PUBLIC SPENDING ON EDUCATION AND HEALTH IN PAKISTAN:

A Dynamic Investigation through Gender Lens

SPDC

Gender Research Programme
Research Report No.1

SOCIAL POLICY AND DEVELOPMENT CENTRE

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Published by Social Policy and Development Centre
Printed in Karachi by Times Press (Pvt.) Ltd.
ISBN 978-969-8407-07-0

Foreword

Social Policy and Development Centre (SPDC), realizing the importance of integrative research, has initiated a series of Research Reports under its Gender Research Programme (GRP). The areas identified for research are crucial and pertain to wide-ranging developmental issues existing in Pakistan. The overall objective of the research programme identified will help place gender on the map of policy-making in the country by creating awareness of gender implications of social and macroeconomic policies with a particular focus on women, work, and poverty. It will also help develop quantitative and qualitative data, including gender disaggregated statistics and indicators that will help map changes in gender roles and their access to equal rights and opportunities which consequentially will help bring the paradigm shift; add to the technical research in Pakistan on the gender aspects of social and macroeconomic policies; factor in gendered perspectives in 'hardcore' economic issues as well as social 'progress-engine' concepts of development, primarily by undertaking pioneering research and policy analyses.

The series of Research Reports produced will help open avenues for further research on issues of development, equal opportunities, equitable policies, and other issues of gender equality and equity.

Public Spending on Education and Health in Pakistan: A Dynamic Investigation through Gender Lens is the first in the series. The parameters identified for the report help take a closer look at the pattern of spending in public education and health. The study has also helped in bringing forward the existing gender gap in accessing services in these two areas. The research report interestingly also focuses on the usage of these two services among different income groups and regions within Pakistan and concludes by making some plausible and crucial policy recommendations necessary to ensure gender equality in accessing education and health services in Pakistan.

SPDC is thankful to the Royal Norwegian Embassy in Pakistan for funding its Gender Research Programme.

Prof. Dr. Khalida Ghaus
Managing Director

Contents

List of Tables and Charts

Acronyms

BHU	Basic Health Unit
BPFA	Beijing Platform for Action
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
DOTS	Directly Observed Treatment Strategy
DHS	Demographic and Health Survey
EFA	Education For All
EPI	Expanded Program on Immunization
ESR	Education Sector Reforms
GDBIA	Gender Disaggregated Benefit Incidence Analysis
GER	Gross Enrollment Rate
GoP	Government of Pakistan
GRAP	Gender Reform Action Plan
GRBI	Gender Responsive Budgeting Initiative
GRP	Gender Research Programme
HEC	Higher Education Commission
HIES	Household Integrated Economic Survey
ICT	Islamabad Capital Territory
JPMC	Jinnah Postgraduate Medical Centre
LHV	Lady Health Visitor
LHW	Lady Health Worker
MDGs	Millennium Development Goals
MoE	Ministry of Education
MTDF	Medium Term Development Framework
NFBE	Non Formal Basic Education
NEMIS	National Education Management Information Systems
NER	Net Enrollment Rate
NPA	National Plan of Action for Women
NCSW	National Commission on the Status of Women
NWFP	North West Frontier Province
PIHS	Pakistan Integrated Household Survey
PIMS	Pakistan Institute of Medical Sciences
PLSMS	Pakistan Living Standard Measurement Survey
PRSP	Poverty Reduction Strategy Paper
PSLMS	Pakistan Social Living Standard Measurement Survey
RBM	Roll Back Malaria
RHC	Rural Health Center
SPDC	Social Policy and Development Centre
TB	Tuberculosis

Executive Summary

EXECUTIVE SUMMARY

INTRODUCTION

Inequalities in access to education and health services between males and females exist in many countries across the world including Pakistan. According to the traditional structure of a patriarchal society, a combination of cultural, social, and economic factors is responsible for keeping young girls and women marginalized and socially excluded from access to educational and health services. This marginalization can be addressed through gender sensitive planning and budgeting. Gender Disaggregated Benefit Incidence Analysis (GDBIA) is one of the basic tools commonly used to monitor and analyse the extent to which men and women, and girls and boys benefit from expenditure on publicly provided services like education and health. Hence, it provides the necessary data to address the gaps between public spending and its beneficiaries.

The study has three distinct objectives. First, it investigates income groups which benefited from the government's subsidized education services during 1998-99 and 2004-05 and health services in 2004-05. Second, it examines how these benefits are distributed between males and females during the same period. Third, it looks at the changes that occurred in the distribution of education expenditures between males and females in different income quintiles during the same period.

The methodology employed to assess gender differentials in public service provision for this study is based on a 'benefit incidence analysis.' The technique usually involves a three-step process. First, estimates are obtained of the unit cost of providing a particular service. These are usually based on officially reported public spending on the service in question. Second, unit costs are imputed to households, which are identified (usually through a household expenditure survey) as users of the service. Households, which use a subsidized public service in effect, gain an in-kind transfer, the size of which depends on the unit subsidy involved and the number of units consumed by the household. Finally, aggregated estimates of benefit incidence are obtained in groups arranged by income and sex. Hence, the benefit incidence analysis measures the distribution of in-kind transfers across households.

EDUCATION

Province-wise public expenditure on education showed a substantial increase in all levels of education (roughly over 50 percent) in nominal expenditures in 2004-05 compared to 1998-99. However, growth in secondary and tertiary education is higher than that in primary education. This indicates that the government is focusing more on secondary and tertiary education compared to primary education.

Wide gender disparity exists in Gross Enrollment Rates (GERs) across provinces, regions, and income groups, which are more pronounced in poor income groups compared to rich income groups, and in Balochistan compared to other provinces. The distribution of public spending on education can be used to explain this gender gap. Although, the share of public schooling is continuously declining, it still covers at least two-thirds of primary, secondary, and tertiary education in all the four provinces. Estimates of benefit incidence by income groups indicate that the share of poor income groups has declined in 2004-05 compared to 1998-99 in all provinces. This indicates that reforms initiated during this period were not pro poor in character.

Concentration curves show that public spending on primary education was progressive in absolute terms, while secondary education was progressive relative to income, tertiary education was regressive, and total spending on education was pro poor during 1998-99 in Punjab. However, this pattern changed in 2004-05, indicating that the degree of progressivity declined and total spending on education became progressive relative to income but not pro poor. In Sindh, public spending on primary and secondary education was progressive in absolute terms and tertiary education was progressive relative to income in 1998-99. Total spending on education thus was pro poor in 1998-99. However, this pattern changed in 2004-05, indicating that the degree of progressivity declined and total spending on education became progressive relative to income, but not pro poor. In NWFP, public spending on primary education thus was progressive in absolute terms, secondary education was progressive relative to income, and tertiary education was regressive in 1998-99. Total public spending on education was progressive relative to income in 2004-05. In Balochistan, public spending on primary education was progressive in absolute terms, secondary education was progressive relative to income, tertiary education was regressive and total spending on education was progressive in relation to income in both the years.

Concentration indices–another measure of equality–indicates that public spending on primary education was pro poor and tertiary education was pro rich in all the four provinces in 1998-99. Public spending on secondary education showed a mixed pattern indicating that it was pro poor in Sindh, not pro poor in Balochistan, and equitable in Punjab and NWFP. However, in 2004-05, overall spending on education was not pro poor at any level in any province except for spending on primary education in Punjab.

Gender disaggregated benefit incidence analysis indicated that public spending on education was biased against females in Punjab at all levels in both the years 1998-99 and 2004-05, except at tertiary level in 2004-05. In Sindh, public spending on education was biased towards males at all levels of education in both the years. Though the relative disadvantage to females marginally declined at tertiary level in 2004-05 compared to 1998-99, it further worsened at primary and secondary levels of education. In NWFP, public spending on education was biased against females especially for the poorest and lower income groups. In Balochistan, gender disparity exists at all educational levels and in all income groups in both the years. The pattern emerging clearly indicated that subsidies were biased against girls and women.

The per capita estimates of level-wise subsidy indicates that, in Punjab, females received an in-kind subsidy of Rs 2,180, Rs 943 and Rs 506 at primary, secondary, and tertiary level in 2004-05 respectively, while their male counterparts received Rs 2,318, Rs 1,278 and Rs 490 respectively. The per capita subsidy on education increased both for males and females in 2004-05 at all level of education in Punjab as against 1998-99.

In Sindh, the per capita subsidy received by females and males was Rs 1,433 and Rs 1,444 respectively. The per capita subsidy received by females at tertiary level was Rs 1,648, while that received by males was Rs 2,145. The per capita subsidy on education to females increased across all income quintiles at all education levels in 2004-05 when compared to 1998-99.

In NWFP, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level. It increased gradually with the level of education and was highest at the tertiary level in 2004-05. The per capita subsidy on education to females increased across all income quintiles at all education levels in 2004-05 as compared to 1998-99.

However, in Balochistan, the pattern of subsidy is biased against females. For instance, in 2004-05, per capita subsidy for female education at primary level was Rs 182 while that for males was Rs 290. On the other hand, at tertiary level, per capita subsidy for females was Rs 198 while that for males was Rs 483 per capita. The subsidy on education for females increased across all income groups and at all education levels in 2004-05 when compared to 1998-99. Moreover, the overall per capita subsidy on education is lowest in Balochistan compared to those in other provinces.

To understand the comparative difference of regional gender disparity, female to male ratio of benefit incidence of public spending was computed province-wise and by rural-urban location. Female to male ratio of benefit incidence of public spending is indicative of a greater disadvantage to females in rural areas of all the four provinces in both the years. The disadvantage, however, is lowest in Punjab and highest in rural Balochistan and Sindh. In urban areas, an improvement in benefit incidence is visible in Punjab and Sindh at all levels of education while it worsened in NWFP at all education levels, and in Balochistan at primary and secondary levels.

HEALTH

Depending on the biological differences, regional constraints, environmental conditions and social stratification, health needs of men and women differ. Hence prior to estimating the benefit incidence of health expenditures province-wise, incidence of illness was estimated. The analyses indicate that on average the incidence of illness is lowest in Punjab and highest in NWFP. Moreover, the incidence of illness is higher among females as compared to males. Although the incidence of illness varies with level of income and is higher among males and females of poor income groups, there is no clear pattern in incidence of illness in income of both male and females, except in Punjab.

Unlike education, public health sector provides inadequate health services to one-quarter of its un-well population in three provinces except Balochistan where its share is around 44 percent. The private sector is the largest health services provider in all the four provinces and its share varies from a minimum of 53 percent in Balochistan and NWFP, to 75 and 77 percent in Sindh and Punjab respectively. Self-medication or no treatment was much more common in NWFP particularly among the poorer groups as compared to other provinces and income groups, while interestingly in Sindh it is the least common.

According to estimates of benefit incidence, the shares accruing to the poorest quintiles in Punjab, NWFP and Balochistan are more than 20 percent. The pattern of government spending in the three provinces is relatively progressive where the poor receive a larger share of public expenditure on health. Whereas, the public spending on health in Sindh is regressive. The richer segment of the population receives a greater share of subsidies while the poor receives a lower share of subsidies.

The province-wise pattern indicates that the richest quintile (20 percent) of the population in Punjab receive the lowest per capita subsidy (Rs. 119 per annum) followed by middle (Rs. 127 per annum), lower middle (Rs. 162 per annum), upper middle (Rs. 181 per annum), and the poor quintile (20 percent) receive the highest per capita subsidy (Rs. 187 per annum). In Sindh, the poorest quintile (20 percent) received the lowest per capita subsidy (Rs. 123 per annum) followed by lower middle (Rs. 143 per annum), upper middle (Rs. 159 per annum), middle (Rs. 163 per annum), and the richest quintile (20 percent) receive the highest per capita subsidy (Rs. 168 per annum). In NWFP, the richest quintile (20 percent) of the population receive the lowest per capita subsidy (Rs. 100 per annum) followed by upper middle (Rs. 115 per annum), lower middle (Rs. 143 per annum), poor (Rs. 148 per annum), and the middle quintile receive the highest per capita subsidy (Rs. 165 per annum). In Balochistan, the richest quintile (20 percent) of the population receive the lowest per capita subsidy (Rs. 144 per annum) followed by upper middle (Rs. 153 per annum), middle (Rs. 168 per annum), poor (Rs. 193 per annum) and the lower middle quintile receive the highest per capita subsidy (Rs. 214 per annum).

In Punjab, the benefit incidence share shows that on average, females received 53 percent of health subsidies while males received 47 percent. The per capita estimates indicates that on an average, females received Rs165 while males received Rs 147. This resulted in a net gain of Rs 19 for women. A major source of inequality in the benefit incidence of health spending in Sindh is due to gender differences. Overall, females gained less of the health subsidy (46.5 percent of overall health spending) than males and obtained an in-kind transfer of Rs 149 per capita compared with Rs 155 for males. In NWFP, the benefit incidence share shows that on an average females received 54 percent health subsidies while males received 46 percent. The per capita estimates show that on an average, females received Rs 144 per annum and males received Rs 124 per annum which translated into a net gain of more than Rs 19 per annum to females. This trend is consistent in all income groups and females of higher income

groups received higher net subsidies compared to rest of the income categories. In Balochistan, the benefit incidence share shows that on an average, females received 60 percent health subsidies while males received 40 percent. The per capita estimates indicates that on an average, females received Rs 229 per annum and male received Rs 129 per annum which translated into a net gain of more than Rs 100 per annum to females. This trend is consistent in all income groups and females of middle income groups received higher net subsidies compared to the rest of the income categories.

POLICY IMPLICATIONS

The insights provided by gender disaggregated benefit incidence analysis of education and health services can be used to formulate province-wise need-based gender sensitive policies. In order to improve progressivity and gender equality, and to reduce regional and provincial gaps in education the following interventions are recommended:

- The analysis reveals that public spending on education is poorly targeted and the poorest segment of the society receives the lowest per capita subsidy. Public policies related to public spending on education, therefore, needs to be targeted towards the regions with higher levels of poverty.
- In the presence of higher gender inequality in rural areas, a region-specific education policy may be useful for gender equality. Moreover public spending in rural areas on female education will help not only in reducing gender disparities but also expedite women's empowerment.
- While there is noticeable advancement in gender equality in education in rural areas of Punjab, the rural areas of other provinces have not succeeded in reducing the gender gaps in education. This implies that either these policies and initiatives are limited to one province or they confronted impediments in implementation. Experience of the provinces which showed dynamism in reducing gender gaps in education perhaps need to be replicated in other provinces.
- Province-wise policies related to gender equality in education at various levels are likely to be more effective than national policies. For instance, in Balochistan, a considerable proportion of the government budget is allocated to education services such as, institutions of higher learning which women tend to avoid. A shift of spending towards primary and secondary schooling would lead to an improvement in the share of the total budget going to females (as well as to poorer groups in the community). In contrast, such a policy is not useful for the other regions particularly in Punjab where

female enrollments are higher at tertiary public institutions. Therefore, a shift of spending towards tertiary level would lead to an improvement in the share of the total budget allocated for females. However, such decisions should not only rely on benefit incidence estimates alone, they should also be based on an understanding of how household and individual behavior would be affected by such changes in expenditure.

- Given the overall low status of females in society, girls and women face discrimination since birth. They are denied their fundamental human rights of education, employment, marriage, divorce and inheritance. Given the socio-customary stark realities, a gender-neutral budget will continue to fail in addressing the perpetual gender disparities. Therefore, gender sensitive policy formulation and budgeting at lower tiers of the government would help reduce gender disparity in education.
- Additional efforts and resources are required to break through the cultural barriers and demand-side restrictions on girls' education.

Whereas, following recommendations are proposed to advance gender equality in health and for the improvement of health services:

- The present meager usage of public health services indicates that the health sector continues to be neglected and requires shifting of resources from other sectors.
- The income -wise benefit incidence indicates that health subsidies are not progressive in all the four provinces, therefore it is important to reformulate a province-wise health strategy that targets and benefits the disadvantaged groups more and improves the access of poorer population to health services.
- Though in most of the provinces females are the main beneficiary of public spending in health, however, there is a need to further improve their access to health facilities.
- Since private sector is playing a substantial role in health care service delivery in Pakistan, public private partnership can be used to increase and improve access and utilization of health services. Government may also explore the possibility of using the services of insurance companies in providing subsidized health insurance to the poor and marginalized groups.

CHAPTER 1

EDUCATION, HEALTH AND GENDER

CHAPTER 1 EDUCATION, HEALTH AND GENDER

1. INTRODUCTION

Sustainable development of nations begins with the development of its human resources. It is generally believed that access to education and health services are fundamental human rights of each individual. Both education and health are considered critical determinants of economic productivity, which contains several positive externalities[1]. Moreover, the targets of the Millennium Development Goals (MDGs) cannot be achieved without female access to educational opportunities and healthcare facilities. MDG 2 (achieve universal primary education), MDG 4 (reduce child mortality), MDG 5 (improve maternal health), and MDG 6 (combat HIV/AIDS, malaria, and other diseases) relate specifically to the need for greater primary education and health care. The experiences of developed countries show that access to these services played an instrumental role in empowering women. Therefore, policies to improve the level of educational achievement and health status of the poor have become an important focus of development policies both at international and national levels. However, inequalities in access to education and health services between males and females can be found in many countries across the world, including Pakistan.

According to the traditional structure of society, a combination of cultural, social, and economic factors is responsible for keeping young girls and women at a great disadvantage in accessing school and completing their education. Similarly, access to health services for women is very limited and is of poor quality when compared to those available for men. These disadvantages can be alleviated through gender sensitive planning and budgeting. Gender sensitive budgeting proposes reallocation of resources that addresses unmet needs of women and girls particularly belonging to poor income groups with a view to reducing existing gender gaps. For instance, one of the main factors, which impedes women access to health services, is their limited mobility. This disadvantage can be addressed by providing quality health facilities closer to their home and secure means of transport.

In order to make public expenditure gender sensitive a range of technical tools are available. Gender Disaggregated Benefit Incidence Analysis (GDBIA) is one of the basic

tools suggested by a feminist economist Diane Elson[2]. It is commonly perceived that a budget is a gender-neutral policy instrument containing a set of expenditures with no particular mention of women or men. In reality, most budgets are "gender blind." They ignore the differences between women, men, boys and girls and hence fail to address the specific needs of women and girls. GDBIA is a monitoring tool which is used to analyze the extent to which men and women, and girls and boys benefit from expenditure on publicly provided services like education and health.

In addition, public expenditure on education and health can affect the population in a number of ways, which have significant gender dimensions. For example, government spending on primary education compared to that of tertiary education would probably generate more income for women because there are relatively more female teachers in primary schools. Similarly, compared to tertiary health care, government spending on primary health care is likely to generate more income for women because there are relatively more lady health workers/visitors than women professors at universities and women doctors at teaching hospitals. Moreover, these expenditures provide subsidized education and health services, which is a form of "in-kind transfers". These "in-kind transfers" improve the current well-being of the recipients and enhance their income-earning potential and their ability to undertake other productive and reproductive tasks. These can be considered both current and capital transfers to the recipients, and therefore could be termed as the "benefit incidence" of public spending.

2. INTERNATIONAL CONVENTIONS AND DECLARATIONS

Gender inequality is a global phenomenon. In many developing countries gender mainstreaming is an additional concern for social exclusion. Women have a lower status in society, their contribution to the economy is unrecognized and their work is invisible. Women lack control over resources, assets, and services, and their mobility is restricted. Women are denied access to education and healthcare services which reinforces discriminatory social structures and continue to oppress women. Pakistan, together with other countries, has ratified and signed a number of international conventions for gender equality and developed policies and strategies to implement them. Without allocating and spending money these commitments cannot be fulfilled. Therefore, it is important to see how public expenditure on education and health is gender sensitive. In this context, prior to presenting the result of GDBIA, it is important to review international protocols and declarations signed by the Government of Pakistan.

This section presents a review of those international conventions and declarations signed by the Government of Pakistan, which have specific objectives to promote gender equity in education and health.

a) The Millennium Declaration

In accordance with the Millennium Development Goals (MDGs), Pakistan has to[3]:

- ensure that children everywhere, boys and girls alike, will be able to complete a course of primary schooling by 2015;
- eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels of education no later than 2015;
- reduce by two-thirds under five mortality rates;
- reduce maternal mortality ratio by three quarters; and
- contain by 2015 and reverse the spread of HIV/AIDS, malaria and other diseases

b) Convention on the Elimination of All Forms of Discrimination Against Women

The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), adopted in 1979 by the UN General Assembly, is often described as an international bill of rights for women.

The Convention defines discrimination against women in article 10 (a) which specifically calls on State parties to ensure equal participation between men and women in all levels and areas of education[4].

By accepting the Convention, States commit themselves to undertake a series of measures to end discrimination against women in all forms, including:

- to incorporate the principle of equality of men and women in their legal system, abolish all discriminatory laws and adopt appropriate ones prohibiting discrimination against women;
- to establish tribunals and other public institutions to ensure the effective protection of women against discrimination; and
- to ensure elimination of all acts of discrimination against women by persons, organizations or enterprises.

The Convention provides the basis for realizing equality between women and men through ensuring women's equal access to, and equal opportunities in, political and public life — including the right to vote and to stand for election — as well as education, health and employment. States parties agree to take all appropriate measures including legislation and temporary special measures to end discrimination against women.

c) The Beijing Platform for Action

In 1995, the Beijing Platform for Action (BPFA) was unanimously adopted by 189 governments and supported by non-governmental and multilateral organisations in order to promote gender equality, recognizing its importance for sustainable development, democracy and peace.

Twelve critical areas of concern were outlined in the BPFA as obstacles to the advancement of women and gender equality. Among the main constraints is the failure to operationalize established gender equality frameworks and implement national and regional policies.

3. NATIONAL POLICIES, FRAMEWORKS AND STRATEGIES

There are a number of overarching national policies, frameworks and strategies like the Poverty Reduction Strategy Paper (PRSP) and Medium Term Development Framework (MTDF), which provide overall policy direction for socio-economic development. In addition, there are gender mainstreaming programmes like the National Gender Reform Action Plan (GRAP) and National Plan of Action for Women (NPA) that provide specific measures to mainstream gender in education and health sectors. This section presents an overview of above-mentioned policies and programmes that focus on reducing gender gaps in education and health.

a) Medium Term Development Framework

Medium Term Development Framework (MTDF 2005-10) initiated the formulation of a strategy to promote gender equity in the education and health sectors.

The MTDF strategy has the following innovative approaches for development of education sector in general and for promotion of girls' education in particular:

- Community involvement in literacy and basic education, especially through National Education Foundation (NEF) and Provincial Education Foundations.
- Promotion of Public-Private-Partnership (PPP) and active encouragement of private entrepreneurs and NGOs.
- Adopting measures to encourage girls' education like provision of food items and targeted cash transfers by Bait-ul-mal. Free text books have been provided to students up to secondary school level.

MTDF values health primarily as a determinant of economic growth and aims to reduce infant, child and maternal mortality rates and improve the nutritional status of women and children. MTDF envisions shifting public priority towards preventive and primary health care. Another priority area is combating non-communicable diseases such as malaria in line with the commitments of the MDGs. A few of the strategies that have been identified are as follows:

- Strengthening of primary health care in the rural areas where all outlets will function as focal points for primary health and family planning services. This is often referred to as 'integrated' services, which makes it easier, for women to access reproductive health services and at the same time vaccinate their children. It also allows health budgets to be shared among services and users.
- Provision of health care facilities in the underserved areas of the urban population. This needs to be emphasized in view of limited resources and shortage of medical personnel. Usually, efforts to improve health care facilities in underserved areas remain unsuccessful. Therefore, there is a need to increase the number of nurses, paramedics and community health workers, besides introducing service contracts of specialized staff, and funding of recurrent costs.
- Further training of medical staff at all levels. Since community health workers can advocate preventive measures for treatments of complications and surgeries there is need for more specialized personnel.
- A better system of cost recovery through a combination of health care financing strategies and better subsidization for the poor.

b) Poverty Reduction Strategy Paper II

The Poverty Reduction Strategy Paper (PRSP II) specifically recommends promoting gender equity through targeted education and health interventions.

The PRSP II, integrates the educational initiatives outlined in the Education Sector Reforms (ESR) for 2001-05 and the National Plan of Action (NPA) for Education (2001-15). The PRSP II advocates investment in human capital with renewed emphasis on effective delivery of basic social services — more importantly, on improvements in education. Recognizing that women are among the poorest and most vulnerable group in the country, it lays down specific targets for women's empowerment and outlines a series of policy measures designed to improve their share in education, economic benefits, opportunities and access to resources. These include provision of soft loans to women, improving educational and health facilities, skill development, and enforcing the 5% quota for women's employment in government.

In order to promote gender equity in health, PRSP II outlines a number of measures. There has been a substantial increase in delivery of basic health services by trained lady health workers to individual households. The Lady Health Worker (LHW) programme is a community based initiative of the Ministry of Health through which basic health, promotive, preventive and some curative services are provided to the rural population of Pakistan on a household basis. This programme was launched in 1994 and covers almost all districts of Pakistan. The programme has recruited 84,000 LHWs and the number is expected to rise to 100,000. The programme aims to meet the health care needs of about 100 million people. Besides the LHWs programme, other programmes in which significant investments are intended include, Roll Back Malaria (RBM), Directly Observed Treatment Strategy (DOTS) against TB, measures for preventing the spread of Hepatitis B, neonatal tetanus and polio, and HIV/AIDS control programmes.

c) National Gender Reform Action Plan

The National Gender Reform Action Plan (GRAP) proposes a coherent gender reform agenda to align policies, structures, processes, programmes, and projects for enabling the government to implement its national and international commitments on gender equality. It is aimed at introducing structural reforms to engender the institutions at the federal, provincial and district levels creating conducive environment for women.

d) National Plan of Action for Women

The Ministry of Women Development following the guidelines provided by the Beijing Declaration and Platform for Action 1995 launched a National Plan of Action for Women (NPA) on 14th August 1998, as a partial fulfillment of Pakistan's national and international commitment to gender equality. The NPA for Women sets out 184 actions in twelve critical areas namely Women and Poverty; Education and Training of Women; Women and Health; Violence Against Women; Women and Armed Conflict; Women and Economy; Women in Power and Decision-Making; Institutional Mechanism for Advancement of Women; Human Rights of Women; Women and Media; Women and Environment; and The Girl Child.

e) National Commission on the Status of Women

National Commission on the Status of Women (NCSW) is a statutory body established in the year 2000. The main goal or objective of the Commission is emancipation of women, equalization of opportunities and socio-economic conditions amongst women and men, and elimination of all sorts of discriminations against women. The main functions of the Commission, include the examination of the policies, programmes and other measures taken by the government for women's development and the review of all policies, laws, rules and regulations affecting the status and rights of women and gender equality in accordance with the Constitution of Pakistan.

4. SECTOR-WISE POLICIES AND INITIATIVES

This section presents an overview of education and health policies, and related initiatives that focus on addressing gender gaps in education adopted by the Government of Pakistan between 1998-99 and 2010.

a) The National Education Policy (1998-2010)

The National Education Policy (1998-2010) reflected the Government's medium-term vision and aimed at universal primary education; 50% increase in middle level participation and enhancement of retention and completion of the primary education cycle. To achieve these, it includes the following policy provisions, relevant to improving female education:

- Disparities and imbalances of all types shall be eliminated so as to promote equity.

- Access to elementary education shall be increased through effective and optimum utilization of existing facilities and services, as well as provision of new facilities and services.
- Quality of elementary education shall be improved with improvements in teachers' training and competence.
- High priority shall be accorded to the provision of elementary education to out-of-school children.

b) Education Sector Reforms (2001-05)

A comprehensive package of educational reforms with medium term targets, the Education Sector Reforms (ESR) Action Plan for 2001-2005, was finalized through a consultative process involving over 600 partners. The main features of ESR's reform agenda is a strategy for improving education in all areas of Education For All (EFA) and ensuring legislative, administrative and financial actions at all levels. The guiding principles of ESR are derived from:

- the linkages between poverty and literacy;
- the imperative of need-based programmes and budget allocations; and
- creating gender balance in education at all levels.

c) Education for All Programme

As a follow-up to the Dakar Conference on Education for All in 2000, Pakistan prepared the National Plan of Action in 2001 entitled Education for All (EFA) Programme. The EFA programme helped define national targets separately for males and females for key education indicators mainly in three EFA sectors: early childhood education, elementary education, and adult literacy. It also assesses the corresponding physical infrastructure required to achieve these respective targets. Under the EFA programme, the comprehensive activities for the improvement of literacy in the country are undertaken in the form of establishing Basic Education Community Schools and provision of missing facilities to these elementary schools to improve access to primary education. The National and Provincial Education Foundations are establishing primary schools in various localities, where such facilities were not earlier available.

d) National Health Policy (2000-01)

The National Health Policy (2001) aims to protect people from communicable and non-communicable diseases, and promote public health and better preventive and curative

health services. The policy document identified following ten key areas for achieving comprehensive progress in the health sector:

- To reduce widespread prevalence of communicable disease, Expanded Programme on Immunizations (EPI), TB, malaria, hepatitis B, and HIV/AIDS.
- To address the inadequacies in primary and secondary health care services
- To remove professional and managerial deficiencies in the district health system
- To promote greater gender equity in the health sector.
- To bridge the basic nutrition gap in the target population, children, women and vulnerable groups.
- To correct urban bias in the health sector modalities.
- To introduce required regulations in the private medical sector ensuring proper standards of equipment and services in hospitals, clinics and laboratories, as well as private medical colleges and *tibb* and homeopathic teaching institutions.
- To create mass awareness in public health issues.
- To bring improvements in the drug sector with a view to ensuring the availability, affordability, and quality of medicines in the country.
- Capacity building for health policy monitoring in the Ministry of Health.

5. RESEARCH OBJECTIVES

Since public resources are usually limited, it is important to assess whether they are being spent in ways which meet the public policy objectives outlined in the policies, frameworks and strategies mentioned above. Pakistan's international commitments also demand that the government initiate measures towards women's education and healthcare. The key objectives mentioned in these documents are increasing economic efficiency, targeting high growth, improving equity, and empowering women. In order to achieve these objectives, a number of fiscal and governance reforms have been initiated in the country since 2000, including devolution of education and health services as well as Gender Responsive Budgeting Initiatives (GRBI) and gender mainstreaming programmes. It is expected that these reforms will contribute to greater access to education and health services to poor and marginalized populations including women.

The study focuses on the following three main issues. First, it investigates which income groups actually benefited from the government's subsidized education and health services during 1998-99 and 2004-05. Second, it examines how these benefits are distributed between males and females during the same period. Third, it looks at the changes that occurred in the distribution of health and education expenditures between males and females in different income quintiles during the same period.

6. RELEVANCE TO THE GENDER RESEARCH PROGRAMME (GRP)

This research is a part of the "Gender Research Programme (GRP)" of SPDC, which focuses on the promotion of gender equity and equality by raising the issues of mainstreaming gender in policies and development plans of the government. The study will facilitate in achieving the key objectives of the overall gender research programme in three ways.

- Enhance awareness of the effectiveness of social service delivery targeted towards the poor in general and girls and women in particular.
- Contribute to existing quantitative data by providing facts related to effectiveness and targeting of public spending on social services expenditures with respect to gender and poverty.
- Add to technical research in Pakistan on the gender aspects of social service delivery and draw policy implications of the results, particularly those concerning the social spending on girls and women among the poor in society.

7. STRUCTURE OF THE REPORT

The report is divided into five chapters. Chapter 2 introduces relevant concepts used in the study, presents a review of the benefit incidence approach and establishes how gender disaggregation can easily be incorporated in the analyses. It also outlines the methodology used to measure the benefit incidence of public spending in education and health.

Chapter 3 discusses the education system and overall gender disparity in education in Pakistan. It also explains the subsidies on education and presents estimates of benefit incidence by income groups in Pakistan. This is followed by the analyses of gender disaggregated benefit incidence of public spending in education.

Chapter 4 reviews the health system, its needs and pattern of facilities available. It also elaborates on the subsidies provided on health; and helps explain the results of benefit incidence of health spending in Pakistan by income groups. The chapter concludes with an analysis on gender disaggregated benefit incidence of public spending on health.

Chapter 5 provides a summary of key findings besides suggesting a strategy for promoting gender mainstreaming in education and health policies and budgets.

NOTES:

[1] A "positive externality" is a benefit transferred to an individual who did not take part in the process. For instance, a properly immunized healthy person has a positive effect on other individuals and does not spread illness to others. Similarly, education creates a positive externality because more educated people are less likely to engage in violent crime, which makes everyone in the community, even people who are less educated, more secure.

[2] Elson (1997), "Integrating Gender Issues into Public Expenditure: Six Tools"

[3] Pakistan Millennium Development Goals Report 2005

[4] UNIFEM (2008), Budgeting for Women's Rights, Monitoring Government Budgets for Compliance with CEDAW

CHAPTER 2

BENEFIT INCIDENCE: CONCEPTS AND METHODOLOGY

CHAPTER 2 BENEFIT INCIDENCE: CONCEPTS AND METHODOLOGY

1. GENDER DISAGGREGATED BENEFIT INCIDENCE

Gender disaggregated benefit incidence is a method that addresses poverty and gender concerns in public expenditure allocations by incorporating the demand side[1]. It also examines the share of benefits accrued by different groups from public expenditures by gender. This approach focuses on the value of the cost to government per unit (household or individual). When taken in conjunction with the outcome of any cost recovery measures, this permits an estimate of the Government subsidy per unit[2]. The distribution of subsidies depends on two factors: (1) allocation of government spending (government spending itself and how it is allocated within the sector); and (2) household behaviour (gender inequalities in the distribution of the benefits of public spending frequently arise because of a bias within households that limits women's access to publicly provided services).

2. CONCEPTS AND DEFINITIONS

In this report, the terms used in estimation of gender disaggregated benefit incidence analysis are defined as follows:

Gender Disaggregated Benefit Incidence Analysis (GDBIA) describes the distribution of public spending across males and females ranked by their income.

Gross Enrollment Rate (GER) is the number of students enrolled in primary, secondary and tertiary levels of education, regardless of age, expressed as a percentage of the population of official school age at all levels.

Gross per Unit Subsidy in Education is calculated as the total recurrent spending of (local, provincial and federal) governments on a specific level of public education divided by the total number of students of the same level in the province.

Gross per Unit Subsidy in Health is calculated as total recurrent spending of (local, provincial and federal) governments on general hospitals and clinics divided by total number of visits by patients.

3. LITERATURE REVIEW

Despite the importance attached to gender differences in access to public services, the literature on expenditure distribution in gender-based budgeting (Cagatay, et.al., 2000, Budlender and Sharp, 1998, Elson, 1991 and 1997) is scarce[3]. An overview of published and publicly available research illustrates a few studies that actually carried out a systematic analysis. This section provides a brief review of publicly available benefit incidence analysis carried out systematically in both developed and developing countries. In line with the objective of the research, the review of literature focuses on the education and health sectors.

a. Education

Demery et al. (1995) did an analysis for subsidies of public schools in Ghana. They found that the share of girls in primary school subsidies was 47 percent and for secondary school subsidies was 41 percent. These shares were fairly constant across the expenditure distribution, except for secondary schools, for which girls' share in the lowest quintile was only 30 percent. This too was consistent with Demographic and Health Survey (DHS) schooling data analyzed by Filmer (1999). Although these two country studies do not permit general conclusions, one insight is that the gender-income interactions are not assumed to operate the same way in all countries, even in neighbouring countries. In Ghana, there was barely any such interaction for primary schooling, however, some evidence was there at the secondary level. In Côte d'Ivoire, the opposite was true.

Demery, Dayton, and Mehra (1996) examined the incidence of public expenditures in Côte d'Ivoire. They found that girls received 42 percent of public primary school subsidies, while girls in the first quintile received only 33 percent of that quintile's subsidies, and girls in the top quintile received 54 percent. A similar pattern was found in DHS data for Côte d'Ivoire analyzed in the study by Filmer (1999). Surprisingly, the same correlation is not found in public secondary school subsidies, where girls' share of subsidies was fairly constant across the expenditure distribution.

Filmer (1999) used the DHS to examine differences in school attendance rates for boys and girls and rich and poor. The DHS data did not include household expenditures, but they included variables which allowed Filmer to create an index of wealth - assets owned by the households - using principle components methods. Filmer then divided households into poor, non-poor, and rich, based on the value of this index. While this

approach is obviously approximate, the great advantage of the DHS data is that they are available for many countries at many points in time, and the surveys are standard across countries and time.

A recent Public Expenditure Review for Malawi (2001) provided primary school enrollment rates for boys and girls across the expenditure distribution. They found that male enrollment rates were somewhat higher than female rates, but the difference was similar across the expenditure distribution and across time (between 1990 and 1997). This occurred despite a significant increase in enrollments between these two years, especially among children from poorer households.

Sahn and Younger (2000) briefly mentioned gender/expenditure differences in their study on health and education benefits for eight African countries. Unlike all of the studies cited so far, which present their results in terms of shares of benefits by expenditure quintile and gender, Sahn and Younger used cumulative shares of benefits across the expenditure distribution - concentration curves - because they have an intuitive grounding in the theory of welfare economics (Shorrocks, 1983; Yitzhaki and Slemrod, 1991). The authors used statistical tests for differences in cumulative distributions rather than simply comparing central tendencies. Using a demanding statistical criterion that these tests require, Sahn and Younger found only one public health or education service in one country - primary education in Uganda in 1992 - in which the concentration curves differed significantly by gender. This does not mean that they find gender equality, but rather, that the degree of gender inequality is relatively constant across the expenditure distribution.

Sabir (2004) reviewed the benefit incidence of government education spending in Pakistan. He found that government subsidies directed towards primary education are pro poor in all four provinces of Pakistan. However, subsidies directed towards higher education are poorly targeted and the poorest income group receives less than the richest income group, and indeed favours those who are better off. Similarly, the gender disparity in access to public subsidy is higher at tertiary level and lowest at primary level, which also reflects poor targeting.

Cuenca (2008) wrote a methodological note to illustrate the difference in benefit incidence estimates that are obtained by using deciles of population/individuals in lieu of deciles of households. Her analysis showed that on the whole, total government

spending on all levels of education was found to benefit poorer households more than richer households regardless of whether the analysis is done based on deciles of households rather than deciles of population. However, results drawn by her concluded that the degree of progressivity differs depending on how the deciles are defined. Based on this analysis, she concluded that the choice between deciles defined over population/individuals and deciles defined over households depends on the government service in question and on its target beneficiaries.

Sakellariou and Patrinos (2009) analyzed the equity effects of public subsidization of private schools in Côte d'Ivoire. They found that the subsidy per student in private and public schools increases as one goes to higher household per capita expenditure groups. Students from families in the highest expenditure quartile received twice the subsidy received by students from families in the lowest quartile, compared to four times more in the case of students attending public schools. However, they concluded that the subsidy system was relatively progressive in the case of private school attendance as there was a clear tendency for the share of family education expenditure covered by subsidies to decline as one goes to higher quartiles.

b. Health

Demery et.al. (1995) found that subsidies to outpatient care received at public hospitals were split evenly between males and females, with little variation across the expenditure distribution in Ghana. For inpatient care, however, there were substantial differences, with only 22 percent of the subsidies received by the poorest quintile going to females, but 50 to 60 percent in the other quintiles. For health centers and clinics, females received 53 percent of subsidies in the poorest quintile, but 67 percent in the top quintile. This pattern is the reverse of the one observed in Côte d'Ivoire, where women's share of health subsidies declined as welfare increases. In 1992, the overall pattern of subsidies was similar to that in 1989, although females' share of subsidies to health centers and clinics was fairly constant across the expenditure distribution, while their share in subsidies to hospital outpatient care showed a mildly negative relation to quintile level.

Demery, Dayton, and Mehra (1996) found that males and females received nearly the same subsidy from public health clinics in Côte d'Ivoire, while females received about 60 percent of the subsidy to public hospitals. With the exception of the top expenditure quintile, the gender differences were fairly consistent across the expenditure distribution.

For public clinics, men got between 52 and 59 percent of the subsidy received by the first four quintiles, but this falls to 40 percent in the top quintile. For public hospitals, women got between 62 and 68 percent of the subsidy for the first four quintiles, but this drops to 53 percent for the richest. Thus, while there is not a strong correlation of incidence in the dimensions of gender and welfare, there is clearly something distinct about the richest quintile.

There is no analysis of health care visits in the DHS data comparable to Filmer's (1999) paper on education except an analysis by wealth and gender of under 5 mortality rate using the DHS data cited in World Bank, 2001. In two thirds of the countries examined there is a declining ratio of female to male under 5 mortality rates as household wealth rises. Unlike school enrollments, in the majority of countries showing this pattern, mortality rates are actually lower for girls than boys at all health levels. Therefore, in these cases being a female is an advantage that increases health status. These patterns in mortality should only be regarded as suggestive of what may occur with regard to gender, and the use of public health services for children under 5, since apart from merely caring for infants there are other determinants of mortality as well.

Glinskaya (2005) analyzed the distribution of Government of Bangladesh subsidies in education and health by using data from the 2000 Household Income and Expenditure Survey (HIES). Her analysis revealed that only two types of spending — outlays on primary education and allocations to child health within Essential Package of Services — are strongly pro-poor. While overall public subsidies to education and health were not pro-poor per se, they were more equitably distributed than private spending in these two sectors. Further, these subsidies reduce overall inequality in the income distribution, as they were found to be more equally distributed across the population as compared to overall private expenditures.

Akram and Khan (2007) explored the inequalities in resource distribution and service provision against government health expenditures. They concluded that the rural areas of Pakistan are at a greater disadvantage in the provision of health care facilities. The expenditures in health sectors are overall regressive[4] in rural Pakistan as well as at provincial and regional levels.

4. METHODOLOGY

The technique employed to assess gender differentials in public service provision in this study is based on a 'benefit incidence analysis.' This has become an established approach in estimating the distribution of public expenditure since the pioneering work on Malaysia by Meerman (1979), and on Colombia by Selowsky (1979)[5]. In the mid-1990s there was a resurgence of interest and incorporation of the gender dimension in this approach, reviewed in Van de Walle and Nead (1995), Van de Walle (1998) and Lionel Demery (2000).

The technique usually involves a three-step methodology. First, estimates are obtained of the unit cost of providing a particular service. These are usually based on officially reported public spending on the service in question. Second, these unit costs are imputed to households, which are identified (usually through a household expenditure survey) as users of the service. Households, which use a subsidized public service in effect, gain an in-kind transfer, the size of which depends on the unit subsidy involved and the number of units consumed by the household. Finally, aggregated estimates of benefit incidence are obtained in groups arranged by income and sex. In brief, the benefit incidence analysis measures the distribution of in-kind transfers across households.

Benefit incidence analysis of public expenditure therefore brings together two sources of information. First, data on the government subsidy (estimated as the unit cost of providing the service minus any cost recovery by the government) allocated to health. Second, information on the use of public health services by individuals and households, which is usually obtained from household surveys.

The disaggregated benefit incidence analysis by gender is based on the understanding that government provides an in-kind subsidy by subsidizing education and health services. Individual members of the household can gain this subsidy by enrolling their children in publicly subsidized educational institutions and by visiting publicly subsidized health institutions. If more male than female members utilize the services of publicly-funded education and health care, then there will be a gender difference in benefit incidence, simply because more of the government subsidy will be utilized by males than by females.

a. Education

The three steps[6] for disaggregated benefit analysis can be transformed mathematically by considering the group-specific benefit incidence of government spending on education:

$$X_i \equiv \sum_{i=1}^{3} E_{ij} \frac{SE_i}{E_i} \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} SE_i \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad [1]$$

Where

i =1,..,3, denotes the level of education (primary, secondary, and tertiary)

j =1,..,5, denotes the income quintiles (rich, upper middle, middle, lower middle and poor)

X_j is the value of the total education subsidy imputed to quintile j. E_{ij} represents the number of school enrollments of group j at education level i, and Ei the total number of enrollments (across all groups) at that level. SE_i is government net spending on education level i (with fees and other cost recovery netted out).

The share of the total education subsidy (SE) accruing to females (x_j) is given by:

$$x_j \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} \left[\frac{SE_i}{SE}\right] \equiv \sum_{i=1}^{3} e_{ij}\, se_i \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad [2]$$

Clearly, this share is determined by two factors: the share of the females and males in total enrollments at each level of education (e_{ij}), and the share of each level of education in total education spending (se_i). e_{ij} is determined by household enrollment decisions whereas si reflects government spending allocations.

b. Health

Similar to education, the three steps for disaggregated benefit analysis can be transformed mathematically for the group-specific benefit incidence of government spending on health:

$$Y_i \equiv \sum_{i=1}^{3} H_{ij} \frac{SH_i}{H_i} \equiv \sum_{i=1}^{3} \frac{H_{ij}}{H_i} SH_i \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad [3]$$

Where

i =1,..,3, denotes the level of health facility (Hospitals and dispensaries, Basic Health Unit (BHU)/Rural Health Centres (RHC), and Lady Health worker/visitor (LHW/LHV))

j =1,..,5, denotes the income quintiles (rich, upper middle, middle, lower middle and poor)

Y_j is the value of the total health subsidy imputed to group j. H_{ij} represents the number of visits of group j at health facility i, and H_i the total number of visits (across all groups) for facility i. SH_i is government net spending on health facility i (with user fees and other cost recovery netted out). The share of the total health subsidy (SH) accruing to females (x_j) is given by:

$$y_j \equiv \sum_{i=1}^{3} \frac{H_{ij}}{H_i} \left[\frac{SH_i}{SH}\right] \equiv \sum_{i=1}^{3} h_{ij}\, sh_i \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad [4]$$

Clearly, this share is determined by two factors: for a particular income quintile the share of females and males in total visits at each health facility (e_{ij}), and the share of each health facility in total health spending (sh_i). e_{ij} is determined by household and individual decisions whereas sh_i reflects government spending allocations.

c. Selection of period under review

In Pakistan, household surveys are conducted at irregular intervals. These usually depend on the availability and approval of funds for institutes of statistics. This limitation provides few choices for selection of a time period for this study. The year 1998-99 was chosen as a base year since there was a change in government in 1999. In order to analyze the impact of reforms the study aims to use micro data of the recent Household Integrated Economic Survey (HIES 2008), which contained data on household income and consumption expenditure for the year 2007-08. This dataset however is not available for public use and there are contradictory statements about the validity of poverty estimates based on the consumption expenditures of this dataset. In the absence of HIES 2008, the other two available choices were HIES 2004-05 and HIES 2005-06. Among them, HIES 2005-06 although a comparatively recent survey, HIES 2004-05 was chosen for analysis due to two reasons: (1) HIES 2004-05 was conducted with Pakistan Living Standard Measurement (PSLM) Survey, which provides comprehensive data on socio-economic variables based on a larger sample size that offers greater choices for explanation based on more robust datasets, and (2) HIES 2004-05 was heavily reported

in poverty debates and used as a reference point[7]. Therefore this study provides comparative results of benefit incidence analysis based on 1998-99 and 2004-05.

d. Sources of Data

The information on the income of households and enrollments in public schools, colleges and universities at various levels of education is taken from the micro data of Household Integrated Economic Survey (HIES 1998-99 and HIES 2004-05) and Pakistan Social & Living Standard Measurement Survey (PSLM) Round 1: 2004-05. Both HIES and PSLM are national surveys conducted by the Federal Bureau of Statistics. They provide household and community level data on various indicators related to education, health, water & sanitation and population welfare. The data on public spending on education and health is taken from the Poverty Reduction Strategy Paper (PRSP) annual progress report for the year 2004-05, Federal Demand for Grant and Appropriations 2005-06, and Provincial Demand for Grants 1999-00.

NOTES:

[1] See Demery, Lionel (1996)

[2] Simel Esim "Gender Equity Concerns in Public Expenditure: Methodologies and Country Summaries," (http://www.icrw.org)

[3] See also Patricia Alexander with Sally Baden (2000), "Glossary on macroeconomics from a gender perspective,"(http://www.jdhr.org/publications/reports/Glossary%20on%20macroeconomic-gender%20perspective.pdf)

[4] Rich income groups received greater subsidies compared to poorer income groups

[5] see Van de Walle (1998)

[6] Demery, Lionel (1996)

[7] Pakistan Economic Survey 2006-07, 2007-08 and 2008-09

Chapter 3

Gender Disaggregated Benefit Incidence Analysis: Education

CHAPTER 3 GENDER DISAGGREGATED BENEFIT INCIDENCE ANALYSIS: EDUCATION

1. EDUCATION SYSTEM IN PAKISTAN

According to the Constitution of Pakistan, education is part of the Concurrent Legislative list. Thus, both the federal and provincial governments have a role in the delivery of educational services. With the promulgation of the Local Government Ordinances 2001, the responsibility for educational services has been devolved to the district as well. Under this, district governments are entrusted with the responsibility of planning and delivering primary education services to the people.

The structure of the education system, in Pakistan, has the following main characteristics. It begins with basic education called Kachi Pehli consisting of early childhood education (or pre-primary schooling), which is optional for children of age 3 to 5 years. This is followed by primary education spread over a period of 5 years, where the official age of entry is 5 years. The next is secondary level education spread over a period of 5 years and starts from the age of 10 years and ideally ends at the age of 14 years.

After secondary education comes the tertiary level where two options are available to students. They may choose either polytechnic institutes/colleges for technical education or general colleges/schools for higher secondary education, also called intermediate level. After a successful completion of two-year intermediate program the level of education encompasses three lines of study: technological/engineering colleges and universities; medical colleges and universities; and general colleges and universities.

The budget documents of provincial and federal governments generally report four broad categories of education including: primary; secondary; general colleges and universities, and technical and professional institutes, colleges and universities. In this study, these categories of education are grouped into three categories for the analysis of incidence of public spending namely; primary, secondary and tertiary (included both general colleges and universities, and technical institutes, professional colleges and universities).

2. GENDER DISPARITY IN EDUCATION

There are several ways to measure gender differentials in education. Gross Enrollment Rate (GER) and Net Enrollment Rate (NER) often reveal gender differences, especially

when reported by income quintile. Similarly, completion and dropout rates are another way to highlight gender disparities in education. However, GER is a widely used basic indicator, which highlights possible gender disparities at different stages of education indicating access to educational facilities for both males and females. Given this, the study uses GER to show gender disparity in the overall education system. It needs to be mentioned that these GERs incorporated enrollment both in public and private schools.

In order to present a comparative picture, the study highlights gender disparity by five income quintiles (from the richest 20 percent to the poorest 20 percent of the population), level of education and province.

a. Gross Enrollment Rates: Punjab

Table 1 presents the GER at primary, secondary and tertiary levels by income quintiles and gender in Punjab. It shows a typical bias in enrollment behavior, with males being more likely to be enrolled in schools, colleges and universities in both 1998-99 and 2004-05 across all income groups. The bias becomes noticeable with higher levels of

Table 1
Gross Enrollment Rate by Gender and Quintile: Punjab

Income Level/ Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
2004-05						
Rich	94.9	102.8	81.0	65.0	21.3	19.3
Upper Middle	101.2	97.6	63.7	51.5	11.5	10.7
Middle	104.0	93.2	52.1	40.6	12.1	7.8
Lower Middle	93.6	87.8	41.2	31.2	5.9	6.4
Poor	84.0	72.0	32.6	24.4	4.5	4.2
1998-99						
Rich	100.5	82.3	90.9	77.0	17.3	14.5
Upper Middle	92.1	84.1	83.3	66.5	10.2	5.4
Middle	92.0	79.6	71.8	53.7	4.9	4.4
Lower Middle	79.6	67.7	50.3	38.8	2.3	1.4
Poor	62.3	50.8	36.7	23.0	1.9	1.7
Difference (2004-05 - 1998-99)						
Rich	-5.6	20.4	-9.8	-12.0	4.0	4.8
Upper Middle	9.0	13.5	-19.6	-15.0	1.3	5.2
Middle	12.0	13.6	-19.7	-13.1	7.2	3.4
Lower Middle	14.0	20.1	-9.1	-7.6	3.6	5.0
Poor	21.7	21.2	-4.1	1.4	2.6	2.5

Source: SPDC's estimates based on PIHS 1998-99 & PSLM 2004-05

schooling during both the years. However, the gap between male and female enrollments narrowed in 2004-05 as compared to 1998-99. Moreover, gross enrollment rates improved in 2004-05 as compared to 1998-99 at primary and tertiary level of education in almost all income groups. It is alarming to note that GER declined in 2004-05 as compared to 1998-99 at secondary level in all income groups and both sexes except females in poor income groups, which shows a marginal increase of 1.4 percentage point.

b. Gross Enrollment Rates: Sindh

Similar to Punjab, GERs show a typical bias in enrollment behavior in Sindh with males being more likely to be enrolled in schools, colleges and universities in both 1998-99 and 2004-05 across all income groups (see Table 2). In contrast, the gap between male and female enrollments at primary level widened at richest, middle and poorest 20 percent in 2004-05 as compared to 1998-99. Although, GERs improved in 2004-05 as compared to 1998-99 at primary level, it worsened at secondary level of education in almost all income groups. However, at tertiary level of education GERs worsened among males in

Table 2
Gross Enrollment Rate by Gender and Quintile: Sindh

Income Level/ Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
2004-05						
Rich	98.5	73.4	67.8	43.0	27.3	22.6
Upper Middle	96.9	73.1	57.4	39.7	16.9	14.2
Middle	86.0	61.3	49.3	36.3	12.0	6.3
Lower Middle	76.5	57.7	37.2	31.9	9.8	3.5
Poor	69.2	49.3	37.2	19.7	11.4	5.5
1998-99						
Rich	88.4	75.7	100.6	59.1	26.5	11.6
Upper Middle	84.2	53.9	89.9	53.0	18.7	7.3
Middle	73.9	59.0	70.4	47.2	13.3	4.3
Lower Middle	63.8	41.3	59.7	34.9	11.4	3.7
Poor	44.6	33.1	45.1	27.2	7.6	3.1
Difference (2004-05 - 1998-99)						
Rich	10.2	-2.3	-32.7	-16.1	0.8	11.1
Upper Middle	12.7	19.2	-32.5	-13.3	-1.8	6.8
Middle	12.1	2.3	-21.2	-10.9	-1.3	2.0
Lower Middle	12.7	16.4	-22.6	-2.9	-1.7	-0.2
Poor	24.6	16.2	-7.9	-7.5	3.8	2.4

Source: SPDC's estimates based on PIHS 1998-99 & PSLM 2004-05

upper middle, middle and lower middle income groups while among females they increased in all income groups except lower middle.

c. Gross Enrollment Rates: NWFP

The typical bias in enrollment behavior reflected through sex disaggregated GERs are more pronounced in NWFP as compared to other provinces with males having greater chances for enrollment in schools, colleges and universities in both 1998-99 and 2004-05 (see Table 3). The gap between male and female enrollments at primary level widened at almost all income groups in 2004-05 as compared to 1998-99. Although, GERs improved in 2004-05 as compared to 1998-99 at primary and tertiary level among males and females, they worsened at secondary level of education in almost all income groups.

Table 3
Gross Enrollment Rate by Gender and Quintile: NWFP

Income Level/ Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
2004-05						
Rich	102.0	68.9	79.3	36.7	24.6	9.7
Upper Middle	97.2	63.0	67.3	31.6	13.4	7.7
Middle	97.8	60.2	51.6	24.0	11.0	3.7
Lower Middle	87.7	53.4	44.8	24.5	9.1	2.2
Poor	80.1	47.3	45.2	8.3	9.5	1.6
1998-99						
Rich	106.0	81.8	107.0	57.2	19.0	10.8
Upper Middle	95.2	60.5	85.4	45.1	11.5	5.6
Middle	84.0	53.8	76.7	26.3	7.5	3.5
Lower Middle	79.9	51.5	55.3	21.8	5.3	0.5
Poor	61.6	28.8	49.6	9.1	3.5	0.3
Difference (2004-05 - 1998-99)						
Rich	-4.0	-12.9	-27.6	-20.5	5.6	-1.1
Upper Middle	2.0	2.5	-18.2	-13.5	1.9	2.1
Middle	13.8	6.4	-25.1	-2.3	3.5	0.2
Lower Middle	7.8	1.9	-10.5	2.8	3.8	1.7
Poor	18.6	18.5	-4.4	-0.8	6.0	1.3

Source: SPDC's estimates based on PIHS 1998-99 & PSLM 2004-05

d. Gross Enrollment Rates: Balochistan

Table 4 shows that gender gaps in GER at primary level have widened in 2004-05 as compared to 1998-99 in almost all income groups. For instance, at the lowest income

quintile (poor) GER for males was 53 percent in 1998-99 and that of female was 35 percent showing a gender gap of 18 percentage points. In 2004-05, this gap widened to an alarming 31 percentage points with male GER at around 54 percent and female at 23 percent. This shows that males are more likely to be enrolled in both public and private primary educational institutions as compared to females. While there is marginal improvement in female GER at tertiary level at all income groups, these declined in male GER at tertiary level at all income groups. At secondary level both male and female GERs shows a declining trend.

Table 4
Gross Enrollment Rate by Gender and Quintile: Balochistan

Income Level/ Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
2004-05						
Rich	103.8	60.2	68.9	29.2	13.1	6.1
Upper Middle	81.5	46.9	43.6	18.3	10.1	3.7
Middle	87.0	51.0	35.7	13.8	6.2	2.6
Lower Middle	71.5	47.2	36.7	11.5	3.5	0.3
Poor	53.8	23.0	17.9	9.9	3.9	1.3
1998-99						
Rich	83.2	84.3	76.8	43.7	24.1	5.3
Upper Middle	68.9	35.8	68.5	44.4	10.6	2.2
Middle	83.0	31.8	71.7	14.3	10.1	1.2
Lower Middle	62.7	48.2	46.7	16.5	4.9	0.3
Poor	52.9	34.9	53.3	10.7	4.2	0.2
Difference (2004-05 - 1998-99)						
Rich	20.6	-24.1	-7.9	-14.5	-11.0	0.8
Upper Middle	12.6	11.0	-24.9	-26.1	-0.4	1.5
Middle	4.0	19.1	-36.0	-0.5	-3.9	1.4
Lower Middle	8.8	-1.1	-10.0	-4.9	-1.4	0.0
Poor	0.9	-11.8	-35.4	-0.8	-0.4	1.2

Source: SPDC's estimates based on PIHS 1998-99 & PSLM 2004-05

3. ROLE OF GOVERNMENT IN EDUCATION

In 1972, the Government of Pakistan (GoP) nationalized private schools and became the sole provider of education as a part of its campaign to provide free and universal basic education. However, very soon the GoP realized that without the help of the private sector the objective of universal basic education could not be achieved. Since this realization, GoP has encouraged the private sector in all levels of education from primary to tertiary. The last decade has experienced the mushrooming of private institutions in

Table 5
Distribution of Enrolled Students in Public and Private Institutes

Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
2004-05						
Punjab	68.4	31.6	71.8	28.2	62.6	37.4
Sindh	73.7	26.3	69.4	30.6	79.4	20.6
NWFP	75.5	24.5	76.9	23.1	62.3	37.7
Balochistan	93.7	6.3	90.6	9.4	85.8	14.2
1998-99						
Punjab	68.7	31.3	76.9	23.1	74.7	25.3
Sindh	71.6	28.4	77.6	22.4	86.8	13.2
NWFP	84.7	15.3	85.3	14.7	73.8	26.2
Balochistan	95.3	4.7	95.3	4.7	96.5	3.5
Difference (2004-05 - 1998-99)						
Punjab	-0.3	0.3	-5.2	5.2	-12.1	12.1
Sindh	2.1	-2.1	-8.2	8.2	-7.4	7.4
NWFP	-9.2	9.2	-8.5	8.5	-11.6	11.6
Balochistan	-1.6	1.6	-4.7	4.7	-10.7	10.7

Source: SPDC's estimates based on PIHS 1998-99 & PSLM 2004-05

Pakistan. Despite this mushrooming, public schools still play a significant role in the provision of education and the government is the major provider of primary, secondary, and tertiary education. Table 5 presents the relative share in enrollments at public and private institutes in 1998-99 and 2004-05. It emerges that although the share of public schooling declined rapidly in the six-year period it still covers at least two-third of primary, secondary and tertiary education in all provinces.

a. Public Expenditure on Education

Education is part of the Concurrent Legislative list where all tiers of the government (federal, provincial and local) spend on education according to their role and responsibilities. These expenditures are reported in the budget document under: (i) recurrent expenditures; and (ii) development budget. Recurrent budget programmes at federal level include: university education, education in the Islamabad Capital Territory (ICT), national policy function, curriculum development, donor coordination, and monitoring and evaluation. Development budget includes: Education Sector Reforms (ESR) Programme, Non Formal Basic Education (NFBE) and Madrassa Reforms programmes, Cadet Colleges, the National Education Census, and National Education

Management Information Systems (NEMIS). While the recurrent budget of Higher Education Commission (HEC) is an integral part of the Ministry of Education (MoE) budgets, the development budget for the HEC is transferred directly from the Ministry of Finance to the HEC, and therefore is not under the remit of MoE.

The provincial governments, and through them the district governments, are constitutionally the prime public providers of education. They manage public sector schools and colleges, employ teachers, supply educational materials, and carry out a wide range of ancillary education programmes (for example, school nutrition Programmes like Tawana Pakistan Programme, in-service teacher training).

b. Unit Subsidies in Education

Table 6 presents province-wise public expenditure on education, number of student in public institutes and unit subsidies in education by level of education in 1998-99 and 2004-05. Although all levels of education show substantial increase (roughly over 50 percent) in nominal expenditures in 2004-05 compared to 1998-99, growth in secondary and tertiary education is higher than that in primary education. This indicates that the government is focusing more on secondary and tertiary education compared to primary education. In contrast, trends in enrollment at public institutes shows that growth in primary and tertiary enrollment is higher than secondary enrollments. The last two columns of Table 6 present the gross unit subsidy - current cost to the government of a student studying in a particular level in a public institution. It is calculated as the total recurrent spending of (local, provincial and federal) governments on a specific level of public education divided by the total number of students of the same level in the province.

Table 6 also reveals regional disparities in unit subsidies in education that vary with the level of education. For instance, in 2004-05 the amount of unit subsidies for primary education was highest in Punjab followed by NWFP and Sindh while lowest in Balochistan. Compared to 1998-99, these unit subsidies are relatively higher in 2004-05 in nominal terms in all provinces except Sindh, which shows a marginal decline of Rs 52 per student in 2004-05 compared to 1998-99. It is interesting to note that despite the decline in number of students at secondary level in all provinces, there is a substantial increase in unit subsidies at secondary level.

In order to avoid ghost student phenomena, the number of students for the estimation of subsidies was taken from HIES and PSLM after multiplying by the blow-up factor.

Table 6
Education Unit Subsidies in 1998-99 and 2004-05

Province	Public Expenditure (Rs. in millions)		Number of student (in thousands)		Per Student Subsidies (Rs. / Annum)	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Education						
Punjab	15,829	24,070	5,959	6,846	2,656	3,516
Sindh	6,340	8,857	2,047	2,907	3,098	3,046
NWFP	4,066	6,121	1,848	1,818	2,200	3,367
Balochistan	1,212	1,793	779	648	1,555	2,769
Secondary Education						
Punjab	4,944	11,123	3,620	3,592	1,366	3,097
Sindh	2,967	6,856	1,462	1,339	2,029	5,120
NWFP	2,694	5,798	947	896	2,843	6,469
Balochistan	950	1,450	365	247	2,603	5,865
Tertiary Education						
Punjab	3,523	7,553	490	1,134	7,182	6,660
Sindh	2,006	4,979	435	777	4,609	6,405
NWFP	1,490	2,402	118	235	12,667	10,219
Balochistan	528	991	67	49	7,914	20,421

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

Moreover, due to non-availability of province-wise cost recovery on education services, these subsidies present gross unit subsidies and not net unit subsidies (gross unit subsidies minus per unit cost recovery), which is the proper measure of unit subsidies. As a result, these estimates may contain an upward bias and may over-state the amount of subsidies especially at tertiary level.

4. BENEFIT INCIDENCE ANALYSIS

By combining the unit cost of the public education system with use of public schooling facilities by members of the household, we can estimate the benefit incidence of government spending on education. The province-wise results of this exercise (based on the subsidy schedule of Table 6) are reported in subsequent subsections. In line with the objectives of the study, first the subsidy is distributed across the five income quintiles, from the richest 20 percent to the poorest 20 percent of the population. This disaggregation allows us to explore the extent by which an income quintile actually benefitted from public subsidies on education. It also highlights the impact of reforms on the pattern of obtaining subsidies by income groups.

a. Benefit Incidence Estimates: Punjab

Table 7 presents the distribution of public subsidies on education across the five income quintiles by level of education in Punjab for 1998-99 and 2004-05. The last column of Table 7 shows that in 1998-99 poor (22.9 percent) and lower middle (23.2 percent) income groups received higher share of education subsidies compared to middle (19.6 percent), upper middle (18 percent) and rich groups (only 16.3 percent). This trend was more or less consistent in primary and secondary education levels. However, at tertiary level, rich income group is obtaining a higher share (43.4 percent) of subsidies compared to other income groups showing that subsidies on tertiary education was not pro poor.

Table 7
Benefit Incidence of
Public Spending on Education - Punjab

	Primary	Secondary	Tertiary	All
2004-05				
Rich	16.1	27.7	51.0	25.3
Upper Middle	20.6	24.7	19.9	21.5
Middle	24.9	22.7	17.0	22.9
Lower Middle	21.5	15.6	8.2	17.6
Poor	16.9	9.3	3.9	12.6
1998-99				
Rich	9.9	17.3	43.4	16.3
Upper Middle	14.7	21.4	28.1	18.0
Middle	19.6	22.6	15.7	19.6
Lower Middle	27.6	21.1	6.6	23.2
Poor	28.2	17.7	6.2	22.9
Difference (2004-05 - 1998-99)				
Rich	6.2	10.5	7.6	9.0
Upper Middle	5.9	3.3	-8.2	3.5
Middle	5.3	0.1	1.3	3.3
Lower Middle	-6.1	-5.5	1.7	-5.6
Poor	-11.3	-8.4	-2.3	-10.3

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

In 2004-05, the subsidy to the poorest quintile had a lower share than the subsidy to the richest quintile indicating public spending on education was not pro poor. This trend is striking in relative terms at tertiary level. While the richest one - fifth of the population received more than half of the subsidy at the tertiary level in 2004-05, the poorest 20 percent of the population received only 4 percent of the subsidy. Similarly, educational subsidy at secondary level was also seen to be not pro poor and the highest share (almost 28 percent of the subsidy) was received by the richest 20 percent of the population. However, in the case of a subsidy at the primary level the main beneficiaries are lower middle, middle and upper middle-income groups, which indicate that the subsidy may be pro poor.

b. Benefit Incidence Estimates: Sindh

Estimate of benefit incidence for Sindh portrays a similar picture (see Table 8). Overall, education subsidies were pro poor in 1998-99, and not pro poor in 2004-05. This trend

was consistent at all levels of education. For instance, at primary level, while the poorest 20 percent of the population of Sindh receives less than 15 percent of the subsidy, the richest 20 percent receives more than 20 percent of the subsidy. A similar pattern exists at secondary level with a slight change in magnitude ranging from 11.4 percent in the poorest income group and 25.7 percent in the richest income group. Moreover, this pattern can also be seen at the tertiary level where the main beneficiaries were the richest income group who received almost 42 percent of the subsidy. The subsidy at the tertiary level of education is pro rich and the poorest income group receives the lowest share (only 6.2 percent) in the subsidy.

c. Benefit Incidence Estimates: NWFP

Estimates of benefit incidence for NWFP demonstrate a pattern where education spending is not pro poor at any level of education particularly in 2004-05 (see Table 9). The poorest section of the population received the lowest share in educational subsidies particularly at the tertiary level (only 4.5 percent). A similar pattern also exists at the secondary level with a slight change in magnitude with 8 percent given to the poorest income group and almost 28 percent to the

Table 8
Benefit Incidence of
Public Spending on Education - Sindh

	Primary	Secondary	Tertiary	All
2004-05				
Rich	20.5	25.7	41.9	27.4
Upper Middle	21.8	23.5	29.1	24.1
Middle	23.4	20.9	14.0	20.3
Lower Middle	20.0	18.6	8.8	16.8
Poor	14.3	11.4	6.2	11.4
1998-99				
Rich	7.8	9.7	21.4	10.7
Upper Middle	14.9	19.0	27.8	18.3
Middle	22.8	23.6	20.3	22.6
Lower Middle	26.4	23.5	17.8	24.1
Poor	28.1	24.2	12.7	24.3
Difference (2004-05 - 1998-99)				
Rich	12.7	16.0	20.5	16.6
Upper Middle	6.9	4.5	1.3	5.9
Middle	0.6	-2.7	-6.3	-2.2
Lower Middle	-6.4	-4.9	-9.0	-7.3
Poor	-13.8	-12.8	-6.5	-12.9

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

Table 9
Benefit Incidence of
Public Spending on Education - NWFP

	Primary	Secondary	Tertiary	All
2004-05				
Rich	24.0	27.1	49.1	29.5
Upper Middle	21.6	27.6	25.2	24.6
Middle	22.5	20.4	13.1	20.0
Lower Middle	18.4	16.9	8.1	16.1
Poor	13.5	8.0	4.5	9.8
1998-99				
Rich	10.5	16.0	40.5	17.7
Upper Middle	17.8	22.6	27.5	21.1
Middle	23.9	24.7	17.7	23.0
Lower Middle	26.4	19.7	6.8	20.7
Poor	21.5	17.1	7.5	17.5
Difference (2004-05 - 1998-99)				
Rich	13.5	11.2	8.6	11.8
Upper Middle	3.9	5.0	-2.3	3.6
Middle	-1.4	-4.3	-4.6	-3.0
Lower Middle	-8.0	-2.9	1.3	-4.6
Poor	-8.0	-9.0	-3.0	-7.7

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

upper middle-income group. The pattern of subsidy distribution is slightly different at the primary level, where the main beneficiaries were the rich income group receiving 24 percent of the subsidy. In contrast, the poorest income group received only 13.5 percent of the subsidy.

d. Benefit Incidence Estimates: Balochistan

Similar to other provinces, estimates of benefit incidence demonstrate that education spending is not pro poor at any level of education in Balochistan in both the years (see Table 10).

Table 10
Benefit Incidence of Public Spending on Education - Balochistan

	Primary	Secondary	Tertiary	All
2004-05				
Rich	24.4	37.3	58.9	36.9
Upper Middle	23.2	24.5	17.9	22.4
Middle	25.0	18.4	10.8	19.4
Lower Middle	16.9	14.3	6.1	13.5
Poor	10.4	5.4	6.3	7.7
1998-99				
Rich	16.9	18.6	42.3	22.5
Upper Middle	14.9	18.1	21.0	17.2
Middle	25.4	28.2	21.9	25.7
Lower Middle	24.7	18.3	7.8	19.1
Poor	18.2	16.8	6.9	15.5
Difference (2004-05 - 1998-99)				
Rich	7.6	18.8	16.6	14.5
Upper Middle	8.3	6.4	-3.1	5.2
Middle	-0.3	-9.8	-11.1	-6.3
Lower Middle	-7.8	-4.0	-1.7	-5.6
Poor	-7.8	-11.4	-0.7	-7.8

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

The poorest sections of the population received the lowest share in educational subsidies, particularly at the secondary level of education where the poorest income group receives only 5.4 percent of the subsidy in 2004-05. A similar pattern exists at the tertiary level where 6.3 percent of the subsidy went to the poorest income group and 58.9 percent to the richest income group. The pattern differs at the primary level, where the main beneficiaries were the lower middle income group receiving 25 percent of the subsidy and the richest group receiving 24.4 percent.

Only 10.4 percent and 23.2 percent was received by the poorest income group and the upper-middle-income group, respectively.

5. POVERTY AND TARGETING OF PUBLIC EXPENDITURES ON EDUCATION

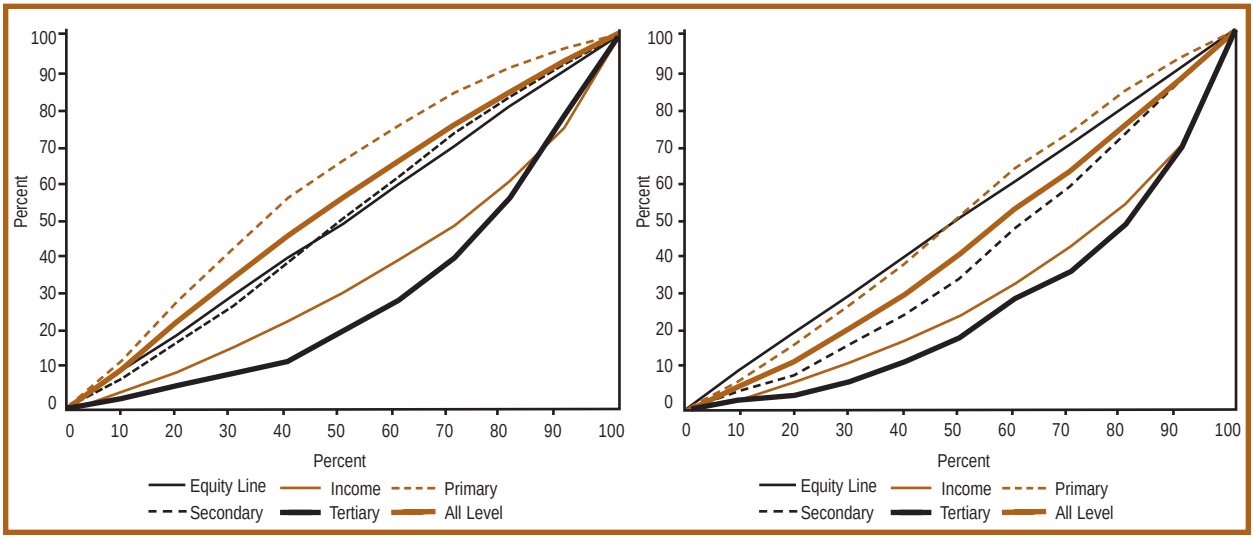
Benefit incidence results can easily be portrayed in graphic form. Tracking the cumulative distribution of public spending on different levels of education against the cumulative population ranked by per capita income gives the concentration curve. This

provides a point of comparison with which to judge the distribution of education spending. These graphics convey some important messages. First, compare the concentration curves with the equity line (45 degree diagonal). If the curve lies above the equity line, it means that the poor income groups receive a higher share of subsidies compared to their population, and consequently the rich income groups receive a lower share compared to their population share. Such a distribution is pro poor or progressive in absolute terms. Second, comparisons should be made with the Lorenz curve. Concentration curves lying above the Lorenz curve and below the equity line are progressive relative to income. If beneficiaries were given income instead of the in-kind transfer, income distribution would become more equitable. Finally, concentration curves lying below the Lorenz distribution indicate regressive transfers. Concentration curves were constructed for all four provinces and for each level of education for 1998-99 and 2004-05.

a. Punjab

Lorenz and concentration curves for Punjab are shown in Figure 1. In 1998-99, it is clear that the public spending on primary education was progressive in absolute terms, the concentration curve lying above the diagonal. Public spending on secondary education was progressive relative to income. Public spending on tertiary education was regressive (below the Lorenz curve). It is important to note that the concentration curve for public spending on education is above the equity line indicating that overall education spending is progressive in absolute terms or pro poor in Punjab in 1998-99.

Figure 1
Concentration Curves for Government Spending on Education (%)

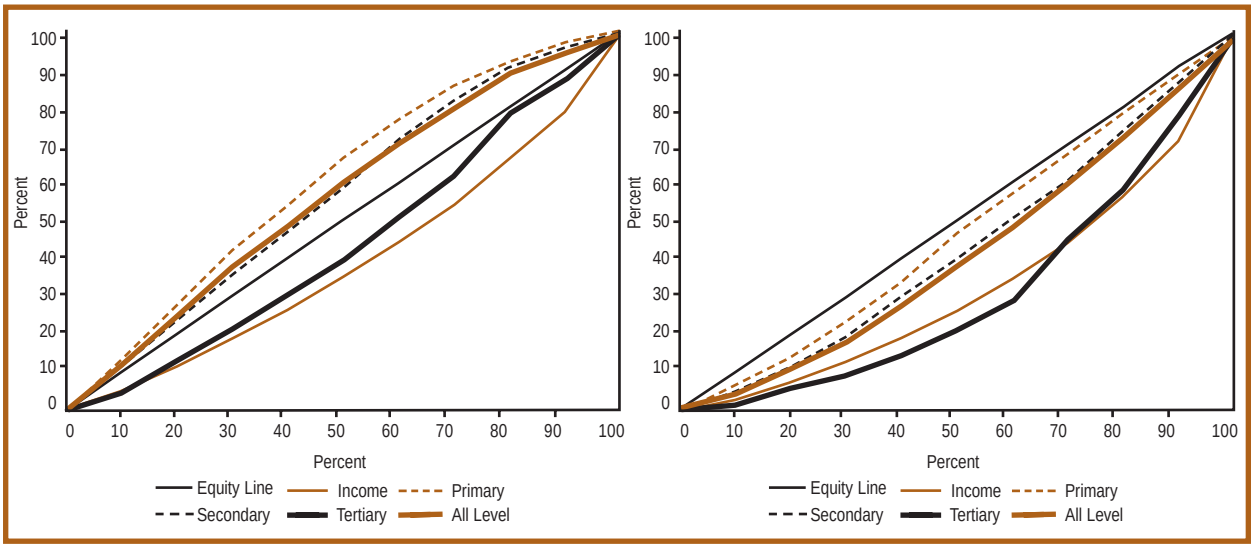


In 2004-05, the concentration curve for public spending on primary education is intersecting the equity line while other concentration curves are below the equity lines, indicating that the degree of progressivity has declined in 2004-05 as compared to 1998-99. Public spending on education is progressive relative to income but not in absolute terms.

b. Sindh

Lorenz and concentration curves for Sindh are shown in Figure 2. It is important to note that the concentration curves for public spending on all levels of education are above the equity line in 1998-99 except that of tertiary education. This indicates that public spending on primary and secondary education was progressive in absolute terms. The absolute progressivity of primary and secondary education also made total spending on education in Sindh progressive in absolute terms or pro poor in 1998-99. Concentration curve for public spending on tertiary education was below the equity line and above the Lorenz, indication that spending on tertiary education was progressive relative to income.

Figure 2
Concentration Curves for Government Spending on Education (%)

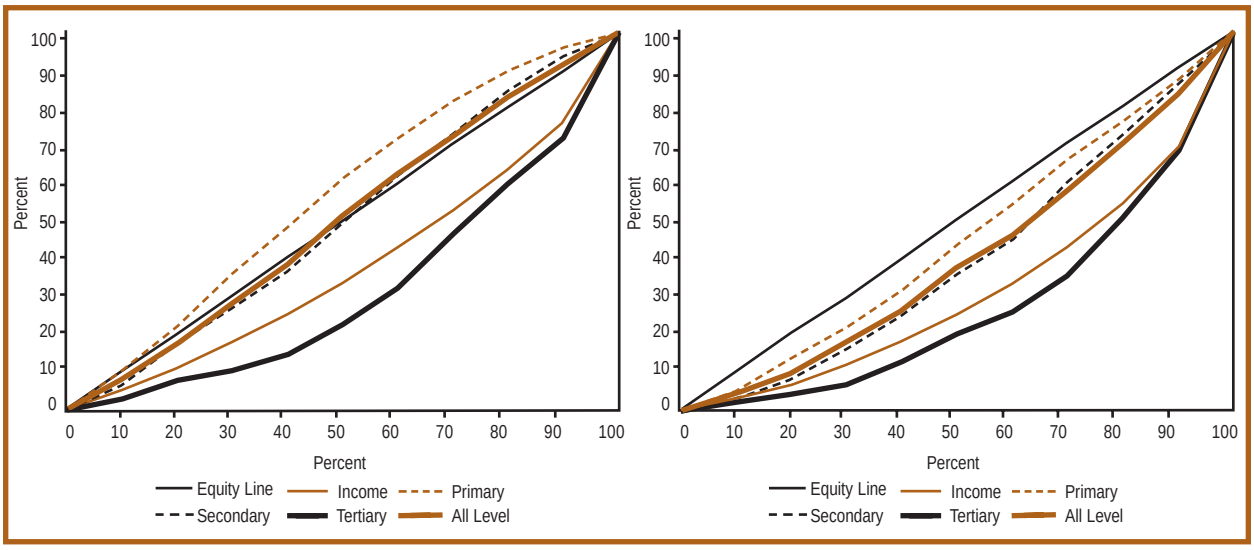


In 2004-05, all concentration curves are below the equity line indicating that public spending on any level of education was not progressive in absolute terms. However, except concentration curve for public spending on tertiary education all curves are above the Lorenz curve, indicating public spending on education was progressive relative to income. Moreover public spending on tertiary education was regressive.

c. NWFP

Lorenz and concentration curves for NWFP are shown in Figure 3. It is important to note that except for the concentration curve for public spending on tertiary education all concentration curves are above the Lorenz curve in 1998-99. Moreover, the concentration curve for public spending on primary education is above the equity line. This indicates that public spending on primary education was pro poor or progressive in absolute terms while public spending on secondary education was progressive relative to income. Concentration curve for public spending on tertiary education was below the Lorenz indicating that spending on tertiary education was regressive. The concentration curve for public spending on education is intersecting the equity line and well above the Lorenz curves indicating that overall education spending is progressive in NWFP in 1998-99.

Figure 3
Concentration Curves for Government Spending on Education (%)



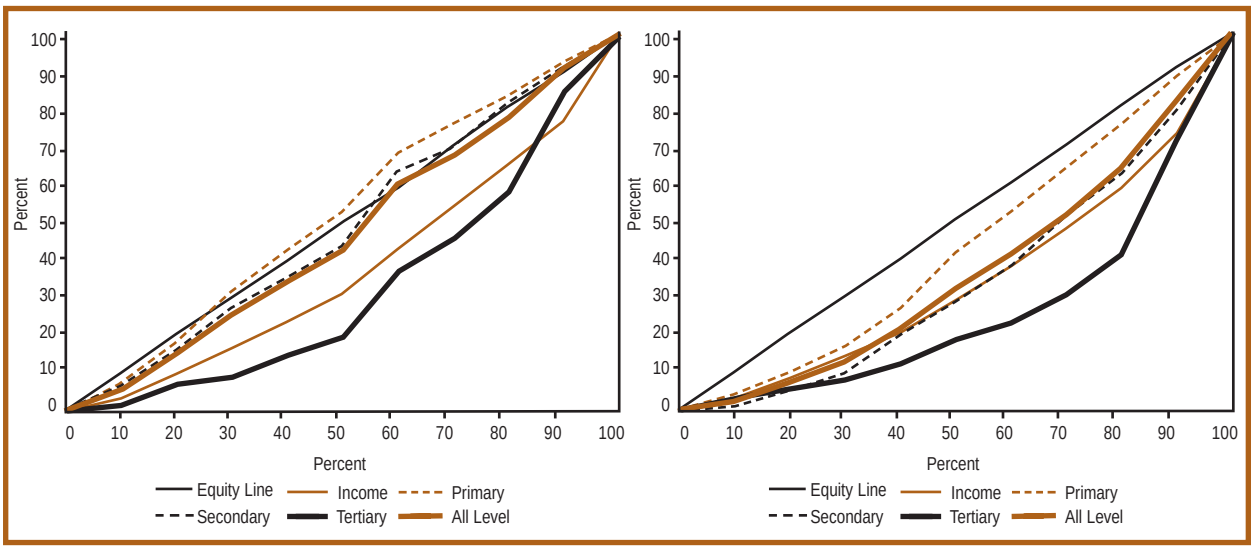
In 2004-05, all concentration curves are below the equity line indicating that public spending on any level of education was not progressive in absolute terms. However, except for the concentration curve for public spending on tertiary education all curves are above the Lorenz curve indicating public spending on education was progressive relative to income. Moreover public spending on tertiary education was regressive.

d. Balochistan

Lorenz and concentration curves for Balochistan are shown in Figure 4. It is important to note that Lorenz curve and concentration curve for public spending on primary education

all concentration curves are below the equity line in 2008-09. This indicates that public spending on primary education was progressive in absolute terms while public spending on secondary education was progressive relative to income. Concentration curve for public spending on tertiary education was below the Lorenz curve indicating that spending on tertiary education was regressive. Total spending on education in Balochistan is progressive relative to income in 1998-99.

Figure 4
Concentration Curves for Government Spending on Education (%)



In 2004-05, all concentration curves are below the equity line indicating that public spending on any level of education was not progressive in absolute terms. However, except concentration curve for public spending on tertiary education all curves are above the Lorenz curve indicating public spending on education was progressive relative to income. Moreover public spending on tertiary education was regressive.

e. Inequity in Public Spending on Education

The treatment of issues of equity in public spending on education so far was implicit and did not provide a complete answer of the question how equitable is public spending on education? In response, concentration indices have been constructed. The concentration index is similar to the GINI index (a measure of inequality), is one minus twice the integral of area under the concentration curve . The concentration index may have negative, zero and positive values and bounded between -1 and 1. In this case negative values indicate that public spending on education is pro poor while positive

values indicate the vice versa and finally zero indicates the equality (the equal distribution of the public spending among different income groups).

Table 11 presents the concentration indices for each level of education spending by province. These indices indicate that public spending on primary education was pro poor in all provinces in 1998-99. The magnitude of indices varies from 0.04 (lowest) in Balochistan to 0.22 (highest) in Sindh. In contrast, public spending on tertiary education was not pro poor in any province and upper and rich income groups obtained more benefit compared to their population share. Public spending on secondary education has mixed values indicating that it was pro poor in Sindh, not pro rich in Balochistan, and equitable in the rest of the provinces namely Punjab and Balochistan. Based on the numbers in the last column of table 11, it can be inferred that education spending were more pro poor in Sindh (-0.14), slightly pro poor in Punjab (-0.07), equitable in NWFP (0.00) and not pro poor in Balochistan (0.06), in 1998-99.

Table 11
Province wise Concentration Indices in 1998-99 and 2004-05

Province	Primary	Secondary	Tertiary	All
1998-99				
Punjab	-0.20	0.00	0.39	-0.07
Sindh	-0.22	-0.14	0.12	-0.14
NWFP	-0.13	0.00	0.37	0.00
Balochistan	-0.04	0.03	0.35	0.06
2004-05				
Punjab	-0.01	0.19	0.44	0.12
Sindh	0.06	0.14	0.37	0.16
NWFP	0.10	0.20	0.45	0.20
Balochistan	0.14	0.30	0.47	0.27

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

These indices indicate a different pattern in 2004-05, which shows that except for public spending on primary education in Punjab all education spending are not pro poor in any province at any level. In fact, the higher positive values of index at tertiary level indicate that this spending is pro rich and regressive in nature. Based on the numbers in the last column of Table 11, it can be inferred that education spending was not pro poor in any province. The magnitude of indices varies from 0.12 (lowest) in Punjab indicating that public spending on education marginally tilted towards upper income groups and rich to 0.27 (highest) in Balochistan, indicating that public spending on education tilted highly towards upper income groups and rich.

6. GENDER DISAGGREGATED BENEFIT INCIDENCE ESTIMATES

The treatment of issues of equity in public spending on education so far was based on aggregates and did not provide answers to the question; why is public spending on education not pro poor? And why was it pro poor in 1998-99 and not so pro poor in 2004-05? In order to answer these questions gender disaggregated benefit incidence analysis can be used. The subsequent subsections examine these questions by examining distribution of benefits between males and females in each province in 1998-99 and 2004-05.

a. Punjab

Statistics in Table 12 shows that gender disparity persists at all educational levels and in all income groups except the richest income group at tertiary level. It clearly illustrates that public spending on education was biased against females.

Table 12
Benefit Incidence of Public Spending on Education - Punjab

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	6.2	8.5	3.7	7.6	2.4	0.9
Upper Middle	7.7	10.5	7.0	10.1	0.8	0.4
Middle	10.2	14.2	9.4	10.6	0.9	3.6
Lower Middle	15.0	11.7	12.6	9.8	2.4	1.9
Poor	16.2	9.3	12.0	7.6	4.2	1.7
All Group	**55.3**	**54.2**	**44.7**	**45.8**	**10.7**	**8.4**
Secondary Level						
Rich	10.2	15.5	7.0	12.2	3.2	3.3
Upper Middle	12.7	13.6	8.7	11.0	3.9	2.6
Middle	14.3	13.9	8.3	8.8	6.0	5.2
Lower Middle	12.4	9.2	8.7	6.4	3.7	2.9
Poor	11.5	5.6	6.2	3.7	5.3	1.8
All Group	**61.1**	**57.9**	**38.9**	**42.1**	**22.2**	**15.8**
Tertiary Level						
Rich	21.4	22.8	22.1	28.2	-0.7	-5.3
Upper Middle	17.4	10.2	10.6	9.6	6.8	0.6
Middle	8.0	9.3	7.8	7.7	0.2	1.6
Lower Middle	3.8	3.7	2.8	4.5	1.0	-0.7
Poor	3.0	1.8	3.3	2.1	-0.3	-0.4
All Group	**53.5**	**47.9**	**46.5**	**52.1**	**7.0**	**-4.2**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

For instance, in 2004-05, at the primary level 45.8 percent and at the secondary level 42.1 percent share of the spending was spent on females and the rest on males.

However, at tertiary level, a higher share of subsidies went to females as compared to their male counterparts. This pattern is a reflection of greater enrollment of women in public universities and men in private universities, as the private universities provide more market-oriented degrees with flexible working hours and less competition. These market oriented degrees in turn, provide better job opportunities. Finally, benefit incidence of public spending on education has increased for females in 2004-05 as compared to 1998-99 at all level of education in Punjab.

b. Sindh

Table 13 shows that the relative disadvantage to females in terms of access to education follows a steady pattern in Sindh.

Table 13
Benefit Incidence of Public Spending on Education - Sindh

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	4.2	12.6	3.6	7.9	0.6	4.7
Upper Middle	9.2	13.0	5.7	8.8	3.5	4.2
Middle	13.4	14.5	9.4	8.9	4.0	5.5
Lower Middle	15.9	11.8	10.6	8.2	5.3	3.6
Poor	16.3	8.9	11.8	5.3	4.5	3.6
All Group	**58.9**	**60.8**	**41.1**	**39.2**	**17.9**	**21.6**
Secondary Level						
Rich	6.1	18.0	3.6	7.7	2.5	10.3
Upper Middle	12.1	14.8	6.9	8.8	5.2	6.0
Middle	15.1	13.4	8.5	7.5	6.6	5.9
Lower Middle	15.0	10.3	8.5	8.3	6.5	2.0
Poor	15.5	8.1	8.6	3.2	6.9	4.9
All Group	**63.8**	**64.5**	**36.2**	**35.5**	**27.7**	**29.1**
Tertiary Level						
Rich	16.7	27.4	4.8	14.5	11.9	12.8
Upper Middle	21.1	17.6	6.7	11.5	14.4	6.1
Middle	16.1	9.8	4.1	4.2	12.0	5.6
Lower Middle	13.6	6.3	4.2	2.5	9.4	3.9
Poor	9.5	3.5	3.2	2.7	6.3	0.8
All Group	**77.0**	**64.5**	**23.0**	**35.5**	**54.0**	**29.1**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

This disadvantage is lowest at the primary level, where they received 39.2 percent of the total subsidy for primary education in 2004-05. This disadvantage gradually increases with the level of education and is greatest at the tertiary level, where they received 35.5 percent of the total subsidy at tertiary level education. This pattern confirms the

hypothesis that relative disadvantage increases with the level of education. Finally, benefit incidence of public spending on education also increased for females in 2004-05 as compared to 1998-99 at tertiary level and declined at primary and secondary levels of education in Sindh.

c. NWFP

Table 14 shows that the relative disadvantage to females is lowest at the primary level, where they received 35.5 percent of the total primary spending and highest at the tertiary level, where they received only 27.3 percent of the tertiary spending.

Table 14
Benefit Incidence of Public Spending on Education - NWFP

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	5.2	14.7	5.3	9.4	-0.1	5.3
Upper Middle	10.7	13.2	7.0	8.4	3.7	4.7
Middle	15.4	14.5	8.5	8.0	6.8	6.5
Lower Middle	17.3	12.7	9.1	5.7	8.1	7.1
Poor	14.3	9.4	7.2	4.1	7.1	5.3
All Group	**62.9**	**64.5**	**37.1**	**35.5**	**25.7**	**28.9**
Secondary Level						
Rich	9.5	17.3	6.4	9.8	3.1	7.5
Upper Middle	14.4	20.0	8.1	7.6	6.3	12.4
Middle	18.7	14.9	6.0	5.4	12.7	9.5
Lower Middle	13.7	11.7	6.0	5.2	7.7	6.6
Poor	13.9	6.8	3.2	1.3	10.7	5.5
All Group	**70.3**	**70.7**	**29.7**	**29.3**	**40.6**	**41.4**
Tertiary Level						
Rich	25.5	36.8	15.0	12.3	10.5	24.5
Upper Middle	17.6	16.2	9.9	9.0	7.7	7.3
Middle	13.5	9.5	4.2	3.6	9.4	5.9
Lower Middle	5.9	6.2	1.0	2.0	4.9	4.2
Poor	7.3	4.0	0.2	0.5	7.0	3.5
All Group	**69.8**	**72.7**	**30.2**	**27.3**	**39.6**	**45.4**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

An interesting fact is that the relative disadvantage of females is inversely correlated with the level of income. For instance, females in the poorest quintile of income receive less than one-third of the total primary education subsidy received by the poorest quintile. In contrast, females in the richest quintile of income received almost two-fifth of the total primary education subsidy received by the richest quintile. This disadvantage increases with the level of education - females in the poorest quintile receive only 1.3 percent of the secondary education subsidy and almost zero percent at tertiary level.

d. Balochistan

In Balochistan, gender disparity persists at all educational levels and in all income groups in both the years. It clearly emerges that the pattern of subsidy is biased against girls and women.

Table 15
Benefit Incidence of Public Spending on Education - Balochistan

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	9.5	16.3	7.3	8.2	2.2	8.1
Upper Middle	10.1	16.2	4.8	7.0	5.3	9.2
Middle	18.8	16.9	6.6	8.1	12.2	8.8
Lower Middle	16.2	10.4	8.5	6.4	7.7	4.0
Poor	11.0	7.8	7.1	2.6	3.9	5.2
All Group	**65.6**	**67.7**	**34.4**	**32.3**	**31.2**	**35.3**
Secondary Level						
Rich	12.1	28.1	6.5	9.2	5.6	18.8
Upper Middle	12.2	18.3	5.9	6.2	6.3	12.1
Middle	25.4	14.8	2.8	3.7	22.6	11.1
Lower Middle	13.7	11.1	4.6	3.2	9.2	7.9
Poor	13.8	3.8	3.0	1.6	10.8	2.2
All Group	**77.3**	**76.1**	**22.7**	**23.9**	**54.5**	**52.2**
Tertiary Level						
Rich	35.4	45.6	7.0	13.3	28.4	32.3
Upper Middle	17.5	14.2	3.5	3.7	14.0	10.6
Middle	20.8	7.2	1.1	3.6	19.8	3.6
Lower Middle	7.4	5.7	0.5	0.4	6.9	5.3
Poor	6.7	4.3	0.2	1.9	6.4	2.4
All Group	**87.8**	**77.1**	**12.2**	**22.9**	**75.5**	**54.1**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

For instance in 2004-05, 32.3 percent of subsidy at primary level, 23.9 percent of subsidy at the secondary level, and 22.9 percent of subsidy at tertiary level was spent on females and the rest on males. In 2004-05, the pattern of subsidy was regressive in nature at all education levels for both male and female, where the highest share of subsidy went to the richest quintile.

7. GENDER DISAGGREGATED PER CAPITA SUBSIDIES

The per capita estimates of level-wise subsidy present a better picture of the benefit incidence and highlight which income group receives what amount of money under education subsidies. It is calculated as total spending of (local, provincial and federal) governments on a specific level of public education divided by the total number of

persons in the official school age group. For instance, per capita subsidy for females at primary level is computed by dividing total subsidy on primary level received by females to the total number of female in 5-9 year age cohort. The subsequent subsections present gender disaggregated per capita subsidies in each income group for 1998-99 and 2004-05.

a. Punjab

Table 16 shows gender disparity persists at primary and secondary level of education across all income groups except the richest income group at primary level. It clearly emerges that the pattern of subsidy is biased against females at primary and secondary level of education. For instance, in 2004-05 per capita subsidy which went to females at primary level was Rs 2,180 and at secondary level Rs 943, while that which went to males was Rs 2,318 and Rs1,278 respectively. However, at tertiary level the per capita subsidy which went to females was higher than that to males in all income quintiles except middle. In overall terms, per capita subsidy on education has generally increased for both males and females in 2004-05 as compared to 1998-99 at all level of education in Punjab.

Table 16
Per Capita Subsidies on Education - Punjab

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	1,476	1,852	1,024	1,990	452.2	-137.9
Upper Middle	1,520	2,230	1,351	2,193	169.1	36.9
Middle	1,559	2,741	1,364	2,422	195.4	318.9
Lower Middle	1,620	2,467	1,423	2,233	197.7	234.4
Poor	1,303	2,231	1,027	2,016	275.9	215.0
All Group	**1,475**	**2,318**	**1,233**	**2,180**	**241.6**	**137.4**
Secondary Level						
Rich	825	1,670	728	1,291	97.2	378.7
Upper Middle	882	1,342	626	1,068	256.0	274.3
Middle	779	1,279	527	919	252.5	359.9
Lower Middle	600	1,066	424	708	175.8	358.2
Poor	452	888	241	587	210.8	301.6
All Group	**670**	**1,278**	**455**	**943**	**214.5**	**335.8**
Tertiary Level						
Rich	748	817	726	972	21.6	-154.3
Upper Middle	459	408	295	409	164.4	-1.1
Middle	209	461	197	359	12.3	101.9
Lower Middle	110	256	72	258	37.3	-2.4
Poor	89	179	88	182	0.9	-2.4
All Group	310	490	256	506	53.3	-15.4

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

b. Sindh

Table 17 shows that the relative disadvantage to females in terms of per capita subsidy was lowest at primary level and increased with the level of education in both the years in Sindh. For example, in 2004-05 the per capita subsidy received by females at primary level was Rs1, 433 while that received by males was Rs1, 444. As against, the per capita subsidy received by females at tertiary level was Rs1, 648 while that received by males was Rs 2,145, compared to 39.2 percent of the total subsidy for primary education in 2004-05. This pattern confirms the hypothesis that relative disadvantage increases with the level of education. Finally, per capita subsidy on education which went to females increased across all income quintiles at all education levels in 2004-05 as compared to 1998-99 except poor quintile at both primary and secondary levels.

Table 17
Per Capita Subsidies on Education - Sindh

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	23.7	82.5	20.6	85.0	3.1	-2.4
Upper Middle	122.2	193.6	117.7	273.5	4.4	-80.0
Middle	287.7	366.7	242.3	348.5	45.3	18.2
Lower Middle	390.3	434.6	373.7	445.5	16.6	-11.0
Poor	497.0	367.0	522.1	280.4	-25.2	86.6
All Group	**1,320.8**	**1,444.3**	**1,276.5**	**1,432.9**	**44.3**	**11.4**
Secondary Level						
Rich	22.4	223.9	37.6	269.4	-15.2	-45.5
Upper Middle	147.8	456.9	141.6	488.0	6.2	-31.1
Middle	246.2	509.6	184.5	438.5	61.8	71.1
Lower Middle	203.2	422.5	223.4	491.5	-20.3	-69.0
Poor	267.7	325.3	236.6	188.7	31.0	136.6
All Group	**887.3**	**1,938.2**	**823.7**	**1,876.1**	**63.5**	**62.1**
Tertiary Level						
Rich	170.0	810.0	78.4	666.0	91.6	144.0
Upper Middle	287.7	559.5	109.5	537.8	178.2	21.7
Middle	232.6	391.7	83.1	209.7	149.6	182.0
Lower Middle	183.8	258.7	77.9	97.5	105.9	161.2
Poor	129.7	124.9	64.6	136.6	65.1	-11.7
All Group	**1,003.8**	**2,144.7**	**413.5**	**1,647.6**	**590.3**	**497.2**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

c. NWFP

In NWFP, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level and increased gradually with the level of education and was greatest at the tertiary level in 2004-05 (see Table 18). In contrast, the picture was entirely

Table 18
Per Capita Subsidies on Education - NWFP

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	7.8	45.0	11.6	60.6	-3.8	-15.6
Upper Middle	40.8	92.2	44.5	65.5	-3.7	26.7
Middle	72.6	110.9	51.6	73.5	21.0	37.4
Lower Middle	75.4	97.4	52.8	87.1	22.6	10.3
Poor	111.9	117.5	77.0	55.4	35.0	62.1
All Group	**308.5**	**462.9**	**237.4**	**342.1**	**71.1**	**120.9**
Secondary Level						
Rich	20.4	80.5	38.7	89.6	-18.3	-9.1
Upper Middle	49.4	143.6	70.4	91.6	-21.0	52.0
Middle	70.5	133.5	69.8	73.8	0.7	59.7
Lower Middle	66.2	92.5	33.5	94.2	32.8	-1.6
Poor	80.4	95.7	32.6	41.2	47.8	54.5
All Group	**286.9**	**545.9**	**244.9**	**390.4**	**42.0**	**155.5**
Tertiary Level						
Rich	86.9	248.5	113.0	143.1	-26.1	105.4
Upper Middle	89.5	127.3	106.3	70.2	-16.8	57.1
Middle	70.9	81.6	24.1	34.5	46.9	47.1
Lower Middle	22.8	42.4	14.2	35.9	8.6	6.4
Poor	10.2	34.3	3.6	11.3	6.6	23.0
All Group	**280.2**	**534.0**	**261.1**	**295.0**	**19.1**	**239.0**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

opposite in 1998-99 when the gender gap in per capita subsidy was highest at the primary level and lowest at the tertiary level. Finally, per capita subsidy on education which went to females increased across all income quintiles at all education levels in 2004-05 as compared to 1998-99, except for the poor quintile at primary level and upper middle quintile at tertiary level.

d. Balochistan

Gender disparity persists at all educational levels and in all income groups. The relative disadvantage to females in terms of per capita subsidy was lowest at the primary level and increased gradually with the level of education and was greatest at the tertiary level in both the years (see Table 19). It clearly emerges that the pattern of subsidy is biased against females. For instance, in 2004-05, at the primary level, per capita subsidy on education which went to females was Rs182 while that to males was Rs 290. On the other hand, at tertiary level per capita subsidy to females was Rs198 while that to males was Rs 483. Per capita subsidy on education for females increased across all income groups and at all education levels in 2004-05 as compared to 1998-99. Moreover, the overall per capita subsidy on education is lowest in Balochistan compared to those in other provinces.

Table 19
Per Capita Subsidies on Education - Balochistan

Income Level	MALE		FEMALE		DIFFERENCE	
	1998-99	2004-05	1998-99	2004-05	1998-99	2004-05
Primary Level						
Rich	8.7	38.7	13.5	33.6	-4.8	5.1
Upper Middle	13.6	76.4	10.6	38.3	3.0	38.1
Middle	19.1	77.2	14.5	39.5	4.7	37.6
Lower Middle	24.1	52.8	15.9	46.2	8.2	6.6
Poor	20.2	44.6	22.5	25.0	-2.3	19.6
All Group	**85.7**	**289.6**	**76.9**	**182.6**	**8.7**	**107.0**
Secondary Level						
Rich	17.1	72.2	16.3	52.0	0.8	20.2
Upper Middle	22.0	85.5	10.3	38.6	11.7	46.8
Middle	22.4	84.1	14.4	29.2	8.0	54.8
Lower Middle	18.9	65.4	11.1	35.6	7.8	29.8
Poor	27.7	40.8	14.9	19.6	12.8	21.1
All Group	**108.0**	**347.9**	**67.0**	**175.1**	**41.1**	**172.8**
Tertiary Level						
Rich	53.2	276.2	27.9	102.3	25.3	173.9
Upper Middle	24.7	88.2	3.8	36.5	20.9	51.7
Middle	18.4	52.2	3.6	35.4	14.8	16.8
Lower Middle	12.2	36.6	2.5	4.4	9.7	32.3
Poor	9.0	29.8	1.3	19.1	7.7	10.7
All Group	**117.4**	**483.1**	**39.1**	**197.7**	**78.3**	**285.4**

Source: SPDC's estimates based on PRSP Annual Report 2004-05 & Federal Demand for Grants 1999-00 and 2005-06, & Provincial Demand for Grants 1999-00, PSLM 2004-05 & PIHS 1998-99

8. REGIONAL GENDER DISPARITY

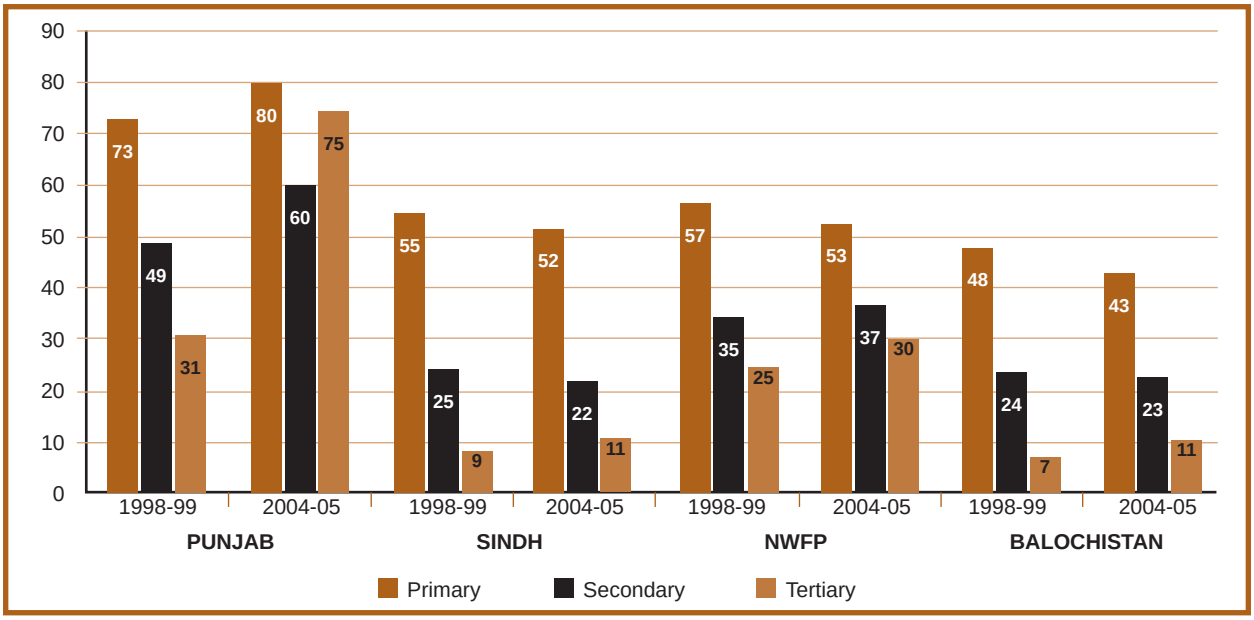
Gender disaggregated benefit incidence results can be used to provide a comparative picture of regional gender disparity. To grasp the comparative picture of regional gender disparity, female to male ratio of benefit incidence of public spending was computed by province and rural-urban location. The ratio may have values below 100 (women and girls are receiving less subsidies than boys and men), 100 (females and males are receiving equal subsidies), and above 100 (women and girls are receiving more subsidies than boys and men).

a. Rural Areas

The female to male ratio of benefit incidence of public spending on education by level of education in rural areas are presented in Figure 5. It is important to note that the ratio well below hundred in all provinces and at level of education in both 1998-99 and 2004-05. It shows that females have relative disadvantage in rural areas of all provinces in both years. The disadvantage is the greatest in rural Balochistan and Sindh. This

observation is also compatible with the expectation that female enrollment rates decrease with the level of education.

Figure 5
Gender Disparity in Benefit Incidence in Rural Areas (%)

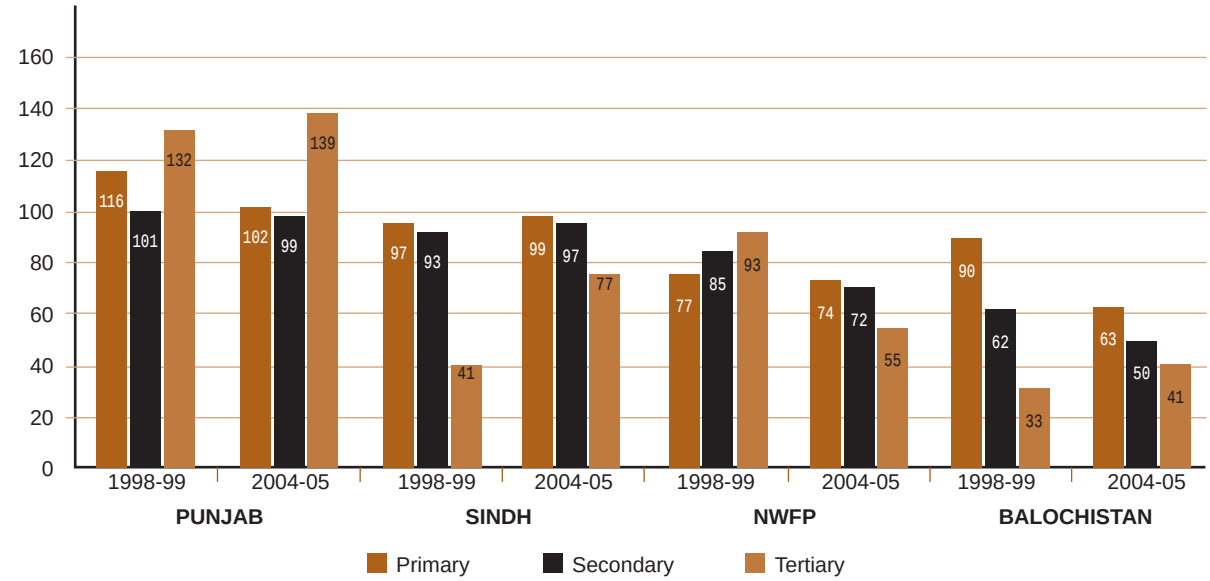


Province-wise comparison reveals that the ratio has substantially improved in Punjab in 2004-05 compared to 1998-99. This indicates that girls and women in rural areas of Punjab experienced greater access to public education, particularly at tertiary level. In contrast to Punjab, rural areas of other three provinces show similar patterns indicating slight decline in ratio at primary level and marginal improvement at secondary and tertiary level. As an exception, in Sindh, the ratio has declined at secondary level. This implies that access to public education services for girls at primary level has declined in Sindh, NWFP, and Balochistan while it marginally improves at tertiary level.

b. Urban Areas

Figure 6 shows estimates of female to male ratio of benefit incidence of public spending on education by level of education in urban areas. It is clear from Figure 5 and 6 that gender disparity in benefit incidence is higher in rural areas than in urban areas. In urban areas, improvement in benefit incidence occurred in Punjab and Sindh at all education levels while it worsened in NWFP at all education levels, and in Balochistan at primary and secondary levels. The above 100 value of the ratio indicates that women and girls of urban areas were receiving higher subsidies in Punjab compared to their male counterparts.

Figure 6
Gender Disparity in Benefit Incidence in Urban Areas (%)



9. KEY CONCLUSIONS

The gender disaggregated province-wise analyses indicates the following:

- GERs of both males and females for all education categories increases with the increase in level of income. Overall low GERs prevail in poor income groups compared to rich income groups at all levels of education in all provinces;
- Wide disparities exist in GERs across provinces.
- Wide gender disparity also exists in GER across income groups, which is more pronounced in poor income groups compared to rich income groups.
- Wide gender disparity exists in GERs across all levels of education where it varies with the level of income. It is more prominent in poor income groups compared to rich income groups.
- Although the share of public schooling declined it still covers at least two-thirds of primary, secondary and tertiary education in all provinces.
- Estimates of benefit incidence by income groups indicate that the share of poor income groups has declined in 2004-05 compared to 1998-99 in all provinces. This indicates that reforms initiated during this period were not pro poor in character.
- Concentration curves show that public spending on primary education was progressive in absolute terms, while secondary education was progressive

relative to income, tertiary education was regressive, and total spending on education was pro poor during1998-99 in Punjab. However, this pattern changed in 2004-05, indicating that a degree of progressivity has declined and total spending on education became progressive relative to income, but not pro poor.

- Concentration curves for Sindh indicate that public spending on primary and secondary education was progressive in absolute terms and tertiary education was progressive relative to income in 1998-99. This indicates that the total spending on education in Sindh was pro poor in 1998-99. Similar to Punjab, however, this pattern changed in 2004-05, indicating that the degree of progressivity declined and total spending on education became progressive relative to income, but not pro poor.
- Concentration curves for NWFP indicate that public spending on primary education was progressive in absolute terms, secondary education was progressive relative to income, and tertiary education was regressive in 1998-99. Total public spending on education was progressive relative to income in 2004-05.
- Concentration curves for Balochistan indicates that public spending on primary education was progressive in absolute terms, secondary education was progressive relative to income, tertiary education was regressive, and total spending on education is progressive in relative to income in both the years i.e. 1998-99 and 2004-05.
- Concentration indices indicate that the public spending on primary education was pro poor and tertiary education was not pro poor in all provinces in 1998-99. Public spending on secondary education showed a mixed pattern indicating that it was pro poor in Sindh, not pro poor in Balochistan, and equitable in Punjab and NWFP.
- Indices emerging also indicate a different pattern in 2004-05. The differences imply that except for public spending on primary education in Punjab all education spending are not pro poor in any province at any level.
- Gender disaggregated benefit incidence analysis show that public spending on education was biased against females in Punjab at all levels in both years 1998-99 and 2004-05 except at tertiary level in 2004-05.
- In Sindh, public spending on education was biased towards males at all levels of education in both years 1998-99 and 2004-05. While this relative

disadvantage to females marginally declined at tertiary level in 2004-05 compared to 1998-99, however it further worsened at primary and secondary levels of education.

- Gender disaggregated benefit incidence analysis show that public spending on education was biased against females in NWFP. Moreover, females belonging to the lower income group received lowest benefit of public spending on education and the poorest quintile received lowest benefit of public education spending.
- In Balochistan, gender disparity persists at all educational levels and in all income groups in both the years. It clearly emerges that the pattern of subsidy is biased against girls and women.
- The per capita estimates of level-wise subsidy indicate that the pattern of subsidy is biased against females at primary and secondary level of education and towards females at tertiary level in Punjab in both years 1998-99 and 2004-05.
- In Sindh, the relative disadvantage to females in terms of per capita subsidy was lowest at primary level which, however, increased with the level of education in both the years.
- In NWFP, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level, which though increased gradually with the level of education and was greatest at the tertiary level.
- In Balochistan, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level, which increased gradually with the level of education and was greatest at the tertiary level in both the years.
- The female to male ratio of benefit incidence of public spending on education indicates that females have greater relative disadvantage in rural areas of all provinces in both years. The disadvantage is lowest in Punjab and the greatest in rural Balochistan and Sindh.
- In urban areas, improvement in benefit incidence occurred in Punjab and Sindh at all education levels while worsened in NWFP at all education levels, and in Balochistan at primary and secondary levels.

Despite policies and relevant measures/initiatives taken by the Government of Pakistan, gender disaggregated benefit incidence shows persistence of gender disparity in education in all the four provinces. While there is noticeable advancement in gender

equality in education in rural areas of Punjab, the rural areas of other provinces do not show any success in reducing gender gaps particularly in rural areas.

As such, a gender-neutral budget which fails to address these demand-side issues would perpetuate gender disparities. Additional efforts and resources are, therefore, required to break through the cultural barriers and demand-side restrictions on girls' education. In order to improve the pace, experience of the provinces which showed dynamism in reducing gender gaps in education perhaps need to be replicated in other provinces.

NOTE:

[1] Geometry was used to estimate the area under each concentration curve. This was due to the fact that the concentration curves presented in the previous section are grouped in deciles. The method takes straight lines between the ten observed points on the concentration curve, and calculates the resulting area. This seems to be the simplest approximation to the area under the concentration curve, given that we have only ten points for that curve. Obtaining the concentration index is similar to the Gini - it is the area bounded by the diagonal and the curve expressed as a share of the area under the diagonal, except that since the concentration index can cross the diagonal, areas above the diagonal count as 'negative areas'. For this reason, where the concentration curve crosses the diagonal - i.e. when benefits are distributed towards the middle quintiles - the concentration index obtained may be around zero (which is the value for equality). This method assumes that there is no variation in benefits within each group.

CHAPTER 4

GENDER DISAGGREGATED BENEFIT INCIDENCE ANALYSIS: HEALTH

CHAPTER 4 GENDER DISAGGREGATED BENEFIT INCIDENCE ANALYSIS: HEALTH

1. STRUCTURE OF PUBLIC HEALTH SYSTEM IN PAKISTAN

According to the Constitution of Pakistan, health is part of the Concurrent Legislative list. Thus, both the federal and provincial governments have a role in delivery of health services. With the promulgation of the Local Government Ordinances 2001, the responsibility for health services has been devolved to the district level, as well. The district governments, therefore, are entrusted with the responsibility of planning and delivering primary health services to the people.

In Pakistan, the structure of the public health system has the following main characteristics. First, the federal government has the responsibility of designing a National Health Policy that provides the necessary parameters to maintain a uniform standard of health status in line with international standards. Second, there are a number of tertiary care facilities - like Pakistan Institute of Medical Sciences (PIMS) and Jinnah Postgraduate Medical Centre (JPMC) run by the federal ministry-that provide public sector "curative care". Third, there are several vertical programmes initiated for the prevention and control of communicable diseases like malaria, tuberculosis (TB), HIV/AIDS, hepatitis, six fatal diseases of children under the Expanded Programme on Immunization (EPI), diarrheal diseases, and other gastro-intestinal diseases. The federal ministry through the national and provincial program managers in coordination with district focal persons manage these programmes throughout the country.

In addition, there is a vast network of health care facilities under the control of Provincial Health Departments. These include hospitals, dispensaries, Basic Health Units (BHUs) and Sub-health Centers, Mother and Child Health Centers, Rural Health Centers (RHCs), and TB Centers run by the provincial governments. To implement these programmes properly/effectively at district level, each district has established District Health Committees and Village Health Committees to oversee the health care services at all levels in their respective areas. It also involves integrating "curative and preventive services" and placing them under common management.

2. NEED FOR HEALTH SERVICE

Before estimating benefit incidence, it is important to understand the type of need for health services in Pakistan. In general, the health needs differ between groups depending on biological differences, regional variations, environmental status, and the income and class of groups. However, for the purpose of benefit analysis the calculations are based on the information available on the use of health services by households and individuals rather than their actual need. The province-wise incidence of illness is reported in subsequent subsections.

a. Need for Health Service: Punjab

Table 20 presents the incidence of illness by income quintiles during 2004-05 in Punjab obtained from micro data set of PSLM Survey 2004-05. Two results have emerged from the estimates:

- the incidence of illness varies with level of income and is highest in poor income groups and lowest in rich income groups in both males and females; and
- the incidence of illness is slightly higher among females in each income group as compared to males.

Table 20
Need for Health Service by Gender and Quintile - 2004-05: Punjab

	MALES		FEMALES	
Quintile	Not Ill	Ill	Not Ill	Ill
Rich	95.2	4.8	94.6	5.4
Upper Middle	93.9	6.1	93.4	6.6
Middle	93.4	6.6	92.7	7.3
Lower Middle	93.7	6.3	92.6	7.4
Poor	92.5	7.5	92.3	7.7
Average	**93.7**	**6.3**	**93.1**	**6.9**

Source: SPDC's estimate based on PSLMS 2004-05

b. Need for Health Service: Sindh

Table 21 presents the incidence of illness by income quintiles during 2004-05 in Sindh obtained from micro data set of PSLM Survey 2004-05. Two results have emerged from the estimates:

Table 21
Need for Health Service by Gender and Quintile - 2004-05: Sindh

	MALES		FEMALES	
Quintile	Not Ill	Ill	Not Ill	Ill
Rich	91.8	8.2	91.7	8.3
Upper Middle	91.7	8.3	90.5	9.5
Middle	91.1	8.9	91.0	9.0
Lower Middle	90.4	9.6	89.7	10.3
Poor	91.6	8.4	90.8	9.2
Average	**91.3**	**8.7**	**90.8**	**9.2**

Source: SPDC's estimate based on PSLMS 2004-05

- although the incidence of illness varies with level of income there is no clear pattern in incidence of illness with respect to income in both males and females; and
- the incidence of illness is slightly higher among females in each income group as compared to males.

c. Need for Health Service: NWFP

Table 22 presents the incidence of illness by income quintiles during 2004-05 in NWFP obtained from micro data set of PSLM Survey 2004-05. Two results have emerged from the estimates:

- although the incidence of illness varies with level of income there is no clear pattern in incidence of illness with respect to income in both males and females; and
- the incidence of illness is higher among females in each income group as compared to males.

Table 22
Need for Health Service by Gender and Quintile - 2004-05: NWFP

	MALES		FEMALES	
Quintile	**Not Ill**	**Ill**	**Not Ill**	**Ill**
Rich	92.2	7.8	91.8	8.2
Upper Middle	92.4	7.6	89.6	10.4
Middle	91.3	8.7	90.0	10.0
Lower Middle	92.3	7.7	88.2	11.8
Poor	89.5	10.5	88.4	11.6
Average	**91.5**	**8.5**	**89.6**	**10.4**

Source: SPDC's estimate based on PSLMS 2004-05

d. Need for Health Service: Balochistan

Table 23 presents the incidence of illness by income quintiles during 2004-05 in Balochistan obtained from micro data set of PSLM Survey 2004-05.

Two reslults have emerged from the estimates:

- although the incidence of illness varies with level of income there is no clear

Table 23
Need for Health Service by Gender and Quintile - 2004-05: Balochistan

	MALES		FEMALES	
Quintile	**Not Ill**	**Ill**	**Not Ill**	**Ill**
Rich	93.8	6.2	91.2	8.8
Upper Middle	94.8	5.2	91.7	8.3
Middle	96.1	3.9	91.7	8.3
Lower Middle	94.7	5.3	91.7	8.3
Poor	93.9	6.1	92.1	7.9
Average	**94.7**	**5.3**	**91.7**	**8.3**

Source: SPDC's estimate based on PSLMS 2004-05

pattern in incidence of illness with respect to income in both males and females; and

- the incidence of illness is higher among females in each income group as compared to males.

3. PATTERN OF HEALTH FACILITY USE

Another important useful indicator to review the gender differentials is the pattern of public and private use of health services in case of illness. PSLMS 2004-05 covers nine categories of health service providers, which are grouped here into three broad classifications: (a) public, (b) private, and (c) self-treatment/no-treatment. The public health service providers consist of government hospitals and dispensaries, BHU/RHC, and LHV/LHW. The private health service providers are private hospital/clinics/ dispensaries, doctors of eastern medicine (*Hakim*), and homeopaths. Finally, chemist, spiritual healers, and others are grouped into the category of self-treatment/no-treatment.

Table 24 shows that in Punjab, for example, more than 77.5 percent of those reporting ill visit a private practitioner, while only 17.3 percent avail public-sector health care services. This trend by and large persists in all quintiles irrespective of sex. In Sindh, while individuals who seek medical care tend to mostly consult private providers (75.4 percent), a significant proportion (23.0 percent) visits a public provider. Similarly, in NWFP and Balochistan, while the majority of individuals who seek medical care tend to consult with private providers (around 53 percent), a significant proportion (almost 28.6 and 44.9 percent respectively) visit a public provider.

Two striking variations across the expenditure quintiles and gender are noteworthy. First, self-medication was much more common among the poorer groups in NWFP. In NWFP, 6.3 percent of individuals who were sick, in the poorest quintile and just 2 percent of individuals in the richest quintile reported that illness was either self-medicated or did not need treatment. In Punjab, the poor were more likely to self-medicate than the rich; however, the differences are less striking. Second, self-medication /no-treatment were much more common among women as opposed to men in all the four provinces and in almost all income classes.

Table 24
Percentage Distribution of Health Services Utilization by Provider, Quintile and Province

Quintile	Public providers			Private Providers			Self-treatment/ no treatment		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
PUNJAB									
Rich	0.7	1.6	2.3	5.7	5.6	11.4	0.5	0.6	1.1
Upper Middle	1.9	2.1	4.0	7.5	8.1	15.6	0.6	0.4	1.0
Middle	1.8	1.5	3.3	8.0	9.3	17.3	0.3	0.6	0.9
Lower Middle	1.6	1.9	3.5	7.2	8.8	16.0	0.4	0.6	1.0
Poor	2.2	2.0	4.2	8.6	8.7	17.3	0.5	0.8	1.3
All Groups	**8.2**	**9.1**	**17.3**	**37.0**	**40.5**	**77.5**	**2.3**	**3.0**	**5.3**
SINDH									
Rich	3.4	2.3	5.7	7.2	6.7	13.9	0.1	0.0	0.1
Upper Middle	2.9	2.9	5.7	8.1	8.4	16.5	0.0	0.3	0.3
Middle	2.3	2.0	4.3	8.1	7.3	15.4	0.2	0.2	0.3
Lower Middle	2.1	1.9	3.9	7.8	8.1	15.9	0.4	0.3	0.8
Poor	1.6	1.8	3.4	6.8	7.0	13.8	0.0	0.0	0.1
All Groups	**12.2**	**10.8**	**23.0**	**37.9**	**37.5**	**75.4**	**0.7**	**0.8**	**1.5**
NWFP									
Rich	1.8	2.3	4.1	5.7	5.5	11.2	1.0	1.0	2.0
Upper Middle	2.6	3.1	5.7	4.1	6.5	10.6	1.5	1.7	3.1
Middle	2.6	3.5	6.0	6.3	5.6	11.9	1.2	1.8	3.0
Lower Middle	2.6	3.4	6.0	3.8	5.5	9.3	1.2	2.5	3.7
Poor	2.9	3.8	6.7	4.6	5.7	10.3	3.2	3.1	6.3
All Groups	**12.5**	**16.1**	**28.6**	**24.5**	**28.8**	**53.3**	**8.0**	**10.1**	**18.1**
BALOCHISTAN									
Rich	3.9	3.9	7.8	5.0	6.1	11.1	0.6	1.1	1.7
Upper Middle	3.1	5.1	8.2	6.3	6.7	13.0	0.0	0.0	0.0
Middle	3.6	5.3	8.9	3.5	6.7	10.2	0.4	0.0	0.4
Lower Middle	4.0	7.0	11.0	4.3	5.9	10.2	0.0	0.0	0.0
Poor	4.3	4.8	9.1	3.7	4.4	8.1	0.1	0.2	0.4
All Groups	**18.9**	**26.0**	**44.9**	**22.9**	**29.7**	**52.6**	**1.1**	**1.3**	**2.5**

Source: SPDC's estimate based on PSLMS 2004-05

4. UNIT SUBSIDIES IN HEALTH

From the perspective of public finance, there are four broad categories of health services that are generally reported in the Poverty Reduction Strategy Paper (PRSP) annual progress reports. These include: general hospitals and clinics, mother and child health, other health facilities, and preventive measures and others. However, this report focuses only on one category for the analysis of incidence of public spending in health, namely general hospitals and clinics including Basic Health Units (BHUs) and Rural Health Centres (RHCs). The reason for this focus is that the PSLM survey does not effectively cover other categories reported in the budget documents. It needs to be mentioned that general hospital and clinics account for more than 80 percent of the total spending on public health care.

Table 25 presents the result of province-wise estimates of unit subsidies in health. The second column of the table shows province-wise actual public expenditures on general hospitals and clinics. The third column presents the estimated number of visits by patients to general hospitals and clinics in each province based on PSLMS 2004-05. Finally, the last column represents the gross unit subsidy - the current cost to the government of a patient's visit to general hospitals and clinics. It is calculated as total recurrent spending of (local, provincial and federal) governments on general hospitals and clinics divided by total number of visits by patients in the province.

Table 25
Health Unit Subsidies in 2004-05

	Total (Rs in millions)	Number of Visits (in thousands)	Per Visit Expenditure (Rs.)
Genderal Hospitals and Clinics			
Punjab	11,406	1,762	6,474
Sindh	5,022	1,341	3,744
NWFP	2,412	655	3,684
Balochistan	1,013	288	3,516
Pakistan	**19,853**	**4,046**	**4,907**

Source: SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05

The table clearly is indicative of the regional disparities existing in the unit subsidies in health. The amount of unit subsidies is highest in Punjab followed by Sindh and Balochistan while the lowest is in NWFP.

The number of patient visits for the estimation of subsidies was taken from PSLMS data after multiplying it by the blow-up factor. This helps avoiding over reporting bias generally

found in administrative data sets. Moreover, due to non-availability of province-wise cost recovery from general hospitals and clinics, estimates reported in Table 1 present gross unit subsidies and not net unit subsidies (gross subsidies minus cost recovery) , which is the preferred measure of unit subsidies for benefit incidence analysis. As a result, these reported estimates of subsidies contain an upward bias and overly stated amount of public subsidies. There is little disaggregation by type of facility or type of consultation thus masking variations in the costs of consultation. The unit costs are obtained by using total number of visits by patients to public hospitals and dispensaries, without differentiating between the types of hospital care (such as tertiary and secondary hospitals) and the outpatient vs. inpatient distinction.

5. BENEFIT INCIDENCE OF PUBLIC SPENDING ON HEALTH

Table 26 presents the two sets of estimates of benefit incidence of health spending across the four provinces. The first set of estimates show the benefit incidence shares to indicate how the subsidy was distributed across the quintiles. The second set present the per capita public expenditure on general hospitals and clinics by gender and income quintiles.

Table 26
Benefit Incidence of Public Spending on Health 2004-05

Quintile	Punjab	Sindh	NWFP	Balochistan
Benefit Incidence Share (%)				
Rich	14.3	24.4	14.5	15.9
Upper Middle	24.2	22.6	17.6	18.3
Middle	16.6	21.3	24.8	20.7
Lower Middle	20.9	17.2	20.3	24.8
Poor	24.0	14.5	23.0	20.3
All Groups	**100.0**	**100.0**	**100.0**	**100.0**
Rs. Per Capita				
Rich	118.6	168.3	99.5	143.8
Upper Middle	181.3	158.9	115.4	152.9
Middle	127.3	162.6	164.8	167.8
Lower Middle	162.3	142.7	142.8	214.2
Poor	187.1	123.5	147.5	193.0
All Groups	**155.8**	**152.4**	**134.2**	**174.1**

Source: **SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05**

Similar to education benefit incidence shares indicate the progressivity or regressivity of the public expenditures. According to this indicator, the shares accruing to the poorest quintiles in three provinces, namely Punjab, NWFP and Balochistan, are more than 20 percent, which indicates that the pattern of government spending in these provinces is relatively progressive and poor sections of society receive a larger than proportionate share of the public expenditure on health.

Two possible reasons can be used to explain this pattern: (a) both Punjab and NWFP have experienced public-private partnership for the provision of health services that

ensure the availability of doctors and paramedical staff at the facility which ultimately resulted in higher utilization of these facilities by the poor; and (b) the poor households' behaviour in relation to health in all three provinces increased due to awareness campaigns by the government and civil society.

In contrast to other provinces, public spending on health in Sindh is regressive - the rich segment of the population receive greater share of the subsidies while poor segment of society receives the lower share of the subsidy. This regressivity is largely an outcome of higher public spending on secondary and tertiary healthcare (very high allocation of public spending for hospital-based care, which the poor are less likely to have access) as compare to primary healthcare. Thus, while the poor use BHUs/RHCs more than the rich, such facilities attract relatively fewer people as compared to secondary or tertiary hospitals with integrated health facilities.

The per capita estimates of public health expenditure generally present a better picture of the incidence than the percentage distribution. These estimates show that on average lowest per capita subsidies received by population of NWFP (Rs. 134 per capita) followed by Sindh (Rs. 152 per capita), Punjab (Rs. 156 per capita) and highest in Balochistan (Rs. 174 per capita).

The province-wise pattern indicates that the richest 20 percent of the population in Punjab receive the lowest per capita subsidy (Rs. 119 per annum) followed by middle (Rs. 127 per annum), lower middle (Rs. 162 per annum), upper middle (Rs. 181 per annum) and the poor 20 percent receive the highest per capita subsidy (Rs. 187 per annum).

In contrast to Punjab, the poorest 20 percent of the population in Sindh, receive the lowest per capita subsidy (Rs. 123 per annum) followed by lower middle (Rs. 143 per annum), upper middle (Rs. 159 per annum), middle (Rs. 163 per annum) and the richest 20 percent receive the highest per capita subsidy (Rs. 168 per annum).

In NWFP, the richest 20 percent of the population receive the lowest per capita subsidy (Rs. 100 per annum) followed by upper middle (Rs. 115 per annum), lower middle (Rs. 143 per annum), poor (Rs. 148 per annum) and the middle percent receive the highest per capita subsidy (Rs. 165 per annum).

In Balochistan, the richest 20 percent of the population receive the lowest per capita subsidy (Rs. 144 per annum) followed by upper middle (Rs. 153 per annum), middle (Rs. 168 per annum), poor (Rs. 193 per annum) and the lower middle percent receive the highest per capita subsidy (Rs. 214 per annum).

6. GENDER DISAGGREGATED BENEFIT INCIDENCE ESTIMATES

The subsequent subsections will examine how these benefits are distributed between males and females in all provinces during 2004-05. Table 26 to Table 29 present the two sets of estimates of benefit incidence of health spending across the four provinces. The first set present benefit incidence shares that indicate how the subsidy was distributed between the sexes in each quintile. The second set of estimates show the per capita public expenditure on general hospitals and clinics by gender and income quintiles. The last columns show the difference (male - female). A positive sign in the last column indicates that males of that income group obtain more subsidies compared to female, and a negative sign shows the vice versa.

Before looking at the distribution of public subsidies in health, it is important to note that a distribution of 50 percent for males and 50 percent for females of public spending on health is not an equitable distribution because women's reproductive health care needs tend to be greater than those of men.

a. Punjab

Table 27 indicates that on average, females obtained more health sector subsidies than males in Punjab. The benefit incidence share shows that on average, females received 53 percent health subsidies while males received 47 percent. The per capita estimates show that on average, females received Rs165 and males received Rs 147, which resulted in a net gain of Rs 19 to women.

Table 27
Gender Disaggregated Benefit Incidene 2004-05 - Punjab

Quintile	Male	Female	Difference
Share (%)			
Rich	23.0	77.0	-53.9
Upper Middle	49.0	51.0	-2.1
Middle	56.9	43.1	13.9
Lower Middle	43.4	56.6	-13.1
Poor	56.4	43.6	12.7
All Groups	**47.2**	**52.8**	**-5.6**
Rs. per Capita			
Rich	53.9	184.8	-130.8
Upper Middle	175.1	187.7	-12.6
Middle	144.0	110.4	33.6
Lower Middle	142.3	182.1	-39.8
Poor	212.2	162.2	50.0
All Groups	**146.6**	**165.2**	**-18.6**

Source: **SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05**

While females gained more than males in Punjab, this only applied to three quintiles (1, 2 and 4). For the remaining population, there is a clear bias against females.

Among females, the lowest subsidy is received by the middle income group (Rs. 110 per annum) followed by poor (Rs. 162 per annum), lower middle (Rs. 182 per annum), rich (Rs. 185 per annum) and the highest subsidy received by the upper middle income group (Rs. 188 per annum). Among males the lowest subsidy is received by the richest 20 per (Rs. 54 per annum) and the highest subsidy received by the poorest 20 percent (Rs. 212 per annum) (see Table 27).

b. Sindh

A major source of the inequality in the benefit incidence of health spending in Sindh is clearly the gender dimension. Overall, females gained less of the health subsidy than males (46.5 percent of overall health spending) and obtained an in-kind transfer of Rs149 per capita compared with Rs155 for male (see Table 28).

Table 28
Gender Disaggregated Benefit Incidene 2004-05 - Sindh

Quintile	Male	Female	Difference
Share (%)			
Rich	58.5	41.5	16.9
Upper Middle	51.2	48.8	2.5
Middle	47.7	52.3	-4.5
Lower Middle	59.4	40.6	18.8
Poor	51.3	48.7	2.5
All Groups	**53.7**	**46.3**	**7.3**
Rs. per Capita			
Rich	184.1	150.2	33.9
Upper Middle	154.3	164.0	-9.7
Middle	147.5	179.4	-31.9
Lower Middle	162.0	121.6	40.4
Poor	123.8	123.2	0.6
All Groups	**155.7**	**148.8**	**7.0**

Source: **SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05**

Distribution of subsidies by income groups show that among females the lowest subsidy is received by the lower middle income group (Rs. 122 per annum) followed by poor (Rs. 123 per annum), rich (Rs. 150 per annum), upper middle (Rs. 164 per annum) and the highest subsidy received by the middle income group (Rs. 179 per annum). Among males the lowest subsidy is received by the poorest 20 per (Rs. 124 per annum) and the highest subsidy received by the richest 20 percent (Rs. 184 per annum) (see Table 28).

c. NWFP

Table 29 indicates that on average females obtained more health sector subsidies than males in NWFP. The benefit incidence share shows that on average females received 54 percent health subsidies while males received 46 percent. The per capita estimates

show that on average females received Rs144 per annum and male received Rs 124 per annum, which translated into a net gain of more than Rs 19 per annum to females. This trend is consistent in all income groups and females of higher income groups received higher net subsidies compared to the rest of the income categories.

Table 29
Gender Disaggregated Benefit Incidene 2004-05 - NWFP

Quintile	Male	Female	Difference
Share (%)			
Rich	43.1	56.9	-13.8
Upper Middle	44.8	55.2	-10.5
Middle	46.8	53.2	-6.4
Lower Middle	48.4	51.6	-3.2
Poor	47.0	53.0	-6.0
All Groups	**46.3**	**53.7**	**-7.4**
Rs. per Capita			
Rich	84.8	114.5	-29.7
Upper Middle	103.2	127.8	-24.6
Middle	154.0	175.7	-21.8
Lower Middle	137.6	148.1	-10.5
Poor	142.6	152.0	-9.4
All Groups	**124.4**	**143.9**	**-19.4**

Source: **SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05**

Distribution of subsidies by income groups show that among females, the lowest subsidy is received by the rich income group (Rs. 115 per annum) followed by upper middle (Rs. 128 per annum), lower middle (Rs. 148 per annum), poor (Rs. 152 per annum) and the highest subsidy received by the middle income group (Rs. 176 per annum). Among males, the lowest subsidy is received by the richest 20 per (Rs. 85 per annum) and the highest subsidy received by the middle 20 percent (Rs. 154 per annum) (see Table 29).

d. Balochistan

Table 30 indicates that similar to Punjab and NWFP, on average, females obtained more health sector subsidies than males in Balochistan. The benefit incidence share shows that on average females received 60 percent health subsidies while male sreceived 40 percent. The per capita estimates show that on average females received Rs 229 per annum

Table 30
Gender Disaggregated Benefit Incidene 2004-05 - Balochistan

Quintile	Male	Female	Difference
Share (%)			
Rich	47.3	52.7	-5.5
Upper Middle	36.3	63.7	-27.4
Middle	36.5	63.5	-27.1
Lower Middle	35.3	64.7	-29.3
Poor	48.5	51.5	-3.1
All Groups	**40.3**	**59.7**	**-19.4**
Rs. per Capita			
Rich	121.9	171.5	-49.6
Upper Middle	100.6	217.4	-116.8
Middle	109.7	241.0	-131.3
Lower Middle	142.8	294.8	-152.0
Poor	177.6	210.0	-32.4
All Groups	**128.7**	**228.5**	**-99.8**

Source: **SPDC's estimates based on PRSP Annual Report 2005-06 & Federal Demand for Grants 2005-06, & PSLMS 2004-05**

and males received Rs 129 per annum, which translated into a net gain of more than Rs 100 per annum to females. This trend is consistent in all income groups and females of middle income groups received higher net subsidies compared to the rest of the income categories.

Distribution of subsidies by income groups show that among females the lowest subsidy is received by the rich income group (Rs. 172 per annum) followed by upper middle (Rs. 217 per annum), middle (Rs. 241 per annum), poor (Rs. 210 per annum) and the highest subsidy received by the lower middle income group (Rs. 295 per annum). Among males the lowest subsidy is received by the upper middle 20 per (Rs. 101 per annum) and the highest subsidy received by the poorest 20 percent (Rs. 178 per annum) (see Table 30).

7. KEY CONCLUSIONS

The province-wise analysis indicates the following:

- the incidence of illness on an average is lowest in Punjab and highest in NWFP;
- the incidence of illness is higher among females as compared to males;
- although the incidence of illness varies with level of income and generally higher among the males and females belonging to poor income groups there is no clear pattern in incidence of illness with respect to income in both male and females except Punjab;
- public health sector hardly provides health services to one-quarter of sick population in three provinces except Balochistan where its share is around 44 percent;
- private sector is the largest health services provider in all provinces and its share varies from minimum 53 percent in Balochistan and NWFP to 75 and 77 percent in Sindh and Punjab, respectively;
- self-medication/ no treatment was much more common in NWFP particularly among the poorer groups as compared to other provinces and income groups and least common in Sindh;
- in Punjab, NWFP and Balochistan, the pattern of government spending is relatively progressive and poor segments of society receive a larger than proportionate share of public expenditure on health;
- in Sindh, the rich segment of the population receives a greater share of the subsidies while poor segment of the society receives the lower share of the subsidy;

- lowest per capita subsidies on an average was received by the population of NWFP (Rs. 134 per capita) and highest by the population of Balochistan (Rs. 174 per capita);
- Gender disaggregated benefit incidence shows that on an average females received 53 percent, 46 percent, 54 percent and 60 percent of health subsidies in Punjab, Sindh, NWFP and Balochistan respectively;
- per capita estimates indicate that on an average female received Rs165, Rs149, Rs144 and Rs 228 per annum in Punjab, Sindh, NWFP and Balochistan respectively; and

Despite policies and relevant measures taken by the government, gender disaggregated benefit incidence shows a relatively unnoticeable role of government in provision of health services. Additional efforts and resources are, therefore, required to improve the health status of women especially in rural areas where the private sector is either completely absent or have a limited and negative role.

CHAPTER 5

FINDINGS AND POLICY IMPLICATIONS

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1. FINDINGS

Gender disaggregated benefit incidence analysis of education and health services revealed strong gender disparities in access to education and health services in Pakistan. While national averages are limited and mask complex realities, gender disaggregated analysis along with differences in household income, regions and provinces provide greater insights. The following sub-sections provide a summary of the findings.

a. Education

Gender disaggregated benefit analysis of public spending on education can be used to explore why the poorest income quintile has less access to public education specially at the higher level of education. The answer is partly located, in the greater gender enrollment bias among the poorest sections of society. Moreover, the magnitude of gender disparity in access to education services varies with regions and province.

The gender disaggregated analysis for education reveals that:

- GERs of both males and females for all education categories increases with the increase in level of income. Overall low GERs prevail in poor income groups compared to rich income groups at all levels of education in all provinces;
- Wide disparities exist in GERs across provinces.
- Wide gender disparity also exists in GER across income groups, which is more pronounced in poor income groups compared to rich income groups.
- Wide gender disparity exists in GERs across all levels of education where it varies with the level of income. It is more prominent in poor income groups compared to rich income groups.
- Although the share of public schooling declined it still covers at least two-thirds of primary, secondary and tertiary education in all provinces.
- Estimates of benefit incidence by income groups indicate that the share of poor income groups has declined in 2004-05 compared to 1998-99 in all provinces. This indicates that reforms initiated during this period were not pro poor in character.

- Concentration curves show that public spending on primary education was progressive in absolute terms, while secondary education was progressive relative to income, tertiary education was regressive, and total spending on education was pro poor during1998-99 in Punjab. However, this pattern changed in 2004-05, indicating that a degree of progressivity has declined and total spending on education became progressive relative to income, but not pro poor.
- Concentration curves for Sindh indicate that public spending on primary and secondary education was progressive in absolute terms and tertiary education was progressive relative to income in 1998-99. This indicates that the total spending on education in Sindh was pro poor in 1998-99. Similar to Punjab, however, this pattern changed in 2004-05, indicating that the degree of progressivity declined and total spending on education became progressive relative to income, but not pro poor.
- Concentration curves for NWFP indicate that public spending on primary education was progressive in absolute terms, secondary education was progressive relative to income, and tertiary education was regressive in 1998-99. Total public spending on education was progressive relative to income in 2004-05.
- Concentration curves for Balochistan indicates that public spending on primary education was progressive in absolute terms, secondary education was progressive relative to income, tertiary education was regressive, and total spending on education is progressive in relative to income in both the years i.e. 1998-99 and 2004-05.
- Concentration indices indicate that the public spending on primary education was pro poor and tertiary education was not pro poor in all provinces in 1998-99. Public spending on secondary education showed a mixed pattern indicating that it was pro poor in Sindh, not pro poor in Balochistan, and equitable in Punjab and NWFP.
- Indices emerging also indicate a different pattern in 2004-05. The differences imply that except for public spending on primary education in Punjab all education spending are not pro poor in any province at any level.
- Gender disaggregated benefit incidence analysis show that public spending on education was biased against females in Punjab at all levels in both years 1998-99 and 2004-05 except at tertiary level in 2004-05.

- In Sindh, public spending on education was biased towards males at all levels of education in both years 1998-99 and 2004-05. While this relative disadvantage to females marginally declined at tertiary level in 2004-05 compared to 1998-99, however it further worsened at primary and secondary levels of education.
- Gender disaggregated benefit incidence analysis show that public spending on education was biased against females in NWFP. Moreover, females belonging to the lower income group received lowest benefit of public spending on education and the poorest quintile received lowest benefit of public education spending.
- In Balochistan, gender disparity persists at all educational levels and in all income groups in both the years. It clearly emerges that the pattern of subsidy is biased against girls and women.
- The per capita estimates of level-wise subsidy indicate that the pattern of subsidy is biased against females at primary and secondary level of education and towards females at tertiary level in Punjab in both years 1998-99 and 2004-05.
- In Sindh, the relative disadvantage to females in terms of per capita subsidy was lowest at primary level which, however, increased with the level of education in both the years.
- In NWFP, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level, which though increased gradually with the level of education and was greatest at the tertiary level.
- In Balochistan, the relative disadvantage to females in terms of per capita subsidy was lowest at the primary level, which increased gradually with the level of education and was greatest at the tertiary level in both the years.
- The female to male ratio of benefit incidence of public spending on education indicates that females have greater relative disadvantage in rural areas of all provinces in both years. The disadvantage is lowest in Punjab and the greatest in rural Balochistan and Sindh.
- In urban areas, improvement in benefit incidence occurred in Punjab and Sindh at all education levels while worsened in NWFP at all education levels, and in Balochistan at primary and secondary levels.

b. Health

Gender disaggregated benefit analysis of public spending on health highlights gender differences in health services seeking behaviour of males and females and obtaining health subsidies. The gender disaggregated analysis for health services reveals that:

- the incidence of illness on an average is lowest in Punjab and highest in NWFP;
- the incidence of illness is higher among females as compared to males;
- although the incidence of illness varies with level of income and generally higher among the males and females belonging to poor income groups there is no clear pattern in incidence of illness with respect to income in both male and females except Punjab;
- public health sector hardly provides health services to one-quarter of sick population in three provinces except Balochistan where its share is around 44 percent;
- private sector is the largest health services provider in all provinces and its share varies from minimum 53 percent in Balochistan and NWFP to 75 and 77 percent in Sindh and Punjab, respectively;
- self-medication/ no treatment was much more common in NWFP particularly among the poorer groups as compared to other provinces and income groups and least common in Sindh;
- in Punjab, NWFP and Balochistan, the pattern of government spending is relatively progressive and poor segments of society receive a larger than proportionate share of public expenditure on health;
- in Sindh, the rich segment of the population receives a greater share of the subsidies while poor segment of the society receives the lower share of the subsidy;
- lowest per capita subsidies on an average was received by the population of NWFP (Rs. 134 per capita) and highest by the population of Balochistan (Rs. 174 per capita);
- Gender disaggregated benefit incidence shows that on an average females received 53 percent, 46 percent, 54 percent and 60 percent of health subsidies in Punjab, Sindh, NWFP and Balochistan respectively;
- per capita estimates indicate that on an average female received Rs165, Rs149, Rs144 and Rs 228 per annum in Punjab, Sindh, NWFP and Balochistan respectively; and

2. POLICY IMPLICATIONS

The insights provided by the analyses of gender disaggregated benefit incidence in education and health services can be used to formulate gender and region sensitive policies. The following sub-sections provide policy implications based on the above findings.

a. Education

Based on the benefit incidence analysis the following three sets of policies can be recommended to improve gender equality in society.

I. Poverty mapping and Improved targeting

The analysis clearly indicated that public spending on education is poorly targeted and the poorest section of society receives the lowest per capita subsidy. Public policies related to public spending on education therefore needs to be targeted towards the regions with higher levels of poverty.

II. Reducing Rural-Urban Disparities

In the presence of higher gender inequality in rural areas, a region-specific education policy may be useful for gender equality. Moreover public spending in rural areas on female education will help not only in reducing gender disparities but also expedite women's empowerment.

III. Reducing Provincial Disparities

While there is noticeable advancement in gender equality in education in rural areas of Punjab, the rural areas of other provinces do not show any success in reducing gender gaps particularly in rural areas. This findings indicates that these policies and initiatives are either limited to one province or they have had limitations in their implimentation. In order to ensure improvement the sucessful initiatives of the provinces needs to be replicated.

IV. Province-wise Policies

Province-wise policies related to gender equality in education at various levels is likely to be more effective than national policies. For instance, in Balochistan, a considerable proportion of the government budget is allocated to education services such as -tertiary education institutions which women tend to avoid. A shift in spending towards primary and secondary schooling would lead to an improvement in the share of the total budget

going to females (as well as to poorer groups in the community). In contrast, such a policy is not useful for the other regions particularly in Punjab where female enrollments are higher at tertiary public institutions. Therefore, a shift of spending towards tertiary level would lead to an improvement in the share of the total budget allocated for females. However, such decisions should not only rely on benefit incidence estimates alone, they should also be based on a sound understanding of how household and individual behavior would be affected by such changes in expenditure.

V. Gender Sensitive Policies and Budgeting

Given the overall lower status of females in the society, girls and women are discriminated against from birth. They are denied their rights to education, employment, marriage, divorce and inheritance. In this situation, a gender-neutral budget will fail to address these demand-side issues and gender disparities would continue to prepetuate. Therefore, gender sensitive policy formulation and budgeting at lower tiers of the government would reduce gender disparity in education.

VI. Increase in Education Budget

Additional efforts and resources are required to break through the cultural barriers and demand-side restrictions on girls' education.

b. Health

Following policy implications are proposed to advance gender equality in health.

- The present manager usage of public health services indicates that the health sector is a neglected sector, which requires reallocation of resources from other sectors to the health sector.
- As the income - wise benefit incidence indicates that the health subsidies are not progressive in all provinces, therefore it is important to reformulate a province-wise health strategy that targets and benefits the disadvantaged groups more and improves the low income peoples access to medical services.
- Although in most of the provinces females are the main beneficiary of public spending of health, however, there is a need to further increase and improve their access to health facilities.

- The private sector is playing a substantial role in the health care service delivery in Pakistan. Therefore, public private partnership can be used to increase access and utilization of health services. The government can utilized the services of insurance companies to provide subsidized health insurance to the poor and marginalized groups.

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