

*Conference Paper No.49***HIDDEN SUBSIDIES****By**

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ABSTRACT

The objective of this paper is to quantify the magnitude of subsidies provided from budgetary sources on major economic and social services including irrigation, roads, education, health and water supply and sanitation. This exercise is complicated by the limited availability of data, especially on costs of provision.

The research demonstrates that the budgetary subsidy on major economic and social services is large in Pakistan and lesser goes to ‘merit goods’. Therefore, considerable scope exists for improving cost recovery and raising the level of non-tax revenues, with much of the benefit going to provincial governments. It needs to be recognized that resource mobilization efforts, which have hitherto been concentrated in the taxation area, need to focus more on non-taxes, by raising charges on services which are not in the nature of ‘merit goods’, if the overall equity consequences of public budgeting are to be enhanced.

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INTRODUCTION

Many governments use price subsidization (total costs less total revenues from user charges) to meet social protection objectives in lieu of, or in addition to, direct income transfers. Such subsidies may be perceived as influencing behavior to further other socially desirable policies. For example, the price response induced by lowering the price of schooling will both lower the cost of living for the beneficiaries and also increase the investment in education more than a similar income transfer would achieve.

The incidences of benefits from a general price subsidy are proportional to purchases and can be deduced from the pattern of expenditures. Some goods are inappropriate vehicles for redistribution since subsidies on them will not only accrue mainly to the rich they will actually increase inequality in welfare. It is therefore important to ensure that commodities chosen for price subsidization are largely consumed by the lower income groups. Also, detailed data on such commodities should be made public to make the extent of subsidy easily tractable.

In the case of Pakistan, the problem of lack of transparency of federal and provincial budgets is vividly demonstrated by the inability of such budgets to readily highlight the subsidy on the various economic and social services, which are essentially in the nature of 'private' goods, provided by such governments. This is not only a reflection of the problem of the nature of budgeting practices whereby, first, revenues and expenditures on different heads are shown separately and no account is made either of depreciation of assets or the costs of capital used to finance the acquisition of assets which yield a stream of services. Second, to the extent that the subsidies largely benefit the upper income groups, political compulsions dictate that such subsidies largely remain hidden.

It is clear, therefore, that one of the major areas of reform of public expenditure must be first to reveal the magnitude of service-related subsidies for subsequent scrutiny by public opinion and then to implement a policy of enhancing and improving the efficiency of collection of user charges to minimize the subsidy on services which are consumed by the section of the population that has greater ability to pay. The higher revenues generated can then be used to bring down the fiscal deficit or to cross-subsidize the provision of services which are pro-poor.

The objective of this paper is to quantify the magnitude of subsidies provided from budgetary sources on major economic and social services including irrigation, roads, education, health and water supply and sanitation. This exercise is complicated by the limited availability of data, especially on costs of provision. Therefore, various approaches are adopted to estimate the subsidies. It needs to be emphasized that in some cases the resulting magnitudes must be considered as approximate in character.

The paper is organized as follows: Section I presents the general methodology for deriving the magnitude of subsidy on a particular service. Sections II to VI describe the procedure used for estimation of costs of provision and the magnitude of the subsidy on irrigation, roads, education, health, water supply and sanitation respectively. Section VII brings all the individual service subsidies together to obtain an estimate of the overall subsidy bill. Finally, in Section VIII are highlighted the key policy implications of the findings.

I METHODOLOGY

The costs of provision of a particular service have two components - capital and recurrent costs. The former consists of depreciation of assets, which provide the service and the interest costs on the capital used to acquire the assets. The latter are composed of the salary costs of employees

engaged in the delivery of the service and the overhead staff plus the operations and maintenance costs.

Therefore, the total costs are derived as:

$$\begin{aligned} \text{total costs} = & \text{ depreciation + interest costs + salary bill + operations and} \\ & \text{ maintenance costs (1)} \end{aligned}$$

Then, the subsidy can be computed as:

$$\text{subsidy} = \text{total costs - total revenues from user charges (2)}$$

The analysis in the paper has been conducted throughout at constant prices (of 1997-98). The base year corresponds to the latest year for which more reliable estimates are available of expenditures. The real rate of interest is computed as the nominal rate of interest minus the rate of inflation. Since development expenditure is generally financed by borrowing, the former is taken to correspond to the average cost of domestic borrowing, which has averaged about 9 per cent. The long term rate of inflation of Pakistan is about 7 per cent. Therefore, the real rate of interest is taken at 2 per cent. However, given the annual variation in these rates, we generate a range of estimates. The first can be referred to as a relatively high estimate in which the real rate of interest is taken as 2 per cent. In the second estimate, interest costs are ignored.

We turn now to the estimation of the subsidy on individual services.

II IRRIGATION

This is by far the most important publicly provided service, benefiting the agricultural sector of Pakistan. Estimation of the capital stock embodied in the irrigation infrastructure is a complex exercise. Irrigation systems (including the major dams and water storage reservoirs) are developed mostly by the Water and Power Development Authority (WAPDA) and then handed

over for operations and maintenance to the respective provincial governments. WAPDA's annual investments are not apportioned into the water and power components respectively. Therefore, annual outlays for developing the irrigation system are not available directly.

Fortunately, the Federal Bureau of Statistics gives sectoral estimates of the gross and net national product. In the agricultural sector, the difference corresponds to the depreciation of the capital stock in the sector. In agriculture, bulk of the capital stock consists of the irrigation system, tractors, tubewells and agricultural implements. 80 per cent of the depreciation is assumed to take place in the irrigation system. Recurrent costs correspond to the current expenditures of the irrigation departments of the provincial governments, which have been extracted from the four provincial budget documents and aggregated to arrive at the national estimate. Similarly, revenues from irrigation charges (abiana) have also been obtained from those documents.

TABLE 1								
IRRIGATION SUBSIDY								
<i>(Rs in Billion at 1997-98 prices)</i>								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	12.2	9.8	4.3	16.5	26.3	3.8	12.3	22.0
1977-78	11.5	9.2	3.7	15.2	24.4	2.8	12.4	21.0
1982-83	13.5	10.8	5.9	19.4	30.2	3.6	15.8	26.0
1987-88	14.8	11.8	7.9	22.7	34.5	3.1	19.6	31.1
1992-93	16.5	13.2	6.3	22.8	36.0	2.0	20.8	34.0
1997-98	23.5	18.0	6.9	30.4	38.4	2.7	27.7	35.7
ACGR (%)	-	-	-	-	-	-	3.3	1.9
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

Resulting estimates of the irrigation subsidy are presented in Table 1. This table reveals that depreciation has increased rapidly in the 90s as the wear and tear on assets created in the 60s and 70s has risen. There is a, more or less, corresponding increase in interest costs. Recurrent costs, which rose rapidly in the 80s, have been held down in the 90s probably by largely postponing

operations and maintenance expenditures. In real terms, revenue collections have actually declined, especially in the 90s.

The overall subsidy on irrigation is estimated at between Rs 28 billion and Rs 36 billion in 1997-98. In real terms, it has increased annually during the 25 year period, 1972-73 to 1997-98, by 2 to 3 per cent.

III ROADS

For roads a different methodology has been adopted for estimation of the capital stock. For this sector, information is available directly from the federal and provincial budget documents on development expenditures (corresponding to the investment). An investment deflator has been used to generate the investment, I_t , series at constant prices of 1997-98. Based on this, the capital stock, K_t , has been derived as follows:

$$K_t = K_{t-1}(1 - \delta) + I_t \dots \dots \dots (3)$$

Therefore,

$$\text{depreciation} = K_{t-1} \cdot \delta \dots \dots \dots (4)$$

The rate of depreciation, δ , has been taken as 2.5 per cent annually.

Beyond this, the recurring expenditure and revenues (in the form of tolls and other charges) have been obtained directly from the budget documents. It needs to be emphasized that only revenues from user charges have been included. Revenues in the form of taxes on petroleum products consumed by transport vehicles have not been considered in the analysis.

Estimates of the overall national subsidy on roads and bridges are presented in Table 2. The major component of costs is recurrent costs, especially on operations and maintenance. In 1997-98, recurrent costs accounted for 36 per cent of total costs (inclusive of interest costs). Revenues from tolls and other levies are extremely low, at below Rs 1 billion. Consequently, the subsidy bill is high, ranging from Rs 16 to Rs 25 billion in 1997-98. It has also grown rapidly, at almost 4 per cent per annum.

TABLE 2								
SUBSIDY ON ROADS								
<i>(Rs in Billion at 1997-98 prices)</i>								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	2.2	1.8	4.4	6.6	11.0	0.3	6.3	10.7
1977-78	3.3	2.6	2.1	5.4	7.5	0.3	5.1	7.2
1982-83	4.1	3.3	5.7	9.8	15.7	0.3	9.5	15.4
1987-88	4.8	3.8	7.8	13.6	21.4	0.5	13.1	20.9
1992-93	6.0	4.8	8.5	14.5	23.0	0.6	13.9	22.4
1997-98	7.5	6.0	9.3	16.8	26.1	0.7	16.1	25.4
ACGR (%)	-	-	-	-	-	-	3.8	3.5
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

IV EDUCATION

Education financing is a shared responsibility of the federal and provincial governments. The former makes grants primarily to universities (through the University Grants Commission) while recurrent and capital costs of primary, secondary and college education are financed out of provincial budgets. We analyze the subsidy at each level of education.

Primary Education

The major involvement of governments in education is in the area of primary education. Since this is pre-dominantly a 'merit good' catering mostly to poor households, there is a strong case for subsidizing this level of education. It is not surprising, therefore, that the subsidy bill for

primary education is large. Table 3 gives estimates of the government subsidy on primary education.

TABLE 3								
SUBSIDY ON PRIMARY EDUCATION								
<i>(Rs in Billion at 1997-98 prices)</i>								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	0.2	0.2	4.6	4.8	5.0	0.2	4.6	4.8
1977-78	0.2	0.2	4.5	4.7	4.9	0.0	4.7	4.9
1982-83	0.4	0.3	8.1	8.5	8.8	0.0	8.5	8.8
1987-88	0.7	0.6	15.4	16.1	16.7	0.2	15.9	16.5
1992-93	0.9	0.7	19.4	20.3	21.0	0.2	20.1	20.8
1997-98	1.3	1.0	27.5	28.8	29.8	0.3	28.5	29.5
ACGR (%)	-	-	-	-	-	-	7.6	7.5
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

Depreciation has been estimated from the series of capital stock, by application of equation (3). However, bulk of the costs are recurring in nature, consisting primarily of teachers= salaries and allowances. Recurrent costs have shown fast growth after the mid-80s, following the launching initially of the Five Point Program and then the Social Action Program. These programs have led to a major expansion in the number of primary schools and, consequently, in school teachers. As expected, since primary education is essentially free, revenues are negligible.

Table 3 reveals that in 1997-98 the subsidy on primary education had approached Rs 30 billion. In real terms it has demonstrated very rapid growth at almost 8 per cent per annum.

Secondary Education

The same methodology has been used to estimate the public subsidy on secondary education. The derived magnitudes are presented in Table 4. Here again, recurrent costs dominate, showing fast growth upto the early 80s and then some moderation as resources got diverted to primary

education. Total subsidy on this level of education is estimated at about Rs 14 billion, with a relatively high growth rate in real terms of almost 8 per cent.

TABLE 4								
SUBSIDY ON SECONDARY EDUCATION								
(Rs in Billion at 1997-98 prices)								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	0.2	0.2	1.8	2.0	2.2	0.1	1.9	2.1
1977-78	0.3	0.3	2.9	3.2	3.5	0.0	3.2	3.5
1982-83	0.4	0.3	5.0	5.4	5.7	0.0	5.4	5.7
1987-88	0.7	0.6	10.0	10.7	11.3	0.3	10.4	11.0
1992-93	0.8	0.6	10.0	10.8	11.4	0.3	10.5	11.1
1997-98	0.9	0.7	13.0	13.9	14.6	0.4	13.5	14.2
ACGR (%)	-	-	-	-	-	-	8.1	7.9
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

Higher Education

During the 70s and 80s the higher education sector expanded rapidly. Many new universities and colleges were established. This was an expression not only of the rising political influence of the urban middle class but in response also to the growing demand for educated manpower caused by the emergence of employment opportunities in the Middle East and in the expanding public sector of Pakistan. During the 90s, development expenditure on higher education has fallen sharply. Consequently, the capital stock embodied in higher education institutions, more or less, doubled by the end of the decade of the 80s. But since then it has actually tended to decline, implying that the level of investment is not even adequate for replacement purposes.

Table 5 presents estimates of the subsidy on higher education. The subsidy may be somewhat overstated because, especially in the case of universities, revenues from fees and other charges

are retained and not reverted back to the provincial budgets. But these collections are limited and unlikely to make a major difference to the quantum of subsidy.

TABLE 5								
SUBSIDY ON HIGHER EDUCATION								
<i>(Rs in Billion at 1997-98 prices)</i>								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	0.6	0.5	2.5	3.1	3.6	0.3	2.8	3.3
1977-78	0.8	0.6	5.9	6.7	7.3	0.2	6.5	7.1
1982-83	0.9	0.7	5.6	6.5	7.2	0.2	6.3	7.0
1987-88	1.4	1.1	9.8	11.2	12.3	0.3	10.9	12.0
1992-93	1.5	1.2	8.0	9.5	10.7	0.2	9.3	10.5
1997-98	1.5	1.2	8.5	10.0	11.2	0.4	9.6	10.8
ACGR (%)	-	-	-	-	-	-	5.5	4.9
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

The table reveals that the subsidy in real terms has actually started falling after 1987-88. For the year, 1997-98, it is estimated at between Rs 10 billion and Rs 11 billion. For the twenty five year period as a whole, the annual growth rate is estimated at about 5 per cent.

V CURATIVE HEALTH

Curative health services provided primarily by provincial governments consist of the network of basic health units and rural health centers in the rural areas and hospitals and clinics in the major towns and cities. Development expenditures on these services peaked in the second half of the 80s during the tenure of the Five Point Program. Studies reveal that the major portion of beneficiaries from government curative health services belong to relatively poor households, while private facilities essentially cater for the needs of upper income households.

The capital stock in public curative health facilities has been derived from the stream of development expenditures, by application of equation (3). The value of this capital stock exceeded Rs 100 billion in 1997-98. Therefore, the depreciation and interest costs are significant, although recurrent costs are the single largest item of cost in this service also.

Table 6 derives the subsidy bill on curative health. Costs of provision increased rapidly upto 1987-88. Revenues are marginal, due to the low level of fees charged. Altogether, the subsidy bill is estimated at between Rs 15 billion and Rs 17 billion in 1997-98, with an annual growth rate in real terms of about 7 per cent.

TABLE 6 SUBSIDY ON CURATIVE HEALTH <i>(Rs in Billion at 1997-98 prices)</i>								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	0.4	0.3	2.4	2.8	3.1	0.2	2.6	2.9
1977-78	0.5	0.4	3.0	3.5	3.9	0.1	3.4	3.8
1982-83	0.9	0.7	4.6	5.5	6.2	0.2	5.3	6.0
1987-88	1.7	1.4	9.9	11.6	13.0	0.3	11.3	12.7
1992-93	2.2	1.8	10.9	13.1	14.9	0.3	12.8	14.6
1997-98	2.6	2.1	13.0	15.6	17.7	0.4	15.2	17.3
ACGR (%)	-	-	-	-	-	-	7.3	7.4
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

VI WATER SUPPLY AND SANITATION

The public health engineering departments of the provincial governments supply drinking water, primarily to rural households, by implementing schemes generally with piped connections and levy fixed charges for this service. The basic issue is whether these charges recover the costs of provision.

Table 7 gives the costs of provision, revenue from tariffs and the resulting subsidy. The major component of costs in this service are capital costs. These have peaked during the 90s, because of the high priority attached by the Social Action Program to the expansion of rural water supply and sanitation coverage.

TABLE 7 SUBSIDY ON WATER SUPPLY AND SANITATION (Rs in Billion at 1997-98 prices)								
Year	Depreciation	Interest Costs	Recurrent Costs	Total Costs		Revenues	Subsidy	
				Low	High		Low	High
1972-73	1.0	0.8	0.4	1.4	2.2	0.1	1.3	2.1
1977-78	1.1	0.9	0.2	1.3	2.2	0.1	1.2	2.1
1982-83	1.3	1.0	0.4	1.7	2.7	0.1	1.6	2.6
1987-88	1.7	1.4	0.9	2.6	4.0	0.1	2.5	3.9
1992-93	2.1	1.7	1.6	3.7	5.4	0.1	3.6	5.3
1997-98	2.7	2.2	1.9	4.6	6.8	0.2	4.4	6.6
ACGR (%)	-	-	-	-	-	-	5.0	4.7
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

The table reveals the disappointingly low level of revenues. Consequently, bulk of the costs have to be subsidized. The subsidy is estimated at between Rs 4 billion and Rs 7 billion in 1997-98, with an annual growth rate in real terms of about 5 per cent.

VII OVERALL BUDGETARY SUBSIDY

We are now in a position to quantify the overall subsidy on major services, economic and social, which is financed by budgetary resources of the federal and provincial governments. Estimates are presented in Table 8. The high estimate includes interest cost.

The analysis reveals that the aggregate 'hidden' subsidy was between Rs 115 to Rs 140 billion in 1997-98. The latter is as much as 5 per cent of the GDP. The subsidy bill on 'merit goods' (that

is, services which are basic and pro-poor in nature), which includes primary education, curative health and drinking water supply, is Rs 53 billion, representing 38 per cent of the aggregate subsidy bill. Therefore, the remainder, almost Rs 87 billion is unlikely to be justified on equity grounds.

TABLE 8 OVERALL BUDGETARY SUBSIDY ON MAJOR ECONOMIC AND SOCIAL SERVICES (Rs in Billion at 1997-98 prices)								
Year	Economic Services		Social Services					Overall Budgetary Subsidy
	Irrigation	Roads	Primary Education	Secondary Education	Higher Education	Curative Health	Water Supply	
HIGH ESTIMATE								
1972-73	22.5	10.7	4.8	2.1	3.3	2.9	2.1	48.4
1977-78	21.6	7.2	4.9	3.5	7.1	3.8	2.1	50.2
1982-83	26.6	15.4	8.8	5.7	7.0	6.0	2.6	72.1
1987-88	31.4	20.9	16.5	11.0	12.0	12.7	3.9	108.4
1992-93	34.0	22.4	20.8	11.1	10.5	14.6	5.3	118.7
1997-98	35.7	25.4	29.5	14.2	10.8	17.3	6.6	139.5
ACGR (%)	-	-	-	-	-	-	-	4.3
LOW ESTIMATE								
1972-73	12.3	6.3	4.6	1.9	2.8	2.6	1.3	31.8
1977-78	12.4	5.1	4.7	3.2	6.5	3.4	1.2	36.5
1982-83	15.8	9.5	8.5	5.4	6.3	5.3	1.6	52.4
1987-88	19.6	13.1	15.9	10.4	10.9	11.3	2.5	83.7
1992-93	20.8	13.9	20.1	10.5	9.3	12.8	3.6	91.0
1997-98	27.7	16.1	28.5	13.5	9.6	15.2	4.4	115.0
ACGR (%)	-	-	-	-	-	-	-	5.3
Source: Pakistan Economic Survey Federal and Provincial Budget Documents								

However, two positive trends are visible. The share in total subsidy of 'merit goods' has almost doubled in the last twenty five years, from about 20 per cent in 1972-73. Second, the aggregate subsidy bill has declined somewhat from over 6 per cent of the GDP in the early 70s to about 5 per cent of the GDP currently.

There exists a strong case for enhancing user charges for services that are not in the nature of 'merit goods'. Initially if efforts are made to recover recurrent costs only on such services (irrigation, roads, secondary and higher education) then potentially additional revenues equivalent to over 1 per cent of the GDP can be generated. In the long run, if full cost recovery is targeted for then the contribution to revenues could be as much as 3 per cent of the GDP. Provincial governments' fiscal position, in particular, could improve substantially as most of the additional revenue would accrue in the form of non-tax revenues to these governments. This would enable not only a significant reduction in the overall fiscal deficit but would also increase the availability of resources for financing the expanded and improved provision of pro-poor services.

VIII POLICY IMPLICATIONS

In conclusion, the research demonstrates that the budgetary subsidy on major economic and social services is large in Pakistan at about 5 per cent of the GDP. Less than 40 per cent of this subsidy goes to 'merit goods'. Therefore, considerable scope exists for improving cost recovery and raising the level of non-tax revenues, with much of the benefit going to provincial governments. It needs to be recognized that resource mobilization efforts, which have hitherto been concentrated in the taxation area, need to focus more on non-taxes, by raising charges on services which are not in the nature of 'merit goods', if the overall equity consequences of public budgeting are to be enhanced.

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