

THE INCIDENCE OF PUBLIC EXPENDITURE IN KARACHI

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An analysis of the incidence of provincial and municipal expenditures in Karachi shows that the distribution of their benefits are pro-poor, more so in the case of the former. The expenditure benefit (net of taxes) has also been estimated, the incidence of which is clearly pro-poor in the case of provincial government, while for the municipal government an upper income bias is indicated. Major policy implications emanating from the analysis relate to allocation of resources between levels of government, enhancing the role of the private sector in pro-rich services, efficient pricing policy with higher cost recovery and cross-subsidisation of services.

Modern theory of Public Finance places particular emphasis on the equity implications of its policy tools. While designing the fiscal policy in a country, special emphasis is given to the 'norms' of taxation and the success of the fiscal policy is largely judged on the basis of adherence to these norms. In the case of Pakistan also, much of the national debate on the country's annual budget, which is a reflection of its broader fiscal policy, is on the equity implications of its revenue sources, particularly taxes. In line with this, most of the research undertaken in the country is on the distribution of tax burden across income groups [Malik and Saqib (1989), Azfar (1972), Jeetun (1978)].

It needs, to be emphasized, however, that analysis of just the tax incidence amounts to having a one eyed view of the world. The overall equity implications of government finance is determined not only by the incidence of sources of income

*The author gratefully acknowledges useful comments by Hafiz A. Pasha. Any defects that remain are the sole responsibility of the author.

but also by the incidence of its expenditure. To illustrate, the incidence of the taxation structure in a country may be marginally progressive (pro-poor). If, however, the bulk of expenditure financed by these taxes is on services which are largely consumed by the upper income groups, the overall impact of government finance may turn out to be pro-rich.

The lesser emphasis given to the incidence of public expenditure can be explained by the fact that this is not perceived as affecting income levels directly. The paucity of research in this area may also be due to the complex and rather controversial conceptual framework of public expenditure benefit analysis and the lack of relevant data particularly in developing countries such as Pakistan. An attempt has been made in the paper to fill this gap partially by analysing the incidence of benefits of provincial and municipal expenditures in Karachi. The allocation of expenditure benefits is based on the data collected through the Socio-Economic Survey (SES) of 6262 households in Karachi in 1986-87.¹ As such the analysis undertaken is limited to the city of Karachi only. We start, by discussing the allocation of functions between the two levels of government in the city which will indicate their major expenditure liabilities. This is followed by a statement of the theoretical framework in Section III. Section IV describes in detail the allocation bases, while the estimates of expenditure benefits are presented in Section V. The policy implications emanating from our research are presented in Section VI. The last section summarises the analysis and highlights the major conclusions.

II. Allocation of Functions

A clear demarcation of the functional responsibilities of the provincial governments is contained in the Constitution of Pakistan, which identifies the functions that can either be performed by the provincial or the federal government, and the functions which are exclusively the responsibility of the federal government. Similarly the Local Government Ordinance, 1979, contains an elaborate statement of the functions which the provincial government can delegate to the municipal government in the city. According to these allocations the functional responsibilities of the provincial government can essentially be divided into 3 types. The first relates to functions included in the Concurrent Legislative List of the Constitution of Pakistan, which specifies functions which can either be performed by the federal or the provincial government. Though most of these functions are currently performed by the federal government, the provincial government continues to play an important role in social welfare, labour exchanges, employment bureaus and training

¹ A detailed SES of households was undertaken by the Applied Economics Research Centre on behalf of Karachi Development Authority. It contains detailed social and demographic information - in addition to information on property rents, property characteristics, access to services, payments made for services, assets owned by households and income and expenditure patterns.

establishments and the management of ancient and historical monuments and sites (see Table 1).

The second set of functions are the exclusive responsibility of the provincial government. Major functions in this category are law and order, justice, highways, public transport and secondary and higher education. These functions account for the bulk of the expenditure liabilities of the provincial governments. The third set of functions are to be performed by the municipal government but have not yet been fully decentralised because of inadequate financial resources and/or institutional capacity of the municipal government. Major services in this category include primary education and curative health. In addition to its shared responsibilities, the municipal government is solely responsible for the provision of major services like water supply, drainage and sewerage, preventive health, and intracity roads. It is clear from the above discussion that the provincial and municipal governments are responsible for the provision of basic social and economic services in the city. We develop the theoretical framework for the analysis of the distribution of benefits of most of these services, in the following section.

III. Theoretical Framework

The theoretical framework and the methodology used to estimate the incidence of public expenditure is more complex and controversial than the tax incidence itself. In this section we review the conceptual framework of public expenditure incidence analysis and highlight the issues that arise in its estimation.

The distributional impact of governmental expenditure is analysed using two approaches. The first is the "money flow" approach, which concentrates on the recipients of direct payments made by the government [Snodgrass (1974) calls these "indirect benefits"] without considering the ultimate beneficiaries of the public sector services. Second, is the "benefit" approach which emphasises the actual beneficiaries of the service rendered by public expenditure. In the case of public expenditure on medical health the doctors receiving salaries from the government exchequer, are an example of the former approach, while according to the latter approach the beneficiaries would be the patients using the services of the dispensaries/hospitals.

A review of the literature indicates that, on the whole, most studies have adopted the benefit approach. As highlighted by DeWulf (1975) the government raises revenues to finance its expenditures presumably in order to provide certain services. As such the pattern of payments is an intermediate and not a final product. Distributional analysis, therefore ought to focus on the distribution of services rendered and not on the flow of money [Bhatia (1960)].² In the expenditure

²Exceptions to these may exist in the case of specific expenditure. An obvious example would be transfer payments where the recipient and the beneficiary is the same person. Money flow approach in this case may prove more useful.

TABLE I

Legislative and Actual Allocation of Functions between the Provincial and Municipal Governments in Pakistan

Level of Government	Legislative Responsibility of Services	Actual Allocation of Function
Federal/Provincial Governments	Population Planning Electricity Circulation Development Syllabus Planning Centres of Excellence Tourism	Federal Government
	Social Welfare Vocational/ Technical Training Employment Exchanges Historical Sites and Monuments	Federal/Provincial Government
Provincial Government	Law and Order Justice Highways Transport Secondary and Higher Education	Provincial Government
Municipal Government	Primary Education Curative Health Water Supply, Drainage and Sewerage Preventive Health Intra-city Roads Street Lighting Garbage Collection Fire Fighting Parks and Playgrounds Land Development	Municipal Government

incidence analysis, therefore, the principal task is allocation of benefits to particular sub-groups of population. Hence, a method of benefit valuation is required. This raises a number of issues. First, in the absence of a market system for most of the goods supplied by the government, and the resultant lack of output valuation that would give an adequate index of their benefit, value of benefits from the expenditure is equated to the cost of its production. This procedure assumes that resources are allocated efficiently between the public and the private sectors. Also, within the public sector optimal allocation is to be ensured across sectors. The socially optimal level of output of a public good is defined as the quantity at which the sum of the marginal evaluation of marginal rate of substitution of all households equals the marginal rate of transformation of public good.

The second issue relates to the method of assessing benefits from public expenditure. One approach is the "accounting" approach [referred to as the 'Cost incurred on behalf of various households in Hussain (1981)]. This method simply equates the value of government output to the cost of government inputs. In contrast to this, in the "behavioral" approach [referred to as 'distribution of benefits received' by households in Hussain (1981)] the services provided by the public sector are valued according to their appraisal by the beneficiary. This approach may also be referred to as the "Willingnes to pay" approach for valuing benefits. The latter requires the revelation of preferences and their true valuation. Since there is no market transaction for these public goods, the demand schedules remain unidentified. This approach for valuation of benefits, is therefore, extremely difficult and largely unexplored. Hence it is argued that a more practical though less rigorous approach, is to estimate the 'cost incurred on behalf of the beneficiaries of government expenditure [Hussain (1981)]. This approach implicitly assumes that the marginal utility of income is constant across various sub-groups of population analysed and that there is no consumer surplus associated with public goods.

Another problem is whether the household or individual on whose behalf the costs are incurred is the sole beneficiary of these services, or whether there are others who share some of the benefits. Also, the transfer of purchasing power from the private to the public sectors and the pattern of public investment modifies the expenditure pattern in the economy and affects factor and output prices. Therefore, the question is whether the impact of government expenditure should be analysed in a general or a partial equilibrium setting. The income distributional implications of adopting the former approach have, however, not been explored in any of the studies [DeWulf (1975)].

Valuation problems also arise if the total benefit flowing from the specific or allocable government expenditure does not rest with direct beneficiaries, but is extended to others in the form of externalities or spill-overs. In such cases, it is necessary to identify the proportion of the benefit to be allocated to the direct beneficiary and to society as a whole. Sahota (1977) has explicitly provided for

externalities in social goods like education, but the basis for using certain proportions is not explicitly indicated. Moreover, it is not clear how inter generational effects (if any) of government expenditures can be taken into account and benefits assigned accordingly.

Finally, most of the studies analysed attempt to estimate the distribution of expenditure benefits in a given period of time. This procedure correctly allocates expenditures on consumption (current expenditure). However, investment expenditures require a different approach because they generate benefits in future years. The assumption that the benefits that a household receives from past investment expenditures are reasonably well approximated by allocating this year's capital expenditure avoids this problem. But this assumption is not correct when investment outlays are growing overtime, or when the composition of investment is altering sharply [DeWulf (1975)]. Some studies have avoided this problem by allocating only current expenditures. It is also likely that the distributional consequences of development expenditure on a particular service are different from current expenditure on it.

This study analyses the incidence of provincial and municipal expenditures in Karachi in a partial equilibrium setting concentrating on current expenditure only. The 'benefit' approach, discussed earlier, has been used. Though the usefulness of the 'behavioral' approach of evaluating benefits is well appreciated, lack of adequate data has restricted the analyses in this paper to the 'accounting' method for private goods. As such the analysis presented in this study constitutes the first estimates of benefit incidence of provincial and municipal expenditures. In view of the paucity of research in this area, such estimates are useful as they provide insights into the government expenditure plans, and are thus, useful from the policy point of view. This is particularly so in the case of provision of essentially private goods. According to DeWulf (1975) incidence studies can make valuable contribution to the income distributional implications of policy decisions related to the strategy of resource mobilisation and expenditure allocations. The following section presents the conceptual framework and the methodology used in the estimation of incidence of major provincial and municipal expenditures.

IV. Allocation Bases

1) Pure (General) Public Goods

It is difficult to evaluate the benefits accruing from pure public goods due to their inherent characteristics of non rivalry and the difficulty of exclusion. For these goods benefits are generally distributed either equally among households [Mann (1976), Aaron (1965)], proportionally on the basis of income [Sahota (1977), Mann (1976), Hussain (1981)] or according to certain utility functions [Aaron (1965)].

According to Aaron and McGuire (1970), benefits from pure public goods to each household should be imputed as a fraction of the total value of the public good, proportional to the reciprocal of the marginal utility of income (in private good expenditure) under certain assumptions. Maital (1973) reinstates Aaron and McGuire theorem and concludes that (in a two person economy),

$$\frac{VG_B}{VG_A} = \frac{MUY_A}{MUY_B}$$

Where,

VG_A, VG_B = Value of 'G' units of public goods to individual A and B respectively.

MUY_A, MUY_B = marginal utility of income (in private good expenditure) to individual A and B respectively.

These authors introduced the concept that the willingness to spend money on public goods rises more than proportionately with income. Following this, Hussain (1981) has also used the rising elasticity of income concept while evaluating benefits from general expenditures. DeWulf (1975) believes that explicitly allowing for the specification of the utility of money income is an improvement over other allocational methods. In this study, we are following the methodology proposed by Aaron-McGuire, Maital etc. Benefits from public goods, namely law and order and justice are allocated assuming a value of income elasticity of marginal utility of income of 1.5. This value was also used by Hussain (1981) to derive his benefit estimates. Therefore, in effect the willingness to pay approach has been adopted to measure benefits from pure public goods.

2) *Private Goods*

In addition to expenditure on pure public goods, the government also provides specific services, the beneficiaries of which are, generally, identifiable. The principle of exclusion can also be applied to these goods which though rival but due to their spill-over affects, externalities and indivisibilities, the public sector generally plays a significant role in their provision. Example of such goods are education, health, roads, transport, etc.

Valuation of benefits accruing from such goods is difficult for a number of reasons. These include, first, the spill-over effects and externalities arising from consumption of such goods. Second, on account of indivisibilities and decreasing costs, the average costs of provision may be below the marginal costs in some cases. Third, in case of developing countries in particular, there is under provision of

some goods, like education, due to which the principle of marginal benefit equalling marginal cost is violated. Finally, the quality differential of public services, in a country like Pakistan, is so pervasive that the allocation of the same costs and benefits to various subgroups is incorrect. Special attention, therefore, needs to be exercised while allocating benefits of such public expenditures. The methodology used in the allocation of major provincial and municipal expenditures is described below.

a) Provincial Expenditures

1) Education

As already mentioned, provision of education is shared between the provincial and the municipal government in Karachi. The provincial government is solely responsible for colleges and secondary schools, while the primary schools in the city are the shared responsibility of the provincial and the municipal governments. Benefits from public expenditure on education are thus estimated separately for schools (primary and secondary) and colleges.

The methodology employed is essentially similar to the one used by Le Grand (1982) to estimate the distribution of public expenditure on education in England and Wales. Incidence of expenditure on school and college education, $EBEDU_{ij}$, is estimated as:

$$EBEDU_{ij} = SMPL \times EXPEDU_i \left[(1 - \gamma) \frac{SSTD_{ij}}{\sum_j SSTD_{ij}} + \gamma \left(\frac{HSIZE_j}{\sum_j HSIZE_j} \right) \right] - FEES_{ij} \quad (1)$$

i = primary school, secondary school and college.

where,

$EBEDU_{ij}$ = Expenditure benefits accruing from the 'ith' type of education to the 'jth' household.

$EXPEDU_i$ = Total public expenditure on the ith type of education.

$SSTD_{ij}$ = Total number of the 'ith' type of students in the 'jth' household.

γ = Proportion of externalities in total expenditure.

$HSIZE_j$ = Size of the jth household.

$FEES_{ij}$ = Education fee of the 'ith' type of education paid the 'jth' household

SMPL. = Inverse of sample blow-up factor. This corresponds to the ratio of sample to the population of Karachi.

Benefits accruing from public expenditure on private goods are basically equivalent to the 'unit subsidy' (total expenditure benefit minus user charges, if any) received by a household. As such, benefits from expenditure on education is estimated as a product of expenditure per student and total number of students in schools and colleges respectively minus the amount paid as fees by a household in a particular income group. An attempt has also been made to incorporate benefits from externalities generated by primary education explicitly. In line with the methodology used by Sahota (1977) benefits from externalities (10 per cent of total expenditure)³ are allocated on a per capita basis.

2) Transport

The public transport system in Karachi is primarily operated by the Karachi Transport Corporation (KTC) which functions under the provincial government. Historically provincial government has had to provide substantial subsidies to the KTC as its bus fares are lower than the cost of the service. To measure the benefits from transport expenditure, the total operating subsidy to KTC has been distributed across income groups in proportion to the distribution of transport expenditure incurred by households on public buses. Specifically,

$$EBPT_j = SMPL \left[\left(\frac{EXPT_j}{\sum_{K=1}^n EXPT_j} \right) SKTC \right] \quad (2)$$

where,

$EBPT_j$ = Benefit from public expenditure on transport to the 'jth' household.

$EXPT_j$ = Expenditure on public transport by the 'jth' household.

$SKTC$ = Total government operating subsidy to KTC.

3) Health Care

Total provincial expenditure on health care in Sindh has been divided between Karachi and the rest of Sindh in proportion to the regional distribution of the total number of patients using government health facilities in 1985.⁴ Accordingly 1/3 of

³ Other studies have used this percentages, e.g., Sahota (1977).

⁴ This information is obtained from the Development Statistics of Sindh, 1986.

the total government expenditure on health is assumed to be incurred in Karachi. Expenditure benefits from health care, on the other hand, are allocated across households in Karachi on the basis of "utilization" of government health facilities by them.

$$EBH = SMPL \times EXPH \left[(1-\tau) \frac{UR_j}{\sum UR_j} + \tau \frac{HSIZE_j}{\sum_{j=1}^n HSIZE_j} \right] - FEH_j \times UR_j \times 12 \quad (3)$$

where,

EBH_j = Benefits from public expenditure on health care accruing to the 'jth' household.

$EXPH$ = Total annual public expenditure on health care.

UR_j = Number of reported government hospital visits by the 'jth' household in a month.

τ = Proportion of externalities in public health expenditure

FEH_j = Fee per visit collected by public hospitals.

Information on the number of times a household uses a government facility in a month is obtained from the SES.

b) Municipal Expenditures

1) Water Supply

Water supply is one of the major responsibilities of the municipal government in Karachi. In view of its significance, the municipal government has, in fact, constituted a separate agency, the Karachi Water and Sanitation Board (KWSB) which is specifically responsible for water supply and sewerage in the city. Benefits from expenditure on water supply, $EBWTR_j$, are estimated as follows:

$$EBWTR_j = SMPL \left[\left(\frac{WCON_j}{\sum_{k=1}^n WCON_k} \right) EXPW \right] - TARIFF_j \quad (4)$$

where,

$EBWTR_j$ = Benefits from public expenditure on water supply to the 'jth' household

$WCON_j$ = Total water consumed⁵ by the 'jth' household.

⁵ Estimated using the average per capita water supplied by KWSB by income group. This information is obtained from "Basic Facts" published by KWSB.

EXPW = Total annual public expenditure on water supply.
 TARIFF_j = Annual tariff paid by the 'jth' household for water.

The use of the level of water consumption to indicate the allocation of benefits allows quality differential in service provision, so prominent in the city, to be incorporated explicitly.

2) Public Health

Benefits from public health services (including garbage disposal, vaccination, food inspection services) have been allocated using a combination of bases. While all these services are in the nature of pure public goods, exclusion (on locality basis) in the case of garbage disposal has necessitated the use of a different formula for its allocation. Except for garbage disposal, benefits from expenditure on public health is distributed on a per capita basis. Unlike other pure public goods the per capita allocation, in this case is preferred because this service related more to the protection of life than either income or wealth.

Expenditure benefits on garbage disposal are distributed to all those households who have reported collection of solid waste by the municipal government agency. However, in view of the argument presented earlier, adequate account has also been taken of the quality differential of the service provided. This has been done by weighing the benefits received by a household by the number of times garbage is reportedly collected in a week. Therefore, total benefits received by the 'jth' household from public expenditure on public health, EBPH_j, is estimated as,

$$EBPH_j = SMPL \left[EXPHO \left(\frac{HSIZE_j}{\sum_{K=1}^n HSIZE_j} \right) \right] + SMPL \times GAREXP \left[(1-\delta) \frac{GARN_j}{\sum GARN_j} + \delta \frac{HSIZE_j}{\sum HSIZE_j} \right] \quad (5)$$

where,

EXPHO = Public expenditure on public health.

GARN = Number of times garbage is reportedly collected in a week.

GAREXP = Expenditure on garbage collection.

δ = Proportion of externalities in garbage collection.

3) Education

The methodology used to allocate benefits received from expenditure on primary education by the municipal government is similar to the one discussed in the case of schools provided by the provincial government.

4) Roads

Benefits from expenditures on intra-city roads have been divided into two categories. The first category includes expenditure on the 51 'main' roads as classified by the Karachi Metropolitan Corporation. Expenditure benefits on these is distributed on the basis of weighted road mileage used for purpose of commuting by households. Weights are assigned on the basis of the ratio between number of passengers carried and axle load of the mode of the vehicle used. Specifically,

$$EBRM_j = \text{SMPL} \left[\text{EXPRM} \left(\frac{\text{MODE}_j}{\sum_{k=1}^n \text{MODE}_k} \right) \right] \quad (6)$$

where,

$EBRM_j$ = Benefit from public expenditure on main roads to the 'jth' household.

$EXPRM$ = Public expenditure on main roads.

MODE_j = Weighted road mileage of the 'jth' household.

Expenditure benefits from 'small' roads, $EBRS_j$, on the other hand, are estimated as follows.

$$EBRS_j = \sum_i \text{SMPL} \times \text{EXPRS}_i \left(\frac{\text{ACCESS}_{ij}}{\sum_{k=1}^n \text{ACCESS}_{kj}} \right) \quad (7)$$

i = metalled road in good condition and unmetalled road.

$$EBR_j = EBRM_j + EBRS_j \quad (8)$$

where,

EXPRS = Public expenditure on the 'ith' type of road.

ACCESS_i = Household reporting access to the 'ith' type of road.

EBR_j = Benefit from total public expenditure on roads to the 'jth' household

Equation (7) indicates that the benefit from expenditure on small roads is divided equally between households having access to a neighbourhood road. Keeping in view the quality differential, benefits are weighted by a factor of three⁶ where the neighbourhood road is reported to be metalled and in good condition.

Inter-city road network has not been analysed, first, because of the non-availability of the relevant data and, second, since the scope of the study is limited to the city of Karachi only these expenditure benefits largely fall outside the purview of the study.

V. Estimates of Expenditure Incidence

Based on the above methodology, the incidence of major provincial and municipal expenditures is estimated for 1986-87, the results of which are presented in this section. It may be mentioned here that the expenditure benefits presented in the study are, not exhaustive. These include only the expenditures incurred directly on services. Benefits from expenditure which are not incurred on the provision of services directly, like expenditure on fiscal administration, debt servicing is not included in the analysis. Major reason being that the main objective of the study is to analyse the distributional implication of services related expenditures only. Specifically, the important question is, who benefits more from the major services provided by the two lower tiers of government? Moreover, lack of adequate data, on service wise distribution of government loans in the case of debt servicing, has rendered its meaningful allocation among income groups very difficult. Also, some minor expenditures like natural calamities, which are uncertain and do not have distributional implications across income groups have been ignored.

In all, the analysis covers more than 75 per cent of provincial and 85 per cent of municipal expenditures. Also, development expenditure has been excluded from the analysis.

1) *Distribution of Expenditure Benefits*

Table 2 presents the distribution of benefits from major provincial and municipal expenditures in Karachi. The analysis shows that the distribution of absolute benefits from provincial expenditures exhibits a mixed pattern. Expenditure benefits from some services are higher for the lower income households (transport and school education), almost neutral (in the case of health care) while for others (college education and law and order)⁷ the major beneficiaries are the upper income groups.

⁶This factor roughly reflects the actual differential in provision costs.

⁷Estimates of expenditure benefits of law and order based on per capita distribution are however not so pro-rich. These increase from Rs.230 for the lowest income groups to Rs.340 for households of monthly income of more than Rs.6,000. However, given the willingness to pay argument, one believes that it is better to allocate the incidence analysis on the marginal utility basis.

TABLE 2
Distribution of Public Expenditure Benefits
1986-87 per annum

Income Groups (Rs).	PROVINCIAL							MUNICIPAL				
	Trans- port	Education		Health	Law and Order	Total	Water Supply	Public Health	Education (Primary)	Roads	Total	
		Schools	Colleges									
upto - 1500	81	533	54	98	38	803	-52*	128	45	100	221	
1501 - 3000	79	799	216	103	132	1329	33	164	65	104	366	
3001 - 6000	79	812	750	108	303	2052	150	204	66	113	534	
above 6000	47	501	1345	98	982	2973	604	254	42	138	1039	
Total	76	720	509	104	300	1709	138	186	58	112	494	

*Indicates negative expenditure benefits, i.e., such households are paying more than the benefits they receive.

The average benefit, for example, received by a household, with a monthly income of upto Rs. 1500 is Rs. 566 and Rs. 101 in the case of school education and transport respectively. On the other hand, benefits accruing to the highest income group (with monthly income more than Rs. 6000) are lower at about Rs. 478 and Rs. 47 for the two services respectively. The major reason for this is the low utilisation of government provided services by the upper income groups, which are primarily catered by highly priced private schools and privately owned vehicles. Contrary to school education, expenditure benefits from college education are significantly biased in favour of upper-income households. Average benefit from public expenditure on colleges is Rs. 1345 in the case of upper income groups, as opposed to Rs. 54 for the lower income households. The major reason for this is the limited access, in general of the lower income households to this level of education.⁸ On the whole, benefits from provincial expenditures are Rs. 803 for the lowest income group. This increases to Rs. 2973 for households which have a monthly income of more than Rs. 6000.

Unlike some of the provincial government expenditures, higher absolute benefits from most of the municipal expenditures accrue to the upper income households. These include expenditure on water supply, public health, and roads. In the case of water supply the lower income households, in fact, pay more than the benefit they receive. This is primarily because of the lower per capita water supplied to such households.

Similarly, the differential in the quality of services provided along with limited access are the primary reasons for the lower absolute benefits to lower income households from expenditures on public health and roads. It is interesting to note that access plus differential in the quality of the service provided across income groups is a prominent feature in the case of municipal services. Such quality differentials are, however, not so prominent in the case of provincial services, where differentiation across income groups is more in access.

2) *Incidence of Expenditure Benefits*

The incidence of public expenditure benefits, defined as the ratio of average expenditure benefits to income, is presented in Table 3. The table clearly shows that provincial expenditures, except for college education and law and order, (including justice), are pro-poor. On the whole, benefits accruing to lower income households from provincial expenditures as a proportion of their income are one and a half times more than that accruing to their upper income group counterparts. The incidence decreases from almost 6 per cent in case of the former to about 2 per cent in case of the upper income households.

⁸ Lower-income households are generally unable to, first, afford college education and, second, spare a potential earning member for more than the years spent on schooling.

TABLE 3

Incidence of Public Expenditure Benefits
1986-87

Income Groups (Rs.)	Average Monthly Household Income (Rs.)	-PROVINCIAL						MUNICIPAL				
		Trans- port	Education		Health	Law and Order	Total	Water Supply	Public Health	Edu- cation (Pri- mary))	Roads	Total
			Schools	Colleges								
0000 - 1500	1163	0.58	3.82	0.39	0.70	0.27	5.76	-0.34	0.91	0.32	0.72	1.57
1501 - 3000	2221	0.30	3.00	0.81	0.39	0.49	4.99	0.12	0.61	0.25	0.39	1.38
3001 - 6000	4218	0.16	1.60	1.48	0.21	0.60	4.05	0.30	0.40	0.13	0.22	1.06
above 6000	11160	0.03	0.37	1.00	0.07	0.73	2.22	0.45	0.19	0.03	0.10	0.78
Total	3970	0.16	1.51	1.24	0.09	0.06	3.59	0.21	0.39	0.12	0.23	0.95
Suits Index		-0.466	-0.429	+0.035	-0.396	+0.106	-0.196	+0.343	-0.378	-0.429	-0.343	-0.139

(Percentages)

From amongst the various services provided by the provincial government the most pro-poor is school education followed by transport and health care. Expenditure benefits from primary education are almost 4 per cent in case of the upper income group. Similarly net government subsidy on transport and health disproportionately benefits the lower income households.

In contrast, college education and law and order are pro-rich services. The effective benefits from these increases from 0.39 per cent for college education and 0.27 per cent for law and order, in case of the lower income group, to one per cent and 0.73 per cent respectively for the upper income households.

It is, however, possible that the pattern of benefit incidence exhibits or varies in different ranges of the income distribution, as such a summary measure is required to estimate the overall incidence of expenditure benefits. Such a measure, which is similar to the Gini coefficient, has been proposed by Suits (1977), and has primarily been used in studies of tax incidence. In this study we use Suits index to measure the overall incidence of expenditure benefits.

The Suits index is computed from the Lorenz curve constructed from cumulative percentage of expenditure benefits, in our case, and cumulative percentage of income share of households. Its value lies between positive and negative one. A positive value of the index shows that the expenditure benefit is pro-rich, while a negative value indicates that the benefits are biased in favour of poor, while a zero value suggests that the benefits are proportional.

The estimated value of the Suits index for provincial expenditures is -0.196, implying that direct service related expenditures of the provincial government benefit the poor more. In line with our earlier conclusion, the Suits index highlights that expenditures on transport, school education and health care are pro-poor. Again, consistent with our earlier conclusions, the positive value of Suits index in case of law and order and college education indicates that these benefits are pro-rich.

At the municipal level also the overall service related expenditures are pro-poor. Expenditure benefits as a proportion of income decline from 1.57 per cent in case of the lower income households, to less than one per cent for the upper income group, with the value of the Suits index at -0.139. At the individual service level water supply is a significantly pro-rich service with a Suits index of +0.343. All other services have a pro-poor incidence. Even though the absolute benefit of public health and roads was lower for the households with monthly income upto Rs. 1500, benefits of these services in proportion to income are highest for this income group. The sign and high magnitude of the Suits index further indicates the extent to which these services are pro-poor.

Overall, the table indicates that expenditures of both the provincial and the municipal governments benefit the poor more than proportionately. As such, both these tiers of government are instrumental in improving the relative real income position in the city. The role and the significance of the provincial government is,

however, somewhat greater. This is indicated by, the higher absolute level of benefits provided by the provincial government (Rs. 1709 as opposed to Rs. 494 in the case of municipal government). Moreover, the magnitude of the Suits index of the provincial government is higher than that for the municipal government indicating that provincial government expenditure has a greater beneficial impact on the poor than the municipal government expenditure.

VI. Net Fiscal Incidence

Though some arbitrariness may be present in the results, the above analysis indicates that provincial and municipal expenditures are instrumental in redistributing income in the city. This conclusion may not hold true if the incidence of taxes collected by these tiers of government is more pro-rich than the expenditure benefits. That is, if the sum of tax (negative) and expenditure (positive) incidence estimates is either negative or relatively smaller for the lower income groups, the overall or net fiscal incidence will be biased against the lower income groups and vice versa.

The incidence of major provincial and municipal taxes in Karachi has been estimated by Ghaus and Pasha (1990). The study concludes that under the most pro-rich assumption, the incidence of both provincial and municipal taxes falls relatively more on lower income households, more so in the case of the latter. The overall incidence of provincial taxes, however, is shown to be progressive under the most progressive set of assumptions. Using the results of their analysis, the net benefit of provincial and municipal expenditures is estimated. These results are presented in Table 4. The table shows that the net tax financed⁹ distribution of expenditure benefits is clearly pro-poor in case of the provincial government. This implies that the provincial government is spending more on the lower income groups than it is collecting from them in the form of taxes.

Contrary to the provincial government, the net fiscal incidence in case of the municipal government is clearly pro-rich. The largest net benefit of municipal finances accrue to the highest income households. Therefore, even though the overall public expenditure benefits of the municipal government are pro-poor, the distribution of tax burden is such that the overall incidence of the fiscal policy on the poor, has increased.

A caveat is in order here. The actual magnitudes of the net benefits presented in Table 4 are questionable because of the scaling problem. The distribution of net benefits across income groups, which is the major concern of this study, however,

⁹The expenditures in the case of provincial governments are scaled downwards to control for the scaling problem which arise because the analysis of neither the tax nor the expenditure incidence is exhaustive. In the case of the municipal governments, on the other hand, expenditures are scaled upwards.

TABLE 4

Net Fiscal Incidence of Provincial
and Municipal Governments

Income Groups (Rupees)	Burden of Taxes*	Benefit of Expenditure	Net Benefit
P R O V I N C I A L			
0000 - 1500	140	224	84
1501 - 3000	292	366	74
3001 - 6000	520	571	51
above 6000	1121	788	-333
Total	462**	462	0
M U N I C I P A L			
0000 - 1500	554	562	8
1501 - 3000	930	938	8
3001 - 6000	1466	1367	-99
above 6000	2560	2656	96
Total	1263**	1263	0

*Distribution of tax burden under the most regressive assumptions, Ghaus and Pasha (1990).

**Scaling has been done of tax revenues of both municipal and provincial governments in order to ensure that revenues = expenditure on services.

provides a crude but actual reflection of the overall fiscal incidence of these governmental units.

VII, Policy Implications

The analysis presented in the earlier sections provides useful insights into the public expenditure policy of the provincial and the municipal governments in Karachi. It shows that both provincial and municipal government service related expenditures disproportionately benefit the poor, more so in the case of the former. Although the study is subject to limitations, the results suggest that specific benefit expenditures may constitute an important fiscal method of redistributing income. While taxes, however, fairly levied, cannot make the poor better off, expenditure on specific services may improve the relative real income position of the less well off segments of the population.

Given the fact that more than half of the city's households earn less Rs.3,000 per month (the income tax exemption limit is upto Rs.40,000 per annum) expenditure policy can be used, quite effectively to achieve vertical equity. In this section an attempt has been made to highlight some of the policy measures that may be used to achieve this objective. The recommendation presented can primarily be categorised into two categories. The first set of recommendations relates to policy changes at the macro level, the second set of recommendations, on the other hand, have a micro focus and are primarily concerned with policies relating to specific services.

a) Macro Measures

1) Allocation of Resources

The decade of the 70's and 80's witnessed a consistent deterioration in the fiscal state of the provincial governments in Pakistan. The provincial government of Sindh also started showing symptoms of fiscal stress from the mid 70's, when it ran into a recurring account deficit equivalent to 3 per cent of its recurring expenditure. Since then a significant recurring account deficit has become a consistent feature of Sindh government finances. In 1989-90 its current deficit was Rs. 4 billion or 31 per cent of its recurring expenditures.

The current malaise in provincial finances has had implications for its ability to deliver services. As discussed earlier, this governmental unit is primarily involved in the provision of some basic services, the major beneficiaries of which are the relatively poorer sections of the populations. Therefore, the prime victims of the current fiscal state of the provincial government are the lower income households. There is need, therefore, for an improvement in the overall resource position of this governmental unit.

Pasha and Ghaus (1986) stated that one of the major reasons for the low level of provincial resource mobilisation is the narrow tax base. The current distribution

of fiscal powers amongst various levels of government in Pakistan is such that the federal government has preempted most of the broad-based and buoyant sources of tax revenues, like the income tax, customs and excise duties, sales taxes, etc. Only the residual sources of revenue fall under the jurisdiction of the provincial government. In 1985-86, for example, the share of the federal government in total revenues generated was 89.3 per cent, while for the provincial and municipal governments this share was 5.2 and 5.5 per cent respectively.

To compensate for this imbalance in the allocation of fiscal powers, there is an elaborate revenue sharing arrangement between the federal and the provincial governments. These revenue sharing transfers have become an increasingly significant part of the total revenue receipts of the provincial governments. In 1989-90, federal tax transfers were 68 per cent of the total revenue receipts of the provincial government of Sindh. Though the significance of such transfers, as a proportion of provincial revenue receipts has increased over time, the size of the 'divisible pool of taxes' - taxes which are shared, has actually decreased.¹⁰ Therefore, to enhance the level of resource mobilisation, which in turn will imply more expenditures on services which are oriented towards the low income households, efforts will have to be made not only to enhance revenues from existing provincial sources, but also through reallocation of fiscal powers and higher allocation through revenue sharing transfers.

In the case of municipal governments also, Pasha, Ghaus et al (1990) indicated that only 54 per cent of the revenue from taxes which can be termed as 'local' in origin (because their nominal and effective burden falls largely within a local jurisdiction) are retained by the urban local councils in Sindh. The remaining 46 per cent is taken away by higher levels of government. There is a case, therefore, for some reallocation of resources to strengthen the municipal government, which as already demonstrated in the case of Karachi, has pro-poor public expenditure policy.

2) *Scope for Privatization*

One other possible option to meet the current fiscal crisis confronting the provincial government is to reduce its expenditure liabilities. This can be achieved by decentralising the provision of certain services through enhancing the role of the private sector. As already indicated in Section V the private sector is playing an important role catering to the demand of the upper income households, in particular, those who can afford to pay relatively higher prices for higher quality of primary education, medical care, etc. The scope for decentralisation particularly exists in the

¹⁰The 1974 NFC award currently under operation includes 80 per cent share of total tax proceeds (net of collection costs) of income tax, sales tax and export duty on cotton. Prior to this revenue sharing took place under the 1970 NFC award which included 80 per cent share of excise duty on tobacco, tea and betelnuts, and a 100 per cent proceed of Estate and Succession duties on Agricultural land and taxes on capital value of immovable property over and above the current pool of taxes.

case of services which primarily benefit the upper income households. An example of this is college education which primarily benefits the rich. The role of the provincial government in college level education, which currently accounts for almost 30 per cent of its service related expenditure in Karachi, can perhaps be reduced. These expenditure savings can then be spent on services which are pro-poor, like primary education.

b) Micro Measures

1) Higher Priority to Pro-Poor Services

In continuation with the above argument higher priority should be given to the provision of those services which have a greater beneficial impact on the poor. These include transport, primary education, public health, medical care and roads. The current state of provision of these services is such that in 1987 more than 40 per cent of the total bus fleet of KTC was off-road. In the case of primary education, expenditure of the municipal government has grown at an annual rate of about 4 per cent only. Similarly, the total municipal and provincial government expenditure on medical care, in Karachi, has increased at a low rate during the last decade. There is need, therefore, for a higher relative resource allocation in these important sectors at all levels of the government.

2) Pricing of Services

An adequate and efficient pricing policy is a crucial prerequisite for self-sustained provision of services. Its significance particularly increases when the overall financial state of the providing agency is unstable, as is generally the case in Pakistan. Some important insights into the pricing policy in Karachi can be gained from Table 2 which gives the distribution of public expenditure benefit. It indicates, that the overall level of recurring cost recovery is generally low even in the case of private goods, where direct recovery of cost is not only possible, but generally easy as well. These include services like piped water supply, education, transport, medical care etc.

Second, the existence of anomalies in the tariff structure are also indicated. Such an anomaly is particularly striking in the case of water supply, where the lower income households pay more as water tariff than the benefit they actually receive. The opposite is true in the case of upper income households, where the extent of subsidy is enormous. This not only reflects an upper income bias in the public expenditure policy, as already discussed, but is also a reflection of the pro-rich tariff structure implemented in the city. Water tariff, which is linked to plot size, rises less than proportionately with its base (see Table 5) and therefore burdens the lower income households relatively more.

There is a strong case, therefore, for enhancing the level of cost recovery especially in the case of services which benefit the rich disproportionately. These include services like water supply, law and order and college education. The case for an increase in the tariff rate of such services can be justified both on efficiency and equity grounds. Furthermore, efforts should be made to remove the rate structure anomalies discussed earlier, particularly in the case of water supply and make the tariff rates more progressive (pro-poor). Scope for cross-subsidisation of services like college education, with higher fees for the rich and generous scholarships for the lower income households should also be examined.

TABLE 5

Water Tariff in Karachi

Plot Size (Square Yds)	Tariff Rate Per Annum (Rs).
Less than 60	7.50
0061 - 0120	10.00
0121 - 0200	15.00
0201 - 0300	22.50
0301 - 0400	31.00
0401 - 0600	44.00
0601 - 1000	62.50
1001 - 1500	125.00
1501 - 2000	156.00
* More than 2000	187.00

VIII. Summary and Conclusions

The incidence of provincial and municipal government service-related expenditure benefit is regressive (pro-poor) in Karachi, as such the public expenditure policy is instrumental in redistributing real incomes in the city. Among the most pro-poor provincial expenditures, as indicated by the magnitude of Suits index, are transport and primary education followed by medical care. Benefit distribution of college education and law and order, are, however, biased in favour of upper income households.

The municipal government expenditures on primary education, public health and roads disproportionately benefit the lower income households. On the other hand, the benefit incidence of water supply is significantly pro-rich. The incidence of net expenditure benefit (net of taxes) is clearly pro-poor in the case of provincial government, while for the municipal government an upper income bias is indicated.

A number of policy implications emanate from the conclusions drawn from the analysis. These include some macro level changes related to, first, allocation of resources between levels of government. A case for higher resources for both the provincial and municipal governments has been made on equity grounds. Second, enhancing the role of the private sector in some pro-rich services is recommended. The micro measures suggested include a higher priority to expenditures which are pro-poor, and a more efficient pricing policy for services that are pro-rich, removal of pro-rich biases in the tariff structures and cross-subsidisation of services.

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