GENDER AND PUBLIC SPENDING ON EDUCATION IN PAKISTAN: A CASE STUDY OF DISAGGREGATED BENEFIT INCIDENCE

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ABSTRACT

To what extent has government education spending in Pakistan been effective in reducing gender gaps in enrollments? To answer this question, this article reviews the benefit incidence of government education spending. It finds that government subsidies directed towards primary education are pro poor in all four provinces of Pakistan. Moreover, females has disadvantage in access to primary education. However, government subsidies directed towards higher education poorly targeted and poorest income group receives less than the riches income group and indeed favor 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. Improving targeting to the poor as well as better female participation involves not simply rearranging the public subsidies, but also addressing the constraints that prevent the poor and females from accessing these services.

1. INTRODUCTION

It is generally believed that education is one of the basic rights of every human being, irrespective of sex, age, creed, religion, etc. Moreover, the target of universal primary education cannot be achieved without female access to educational opportunities, which contains several external benefits. In addition, access to educational opportunities assumes prime importance for empowerment of women. However, inequalities in access to education between males and females can be found in many countries across the world including Pakistan. According to conventional wisdom, a combination of cultural, social, and economic factors are responsible for placing young girls and women at a serious disadvantage vis-a-vis access to school and the prospect of completing their education. This disadvantage can be altered through public policies including gender sensitive public spending on education.

The above assertion about the role of public policy is based on the theory of public finance[2], which demonstrates that public expenditure on education can affect the population in a number of ways, which has significant gender dimensions. For example, government spending on primary education is likely to generate more income for women than spending on universities, for the simple reason that there are relatively more women primary school teachers than women university lecturers. Moreover, these expenditures provide subsidized educational services, which is a form of "*in kind transfers*". These "*in-kind transfers*" improve the current well-being of the recipients, and enhance their longer-run income-earning potential. They can be considered as both current and capital transfers to the recipients, and therefore can be termed as the *"benefit incidence"* of public spending.

The main concern of this paper is to assess the gender dimension of the *"benefit incidence"*. The study has two basic objectives. First and foremost, it aims to investigate which income group actually benefits from the government's subsidized education services? Second, how are these benefits distributed between males and females? In other words, this article is an attempt to capture the gender dimension of public spending on

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[2] see Lionel Demery (2000)

education in Pakistan through benefit incidence analysis, which may help to better understand the root causes of gender inequality in Pakistan and provide a guideline for developing a gender sensitized education policy.

There are three reasons for analyzing gender inequality in public spending on education in Pakistan. First, it is one of the most important services that could empower the Pakistani women of today. Second, education spending, especially at the primary level, is considered to produce positive external benefits, and therefore, a strong case can be made for the continued involvement of the government for gender equitable public spending on education. Finally, in 1990s the government of Pakistan initiated a project named Pakistan Integrated Household Surveys (PIHS), which consisted of four round running through 1995-96 to 1998-99 under Social Action Plan (SAP). The objective of PIHS, a national sample survey, was to provide household and community level data, which could be used to monitor, evaluate, and assess the impact of SAP. The PIHS data provides information on the income of households and gender disaggregated enrollments in public and private schools, colleges and universities, which offer an opportunity to estimate the distribution of government subsidies in the education sector at provincial levels.

The paper begins, in section II, with a brief review of the benefit incidence approach and establishes how gender dis-aggregations can be readily incorporated in the analysis. Section III presents the result of Benefit Incidence of educational spending in Pakistan at provincial level. Section IV highlights the regional gender inequality by using data from Pakistan Integrated Household Survey (PIHS) 1998-99. Section V makes some concluding observations and offers some policy implications.

2.   THE 'BENEFIT INCIDENCE' OF PUBLIC SPENDING

The technique employed in this paper to assess gender differentials in public service provision is 'benefit incidence analysis'. This has become an established approach in estimating the distribution of public expenditures since the path-breaking work on Malaysia by Meerman (1979) and on Colombia by Selowsky (1979)[3]. There has been a

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[3]see Van de Walle (1998)

recent resurgence of interest and incorporation of gender dimension in the 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 on 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 then 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, which depends on the unit subsidy involved (say the subsidy per primary school enrollment) and the number of units consumed by the household (the number of children currently enrolled in a public primary school). Finally, aggregated estimates of benefit incidence are obtained in groups ordered by income. In brief, benefit incidence analysis measures the distribution of in kind transfers across the households.

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

The disaggregated benefit incidence analysis by gender based on the assumption that government provide in-kind subsidy by providing subsidized schools, colleges and universities and to gain the subsidy, households must enroll children at publicly subsidized educational institutions. If households typically send more boys than girls to these publicly-funded schools, there will be a gender difference in benefit incidence, simply because more of the government subsidy will be utilize boys than girls.

As earlier mention, the three steps for disaggregated benefit analysis can easily be transformed mathematically by considering the group-specific benefit incidence of government spending on education:

$$X_j \equiv \sum_{i=1}^{3} E_{ij} \frac{S_i}{E_i} \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} S_i \quad \dots\dots\dots\dots\dots\dots\dots\dots.(1)$$

X_j is the value of the total education subsidy imputed to group j. E_{ij} represents the number of school enrollments of group j at education level i, and E_i the total number of enrollments (across all groups) at that level. S_i is government *net* spending on education level i (with fees and other cost recovery netted out), and i (=1,..,3) denotes the level of education (primary, secondary, and tertiary). The share of the total education subsidy (S) accruing to the female (x_j) is given by:

$$x_j \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} \left(\frac{S_i}{S} \right) \equiv \sum_{i=1}^{3} e_{ij} s_i \qquad (2)$$

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

3. EDUCATION SUBSIDIES IN PAKISTAN

Under the constitution of Pakistan, education is a provincial subject. Consequently, provincial governments are primarily responsible for financing the provision of educational services. However, federal government plays an important role in the financing of higher education. This financing is administered by University grant commission (UGC)[4], which provides financial support to general and technical universities, colleges and institutes. As a result, calculation of unit subsides for higher education contains both provincial and federal public expenditure.

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[4] Recently UGC renamed as higher education commission.

3.1 *Public Education System in Pakistan*

The structure of Pakistan's public education system has the following main characteristics described as follows: first, there is the basic education. The basic education system consists of early childhood education (or pre-primary schooling), which is optional for children 3 to 5 years old and called kachi Pehli. After that primary education where the official entry age is 5 year and ideally should be completed in 5 years at the age of 9 years. The next level, following primary education, is secondary level education, consists five years of education after primary education started from the age 10 years and ideally ended at the age of 14 years.

Subsequently level of education after secondary education is tertiary level with two options available to students who may choose polytechnic Institutes and colleges for technical education, and general colleges/schools for higher secondary education. Finally, after completion of two-year higher secondary education next level of education encompasses three lines of study: a system of technological/engineering colleges and universities, medical colleges and universities, and general colleges and universities.

However, from the perspective of public finance there are four broad categories, which generally reported in budget documents of provincial and federal governments. These are primary, secondary, general colleges and universities, and finally technical and professional institutes, colleges and universities. In this report, we used all four categories for the analysis of incidence of public spending in education and named than primary, secondary, tertiary (included general colleges and universities) and professional education (included technical institutes, professional colleges and universities).

3.2 Source 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 Pakistan Integrated Household Survey (PIHS) Round 3: 1998-99. PIHS is a national survey conducted by Federal Bureau of Statistics, which provides household and community level data on various indicators related to education, health, water sanitation and population welfare. The data on public spending on education is taken from the federal

and provincial demand for grants and appropriation 1999-2000. Finally the data on cost recovery is taken from Estimates of Receipts 1999-2000 for each respective province.

3.3 Unit Subsidies in Education

Table –1 presents the result of province-wise estimates of unit subsidies in education. Second column of table 1 represents the gross unit subsidy – current cost to the governments of a student study in a particular level in a public institution. It is calculated as total recurrent spending of provincial and federal governments on a specific level of public education divided by total number of students of same level in the province. Third column corresponds to any revenue from cost recovery from a specific level divided by number of students of same level. Finally, the last column represents the net subsidy for all levels and for all provinces, which is simply the difference of column 2 and 3.

Table 1
EDUCATION UNIT SUBSIDIES IN 1998-99

(Rs./Anum)

	Education unit subsidies (per student)		
	Gross	**Cost recovery**	**Net**
Primary Education			
Punjab	2,686	30.20	2,656
Sindh	3,100	1.62	3,098
NWFP	2,201	0.11	2,200
Balochistan	1,555	-	1,555
Secondary Education			
Punjab	1,445	79.07	1,366
Sindh	2,093	63.23	2,029
NWFP	2,915	71.79	2,843
Balochistan	2,605	2.44	2,603
General & Professional Colleges/Universities/Institutes			
Punjab	5,538	562	4,976
Sindh	3,655	299	3,356
NWFP	9,172	200	8,972
Balochistan	7,126	53	7,073

Source: Author's estimates based on Provincial & Federal Demand for Grants 1999-00, Estimates of Receipts 1999-00, & PIHS 1998-99

Table 1 reveals the regional disparities in the unit subsidies in education, which also varies with level of education. For instance, in case of primary education, the amount of unit subsidies is highest in Sindh, following Punjab and NWFP, lowest in Balochistan. However, this does not imply that Sindh spends the highest amount among the four

provinces, because, it is the combination of two factors: demand of public education and total public expenditures on a particular levels.

Unit cost estimates reported in Table – 1 are limited in several respects. First, due to unavailability of actual public spending on education, estimates of unit subsidies are based on provincial and federal revised estimates of public spending on education. According to the historical trend in public finances of the country, actual spending on education may appear less than revised estimates. As a result, these reported estimates of subsidies may contain an upward bias and overly stated amount of subsidies. Second, in the absence of disaggregated data, unit subsidies were obtained as provincial averages, ignoring gender and urban rural variations. It may lead to over or under estimation of regional and gender unit subsidies. Furthermore, number of students for the estimation of subsidies have taken from PIHS data after multiplying with blow up factor and may contain sampling or non sampling errors which over or under estimates the amount unit subsidies.

4.   GENDER DISPARITY IN EDUCATION

There are several ways to measure gender differentials in education. Gross and net enrollment rates often reveal gender differences, especially when reported by income quartiles, similarly completion and drop out rates are another way to highlight gender disparities in education. However, gross enrollment is the widely used basic indicator, which highlights gender disparity at the first stage of the education and indicates lake of access to educational facilities for women. Therefore, as a first step, gender disparity in education is highlighted by gross enrollment ratio and subsequently gender disaggregated estimates of benefit incidence are presented.

4.1   Gender Disparity in Gross Enrollment Ratio

Table 2 presents the province-wise gross enrollment rates[5] divided into three broad categories; primary, secondary and tertiary, and by income quartiles, and gender. The gross enrollment rates show typical biases in enrollment behavior, with males being more

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[5] Both public and private enrollments are included.

likely to be enrolled in school, and with the bias becoming more noticeable with higher levels of schooling. Another interesting point, which emerges from Table 2 is provincial variation in gender specific enrollments. Gender disparity in education is higher in Balochistan and NWFP as compared to Sindh and Punjab.

Table 2
Gross Enrollment Ratio by Gender, Quartile and Province (1998-99)

Income Level /Province	Primary		Secondary		Tertiary	
	Males	Females	Males	Females	Males	Females
Punjab						
Rich	101%	81%	89%	74%	16%	12%
Upper Middle	92%	86%	78%	62%	8%	5%
Lower Middle	82%	72%	59%	45%	3%	3%
Poor	65%	53%	39%	25%	2%	1%
All Group	**80%**	**68%**	**62%**	**46%**	**7%**	**5%**
Sindh						
Rich	87%	73%	105%	59%	25%	10%
Upper Middle	80%	55%	82%	51%	16%	6%
Lower Middle	66%	47%	61%	38%	12%	4%
Poor	49%	35%	47%	29%	9%	4%
All Group	**64%**	**46%**	**65%**	**40%**	**15%**	**6%**
NWFP						
Rich	105%	80%	106%	56%	17%	10%
Upper Middle	88%	55%	79%	36%	11%	5%
Lower Middle	80%	56%	61%	24%	7%	1%
Poor	67%	31%	53%	11%	3%	0%
All Group	**81%**	**50%**	**70%**	**28%**	**9%**	**4%**
Balochistan						
Rich	80%	67%	76%	47%	22%	4%
Upper Middle	78%	33%	76%	26%	12%	2%
Lower Middle	68%	43%	50%	14%	5%	1%
Poor	54%	36%	51%	13%	4%	0%
All Group	**69%**	**43%**	**62%**	**22%**	**11%**	**2%**

Source: Estimates based on PIHS 1998-99

4.2 *Gender Disaggregated Benefit Incidence Estimates*

By combining the unit cost of the public education system with the use of public schooling facilities by 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 1) are reported in Table 3A, 3B, 3C and 3D respectively. Three types of disaggregation are reported: first, the subsidy is distributed across the four income quartiles starting from the richest 25 percent to the poorest 25 percent of the population; second, the benefit incidence estimates are disaggregated by education level; and finally, it is reported by gender.

4.2(a)   Punjab

Three clear messages emerge from the estimates of benefit incidence (see Table-3A). The first message is that education spending is reasonably progressive at the primary level; the subsidy to the poorest quartile forms a higher share than the subsidy to the richest quartile. This progressiveness is particularly striking in relative terms; the poorest 25 percent population of Punjab received more than 35 percent of the subsidy. While, the richest 25 percent receive only 13 percent of the subsidy at the primary level (see the last column of Table-3A). However, in the case of subsidy at the secondary level the main beneficiaries are lower and middle-income groups, which indicates that subsidy is less progressive. In contrast, educational subsidy at tertiary level is regressive and the highest share received by the richest 25 percent, which receive more than 50 percent of the subsidy at the tertiary level.

The second message is that the progressiveness at the primary level is illusionary because the share in subsidy it is not adjusted by the group wise population. The per capita estimates of level-wise subsidy presents a real picture of the incidence. According to this indicator the lowest per capita subsidy received by the poorest 25 percent of the population in all three educational categories. However, this picture varies with the level of education, it is relatively better at the primary level and worse at the tertiary level.

Finally, the gender disparity persists at all educational levels and in all income classes. It clearly emerges, that the pattern of subsidy is biased towards females, for instance, at the primary level 45 percent, at the secondary level 39 percent and at the tertiary level 45 percent share of the subsidy spent on females and rest on males. This result is also consistent with the per-capita estimates and in all cases per-capita estimates are lower for

females and higher for males. In addition, females belonging to the poorest 25 percent population receive the lowest share in education subsidy at all levels of education and it is lowest at the tertiary level.

Table – 3A
Benefit Incidence of Public Spending on Tertiary Education - Punjab

Income Level	Male		Female		Total	
	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)
Primary Level						
Rich	1,544	8%	1,012	5%	1,292	13%
Upper Middle	1,536	11%	1,419	10%	1,478	21%
Lower Middle	1,593	16%	1,448	15%	1,521	30%
Poor	1,341	20%	1,065	15%	1,206	35%
All Group	**1,475**	**55%**	**1,233**	**45%**	**1,356**	**100%**
Secondary Level						
Rich	824	14%	681	9%	760	22%
Upper Middle	852	17%	594	11%	729	27%
Lower Middle	680	16%	497	12%	590	28%
Poor	468	15%	249	8%	359	22%
All Group	**670**	**61%**	**455**	**39%**	**566**	**100%**
Tertiary Level						
Rich	529	28%	435	24%	482	53%
Upper Middle	261	17%	183	12%	222	29%
Lower Middle	84	5%	94	6%	89	12%
Poor	74	4%	45	3%	59	7%
All Group	**229**	**55%**	**179**	**45%**	**203**	**100%**

Source: Estimates based on PIHS 1998-99 and Provincial Demand for Grants 1999-2000

4.2(b) Sindh

Similar to Punjab, estimates of benefit incidence portray the same picture in Sindh (see Table – 3B). Education spending is reasonably progressive at the primary level; the subsidy to the poorest quartile amounts to a higher share than the subsidy to other income groups and the share of the subsidy decreases gradually with increase in income. The poorest 25 percent population of Sindh receives more than 35 percent of the subsidy. In contrast, the richest 25 percent receives only 11 percent of the subsidy at the primary level (see the last column of Table-3B). A similar pattern exists at secondary level with a slight change in magnitude ranging from 31 percent to the poorest income group and 14 percent to the richest income group. However, this pattern reverts at the tertiary level, the main beneficiaries are the richest income group, which receives 35 percent of the

subsidy. The subsidy at the tertiary level of education is regressive in nature and share of the subsidy decreases with decline in income level and the lowest share in the subsidy at tertiary level received by the poorest income group, which is only 16 percent.

Similar to Punjab, per-capita estimates of the subsidy is not consistent with the share-wise benefit incidence and lowest per-capita subsidy at all educational levels is received by the poorest income group. However, the highest per capita subsidy is received by the poorest 25 percent of population at the primary level and lowest at the tertiary level of education.

Table – 3B
Benefit Incidence of Public Spending on Tertiary Education - Sindh

Income Level	*Male*		*Female*		*Total*	
	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)
Primary Level						
Rich	1,410	6%	1,133	5%	1,276	11%
Upper Middle	1,658	13%	1,162	9%	1,413	22%
Lower Middle	1,537	18%	1,015	12%	1,273	31%
Poor	1,236	21%	907	15%	1,075	36%
All Group	**1,422**	**59%**	**1,011**	**41%**	**1,218**	**100%**
Secondary Level						
Rich	1,294	9%	664	5%	972	14%
Upper Middle	1,263	17%	766	10%	1,025	27%
Lower Middle	1,028	18%	638	10%	839	28%
Poor	830	20%	523	11%	684	31%
All Group	**1,034**	**64%**	**626**	**36%**	**837**	**100%**
Tertiary Level						
Rich	682	29%	177	6%	452	35%
Upper Middle	393	22%	135	6%	276	28%
Lower Middle	284	16%	84	4%	192	20%
Poor	201	11%	87	5%	145	16%
All Group	**371**	**79%**	**115**	**21%**	**252**	**100%**

Source: Estimates based on PIHS 1998-99 and Provincial Demand for Grants 1999-2000

The relative disadvantage of females with respect to access to education follows a steady pattern in Sindh. It is lowest at the primary level, where they receive 41 percent of the total subsidy for primary education; this disadvantage gradually increases with the level of education and is greatest at the tertiary level, where they receive only 21 percent of the

total subsidy at tertiary level education. This pattern confirms the hypothesis that relative disadvantage increases with the level of education. Similarly, in per capita terms, females receive lower subsidy in each income group at all educational levels.

4.2(c) NWFP

In contrast to Punjab and Sindh, estimates of benefit incidence demonstrate a different pattern in NWFP (see Table – 3C). Education spending is not reasonably progressive at any level of education. Moreover, except primary education, poorest population receives the lowest share in educational subsidies; particularly at the tertiary level the poorest income group receives only 8 percent of the subsidy. A similar pattern exists also at the secondary level with a slight change in magnitudes ranging from 22 percent to the poorest income group and 28 percent to the upper middle-income group. However, the pattern of subsidy distribution is slightly different at the primary level, where the main beneficiaries are the low middle-income group, which receives 33 percent of the subsidy, and 28 percent is received by the poorest income group, and 24 percent is received by the upper middle income and 15 percent is received by the richest income group.

As in the case of the other provinces, per-capita estimates of the subsidy are inconsistent with the share of subsidy and the lowest per-capita subsidy at all levels of education receive by to the poorest income group. . However, the highest per capita subsidy is received by the poorest 25 percent of population at the primary level and lowest at the tertiary level of education.

The relative disadvantage to females was lowest at the primary l evel, where they receive 37 percent of the total primary subsidy and the greatest at the tertiary level, where they receive only 29 percent of the total subsidy for the tertiary level. It is also interesting to note that the relative disadvantage of females is inversely correlated with level of income. For instance, females in the poorest quartile of income receive only one-third of the primary education subsidy received by the poorest 25 percent and males receive remaining two-third. In contrast, females in the richest quartile of income receive almost half of the primary education subsidy received by the richest 25 percent and males

receive remaining half. This disadvantage further increases with the level of education – females in the poorest quartile r eceive only 5 percent of the secondary education subsidy and almost zero percent at tertiary level.

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Table –3C
Benefit Incidence of Public Spending on Tertiary Education - NWFP

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Income Level	*Male*		*Female*		*Total*	
	Per Capita	Share	Per Capita	Share	Per Capita	Share
	(Rs.)	(%)	(Rs.)	(%)	(Rs.)	(%)
Primary Level						
Rich	1,436	8%	1,223	7%	1,325	15%
Upper Middle	1,578	15%	1,039	10%	1,318	24%
Lower Middle	1,629	22%	1,128	12%	1,410	33%
Poor	1,329	19%	646	9%	983	28%
All Group	**1,492**	**63%**	**945**	**37%**	**1,228**	**100%**
Secondary Level						
Rich	2,129	14%	1,129	8%	1,600	23%
Upper Middle	1,882	19%	917	9%	1,420	28%
Lower Middle	1,602	19%	675	8%	1,139	27%
Poor	1,398	18%	303	5%	805	22%
All Group	**1,694**	**70%**	**679**	**30%**	**1,173**	**100%**
Tertiary Level						
Rich	934	29%	616	19%	773	48%
Upper Middle	732	23%	223	8%	470	31%
Lower Middle	333	11%	54	2%	184	13%
Poor	214	8%	5	0%	111	8%
All Group	**536**	**71%**	**209**	**29%**	**368**	**100%**

Source: Estimates based on PIHS 1998-99 and Provincial Demand for Grants 1999-2000

4.2(d) Balochistan

as in the case of NWFP, estimates of benefit incidence demonstrate that education spending is not reasonably progressive at any level of education in Balochistan (see Table-3D). Moreover, except primary education, poorest population receives the lowest share in educational subsidies; particularly at the tertiary level of education; the poorest income group receives only 8 percent of the subsidy. A similar pattern exists at the secondary level with slight change in magnitudes ranging from 21 percent to the poorest income group and 33 percent to the upper middle-income group. However, this pattern differs at the primary level, where the main beneficiaries are low middle-income group, which receive 30 percent of the subsidy, and 26 percent is received by the upper middle

income group, and 23 percent receive by the poorest income group, and 21 percent by the richest income group.

Similar to other provinces, per-capita estimates of the subsidy are not consistent with the share and lowest per-capita subsidy at all levels of education and the lowest per capita subsidies are received by the poorest income group. Moreover, this picture varies with the level of education, relatively better at primary level and worse at the tertiary level.

Table – 3D
Benefit Incidence of Public Spending on Tertiary Education - Balochistan

Income Level	Male		Female		Total	
	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)	Share (%)
Primary Level						
Rich	1,091	12%	972	9%	1,038	21%
Upper Middle	1,158	20%	477	6%	858	26%
Lower Middle	1,028	20%	667	11%	865	30%
Poor	820	14%	551	9%	690	23%
All Group	**1,019**	**66%**	**636**	**34%**	**844**	**100%**
Secondary Level						
Rich	1,774	16%	1,021	8%	1,416	24%
Upper Middle	1,939	28%	636	5%	1,450	33%
Lower Middle	1,266	17%	363	5%	824	22%
Poor	1,311	17%	348	4%	831	21%
All Group	**1,563**	**77%**	**539**	**23%**	**1,091**	**100%**
Tertiary Level						
Rich	1453	44%	199	6%	851	50%
Upper Middle	576	25%	78	3%	337	28%
Lower Middle	369	12%	78	2%	232	15%
Poor	223	8%	6	0%	119	8%
All Group	**631**	**89%**	**87**	**11%**	**372**	**100%**

Source: Estimates based on PIHS 1998-99 and Provincial Demand for Grants 1999-2000

In Balochistan, the pattern of relative disadvantage to females with respect to access to education is similar to other provinces. However, magnitudes of subsidies present a bleaker picture. It is the lowest at the tertiary level, where they receive only 11 percent of the total subsidy for professional education and the greatest at the primary level, where they receive 34 percent of the total primary subsidy. Similarly females receive lowest per capita subsidies in each income group at all levels.

5.   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, we computed female-male ratio of benefit incidence of public spending by region. The result of this exercise is presented in Figure 1. It is clear from Figure 1, that the relative disadvantage of females to access public education was higher in rural areas as compare to urban areas. All rural areas and urban Sindh and Balochistan follow the same pattern of disadvantage – higher disadvantage with higher level of education.

The disadvantage is the greatest in rural Balochistan and Sindh. This observation is compatible with the expectation that female enrollment rates decrease with the level of education. In contrast, it emerges from figure 1, that there is relative disadvantage to males with respect to access to public education in urban Punjab at the primary and the tertiary levels, and urban NWFP at tertiary level.

Figure 1:   Gender Disparity in Public Spending on Education by Region
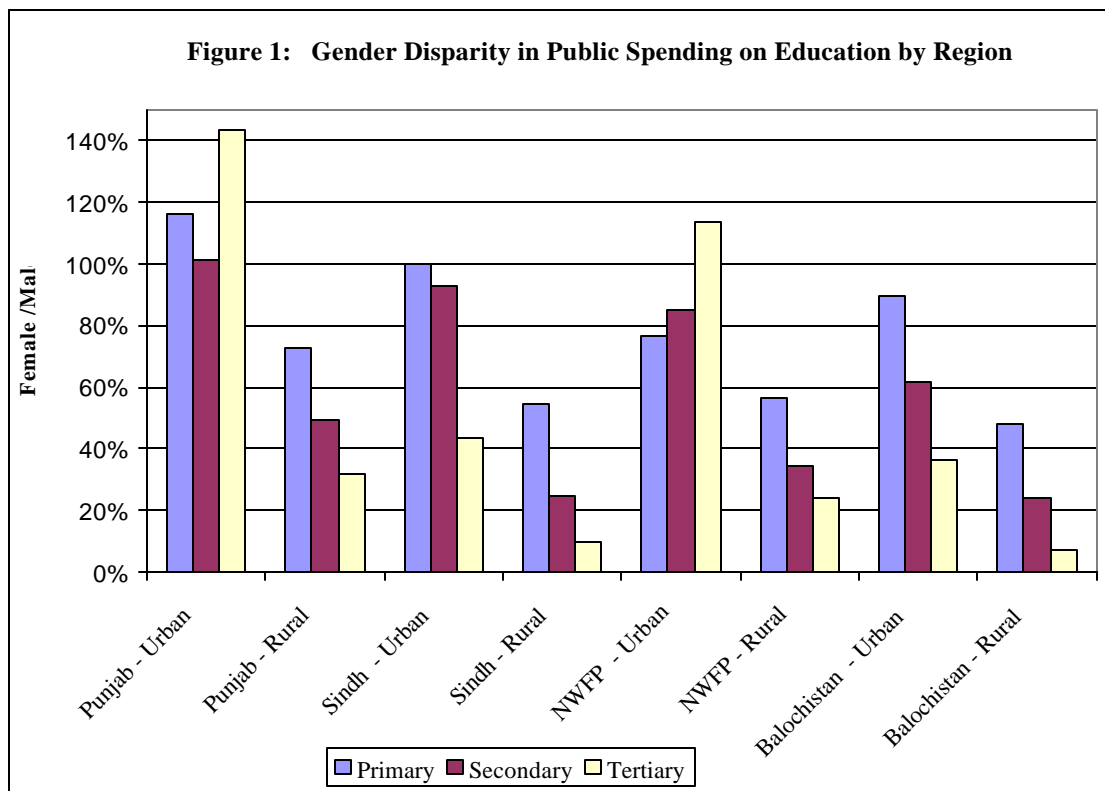
6.   CONCLUDING OBSERVATIONS

Gender disaggregated benefit analysis of public spending on education can be used to describe why the poorest income quartile has less access to public education specially at the higher level of education. The answer is to be found, in part, in the greater gender enrollment bias among the poorest sections of the society. For example in Balochistan, males in the poorest quartile receive 14 percent and 17 percent of the subsidy at primary and secondary level, while females in the poorest quartile receive 9 and 4 percent of the subsidy at the primary and secondary level respectively. However, females in the richest income group receive 9 and 8 percent of the subsidy at the primary and secondary level respectively, which is share-wise equal at primary level and higher at secondary level with compare to females of the poorest segment of the society. This trend also persists in the secondary education subsidy of other provinces excluding Sindh and tertiary and professional level subsidies of all provinces where females of poorest gain less than rich groups. The gender inequality, therefore, is a critical component of overall inequality in the benefit incidence of education spending.

These results powerfully demonstrate how public spending on education benefit males more than females in Pakistan in 1998-99, and this in turn influences the overall inequality of education spending in the country. It does so for a combination of reasons: first, households choose to enroll males more than females at all levels of schooling (see Table 2), therefore, a gender bias would be present in the benefit incidence of public spending on education; second, public spending is not properly targeted to the regions of higher gender disparities and as a result, public spending is not sufficiently contributing in the reduction of gender disparity.

Based on the benefit incidence analysis three sets of policies can be recommended to improve gender equality in the society. First, the poorest segment of the society receives the lowest per capita subsidy; therefore, public policies related to public spending on education should be targeted towards the region with higher level of poverty. Second, in the presence of higher regional gender inequality, region specific education policy may be helpful for the gender equality, specially public spending in rural areas on female

education will play a vital role as compare to urban areas. Finally province-wise policies related to gender equality in education at various level works better than the national policies. For instance, in Balochistan, a reasonable proportion of the government budget is devoted to schooling services which females tended not to use—tertiary education institutions. 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 policy is not helpful for the other regions particularly in Punjab and NWFP where female enrollments were 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 going to females. However, such decisions should not rest on benefit incidence estimates alone. They should also be based on a sound understanding of how household behavior would be affected by such expenditure switches.

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