come from groundwater tube wells.

⁴ Water Sector Investment Planning Study

⁵ Seepage during water delivery also compounds problems of waterlogging and soil salinity. We take up this issue in the next section.

⁶ According to a recent World Bank (1999) study the marginal returns from irrigation, as measured by the value of water in the private water market, is estimated to be as much as 10 times the water charge).

⁷ About one-half of all plots in the sample had access to canal irrigation, and the analysis in this section is restricted to those plots. For each plot farmers were asked whether the plot had access to canal irrigation, the position of the plot on the watercourse, and a number of watercourse characteristics. In particular, the data obtained also covers the availability of canal water over the past three seasons; the position of the watercourse on the distributary; whether any payments were made to irrigation officials to ensure water supply; the existence of a water user's group on the watercourse; and a number of variables that reflect something about the extent of landownership inequality among cultivators on the watercourse, as well as other dimensions of heterogeneity - such as the number of different caste/zaat groups cultivating land on the watercourse.

⁸ Floods in late monsoon in 1998 increased water availability in Rabi 1998-99.

⁹ It is worth noting that although the payment of bribes significantly affects water availability, the fraction of watercourses that report regular bribes to irrigation officials is if anything much smaller than we expected, given our pre-test results and the findings of the qualitative survey. However, our field teams have reported that many respondents were quite reluctant to acknowledge their own participation in such payments although they maintained that such irregularities were routine.

¹⁰ Waterlogging refers to the rise of the water table into the root zone of the soil profile at the point where it can asphyxiate the root system. Salt concentration affects seedling germination and vegetative growth. Agronomists have found that above a certain threshold of salinity depending on soil quality, climate and cultivation practices, yields are considerably decreased.

¹¹ These include large investments such as sub-surface drainage schemes, lining of distributaries and watercourses, and reconstruction of earthen watercourses.

¹² These include the installation of irrigation tubewells, planting of orchards, the lining/cleaning/repair of on-farm water channels, and improved surface irrigation via land leveling and the use of bed and furrows irrigation methods. Since these activities are easy to observe, someone can be paid to do them for the farmer (hence they are contractible).

¹³ Manure application improves soil structure, leading to higher crop yields. The use of gypsum restores the chemical balance of the soil, and is particularly beneficial for moderately to strongly saline-sodic root zone soils. In both cases, the impact of one application can last for several years. Land levelling is a preventive measure since it reduces the pooling of water and the formation of saline patches.

¹⁴ Given the timing of crop income, short-term (i.e., seasonal) borrowing allows farmers to finance expenditures on inputs such as seed, fertilizer, and tractor services, while longer term credit facilitates the acquisition of agricultural machinery, tubewells, and even land, as well as major land improvements.

¹⁵ Farmers were classified into size categories as follows: a) Marginal farmers with landholding > 0 & ≤ 2 acres, b) Small with > 2 & ≤ 5 acres c) Medium with > 5 & ≤ 15 acres d) Large with > 15 & ≤ 40 acres c) Very large with > 40 acres.

¹⁶ Overall, some 60 percent of ADBP debt and 45 percent of NCB debt goes to large farmers and non-cultivating landowners.

¹⁷ Households that reported borrowing from informal or formal sources were asked if they would borrow more at the going rate of interest. If farmers responded yes to this query, they are classified as constrained. Farmers who did not borrow were asked the reasons for not borrowing. The farmers who said they did not borrow because they did not need credit, or preferred alternate sources of credit or because they found the rate of interest too high, are classified as credit constrained.

¹⁸ Reinforcing this is the fact that large farmers often see access to cheap institutional credit as a rent to land ownership. Default rates have been high and substantial funds have been used to purchase urban property or additional agricultural land.

¹⁹ All of the dependent variables are in logarithms, so that the coefficients can be interpreted as percentage changes. There are numerous cases of negative net revenue on a given plot (14 percent of the plots in *kharif* and 25 percent in *rabi*), which must be dropped from the samples. Qualitatively similar results are obtained, however, using the full samples with the level of net revenues as opposed to the logarithm.

²⁰ Controlling for village-level tractor rental prices has no effect on this coefficient.

5. Policy Implications: Recent Experience and Future Priorities

5.1 The analysis in this report highlights three critical areas of intervention that need to be the foci of poverty reduction strategies for Pakistan. The crosscutting theme of social protection is vital to mitigate the vulnerability, which, as shown in Chapter 2, affects a large share of households in rural and urban areas alike. As detailed across the report, this is a major reason for the persistence of observed poverty in Pakistan through the 1990s. And as noted in Chapter 3, this phenomenon is in turn closely linked to Pakistan's persistent and on many fronts widening social gap, particularly in education and health. Hence the importance of strategies to improve human development indicators. Given the significant gap between urban and rural indicators, the high rural incidence of vulnerability – attributable largely to recurrent weather related shocks in 2000 and 20001 – and the fact that two thirds of Pakistan's poor are concentrated in the rural areas, this chapter also devotes special attention to the need for a well-coordinated rural strategy. As discussed in Chapter 4, this should address both the need for social protection and human development as well as other issues specific to rural poverty such as asset ownership and agricultural resource management.

5.2 It is important to note that these strategies are premised on a broader developmental commitment by the Pakistani government to continue supporting and promoting macroeconomic stability and a governance environment that is conducive to private sector investment and growth. In this sense, the three pronged poverty strategy outlined in this report constitutes a mechanism to enable economic growth to be both sustainable and pro-poor by addressing the structural and sectoral constraints that have undermined long-term growth and have reduced its impact on poverty reduction.

5.3 To this end Chapter Five takes as its starting reference the Pakistani government's own Interim Poverty Reduction Strategy (I-PRSP) and bases its recommendations on the experience of existing programs and initiatives in Pakistan and ways in which they can be leveraged in the future. A review of such programs highlights some positive experiences but also points to the need for substantial improvement and additional effort in many areas. Broadly, the ensuing recommendations emphasize common themes: improving access to markets for credit that mitigate vulnerability; removing institutional obstacles to service delivery which is particularly topical in the context of Pakistan's recent devolution reforms; improving access to assets, including land, in the rural sector; and improving coordination among mutually reinforcing policies. The importance of improving monitoring of program results is also emphasized.

5.4 Encouragingly, the recommendations that derive from the analysis in the report are broadly consistent with the strategy outlined in Pakistan's I-PRSP (Box 5.1), though they also suggest a need for a strengthening of this strategy. Key elements of the I-PRSP's recommendations are to promote growth through macroeconomic stabilization and by improving the investment climate for private sector led growth. Special attention is also paid to specific reforms in the rural sector, and to facilitate productivity and growth of small and medium enterprises. An additional important feature of this strategy is to lay out a plan that uses the ongoing process of devolution to enhance efficiency and quality of public services, particularly in education and health. While this focus of the I-PRSP is critical, there is a need to deepen the understanding that underpins some areas of reform identified in this chapter. Moreover, the chapter identifies some possible areas of intervention for which the I-PRSP has not laid out a detailed approach, for instance in the rural sector.

Box 5.1: Pakistan's Interim Poverty Reduction Strategy Paper (I-PRSP)

Pakistan's I-PRSP specifies five main goals of policy in the years ahead: engendering growth, reforming governance, creating income generating opportunities (specifically for the poor); improving human development, and reducing vulnerability to shocks (at the microeconomic level). Faster growth is to be pursued through a combination of prudent macroeconomic management, coupled with appropriate sectoral policies. The macroeconomic agenda stresses the importance of increasing tax revenue in order to provide more fiscal space for poverty reduction initiatives, while also overcoming Pakistan's adverse debt dynamics. Export growth is similarly recognized as vital to improving the external debt situation. Key sectors addressed include agriculture, small and medium enterprises (SMEs), the financial sector, infrastructure, energy, oil and gas, and telecoms. The I-PRSP argues that implementation of the government's devolution strategy holds the promise of a "grass-roots" transformation of Pakistan's politics, and better citizen oversight of government programs. It envisages providing income-generating opportunities for the poor primarily through a housing program, the distribution of government-owned land to the poor, and improved access to microcredit. The human development strategy presents an integrated framework to address the critical bottlenecks in service delivery, especially in health and education, and describes the ongoing devolution plan as the major policy reform geared to this end. As gender disparities remain substantial in all social indicators, targeted programs are considered essential to reduce these gaps, e.g., through subsidies for girls' education, and through programs like the Lady Health Workers Program and Women's Health Project. Shocks are to be better dealt with by revamping the *Zakat* system, revitalizing the food support program, and expanding the *Khushal Pakistan* Program. The I-PRSP also envisages institutionalizing mechanisms to track poverty-related expenditures and monitor intermediate variables as well as outcomes. The I-PRSP does not discuss whether the program is consistent with achievement of the Millennium Development Goals for the year 2015, although a casual impression is that it would indeed put Pakistan on the road to achieving the goals. The government of Pakistan intends to address this issue in the final PRSP that is to be prepared over the coming months.

5.5 In addition to the critical areas of focus covered by this report and Pakistan's I-PRSP, it will also be necessary to formulate policies that address the specific nature of urban poverty, and to collect additional information and research to underpin this work. For lack of such information, this chapter covers this issue mainly in the cross-sectoral context of social protection strategies to manage risk. Yet it is clearly informed by underlying dynamics requiring more attention. Chapter 2 finds that while some amount of poverty reduction has occurred in urban areas due to income growth, the growth would have had a much greater impact on poverty absent the considerable increase in inequality that has been observed. Achieving poverty reduction in this context will require an integrated approach that combines strategies that help manage and cope with risk, with broad-based policies that generate employment and raise incomes.

5.6 Important outstanding issues surrounding the nature and determinants of urban poverty include identifying precisely the main sources of growth in urban areas, the extent to which this growth has been distributed across sectors, and the factors that account for rising inequality. Existing information base is insufficient for such analysis, particularly in regards to the constraints faced by the informal sector, where most of the urban poor are concentrated. Survey efforts are underway to explore the business climate in urban Pakistan for formal sector firms, which will deepen the understanding of investment climate and constraints to employment generation in urban areas. This should be complemented by a study with poverty focus, looking into enterprises in the informal sector and identifying the range of factors that act as constraints to their productivity and incomes.

5.7 It is of course also true that a sustainable poverty reduction strategy for Pakistan must also incorporate an explicit plan of monitoring of poverty outcomes, both in the short and long term. This will enable policy makers to improve their strategy and implementation in accordance with actual performance. Moreover, monitoring will be important in the context of the internationally adopted Millennium Development Goals (MDGs), in terms of aligning the set of targets that it specifies for Pakistan with what is feasible, and by enabling continuous evaluation of progress towards these identified goals. While the I-PRSP lays out a monitoring plan for Pakistan, implementation of this plan will require formalizing its processes – a task for which building institutional capacity will play a critical part. Box 5.2 outlines some of the key issues that need to be addressed to ensure effective monitoring.

Box 5.2: Poverty Monitoring and Tracking of Progress towards the Millennium Development Goals

The I-PRSP for Pakistan provides an elaborate framework for monitoring poverty, outlining the various data and technical issues surrounding the choice of indicators to track progress on poverty alleviation, as well as the output indicators that would provide continuous feedback to policy makers in the progress being made to realize the MDGs. The latter is especially useful to identify bottlenecks, set priorities, and reorient strategies to reach the target goals (see Tables A-5.1 and A-5.2 in Annex).

The implementation of the monitoring effort is under way and a few key issues are being addressed:

- Setting baselines and targets for long term poverty indicators: While Pakistan has a good household survey that can provide the basis for tracking long term indicators associated with poverty, in some cases, like education, where there is more than one data base, there is need to reconcile baseline information. This will be crucial for tracking progress in a consistent manner
- Setting an Official Poverty Line: Pakistan is one of very few countries in South Asia with no official poverty line, which is an essential issue to resolve. A regional workshop sponsored by World Bank and Pakistan Institute for Development Economics has helped in building consensus, which should result in the selection of an official poverty line
- Setting Provincial targets and goals: Given the inter provincial disparities in poverty and its associated indicators, the exercise of setting credible targets for individual provinces is an outstanding challenge. This can only evolve as the process of devolution gets fully implemented.
- Monitoring output indicators: Tracking progress over shorter spans of time is crucial especially for service delivery and targeted poverty programs. Triangulation with the expenditure tracking exercise will provide a quick and effective diagnosis of progress in these areas. World Bank and DFID are working with the Government to launch this effort by June 2002.

Social Protection – Managing Risk and Reducing Vulnerability

5.8 As detailed in Chapter 2, 56% of households sampled in the IFPRI panel are vulnerable to falling into poverty due to weather-related shocks alone – evidence that suggests vulnerability is widely prevalent in Pakistan. The inability to mitigate risk can also lead to “costly” adjustments in behavior, for instance prompting enterprises to adopt less risky technologies, which might also provide lower returns. Since poverty and vulnerability are closely linked and reinforce each other, the policy responses to them can overlap and also have important synergies.

5.9 Credit and insurance are important ways of mitigating and coping with risk, but in Pakistan like most other developing countries, formal markets for these instruments are either completely absent or inaccessible to the poor. Microfinance provides an alternative means of extending such financial services to the poor. In addition it is important to enable the poor to cope with the impact of a shock after it has occurred, because many of the myriad risks to which they are exposed are difficult to eliminate entirely. Means to this end include social assistance, public works and cash transfers. Such measures, if they are viewed by poor households as being credible in terms of availability during times of need can also serve as valuable tools of risk-mitigation. Lastly, because access to urban housing is an important determinant of urban poverty and vulnerability, programs that promote access to this asset are also important.

5.10 Pakistan as a developing country lacks not only the resources, but also the institutions necessary to provide universal, formal safety nets, like unemployment and health benefits and insurance, social security, and pensions, to the large sections of the population that need them. While building such coverage may be desirable in the longer term, the strategy for the immediate future has therefore also to focus on existing programs. These include public works, targeted assistance initiatives, and programs that involve the use of informal community-based institutions. The following section assesses the specific

roles played by major existing programs of this kind, highlighting positive attributes and lessons for future policy, in addition to pointing up shortcomings requiring reform, or additional efforts.

5.11 As noted earlier, an underlying theme of this assessment is the need for greater complementarity among programs, and for underlying reforms in administration and governance. Existing Zakat, social pension and public works programs should consider expanding coverage and improving their responsiveness and flexibility, in part through better targeting. This also requires institutional reform, greater transparency, and in some cases, stronger government commitments. A review of microfinance programs suggests that it would be beneficial to expand coverage, deepen alliances with formal market institutions such as banks, and regularize public support for some programs. With regards to urban housing, the record points to the benefits of greater community participation in leveraging limited resources, and the importance of such programs being complemented by income support and credit access schemes.

Social Welfare and Pension Systems

5.12 The following section reviews the current range of disparate programs in Pakistan that provide elements of social protection. The most important of these is the Zakat system, which is the principal form of cash transfers to the poor in Pakistan - an important form of social assistance that helps them manage risk. The publicly administered Zakat system is funded by a wealth tax and disbursed to institutions operating at the national level, with the remainder divided among local committees for disbursement to individuals. Those eligible to receive Zakat include the poor, especially widows and orphans, and the handicapped. At present, annual Zakat collection is around Rs. 5 billion, with about 2.5 million beneficiaries during 2000-01. Yet although Zakat has emerged as the government's main social safety instrument, its potential and scope in fighting poverty is yet to be fully realized.

5.13 Zakat has several positive design elements: its subsistence allowance seems adequate, amounting to about three times the average income gap of the poor;¹ its reliance on a specific source for funds ensures sustainability; and the program has a strong re-distributive potential. However, studies have found the impact of Zakat funds on the poor to be very limited, mainly because of the relatively small amount of aggregate transfers. Zakat collections as a proportion of GDP amounted to only 0.2 percent by 1992-93, implying that even if all the benefits had gone to the lowest quintile of households, the income of this group would have been augmented by only 2 percent.² In 1996-97, according to HIES data, only 3.5, 2.1 and 1.4 percent of households in the first, second and third lowest expenditure deciles respectively reported receiving any Zakat transfers. However, the limited aggregate impact of Zakat on poverty does not preclude a more significant impact on vulnerability, if the cash transfers were to help households smooth consumption in the face of shocks. Existing studies offer little insight into the consumption-smoothing aspect of Zakat – a major gap in assessing the program's impact that should be addressed by future evaluations.

5.14 The impact of Zakat transfers on poverty and vulnerability alike would also depend to a large extent on targeting efficiency. Evidence on this has been mixed at best. According to some studies, only about half of all direct payments went to households in the lowest expenditure quintile.³ One of the reasons for this inefficiency is the problem in identifying eligible beneficiaries, which appears to be exacerbated by patronage politics at the level of the local Zakat committees. In addition, the status of beneficiaries is not kept up-to-date. Accordingly, beneficiaries may continue to receive support for years after their initial entry into the program, regardless of their current status.⁴

5.15 Encouragingly, the system of collection and disbursement of Zakat has been recently reorganized to improve its efficacy.⁵ The institutional framework for implementing, monitoring, and evaluating the program is being strengthened, and relief to beneficiaries in the form of subsistence grants were raised

last year from a monthly transfer of Rs. 300 to Rs. 500. The government expects that an additional 1.5 million beneficiaries will be added to the current list of around 2.5 million Zakat recipients. Moreover, the revitalized Zakat system will provide funds not only to fulfill basic needs but also to permanently rehabilitate beneficiaries, by assisting in the establishment of small-scale commerce or other means of living suitable to their qualifications, skills profile, and local conditions.

5.16 Pakistan Bait-ul-Maal (PBM) is another notable safety net program, mainly providing assistance to those in need, like minorities, who are not covered by Zakat. Administered by an autonomous board of management, PBM provides two main benefits – the Individual Financial Assistance scheme that disbursed Rs. 14 million to about 5,000 beneficiaries, and the Atta Subsidy Scheme that provided about 200,000 families with a monthly cash stipend of Rs. 200 in 1997-98. However, limited coverage severely limits the impact of PBM, as does the tedious procedure involved in applying for assistance from this program. And unlike Zakat, Bait-ul-Maal does not have any identifiable source of income, so that its exclusive reliance on budgetary support leaves it vulnerable to changing fiscal conditions. From recent reports, it also appears that transparency is a serious problem, on account of the discretion that high-level functionaries have in allocating funds from this program.

5.17 For both the Zakat and PBM programs to fulfill their potential as safety nets, institutional arrangements must be strengthened for the identification of eligible persons, while making this process more transparent and simple. The risk-mitigating benefits of such programs could also be enhanced not only by improving targeting, but also by making the programs flexible enough to respond in a timely manner to the incidence of shocks, especially those of a covariant type. In addition, as far as individual programs are concerned, Zakat will benefit greatly from improvements in the assessment and collection of taxes, and the Bait-ul-Maal from a strong financial commitment from the government, along with improved financial management and planning.

5.18 Employees Old-Age Benefits Institution (EOBI) is the primary public social security scheme for low-income urban workers in Pakistan, providing pensions to workers earning less than Rs. 3000 a month in enterprises with 10 or more employees. Anyone who has worked for at least 15 years and is 60 years of age (55 for women) is eligible for a monthly pension; provided the employer makes periodic EOBI contributions (at 5 percent of wages) for their registered workers. There is also provision for a reduced pension for workers who retire before the age of 60, a pension for invalids for the duration of the illness, a survivor's pension and old age grants.⁶ Given the rapidly expanding labor force and the large proportion of young workers, a scheme like EOBI has the potential to develop as a major safety net for low income, retired or invalid workers.

5.19 However, while limiting the coverage to workers below a threshold wage has enhanced targeting efficiency of EOBI, the program suffers from low coverage. The 1.2 million registered workers make up only 20 percent of the number of urban employees, partly because of the large number of workers employed in the informal sector and partly because of large scale evasion by employers. In addition, the fact that the employer contribution system adds to the cost of hiring labor may have an adverse effect on employment. Introducing a flat rate contribution per worker by the employer and by guaranteeing a matching contribution by the government may help address this problem, while also ensuring financial sustainability. It may also be beneficial to encourage contribution by the employees themselves. The scheme should also be expanded to include the self-employed and employees in firms with less than 10 workers (thus incorporating the informal sector), for which again it will be imperative to create correct incentives.

5.20 In addition to their functional shortcomings, there is also generally very little evidence about the impact of any of the programs described so far, in terms of reducing income or consumption volatility. This prevents an evaluation of their effectiveness as instruments for managing risk. In order to address

this gap in knowledge, analysis focused on the risk benefits provided by each program should be a priority for the future, and should underpin strategies that aim to expand their efficacy as risk management tools.

Public Works Programs

5.21 As the discussion above has shown, existing social protection programs in Pakistan are insufficient to meet the need for social safety evinced by a large proportion of the vulnerable population. Public works programs, however, have typically played an important role as safety nets in many developing countries by conferring stabilization benefits by smoothing consumption in periods of high unemployment. While such programs have largely failed in Pakistan, for various reasons⁷, the government has clearly recognized the need for a functional public works program, and through an ongoing initiative named Khushal Pakistan Program - established a broad-based scheme that has the potential to significantly extend the coverage of social protection in the country.

5.22 Khushal Pakistan: Under this program, funds are allocated to districts through provincial governments, while the schemes are identified and selected at the district level through active community participation. The criteria are that a project should be capable of integrating with existing infrastructure, and that its management and implementation will be undertaken by a partnership with local beneficiary communities. According to the government, the program has created numerous employment opportunities and is providing essential infrastructure in rural and low-income urban areas. The program received an allocation of Rs. 7.5 billion during 2001-02, which has been adjusted in accordance with the rate of utilization experienced last year. With the expected improvement of district governments envisaged through Pakistan's recent devolution reforms, the government expects the program to enjoy greater local ownership and to gain in importance.⁸

5.23 While systematic evaluations of the Khushal Pakistan program would be possible only after it has been in operation for some time, there are some critical aspects of its design and implementation that need to be considered if it is to attain its social protection objectives. One concerns targeting. A public works program can achieve targeting efficiency through geographic targeting of areas with vulnerable population and also by inducing self-selection by intended beneficiaries, in which case its wages should be no higher than the market wage for the relevant type of labor. Wage schedules also need to be gender-neutral, and to this end, certain kinds of wage structures (like piece wages) can facilitate participation of women. Another critical aspect relates directly to the risk mitigation benefits provided by the program. Such benefits tend to be high when access to the program is viewed as credible during times of need.⁹ Making Khushal Pakistan available at all times, and expanding it automatically during crises such as droughts and floods in affected areas, will accordingly maximize its risk mitigating qualities.¹⁰

5.24 Experience in other countries has also shown that delivery of benefits, as well as cost-effectiveness, can be enhanced by effective organization at the local level, by strengthening local governments, by building their capacity, and by ensuring incentive compatibility between local officials and line agencies. Facilitating empowering coalitions of the poor, like labor unions or community-based organizations, would also improve accountability of implementing agencies and act as a check against corruption and patronage. In this regard, the fact that the Khushal Pakistan program incorporates active community participation in program selection is a positive feature. And as noted by the Pakistani government, since the ongoing devolution program in the country can help strengthen local governments and create accountability, the success of the Khushal Pakistan will be linked to that of this broad devolution exercise.

Microfinance

5.25 As noted in Chapter 4 of this report, market failures in rural financial markets contribute greatly to the vulnerability of the poor by depriving them of access to credit and insurance. By lending to groups, which leverages the social information that the poor have about each other, microfinance schemes are often able to circumvent the informational problems that are responsible for the failure of the formal financial sector in rural areas, and are consequently able to achieve high repayment rates. Since credit and insurance are closely related in the context of the rural poor, microcredit also plays the important role of insurance against income shocks. A review of such microfinance programs in Pakistan upholds observations about the potential of this model but also suggests that many additional improvement and changes are warranted, including expanding coverage, deepening alliances with formal market institutions such as banks, and regularizing public support for some programs. In addition, there appears to be considerable scope for using microfinance institutions to channel additional services to local communities.

5.26 In Pakistan, the main impetus to microfinance has come from the NGOs, primarily rural support programs (RSPs). RSPs are an experiment with models of participatory development based on institution building, which incorporates microfinance. The overall strategy, pioneered by the Aga Khan Rural Support Program (AKRSP), seeks to establish self-help organizations and cooperatives whose leaders are to be trained continuously and redeployed for the benefit of village communities. In recent years, provincial as well as national RSPs, created to follow the pioneering approach of the AKRSP, have expanded their outreach significantly. At the end of 1999, 62 districts in Pakistan had been covered by various RSPs. The program has mobilized savings of Rs. 697 million and disbursed credit in the amount of Rs. 3 billion. In addition to the role played by RSPs, microfinance has spread rapidly through the efforts of numerous other non-governmental entities, both large and small.

5.27 These efforts share a number of positive characteristics. Microfinance service providers in Pakistan generally work with and through community-based groups that they have helped to form. They build the leadership, management and credit capacity of these groups before they commence lending. Concomitantly, almost all microfinance providers are engaged in the delivery of other services, most commonly social infrastructure, welfare services and improved natural resource management. The relative success of microcredit schemes launched by the RSPs is largely because their lending policies have been conservative.

5.28 In spite of its rapid expansion, significant challenges confront microfinance in Pakistan. It is still unable to extend coverage to the vast majority of the poor, and efforts like those of the RSPs tend to be concentrated in the northern areas. The rate of penetration is low in rural Sindh and Balochistan. Most microfinance programs are also unable to attain sustainability by charging sufficiently high interest rates and finding investment opportunities that yield returns higher than the cost of borrowed funds. The microfinance system thus needs to establish a sustainable framework in order to reach much larger numbers in future, rather than remain dependent on donor or government funds.

5.29 In order to promote efficiency, there may accordingly be a need to foster competition in the microfinance market both spatially and in terms of performance and customer choice. Non-traditional approaches, like partnerships with commercial banks, may also work to generate funds. There are some encouraging indications of such collaborations. Recently, the National Rural Support Program (NRSP) and the Sarhad Rural Support Program (SRSP) successfully negotiated with two commercial banks for credit lines for their lending operations.¹¹

5.30 In view of the heightened demand for microcredit in poor communities, the Pakistani government and donors for their part have realized the need for ensuring the supply of sufficient funds on a

sustainable and institutionalized basis. In order to guard against the possibility of deployment of these funds as vehicles for patronage and corruption, two major on-lending institutions have been set up to channel the funds, detached from the governmental bureaucracy by the intermediation of NGOs and the private sector. The Poverty Alleviation Fund (PPAF) has opted to disburse wholesale credit through selected NGOs, and a newly created Microcredit Bank has also institutionalized retailing credit to individual borrowers, through with the cooperation of nationalized commercial banks and local organizations (Box 5.3).¹²

Box 5.3: Recent Initiatives in Financing Microcredit Programs

The Poverty Alleviation Fund (PPAF) was launched in 1999 by the Government of Pakistan with a view to create an efficient mechanism for publicly financing community development programs and NGO projects. Technical assistance and initial funding to this end was provided by the World Bank. The Board of Directors of this autonomous body has 13 members, of whom 9 are civil society representatives. The autonomy of the PPAF and its emphasis on partnerships is intended to ensure that funds for poverty alleviation reach the targeted beneficiaries. The program will provide credit to the poor, small-scale community infrastructure projects, capacity building, institutional strengthening and training. To qualify for funding, an NGO has to have a track record of at least two years. To track carefully the kind of NGO programs that are funded by the PPAF and their impact, future evaluations of the PPAF are imperative.

The Microcredit or Khushali Bank was launched on August 11, 2000, in Dera Ghazi Khan, a poor district of Punjab. Its founding capital had been provided by a number of public and private banks, including foreign institutions. By the end of its 5th year, the bank is expected to cover all districts with a client base of 600,000 and a loan portfolio of Rs. 7.6 billion. The Bank is supposed to lend small amounts ranging from Rs 2000 to 15000, though these may in some cases be higher, on need basis. While the loans are at market-based rates and the bank plans to mobilize deposits from the public, the structure of the bank is non-profit oriented, which minimizes its intermediation costs. The processing of loans is further strengthened through the involvement of community-based organizations (CBOs) in lieu of the traditional collateral requirements of the commercial banks. The Bank management envisages achieving financial sufficiency within three years and full financial efficiency within five to seven years.

5.31 Notably, there are a few broad concerns regarding the operation of these institutions. With regards to the PPAF, an important question is how its benefits are being distributed across the country and among different kinds of community organizations. It can be argued that the community-based efforts that the PPAF would usually fund, are more likely to prevail in areas where a certain level of community organization already exists, perhaps due to a history of engagement with ventures such as RSPs. If indeed that is true, there is a risk that communities that are deficient in social capital and which are also likely to be particularly poorly off remain untouched. In order to address such concerns, the PPAF should focus efforts on identifying programs in "difficult" areas, where the existing social and political structures act as obstacles to efforts by communities to organize for their common good.

5.32 In order for the Khushali Bank to realize its potential impact, it will be imperative to avoid the pitfalls that have hamstrung rural credit provision in the past. Past failures have occurred mainly due to information problems, connected with the inability to monitor borrower performance. This in turn has necessitated collateral, which the poor do not possess. The challenge for Khushali Bank will be to retain the characteristics of microfinance that circumvent these information problems, while conducting operations on a scale much larger than attempted by NGOs. For sustainability, it will be imperative to achieve high repayment rates, while charging interest rates that cover the cost of lending.

5.33 For the long-term sustainability of microcredit, and the creation of conditions conducive to scaling up these programs, links between microfinance institutions and formal markets must be strengthened. In keeping with this objective, the State Bank of Pakistan (SBP) has envisaged licensing three categories of microcredit institutions at national, provincial and district levels, as public or private limited companies.¹³ This will enable them to raise capital and generally exploit opportunities in the formal sector. These institutions will however not be subject to the same degree of surveillance by the SBP as other banking institutions, allowing them the needed flexibility in operations. In this context, it

will be necessary to develop a regulatory framework that addresses the unique aspects of such enterprises, while promoting transparency and financial accountability.

5.34 Recent experiences in developing countries have also shown that the community-based characteristics of microcredit are applicable to the provision of an entire range of financial services to the poor, including saving services and insurance schemes that provide valuable risk management benefits. Examples of such initiatives can be found, among others, in the efforts of Grameen Kalyan in Bangladesh, which provides medical and life insurance to a sizeable number of the rural poor in Bangladesh. Such efforts have not been undertaken in Pakistan, and there is a case for initiating some pilot efforts that could test the viability of such programs. Public policy can support these efforts by providing technical and financial support in the start-up phase, and in the long term by creating an enabling legal and regulatory framework for such institutions.

Urban Housing and Infrastructure Programs

5.35 The programs described so far attempt to address different dimensions of vulnerability, primarily as a function of income. Because lack of secure and adequate urban housing is an important determinant of urban poverty and vulnerability in Pakistan, programs to improve access to this vital asset - initiated by the government and the civil society alike - are also assessed in the broad-based context of social protection strategies in the country. While there have been some less successful attempts to address this problem, trial projects have been promising. In aggregate, these experiences point to the need for greater community participation in leveraging limited resources, and for providing complementary income support and access to credit in the contexts of securing and improving urban living conditions.

5.36 One of the more neglected yet important correlates of urban poverty and vulnerability is the lack of adequate housing, combined with the lack of basic facilities like access to electricity, safe drinking water, and sanitation. Historically, most of the projects undertaken by the Pakistani government to meet the housing needs of low income groups have been such that either the end product was not tailored to the needs of the poor, or priced so high as to be unaffordable.¹⁴ The result of the failures of government housing schemes, coupled with rapid urbanization, has been that an estimated 40 to 60 percent of the urban population currently lives in *katchi abadis*, or non-regularized subdivisions on agricultural land.¹⁵

5.37 The living conditions in *katchi abadis* are associated with a high degree of risk for the inhabitants, arising from lack of security of tenure, and lack of basic amenities, like safe water and sanitation, which increases health risks. Programs to address the urban housing crisis should therefore have a significant impact on vulnerability. Responding to this need, the government in 1978 started the Katchi Abadi Improvement and Regularization Program (KAIRP). It envisaged infrastructure development and the granting of tenure for the residents of *katchi abadis*, against repayment of land and development charges. However, it has failed to achieve its targets for a number of reasons; these include the high costs of upgrading squatter settlements, lack of community participation, and lack of capacity and capability in the implementing agencies. In addition, there are no avenues for credit available to low-income groups and the poor for housing.

5.38 In contrast, less ambitious programs like the Orangi Pilot Project (OPP) that have sought to organize communities to help solve problems in securing infrastructure facilities like sanitation, have met with more success.¹⁶ Innovative programs like OPP share a few common features that suggest guidelines for future initiatives, whether initiated by the government or NGOs. First, they have accepted the situation on the ground with respect to the existence of these settlements and have refrained from imposing artificially high standards of construction and sanitation, which are well beyond the means of both the state and the households. Second, they have relied on the community's own involvement in

finding the solutions to their housing problems, for instance, in accessing the services of the line departments. They have also encouraged networking with technical experts.

Human Development – Education and Health

5.39 Education outcomes in Pakistan improved very little during the 1990s, especially in rural areas. Moreover, while key health indicators like infant and child mortality have shown some improvement, they remain poor in absolute terms and still lag well behind what is found in most countries at a comparable stage of economic development. In addition there are wide gaps in educational attainment between males and females and between rural and urban areas. Available health indicators document a similarly substantial gap between rural and urban areas. A shortage of facilities, a crisis in implementation, and low demand for some services are the three most important reasons for these failures.

5.40 As documented in Chapter 3, the availability and quality of facilities is critical to improving health and education outcomes. The evidence provides a strong basis for concluding that the scarcity of adequate facilities is a significant constraint on progress in health and education. The converse is more encouraging: more investments in facilities, despite potential demand-side problems, should have a strong impact on health and education outcomes if these investments are accompanied by major steps to correct the institutional failures and obstacles to delivery that have hampered access to quality services in the past.

5.41 Institutional obstacles were a key reason for the failure of Pakistan's Social Action Program, which to date represents the most concerted effort by its government and donors to remedy the country's social gap. It is also instrumental in the limited progress in preventive health care.¹⁷ According to PIHS (1996-97), only about half of the children in the country were immunized in 1996-97, implying that the national health system failed to reach over 9 million out of 19 million children of age 5 and under. Another serious indicator, highlighted in Chapter 3, is the prevalence of chronic malnutrition among very high portions of children in sampled districts. As detailed below, these failures points to the detrimental consequences of inadequate government support for social policy and the appropriation of expenditures by local patronage politics.

5.42 Pakistan's recent devolution and governance reforms are encouraging, yet as noted in Chapter 3, their success will be contingent on ensuring true competition in local elections. In addition, some federal intervention will probably be necessary in addressing intra-regional gaps. Beyond discussing relevant supply-side problems, this section also elaborates ways of tackling demand side problems born of social and other barriers to health and educational attainment. An indication of the former is that while family planning programs have been successful in almost universalizing knowledge of contraceptives, only about 20% of the women in childbearing age used some form of contraception in 1998-99. In the context of education, where low demand for girls' education appears to be a problem, the potential utility of incentive subsidies to households is considered, along with the potential for harnessing further private sector involvement in educational provision. To assess the performance of such reforms, there is a need for considerably better monitoring and collection of information on educational and health outcomes in Pakistan.

The Social Action Program

5.43 The experience of the Social Action Program (SAP) underlines the difficulties of a facilities-focused approach that neither addresses severe institutional nor demand-side obstacles to social progress. The SAP was launched in 1992/93 with the objective of furthering social development in Pakistan and has to date disbursed Rs.145 billion (See Box 5.4).¹⁸

Box 5.4: The Social Action Program in Pakistan

One of the main reasons for Pakistan's lackluster record in social development was the low level of public expenditure in this area. The SAP aimed at increasing public spending (especially non-salary operational expenditures), and improving the institutional and policy framework necessary to deliver services more effectively. Its failure to meet this expenditure commitment has been a major reason for its failure to date.

The SAP was been implemented in two Project phases. The first phase, SAPP-1, covered the period from 1993-94 to 1996-97. The second phase, SAPP-II, began in 1997-98 with a planned duration of five years ending in the year 2001-02.¹ The SAP agreements have required the government to raise the proportion of GDP spent on basic social services from 1.6 per cent in 1993-94, to 2.19 per cent by 2001-02. This has now been revised down to 1.95 percent in view of the severity of current macroeconomic adjustment problems. The Social Action Program ended in June, 2002.

However, in 1998-99, the Government's contribution to SAP reached a low of 1.46 percent, compared to the targeted 1.8 percent. Moreover, the gap between the Government's targeted and actual expenditure on SAP as a percentage of GDP has been increasing since its inception. A related concern is whether the rising recurring expenditures arising from net increments to sectoral capital stock as a result of successful SAP investments will be sustainable, given currently high budget deficits and low revenue mobilization potential, especially on the part of the provincial governments who are primarily responsible for the implementation of the program.

5.44 The program explicitly aimed at increasing the physical availability of services and improving their quality in four distinct target areas – elementary education, basic health care, family planning, and rural water supply and sanitation. It was targeted especially at the poor and women. To this end, the SAP emphasized building schools (especially for girls), basic health and family planning facilities in rural areas, engaging support staff from communities, and adopting a participatory, team-based management style at the facility-level.

5.45 Since the objectives of the SAP overlap significantly with those emphasized in this report, it is important to ask why the SAP, as the evidence suggests, fell short of its objectives. Measured in quantitative terms, SAP progress in the education and health sectors has been disappointing. Some improvements have occurred in health indicators and access to related infrastructure over the years of SAP-I.¹⁹ The program has also had successes in areas like immunization and the availability of Lady Health Workers. However, the gains have been marginal, and especially so in education, which has been the major area of focus. In fact it appears that SAP-I has succeeded more in terms of accelerating construction of facilities than in increasing the supply of educational materials, medicines and the on-the-ground delivery of services. Consequently, the impact on enrollments and other measures of school attainment have been limited or non-existent, as evident from the trends described in Chapter 3.

5.46 One reason for these disappointing outcomes is the continued politicization of the distribution of benefits under SAP. Implementation of the program was often used as a vehicle for patronage, at the expense of community participation and often in direct conflict with the planned goals.²⁰ For example, while many local landowners were willing to provide land for a school in their village, the motivation in most cases was that they could then hire teachers for the school as an act of patronage or, in some reported cases, to solicit bribes from teachers. This resulted in the phenomenon of "ghost schools" widely reported in some areas, and other forms of less extreme patronage and "elite capture".²¹ The politicization of SAP and the extent of patronage in the program probably had serious exclusionary effects on those communities that did not belong to the right political faction, giving rise to stark inter- and intra-district disparities.

5.47 Several sets of reforms are discussed here that are intended to dramatically improve the performance of future programs to promote human development. These include ensuring that devolution

succeeds in mitigating political problems that have undermined SAP; the explicit and increased use of private sector participation; and explicit attention to problems on the demand-side, including, importantly, the reluctance of some population groups to take advantage of service enhancements.

Devolution and Service Delivery

5.48 Future reform efforts must directly address the incentives and institutional arrangements that allowed and abetted the pattern of poor implementation that crippled SAP-1. Pakistan's new devolution plan, finalized in August 2000, is the most important current effort to do this (Box 5.5).

5.49 Devolution may lead to increased participation of communities in decision-making and greater accountability of government officials for better service delivery outcomes. However, as discussed in Chapter 3, whether devolution reaps these results will also depend on the extent to which it solves fundamental governance problems that have bedeviled earlier efforts to improve service delivery. Given the nature of political competition in Pakistan and the widely observed phenomenon that "traditional elites" seem to have won many of the local government elected offices, there are many reasons to temper one's optimism.

Box 5.5: Decentralization and Devolution in Pakistan

Pakistan's new devolution plan, finalized in August 2000, seeks to reform its over-centralized government in order to improve decision-making, accountability and service delivery.

The devolution plan has four major objectives: 1) "to empower the people at the grass roots level; 2) to subordinate district administrative functionaries to elected representatives, 3) to give financial autonomy to local government; 4) and to ensure "speedy justice at the doorsteps of the people." Special reference is made to those poor harassed and intimidated by corrupt police and local administrators. Accordingly, the plan will provide for monitoring of the police by union members, changes in judicial structure, police reforms, and separation of the judicial and administrative functions of local authorities.

The plan envisages the creation of full-fledged district governments with legislative and financial powers, serving below the federal and provincial levels. This structure has three-tiers, with direct popular elections to the first level: the Union Councils (UCs). The other two: the Tehsil Councils (TCs) and the Zila (district) Councils (ZCs) were indirectly elected by the UC members, acting as an electoral college. Co-elected Mazims and Naib Nazims head the councils at each level, and serve as members in the superceding electoral colleges. A salient feature of the election to all local government was that political parties were not allowed to promote their candidates, who instead had to run on individual ballots. A system of separate electorates for minorities endured, and one third of seats will be reserved for women. There will be a new system of fiscal transfers to the Zila districts through provincial finance commissions. Each district will be allocated funds on the basis of its size and its social and development need. Local budget planning will be done by the Union Councils and monitoring mechanisms will reportedly be built into the system to guard against corruption.

The plan is being implemented in several phases, with much work remaining. The question of how to mobilize local resources remains unresolved. Federal and Provincial governments are reluctant to share existing resources, particularly given the strained fiscal situation. At present, local government receives funds from the provinces, which themselves lack the funds for the delivery of the various services, especially in the social sector. Other key elements of the plan - the fiscal framework, administrative arrangements, civil service structures and management, and effective accountability and participation mechanisms - have also yet to be fully implemented.

The devolution plan was finalized after considerable consultations with stakeholders, including external donors. The inclusion of several established NGO representatives active in both the central and provincial cabinets has added credibility to the undertaking. Notwithstanding the continued influence of local elites, there is reportedly some evidence that new voices have appeared at the local level, contesting elite capture of local government and anti-poverty programs. These garner support mainly among those elected on the reserved seats for women and from peasants, workers, and NGO groups. It is not only Pakistan's experience, however, that the building of new institutions is rarely enough to make them work as intended.

Source: Interim PRSP (2001); Naseem (2001): "Government and NGO Programs in the Alleviation of Poverty in Pakistan: A Political Economy Survey"

5.50 As also noted in Chapter 3, optimism is more justified to the extent that newly elected local officials confront greater political costs in undermining education and health provision in order to generate patronage opportunities, relative to provincial and national government officials who have controlled these sectors in the past. This is likely to be true, since those who suffer from such diversion will find it easier to punish local officials when they transfer resources from some district inhabitants to others than when distant politicians in Islamabad or Lahore transferred resources entirely away from their district. Optimism is further justified if, under the structure envisaged by devolution, there are more checks operating on officials who try to provide patronage. Until now, the highest district officials have been able to make decisions in a strictly hierarchical fashion. Under devolution, however, the District Nazims could potentially be checked by the district councils, provided that the councils and Nazims are independent of each other.

5.51 Of course, a necessary pre-condition for positive changes is that elections at the local level be competitive. If one or two families, *biraderis* (kinship groups), or individuals dominate electoral competition in most Union Councils throughout a District, then one would expect little change in public good provision. A preliminary analysis of the elections does suggest that these were generally competitive, though the impact of devolution, especially on measurable indicators of education and health, will only become apparent over a long time horizon.

5.52 However, two important issues regarding service delivery are not solved by devolution. First, there are severe distributional inequities in the provision of health and education, most of which extend across districts. In addition, there are inequities across the rural-urban divide. These problems therefore require attention at higher levels of government. It is also important that the government focus on the issue of equity and enact measures aimed at reducing problems of differential access for disadvantaged groups, which as discussed in Chapter 3, may be relevant particularly in the case of access to education.

5.53 Second, there are significant demand side problems – difficulties in encouraging families to take full advantage of the services that are made available in the health and education sectors. This appears to be especially true in the context of parental resistance to the education of their children, and in particular to girls' education in rural areas. Addressing such demand-side issues may require interventions that seek to overcome social barriers to girls' education through incentives, monetary and otherwise, to parents. Such interventions are likely to be beyond the resource capacity of local governments, and are in any case likely to be politically contentious in districts where this is a problem. They will therefore require significant resources and the continued, even increased, involvement of higher-level governments.

5.54 The government's medium term health strategy rightly takes such concerns into account. It is concentrating on prevention and control programs, especially in the area of reproductive health, child health, nutrient deficiencies and communicable and infectious diseases, where demand-side problems are most acute. Programs include adoption of strategies against TB and malaria, measures for preventing the spread of Hepatitis B, HIV, and AIDS through immunization and public health campaigns. Distributional concerns are also paramount, since the strategy promotes targeted interventions that focus on disadvantaged sections of society, especially in rural areas, through programs like Lady Health Workers Program and Women Health Project.

5.55 A community based focus for health policy is also in line with the observation made in Chapter 3, that community-specific characteristics, such as wealth and possibly the presence of quality health facilities, strongly determine health outcomes in Pakistani children. This is particularly the case for the noted chronic deficiencies in child anthropometrics, e.g., height and weight, in rural communities – a symptom of malnutrition and other health problems. There is accordingly a clear need to target health interventions at poorer communities.

5.56 Specific ways to solve the demand-side problem in the delivery of social services are still under discussion. One intervention that has met with success is outright subsidies to households, such as the Bangladesh Food-for-Education and Female Education Scholarship programs, which link food transfers and scholarships for poor households to primary school enrollment of their children, particularly girls (Box 5.6).

5.57 In Pakistan, Food for Schoolgirls, run by the World Food Program, is one program that addresses the problem of demand-side incentives. Implemented in selected government girls' primary schools in rural Balochistan and NWFP, it provides an inducement in the form of a tin of edible oil to each student if she attends school for 20 days in a month. The project is still not at a stage where it can have a tangible impact on keeping girls in school, and dropout rates are still high. It does seem to have increased enrollment rates, and with greater community awareness, the WFP feels that enrollments can eventually be sustained without the oil incentive. Going by experiences like these, there is a strong case for extending the role of demand-side incentive programs for education in Pakistan.

Box 5.6: Food for Education and Female Education Scholarship Programs

In Bangladesh's Food-for-Education (FFE) program, households with a child in primary school receive a certain amount of wheat or rice per month, provided the children attend at least 85 percent of their classes and the family sends all children of primary school age to school. The program has achieved wide coverage – an estimated 2.1 million households, covering 1243 unions out of approximately 4500 in the country. Another example of a program that provides demand-side subsidies is Bangladesh's Female Education Scholarship Program. According to this program, female students are given a stipend as they progress through secondary grades 6 to 10. The stipend provides for full tuition and examination fees at all grades; it also covers an increasing proportion of the cost of textbooks, school supplies, uniforms, shoes, transport and kerosene (for lamps) as students advance to grade 10, reflecting the higher direct and opportunity costs of enrollment in the upper grades. Evaluations showed that participating schools witnessed a sharp increase in female enrollment, including a reduction in dropouts, though there was no impact on repetition rates.

Source: Burnett (2002). "Pakistan: Working with the Private Sector in Primary and Middle School Education", World Bank

5.58 An additional element in future strategies to increase access to health and education should be to recognize the already important role of the private sector. As noted in Chapter 3, there has been considerable growth in private schooling since the denationalization of 1979, particularly in the rural areas. Moreover, preliminary evidence suggests that these schools provide better quality education than government facilities, at a lower total cost per student, and no longer cater only to an urban elite. There is some evidence, as noted in Chapter 3, that private schools have a positive impact on educational outcomes, particularly in regards to encouraging female enrollments. The government of Pakistan's Education Sector Reform (ESR) program recognizes the opportunities embodied in the growth of private education, and rightly places a high priority on strengthening public-private partnerships in the delivery of educational services. The ESR proposes a number of incentives for private schools, including fiscal incentives such as concessional rates on land and utilities, increased endowments for the Education Foundations, and the outsourcing of government schools to the private sector.

5.59 These are particularly urgent in light of the constraints faced by the government to quickly extend universal access, even in urban areas. Future reforms might therefore include providing choice to parents in the form of vouchers for education at private schools, or as direct subsidies to private schools. These subsidies would be especially pertinent in urban areas where private schools are more common, and in communities where public school facilities are non-existent or inadequate.

5.60 The Quetta Urban Fellowship Program is one interesting example of the use of such subsidies. There, private schools controlled by communities in poor neighborhoods of Quetta were encouraged to establish new facilities for girls through subsidies paid directly to the schools. While boys could also enroll in the fellowship schools, they could not make up more than half the total enrollment, and schools received no subsidy for enrolling boys.²² An evaluation of the program reveals that it had a positive impact on female enrollments, increasing girls' enrollment in the target neighborhoods by around 33 percent. Interestingly, boys' enrollment rose as well, partly because boys were allowed to attend the new schools, and partly because parents would not send their girls to school without also educating their boys.²³

5.61 Notably subsidies to private schools or vouchers to parents entail complicated choices. The arguments in favor of subsidies are that private schools are more efficient and that public-private competition tends to improve quality. These need to be weighed against counter-arguments that contend that scarce public resources would be better spent in improving the public school system, which has more universal reach. In addition, as discussed in Chapter 3, the non-standardization of private educational provision makes it difficult for parents to distinguish between low and high quality schools, which can lead to inefficient outcomes if poor quality institutions can get away with charging high prices. A proper regulatory framework is crucial to address these potential informational problems, with the important caveat that this framework not be so burdensome that it forces private schools to raise their fees in response to higher costs. For example, a national assessment mechanism can help in determining the relationship between price and school quality, and greatly facilitate parental choice. The national assessment currently being implemented by the education ministry represents a beginning in the direction of making such information publicly available.

5.62 Private-public sector partnerships can also be advanced in health. For example, the government's Health Policy calls for a strengthening of public-private sector partnerships. These include requirements that every medical college in the public and private sector adopt at least one district hospital or primary health facility in addition to the teaching hospital affiliated to it. There are also regulatory reforms directed at the private sector, specifically with regards to the accreditation of private hospitals/clinics, and at improvements in the government's capacity for quality control of drugs.

5.63 Fundamentally, a comprehensive health policy framework is conditional on the availability of adequate health data, and as discussed earlier, such data is seriously lacking for Pakistan. Specifically, there has been no comprehensive national study of private health facilities in Pakistan, which poses a critical impediment to further efforts that would seek to promote public-private health partnerships. In regards to data collection, a broader priority for the government should be the development of a disease monitoring and information gathering system that would regularly gather information on relevant health indicators, and impose rigorous standards of record maintenance in health facilities.

Coordinated Strategies for Addressing Rural Poverty

5.64 Two thirds of Pakistan's poor live in rural areas, and given both the weight and specific determinants of rural poverty, it is particularly important to devise a coordinated strategy for addressing rural poverty in the country. As discussed in Chapter 4, a central concern is the fact that agricultural productivity is in absolute terms very low in Pakistan and needs improvement. Accordingly, this report surveys the structural constraints on farm productivity, e.g., the limitations on access to productive resources; principally, land, irrigation, soil fertility, and credit. A related and important concern is that growth in agriculture apparently failed to mitigate rural poverty in the 1990s compared to the previous decade. While a rigorous and comprehensive analysis of this puzzle was not possible using the data available to this report, such work is being undertaken in the context of ongoing Bank work.

5.65 In regards to constraints on productivity in the farm sector, there is first a need to improve household access to assets, in particular land. Historically poor outcomes of land and tenancy reforms, examined in light of some innovative new initiatives, point to the importance of improving not only the distribution of land but also complementary access to agrarian inputs and credits. Improving credit allocation generally requires moving away from supply driven mechanisms, and improving and broadening micro-credit practices noted earlier. Programs that promote investments in the non-farm sector should be further encouraged since diversification out of agriculture has been shown to mitigate rural vulnerability and poverty. Particularly in light of Pakistan's growing drought problem, which has caused water resource deterioration the chapter highlights programs that improve access to rural infrastructure, focusing on efficiency in irrigation. Increased public investment is warranted here, but some successes to date stress the importance of local governance reforms, particularly in the form of more community participation in local land and resource management. As the title of this section suggests, these and other measures should be designed and implemented in a coordinated fashion, due to considerable interrelationships among the various constraints addressed.

5.66 Before elaborating on these strategies, it is important to note that an overarching precondition for their success in promoting growth in agricultural productivity is that they be undertaken in the context of wider macroeconomic and fiscal policies that are conducive to such growth. Crucially, this entails avoiding price distortions that skew incentives for the agricultural sector, about which there are still some outstanding concerns. It is encouraging, however, that policy initiatives announced by the government do address some of these. The I-PRSP documents a few interventions for the agrarian sector which can be broadly summarized as follows: improving incentive structures for farmers (price reforms), upgrading technology and marketing (better cropping patterns, corporate financing), improvement in access to land by distributing government land to poor households, and improving efficiency in use of water (irrigation reforms).

Improving access to assets

5.67 Rural assets such as land continue to be of critical importance, in view of the evidence in Chapters 2 and 4 about the negative impacts of the observed highly unequal distribution of land and other key assets, on investment and productivity, in addition to the vulnerability issues also discussed. The sharp inequities that prevail in ownership of land, and the friction in the markets to lease land, militate for land reform. However, such reforms are politically problematic to implement. To date, experience in Pakistan has been mixed at best. Previous major attempts at land reform, undertaken during the regimes of Ayub Khan (1962) and Zulfikar Ali Bhutto (1972), have not succeeded in redistribution, particularly to tenants and landless, and also appear to have been ineffective in ensuring security of tenure.

5.68 Redistribution should be accompanied by tenancy reform, in order to prevent eviction of tenants by landlords in the anticipation of land reform. The evidence on tenancy reform seems to suggest that it often remained confined to paper transactions with little real significance, and, while landowners may not have directly evicted their tenants, they may have made the situation unbearable for tenants to continue surviving on their land. This is especially so in Punjab, where the relative success of reforms has also had the unintended and unfortunate consequence of creating an expectation among Punjabi landlords of more reform in the future, resulting in a disproportionate rate of tenant evictions in this province, compared for instance to Sindh.

5.69 An alternative strategy to provide better access to land could involve market-based land reform. However, the diagnostics in Chapter 4 suggest that the potential for such reform is very limited in an environment where both land sales markets and land leasing markets function poorly. As Chapter 4 points out, a possible precondition for serious land reform might be to improve the market environment for purchase and lease of land, notably by improving the legal system for enforcing foreclosures on the

one hand and access to credit on the other. Landless farmers who cannot provide collateral are particularly constrained in obtaining credit for purchasing or leasing land. As illustrated in Box 5.7, a possible intervention to remedy this may involve fostering innovative linkages between two government interventions that already exist, in the areas of micro-finance and land allocation.

Box 5.7: Innovative Experiments in Micro-finance and Land Allocation

NGOs working for the rural poor have often intermediated in credit markets through micro-finance programs. There are organizations of the landless poor, however, that have also begun experimenting with intermediation in the land leasing market. Case studies of two such NGOs, in the Sanghar and Khairpur districts of Sindh, have revealed innovative models of intermediation. These organizations rent land on the lease market and then sub-let it to individual members on the basis of deferred rental payments. The organizations use their social collateral to raise capital from larger NGOs, thereby relieving their members' liquidity constraint. They also allowed income smoothing for their members over 4 to 6 crop cycles, thereby alleviating vulnerability to risk. Both of the experiments resulted in sustained improvements in the asset positions of their participants.

Surveys in the field areas of rural support programs (RSPs) in two districts of southern Punjab (Multan and Dera Ghazi Khan) reveal informal attempts at similar interventions by RSP supported community organizations. The design of the micro-finance programs of the RSPs, however, is not well suited to sustained intermediation in the land leasing market.

The NGO experiments in the leasing market are significant because they represent attempts at tackling the problem of land inequality in an innovative manner by working through existing markets. Their economic role in the leasing market was analogous to the now familiar role of intermediation that community organizations play with respect to micro-finance. Encouragingly, there is already a wide network of RSPs in Pakistan, which might be able to expand the scope of such innovative experiments, and when appropriate, to take them to scale.

Source: Gazdar, Khan and Khan (2002). "Land Tenure, Rural Livelihoods and Institutional Innovation"

Improving access to credit

5.70 As Chapter 4 concludes, access to institutional credit is severely restricted in rural Pakistan, with the bulk of the cultivator households, in particular the landless, being rationed out of the market. Improved access to assets (collateral) should have a useful impact on access to credit, in particular institutional credit. However, the import of credit access extends beyond collateral problems in two ways: to expand the ability of poor farmers to undertake productive investment, and to enable poor households to smooth their consumption and mitigate risk. To smooth consumption has been discussed in the context of social protection earlier in this chapter. To undertake productive investment underscores the crucial link between agricultural productivity and rural poverty on the one hand, and access to credit in rural areas on the other.

5.71 By and large, credit programs in rural Pakistan have not only been unable to address the credit market needs of the rural poor but have also been difficult to sustain financially. Reforming the financial sector will thus be imperative, though not easy in an environment where asset inequality is severe. One problem is the supply driven nature of existing programs to expand credit in rural areas. In this regard, Pakistan's experience mirrors that of many other countries. These demonstrate that creating a viable rural credit delivery mechanism will require (i) deepening of financial intermediation through mobilization of savings in rural areas, (ii) moving away from a supply driven delivery mechanism to a market based system which creates an enabling environment for private sector participation, (iii) utilizing innovative and alternative savings mobilization and credit delivery instruments for small farmers and non-farm producers (such as microcredit) who tend to remain outside the network of formal financial institutions.

5.72 As discussed earlier, access to institutional credit in rural areas, particularly for the poor, is severely constrained by market failures due to information problems that arise from the isolation of the poor from financial markets. While microcredit provides a viable alternative to formal markets, it should

not be seen as a panacea for all credit problems. For instance, microcredit has been found to play a more successful role in smoothing consumption and helping with small investments in household enterprises than in productive investments of the kind usually necessary for agriculture. There is thus a need to understand the strengths and limitations of microcredit institutions in rural areas.

5.73 Other solutions to lack of access to credit for farm investments must also be examined, such as the reasons why the existing village banking network has proved highly inadequate in satisfying credit needs, and possible reforms that can address weaknesses in this sector. A decline in the number of banks and a fall in the share of commercial lending in total agriculture credit in recent times all suggest that financial markets in rural areas have thinned, instead of deepening, during the 1990s.

5.74 A long-term strategy in deepening the financial market would have to focus on institutional reforms to address information problems in rural credit markets that are primarily responsible for market failures. The focus should also be on exploring ways to create an enabling environment for private sector participation in the rural financial sector. Doing so will involve providing the right incentives (avoiding subsidies and bailouts that distort incentives), and creating institutions that promote transparency through oversight and prudential regulations. Overall, the further specification of rural financial reforms is subject to a complex set of factors, which require rigorous analytical work using recent data, beyond what has been undertaken to date.

Improving opportunities in the non-agricultural sector

5.75 As noted in Chapter 4, the non-agricultural sector is a significant source of income for both rich and poor households and constitutes an important de facto stabilizing influence on the latter's incomes. Indeed, wage labor in the non-agricultural sector, particularly in unskilled occupations, are a major source of income and employment for the poorest quintile of the rural population. These findings suggest that facilitating investment and productivity in non-farm enterprises that result in raising wages and profits would have an impact on large sections of the rural poor. Improving the investment climate and providing better access to inputs and credit would be necessary, especially for the small household enterprises that typically face binding credit constraints.

5.76 It is also important to bear in mind that growth and productivity of the rural non-agricultural sector are inexorably linked with those of the farm sector. In order to exploit these linkages, rural policy must seek to integrate strategies to address issues in the agricultural and non-agricultural sectors. Notably, a strategy that takes into account the range of complex issues must be informed by more analysis to better understand the constraints to productivity and growth of the non-agricultural sector.

Improving access to infrastructure

5.77 Since opportunities tend to be higher for communities that are better connected to markets, there is a need to extend access to a broad range of facilities in the agricultural sector, including electricity, roads, and other forms of communication. In the context of access to rural infrastructure, of critical importance is the availability of adequate water for irrigation and domestic use, which constitutes a key constraint in Pakistan's rural economy. Due to arid or semi-arid climate and inadequate water resources, cultivation in Pakistan is overwhelmingly dependent on irrigation. The problem of water shortage has acquired even more importance in the wake of acute droughts in 2000 and 2001. Although many parts of Sindh and Balochistan had been experiencing drought-like conditions from before 1998, the situation worsened during these years, engulfing the entire country. The continuing dry spell has affected agricultural output, causing value added in the agricultural sector to register negative growth (at -2.5%) as against growth of 6.1% during the previous year.

5.78 Since increase in agricultural productivity requires increased water availability, an expansion in production depends on improving the efficiency of the existing irrigation system. The recently formulated government water management program has focused on creating additional storage capacity through projects like Gomalzam and Meerani dams, Rainee, Thar and Kachi canals and the lining of watercourses. These initiatives are expected to provide additional storage capacity of 4.5 million-acre-feet of water. While initiatives to expand capacity will help address the problem, for various reasons, prospects for further expansion in irrigated areas through new investments in storage capacity, expansion of perennial irrigation, and ground water exploitation appear to be limited. In light of this, improvement in the efficient use of currently available water use seem to be the most viable and sustainable option for increasing productivity of irrigated agriculture.

5.79 According to some estimates, around 25 million-acre-feet of water are lost every year in the system due to low water management efficiency. Indeed the evidence in Chapter 4 shows that there is considerable room to improve the efficiency of the irrigation infrastructure. Delivery efficiency has been deteriorating over time because of poor incentives for the irrigation department to invest in maintenance. In addition, there is considerable wasteful use of canal water because of the flat rate charges. Finally, rent-seeking behavior by large landowners and irrigation officials has led to misappropriation of canal water, which has in turn increased the existing distributional inequities. In light of the evidence in Chapter 4 on the productivity increases that can be attained by increasing canal water availability, removing these existing inefficiencies in canal water infrastructure could be an effective strategy to increase agricultural productivity.

5.80 Efficient management of tubewell and canal water irrigation is also important because it can affect salinity and water logging, which have a significant negative impact on productivity. The strategy to reverse these problems requires both public and private investment. An integrated drainage system with proper lining of the canal is important in reducing seepage that contributes to water logging. Notably, the public sector has to play a leading role in both development and maintenance of drainage system and lining of watercourses, because these are essentially a public good, and require large investments. In addition, communities can be mobilized to maintain and improve the irrigation structures. In this context, the success of RSPs in organizing communities to build and maintain infrastructure has been encouraging.

5.81 Since private on-farm investment can also substantially reduce land degradation, an important policy intervention would be to create an environment that encourages such investment. Evidence suggests that security of tenure and ownership of land have significant effect in this regard, which further reinforces the importance of land and tenancy reforms. Indeed, as noted throughout this chapter, it is important to emphasize that strong inter-linkages exist among the main policy concerns with respect to the rural economy and rural poverty, and which must be addressed in a coordinated fashion if a rural poverty strategy is to be effective.

Conclusion

5.82 As first noted in Chapter 1 of this report, Pakistan currently finds itself caught between two apparently competing constraints. On the one hand it confronts a social gap that has undermined growth and limited the country's ability to alleviate poverty, and on the other, it must service its substantial national debt, servicing which absorbs most of the public resources that might be used to close the social gap.

5.83 Yet as this report has argued, policies that would force a trade-off between fiscal viability and human development are unlikely to be sustainable or successful on either of these fronts. If Pakistan does not close its social gap, its long-term ability to grow economically and to sustain its debt are slim. The

report points to serious gaps in what is known about poverty, growth and human development in Pakistan. Nevertheless there is already considerable available information and more is being gathered. It indicates that in part, in so far as they cut across social, macroeconomic and fiscal domains, Pakistan's current problems denote a wider crisis in governance.

5.84 To a great extent, these underlying problems have prevented the country from making better use of its scarce resources, much as they have also impeded private sector growth and discouraged private investment. Unless these problems are rectified, large infusions of donor assistance, whether in support of private sector activities or social goals, are unlikely to produce the desired impact, as shown already by the relative failure of Pakistan's Social Action Program. Despite the uncertainties associated with recent political changes, this appears to have been recognized by its government, which has responded with the recent devolution reforms.

5.85 To tackle the outstanding issue of poverty in Pakistan and its concomitant social gap, this chapter accordingly identified a number of strategies and tactics focused particularly on institutions. These included expansion of microcredit to improve access to credit, community organization to manage rural resources, and governance reforms to improve access to services. The poverty focus of the economic reform program as articulated in the PRSP encompasses many of the elements highlighted here. Sustaining the current impetus of reforms and implementing comprehensive, mutually reinforcing interventions to spur growth, reduce poverty, and promote human development remains an enduring challenge for stakeholders in the country's development, including the World Bank.

¹ World Bank (1995)

² At present, zakat collections amount to Rs. 5 billion, and reaches around 2.5 million beneficiaries – a small fraction of the population that is in need of such assistance.

³ World Bank (1995) and Jehle (1995). Further, estimates based on HIES (1996-97) data indicate that only around 29 percent of the direct benefits went to the bottom expenditure quintile among households

⁴ See SPDC (1999), Subbarao et al (1997).

⁵ As reported by the I-PRSP (2001)

⁶ By June 1997, more than 37,000 employers were making contributions for 1.2 million registered workers, supplemented by a federal grant of up to Rs. 1 billion every year.

⁷ Examples include large initiatives like the Rural Works Program (1962-72), and the Peoples Works Programs (1972-83), neither of which fulfilled its role in creating infrastructure and providing safety nets to the poor during times of stress (see Naseem, 2000 for a discussion of the history of Works programs)

⁸ As reported in Interim-PRSP, GOP (2001)

⁹ The FFW program in Bangladesh is a case in point.

¹⁰ The Employment Guarantee Scheme (EGS) in Maharashtra state of India is an example where risk mitigation benefits are high due to such a record.

¹¹ UNDP (1998)

¹² The World Bank and the Asian Development Bank have partially contributed to the funding of the PPAF and Khushali Bank initiatives, respectively.

¹³ Depending on the type of license each would qualify for, these institutions must have a minimum paid-up capital of Rs. 50 million to Rs. 1 billion.

¹⁴ E.g. Korangi Township in the 1960s, Zakat Housing in the 1980s

¹⁵ While the overall urban population growth rate is around 5%, informal settlements or katchi abadis are estimated to grow at over 9% percent per year, with an upward trend (Nassem, 2001). It is estimated that in Karachi, 40% of population lives in katchi abadis, which accounts for about half of all those living in such urban settlements in Pakistan.

¹⁶ Largely inspired by the success of the OPP, a number of housing programs for upgrading the katchi abadis have been initiated in recent years, especially in the sanitation sector. These include large programs in Karachi, Sukkur, and Hyderabad; there has also been OPP collaboration with NGOs in a number of places like Lahore, Faisalabad, Okara, and Gujranwala.

¹⁷ See, for instance, report by SPDC (2000)

¹⁸ Donor financing and technical assistance for SAP, amounting to about 20% of the total expenditure, has been available since 1993/94 and has been an important driving force in its implementation.

¹⁹ Proportion of population without access to safe water has fallen from 50% in 1992-93 to 40% in 1995, and proportion of those without access to adequate sanitation has fallen from 67% in 1993 to 53% in 1995. There have also been some increase in life expectancy at birth and rate of use of contraceptives, along with small reductions in fertility and population growth rates.

²⁰ See, for instance, results from a field survey conducted by Ercelawn and Zaidi (1999). They also found little evidence of NGO involvement in SAP, contrary to one of its stated aims – indications were that NGOs had little or no contact with SAP-related elected and non-elected members.

²¹ Moreover, Naseem (2000) quotes unofficial reports from a probe conducted by the Army, that refer to the existence of hundreds of such schools (some of which were used to keep the livestock) along with thousands of absentee teachers who were found drawing salaries on regular basis.

²² The initial subsidy was Rs. 100 per month per girl enrolled, with an upper limit of Rs. 10,000 per month.

²³ See Alderman et al (1999).

Annex to Chapter 2

2.1: Availability and Use of Household Data

The surveys used are the Household Income and Expenditure Surveys (HIES – for years 1990-91, 92-93, 93-94, 96-97), and Pakistan Integrated Household Survey (PIHS – 1998-99). All HIES up to 1996-97 were conducted independent of the PIHS. The PIHS covers many other topics besides those of consumption and income focused on by the HIES and therefore has a much more wide-ranging household questionnaire, along with a community questionnaire. The PIHS conducted during the 1990s have also been on a smaller sample of households than the HIES.¹ Because of the differences between the sample size as well as questionnaire between the HIES and PIHS surveys, poverty estimates and household characteristics that correlate with poverty were not completely consistent between findings from HIES and PIHS in the past.²

Unlike in previous years, in 1998-99 PIHS is essentially a combination of PIHS and HIES into a single integrated survey, with a sample size comparable to that for the HIES in previous years. However, some other changes have occurred in 1998-99 that has implications for comparability across years. Since a part of the objective of this chapter will be to examine trends in poverty over the years, issues of comparability across surveys are important and merit a discussion.

Issues that Affect Comparability Across Surveys

There exists a high degree of comparability between HIES for all years between 1992-93 and 1996-97, since the same questionnaire was used for all these years, identical sampling techniques used, and sample sizes were also similar.

Comparability between the HIES data from 1990-91 and those from later years is compromised primarily by the fact that the sample size in 1990-91 was substantially smaller than in subsequent years – 6693 households in 1990-91 compared to 14594 in 1992-93. One should thus be cautious about making comparisons between the poverty estimates for 1990-91 and those for subsequent years.

The 1998-99 data, being a combination of HIES and PIHS, offer the unique opportunity of analyzing information on service delivery and human development in a large sample, with concomitant detailed information on household consumption. It also eliminates the possibility of discrepancies and contradictions between finding from separate HIES and PIHS data.³ However, the 1998-99 survey has incorporated some changes that may adversely affect comparability of household consumption expenditures, which determine poverty status, with findings from previous HIES data.

Firstly, in the 1998-99 survey, the household expenditure module has undergone some changes from previous years – expenditures are now reported in less detail, with some relatively minor categories of expenditure being combined into single categories. However these changes are firstly, few in number and secondly, applicable to minor categories of consumption, which should not substantially affect comparability with previous surveys.

¹ The PIHS for 1991, for example, sampled only 4794 households

² For a more detailed discussion on the findings from HIES and PIHS, see Howes and Zaidi (1994)

³ See Howes and Zaidi (1994) for a detailed discussion on past problems with consistency between HIES and PIHS findings

Secondly, a large proportion of the food items consumed by households are reported as fortnightly figures in the 1998-99 PIHS, unlike in previous surveys where monthly consumption figures were reported for all food items. This change in the recall period may affect comparability with previous surveys. In this context, it should be interesting to consider the implications of an ongoing debate on Indian data -- about the effects of changing the recall period for some consumption items from the previously used 30-day period to a combination of 7-day and 30-day periods in the 1999-2000 round of the NSS in India.

Thirdly, although the surveys use the same methodology in sampling, the sampling frame has changed somewhat. The 1998-99 PIHS for rural areas adopted a new sample framework based on the lists of villages from the Housing and Population Census of 1998, whereas HIES used the information from the 1981 Census. The main problem with this appears to be that since only the rural sample framework was changed, if one were to consider the Census as representing the "true" composition of the country's population, the household survey appears to overestimate the rural population.⁴ This affects the overall estimate of poverty, as well as comparability across years.

Finally, comparing across surveys, it seems that the average household sizes, particularly for households in the lowest expenditure categories, are significantly higher in the 1998-99 PIHS compared to the HIES from 1992-93 to 1996-97. This is hard to explain, since there is no reason to believe in a sharp demographic transition in the space of two years. The fact that this difference exists suggests a systemic difference in techniques of data collection between the different surveys. Obviously, this works to the detriment of comparability of the 1998-99 survey with previous ones. This issue will be explored in greater detail later in this chapter.

While the lack of comparability arising from the factors outlined above remains a problem, the analysis has maintained consistency in methodology for estimating household expenditures and constructing price indices for all the surveys.

2.2: Estimating Expenditure and Poverty

Measurement of Household Expenditure⁵

All expenditures for households and across different categories of items are calculated as monthly values. The aggregate household expenditure includes expenditures on food, fuel, housing, other non-durable goods and services (reported as monthly or yearly expenditures), and certain kinds of expenditures on durable goods. Expenditure on consumed items are included whether they were paid for, or received as gifts or payments in kind. Items left out from expenditure estimates are expenses on taxes (including house and property tax) and fines. The only yearly durable expenses included in the expenditure calculation are expenses on services and repair charges of household effects.

The household expenditures thus obtained are then adjusted for price differences. The adjustment factors used here are household level Paasche Indices based on implicit prices computed from the data, normalized by appropriate average price indices; details on how these are constructed are available from the background note. The final step is to normalize the household level Paasche

⁴ Share of rural areas in total population is 71% according to the 1998-99 PIHS and 67% according to the 1998 Population Census

⁵ See the background note "A Note on Poverty Estimates for Pakistan in the 1990s: Issues and Preliminary Findings from HIES Data" (2001) for a detailed description of the expenditure categories.

indices by average price indices, yielding two kinds of household-specific price indices – one adjusts for price differences across the entire country, the other for intra-region (within urban or rural regions) price differences. The former are used to deflate household-level expenditure estimates to make them comparable across all households. The latter, on the other hand, are used to deflate household expenditures which can then be compared with separate urban and rural poverty lines to determine whether a household is poor or not.

It is important to note that the price indices just described take into account only food prices. Household expenditures adjusted by these price indices thus implicitly assume that costs of living are exactly proportional to the relative food prices faced by the household. This may be problematic; in particular if there is reason to believe that relative costs of certain items like the housing in urban areas vis-à-vis rural areas may be higher than that of food items. But in practice, calculating implicit prices of non-food items is even more problematic, because of factors like non-availability of quantity information and very high heterogeneity in quality. On account of these difficulties, only food prices are used to compute the price indices, which is a standard practice in poverty analysis.

In order to measure welfare at individual level and to estimate poverty rates, it is also necessary to adjust household consumption expenditure by household composition – for which household expenditure is corrected by the per adult equivalent in the household, which is calculated by simply weighting all household members younger than 18 as 0.8, and all other household members as 1. While this may appear as oversimplifying the problem of adjusting for the composition of a household, using a more complex equivalence scale, for instance one that differentiates between sex and various age categories, is even more problematic. This is because such scales are generally based on calorie requirements, and are therefore applicable only to food consumption, and not to the vast array of other items that enter into household consumption.⁶

Adjusting consumption expenditure for household economies of scale: an investigation

There are also sound arguments for adjusting household expenditures for household size, to allow for economies of scale in consumption. The expenditure and poverty estimates in this report are however calculated *without* such correction. While ignoring the scale factor may lead to understating the welfare of people who live in large households, making such adjustment is also problematic, primarily because it is hard to define the precise adjustment applicable for Pakistan. Moreover, such adjustment will also affect the comparability of poverty estimates for the years since 1992-93 with estimates from previous years, which had been conducted by previous reports without taking the scale effect into account.

However, it is important to investigate, at least in a rough sense, whether poverty trends during the 1990s are sensitive to reasonable scale adjustments. This is all the more important, given the concern, outlined later in this Annex, about the comparability of household sizes in the 1998-99 survey with those from the previous ones. To investigate the effect of scale adjustment, a somewhat arbitrary method is adopted, used in related literature for developing countries.

According to this method, the number of equivalent adults is determined by the formula: $AE = (A + s.C)^s$; where A is the number of adults, C is the number of children in the household, the parameter s is the cost of a child relative to that of an adult, and equal to 0.8 as mentioned above.

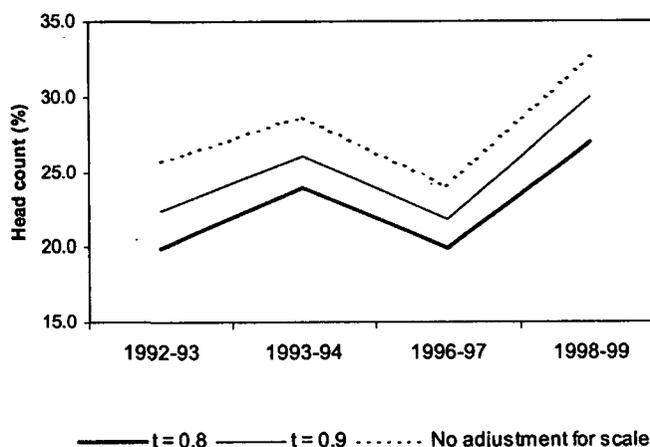
⁶ Identical equivalence scales have been used for previous poverty analysis with data from Pakistan, including the Pakistan Poverty Assessment (1995) and Poverty in the 1990s, Federal Bureau of Statistics (draft Report, 2001)

The other parameter, t , which lies between 0 and 1, controls the extent of economies of scale. When t is set to unity, the expenditure measure does not adjust for household size.

If economies of scale are thought of as arising from the existence of shared public goods in the household, then t will be high when most goods are private, and low when a substantial fraction of household expenditure is on shared goods. Since households in poor economies spend a large proportion of their budget on food (around 50% for Pakistan), and since food is an essentially private good, economies of scale must be limited, and t should be set at or close to 1.

For the purpose of this analysis, t is set between 0.8 and 0.9. Table A-2.1 compares head-count poverty measures (using poverty lines specified in the next section, *with* necessary adjustments for the value of the scale parameter t) with $t = 0.8, 0.9$ and 1. As the table shows, poverty estimates tend to be lower when t is set at less than unity; however, in all other respects (i.e. across sectors, as well as across periods), the pattern of change is very similar for all tested values of t . Figure A-2.1 also shows this clearly for trends in overall poverty – the movement in headcount rate over the years is very similar for different values of the parameter t for scale adjustment in household consumption. The fact that comparative trends across time, as

Figure A-2.1: Trends in Headcount with & without Economies of Scale in Consumption



well as patterns across regions quite robust to such scale adjustment, suggests that analysis using unadjusted poverty estimates, which is used throughout this report, is a reasonable methodology to adopt. That said, the issue of economies of scale in household consumption is one that merits rigorous analysis – far beyond the rough exercise conducted here – in the course of future poverty work in Pakistan.

Table A-2.1: Headcount Poverty with Different Household Scale Adjustments

	1992-93	1993-94	1996-97	1998-99
Head Count (s=0.8, t=0.8)				
Urban	15.1	13.6	12.4	19.1
Rural	21.7	28.2	23.2	29.9
Overall	19.9	23.9	19.9	26.9
Head Count (s=0.8, t=0.9)				
Urban	17.9	15.4	14.9	21.9
Rural	24.2	30.6	24.8	33.2
Overall	22.4	26.1	21.8	30.0
Head Count (s=0.8, t=1)				
Urban	20.8	17.2	16.9	24.2
Rural	27.7	33.4	27.1	35.9
Overall	25.7	28.6	24.0	32.6

*Poverty Lines*⁷

The Poverty Lines for every year are the inflation-adjusted "basic needs" poverty lines, which in turn was based on some modifications (primarily adjustments for prices) of the basic needs poverty line developed by Ahmad (1993). The poverty line was fixed at the 1990-91 level, and updated for every successive year using Consumer Price Indices (CPIs) for Pakistan. Since the household expenditures were adjusted by spatial price indices to account for within-region price differences (as described above), poverty lines were not adjusted for price differences within each region (rural/urban).

Most of the poverty lines used for analyzing poverty in Pakistan in the past have relied on calorie-based poverty lines. Even in so-called basic needs approaches, the practice has been to define the minimum bundle exclusively by the expenditure (including non-food) that is expected to *induce* the minimum calorie intake. As Gazdar et al point out, there are 3 standard defenses to this approach: First, calorific intake is the most important human need (Ercelawn, 1992). But even so, the question is, are other needs "unimportant" enough to ignore? Second, calorific need is a good proxy: if a household consumes more than the cost of the minimum bundle of calories it is able to satisfy all its basic needs not just its calorific ones. This would be an attractive argument were it to be supported by evidence, but it is not. Given the diversity of expenditure patterns observed, there seems little reason to accept this argument in terms of actual calorific intake. Third, non-calorific needs hard to specify, or specified arbitrarily, leaving one with no choice but to look at expenditure on calories and to set basic non-food expenditure requirements on this basis (for example, equal to the average non-food expenditure of the poor). This is a compelling argument for many countries, but fortunately not for Pakistan, where a "basic needs" poverty line has been specified.

An alternative route to the calorific one is to take the poverty line as the cost of achieving a minimum bundle of basic needs, i.e. the money value of a bundle of commodities that represents a minimally acceptable level of living, *selected a priori*. To do this requires a great deal of intimate knowledge of the country concerned. Even then, the final line decided on will still be to some extent arbitrary, and can better be thought of as representing a social judgment than an actual threshold.

Although this procedure of specifying a bundle of basic needs has been little used in developing countries, it does have a long history in developed countries. Examples include the classic studies early this century by Bowley and others in the U.K. (see Atkinson, 1987, and Barr, 1987, for references). Pakistan is one of the few developing countries for which this exercise has been undertaken. In a recent paper, Ahmad (1993) describes the process he used to choose a poverty line:

The proposed basic needs package consists of food, clothing, housing, health, education, transport, social interaction and recreational facilities. ... All possible componential needs were identified. Discussions were held with professional economists in Federal Government, Provincial Governments, Research Institutes and Universities. A checklist thus prepared was rechecked with heads of different families. A team of economists was constituted to arrive at the quantum and value of each componential item of various basic needs separately in the rural and urban areas. These were rechecked with the consumers in different areas.

⁷ This section is drawn significantly from Gazdar et al (1994).

While there is subjectivity in this process, that is true for any poverty line measure. Arguably, this element of subjectivity is not inferior to the subjective judgment that anyone who is able to achieve minimum calorie needs is also able to achieve the minimum basic needs.

Using this method, Ahmad's poverty line for a family of 2 adults & 4 children (91-92 prices) came to, for rural and urban regions respectively, Rs. 300 per capita out of which Rs. 150 allocated to food needs; and Rs. 419 per capita out of which Rs. 212 allocated to food needs. Adjustments to this poverty line were made by Gazdar et al (1994) using HIES (90-91) consisted of two main steps:

- (a) Reducing the urban-rural food price differential, using cost-of-living price deflator: The original urban-rural food differential of Rs. 212 to 150 were considered to be too large. Household surveys indicate a urban-rural price differential of only around 10%. Unfortunately, the physical bundle of goods on which the Ahmad line is based was not available, so a good-by-good repricing was not possible. However, the rural food minimum of Rs 150 seemed the more reasonable of the two figures, so these were retained. Using the urban-rural cost-of-living food deflator from the HIES (90-91) gives an equivalent urban expenditure of Rs 161. Using the most recent PIHS/HIES (98-99), the food price differential is very close (9.6%), yielding an urban expenditure (for Rs 150 rural) of around Rs. 164. The figure of Rs. 161 thus seems very reasonable.
- (b) Adjusting housing expenditures: Ahmad's allocation of only Rs 11 to housing rent in rural areas, and of six times as much as that (Rs 67) in urban areas is felt to be an underestimate of housing needs in rural areas. Unfortunately, in the absence of price information on housing expenditure, any adjustments must be crude. Gazdar et al ignore distinctions within categories of housing, and assume that the difference between the two housing expenditure levels is due to differences in housing costs. Regressions (using HIES 1990-91) are used to estimate *expected* rural and urban housing expenditure given non-housing expenditure equal to the *minimum non-housing expenditure* required, Rs. 265 and 280 respectively. This gives new rural and urban minimum housing requirements of 32 and 54 Rs respectively.

With these adjustments, rural poverty line falls to Rs 296 per capita; the urban line falls to Rs 334 for 1990-91. Converting these into per equivalent adult terms, using $s=0.8$ and $t=1$ (see previous subsection) yields the poverty lines described in Table A-2.2.

Table A-2.2: Poverty Lines Per Equivalent Adult (Current Rs.)
(Using $s=0.8$, $t=1$)

	1990-91	1992-93	1993-94	1996-97	1998-99
Urban	346	424	472	655	767
Rural	307	376	418	581	680

In the opinion of Gazdar et al (1994), which this report largely shares, the work of Ahmad points a way forward for poverty analysis in Pakistan. One can argue both with the execution of the method and with the numbers that arrived at. However, the basic principles of trying explicitly to take into account a variety of needs in fixing a poverty line, and updating it for only price changes over the years is one that should be endorsed. In Pakistan, as shown later, even among the poor, expenditure on food comes to little more than 50% of total expenditure. Correspondingly, the motivation to define poverty in terms broader than calories is strong.

The poverty lines derived here also turn out to be sensible in terms of calorie equivalence, as well as in terms of the pattern of expenditure of the poor. Regression analysis reveals that the rural poverty line corresponds to a per capita calorie intake of 2250 (for a family of two adults and four children) and that the urban poverty line corresponds to calorie intake of 1950 calories. First, these figures are in the range of accepted calorific requirements (the most common figure is 2550 using the GoP equivalence scales which corresponds to about 2000 per capita). Second, at the poverty line the urban calorie intake is below the rural, which is indicative of the taste for expensive calories in urban areas. The analysis controls for differences in food prices, but not for differences in taste.

Any allocation of expenditure by basic needs must display rough conformity with the allocation of expenditure at the poverty line to be credible. Expenditure shares for the three major categories of food, housing and other from the 1990-91 HIES for urban and rural households 10% on either side of the poverty line is compared with expenditure shares implied by the construction of the basic needs poverty line. For urban areas, the actual and poverty-line shares are almost identical: the largest difference is only .3 percentage points. The discrepancies are larger in rural areas, but the largest difference is only 3.5 percentage points. One should not expect perfectly-matching shares. Indeed, if one is only allowing the poverty line to vary with prices, one could achieve this only by coincidence. But the very close match found is reassuring.

Finally, the poverty estimates arrived at using the poverty lines described above correspond closely to those calculated by the Federal Bureau of Statistics (FBS) in their recent report. The Table below illustrates this, with estimates from this report listed along with the *FBS estimates in parentheses*. The close match between the two sets of numbers shows that the broad story of poverty trends told in this report remains unchanged if one were to use the FBS estimates instead.

Table A-2.3: Poverty Estimates – World Bank and FBS (Govt. of Pakistan)

	1990-91	1992-93	1993-94	1996-97	1998-99
Head Count					
Urban	28.0	20.8 (20.7)	17.2 (16.3)	16.9 (16.1)	24.2 (22.4)
Rural	36.9	27.7 (28.9)	33.4 (34.7)	27.1 (30.7)	35.9 (36.3)
Poverty Gap					
Urban	5.7	3.6 (3.6)	3.0 (2.9)	2.7 (2.5)	5.0 (4.5)
Rural	7.8	4.8 (4.9)	6.4 (6.6)	4.9 (5.4)	7.9 (7.9)

2.3: Important Caveats Regarding Comparison Across Surveys

Caveats on Interpreting Household Survey Data for Balochistan: The poverty estimates for rural Balochistan in 1998-99 are not only out of trend with those from previous years, but also seem inconsistent with other important indicators of well-being, where Balochistan scores well below the national averages. Poverty measurements for rural Balochistan are probably undermined by

both sampling and non-sampling errors. Balochistan is a vast territory, with a highly dispersed population that makes it difficult to construct representative surveys, and increases the likelihood of sampling errors for any survey year. Fluctuations in poverty estimates may also be caused by seasonal migratory movements and agricultural variations, and the dependence of certain areas on highly volatile illegal sources of income. Further, the FBS report on poverty points out some likely problems specific to the survey data for 1998-99. First, comparing the 1998-99 survey to the 1990 agricultural census, it appears that the former substantially underestimated the proportion of households who derive their livelihoods from agriculture. This may crucially underestimate poverty. Second, analysis of the HIES data for 1996-97 reveals that households interviewed between September and December appear substantially better off. If this is the result of large seasonal variations in consumptions, the fact that more than 65 percent of the interviews in Balochistan for the 1998-99 survey were carried out between September and December, would likely underestimate the rural poverty rates for that year. Whatever the precise reasons, in considering a combination of one or more of the above factors, one should treat expenditure-based poverty comparisons between Balochistan and other provinces with skepticism. Especially for 1998-99. It is important to further examine the possible problems affecting Balochistan data, in order to improve sampling and data collection techniques of future household surveys.

Secondly, as mentioned before, the average household sizes reported in the data for 1998-99 turns out to be substantially higher than those in HIES for 1992-93, 1993-94 and 1996-97. The gap between 1998-99 and other surveys is found to be especially high for lower expenditure deciles in rural areas (Table A-2.3), and negligible for urban areas. From the last column of Table A-2.4, it is possible to see that the average rural household size is considerably higher in 1998-99 for all provinces, with the sole exception of Punjab. In case of rural Sindh and Balochistan, the average household size in 1998-99 is 11 and 30 percent higher respectively, than the maximum average household size over the three preceding survey years.

Table A-2.4: Average Household Sizes Across Surveys, by Per Capita Expenditure Deciles for Rural Regions

Per Capita Exp Deciles	1992-93	1993-94	1996-97	1998-99
1	8.4	8.2	8.5	9.1
2	8.0	7.9	7.5	8.5
3	7.8	7.6	7.1	7.9
4	7.3	7.4	7.1	8.0
5	6.9	6.9	6.6	7.6
6	6.6	6.6	6.5	6.9
7	6.2	6.3	5.8	6.5
8	5.9	5.7	5.4	6.1
9	5.0	5.3	5.0	5.6
10	4.0	4.1	4.2	4.7
Total	6.3	6.3	6.1	6.8

The observation that the 1998-99 survey reveals substantially greater household sizes for rural areas should be considered against the fact that the surveys between 1992-93 and 1996-97 do not reveal any pattern of household sizes increasing over time for rural areas (Table A-2.4). This

seems to indicate that an explanation for the greater household sizes in 1998-99 would lie in a direction other than an actual demographic change in rural Pakistan.

Further discussion on this issue can be found in the report "Poverty in the 1990s," which is based on PIHS data, prepared by the FBS. They report that HIES and PIHS in the 1990s have two different household size trends, and that the difference does not reflect a genuine increase in household size. Since the definition of the household members in the two surveys is exactly the same, the main reason for the substantial differences seem to lie in the field collection techniques. One factor mentioned is that while HIES data were collected by single male enumerators, interviewing mainly male household members, for PIHS there were both male and female enumerators. Moreover, the report finds that in some cases, such as in rural Sindh in 1996-97, HIES data collection seems to have followed unwritten rules – there is no household with servants or non relative members in the 1996-97 data, and there are indications that the category of other relative members (relatives who are not children, siblings or parents) is also underestimated.

From what is known so far about field methodologies, it appears that the PIHS data of 1998-99 measures the household sizes better than do the surveys between 1992-93 and 1996-97. From Table A-2.4 it also appears that the HIES for 1992-93 to 1996-97 tend to underestimate the household sizes of relatively poorly off households more than that of richer households. In that case, the data for the earlier years should be regarded as somewhat underestimating the incidence of poverty, with the data for 1998-99 yielding estimates that better reflect the poverty picture. Moreover, the aforementioned PIHS report points out that the 1998 population census is an independent source of information to assess if the survey is representative; whereas the PIHS data on household structure and size are very similar to the findings of the Census, the HIES data in 1996-97 appear to be out of trend.

2.4: Methodology for Growth-Inequality Decomposition of Poverty Changes

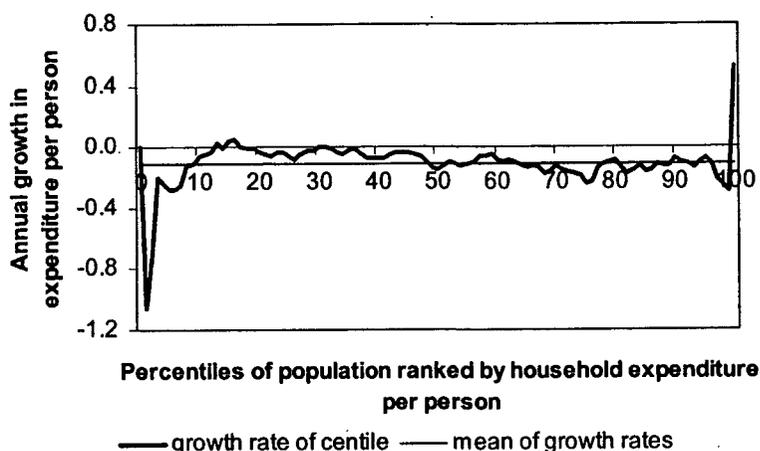
Following the method developed by Ravallion and Datt (1992), change in poverty estimates between two periods can be decomposed between so-called growth redistribution effects. The growth component measures how much of the change in poverty measures is due to the variation in mean per equivalent adult consumption expenditure over time, holding the distribution of per equivalent adult expenditure constant. On the other hand, the redistribution component assesses how much of the variation in poverty measures is due to a change in the distribution of expenditure, provided that there was no growth in the mean expenditure.

Suppose one is interested in decomposing the poverty change between periods t_0 and t_1 . Let the *mean per equivalent adult expenditure*, from the household data for the relevant years, for the years t_0 and t_1 be m_0 and m_1 respectively. In practice, the growth effect on poverty is calculated by multiplying the *vector of per equivalent adult expenditure* of year t_0 by (m_1/m_0) . This yields an expenditure vector with the distribution of year t_0 but with mean m_1 . Poverty measures are then estimated on this adjusted data for year t_0 . The growth effect is simply the residual from subtracting these estimates from the actual poverty estimates for year t_0 (using the actual expenditure data).

The redistribution component is estimated analogously. First the *vector of per equivalent adult expenditure* of year t_1 is multiplied by (m_0/m_1) . This yields an expenditure vector with the mean per equivalent adult expenditure of m_0 but with the distribution of year t_1 . Poverty measures are then estimated on this adjusted data for year t_1 . The redistribution effect is simply the residual from subtracting these estimates from the actual poverty estimates for year t_0 .

2.5: Growth Incidence Analysis for Pakistan: 1990-91 to 1998-99

Figure A-2.2: Growth Incidence Curve: 90-91:98-99



2.6: Measurement of Vulnerability

Definition of the Vulnerability Measure: Consider a time horizon of three periods and let the initial period be t . We need to find the probability that a household's expenditure level will fall below the poverty line at least once within the following three periods. This probability is given by: $V_{it}(T, P_{line}) = P(\text{At least one period of poverty}) = [1 - P(\text{No periods of poverty})] = [1 - [(1 - P(\text{poor in first period})) * (1 - P(\text{poor in second period} | \text{not poor in first period})) * (1 - P(\text{poor in third period} | \text{not poor in first two periods}))]]]$

A household i is then classified as vulnerable at time t if the vulnerability measure, V_{it} , exceeds some threshold value V_{thresh} . V_{it} is obtained by conditioning future probabilities of poverty on outcomes in previous periods. In order to compute the probabilities for the vulnerability index, we estimate expenditures using household fixed-effects and the rainfall shock. This allows us to directly estimate the change in expenditure due to the rainfall shock. We allow for persistence in this shock so that the total variation in time t expenditures is the sum of variation due to past shocks and variation due to the time t shock. By using estimated consumption we are also able to roughly correct for measurement error in the data. To account for heteroskedasticity in observed expenditure, we ranked all households by mean absolute deviation in estimated expenditure, grouped households into deciles and computed the variance of estimated expenditure, as well as the variance of consumption due to the exogenous shock separately for each decile.

It is important to note that the measure we develop does not require panel data. The panel allows us to check the validity of our measure by comparing estimated vulnerability levels against the occurrence of episodes of poverty over the 5 years of the panel. However, we estimate vulnerability at the cohort level by treating the panel as a series of cross sections and find that our cohort based measure tracks actual transitions extremely well and is robust to changes in the time horizon and the poverty line. This greatly enhances the usefulness of the measure for analyzing differentials in the intensity of vulnerability, as well as in its causative factors, in sub-populations of interest. We intend to use the Household Income and Expenditure Survey series to estimate

cohort vulnerability in future work. Given the costs and difficulties inherent in conducting panel surveys, much of the data available for developing countries is in the form of repeated cross-sections. It is thus of enormous interest to see how reasonably a measure of vulnerability performs when panel data is not available.

*Estimating Vulnerability*⁸

The dependent variable in the regression used is the log of per capita expenditure. Explanatory variables included rainfall shock variables for the current year (deviation of year *t* rainfall from its time mean), rainfall shock variables for the past year, past rainfall shock variables interacted with time-varying agricultural assets (land, livestock, and vehicles), and a household fixed effect. The analysis constructed 5 rainfall “seasons” from the monthly rainfall data. The first is the deviation in rainfall over the winter season prior to the agricultural year which begins roughly in June (the start of the Kharif season). The remaining four capture rainfall during the Kharif planting period, the Kharif harvest period, the Rabi planting period, and the Rabi harvest period.

The current rainfall shock is found to be jointly significant. Rainfall during the planting period has a positive effect on expenditures, but rainfall during the harvest phase of the season, has a strong negative effect. Last year’s rainfall shock is also jointly significant, and varies with asset ownership. This implies some persistence in the rainfall shock. Table A-2.5 provides estimated expenditures from the regression.

Tables A-2.6a and A-2.6b show that the proportion of households classified as vulnerable using the measure used here matches closely with households that *actually* experienced an episode of poverty over the 5 years of the panel. This correspondence remains regardless of the poverty line we use. Tables A-2.7a and b, and A-2.8 a and b further corroborate that individual households are correctly classified between 75 and 80 percent of the time. Finally, Tables 2.9a and b show that the measure seems to work equally well when the panel is treated as a repeated cross-section, cohort means are formed, and cohort means are used to estimate expenditures and to construct the vulnerability estimate.

Table A-2.5: Decomposition of estimated adult equivalent real expenditure by year

	Measured expenditures	Estimated expenditures
Year 1 (1986-87)	2878.6 (1401.5)	2781.7 (1217.2)
Year 2 (1987-88)	2678.0 (1205.3)	2744.5 (1209.3)
Year 3 (1988-89)	2478.6 (912.3)	2828.1 (1082.6)
Year 4 (1989-90)	3087.1 (2228.7)	2999.9 (1306.7)
Year 5 (1990-91)	3119.4 (1339.8)	2893.4 (1034.9)
Five-year mean	2836.6 (1490.2)	2845.3 (1178.6)

Standard deviations are in parentheses.

**Table A-2.6a: Fraction of vulnerable households
(Time horizon = two years, average vulnerability over 5 years)**

	Proportion of households classified as vulnerable projecting 2 years ahead	Proportion of households that actually experienced an episode of poverty looking two periods ahead
Poverty line = 2580 Rs.	0.56	0.57
Poverty line = 2400 Rs.	0.48	0.46
Poverty line = 2200 Rs.	0.38	0.36
Poverty line = 2000 Rs.	0.29	0.26

⁸ All analysis in this section is based on IFPRI data

**Table A-2.6b: Fraction of vulnerable households
(Time horizon = three years, average vulnerability over 5 years)**

	Proportion of households classified as vulnerable projecting 2 years ahead	Proportion of households that actually experienced an episode of poverty looking two periods ahead
Poverty line = 2580 Rs.	0.59	0.61
Poverty line = 2400 Rs.	0.51	0.51
Poverty line = 2200 Rs.	0.42	0.40
Poverty line = 2000 Rs.	0.32	0.29

**Table A-2.7a: Comparing household vulnerability with an actual episode of poverty
(time Horizon = 2 periods)**

Percentage vulnerable households					
	Vulnerable and episode of poverty	Not vulnerable and no episode of poverty	Episode of poverty but not classified as vulnerable	Classified as vulnerable but no episode of poverty	Total for which vulnerability status and actual transitions agree
Poverty line = 2580 Rs.	43.3	35.2	13.0	8.5	78.5
Poverty line = 2400 Rs.	34.1	44.3	12.1	9.5	78.4
Poverty line = 2200 Rs.	25.2	54.2	10.7	9.9	79.4
Poverty line = 2000 Rs.	16.9	64.9	9.1	9.7	81.2

**Table A-2.7b: Comparing household vulnerability with an actual episode of poverty
(time horizon = 3 periods)**

Percentage vulnerable households					
	Vulnerable and episode of poverty	Not vulnerable and no episode of poverty	Episode of poverty but not classified as vulnerable	Classified as vulnerable but no episode of poverty	Total for which vulnerability status and actual transitions agree
Poverty line = 2580 Rs.	43.6	32.8	17.1	6.6	76.3
Poverty line = 2400 Rs.	34.7	40.9	16.3	8.1	75.6
Poverty line = 2200 Rs.	25.4	51.3	14.2	9.2	76.7
Poverty line = 2000 Rs.	18.3	61.9	11.1	8.7	80.2

**Table A-2.8a: Comparing *ex-post* outcomes and *ex-ante* predictions by V_{it}
(Pline: 2580 Rps; TimeHorizon=2—using data for years 1,2 and 3)**

	Number of observations	Percentage of observations for which vulnerability status and actual transitions agree
$V_{it} \leq 0.2$	697	.80
$0.2 < V_{it} \leq 0.4$	249	.64
$0.4 < V_{it} \leq 0.6$	254	.51
$0.6 < V_{it} \leq 0.8$	255	.69
$0.8 < V_{it} \leq 1$	777	.94

**Table A-2.8b: Comparing *ex-post* outcomes and *ex-ante* predictions by V_{it}
(Pline: 2000 Rs; TimeHorizon=2; using data for years 1,2 and 3)**

	Number of observations	Percentage of observations for which vulnerability status and actual transitions agree
$V_{it} \leq 0.2$	1204	.91
$0.2 < V_{it} \leq 0.4$	326	.81
$0.4 < V_{it} \leq 0.6$	221	.53
$0.6 < V_{it} \leq 0.8$	212	.57
$0.8 < V_{it} \leq 1$	269	.82

**Table A-2.9a: Fraction of vulnerable households based on cohort estimates
(Time horizon = two years, average vulnerability over 5 years)**

	Proportion of households classified as vulnerable projecting 2 years ahead	Proportion of households that actually experienced an episode of poverty looking two periods ahead
Poverty line = 2580 Rs.	0.54	0.57
Poverty line = 2400 Rs.	0.47	0.46
Poverty line = 2200 Rs.	0.35	0.36
Poverty line = 2000 Rs.	0.25	0.26

Table A-2.9b: Fraction of vulnerable households based on cohort estimates (Time horizon = three years, average vulnerability over 5 years)

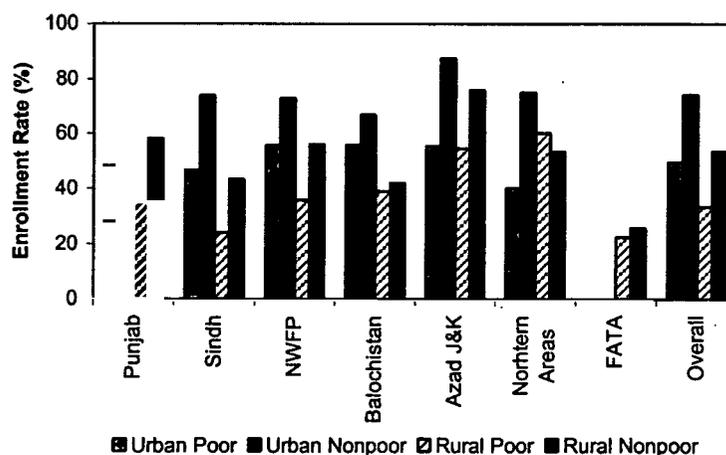
	Proportion of households classified as vulnerable projecting 2 years ahead	Proportion of households that actually experienced an episode of poverty looking two periods ahead
Poverty line = 2580 Rs.	0.56	0.61
Poverty line = 2400 Rs.	0.49	0.51
Poverty line = 2200 Rs.	0.39	0.40
Poverty line = 2000 Rs.	0.27	0.29

2.7: Poverty and Human Development

Table A-2.10: Effect of Scale Adjustment in Consumption on Demographics of Poverty

	Average Household Size			Average Dependency Ratio		
	Poor	Nonpoor	Overall	Poor	Nonpoor	Overall
Scale factor: $t = 0.8$	8.9	8.3	8.5	1.6	1.2	1.3
Scale factor: $t = 0.9$	9.5	8.1	8.5	1.6	1.2	1.3
No adjustment for scale	9.8	7.9	8.5	1.5	1.2	1.3

Figure A-2.3: Net Primary Enrollment Rates in 1998-99: Poor & Nonpoor



Source: PIHS (1998-99)

Annex to Chapter 3

3.1: Tables and Graphs Related to Education in Pakistan

Note: Data source for all tables and graphs in this section is PIHS, 1998-99

Table A-3.1: Net Enrollment Rates in 1998-99

		Net Primary Enrollment Rates (%)			Net Secondary Enrollment Rates (%)		
		Male	Female	Overall	Male	Female	Overall
Punjab	Urban	65.2	67.0	66.1	42.7	49.7	46.2
	Rural	55.4	42.1	48.9	35.4	19.2	27.6
	Overall	57.9	48.7	53.4	37.6	28.5	33.2
Sindh	Urban	72.2	62.1	67.1	51.7	46.9	49.4
	Rural	44.3	24.5	34.7	31.6	7.9	20.5
	Overall	54.6	39.4	47.1	40.6	25.9	33.7
NWFP	Urban	73.4	59.3	66.5	53.1	35.5	44.1
	Rural	57.9	32.8	45.8	37.1	11.8	24.1
	Overall	60.0	36.4	48.6	39.7	15.6	27.4
Balochistan	Urban	68.8	58.1	63.4	46.8	37.6	42.4
	Rural	52.0	28.3	41.1	27.0	8.8	18.2
	Overall	53.8	31.9	43.6	29.7	12.8	21.5
Azad J & K	Urban	80.2	83.6	82.1	48.8	56.3	52.3
	Rural	72.3	71.9	72.1	54.2	36.0	45.4
	Overall	72.8	73.0	72.9	53.8	37.5	45.9
Northern Areas	Urban	67.4	67.1	67.3	50.1	37.9	44.6
	Rural	65.2	48.4	56.2	48.3	27.4	38.1
	Overall	65.4	50.1	57.1	48.5	28.3	38.6
FATA	Rural (Overall)	37.3	8.9	24.4	14.5	0.8	8.1
Pakistan	Urban	68.5	64.6	66.5	46.7	47.4	47.0
	Rural	53.6	36.4	45.2	34.9	15.8	25.6
	Overall	57.2	43.6	50.5	38.3	25.1	31.9

Table A-3.2: Literacy Rates (%) in 1998-99¹

		Male	Female	Overall
Punjab	Urban	71.2	53.6	62.5
	Rural	50.1	20.0	34.7
	Overall	56.7	30.0	43.1
Sindh	Urban	77.5	54.9	66.9
	Rural	52.3	11.2	32.8
	Overall	64.2	31.6	48.8
NWFP	Urban	65.5	35.2	50.2
	Rural	51.5	11.4	30.2
	Overall	53.8	15.1	33.4

¹ Literacy Rates are calculated for all individuals of age 15 and above

Balochistan	Urban	70.9	32.5	52.8
	Rural	47.2	6.8	28.5
	Overall	50.5	10.4	31.9
Azad J & K	Urban	85.2	58.0	71.2
	Rural	77.3	37.9	54.3
	Overall	78.1	39.4	55.7
Northern Areas	Urban	73.4	36.0	55.8
	Rural	54.1	17.3	35.2
	Overall	56.2	19.0	37.3
FATA	Rural (Overall)	29.0	0.6	12.8
Pakistan	Urban	73.2	52.3	63.1
	Rural	51.0	16.8	33.6
	Overall	58.0	27.2	42.5

Table A-3.3: School Attendance Profile (Poor and Non-Poor, 1998-99)²

Age in Years	Percentage of Children							
	Okay for Age		Behind for Age		Left School		Never Attended	
	Poor	Nonpoor	Poor	Nonpoor	Poor	Nonpoor	Poor	Nonpoor
5	20.4	37.2	0.0	0.0	0.2	0.3	79.4	62.6
6	21.3	39.1	11.1	16.6	0.1	0.3	67.5	44.0
7	14.1	25.1	30.0	40.8	0.0	0.6	56.0	33.6
8	10.3	22.0	37.2	48.6	1.1	0.9	51.5	28.5
9	12.7	23.2	40.5	51.2	2.0	1.1	44.8	24.5
10	10.9	20.7	37.0	50.4	3.9	3.7	48.2	25.2
11	11.8	24.3	41.6	51.0	9.8	6.3	36.8	18.5
12	6.6	16.6	36.6	47.4	13.3	10.2	43.6	25.7
13	8.2	19.0	33.7	42.1	14.9	15.2	43.3	23.7
14	6.0	18.3	23.3	37.2	25.7	19.8	45.0	24.7
15	5.6	14.1	19.2	33.5	27.8	26.7	47.5	25.8
16	0.0	0.0	20.3	39.3	31.0	33.7	48.7	27.0
17	1.2	8.3	15.5	26.8	36.6	41.0	46.7	23.9
Total	11.0	21.2	26.8	37.1	10.0	11.2	52.2	30.6

² *Okay for Age*: Currently enrolled in school in a grade equivalent or higher than what is suitable for age; *Behind for Age*: Currently enrolled, but in a grade less than what is suitable for age; *Left School*: Attended school in the past, but not currently enrolled; *Never Attended*: Never went to school. Target age for Grade 1 is taken to be 6 years, target age for Grade 12 is 17 years. This is done even though technically the age for grade 1 is 5 years, to allow for more leeway in judging whether a child is enrolled in the right grade for his/her age. The same rule was adopted by the PIHS Education Report of the 1990s by the FBS.

Table A-3.4: Effect of Education and Literacy on Monthly Earnings of Wage Workers
(Coefficients of Selected Variables in Wage Equation of Heckman Model)

Log of Earnings of Male Workers of Age ≥ 15	Urban Non-Agricultural		Rural Non-Agricultural		Rural Agricultural	
	(1)	(2)	(1)	(2)	(1)	(2)
Worker not literate, literate member in household	0.071* (2.02)		0.023 (0.78)		-0.045 (-0.94)	
Worker Literate	0.418* (14.08)		0.094* (3.83)		0.042 (0.69)	
Worker's edu: Cl. 1 and above		0.038 (1.31)		-0.051 (-1.55)		0.077 (1.37)
Worker's edu < Cl. 6, max edu in household: Cl. 6 and above		0.087* (3.04)		0.079* (2.78)		-0.021 (-0.38)
Worker's edu: Cl. 6 and above		0.212* (6.45)		0.161* (5.41)		-0.013 (-0.18)
Worker's edu < Cl. 11, max edu in household: Cl. 11 and above		0.153* (5.65)		0.132* (3.86)		0.119 (1.21)
Worker's edu: Cl. 11 and above		0.535* (21.55)		0.113* (3.63)		-0.017 (-0.12)
Log of Earnings of Female Workers of Age ≥ 15						
Worker not literate, literate member in household	0.155 (1.09)		-0.044 (-0.33)		-0.090 (-0.60)	
Worker Literate	1.391* (10.67)		1.613* (7.74)		-0.228 (-0.61)	
Worker's edu: Cl. 1 and above		0.173 (1.25)		0.575* (2.12)		0.157 (0.51)
Worker's edu < Cl. 6, max edu in household: Cl. 6 and above		0.020 (0.19)		-0.062 (-0.47)		-0.443* (-2.42)
Worker's edu: Cl. 6 and above		0.729* (4.26)		0.966* (3.12)		-1.26 (-1.2)
Worker's edu < Cl. 11, max edu in household: Cl. 11 and above		0.119 (1.05)		0.419* (2.88)		
Worker's edu: Cl. 11 and above		0.795* (6.53)		0.364 (1.48)		

Table A-3.5: Education and Literacy Externalities on Earnings of Non-Literate Wage Workers
(Coefficients of Selected Variables in Wage Equation of Heckman Model)

Log of Earnings of Non-Literate Male Workers of Age \geq 15	Urban		Rural Non-Agricultural		Rural Agricultural	
	(1)	(2)	(1)	(2)	(1)	(2)
Literate member in household	0.132* (3.69)	-0.021 (-0.38)	0.04 (1.26)	-0.120 (-2.40)	0.012 (0.23)	0.024 (0.30)
Max education level in household						
Cl. 1 and above		0.110* (2.08)		0.077 (1.62)		0.0004 (0.01)
Cl. 6 and above		0.117* (2.44)		0.167* (3.96)		-0.039 (-0.52)
Cl. 11 and above		0.103 (1.61)		0.089 (1.10)		0.144 (0.89)
Log of Earnings of Non-Literate Female Workers of Age\geq15						
Literate member in household	0.493* (2.93)	0.289 (1.15)	-0.071 (-0.50)	-0.184 (-0.96)	-0.066 (-0.45)	-0.114 (-0.45)
Max education level in household						
Cl. 1 and above		0.022 (0.09)		0.133 (0.62)		0.376 (1.51)
Cl. 6 and above		0.152 (0.79)		-0.052 (-0.34)		-0.208 (-1.06)
Cl. 11 and above		0.252 (1.23)		0.537* (2.62)		-1.410* (-4.12)

Notes for Tables A-3.4 and A-3.5:

- * Signifies that the variable is significant at 5% level of significance; T-ratios are in parentheses.
- Log earnings regressions include correction for sample selectivity bias as well as controls for worker's characteristics: province dummies, age of worker, square of age, land dummies (*only for rural subgroups*), and whether the worker has been to school or not (*only for regressions listed in Table 4.6*).
- Other than the variables in the wage equations, the selection equation included the marital status of the worker, and various household characteristics (including marital status and sex of household head, demographic characteristics of the household, whether household receives domestic/foreign remittances or zakat, land ownership, ownership of buildings). A widely-accepted identifying assumption in estimating earnings regressions with selectivity is used, namely that certain household characteristics influence participation, but do not influence earnings given participation.
- Coefficients from the probit "selection" equations are available on request

Table A-3.6: Main Reasons for Never Attending School (Responses from PIHS, 1998-99)

Main Reasons for Never Attending School	Boys of Age 10-20			Girls of Age 10-20		
	Urban	Rural	Pakistan	Urban	Rural	Pakistan
Too expensive	50.9	33.7	36.9	36.0	21.8	23.6
Child not willing	19.4	24.6	23.7	6.8	6.3	6.3
Too far away	0.6	11.1	9.2	4.3	12.2	11.2
Had to help with work	3.6	7.8	7.0	2.5	2.2	2.2
Parents/elders disapproved	7.9	5.8	6.2	35.3	39.1	38.6
Child sick/handicapped	10.8	5.1	6.2	3.9	1.4	1.7
Had to help at home	2.2	3.1	2.9	4.8	5.3	5.3
No male/female staff	0.0	2.1	1.7	0.1	5.2	4.6
Child too young	1.8	1.6	1.7	1.2	1.0	1.0
Education not useful	1.0	1.3	1.3	0.2	1.5	1.3

Table A-3.7: Main Reasons for Leaving School (Responses from PIHS, 1998-99)

Main Reasons for Leaving School	Boys of Age 10-20			Girls of Age 10-20		
	Urban	Rural	Pakistan	Urban	Rural	Pakistan
Child not willing	33.3	36.7	35.6	14.8	16.4	15.8
Too expensive	26.5	23.5	24.5	23.2	16.2	18.8
Had to help with work	13.4	10.6	11.5	2.2	3.6	3.0
Had to help at home	4.8	5.9	5.6	8.6	7.6	8.0
Parents/elders disapproved	2.9	3.6	3.3	18.5	18.0	18.2
Education completed	3.6	2.2	2.7	8.5	4.5	6.0
Child sick/handicapped	2.4	2.4	2.4	3.1	3.2	3.2
Service (job)	3.5	1.7	2.3	0.3	0.1	0.2
Poor teaching/behavior	1.1	2.1	1.8	0.8	1.3	1.1
Too far away	0.4	2.3	1.7	5.7	14.5	11.1
Lack of documents	0.9	1.2	1.1	1.0	1.1	1.0
Education not useful	0.9	1.0	0.9	0.6	0.6	0.6
Child too young	0.8	0.8	0.8	0.1	0.3	0.2
No male/female staff	0.0	0.5	0.3	0.6	3.5	2.4
Marriage ³				4.4	4.0	4.2

³ "Marriage" is a very insignificant reason for boys to leave school, and is thus not reported.

Table A-3.8: Marginal Effects on the Probability of Attending School for Ages 6-14
(Results from Probit Regressions)

Independent Variables	All Pakistan		Rural		Rural Females		Rural Males		
	Marginal Effect	T-ratio	Marginal Effect	T-ratio	Marginal Effect	T-ratio	Marginal Effect	z	
Quintile 2a *	0.093	8.48	0.063	3.90	0.067	2.88	0.047	2.33	
Quintile 3 *	0.159	14.75	0.153	9.74	0.166	7.20	0.126	6.42	
Quintile 4 *	0.210	19.45	0.197	12.44	0.189	8.16	0.179	9.13	
Quintile 5 *	0.254	21.88	0.245	14.49	0.258	10.17	0.212	10.20	
Rural Male ^b *	-0.044	-3.65							
Urban Female *	-0.048	-3.30							
Rural Female *	-0.303	-25.05	-0.241	-24.15					
Age	0.284	23.48	0.316	18.93	0.272	11.79	0.327	15.08	
Age squared	-0.015	-24.03	-0.016	-19.42	-0.015	-12.84	-0.016	-14.75	
<i>Mother's Education</i>									
Ever Attended School *	0.227	14.96	0.248	9.42	0.264	7.57	0.196	5.26	
Education >= Grade 6 *	0.065	2.35	0.116	1.96	0.296	3.16	-0.014	-0.18	
Education >= Grade 11 *	0.024	0.48	0.237	1.13			0.068	0.31	
<i>Father's Education</i>									
Ever Attended School *	0.164	18.21	0.144	11.78	0.136	8.09	0.140	8.77	
Education >= Grade 6 *	0.152	13.98	0.143	9.29	0.155	7.52	0.119	5.74	
Education >= Grade 11 *	0.082	4.55	0.117	4.25	0.053	1.53	0.192	4.90	
Number of Children in Household	0.009	6.59	0.010	4.79	0.010	3.64	0.010	3.47	
Agricultural Land Owned			0.003	1.70	0.003	1.44	0.002	1.17	
Agri. Land Owned Squared			0.000	-1.53	0.000	-1.58	0.000	-0.94	
<i>In PSU/Within 1 km. from PSU</i>									
Primary School *			0.193	11.36	0.153	7.80	0.215	6.40	
Primary, Middle & Sec. School *			0.079	5.91	0.081	4.17	0.078	4.58	
Bus Station *			-0.006	-0.51	-0.018	-1.07	0.001	0.09	
Railway Station *			0.039	1.87	0.018	0.66	0.061	2.08	
Shop *			0.052	2.75	0.051	1.91	0.050	2.03	
Market *			-0.044	-2.14	-0.067	-2.44	-0.022	-0.82	
Bank *			-0.032	-2.08	-0.028	-1.36	-0.039	-1.87	
Phone *			0.030	2.45	0.038	2.36	0.022	1.36	
Post Office *			-0.001	-0.05	0.021	1.34	-0.020	-1.29	
District Capital *			0.141	3.71	0.095	1.89	0.170	3.35	
<i>In PSU</i>									
Hospital/Dispensary *			0.013	1.04	0.022	1.29	0.007	0.39	
Health Worker *			0.013	1.17	0.004	0.25	0.018	1.21	
Drainage Facility *			0.037	3.19	0.048	3.07	0.021	1.38	
Motorable Approach Road *			0.028	1.55	0.094	3.63	-0.008	-0.37	
Mostly Pucca Houses in PSU			0.072	6.35	0.069	4.39	0.061	4.09	
>=50% of Households with Elec *			0.127	9.32	0.083	4.38	0.162	9.06	
Power Cut >=Once a Day *			0.014	1.25	0.019	1.29	0.007	0.45	

Notes:

- * Signifies 0-1 Variables. Marginal effect measures change in the probability for an infinitesimal change in each independent, continuous variable; for 0-1 variables, it measures discrete change in the probability for discrete change of variable from 0 to 1. T-ratios pertain to underlying probit coefficients
- Specification includes dummy variables for every province (Punjab is the reference state). Detailed tables for all regressions, including for each province, are available upon request

^a Reference group is Quintile 1 (Poorest)

^b Reference group is Urban Male

Table A-3.9: Access to School by Economic Status (Rural – 1998-99)

Type of School	% of Population with School in or within 1 km. of PSU: for Different Per Capita Expenditure Deciles (Rural) and for Poor/Nonpoor					
	1 st Decile	2 nd Decile	9 th Decile	10 th decile	Poor	Nonpoor
Primary School for Girls	71.4	78.3	82.2	83.4	76.7	79.6
Primary School for Boys	92.3	95.6	96.2	93.4	94.6	95.8
Middle School for Girls	35.7	46.3	47.3	48.9	42.4	46.0
Middle School for Boys	43.7	49.9	51.0	53.0	49.3	50.6
Secondary School for Girls	20.7	25.4	26.9	26.1	24.2	26.3
Secondary School for Boys	35.2	39.7	41.2	45.1	38.8	39.8

Table A-3.10: Access to Schools in Rural Areas (1998-99)

	% of Population							
	Punjab	Sindh	NWFP	Balochis- tan	Azad J & K	N. Terr.	FATA	Overall
Nearest Girls' Primary School								
In PSU or <=1 km distance	90.2	45.6	91.1	41.3	100.0	91.5	57.8	78.7
Distance >1 & <6 km	7.2	22.0	5.7	6.1	0.0	4.3	26.5	9.7
Distance >=6 km	2.6	32.4	3.2	52.7	0.0	4.2	15.8	11.6
Nearest Boys' Primary School								
In PSU or <=1 km distance	95.0	94.8	99.6	90.5	100.0	85.9	92.1	95.4
Distance >1 & <6 km	4.0	4.8	0.4	3.5	0.0	4.3	3.6	3.4
Distance >=6 km	1.0	0.4	0.0	5.9	0.0	0.0	4.3	1.1
Not in PSU, distance unknown	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.1
Nearest Girls' Secondary School								
In PSU or <=1 km distance	26.8	5.4	44.3	7.5	55.9	58.6	27.4	25.7
Distance >1 & <6 km	54.1	17.1	29.2	8.9	31.8	4.3	12.1	38.4
Distance >=6 km	19.2	77.5	26.5	83.6	12.4	23.1	60.6	35.8
Not in PSU, distance unknown	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.1
Nearest Boys' Secondary School								
In PSU or <=1 km distance	41.0	20.2	60.7	14.2	66.7	70.5	30.2	39.4
Distance >1 & <6 km	47.6	18.9	25.0	16.4	25.1	4.3	14.3	34.9
Distance >=6 km	11.5	60.9	14.3	69.4	8.2	21.1	55.5	25.7
Not in PSU, distance unknown	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0

Figure A-3.1: School Attendance Profile for Urban Boys: 1998-99

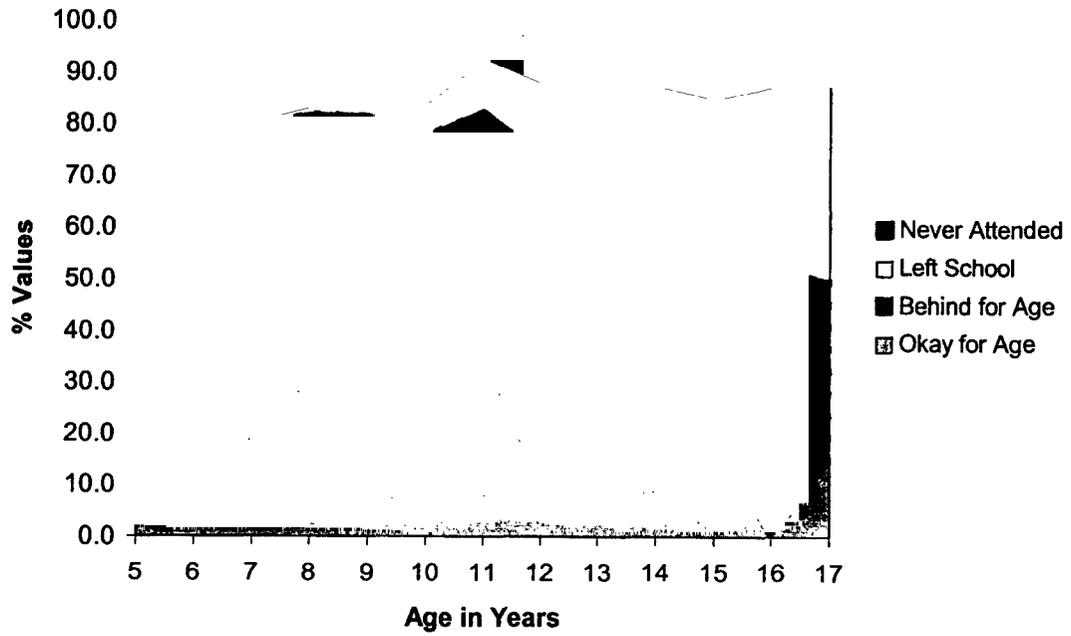
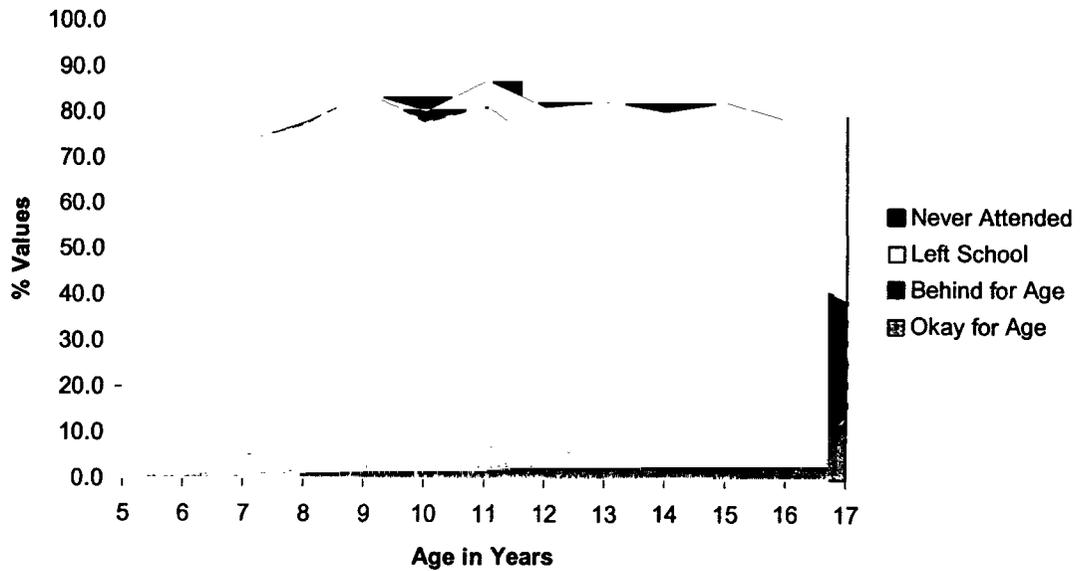


Figure A-3.2: School Attendance Profile for Urban Girls: 1998-99



3.2: Analysis of Child Nutrition (Anthropometric Measurements) using PRHS (2001)

First, we are interested in examining whether there have been significant *changes* in the last decade with regards to the nutritional status of children in the population. In order to do so, we construct standard measures of stunting, low weight, and wasting (defined below) and compare the prevalence of these conditions to those obtained previously, notably from surveys conducted by the International Food Policy Research Institute (henceforth IFPRI) between 1986 and 1989 and the Living Standards Measurement Survey (henceforth LSMS) in 1991.

Second, we are also interested in evaluating alternative policy options available to improve existing health status in the population. Within this broad topic, the particular concern that we will restrict ourselves to is an evaluation of the importance of *household income* in increasing the nutritional status of children. Note that the pathway through which government policy may impact on nutritional status is critically dependant on the sensitivity of nutrition to household income: a finding that increases in household income have a large impact on the nutritional status of children suggest that appropriate policies should focus primarily on improving income at the household level, while leaving the choice of the consumption bundle and allocation of health care to the household itself. Alternatively, findings that household incomes do not impact significantly on nutrition might suggest the need for more targeted interventions (perhaps through food subsidies for children) through improvements in access to health and nutrition.

The results presented here build on the work by Alderman and Garcia (1993), Alderman et al (2001), Haddad et al (1996), Hughes and Dunleavy (2000) and Alderman (2000). The body of work by Alderman et al. on Pakistan is particularly relevant for our results, and will form the basis of the comparisons that we undertake in this section. Specifically, we will focus on decomposing the impact of income through nutrition into *household effects*- richer households have children with better nutritional status, perhaps through their ability to afford better food and health care- and *community effects* -richer communities have children with better nutritional status, perhaps through their ability to command resources at the community level. Our findings echo, to a large extent, the previous results obtained by Alderman and Garcia (1993) and Alderman, et al (2001)- there are significant differences between communities in the nutritional status of children: communities that have higher average incomes are better able to command/use resources that improve the nutritional status of their children.

Data Discussion

Throughout this study we will focus on three anthropometric measures: *height-for-age*, *weight-for-age* and *weight-for-height*, using data from the Pakistan Rural Household Survey, 2001. Note that each of these measures provide information on different facets of the health status of children: *height-for-age* for instance, is an indicator of long-term malnutrition, *weight-for-height* provides more information on *acute* or *short-term* fluctuations in nutritional status and *weight-for-age* is an indicator of both acute and chronic malnutrition. For each of these measures, we compute the z-score based on standard growth charts as

$$z = \frac{\text{measured variable} - \text{median value}}{\text{standard deviation}}$$
 and use this score as an indicator of the nutritional

status of the child. All variables used in the study were measured by the surveyors and measurement error in the weight of the child was significantly reduced through the use of electronic scales with an error margin of <100 gms. Finally, note that our measures incorporate innate differences in growth patterns by gender as well as age in their construction.

The PRHS 2001 contains information from 2,800 households in 141 villages of rural Pakistan, from 14 districts. Although the results are not representative of the country as a whole, a key advantage in using this data is that a resurvey was conducted for the *same households* as those in the IFPRI sample thus allowing us to make accurate claims about changes in nutritional status over time: although clearly there will be differences in household attributes over the 15 year time period, these differences are a reflection of time trends in income and infrastructure across half a generation rather than differences in the composition of the sample.

Summary statistics for important variables in the dataset are presented in Table A-3.11: note in particular that households in this sample are poorly educated, with 88% of mother's illiterate and 46% of children under 15 currently enrolled, predominantly landless with 48% of households reporting no land ownership and report a poverty profile that is comparable to those obtained from the Pakistan Integrated Household Survey, with 35.6% of the households falling below the poverty line of Rs. 690 per capita per month. There are also important differences among communities in access to health care and medical facilities- only 37.5% of the villages report a health facility within 5 kms, and a portion of households (12%) report using surface water (as opposed to well or piped water sources) as their primary drinking water source.

A note of caution. The results presented in this study are extremely preliminary. We are particularly concerned about the number of observations that are unusable at this moment due to incongruities in the dataset. Specifically, the results that we provide below are based on approximately 2000 observations out of a potential 4,700. Out of the initial 4,700 observations, a large number could not be used due to lack of identifiers and/or reliable information on heights and weights of the respondents. Table A-3.11 checks if the observations that have been dropped differ along observable dimensions from those that form the final sample for estimation. For the six variables that we consider- per capita income, mother's education, number of family members, access to water, access to land and age we find no statistically significant differences between the final sample and the original observations. While this does provide some ground for assuming that missing observations are not selected along any particular dimension, it also decreases the total number of observations for the estimations implemented below. Particularly in the case of within-community comparisons, the loss of half our sample could result in a substantial drop in the precisions of our estimates and hence an increase in their confidence intervals. For this reason, we present our results at the 10% level of significance in addition to the standard 1% and 5% levels- in the next draft of this study, we hope to use the expanded sample following an extensive round of cleaning and re-matching.

Nutritional Status of Children

Figure 3.12 shows the overall nutritional status of children in the sample. For each child, we compute three measures of nutritional status: stunting, under-weight and wasting, each defined as a z-score of the variables (height-for-age, weight-for-age, and weight-for-height respectively) less than 2 standard deviations from their respective median values. For all four districts, we note that by the time a child reaches the age of 5, he/she has a 62% probability of being stunted, a 45% probability of being under-weight and a 12% probability of being wasted representing high levels of chronic malnutrition in the population. More disturbing however is the complete lack of improvement in the four districts of the IFPRI sample over the 15 year period: there are now more children who are stunted and under-weight compared to results obtained during the late eighties.

While the aggregated statistics provide an overview of childhood nutrition in Pakistan, they also hide a significant amount of variation among the provinces. Table A-3.12 disaggregates each of these measures by province and age in order to explore this variation further. We find that among the four provinces surveyed, Balochistan and Sindh report the worst results, while Punjab and NWFP do significantly better in terms of weight-for-age and to a lesser extent, for height-for-age as well. Interestingly however, weight-for-height results do not follow the same patterns with Punjab reporting *less* than the 5% one would expect from a normally distributed variable, and Sindh and NWFP reporting the highest proportion (14.6% and 12.1% respectively) among the four provinces. Although it is hard to identify why this is so, one potential explanation is a region-specific shock, such as a poor harvest that differentially impacted on these four provinces immediately preceding the survey.

Table A-3.12 also shows the impact of age on the z-score of the child. From the table it appears that there is a significant decline in the nutritional status of the child between birth and 2 years, followed by a slight improvement. This relationship between the nutritional status and the age of the child is confirmed in Figure 3.13, which show the z-scores of height-for-age, weight-for-age and weight-for-height in the PRHS sample. As with Alderman and Garcia (1993), we find that chronic malnutrition as measured through the z-scores of height-for-age and weight-for-age starts early in childhood with the z-score dropping rapidly from one standard deviation below the median (weight-for-age) and 1.5 standard deviations below the median (height-for-age) to longer term values of between 2 and 1.5 standard deviations below (weight-for-age) and between 3 and 2.5 standard deviations below the median for height-for-age by the second year of the child. Our findings at the cross-sectional level are in accordance with research from other countries that show the importance of nutrition in early childhood and the relative inefficacy of interventions beyond the second year of the child.

For instance, a number of studies now show that poor nutrition in early childhood has lasting repercussions for the productive work-life of the adult: a longitudinal study in Guatemala reported in Martorell et al. (1990 and 1995) showed that while supplements in the first two years of the childhood had significant impacts on adolescent intelligence and adult work-capacity, interventions during the later childhood years did not have any such benefits. These findings reiterate the significance of policies that advocate targeted nutritional programs during pregnancy and early childhood years: in areas with poor catch-up growth and in the presence of cumulative effects of poor early nutrition on long run growth, childhood nutrition programs can impact powerfully on income growth through their impact on morbidity and future work capacity (Scrimshaw, 1995).

The Figure A-3.3 also shows that there are important differences between the four provinces of the study: while NWFP shows extremely strong catch-up growth with z-scores improving from an average of less than -2.5 in the second year to an average of -1.5 in the 5th year, Balochistan shows a steep drop to -3.5 in the 2nd year followed by fluctuations around this level till the 5th year of the child. At this stage, we provide no explanations for why these provinces differ in the growth pattern over the first 5 years of childhood, but these results point towards the need for a more thorough enquiry into the inter-regional differences among provinces in the country.

Interestingly however, the gender of the child, which is typically important in several economic variables (particularly enrollment) does not seem to lead to statistically significant differences in nutritional status. As Figure A.3-4 shows, all three measures of nutritional status show similar trends and levels, and are even slightly biased towards girls compared to boys. One potential explanation for this result could be selection in the sample induced by higher mortality among

young girls compared to boys: if it is the case that infant mortality among girls is significantly higher, the sample of children observed for each cohort will select on 'more-healthy' girls compared to boys, and this could lead us to (erroneously) conclude that there is no gender discrimination in nutrition status in our sample. While this is currently under investigation, at this point we are unable to say whether such patterns exist in the infant mortality data.

The basic description of our sample with regard to the nutritional status of children under six provides considerable information, both about changes over time and differences across provinces in Pakistan. To summarize, we find that:

1. The anthropometric status of children in the population is indicative of chronic nutritional deficiencies, with half of the sample classified as 'stunted' or 'underweight'.
2. There are significant differences between provinces with Balochistan and Sindh reporting the poorest nutritional levels, and NWFP reporting the highest.
3. Discouragingly, over the last 15 years there seems to have been almost no change in the nutritional status of children. Comparisons for the *same households* as those surveyed under the IFPRI panel survey in 1986-89 show no significant differences, either in the height or weight status of the child as measured through stunted and under-weight children.
4. As with the IFPRI panel, we find strong age effects for the nutritional status of the child: anthropometric measures decline steadily through the first two years of childhood, and then remain steady (or improve slightly) around their long-term averages of 2.41 standard deviations below the median (height-for-age) and 1.77 standard deviations below the median (weight-for-age).
5. As opposed to chronic nutritional deficiencies, short-term nutritional problems as measured through weight-for-height do not seem to be severe. In Punjab and Balochistan, the number of wasted children follows the distributional norm, and although the numbers are slightly higher for NWFP and Sindh, they are still within reasonable bounds. These results match up with those reported by Alderman and Garcia (1993) for the IFPRI survey.

The description we have provided so far points towards an important policy implication regarding the implementation of targeted childhood nutrition programs during pregnancy and early childhood, that could improve the long term nutritional status of the child. In the next section, we now turn to an analysis of the determinants of nutritional status, with a particular emphasis on the role of income. As argued previously, the sensitivity of nutritional status to household income is critical for the targeting of policy programs: high sensitivity would argue for the placement of programs that generate more income for households, while the converse would argue for the placement of programs that may be orthogonal to income with greater concentration of other correlates of nutritional status.

Nutritional Status and Household Expenditure

Figure 3.14 plots the impact of a measure of household income (as measured through household consumption expenditure) on the three measures that we are using as proxies for the nutritional status of the child. For all three, we find a significant positive correlation with income: an increase in the log of per-capita income from 6 to 9 improves the z-score of height-for-age by 1 standard deviation and the z-scores of weight-for-age and weight-for-height by over 1.5 standard deviations. In itself, these graphs would present strong conditional evidence for the importance of the economic status of the household for the well-being of the child. Note however, that in itself

these correlates do not allow us to draw any causal implications regarding the importance of economic status in the determinant of childhood nutrition. In particular, there are two issues that we may be concerned about:

1. We may be concerned that average income in the community impacts on the nutritional status of the child through other resources that the community may be able to command. For instance, it is entirely possible that richer communities are better able to implement nutritional programs/ensure higher quality medical care than poorer communities. In this case, what may look like a positive relationship between household income and nutritional status may be masking the true underlying determinant at the *community level* such as better nutrition or sanitary provisions.
2. We may also be concerned about the endogenous nature of income at the household level: households may differ in inherent characteristics such as 'entrepreneurship' that is correlated positively to both the economic status of the household, and to the well-being of the child. For instance, entrepreneurial households may use more advanced production techniques on their farms, but may also be more up-to-date with the benefits of early childhood nutrition for the child. In this case, income would proxy for an underlying characteristic at the *household level* that is causally linked to better nutritional outcomes for the child.

In the exercise below, we address the first of the problems, but not the second. Specifically, we examine whether there are attributes of communities that cause them to differ systematically in the treatment of their children. Doing so yields surprising results that we discuss in some detail, with special emphasis on their policy implications.

For this exercise, we estimate four different model specifications, based on a reduced form household maximization program as in Alderman, et al. (2001). For the first model, we estimate Ordinary Least Squares (OLS) with the z-score of all three measures as the dependant variable. Apart from the log of per capita income, we also control for child-specific characteristics, such as age and gender; household specific characteristics such as water source, land ownership and education of the mother, and community characteristics such as distance from the closest health center. As a comparison to previous work in Pakistan, we also present results for the 4 districts from the IFPRI sample, and compare them to results obtained previously. Since we are using the log of per capita expenditure, we may be concerned that measurement error in this variable would bias our coefficients downwards due to an increase in the overall variance of the regression. To deal with this attenuation bias, we present a second estimation using household assets as instruments for consumption expenditure.

Our third model then introduces community fixed effects in the model. By doing so, we implicitly argue that there may be attributes of communities that determine the nutritional status of the child, and that may be correlated positively with income (since from the graphs, there is a positive relationship between expenditure and z-scores). Finally, we present the same estimation with instrumentation in model 4.

The results from these estimations are presented in Table A-3.13a,b and c. For both height and weight-for-age, we find that the OLS estimates of log per capita income are significant and positive, particularly so in the case of the four IFPRI districts. Further, the gradient of the z-score with expenditure increases substantially once we instrument consumption expenditure with household assets. Specifically, in the case of height-for-age, a one standard deviation increase in log per capita income improves the z-score of a child at the mean of the sample by 0.23 (0.11 for

OLS) and for weight-for-age by 0.14 (0.11 for OLS) at the mean of the sample. The results for the IFPRI sample are far stronger, with equivalent numbers of 0.34 (0.18 for OLS) and 0.22 (0.12 for OLS).

The estimation results from Model 3 and 4 show however that this strong relationship between income and nutritional status, at least in the case of chronic malnutrition, *is entirely driven* by differences in the average per capita income across communities: richer communities have taller and less underweight children, but once we control for the average per capita income of the community, there is no impact of household expenditure on z-scores of height and weight-for-age across different households in the community. This implies that a child in a *poor household* in a *rich community* will have a better nutritional status than a child in a *rich household* living in a *poor community*, pointing towards the presence of strong externality effects within communities in the child's well-being. Such results have been noted, both in Alderman, et al (2001) with regard to anthropometric and Hughes and Dunleavy (2000) for mortality data in Peru and India respectively. One concern that we may have regarding this result is that it is an artifact of the income characteristics of the sample: if most of the variation in income is *across* communities, then the lack of significance within communities could be indicative of the lack of variation, rather than the lack of a relationship. In our particular sample however, this is not a concern: decomposing the variation of income into *within community* and *across community* components, we find that over 70% of the variation in income is generated by *within community* differences, and less than 30% by differences across communities. In combination with our previous result, this provides strong evidence that most differences in nutritional status of children are driven by community level rather than household level effects.

Community Level Characteristics: Health Facilities

At this stage, we might be interested in knowing more about what the community level fixed effects proxy for. A reasonable hypothesis would be that that these community level characteristics are a substitute for the availability of health facilities and services (see for instance, Thomas, et al. (1992), with richer communities being in a better position to influence the location of a health facility as well as ensure more regular, high quality operation compared to a poor village. From the OLS instrumented estimation in column 10 of Table A-3.13a, b, and c, we note that, at least as measured as distance to the closest facility, the presence (or not) of health services do not impact significantly on the nutritional status of the child. This leads us to worry that what may matter for the well-being of a child is not the presence of a facility per se, but the presence of a *well-functioning* facility close to the village.

Our preliminary results on this front shows that there are significant differences across facilities in the sample. We base these observations on the facility-level survey component of the PRHS, as a part of which facilities *in the village* were surveyed along with households. Due to this strategy, the total number of facilities in the sample are small, with only 12 Regional Health Centers (RHC's) and 38 BHU's. In addition, it was found that record-keeping at the facility level was of insufficient quality to collect important data on availability of medicines and other process indicators. To depict at an anecdotal level the variation in the quality of the facility, we thus use the *number of OPD visits* for a one year period (separated by month) for each of these facilities.

The figure in Box 3.6 shows the pattern of these visits for the median facility, for the average of the top 3 facilities, and for the average of the bottom 3 facilities. Note that both for the median and the top 3 facilities visits follow a seasonal trend with declines during the winter months of November to March and increases during the summer and monsoon months of April to October.

What is perhaps more striking however, is the vast difference in the number of visits across the facilities: while the top 3 facilities regularly show more than 1,500 visits per month, the bottom 3 facilities consistently report 0 visits each month during the year preceding the survey. One explanation could be that this graph actually captures variation *within* facilities as opposed to variation *across* facilities: i.e., the number of OPD patients in each facility fluctuates with other services (such as the availability of medicines) and hence the *identity* of the top 3 and the bottom 3 facilities changes across the sample period. The table in Box 3.6 shows that this is not the case. For each month, we see that less than 0.1 proportion of facilities change their relative ranking by more than 4 points, and the standard deviation of each facilities rank is less than 2. These results thus indicate that the health facilities in the sample differ considerably across communities, with some facilities consistently catering to far higher OPD populations than others.

To a certain extent, these results could be due to the presence of health personnel in the facilities: as Table 3.14 shows, better facilities tend to have a greater proportion of positions filled as a fraction of positions sanctioned, although they have a lower proportion of personnel present over positions filled. Apart from this, there seem to be no systematic differences across facilities in terms of infrastructure: while the top facilities report more usable well water and more reliable electricity, the differences remain insignificant in a sample of this size.

Conclusion

Both the discussion of the nutrition status of children and the state of health facilities in the sample point towards the importance of effects at the community level in determining the health status of the population. One way to disentangle this important effects would be to think of what community level variables impact on the nutritional status of the child. Note however, that once we include these fixed effects in our estimation, it is not possible to include any other variable that does not vary within a community due to problems of multi-co linearity and thus the impact of variables such as the average price of food, or the distance to the health facility can be included in the estimation only if community fixed effects are removed. An alternative way to analyze the differences between communities is to follow Islam (1995), in decomposing the fixed effect itself with regard to various community level attributes. Figure A-3.5 presents the kernel densities of the fixed effects for our three measures, and shows that there is significant variation across communities. To decompose these fixed effects, we would use the estimated fixed effects from the first stage regression as a dependent variable in the second-stage regression, with community level variables as the relevant regressors, and this remains the focus of our continuing enterprise.

Note: Data source for all tables and graphs in this section is PRHS (2001)

Table A-3.11: Summary Statistics (PRHS, 2001)

	Obs		Mean		Difference ^a
	Sample for estimation	Full sample	Sample for estimation	Full sample	
Z-score: height for age	2389	...	-2.41 (1.93)	...	...
Z-score: weight for age	2389	...	-1.77 (1.34)	...	...
Z-score: weight for height	2389	...	-0.37 (1.38)	...	...
log per capita income	2311	4789	6.67 (0.52)	6.75 (0.56)	-0.08**
^b literacy of mother (%)	2319	3944	12% (0.07)	13% (0.05)	-1%
^c Landless household (%)	2311	4789	48% (0.10)	47% (0.07)	1%
^d gender of child (% male)	2389	4036	52% (0.10)	53% (0.08)	-1%
^e wellwater (%)	2387	4997	87% (0.07)	87% (0.05)	0%
Household size	2311	4789	10.20 (5.40)	9.99 (5.94)	0.21
^f access to health facility (%)	1985	4023	38% (0.01)	37% (0.08)	1%
age of child	2389	3870	38.05 (20.64)	38.57 (25.19)	-0.52

Notes: Standard deviation in parentheses.

^aDifference includes the result of t-test for differences of mean between estimation sample and full sample. ** indicates mean of estimation sample is significantly different from that of full sample at a level of 1 %. * significant at 5%, + significant at 10 %.

^bliteracy of mother: 1 if Mother completes at least primary education; 0 otherwise

^clandless household: 1 if a household does not own any land; 0 otherwise

^dgender of child: 1 if male; 0 otherwise

^ewellwater: 1 if the source of water is tap, pump, well, or purchased water; 0 otherwise

^faccess to health facility: 1 if the nearest health facility is within 5 km; 0 otherwise

Table A-3.12: The overall nutritional status of children

Age category	Punjab			Sindh			NWFP			Balochistan			All Provinces		
	Stunted ^a	Under-weighted ^b	Wasted ^c	Stunted	Under-weighted	Wasted	Stunted	Under-weighted	Wasted	Stunted	Under-weighted	Wasted	Stunted	Under-weighted	Wasted
	(Percent)														
All ages	60.1	39.4	7.8	63	54.6	14.9	53.5	33.1	15.9	73.5	45.3	9.1	61.9	44.6	11.7
0-6 months	47.2	26.4	9.4	39.2	31.4	9.8	50	22.2	11.1	43.8	31.3	6.3	44.2	28.3	9.4
6-12 months	57.5	50	13.8	60.6	62.1	12.1	50	22.2	2.8	70.6	47.1	17.6	58.3	48.7	11.6
1 years	70.9	53.8	13.7	84.3	66.1	18.1	68	28	22	79.2	62.5	20.8	76.4	55.3	17.3
2 years	63.6	47	9.3	74.5	66.4	15.3	71.4	54	15.9	77.4	49.1	1.9	70.3	55	11.4
3 years	61	34.4	4.5	57.3	51.4	15.7	41.9	30.6	19.4	66.1	46.4	10.7	57.5	42.2	11.8
4 years	54.7	35.8	8	55.6	45.2	13.7	45.5	34.8	19.7	70	40	6	55.4	39.3	11.7
5- years	58.3	29.9	2.7	57	50.6	14.6	46.6	25.9	12.1	81.7	43	9.7	60.9	38.5	8.9

Source: PRHS Pakistan Rural Household Survey 2001.

^aStunted: Z-score of less than -2 standard deviation from median height for age

^bUnder-weighted: Z-score of less than -2 standard deviation from median weight for age

^cWasted: Z-score of less than -2 standard deviation from median weight for height

Figure A-3.3: Z-score vs. age for each province (Annex)

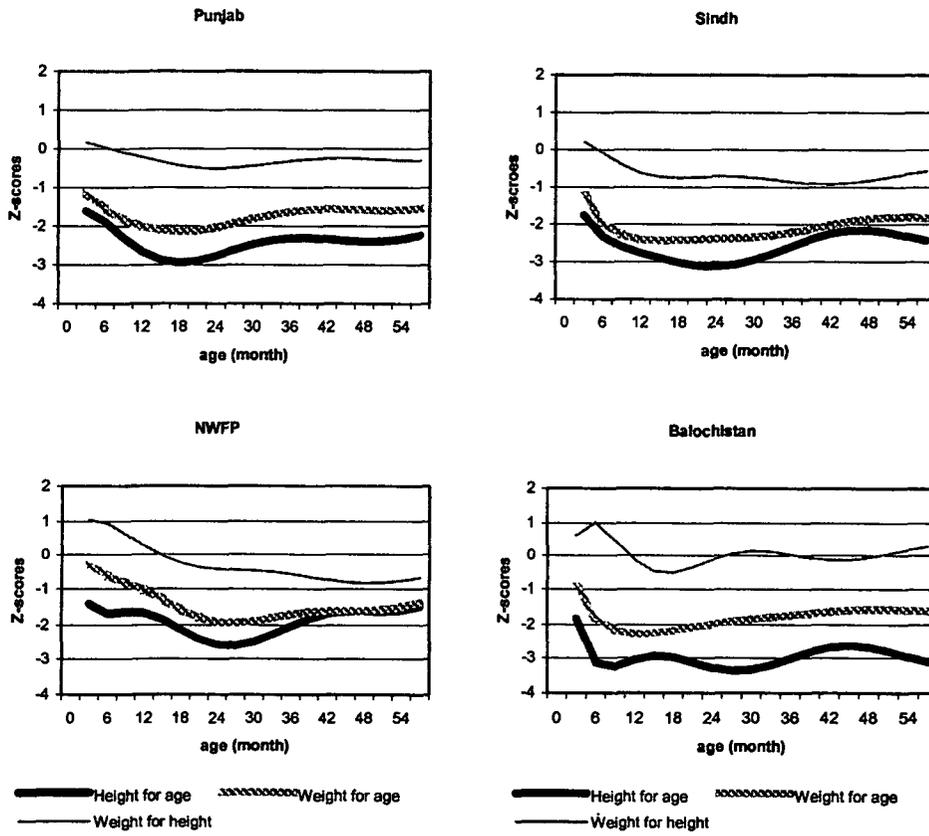


Figure A-3.4: Kernel density of Z-scores for boys and girls

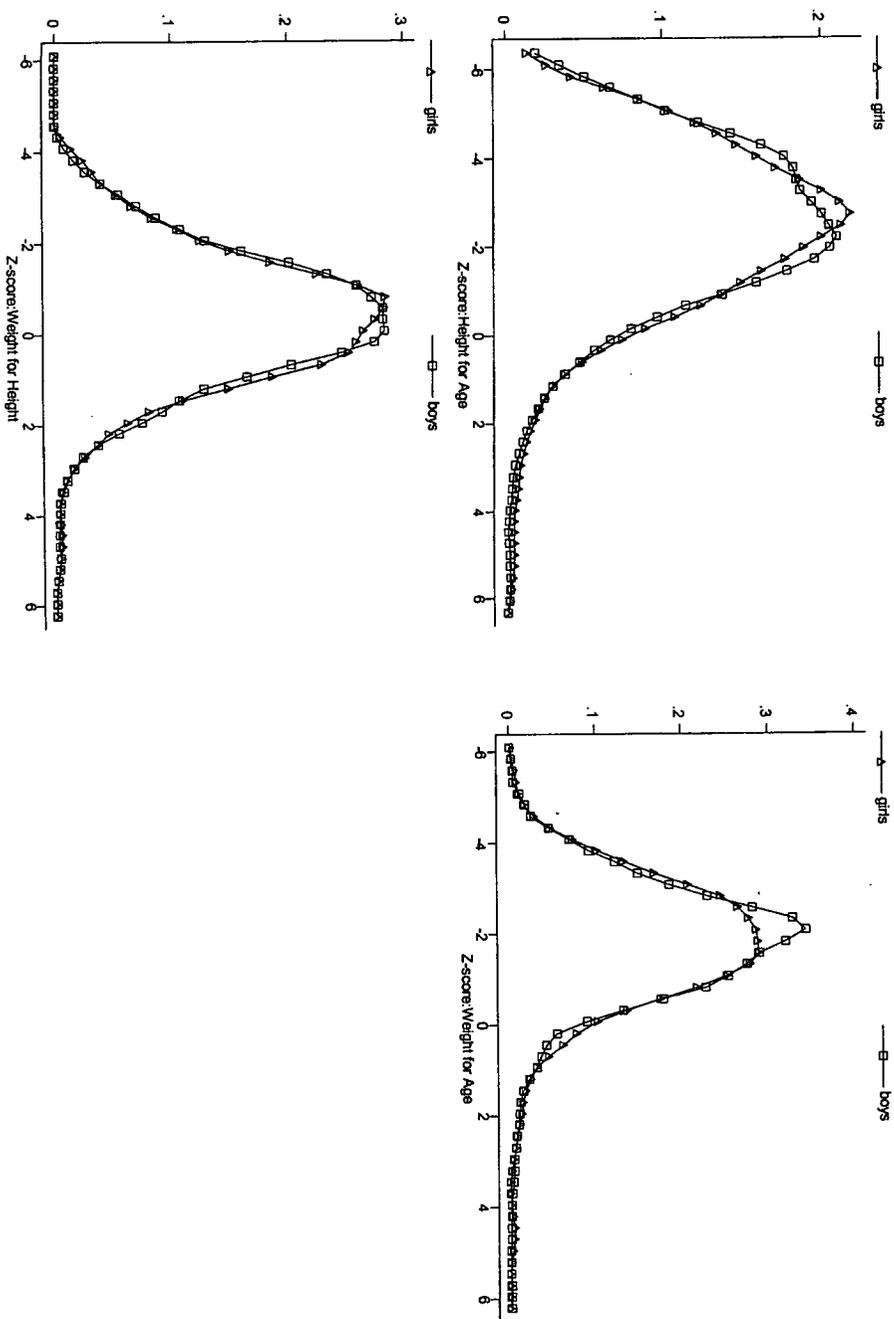


Table A-3.13a: Regressions of Z-score of Height for age

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample	All	All	All	All	IFPRI	IFPRI	IFPRI	IFPRI	All	All	IFPRI	IFPRI
Estimation	OLS	IV	FE	FE IV	OLS	IV	FE	FE IV	OLS	IV	OLS	IV
Z-score	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age	Height for age
log per capita income	0.347 (3.80)**	0.531 (3.22)**	-0.072 (0.62)	-0.057 (0.22)	0.389 (2.53)*	0.746 (2.82)**	0.017 (0.09)	0.291 (0.73)	0.197 (1.80)+	0.347 (1.48)	0.106 (0.52)	0.164 (0.46)
^a literacy of mother	0.424 (2.96)**	0.359 (2.37)*	0.253 (1.63)	0.251 (1.58)	0.338 (1.73)+	0.244 (1.20)	0.248 (1.15)	0.222 (1.01)	0.527 (3.19)**	0.486 (2.77)**	0.677 (2.77)**	0.663 (2.61)**
age of child	-0.019 (2.26)*	-0.019 (2.26)*	-0.017 (2.08)*	-0.017 (2.08)*	-0.034 (2.16)*	-0.034 (2.15)*	-0.033 (2.13)*	-0.033 (2.11)*	-0.016 (1.79)+	-0.016 (1.75)+	-0.033 (1.80)+	-0.033 (1.78)+
age of child ²	0.000 (2.63)**	0.000 (2.66)**	0.000 (2.72)**	0.000 (2.72)**	0.001 (2.69)**	0.001 (2.66)**	0.001 (2.80)**	0.001 (2.77)**	0.000 (2.18)*	0.000 (2.15)*	0.001 (2.26)*	0.001 (2.22)*
^b Landless household	0.221 (2.36)*	0.259 (2.64)**	0.107 (0.98)	0.110 (0.93)	0.308 (1.82)+	0.381 (2.17)*	0.161 (0.81)	0.222 (1.03)	0.152 (1.50)	0.181 (1.66)+	0.397 (1.94)+	0.404 (1.94)+
^c gender of child	-0.144 (1.62)	-0.142 (1.59)	-0.147 (1.67)+	-0.147 (1.67)+	-0.036 (0.23)	-0.031 (0.20)	-0.074 (0.47)	-0.074 (0.47)	-0.097 (1.01)	-0.098 (1.02)	-0.001 (0.01)	-0.001 (0.01)
^d wellwater	0.016 (2.02)*	0.018 (2.14)*	0.006 (0.58)	0.006 (0.56)	-0.015 (1.06)	-0.016 (1.14)	-0.020 (1.26)	-0.018 (1.07)	0.023 (2.48)*	0.026 (2.57)*	0.013 (0.62)	0.013 (0.64)
Household size	0.054 (0.41)	0.048 (0.37)	-0.214 (1.21)	-0.216 (1.20)	0.255 (1.14)	0.276 (1.23)	0.026 (0.10)	0.006 (0.03)	0.161 (1.14)	0.156 (1.10)	0.454 (1.75)+	0.461 (1.76)+
^e access to health facil	...	...	...	...	...	...	...	...	0.108	0.099	-0.323	-0.318
Constant	-4.806 (7.33)**	-6.055 (5.31)**	-1.667 (2.02)*	-1.771 (0.98)	-4.780 (4.22)**	-7.265 (3.87)**	-1.908 (1.37)	-3.839 (1.35)	-4.073 (5.19)**	-5.098 (3.16)**	-3.350 (2.22)*	-3.764 (1.45)
Observations	1840	1840	1840	1840	632	632	632	632	1526	1526	413	413
R-squared	0.02	0.02	0.01	...	0.04	0.03	0.03	...	0.02	0.02	0.06	0.06
N of village	...	...	143	143	...	...	43	43	...	...	...	...

Notes: Absolute value of t-statistics in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%

^aliteracy of mother: 1 if Mother completes at least primary education; 0 otherwise

^blandless household: 1 if a household does not own any land; 0 otherwise

^cgender of child: 1 if male; 0 otherwise

^dwellwater: 1 if the source of water is tap, pump, well, or purchased water; 0 otherwise

^eaccess to health facil: 1 if the nearest health facility is within 5 km; 0 otherwise

Table A-3.13b: Regressions of Z-score of Weight for age

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample	All	All	All	All	IFPRI	IFPRI	IFPRI	IFPRI	All	All	IFPRI	IFPRI
Estimation	OLS	IV	FE	FE IV	OLS	IV	FE	FE IV	OLS	IV	OLS	IV
Z-score	Weight for age	Weight for age	Weight for age									
log per capita income	0.250 (4.01)**	0.301 (2.67)**	0.062 (0.78)	0.206 (1.13)	0.250 (2.38)*	0.470 (2.60)**	-0.047 (0.36)	0.008 (0.03)	0.176 (2.37)*	0.279 (1.75)+	0.016 (0.11)	0.199 (0.80)
^a literacy of mother	0.050 (0.51)	0.032 (0.31)	0.044 (0.40)	0.024 (0.22)	-0.032 (0.24)	-0.090 (0.65)	-0.083 (0.55)	-0.088 (0.58)	0.131 (1.16)	0.102 (0.86)	0.206 (1.22)	0.163 (0.93)
age of child	-0.028 (4.83)**	-0.028 (4.84)**	-0.026 (4.44)**	-0.026 (4.42)**	-0.043 (4.07)**	-0.043 (4.06)**	-0.043 (4.07)**	-0.043 (4.06)**	-0.019 (3.09)**	-0.019 (3.05)**	-0.018 (1.43)	-0.017 (1.33)
age of child ²	0.000 (5.50)**	0.000 (5.51)**	0.000 (5.15)**	0.000 (5.14)**	0.001 (4.18)**	0.001 (4.15)**	0.001 (4.29)**	0.001 (4.28)**	0.000 (3.92)**	0.000 (3.89)**	0.000 (1.80)+	0.000 (1.68)+
^b Landless household	0.058 (0.91)	0.068 (1.03)	0.088 (1.17)	0.117 (1.43)	0.100 (0.87)	0.145 (1.21)	-0.030 (0.22)	-0.018 (0.12)	0.077 (1.11)	0.096 (1.30)	0.182 (1.29)	0.206 (1.44)
^c gender of child	-0.088 (1.44)	-0.087 (1.43)	-0.089 (1.45)	-0.089 (1.46)	0.065 (0.62)	0.069 (0.64)	0.071 (0.65)	0.071 (0.65)	-0.125 (1.91)+	-0.125 (1.92)+	-0.077 (0.61)	-0.078 (0.62)
^d wellwater	0.010 (1.88)+	0.011 (1.93)+	0.004 (0.65)	0.007 (0.94)	0.004 (0.47)	0.004 (0.39)	-0.004 (0.35)	-0.003 (0.30)	0.016 (2.43)*	0.018 (2.53)*	0.018 (1.32)	0.021 (1.44)
Household size	0.065 (0.73)	0.063 (0.71)	-0.170 (1.39)	-0.187 (1.50)	0.209 (1.37)	0.222 (1.45)	0.114 (0.65)	0.110 (0.62)	0.111 (1.16)	0.107 (1.11)	0.215 (1.21)	0.239 (1.32)
^e access to health facil	...	...	...	...	...	...	...	...	0.013 (0.19)	0.007 (0.10)	-0.097 (0.74)	-0.080 (0.61)
Constant	-3.296 (7.36)**	-3.642 (4.68)**	-1.826 (3.18)**	-2.810 (2.23)*	-3.217 (4.16)**	-4.748 (3.70)**	-0.950 (0.99)	-1.342 (0.68)	-3.078 (5.77)**	-3.781 (3.44)**	-2.230 (2.15)*	-3.532 (1.97)*
Observations	1840	1840	1840	1840	632	632	632	632	1526	1526	413	413
R-squared	0.03	0.03	0.02	...	0.04	0.03	0.03	...	0.03	0.02	0.03	0.02
N of village	...	...	143	143	...	...	43	43	...	...	...	...

Notes: Absolute value of t-statistics in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%

^aliteracy of mother: 1 if Mother completes at least primary education; 0 otherwise

^blandless household: 1 if a household does not own any land; 0 otherwise

^cgender of child: 1 if male; 0 otherwise

^dwellwater: 1 if the source of water is tap, pump, well, or purchased water; 0 otherwise

^eaccess to health facil: 1 if the nearest health facility is within 5 km; 0 otherwise

Table A-3.13c: Regressions of Z-score of Weight for height

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample	All	All	All	All	IFPRI	IFPRI	IFPRI	IFPRI	All	All	IFPRI	IFPRI
Estimation	OLS	IV	FE	FE IV	OLS	IV	FE	FE IV	OLS	IV	OLS	IV
Z-score	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height	Weight for Height
log per capita income	0.076 (1.16)	0.004 (0.03)	0.161 (1.94)+	0.363 (1.93)+	0.035 (0.32)	0.033 (0.18)	-0.057 (0.41)	-0.227 (0.78)	0.098 (1.27)	0.122 (0.74)	-0.058 (0.43)	0.103 (0.43)
^a literacy of mother	-0.247 (2.42)*	-0.222 (2.06)*	-0.130 (1.16)	-0.158 (1.38)	-0.302 (2.21)*	-0.301 (2.12)*	-0.324 (2.06)*	-0.307 (1.93)+	-0.220 (1.89)+	-0.227 (1.83)+	-0.238 (1.45)	-0.276 (1.61)
age of child	-0.046 (7.56)**	-0.046 (7.55)**	-0.045 (7.43)**	-0.045 (7.38)**	-0.051 (4.69)**	-0.051 (4.69)**	-0.052 (4.67)**	-0.052 (4.67)**	-0.038 (5.92)**	-0.038 (5.91)**	-0.021 (1.69)+	-0.020 (1.59)
age of child ²	0.001 (7.09)**	0.001 (7.06)**	0.001 (6.72)**	0.001 (6.70)**	0.001 (3.65)**	0.001 (3.65)**	0.001 (3.65)**	0.001 (3.66)**	0.000 (5.67)**	0.000 (5.66)**	0.000 (1.12)	0.000 (1.01)
^b Landless household	-0.085 (1.28)	-0.100 (1.43)	0.044 (0.56)	0.084 (0.99)	-0.090 (0.76)	-0.091 (0.74)	-0.112 (0.77)	-0.150 (0.96)	-0.009 (0.13)	-0.005 (0.06)	-0.040 (0.29)	-0.019 (0.14)
^c gender of child	-0.055 (0.86)	-0.056 (0.88)	-0.055 (0.87)	-0.055 (0.87)	0.044 (0.40)	0.044 (0.40)	0.068 (0.60)	0.068 (0.60)	-0.132 (1.95)+	-0.132 (1.95)+	-0.151 (1.24)	-0.152 (1.24)
^d wellwater	0.003 (0.45)	0.002 (0.37)	0.002 (0.36)	0.006 (0.79)	0.020 (2.06)*	0.020 (2.06)*	0.014 (1.22)	0.013 (1.05)	0.004 (0.66)	0.005 (0.67)	0.020 (1.49)	0.022 (1.60)
Household size	0.044 (0.47)	0.046 (0.49)	-0.071 (0.56)	-0.094 (0.73)	0.092 (0.59)	0.092 (0.59)	0.128 (0.69)	0.140 (0.75)	0.038 (0.38)	0.037 (0.37)	-0.017 (0.10)	0.004 (0.02)
^e access to health facil	...	...	...	...	...	...	...	...	-0.092 (1.29)	-0.093 (1.31)	0.083 (0.65)	0.097 (0.76)
Constant	-0.155 (0.33)	0.332 (0.41)	-0.680 (1.14)	-2.065 (1.58)	-0.071 (0.09)	-0.054 (0.04)	0.611 (0.61)	1.813 (0.88)	-0.426 (0.77)	-0.589 (0.52)	0.124 (0.12)	-1.023 (0.59)
Observations	1840	1840	1840	1840	632	632	632	632	1526	1526	413	413
R-squared	0.04	0.03	0.04	...	0.06	0.06	0.06	...	0.03	0.03	0.04	0.03
N of village	...	...	143	143	...	...	43	43	...	...	...	...

Notes: Absolute value of t-statistics in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%

^aliteracy of mother: 1 if Mother completes at least primary education; 0 otherwise

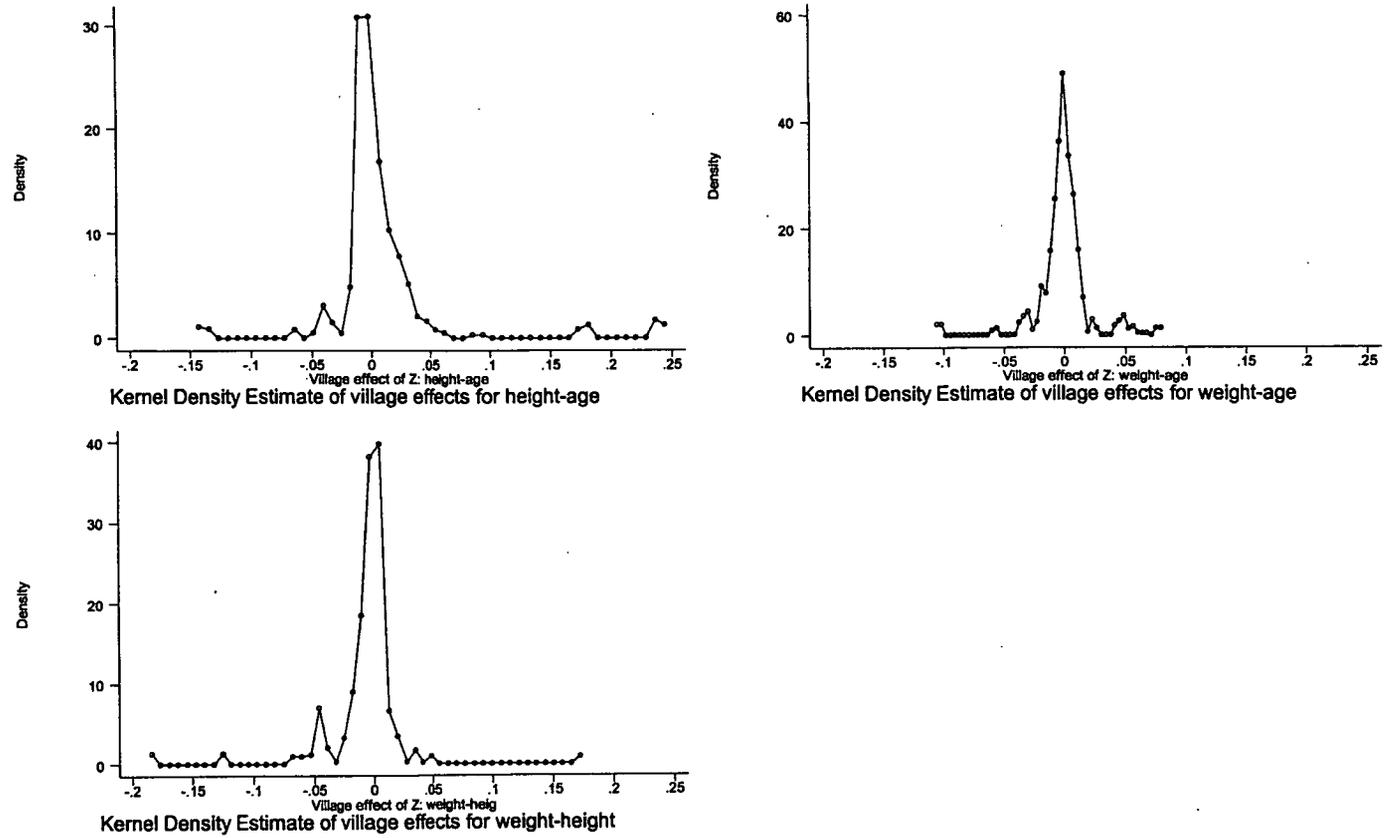
^blandless household: 1 if a household does not own any land; 0 otherwise

^cgender of child: 1 if male; 0 otherwise

^dwellwater: 1 if the source of water is tap, pump, well, or purchased water; 0 otherwise

^eaccess to health facil: 1 if the nearest health facility is within 5 km; 0 otherwise

Figure A-3.5: Kernel density of village effects



Effects

3.3: Tables and graphs on health indicators

Note: Data source for all tables and graphs in this section is PIHS (1998-99)

Figure A-3.6: Infant Mortality (Per 1000 Live Births), 1998-99

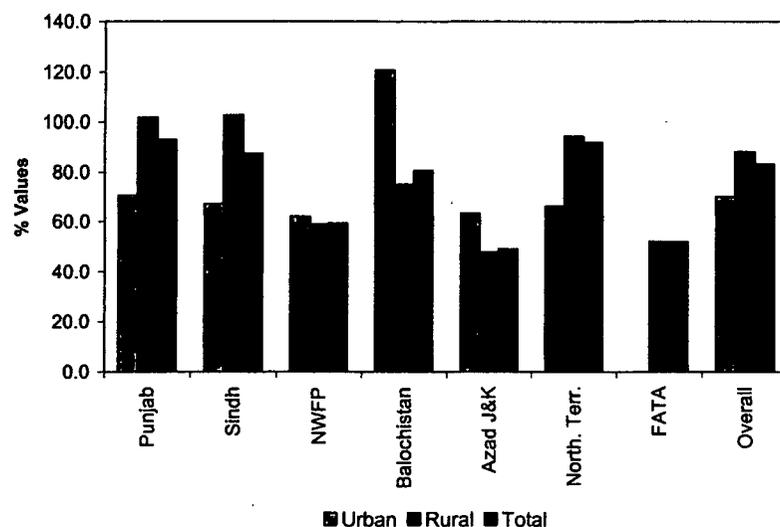


Table A-3.14: Access to Health Facilities in Rural Areas by Province (1998-99)

	% of Rural Population with Health Facilities in PSU			% of Rural Popl. with Family Planning Facility within 3 km. of PSU
	Hospital, Dispensary or Clinic ⁴	Hospital, Dispensary, Clinic or Health Worker	Any Health Facility or Worker ⁵	
Punjab	38.2	54.4	70.8	79.6
Sindh	36.9	56.5	62.5	65.3
NWFP	54.3	63.5	75.9	72.1
Balochistan	54.9	58.1	60.4	60.9
Azad J & K	55.9	68.1	71.3	81.7
N. Areas	53.0	83.6	83.6	74.5
Overall Rural	42.0	56.4	69.1	73.5

⁴ All public and private hospital, dispensaries and clinics (including BHUs, RHCs, Mother & Child Clinics, and Family Welfare Clinics).

⁵ Includes private practitioners and nurses

Table A-3.15: Regional Differences in Selected Human Development Indicators (1998-99)

	Male Literacy Rate	Female Literacy Rate	Infant Mortality (Per 1000 Live Births)	Incidence of Diarrhea: Children of Age 5 and Below (%)	Pre-natal Consultation for Women (%)	Ever Use Contraception: Married Women of Age 15-49 (%)
Rural:						
Punjab	50.1	20.0	101.7	13.9	24.6	18.0
Sindh	52.3	11.2	102.7	8.7	19.0	7.9
NWFP	51.5	11.4	58.7	15.6	19.6	13.9
Balochistan	47.2	6.8	75.1	9.9	14.9	5.7
Azad J & K	77.3	37.9	48.0	8.4	32.7	16.0
Northern Areas	54.1	17.3	94.3	15.4	45.7	26.5
FATA	29.0	0.6	52.2	11.3	5.4	3.4
Urban:						
Punjab	71.2	53.6	70.6	10.5	57.9	33.9
Sindh	77.5	54.9	67.1	11.7	70.4	36.4
NWFP	65.5	35.2	62.0	11.7	36.0	27.2
Balochistan	70.9	32.5	120.6	10.7	42.5	24.0
Azad J & K	85.2	58.0	63.2	12.8	61.3	40.0
Northern Areas	73.4	36.0	66.2	22.0	68.6	29.6

Annex to Chapter 4

Table A-4.1: Determinants of Water availability

	Kharif Water Availability (range = no water available in canal to 5 = canal full most of the time)	Rabi Water Availability (range = no water available in canal to 5 = canal full most of the time))
Position of plot on watercourse		
Head & fully lined	-0.62484 (0.48916)	-0.73810 (0.53316)
Head & partly lined near head	-0.22708 (0.48850)	-0.82304 (0.56091)
Head & partly lined elsewhere	-0.70523 (0.54023)	-0.39755 (0.52692)
Head & unlined	0.12794 (0.41118)	-1.17306 (0.45422)*
Middle & fully lined	-0.54724 (0.41393)	-0.86614 (0.46510)
Middle & partly lined near head	0.05384 (0.41844)	-0.42574 (0.50158)
Middle & partly lined elsewhere	-0.31636 (0.43388)	-0.92822 (0.48874)
Middle & unlined	0.20322 (0.40650)	-1.25127 (0.45006)**
Tail & fully lined	-0.75462 (0.42385)	-1.06841 (0.47732)*
Tail & partly lined near head	-0.59491 (0.43397)	-1.09500 (0.50475)*
Tail & partly lined elsewhere	-0.38160 (0.42361)	-1.43751 (0.48551)**
Tail & unlined	-0.16142 (0.40546)	-1.39974 (0.44855)**
Position of watercourse on distributary		
Head (omitted category)		
Middle	-0.11997 (0.10968)	-0.70004 (0.13069)**
Tail	-0.20220 (0.12351)	-0.46245 (0.14705)**
Payment to irrigation officials (yes/no)	0.31290 (0.10707)**	0.34023 (0.14312)*
Village Land Inequality	-0.03312 (0.00477)**	-0.00306 (0.00559)
Average Holdings of the 3 largest landowners on the watercourse	0.00007 (0.00003)*	0.00011 (0.00003)**
Constant	3.80574 (0.40419)**	3.78361 (0.44573)**

Notes: Robust standard errors in parentheses. Single and double asterisk denote statistical significance at 0.05 and 0.01 levels respectively

Table A-4.2: Determinants Of Participation By Cultivators On A Watercourse

	Percentage of farmers who usually participate in the maintenance and improvement of the watercourse	Existence of a Water User's Group (Yes/No)
Kharif Water Availability (range = no water available in canal to 5 = canal full most of the time)	-0.05890 (0.80552)	
Rabi Water Availability (range = no water available in canal to 5 = canal full most of the time)	4.90078 (0.59323)***	
Average Holdings of 3 largest landowners on watercourse	0.00339 (0.00087)***	0.00000 (0.00002)
Proportion of cultivators in the watercourse who have arrived in the past two years	0.01608 (0.00698)**	-0.00003 (0.00004)
Politician (Dummy variable which equals 1 if there is any politician who has land on the watercourse)	5.09079 (2.26952)**	-0.11892 (0.02778)***
Village land inequality	-5.14502 (6.09588)	-0.13344 (0.06339)**
Proportion of cultivators in the watercourse who are landless tenants	-0.00232 (0.00187)	-0.00008 (0.00003)***
The number of zaat/biradaris (caste/tribe groups) among cultivators on the watercourse	-0.00772 (0.01143)	-0.00003 (0.00005)
Constant	69.94591 (7.57920)***	0.41414 (0.07924)***

Notes: Robust standard errors in parentheses. Single and double asterisk denote statistical significance at 0.05 and 0.01 levels respectively

Table A-4.3: Determinants of plot-level farm productivity

	Log net revenue per acre kharif 2000	Log rice yield kharif 2000	Log net revenue per acre rabi 2000	Log wheat yield rabi 2000
Household characteristics				
Log of total household operated area	-0.219 (0.044)**	-0.129 (0.054)*	-0.375 (0.057)**	-0.100 (0.034)**
Tractor Ownership (yes/no)	0.317 (0.136)*	0.183 (0.170)	0.177 (0.219)	-0.011 (0.111)
Tubewell Ownership (yes/no)	0.242 (0.126)	0.076 (0.130)	0.828 (0.218)**	0.303 (0.078)**
Number of adult males (age 14-59)	0.020 (0.032)	-0.026 (0.028)	0.038 (0.039)	-0.012 (0.027)
Number of adult males (age 14-59)	-0.021 (0.031)	0.042 (0.027)	0.063 (0.043)	0.037 (0.029)
Plot characteristics				
Canal water availability (range 0 = no canal to 5 = full canal most of season)	0.135 (0.034)**	0.104 (0.033)**	0.102 (0.044)*	0.154 (0.034)**
Tubewell w/good quality water (omitted category)				
Tubewell w/brackish water available	-0.329 (0.114)**	-0.040 (0.112)	-0.214 (0.212)	-0.197 (0.085)*
No tubewell available	-0.614 (0.133)**	-0.366 (0.142)*	-1.070 (0.172)**	-0.821 (0.109)**
Clay soil (omitted category)				
Sandy soil	-0.078 (0.172)	0.000 (0.113)	-0.799 (0.218)**	-0.235 (0.118)*
Maira soil	0.259 (0.168)	-0.068 (0.150)	-0.542 (0.170)**	-0.138 (0.110)
Chikni soil	0.000 (0.159)	-0.024 (0.107)	-0.679 (0.191)**	-0.097 (0.125)
Sloping topography (omitted category)				
Flat topography	0.412 (0.108)**	0.133 (0.096)	0.574 (0.173)**	0.465 (0.119)**
Waterlogging/salinity (% area affected)	-0.011 (0.003)**	-0.006 (0.002)**	-0.012 (0.004)**	-0.0025 (0.0014)

Notes: Robust standard errors adjusted for village-level clustering in parentheses. Single and double asterisk denote statistical significance at 0.05 and 0.01 levels, respectively.

Figure A-4.1: Type of Major Investment undertaken to combat waterlogging and salinity

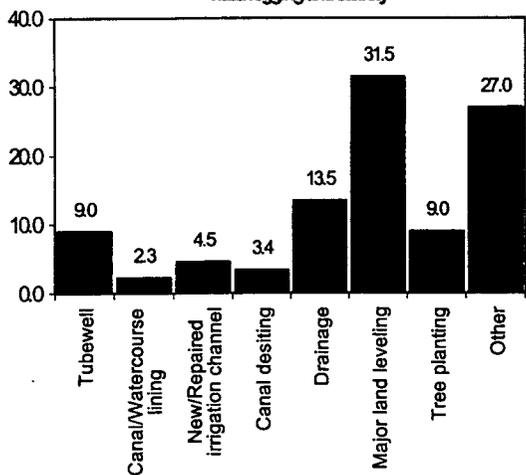


Figure A-4.2: Regular farm level measures to reduce salinity and sodicity

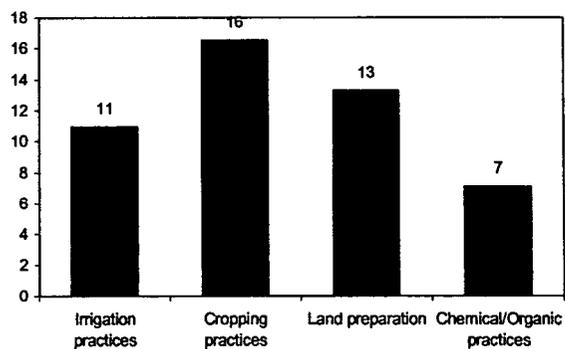
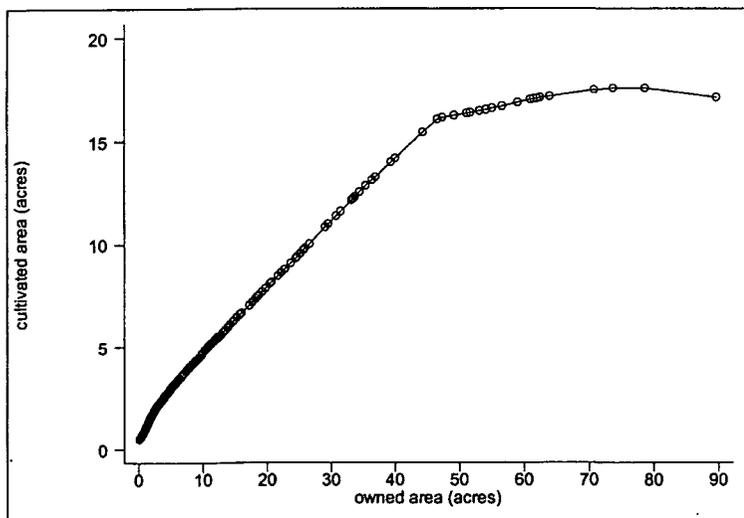


Figure A-4.3: Relationship between Owned and Cultivated Area



Annex to Chapter 5

Table 1 below summarizes the Millennium Development Goals (MDGs) for Pakistan, and the long term indicators that will be tracked at the national level, along with the sources (existing, or proposed) for these indicators.

Table A-5.1: Tracking Pakistan's Progress towards Millennium Development Goals (MDGs)

MDGs	Long Term Indicators (Outcome)	Baseline (1998-99) ¹	Medium-Term Targets (2004)
Economic well-being: reducing the proportion of poor living in extreme poverty by at least half by 2015	<ul style="list-style-type: none"> ➤ Poverty headcount ➤ Poverty gap ratio ➤ Gini index of consumption ➤ Percentage of rural population with no ownership of agricultural land 	<ul style="list-style-type: none"> ➤ 32.6% ➤ 7.0 ➤ 30.6 ➤ 61.4% 	<ul style="list-style-type: none"> ➤ Targets to be determined
Social development & Empowerment of Women:			
Universal primary education by 2015	<ul style="list-style-type: none"> ➤ Gross primary enrollment ➤ Net primary enrollment ➤ Literacy rate (15 and above) 	<ul style="list-style-type: none"> ➤ 71% ➤ 50.5% (urban: 66.5%, rural: 45.2%) ➤ 42.5% (urban: 63%, rural: 34%) 	<ul style="list-style-type: none"> ➤ 80% ➤ 59%
Reduce gender disparity in primary education by 2005	<ul style="list-style-type: none"> ➤ Difference in primary enrollments (net and gross) between girls and boys ➤ Differences in literacy rates between males and females 	<ul style="list-style-type: none"> ➤ 13.6 % (net enrollment); 18% (gross enrollment) ➤ 30.8% (male: 58%, female: 27.2%) 	<ul style="list-style-type: none"> ➤ 12% gap (Gross enrollments:- Male: 87%, female: 75%) ➤ 21% (Male: 70%, female: 49%)

¹ Data source for all long-term indicators, unless otherwise specified, are from PIHS (1998-99). Other sources are: Pakistan Reproductive Health and Family Planning Survey (PRHFPS) 2000-01

Increase participation of women in political decision-making	<ul style="list-style-type: none"> ➤ Proportion of seats held by women in national parliament 	<ul style="list-style-type: none"> ➤ Available after national elections in October, 2002 	
Reduce infant and child (below age 5) mortality rates by 2/3 of the 1990-91 rate, by 2015	<ul style="list-style-type: none"> ➤ Infant mortality rate ➤ Under-5 child mortality rate ➤ Immunization rate (% of children 12-23 months old that are fully immunized) 	<ul style="list-style-type: none"> ➤ 83 per 1000 live births (127 in 1991) ➤ 116 per 1000 live births ➤ 49% 	<ul style="list-style-type: none"> ➤ 65 per 1000 live births ➤ To be determined ➤ 62%
Reduce maternal mortality by ¾ between 1990 and 2015	<ul style="list-style-type: none"> ➤ Births attended by skilled health personnel (doctor/nurse/ Lady Health Visitor) ➤ Percentage of pregnant women using prenatal care 	<ul style="list-style-type: none"> ➤ 19% ➤ 31% 	<ul style="list-style-type: none"> ➤ 25% ➤ 50%
Provide access to reproductive health services through primary health care system for all individuals of appropriate ages by 2015	<ul style="list-style-type: none"> ➤ Contraceptive prevalence rate 	<ul style="list-style-type: none"> ➤ 28% (PRHFPS); 19.5% 	<ul style="list-style-type: none"> ➤ 39%
Improvements in Other Indicators	<ul style="list-style-type: none"> ➤ Population with access to safe drinking water ➤ Total fertility rate ➤ Life expectancy at birth ➤ % of TB cure rate 	<ul style="list-style-type: none"> ➤ To be filled ➤ 4.5; 4.8 (PRHFPS) ➤ To be filled ➤ Unknown 	<ul style="list-style-type: none"> ➤ 4.1

Measuring progress towards the MDGs will entail tracking some indicators that change over short spans of time, are leading indicators for the goals, and provide feedback to policymakers about the results of policy initiatives on the ground. Table A-5.2 provides a list of such indicators for Pakistan, which has evolved from the monitoring framework provided by the I-PRSP.

Table A-5.2: Output indicators for poverty monitoring (measured annually)

Leading indicators to monitor health outcomes	<p>Access:</p> <ul style="list-style-type: none"> ➤ Utilization Rates disaggregated by BHU/RHC and by curative and preventive care; Source: HMIS ➤ % of population covered by LHWs ; Source: LHW/MIS
	<p>Quality:</p> <ul style="list-style-type: none"> ➤ % of FLCF (BHUs/RHCs) that were out of stock of 5 essential drugs, or contraceptives for period of more than one month each in a given year; Source: HMIS ➤ % of FLCF (BHUs/RHCs) with doctors and/or female paramedic present; Source: Proposed Annual Facility Survey ➤ Number of female health providers trained in midwifery; Source: Ministry/Departments of Health
	<p>% of children aged 12-23 months fully immunized against DPT-3 Source: Annual Surveys conducted by independent agencies under the GAVI initiative</p>
Leading indicators to monitor education outcomes	<p>Number of functional schools: facilities with physical infrastructure – at least a building, toilet, drinking water Source: NEMIS</p>
	<p>Percentage of teachers with in-service training Source: Proposed Annual Facility Survey; NEMIS</p>
	<p>Quality of schooling:</p> <ul style="list-style-type: none"> ➤ Availability of textbooks, blackboard and chalk, student-teacher ratio; Source: NEMIS ➤ Teacher absenteeism: teacher present or not at the time or survey; Source: Proposed Annual Facility Survey
	<p>Number of children of school age currently attending school; Source: Proposed Annual Household Survey</p>
Leading indicators to monitor anti-poverty programs	<p>Social Protection/Safety Net Programs:</p> <ul style="list-style-type: none"> ➤ Employment generated through public works programs under Khushal Pakistan Program; Source: Proposed Annual Household Survey ➤ Number of beneficiaries of <i>Zakat</i> by type of assistance and province ➤ Number of borrowers and size of credit under PPAF and Khushali Bank programs; Source: Proposed Annual Household Survey ➤ Number and composition of small infrastructure projects and training supported by microcredit ➤ Number of beneficiaries by province (rural/urban) of the Food Support Program; Source: Pakistan Bait-ul-Maal

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