

Who Bears the Burden of Federal Taxes in Pakistan?

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INTRODUCTION

The main objective of the tax system of a country is to generate enough revenue for the government, and it is always desired that taxes should be such that there is less burden on the poor and more on the rich. Such an attribute of the tax system becomes even more desirable for a country like Pakistan where the present distribution of resources is highly unequal and a large proportion of the population is living at the subsistence level. As in many other developing countries, in Pakistan also indirect taxes dominate in terms of their contribution to total tax revenue. It is argued that indirect taxes are generally regressive since they are levied on consumption, and people in the lower-income classes devote relatively greater proportion of their incomes to consumption. In this study, we have tried to estimate the incidence of the federal taxes on households in different income groups. We accomplished this by calculating effective tax rates (percentage of income contributed to taxes) for them.

A large number of studies have been done for different countries to estimate tax incidence by income classes. Some of them have been carried out by Gillespie [5], Karageorgas [8], Salkin [23], Reynolds and Smolensky [21], and Alauddin and Raza [1]. A critical review of the literature for developing countries can be found in Bird and De Wulf [2], and De Wulf [4].¹ Here we examine very briefly the work by Alauddin and Raza [1], since it deals with Pakistan.² They have estimated the incidence of some federal taxes for 1966-67 and for the years from

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¹The survey article by Bird and De Wulf [2] covers only Latin American countries, while De Wulf [4] adds some other developing countries too.

²There is a reference to Jawaid Azfar's work on tax incidence in Pakistan in De Wulf [4] and in some other studies too. But unfortunately his work (unpublished Ph.D. thesis) was not available to us.

1968-69 to 1971-72. While it is a serious attempt, the study suffers from two main weaknesses. One, it excludes import duties, an important source of federal government tax revenue. Two, nominal rates of excise duties and sales taxes on items of final consumption have been used to compute the tax paid by different households. In this way, taxes on the raw material and intermediate inputs are completely ignored, although these taxes constitute a substantial part of the total tax revenue. Another shortcoming of using nominal tax rates is that the problem of tax evasion, which is quite serious in Pakistan, is overlooked. These problems have been dealt with in the present study.

DATA AND METHODOLOGY

The latest Household Income and Expenditure Survey was conducted for the calendar year 1979 and its findings were published in 1983. Therefore, we have estimated the burden of federal taxes for the fiscal year 1978-79. There are two types of taxes: indirect and direct. Their shares in total federal tax revenue in 1978-79 were 85.41 percent and 14.59 percent respectively. Indirect taxes include customs duties, excise duties, sales taxes, and surcharges. Customs duties were at the top in terms of their contribution to total federal tax revenue and their share was 43.13 percent. The share of excise duties was 29.46 percent and they were the second most important source of the federal government's revenue. The contributions of sales taxes and surcharges were 8.24 percent and 4.58 percent respectively. The most important direct taxes were income tax and corporate income tax. Their contributions to total federal tax revenue in 1978-79 were 4.98 percent and 9.25 percent respectively. There were some minor direct taxes, too, but their share was 0.36 percent only.

In this study all the indirect taxes except export duties, a component of customs duties, are covered. The reason for not including export duties is our lack of knowledge about who bears the burden of such duties. Fortunately, their contribution to total tax payments has always been very small, and in 1978-79 it was only 1.74 percent. The sources consulted for data on indirect taxes are listed in the Appendix. The distribution of direct taxes by income classes is given in [13] and the same has been used in this study.³ Owing to some data problems, corporate income tax has not been included. On the whole, the taxes covered here constitute approximately 89 percent of the total tax revenue of the federal government in 1978-79.

Data on consumption patterns of households in different income classes were obtained from the *Household Income and Expenditure Survey 1979* [13]. As the

³ Direct taxes are not defined in the *Survey* but obviously their main component is income tax.

tax data are for the fiscal year 1978-79, we are assuming that the consumption patterns during the calendar year 1979 were the same as during the fiscal year 1978-79. This assumption is quite harmless since the consumption patterns do not change rapidly.

To allocate different taxes among households, we have adopted standard assumptions that indirect taxes are shifted forward to the consumers and direct taxes stay with the legal taxpayers. The assumption regarding direct taxes is generally accepted while there is no such agreement of views as far as indirect taxes are concerned. Theoretically, an indirect tax on a commodity can only be shifted fully when either demand curve for the commodity is completely inelastic or supply curve is completely elastic. One can justify tax shifting by arguing in favour of these assumptions. However, Prest [18] has pointed out that these assumptions, in the context of the calculation of tax incidence, can lead to contradictory conclusions.⁴ To determine whether indirect taxes are shifted or not and, if they are shifted, in what proportion, the approach generally followed is based on regression analysis.

A number of studies have been done regarding the shifting of indirect taxes in Pakistan. Radhu [20] in his study regresses changes in prices on changes in the rates of sales and excise taxes. From regression results, he concludes that these taxes are not shifted to the consumers. Irfan [6] does not agree with Radhu's finding saying, "Most of the observations [in Radhu's regression analysis] pertained to small changes in sales tax and no attempt was made to weight commodities by their contribution to excise and sales tax collections. Thus, while his conclusion may have held for most commodities it was not necessarily true for most tax collections" [6, p. 67]. Irfan in his study selects only two commodities, cigarettes and petroleum products, which contributed most to the total excise duty receipts. His finding is that a "very high proportion" of excise duties is passed on to the consumers.

Bilquees Naqvi [10] extends Irfan's work by incorporating more commodities and by considering sales tax changes in addition to changes in excise duties. She concludes that "excise duties and sales tax are transferred partly to the consumers". The latest and most comprehensive study on this issue is by Jeetun [7] in which he analyses all the four major indirect taxes, viz. import duties, excise duties, sales taxes, and surcharges. His results show that excise duties and sales taxes (including surcharges) are shifted forward to the consumers. The range of the tax shift for different commodities is from 72 to 93 percent. For import duties, he finds not only a full shifting but "some degree of pyramiding" also. From this entire evidence, we conclude that there can be disagreement over the degree of the shift but indirect taxes are definitely shifted to the consumers. In this study we go along with the standard assumption that indirect taxes are fully passed on to the consumers.

⁴ See Prest [18; 19] and Conard [3] for an exchange of views on this topic.

The above-mentioned problems of tax evasion and multiple taxation of a commodity have been tackled by using actual tax collections for each commodity separately. Taxes collected for commodities directly consumed are distributed among households in different income brackets according to their shares in the total consumption of those commodities. There are certain products which either are not directly consumed at all or only a part of them goes to final consumption and the remaining part is used as an input for other commodities. To allocate taxes on such commodities to final consumption, we have used the "Revised PIDE input-output Table of Pakistan's Economy: 1975-76" [22].⁵

The findings of the *Household Income and Expenditure Survey 1979* [13] show that the consumption patterns of households in the rural and urban areas are not the same. Moreover, the sources and their contribution to the incomes of the households in the two areas also differ. Therefore, we have analysed tax incidence for the rural and urban areas separately. Data on commodity-wise tax collections are for the country as a whole. The amount of a tax on a particular commodity is distributed to the rural and urban areas according to their shares in the total consumption of that commodity. Once all the taxes are allocated to households in different income groups, they are divided by the personal incomes of the households to obtain effective tax rates.⁶

RESULTS

In view of the limitations of data and the theoretical issues raised in this and many other studies, the results are subject to many qualifications and need to be interpreted with great care. Moreover, greater confidence can be reposed in the tax incidence patterns across income groups than in exact numerical values of the effective tax rates.

The results for rural, urban, and all areas (rural and urban areas combined) are presented separately. For rural areas the results are given in Table 1. The total tax system appears, with some exceptions, to be regressive over the entire measured income range. To be more specific, the tax system is regressive up to an income level of Rs. 500. The effective tax rate fluctuates between income levels of Rs. 500 and Rs. 1000, and then declines up to the income level of Rs. 3500, making the tax system regressive again. The effective tax rate increase and changes the direction

⁵The input-output table is for the year 1975-76 while the taxes to be allocated are for the year 1978-79. Therefore, we assume that the input-output coefficients remain unchanged between 1975-76 and 1978-79. We expect that this assumption will not do much harm to our results as the gap between the two periods is very short.

⁶Since personal incomes of the households in different income brackets as reported in the *Survey* [13] are sample values, they have been blown up to national level to calculate effective tax rates.

Table 1
Federal Taxes paid in 1978-79 by Rural Households in Different
Income Classes as Percentage of their Personal Incomes

Monthly Income Class (Rupees)	Indirect Taxes					Direct Taxes (Cols. 6+7)	All Taxes (Cols. 6+7)
	Import Duties	Excise Duties	Sales Taxes	Sur- charges	Total (Cols. 2+3+ 4+5)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Up to 300	6.718	4.270	1.315	1.022	13.325	0.004	13.329
301-400	6.387	4.310	1.260	0.964	12.921	0.006	12.927
401-500	5.992	3.990	1.167	0.886	12.035	0.013	12.048
501-600	6.428	4.170	1.236	0.868	12.702	0.005	12.707
601-800	5.772	3.979	1.123	0.824	11.698	0.013	11.711
801-1000	6.304	4.152	1.233	0.853	12.542	0.012	12.554
1001-1500	5.377	3.840	1.068	0.731	11.016	0.012	11.028
1501-2000	5.013	3.509	1.014	0.665	10.201	0.053	10.254
2001-2500	4.694	3.310	0.953	0.613	9.570	0.033	9.603
2501-3000	4.503	3.334	0.939	0.561	9.337	0.024	9.361
3001-3500	2.974	2.079	0.631	0.349	6.033	0.006	6.039
3501 and above	4.882	2.916	1.080	0.560	9.438	0.051	9.489
Total	5.618	3.811	1.133	0.768	11.330	0.019	11.349

again for the highest income bracket (Rs 3501 and above). The highest income class is open-ended and covers a very large range of incomes. Also, the tax incidence pattern within this income class is also not known. All this reduces the meaningfulness of the effective tax rate for this income bracket. We may note that only 0.9 percent of the rural households belong to this income group.

The regressivity of the entire tax system is mainly due to the regressive nature of the indirect taxes. Import duties, which rank at the top in terms of their contribution to the federal tax revenue, have exactly the same incidence pattern as all taxes combined. This result contradicts the general impression that necessities are either totally exempt from import duties or subject to much lower rates as compared to luxuries. In fact, import duties on items of common use, raw material, intermediate products, and machinery make this tax regressive. The incidence pattern exhibited by sales taxes is similar to that of import duties. One possible explanation for this could be that a substantial proportion of sales taxes collected comes from imported goods. Another major source of the federal government revenue is excise duties. We may describe them as proportional up to an income level of Rs. 1000,

even though there are small fluctuations in the effective tax rate. The effective tax rate consistently declines between income levels of Rs. 1000 and Rs. 3500, making the excise duties regressive over this income range. The effective tax rate increases for the top income class of Rs. 3501 and above. Surcharges contribute a small proportion to the total tax receipts. Their share in 1978-79 was 4.58 percent. Surcharges are levied on a few products – mostly intermediate goods like fertilizer and petroleum products. Consequently, their impact spreads over the entire economy. Surcharges, on the whole, are slightly regressive.

Direct taxes do not display any systematic incidence pattern. Also the effective tax rates are very low – ranging from .006 percent to .053 percent. This is not very unexpected. The main component of the direct taxes is income tax while the major source of income in the rural areas is agriculture which is exempt from income tax. We may remind the reader that effective rates of the direct taxes are based on the data reported in the *Household Income and Expenditure Survey 1979* [13].

Table 2

Federal Taxes Paid in 1978-79 by Urban Households in Different Income Classes as Percentage of their Personal Incomes

Monthly Income Class (Rupees)	Indirect Taxes					Direct Taxes (Cols. 6+7)	All Taxes (Cols. 6+7)
	Import Duties	Excise Duties	Sales Taxes	Sur-charges	Total (Cols. 2+3+4+5)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Up to 300	7.474	6.372	1.717	1.066	16.629	.013	16.642
301-400	6.045	5.902	1.180	0.967	14.094	.008	14.102
401-500	5.880	5.834	1.174	0.965	13.853	.065	13.918
501-600	7.192	5.991	1.478	0.972	15.633	.021	15.654
601-800	6.236	6.087	1.298	0.953	14.574	.049	14.623
801-1000	6.132	5.829	1.307	0.953	14.221	.057	14.278
1001-1500	6.819	5.230	1.221	0.832	13.102	.099	13.201
1501-2000	5.796	4.975	1.243	0.768	12.782	.182	12.964
2001-2500	5.550	5.166	1.221	0.718	12.655	.285	12.940
2501-3000	5.424	4.653	1.228	0.663	11.968	.262	12.230
3001-3500	6.249	4.629	1.480	0.658	13.016	0.634	13.650
3501 and above	5.676	4.779	1.393	0.567	12.415	1.416	13.831
Total	5.888	5.230	1.298	0.776	13.192	0.432	13.624

Table 3

Federal Taxes Paid in 1978-79 by All Households in Different Income Classes as Percentage of their Personal Incomes

Monthly Income Class (Rupees)	Indirect Taxes					Direct Taxes (Cols. 6+7)	All Taxes (Cols. 6+7)
	Import Duties	Excise Duties	Sales Taxes	Sur-charges	Total (Cols. 2+3+4+5)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Up to 300	6.802	4.502	1.359	1.027	13.690	0.005	13.695
301-400	6.339	4.532	1.249	0.964	13.084	0.006	13.090
401-500	5.972	4.320	1.168	0.900	12.360	0.022	12.382
501-600	6.564	4.495	1.279	0.887	13.225	0.008	13.233
601-800	5.871	4.430	1.161	0.851	12.313	0.021	12.334
801-1000	6.255	4.630	1.247	0.882	13.014	0.025	13.039
1001-1500	5.538	4.347	1.124	0.768	11.777	0.044	11.821
1501-2000	5.371	4.180	1.119	0.712	11.382	0.112	11.494
2001-2500	5.131	4.258	1.090	0.667	11.146	0.161	11.307
2501-3000	5.060	4.131	1.114	0.623	10.928	0.168	11.096
3001-3500	4.644	3.380	1.064	0.527	9.615	0.326	9.941
3501 and above	5.391	4.113	1.281	0.564	11.349	0.928	12.277
Total	5.716	4.327	1.180	0.771	11.994	0.169	12.183

The results for the urban areas are presented in Table 2. They show that the overall tax system is regressive up to an income level of Rs. 3000, with one exception where the effective tax rate increases. The tax system becomes progressive beyond the income level of Rs. 3000. Direct taxes play a major role in making the tax structure progressive in the upper income range.

Indirect taxes, as a whole, up to an income level of Rs. 3500 have an incidence pattern similar to that of all taxes combined. It is only in the top income bracket of 'Rs. 3501 and above', where the two differ. The effective tax rate in the case of indirect taxes declines while it increases for all taxes combined. It may be pointed out that the top open-ended income class contains 4.4 percent of the urban households. This number is much higher than that of the rural areas, and the caveat noted there applies with greater force in the present case. Coming to the components of the indirect taxes, import duties have exactly the same incidence pattern as that of the total indirect taxes. Excise duties are slightly regressive in the few bottom- and

middle-income brackets; they are virtually proportional in all other brackets. Sales taxes, on the whole, can be classified as proportional. Surcharges are virtually proportional up to an income level of Rs. 1000 and slightly regressive beyond that.

Direct taxes do show some progressivity if we ignore the bottom three income classes for which the effective tax rate fluctuates. A comparison of the results of the rural and urban areas shows that the urban households in different income classes face higher effective tax rates as compared to their counterparts in the rural areas.

The incidence patterns of various taxes for the country as a whole are reported in Table 3. The overall tax system as well as all the indirect taxes exhibits incidence patterns very similar to those of the rural areas. On the other hand, the effective direct taxes follow the pattern very close to that assumed by them in the urban areas.

CONCLUSIONS

In this study we have estimated incidence of the federal taxes for households in different income brackets. Most of the major direct and indirect taxes are covered, and taxes on the raw material and intermediate inputs have been allocated to final consumption through the input-output table. The major source of revenue of the government is indirect taxes which are generally regressive. The overall tax structure is also more or less regressive.

Households in the urban areas pay relatively more taxes. However, the incidence patterns of all the taxes combined are not very much different in the two areas. It is only in the top income brackets that we find relatively more consistent tax progressivity in the urban areas.

The direct taxes show some progressivity for the country as a whole, if we exclude a few bottom income brackets. But the effective tax rates are quite low. Consequently, their progressivity is not much reflected in the incidence pattern of the overall tax structure. The effective rates of the direct taxes in the rural areas do not show any systematic pattern and their values are extremely low. On the other hand, those in the urban areas, though not quite high, exhibit progressivity, barring a few bottom income classes.

Import duties on the whole appear to be regressive. This is contrary to the general belief that import duties are mostly levied on luxuries. In fact, import duties on the raw materials, intermediate products, machinery and also on necessities make them regressive.

The overall tax system is regressive as it heavily depends on indirect taxes, and these taxes are on items of common use, raw materials, intermediate inputs, and machinery. To make this tax system progressive more reliance should be placed on direct taxes. Moreover, taxes on the raw materials, intermediate inputs, and machinery should be avoided. Only those commodities of final use should be taxed which are consumed mainly by households in the upper income brackets.

DATA SOURCES

A number of sources have been consulted in compiling data concerning different types of taxes collected for various commodities. Data on import duties are drawn from the *Monthly Statistical Bulletin, October 1982* [14], while figures for the federal excise duties and surcharges are taken from the *Explanatory Memorandum on the Budget 1979-80* [15]. A breakdown of sales taxes by commodities is not available for the year 1978-79. We therefore have tried to estimate it by using the following available information. The *Explanatory Memorandum on the Budget 1979-80* [15] reports total amounts of sales tax collected for imported commodities (Rs. 1476 million) and domestically produced commodities (Rs. 370 million). The share of the tax on domestic goods is relatively small (20%). Moreover, most of this tax is paid by large-scale manufacturing industries as goods produced by the domestic "cottage industry" are exempt from sales tax [17, p. 24]. The Census of Manufacturing Industries (CMI) reports sales tax paid by different industries on their products, but unfortunately it was not published for the year 1978-79. Therefore, we have allocated the total amount of the tax on domestically produced goods for 1978-79 to different commodities according to the distribution of the tax given in the CMI for 1977-78 [12], by assuming that the distribution in the two years was the same.

The procedure used to estimate sales tax on imported commodities is slightly complicated. As stated earlier, amounts of import duty by commodities are given in the *Monthly Statistical Bulletin* [14]. Rates of import duty and sales tax on imported commodities are also available from the *Pakistan Customs Tariff and Import Trade Guide* [11] and [9]. We may point out that sales tax is ad valorem and levied on the duty-paid value of a commodity. The following formula has been used to calculate sales tax paid on an imported commodity.

$$\text{Sales Tax Amount} = \text{Sales Tax Rate} \times \left\{ \frac{\text{Import Duty Amount}}{\text{Import Duty Rate}} + \text{Import Duty Amount} \right\}$$

Distribution of the direct taxes by income class for the rural and urban areas is taken from the *Household Income and Expenditure Survey 1979* [13]. The distribution of the direct taxes for all areas as reported in the *Survey* is not correct as it is arrived at without assigning appropriate population weights to the rural and urban distributions. The results reported for the direct taxes in this study have been corrected for this problem.

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**Comments on
"Who Bears the Burden of Federal Taxes
in Pakistan?"**

The paper which seems to be an attempt to extend and improve upon the earlier work by Alauddin & Raza [1] does represent an improvement in two respects:

- (i) It includes all indirect taxes while import duties which account for over 40 percent of total federal tax receipts were ignored in the earlier study.
- (ii) It estimates tax burden by using effective tax rates rather than nominal tax rates. In other words, it takes into account multiple taxation of commodities, i.e. the taxes levied at different stages of production rather than on final consumption. By doing so, it naturally avoids the problem of tax evasion.

However, despite these improvements, the study remains very preliminary partly because of its limited scope of just computing tax incidence, and partly because of the simplified assumptions used in these computations. Four points need to be highlighted in this regard.

1. The analysis relates to 1978-79 as the latest data on consumption across income groups are available for 1979. But assuming that consumption habits persist and consumption patterns do not change rapidly (as the authors themselves have pointed out), the analysis could have been done for a more recent year, possibly for 1983-84. In a study like this, where the objective is to analyse a given structure rather than carrying out a simulation exercise of a policy change in this structure, time factor is vital in determining its usefulness. Narrating conclusions regarding the regressiveness or progressiveness of tax structure that prevailed five years ago serves hardly any purpose for the policy-maker who at present is interested in making recommendations for future. No doubt, using the 1979 consumption pattern in estimating tax burden for 1983-84 would have introduced certain biases in the results, yet the time relevance would have enhanced the usefulness of the study.

2. Though there is no disagreement on the forward shifting of indirect taxes, disagreement does exist on the issue of complete or partial shifting. Empirical studies in this area (some of which have been cited by the authors also) reveal that the extent of shift for different commodities ranges between 70 percent and 90 percent. In the presence of such an evidence, a standard assumption of a 100-percent shifting, as used in the present study, appears highly unrealistic. Moreover, it makes the study suffer from the same defect as was found in the earlier work. A more reasonable assumption would have been to take the average, i.e., 80 percent, or alternatively to use different rates of shifting for different kinds of commodities. The former may yield different conclusions about the degree of regressivity though it may not change the incidence pattern across income groups while the alternative assumption may even change the incidence pattern.
3. Based on the computed effective rates for import duties, the paper concludes that the "result contradicts the general impression that necessities are either totally exempt from import duty or subject to much lower rates as compared to luxuries". To qualify such a conclusion, it would be worth while to decompose the effective rates into those for final consumer goods and capital/intermediate goods. Only then can one compare the incidence across necessities and luxuries.
4. If one looks at the results, one finds that in the case of some taxes, the computed effective tax rates for different income classes lack any systematic trend, such as direct taxes in rural sector or sales tax in urban sector. In such cases, it is hard to conclude whether the tax structure is definitely regressive or progressive. Some kind of test is needed for this purpose. Otherwise, conclusions derived on the basis of merely looking at the computed rates may be misleading since it is quite likely that part of the observed differences in the rates may have been contributed by the sampling error.

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