The Pakistan Development Review
40 : 4 Part II (Winter 2001) pp. 519–533

Redistributive Effects of Fiscal Policy across the Income Groups in the Urban-Rural Areas of Pakistan

NASIM SHAH SHIRAZI, MUHAMMAD ILYAS, and MEHBOOB AHMAD

I. INTRODUCTION

There exist a large number of studies related to the estimates of government budgetary redistributive effects and its related problems with regard to different countries of the world.[1] Studies of the impacts of government expenditures and taxes in Pakistan have been conducted within the framework of either incidence of taxes or the impact of expenditures across the income groups. The studies carried out by Azfar (1972); Jeetun (1978); Alauddin and Raza (1981) Malik and Saqib (1985, 1989) cover different aspects of taxation—tax incidence, progressivity or regressivity of the tax system across the income groups/individuals and regions. These studies did not discuss the expenditure side of the budget. Shirazi (1996) analysed the impact of government transfer programmes (*Zakat* and *Ushr*) across the income deciles. Ghaus (1989) studied the incidence of provincial and municipal government service-related expenditure benefits in Karachi metropolitan and therefore, the scope of her study was limited to one city only.

Despite the existence of a rich bibliography on the subject of government redistrbutive budgetary effects and its related problems, no study is available which covers the overall redistributive impacts of government budgetary policy in Pakistan. This study explores the impacts of government expenditures and taxes on the distribution of income across various income groups along with net fiscal impacts in the urban-rural areas of Pakistan. The rest of our study is organised as follows. In the following section, Part II, we describe the methodology and data set. In Part III, the results of the study are presented. The Part IV concludes the paper.

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

[1]Some case studies are of Snodgrass (1974); Reynolds and Smolensky (1977); Thepthana (1979); Foxley, *et al*. (1979); Kakwani (1986); Lambert (1989); Ruggeri, *et al.* (1994) and Engel, *et al.* (1999).

II. METHODOLOGY AND DATA SET

To determine tax burden and benefits received from public expenditures by various income groups, it is necessary to know incomes of the households before public expenditures and taxes (pre-fiscal income). Following Bishop (1966), we used net national product (NNP) as the income base to estimate the effects of government expenditures and taxes on the income distribution. Our study aims at urban-rural decomposition and the urban-rural breakdown of NNP, taxes and government expenditures data are not available, therefore, we have decomposed the NNP, taxes and expenditures into urban-rural areas by using different weight system. Share of urban and rural households in NNP have been calculated by using population weights and income weights.[2]

Decomposition of NNP

$$\text{NNP (urban)} = [\alpha_i \eta_i / \alpha_i \eta_i + \alpha_j \eta_j] \text{ NNP}$$
$$\text{NNP (rural)} = [\alpha_j \eta_j / \alpha_i \eta_i + \alpha_j \eta_j] \text{ NNP}$$

Where

α_i = Population weight (urban)
α_j = Population weight (rural)
η_i = Income weight (urban)
η_j = Income weight (rural).

Decomposition of Expenditures

We have used the following weight system[3] 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.

$$\text{Educational expenditures (urban)} = [\alpha_i Ł_i / \alpha_i Ł_i + \alpha_j Ł_j] \, TG^{Ed}$$
$$\text{Educational expenditures (rural)} = [\alpha_j Ł_j / \alpha_i Ł_i + \alpha_j Ł_j] \, TG^{Ed}$$

Where

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

$$\text{Health expenditures (urban)} = [\alpha_i \lambda_i / \alpha_i \lambda_i + \alpha_j \lambda_j] \, TG^{H}$$
$$\text{Health expenditures (rural)} = [\alpha_j \lambda_j / \alpha_i \lambda_i + \alpha_j \lambda_j] \, TG^{H}$$

Where,

[2]We have calculated income weights from the information given in HIES (1992-93) and population weight from the data reported in Economics Survey of Pakistan (1994-95). See Appendix 2 for various weights used in this paper.

[3]Please see Appendix II for different weights to distribute expenditures and taxes between urban-rural areas.

TG^H = Total expenditures on health
λ_i = Density weight (urban)
λ_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, indirectly all members of the society enjoy the benefits in terms of security of their lives and wealth. The expressions to divide government expenditures on defense into their urban-rural counterparts are presented below.

$$\text{Defense expenditures (urban)} = [\alpha_i \eta_i / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^D$$
$$\text{Defense expenditures (rural)} = [\alpha_j \eta_j / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^D$$

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.

$$\text{Agriculture expenditure (urban)} = [\alpha_i \eta_i \delta_i / \alpha_i \eta_i \delta_i + \alpha_j \eta_j \delta_j]\ TG^{Ag}$$
$$\text{Agriculture expenditure (rural)} = [\alpha_j \eta_j \delta_j / \alpha_i \eta_i \delta_i + \alpha_j \eta_j \delta_j]\ TG^{Ag}$$

Where

TG^{Ag} = Total government expenditures on agriculture
δ_i = Food weight (urban)
δ_j = Food weight (rural).

$$\text{General administration expenditure (urban)} = [\alpha_i \eta_i / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^{GA}$$
$$\text{General administration expenditure (rural)} = [\alpha_j \eta_j / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^{GA}$$

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 are the direct beneficiaries of the government expenditures on interest. However, via investment and employment generation benefits may be transferred to other individuals in the society according to their income. Hence it is assumed that the interest expenditures of the government should be divided between urban-rural areas in proportion to their populations and average incomes of the households.

$$\text{Interest expenditure (urban)} = [\alpha_i \eta_i / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^I$$
$$\text{Interest expenditure (rural)} = [\alpha_j \eta_j / \alpha_i \eta_i + \alpha_j \eta_j]\ TG^I$$

Where

TG^I = Total expenditures on interest.

Decomposition of Taxes

Direct tax burdens have been distributed between urban-rural areas keeping in view their income and property tax shares in the average monthly expenditures per household. To divide total indirect tax burden between urban-rural areas we have taken into consideration the population weights and the consumption weights of these areas. As the burden of indirect taxes, according to the standard incidence assumption, falls on the consumption of the households and thus on their number.

$$\text{Indirect tax (urban)} = [\alpha_i \beta_i / \alpha_i \beta_i + \alpha_j \beta_j]\ TT^{IT}$$
$$\text{Indirect tax (rural)} = [\alpha_j \beta_j / \alpha_i \beta_i + \alpha_j \beta_j]\ TT^{IT}$$

Where

TT^{IT} = Total indirect taxes
β_i = Consumption weight (urban)
β_j = Consumption weight (rural).

Total import duty has been distributed between urban-rural areas by taking into account their population weights and expenditure weights.

$$\text{Import duty (urban)} = [\alpha_i \gamma_i / \alpha_i \gamma_i + \alpha_j \gamma_j]\ TT^{M}$$
$$\text{Import duty (rural)} = [\alpha_j \gamma_j / \alpha_i \gamma_i + \alpha_j \gamma_j]\ TT^{M}$$

Where

TT^M = Total import duty burden
γ_i = Expenditure weight (urban)
γ_j = Expenditure weight (rural).

To distribute total export duty between urban-rural areas of Pakistan, we have taken into account population weights and income weights of these areas.

$$\text{Export duty (urban)} = [\alpha_i \eta_i / \alpha_i \eta_i + \alpha_j \eta_j]\ TT^{X}$$
$$\text{Export duty (rural)} = [\alpha_j \eta_j / \alpha_i \eta_i + \alpha_j \eta_j]\ TT^{X}$$

Where

TT^X = Total export duty burden.

The following method, given in Reynolds and Smolensky (1977) has been used to find out the net fiscal incidence.

$$c = m + gB - xT^{4}$$

[4]For detail see Reynolds and Smolensky (1977).

Where

c = the post-fiscal or final income vector, order $1 \times k$;
m = the initial or factor income vector, order $1 \times k$;
g = a vector of government expenditures by category, order $1 \times h$;
B = a matrix of percentage distributors for government expenditures, order $h \times k$.
x = a vector of government tax receipts by category, order $1 \times n$;
T = a matrix of percentage distributors for government taxes, order $n \times k$.

Allocation Criteria

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

(b) ***Government Expenditures***

To distribute government expenditures (urban-rural) among the income groups, we have used the HIES (1992-93) data and main skeleton of the assumptions used by Thepthana (1979). Two-third benefits of the government expenditures in education have been allocated as per household income while, one-third as per number of households. Health expenditures benefits are allocated as per the number of households in each income brackets. This is due to the supposition that each member of the class from poorer to richer enjoys the benefits of government health expenditures almost the same.

To allocate defense expenditures, we have distributed half on the basis of households incomes and half on the number of households. As defense forces and related people directly benefit from these expenditures and other members of society also benefit from government defense expenditures in terms of their safety of lives and wealth. In case of general administration expenditures, 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. Whereas, in case of agricultural expenditures of the government, we have allocated half on the basis of households income and half on the basis of their numbers in each income group. The benefits of interest expenditures are allocated in proportion to households' income in each income group.

(c) ***Tax Burdens***[5]

The burden of income and corporate taxes has been distributed among different income groups according to their expenditures on these taxes (as these can

[5]We follow the assumptions of Reynolds and Smolensky(1979) and Thepthana (1977).

not be shifted). Similarly burden of the property tax has been distributed among different classes according to the payment of this tax by the property owners. Indirect taxes, like sales tax and excise tax, are assumed to fall on the consumption of households. Import duties have been distributed according to household expenditure, whereas export duties have been distributed with respect to total household income of different income groups.

The Data Set

We have largely used the data given in Household Integrated Economic Survey [HIES (1992-93)] and Economic Survey (various issues). As far as its geographical coverage and scope is concerned, the universe of HIES comprises all rural and urban areas of Pakistan defined as such in the 1972 and 1981 Population Census, with the exception of Federally Administered Tribal Areas (FATA), special areas of Peshawar and D.I. Khan divisions, military restricted areas and districts of Malakand, Kohistan and Chitral (Protected Area) in the N.W.F.P. The size of the sample was 14976 units. Keeping in view the sample size of the survey, we decomposed our analysis to the urban-rural breakdown and ignored the regional analysis.

III. RESULTS

Fiscal Incidence in Urban Areas of Pakistan

The results of fiscal incidence in urban areas for the 1992-93 are presented in Table 1[6] and the results related to rural areas are depicted in Table 2.[7] Column 2 of Table 1 shows the pre-fiscal income of each income group, while columns 3 and 4 show the amount of expenditure benefits and tax paid respectively across various income groups in the urban areas of Pakistan. The expenditure benefits across income groups, increase up to 4th income group, falls in the 5th income group (Rs 7172 million) and then rise again in the 6th income group (Rs 7605 million). The 7th Income group has a lower expenditure benefits than 6th one. However, the 8th income group receives the larger expenditure benefits (Rs 11984 million) and then it starts declining through 10th income group. The last income group registers the highest amount (Rs 34016.61 million) of expenditure benefits. The values of taxes across income groups show mixed trend (column 4). As the column 4 shows that tax burden increases from the 1st income group through the last one.

[6]Percentage distribution of government expenditures benefits, percentage burden of taxes and percentage net fiscal effects are depicted in Figure 1 for the urban areas and in Figure 2 for the rural areas of Pakistan respectively.

[7]Distribution of households, imputed taxes, expenditures benefits, pre-fiscal income and post-fiscal income across the income groups are given in Appendix 1.

Column 5 of the Table 1 shows the average percentage expenditure benefits of incomes of each income group. This column shows that the lowest income group enjoys the highest expenditure benefits (65.86 percent of their income) and the richest income group gets the lowest expenditure benefits (16.61 percent of their income).

Column 6 shows the tax burden as a percentage of income of each income group. The table shows that the heaviest tax burden is on the first income group (44 percent of their income). The second income group bears the lower burden (18 percent), while income groups three to eight, more or less, bear the same average tax burden. However, groups 9 and 10 bear comparatively higher burden of 21.73 percent and 27.48 percent respectively. The 11th income group bears less burden (20.28 percent) than the 10th income group.

Column 7 of the Table 1 shows net fiscal effects in the urban areas. The table shows that the 2nd income group receives the highest fiscal net-benefits (on average 23.67 percent of the income) followed by the 1st income group (20.93 percent). The fiscal net benefits start decreasing from income group three through income group eight and the last three income groups get negative fiscal net-benefits.

Table 1

Income, Taxes, Expenditure Benefits, Expenditures and Taxes as a Percentage of Income of Each Income Group and Net-fiscal Effect across the Income Groups (Urban—1992-93)

No.	1 Income Groups	2 Incomes (Y_i) Rs Million	3 Expenditures (e_i) Rs Million	4 Taxes (t_i) Rs Million	5 $E_i=(e_i/Y_i)$ 100	6 $T_i=(ti/Y_i)$ 100	7 NE= $E_i–T_i$
1	Up to 1000	1733.18	1141.5	778.71	65.86	44.93	20.93
2	1001 – 1500	5893.54	2447.47	1057.53	41.67	18.00	23.67
3	1501 – 2000	16417.03	5585.09	2607.29	34.02	15.88	18.14
4	2001 – 2500	25082.92	7431.96	3614.68	29.63	14.41	15.22
5	2501 – 3000	26761.66	7172.22	3715.3	26.98	13.93	12.96
6	3001 – 3500	30619.45	7605.33	4443.25	24.84	14.51	10.33
7	3501 – 4000	30763.88	7212.64	5372.33	23.45	17.46	5.99
8	4001 – 5000	54787.63	11984.05	9320.48	21.87	17.01	4.86
9	5001 – 6000	44581.15	9088.76	9687.31	20.39	21.73	–1.34
10	6001 – 7000	40055.63	7750.58	11006.02	19.35	27.48	–8.13
11	7001 and above	204851.8	34016.61	41538.79	16.61	20.28	3.676

Source: Our estimates.

Note: E_i: Average percentage expenditures of the incomes of each income group.
T_i: Tax burden as a percentage of the income of each income group.
NE: Fiscal Net-Effect.

Fiscal Incidence in Rural Areas of Pakistan

Columns 3 and 4 of Table 2 show absolute value of the expenditure benefits and tax burden respectively across different income groups in the rural areas. These columns show, more or less, cyclical behaviour of the tax burden and expenditure benefits as these values have fluctuated along income brackets.

Table 2

Income, Taxes, Expenditure Benefits, Expenditures and Taxes as a Percentage of Income of Each Income Group and Net-fiscal Effect across the Income Groups (Rural–1992-93)

No.	1 Income Groups	2 Incomes (Y_i) Rs Million	3 Expenditure (e_i) Rs Million	4 Taxes (t_i) Rs Million	5 $E_i = (e_i/Y_i)$ 100	6 $T_t=(t_t/Y_t)$ 100	7 $NE=E_i-T_i$
1	Up to 1000	9436.18	4306.69	3151.45	45.64	33.40	12.24
2	1001–1500	34663.52	10307.58	6431.75	29.74	18.55	11.19
3	1501–2000	68877.71	17291.78	11305.76	25.11	16.41	8.7
4	2001–2500	75361.07	16956.865	11132.57	22.50	14.77	7.73
5	2501–3000	63166.64	13100.41	8823.85	20.74	13.97	6.77
6	3001–3500	60019.25	11699.4	8499.13	19.49	14.16	5.33
7	3501–4000	44870.01	8362.93	5764.33	18.64	12.85	5.79
8	4001–5000	75168.49	13351.33	9722.5	17.76	12.93	4.83
9	5001–6000	45768.69	7722.17	5299.11	16.87	11.85	5.29
10	6001–7000	29399.80	4768.92	3030.22	16.22	10.31	5.91
11	7001 and above	135187.74	19956.68	12088.64	14.76	8.94	5.82

Source: Our estimates.

Notes: E_i: Average percentage expenditures of the incomes of each income group.
T_i: Tax burden as a percentage of the income of each income group.
NE: Fiscal Net-Effect.

Column 5 of the Table 2 shows the average percentage expenditure benefits of the incomes of each income group. This column shows that the lowest income group enjoys the highest expenditures benefits (45.64 percent of their income) and the richest income group gets the lowest expenditure benefits (14.76 percent of their income). Column 6 shows the tax burden as a percentage of the income of each income group. This shows the highest tax burden on the first income group (33.40 percent of their income). Other income groups from 2 through last, more or less, bear decreasing average burden of the taxes. Column 7 of the Table 2 shows net fiscal effects in the rural areas. The 1st income group receives the highest fiscal net-benefits (12.24 percent of the income) followed by the 2nd income group (11.19 percent). The fiscal net benefits are decreasing for all the subsequent income groups. This also depicts that the fiscal system is pro-poor in the rural areas of Pakistan.

While comparing fiscal net benefits (burden) across the income groups in the urban-rural areas of Pakistan, it is evident from the results that the households in the urban areas, from each income class (from income group 1 through 8), receive higher benefits than the households in the rural areas, from the same income groups. However, the last three income groups in the urban areas are in net loss, while the last three income groups of the rural areas are getting positive expenditure benefits**.** All the above results are shown in graphical terms in the figure below.

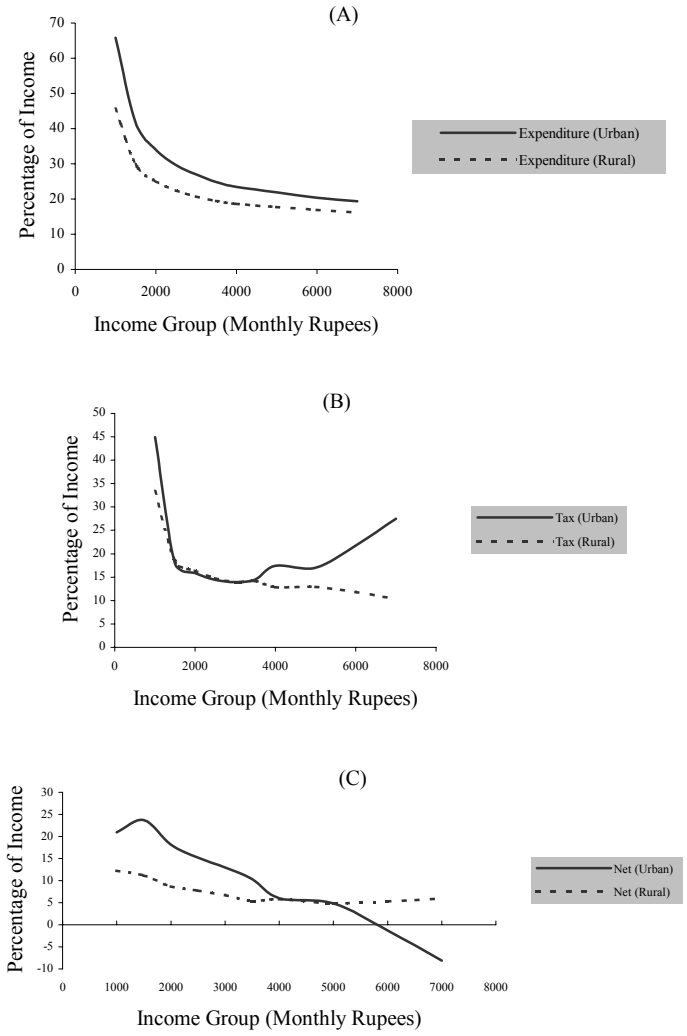

Fig. Fiscal Incidence in Urban-Rural Areas of Pakistan, 1992-93.

IV. CONCLUSION

This study analyses the redistribution effects of the government taxes and expenditures across the income groups by utilising HIES (1992-93) data set. NNP is used as the income base. The absolute expenditure benefits across income groups, in the urban areas, at first, increases up to 4th income group, then falls in the 5th income group (Rs 7172 million), and then increases in the 6th group (Rs 7605 million). The 7th Income group receives a lower expenditure benefits than the 6th one. However, income group 8 receives benefits (Rs 11984 million) and then it starts declining through 10th income group. The last income group gets the highest amount of expenditure benefits (Rs 34016.61 million). Tax burden show the mixed trend. Absolute tax burden increases from the 1st income group through the last income group.

As far as the average percentage expenditure benefits and tax burden of the incomes of each income groups are concerned, the lowest income group enjoys the highest expenditure benefits (65 percent of their income) and the richest income group gets the lowest expenditure benefits (16.61 percent of their income) and in case of taxes opposite is true. The net fiscal benefits decrease as the income groups move to higher and higher income group.

In the rural areas of Pakistan, the absolute value of the expenditure benefits across different income groups show, more or less, cyclical behaviour as these value fluctuate along income brackets. The lowest income group enjoys the highest expenditure benefits (45.64 percent of their income) and the richest income group gets the lowest expenditure benefits (14.76 percent of their income). The tax burden as a percentage of the income of each income group heavily falls on the first income group (33.40 percent of their income). Other income groups from 2 through last, more or less, bear decreasing average tax burden. The 1st income group receives the highest fiscal net-benefits (12.24 percent of the income) followed by the 2nd income group (11.19 percent). The fiscal net benefits are decreasing for all the subsequent income groups.

The households in the urban areas from each income class (from income group 1 through 8) receive higher benefits than the households in the rural areas from the same income groups. However, the last three income groups in the urban areas are in net loss, while the last three income groups of the rural areas get positive expenditure benefits**.**

In absolute terms, in Pakistan, the fiscal system redistributes smaller amount to the poor classes compared with the rich people. However, in percentage terms, lower income groups are receiving more benefits compared to their contribution to national income. In order to make the fiscal system more pro-poor, there is a need to increase the incomes of the lower income groups.

Appendices

APPENDIX 1

Table A

Distribution of Households (Million), Imputed Taxes, Expenditures, Net Expenditures and, Pre and Post-fiscal Incomes (Rupees in Million), (Urban) 1992-93

Incomes Groups	No. of Households	Taxes	Expenditures	Net Expenditures	Pre-fiscal Incomes	Post-fiscal Incomes
Up to – 1000	0.150	1441.5	778.71	362.79	1733.18	2095.97
1001–1500	0.270	2447.47	1057.53	1389.94	5893.54	7263.48
1501–2000	0.540	5585.09	2607.29	2977.8	16417.03	19394.83
2001–2500	0.650	7431.96	3614.68	3817.28	25082.92	28900.2
2501–3000	0.570	7172.22	31179.86	3456.92	26761.66	30128.58
3001–3500	0.550	7605.33	4443.25	3162.08	30619.45	33781.53
3501–4000	0.490	7212.64	5372.33	1840.31	30753.88	32604.19
4001–5000	0.720	11434.82	9320.48	26663.57	54787.63	57451.2
5001–6000	0.480	9088.76	9687.31	–598.55	44581.15	43982.6
6001–7000	0.360	7750.58	11006.02	–3255.44	40055.63	36800.19
7001 and above	0.940	34016.61	41538.79	–7522.18	204851.83	197329.65

Source: Our estimates based on HIES (1992-93) and *Economic Surveys* (Various Issues).

Table B

Distribution of Households (Million), Imputed Taxes, Expenditures, Net Expenditures and, Pre and Post-fiscal Incomes (Rupees in Million), (Rural) 1992-93

Incomes Groups	No. of Households	Taxes	Expenditures	Net Expenditures	Pre-fiscal Incomes	Post-fiscal Incomes
Up to – 1000	0.90	4306.69	3151.45	1155.24	9436.18	10591.42
1001–1500	1.70	10307.01	6431.75	3875.85	34663.52	38539.37
1501–2000	2.45	17841.01	11841.20	5986.02	68877.71	74863.73
2001–2500	2.11	6956.865	11132.57	5824.33	75361.07	81185.4
2501–3000	1.44	13100.41	8823.85	4276.56	631664.64	67441.2
3001–3500	1.16	11699.4	8499.13	3200.27	60019.25	63219.52
3501–4000	0.75	8362.93	5764.33	2598.6	44870.01	47468.61
4001–5000	1.07	13351.33	9722.5	3628.83	75168.49	78797.32
5001–6000	0.53	7722.17	5299.11	2423.06	45768.69	48191.75
6001–7000	0.29	4768.92	3030.22	1738.7	29399.80	31138.5
7001 and above	0.74	19956.68	12088.64	7868.04	135187.74	143055.78

Source: Our estimates based on HIES (1992-93) and *Economic Surveys* (Various Issues).

APPENDIX 2

Different Weights to Distribute Income Base, Government Expenditures and Taxes between Urban and Rural Areas of Pakistan (1992-93)

Urban	1992-93	Rural	1992-93
$(WU)^{NNP}$	0.430	$(WR)^{NNP}$	0.570
$(WU)^{Ed}$	0.554	$(WR)^{Ed}$	0.446
$(WU)^{H}$	0.330	$(WR)^{H}$	0.670
$(WU)^{D}$	0.430	$(WR)^{D}$	0.570
$(WU)^{GA}$	0.429	$(WR)^{GA}$	0.571
$(WU)^{Ag}$	0.380	$(WR)^{Ag}$	0.620
$(WU)^{I}$	0.430	$(WR)^{I}$	0.570
$(WU)^{IN}$	0.955	$(WR)^{IN}$	0.045
$(WU)^{P}$	0.927	$(WR)^{P}$	0.073
$(WU)^{IT}$	0.403	$(WR)^{IT}$	0.597
$(WU)^{M}$	0.400	$(WR)^{M}$	0.600
$(WU)^{X}$	0.429	$(WR)^{X}$	0.571

Source: HIES 1992-93 and *Economic Surveys* (Various Issues).

REFERENCES

Alauddin, Talat, and Bilquees Raza (1981) Tax Progressivity in Pakistan. Pakistan Institute of Development Economics, Islamabad. (Research Report Series No. 133.)

Azfar, Jawaid (1972) The Income Distribution in Pakistan, Before and After Taxes, 1966-67. Unpublished Doctoral Thesis.

Bishop, G. A. (1966) Income Redistribution in the Framework of National Income Accounts. *National Tax Journal* 19, 378–390.

Engel, M. R., A. Eduardo, Alexander G., and Claudio E. R. (1999) Taxes and Income Distribution in Chile: Some Unpleasant Redistributive Arithmetic. *Journal of Development Economics* 59:1.

Foxley, Alejandro, Aninat, Eduardo, and J. P. Arellano, (1979) Redistributive Effects of Government Programmes: The Chilean Case. Pergamon Press.

Ghaus, Aisha (1989) The Incidence of Public Expenditure in Karachi. *Pakistan Journal of Applied Economics* 8:1, Summer.

Jeetun, Azad (1978) The Incidence of Taxes in Pakistan. Distribution Paper. Applied Economics Research Centre, University of Karachi.

Kakwani, N. (1986) *Analysing Redistribution Policies: A Case Using Australian Data.* Cambridge University Press.

Lambert, Peter J. (1989) The Distribution and Redistribution of Income: A Mathematical Analysis; Basil Blackwell Limited 108 Cowley Road, Oxford, OX4 IJF, UK.

Malik, M. H., and N. Saqib (1985) Who Bears the Burden of Federal Taxes in Pakistan. *The Pakistan Development Review* 24: 3 & 4, 497–510.

Malik, M. H., and N. Saqib (1989) Tax Incidence of Income Class in Pakistan. *The Pakistan Development Review* 28:1 (Spring), 13–26.

Pakistan, Government of (1993) *Household Integrated Expenditure Survey1992-93.* Islamabad: Federal Bureau of Statistics.

Pakistan, Government of (1994) *Economic Survey 1993-94.* Islamabad: Finance Division, Economic Advisor Wing.

Pakistan, Government of (1995) *Economic Survey 1994-95.* Islamabad: Finance Division, Economic Advisor Wing.

Pakistan, Government of (1996) *Economic Survey 1995-96.* Islamabad: Finance Division, Economic Advisor Wing.

Reynolds, Morgan, and Eugene Smolensky (1977) *Public Expenditure, Taxes and the Distribution of Income: The United States, 1950, 1961, 1970.* New York: Academic Press, Inc.

Ruggeri, G. C., D. Van Wart, and R. Howard (1994) The Redistributional Impact Of Government Spending in Canada. *Public Finance* 49:2.

Shirazi, N. S. (1996) System of *Zakat* in Pakistan: An Appraisal. International Institute of Islamic Economics, Islamabad.

Snodgrass, Donald R. (1974) The Fiscal System As an Income Redistributor in West Malaysia. *Public Finance* 29:1, 56–75.

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

Comments

This paper examines the impact of government expenditures and taxes on the distribution of income across various income groups along with net fiscal impacts in the urban-rural areas of Pakistan. The paper has used Net National Product (NNP) as the income base to estimate the effects of government expenditures and taxes on the income distribution. The NNP, taxes and expenditures have been decomposed into urban-rural areas by using different weight system. The paper concludes that the fiscal system redistributes smaller amount to the poor classes compared to the rich people. However, in percentage terms, lower income groups are receiving more benefits compared to their contribution to national income. Based on these results it has been suggested that in order to make the fiscal system more pro-poor there is a need to increase the income of the lower income groups.

My comments on the paper are as follows:

Decomposition of the NNP, taxes and expenditures depends heavily on the weights, but the paper did not provide sufficient information on these weights, which makes it difficult to evaluate the weighting system. Take the example of population weights that have been used in almost all equations. If the population weight refers to the share of rural and urban areas in total population of the country, it is essential to take into account the differences in the level of urbanisation. Although the 1998 census reveals the urban share in total population as 33 percent, several scholars have shown serious doubts about this percentage. Rather it has been suggested that about half of the population presently live in urban areas of the country. Thus the question is if this weight is adjusted what will be its effect on the results presented in the paper? Similarly it is not clear how the income weights were calculated?

Education differences have distributed between rural and urban areas by taking into account their literacy and population differences. But this seems to be a very crude measure for this distribution; the actual public expenditure on education in rural and urban areas could be substantially different. The same might be the case for health expenditure distribution.

To distribute agriculture expenditures between urban and rural areas, the paper has taken into account their population weights, income weights and food weights. For the food weights, the availability of agriculture food for households belonging to urban and rural areas has been used. But it is not clear how this availability has been calculated? Although it can be argued that the food system in Pakistan has accommodated significant increases in urban population, the fact is that 25 percent of urban population fell short of minimum per capita calorie requirements of 2295 kcal/day. Another factor resulting from urbanisation which will stress both

the marketing and distribution system is dietary shifts. High income and more urbanised countries consume less cereal grins, in favour of more meat, fruits and vegetables. Even among lower income countries, urbanisation causes changes in the demand pattern within the grain group. Some recent studies have shown a significant shift in the demand patterns for cereals as a result of urbanisation in nine Asian countries, including Pakistan. An increase in demand for perishable commodities, such as meat, fish dairy, and fruits, creates additional pressures in the marketing system. In this scenario whether the food weights used in this paper are appropriate?

With respect to the results, the paper shows that the expenditure benefits across income groups fluctuate substantially. This fluctuation deserves some discussion since it makes very difficult to draw solid policy implications. Can it be broadly attributed to data problems particularly weighting systems introduced in the paper?

The paper shows the heaviest tax burden on the first income group in rural as well as urban areas. More importantly the gap in tax burden between the first and the next four income groups very large, approximately three times. The question is why is so?

Finally, the paper uses only 1992-93 HIES data set, which is quite old. Moreover, during the 1990s the incidence of poverty has increased substantially. This increase, at least partly, has been attributed to structural adjustment programme initiated in the late 1980s. These changes deserve that the analyses presented in the paper should cover the whole last decade. The HIES data is even available for the year 1998-99, and the 1998 census data are also available. Thus, to make the analysis more meaningful, I would urge the authors to expand the paper by covering all the HIES data sets carried out in the 1990s.

G. M. Arif

Pakistan Institute of Development Economics,
Islamabad.