Redistributive Effects of Public Expenditures in the Urban and Rural Areas of Pakistan

NASIM SHAH SHIRAZI
MUHAMMAD ILYAS
MEHBOOB AHMAD

Utilizing HIES (1992–93) data and Economic Survey of Pakistan (various issues), this article focuses on the effects of government expenditures on the distribution of income across various income groups in the urban–rural areas of Pakistan. Net National Product (NNP) is used as the income base. Results show that the lower income groups get the lower absolute public expenditure benefits than higher income groups in both the urban and rural areas of Pakistan. However, public expenditure benefits as a percentage of incomes across various income brackets, show that the lowest income group gets the maximum benefits and the subsequent income groups receive at a decreasing rate. Comparing urban and rural public expenditure benefits results depict that urban households enjoyed more public expenditure benefits than their rural counterparts.

1. Introduction

Public expenditures on goods and services have a wide range of distributive impacts on the incomes of individuals as well as households. Unfortunately, with reference to Pakistan, we do not find much literature in this direction. Shirazi (1996) analyzed the impacts of government transfer programmes (Zakat and Ushr) across income deciles. He found that the lower income deciles are the main beneficiaries of the government income transfer programmes. Ghaus (1989) focused on the benefits of the incidence of provincial and municipal government service-related expenditure in Karachi city. Therefore, her study was

Nasim Shah Shirazi is Associate Professor, Faculty of Economics and Management Sciences, International Islamic University, Malaysia.
Muhammad Ilyas and **Mehboob Ahmad** are Lecturer and Assistant Professor respectively, at the Allama Iqbal Open University, Islamabad, Pakistan.

South Asia Economic Journal, 3:1 (2002)
Sage Publications New Delhi ■ Thousand Oaks ■ London

limited in scope and coverage. This article is more comprehensive than the earlier studies and it focuses on the effects of government expenditures on the distribution of income across various income groups in the urban–rural areas of Pakistan. To do this we have organized our article as follows. In Part II, methodology and data are discussed, while in Part III the results of the study are presented in detail. We conclude our article in the final section.

2. Methodology and Data Set

To estimate the benefits received from public expenditures by income groups, income per household before public expenditures must be known. Following Bishop (1966), we used Net National Product (NNP) as the income base to estimate the effects of government expenditures on income distribution. Since this study aims at urban–rural decomposition and the urban–rural breakdown of NNP and data on government expenditures are not available, we decomposed the NNP and government expenditures into urban–rural areas by using different weight systems. The share of urban and rural households in NNP have been calculated by using population weights and income weights.[1]

2.1 Decomposition of NNP

$$\text{NNP (urban)} = [{}_{i}\!/_{i} + {}_{j}\!/_{j}]\ \text{NNP}$$

$$\text{NNP (rural)} = [{}_{j}\!/_{i} + {}_{j}\!/_{j}]\ \text{NNP}$$

Where

${}_{i}$ = Population weight (urban)
${}_{j}$ = Population weight (rural)
${}_{i}$ = Income weight (urban)
${}_{j}$ = Income weight (rural)

2.2 Decomposition of Expenditures

We have used the following weight system to distribute various heads of government expenditures across the urban–rural areas. Educational expenditures have been distributed between urban–rural areas by taking into account their literacy and population differences.

$$\text{Educational expenditures (urban)} = [{}_{i}\!/_{i} + {}_{j}\!/_{j}]\ TG^{Ed}$$
$$\text{Educational expenditures (rural)} = [{}_{j}\!/_{i} + {}_{j}\!/_{j}]\ TG^{Ed}$$

[1] We have calculated income weights from the information given in HIES (1992–93) and population weights from the data reported in *Economic Survey of Pakistan* (various issues).

Where

TG^{Ed} = Total government expenditures on education
$_i$ = Literacy weight (urban)
$_j$ = Literacy weight (rural)

$$\text{Health expenditures (urban)} = [_{ii}/_{ii} + _{jj}]\ TG^{H}$$
$$\text{Health expenditures (rural)} = [_{jj}/_{ii} + _{jj}]\ TG^{H}$$

Where,

TG^{H} = Total expenditures on health
$_i$ = Density weight (urban)
$_j$ = Density weight (rural)

Defense expenditures have been distributed between urban–rural areas keeping in view their population weights and income weights. Government expenditures on defense directly benefit the employees of armed forces. However, all members of society indirectly enjoy the benefits in terms of security of their lives and wealth. In this study, it is assumed that the rich enjoy more benefits from defense expenditures than the poor people, as the former feel more secure in terms of both their wealth and lives and of course they have more of material assets that need protection. The expressions to divide government expenditures on defense into their urban–rural counterparts are presented as:

$$\text{Defense expenditures (urban)} = [_{ii}/_{ii} + _{jj}]\ TG^{D}$$
$$\text{Defense expenditures (rural)} = [_{jj}/_{ii} + _{jj}]\ TG^{D}$$

Where TG^{D}=Total government expenditures on defense

To distribute agriculture expenditures between urban–rural areas we take into account their population weights, income weights and food weights. Hence we have incorporated in the weight system the influence of population share, average income and the availability of agriculture food for the households belonging to urban–rural areas.

$$\text{Agriculture expenditure (urban)} = [_{iii}/_{iii} + _{jjj}]\ TG^{Ag}$$
$$\text{Agriculture expenditure (rural)} = [_{jij}/_{iii} + _{jjj}]\ TG^{Ag}$$

Where

TG^{Ag} = Total government expenditures on agriculture
$_i$ = Food weight (urban)
$_j$ = Food weight (rural)

$$\text{General administration expenditure (urban)} = [_{ii}/_{ii} + _{jj}]\ TG^{GA}$$
$$\text{General administration expenditure (rural)} = [_{jj}/_{ii} + _{jj}]\ TG^{GA}$$

Where TG^{GA} = Total expenditures on general administration

Interest expenditures have been divided into their urban–rural counterparts by using population weights and income weights of urban–rural areas. The households receiving the interest income are the direct beneficiaries of government expenditures in the form of interest payments. However, via investment and employment generation, benefits may be transferred to other individuals in the society according to their incomes. Hence it is assumed that the interest expenditures of the government should be divided between urban–rural areas in proportion to their population and average incomes of the households.

$$\text{Interest expenditure (urban)} = [_{ii}/_{ii} + _{jj}]\ TG^{I}$$
$$\text{Interest expenditure (rural)} = [_{jj}/_{ii} + _{jj}]\ TG^{I}$$

Where TG^{I} = Total expenditures on interest

3. Allocation Criteria

NNP has been distributed (urban–rural) across various income groups by using the percentage income distribution given in the Household Integrated Economic Survey (HIES 1992–93).

3.1 Government Expenditures

To distribute government expenditures (urban–rural) among the income groups, we have used the HIES (1992–93) data and the assumptions used by Thepthana (1979). Two-thirds benefits of the government expenditures on education have been allocated on the basis of households' income in each income group while one-third have been allocated on the basis of number of households in the same income groups. Health expenditure benefits are allocated as per the number of households in each income bracket. This is due to the supposition that members of every class, from poor to rich, more or less equally enjoys the benefits of the health expenditures of the government.

To allocate defense expenditures, we have distributed half on the basis of households' incomes and half on the number of households. This is because defense forces and related people directly benefit from these expenditures and other members of the society benefit from government defense expenditures in terms of the safety of their lives and wealth. In case of general administration expenditure, the social incidence cannot be clearly shown. Therefore, these expenditures are arbitrarily distributed; one half by the number of households

and one half by the household income. In case of agricultural expenditures of the government, we have allocated half on the basis of household income and half on the basis of their numbers in each income group. The benefits of interest expenditures are allocated in proportion to the households' income in each income group.

4. The Data Set

From our analyses we used the data given in the Household Integrated Economic Survey (HIES 1992–93) and Economic Survey (various issues). As far as geographical coverage and scope of the HIES is concerned, its universe comprises all rural and urban areas of Pakistan defined as such in the 1972 and 1981 Population Census (with some minor exceptions). The sample size of the HIES 1992–93 was 14,976.

5. Results

5.1 Public Expenditure Effects in Urban Areas of Pakistan

Table 1 reports the public expenditure benefits in the year 1992–93. The lowest income group gets the lowest benefits (Rs1,141.5 million) in absolute terms and these benefits depict an increasing trend for the households in the three subsequent income groups. Data shows a cyclical trend for the households in the subsequent income groups. The highest income group gets the maximum (Rs 34,016.61 million) expenditure benefits during the same period. The last column of Table 1 presents the public expenditures benefits as a percentage of their income across various income brackets. The results show that the first income group gets the maximum benefits (65.86 per cent) and households in the subsequent income groups receive public expenditures benefits at a decreasing rate. The highest income group receives the lowest (16.61 per cent) benefits.

5.2 Public Expenditure Benefits in Rural Areas of Pakistan

Table 2 presents the public expenditure benefits in the year 1992–93. The table shows that the lowest income group gets the lowest benefits (Rs 4,306.69 million) in absolute terms. These benefits are increasing as the households move along the income brackets from the lower income groups through the third and then decrease through the seventh, pick up (Rs 13,351.33 million) for the eighth, drops from ninth (Rs 7,722.17 million) through the tenth (Rs 4,768.92 million), and again picks up (Rs 19,956.68 million) for the households in the highest income group. The last column of the table presents the public

TABLE 1
Expenditures Benefits (Urban—1992–93)

Sl. No.	*1*	*2*	*3*	*4*
	Income Groups	*Incomes (Y_i) Rs Million*	*Exp. Benefits (Urban) Rs Million*	*Exp. Benefits (Urban)*
1	Up to 1000	1,733.18	1,141.5	65.86
2	1001–1500	5,893.54	2,447.47	41.67
3	1501–2000	16,417.03	5,585.09	34.02
4	2001–2500	25,082.92	7,431.96	29.63
5	2501–3000	26,761.66	7,172.22	26.98
6	3001–3500	30,619.45	7,605.33	24.84
7	3501–4000	30,763.88	7,212.64	23.45
8	4001–5000	54,787.63	11,984.05	21.87
9	5001–6000	44,581.15	9,088.76	20.39
10	6001–7000	40,055.63	7,750.58	19.35
11	7001 and above	204,851.8	34,016.61	16.61

Source: Our estimates.

TABLE 2
Expenditures Benefits (Rural—1992–93)

Sl. No.	*1*	*2*	*3*	*4*
	Income Groups	*Incomes (Y_i) Rs Million*	*Expenditures (e_i) Rs Million*	*Exp. Benefits (Rural)*
1	Up to 1000	9,436.18	4,306.69	45.64
2	1001–1500	34,663.52	10,307.58	29.74
3	1501–2000	68,877.71	17,291.78	25.11
4	2001–2500	75,361.07	16,956.865	22.50
5	2501–3000	63,166.64	13,100.41	20.74
6	3001–3500	60,019.25	11,699.4	19.49
7	3501–4000	44,870.01	8,362.93	18.64
8	4001–5000	75,168.49	13,351.33	17.76
9	5001–6000	45,768.69	7,722.17	16.87
10	6001–7000	29,399.80	4,768.92	16.22
11	7001 and above	135,187.74	19,956.68	14.76

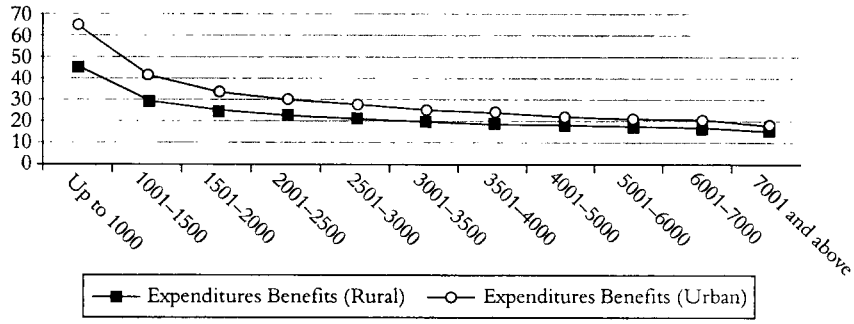
Source: Our estimates.

expenditure benefits as a percentage of the households' income across various income brackets. The results show that the first income group gets the maximum benefits (45.64 per cent) and the households in the highest income group receive the lowest (14.76 per cent) benefits.

Figure 1 shows a plot of the public expenditure benefits in the urban and rural areas of Pakistan during the same year. Households living in the urban areas are

receiving higher benefits than their rural counterparts. The households in the lower income groups receive greater benefits than the households in the rural areas. However, the public expenditure benefits gap between the urban and rural households decreases as they move to higher income groups.

FIGURE 1
Public Expenditures Benefits in the Urban and Rural Areas of Pakistan



6. Conclusion

This article focuses on the effects of government expenditures on the distribution of income across various income groups in the urban–rural areas of Pakistan. Results are derived from the data given in HIES (1992–93) and the *Economic Survey of Pakistan* (various issues). NNP is used as the income base. Results of the public expenditure benefits in the urban areas of Pakistan are reported in Table 1. Our results show that the lowest income group gets the lowest absolute public expenditure benefits and these benefits increase as the households move along the higher income brackets. However, public expenditure benefits as a percentage of incomes across various income brackets show that the first income group gets the maximum benefits and the subsequent income groups receive public expenditures benefits at a decreasing rate. Comparing urban and rural public expenditure benefits results depict that urban households enjoyed more public expenditure benefits than their rural counterparts.

References

BISHOP, G.A. (1966), 'Income Redistribution in the Framework of National Income Accounts'. *National Tax Journal* 19, pp. 378–90.

GHAUS, AISHA. (1989), 'The Incidence of Public Expenditure in Karachi'. *Pakistan Journal of Applied Economics* Summer, Vol. 8, No. 1, pp. 85–109.

Government of Pakistan. (1980), *Economic Survey 1979–80*. Finance Division, Economic Advisor Wing.

Government of Pakistan. (1990), *Economic Survey 1989–90*. Finance Division, Economic Advisor Wing.

———. (1993), *Economic Survey 1992–93*. Finance Division, Economic Advisor Wing.

———. (1995), *Economic Survey 1994–95*. Finance Division, Economic Advisor Wing.

———. (1996), *Economic Survey 1995–96*. Finance Division, Economic Advisor Wing.

———. (1993), *Household Integrated Expenditure Survey 1992–93*. Federal Bureau of Statistics.

SHIRAZI, N.S. (1996), System of *Zakat* in Pakistan: An Appraisal. International Institute of Islamic Economics. P.O. Box No. 1687. Islamabad.

THEPTHANA, S. (1979), Government Expenditures, Taxes and Income Distribution in Thailand. Ph.D. Thesis, University of Kentucky.