A Note on Estimates of Agricultural Income Tax in Pakistan

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In the last two years, changes in public policy affecting agriculture in Pakistan have come in rapid succession. Of these, the announcement in January 1977 of the introduction of tax on agricultural incomes came as a major surprise to this author. For one thing, leading spokesmen for the government in 1974 saw "little potential surplus" which a tax on incomes in agriculture could generate without adversely affecting the prospects of agricultural growth. The agricultural lobby had quite obviously won the argument then. More importantly, there existed no estimates to counter the much publicized low magnitudes. I have found in only one published study a systematic attempt to derive estimates of agricultural tax in Pakistan [2].[1]

This study is premised on three arguments for agricultural income tax. Firstly, the existing land tax system is patently regressive and yields embarrassingly small amounts of revenue for public investment. Secondly, agricultural incomes have been rising in recent years disproportionately for large and small farms, and price subsidies have in no small measure contributed to these disparities [4, 5]. Finally, tax on agricultural incomes is progressive in that it fulfils the desiderata of growth and equity, and it can generate impressive amounts of revenue for investment in agriculture and other sectors of the economy.

DATA AND ASSUMPTIONS

Two sets of data are used to estimate the potential tax revenue in the new system. First, net farm incomes by farm size have been derived from micro-data collected by the author from a randomly selected sample of 752 farmers in the districts of Jhelum, Gujranwala, Sahiwal, Lyallpur, Rahimyar Khan, Jacobabad, Larkana, Nawabshah and Hyderabad [4]. These data related to the 1972-1973 crop year. Farms were grouped into four categories: (i) under 12.5 acres; (ii) 12.5 to under 25.0 acres; (iii) 25.0 to under 50.0 acres;

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[1] Further discussion on Hamid's study [2] appears in [1, 3, 8.]

(iv) 50.0 acres and over. The second set of data are from the 1972 agricultural census. Since farm incomes data relate to the Punjab and Sind, which together constitute the backbone of the country's agriculture, the estimates of agricultural income tax are calculated for these provinces only.

The estimates are based on alternative assumptions about net farm incomes and tax rates by farm size. There are three alternative sets of assumptions about the total net farm income estimates for the Punjab and Sind :

(1) *High Incomes:* Assuming net farm income per acre from Lyallpur for the Punjab and from Nawabshah for Sind.

(2) *Medium Incomes:* Assuming net farm income per acre from Gujranwala for the Punjab and from Larkana for Sind.

(3) *Low Incomes:* Assuming net farm income per acre from Rahimyar Khan for the Punjab and from Hyderabad for Sind.

Three rates of taxation are being assumed, one for each farm category with exemption from tax for Category (i).

(1) Category (ii)—5 percent of total income in the Punjab and Sind.

(2) Category (iii)—8 percent of total income in the Punjab and Sind.

(3) Category (iv)—12 percent of total income in the Punjab and 15 percent total income in Sind.

These rates clearly reflect progressivity, though the last category of farms should be decomposed into two groups with differentiated rates. These marginal tax rates may on first glance look higher than they really are. Abolition of land tax will provide equal relief to farmers in each category, thus lowering the effective rate of taxation. The higher rate for Category (iv) farms in Sind is justified by the fact that they have the lowest intensity of cultivation, as can be seen in Table 1. Also, it should be noted that the rates for Category (iv) are the average for this class of farms, in which a lower than average rate should be imposed on farm size 50.0 to less than 100.0 acres and a higher than average rate for holdings of 100.0 acres and over. Non-irrigated farms of less than 25.0 acres should be tax exempt, and for other sizes the tax rates should somewhat lower. In this paper, we are dealing with irrigated agriculture only.

ESTIMATION METHOD AND RESULTS

Given the assumptions on income levels and tax rates by farm size, and using the data on cultivated area from the 1972 agricultural census, total farm incomes and tax revenues for each province are calculated. To these we now turn.

In Table 1, the 1972 census data on distribution of various size farms, their area (total and cultivated) and average size are given. Three points

Table 1

Distribution of Farms by Size and Area in the Punjab and Sind, 1972

Farm Group By Size (acres)	Number of Farms (in '000')		Farm Area ('000' acres)		Cultivated Area ('000' acres)		Cultivated Area as Percentage of Farm Area		Average Size of Farm (acres)		Average Size of Cultivated Area (acres)	
	Punjab	Sind	Punjab	Sind	Punjab	Sind	Punjab	Sind	Punjab	Sind	Punjab	Sind
under 12.5	1,545	528	9,122	3,685	8,754	3,524	96	96	5.90	6.98	5.67	6.68
12.5 -<25.0	549	165	8,942	2,766	8,322	2,464	93	89	16.28	16.75	15.15	14.92
25.0 -<50.0	209	39	6,608	1,247	5,827	979	88	78	31 57	32.37	27.83	25.40
50.0 & over	72	16	6,358	1,761	4,783	1,041	75	59	88.64	108.26	66.69	63.97
All Groups	2,375	748	31,030	9,459	27,686	8,008	89	85	13.06	12.65	11.66	10.71

Source: [6, p. 69 and p. 103].

should be noted. First, tax exemption for farms under 12.5 acres will mean that 65 (Punjab) to 71 (Sind) percent of farms and 32 (Punjab) to 44 (Sind) percent of cultivated area will not be affected by the new tax system. Second, the proportion of cultivated acreage decreases quite significantly as farm size increases, particularly in Sind. Third, we use cultivated and not total farm area for each farm category in calculating total net farm incomes.

Net farm incomes per acre for each farm category for the author's 1974 survey districts are reproduced in Table 2[4]. Using these figures and those on average size of farm by cultivated area for each farm size from Table 1, average net farm income for each province is given in Table 3. Assuming that net farm income per acre of each sample district from the Punjab and Sind represents alternatively its respective province, and using the data on provincial cultivated acreage by farm size, total net farm incomes for the two provinces are shown in Table 4.

From the inter-district variations in net farm incomes, it is obvious that choice of income data in each province will greatly affect the amounts of expected tax revenue. For illustration purposes, we assume High, Medium and Low income figures. The district selected from each province to represent these alternative income levels is based on the district's income per acre and other characteristics [4]. Turning to Table 5, which gives total tax revenues for the Punjab and Sind by farm size, the tax rates being assumed are quite conservative if compared with those used for non-agricultural incomes. We assume these rates only to demonstrate the minimum estimates of potential revenue and their comparison with the actual amounts of land revenue now being collected by provincial governments.

The three estimates for income tax collections in Table 5 are Rs. 934 million, Rs. 1,282 million and Rs. 2,454 million. The important point to be noted in this table is the loss of revenue in Sind in the low estimates. Given a tax structure, this reflects the sensitivity of tax revenues to the assumed net farm income per acre. A comparison of the lowest estimates (Rs. 934 million) with the most generous figures in Table 6 on tax revenues collected from agriculture in recent years highlights the potential contribution of the income tax structure proposed here. What is even more important is that with increased incomes in agriculture this potential will grow more than proportionately. The new system, unlike the present land tax structure, is income responsive and progressive.

CONCLUSIONS

The purpose of this paper has been partly to generate a set of data on tax potential from agricultural incomes in Pakistan as a starting point in discussing the very complex and sensitive issue of agricultural taxation. More importantly, the intent has been to draw attention to the kinds of data needed to improve guess work and to show the sensitivity of computational results to assumptions on tax rates, etc. Since the object of this exercise was not to provide one set of estimates, for that would have been erroneous, the point to be underscored is that more work is required in this area which for so long has been neglected. Surely, farm income data for selected districts are available in government files, *e.g.* in the Farm

Table 2

Net Farm Income Per Acre by Farm Size in Selected Districts, 1972-1973

District	Net Farm Income Per Acre (Rupees)				
	under 12.5	12.5 to under 25.0	25.0 to under 50.0	50.0 and over	All Groups
Punjab					
1. Jhelum	164.95	160.78	112.61	63.33	160.82
2. Gujranwala	578.08	599.68	597.22	648.46	611.10
3. Sahiwal	958.11	1,019.46	1,072.72	1,153.22	1,099.98
4. Lyallpur	752.84	876.98	1,188.24	1,571.24	1,310.37
5. Rahimyar Khan	513.49	555.35	555.44	462.78	498.53
Sind					
1. Jacobabad	506.52	496.99	511.23	627.19	572.92
2. Larkana	872.70	1,011.45	988.78	1,156.47	1,070.83
3. Nawabshah	1,556.55	1,694.76	1,660.58	1,885.60	1,782.54
4. Hyderabad	500.70	503.37	447.84	519.30	498.84

Source: [4, Table 7.2, p. 54].

Table 3

Average Net Farm Income by Farm Size in Selected Districts, 1972-1973

Using Net Farm Income Per Acre of District	Average Net Farm Income (Rupees)			
	under 12.5	12.5 to under 25.0	25.0 to under 50. 0	50.0 and over
Punjab				
1. Jhelum	936. 00	2,439.00	3,145.00	4,201.00
2. Gujranwala	3,277.00	9,090.00	16,615.00	43,215.00
3. Sahiwal	5,432.00	15,438.00	29,862.00	76,894.00
4. Lyallpur	4,270.00	13,287.00	33,062.00	104,770.00
5. Rahimyar Khan	2,908.00	8,408.00	15.446.00	30,877.00
Sind				
1. Jacobabad	3,387.00	7,415.00	12,979.00	40,109.00
2. Larkana	5,832.00	15.084.00	25,121.00	73,949.00
3. Nawabshah	10,401.00	25,289.00	42,189.00	120,647.00
4. Hyderabad	3,347.00	7,505.00	11,379.00	33,200.00

Source: Tables 1 and 2.

Table 4

Total Net Farm Income by Farm Size in Selected Districts, 1972-1973

Using Net Farm Income Per Acre of District	Total Net Farm Income (Million Rupees)				
	Under 12.5	12.5 to under 25.0	25.0 to under 50.0	50.0 and over	All Groups
Punjab					
1. Jhelum	1,444.00	1,340.00	658.00	301.00	3,743.00
2. Gujranwala	5,060.00	4,993.00	3,479.00	3,099.00	16,631.00
3. Sahiwal	8,387.00	8,480.00	6,252.00	5,515.00	28,634.00
4. Lyallpur	6,592.00	7,299.00	6,922.00	7,514.00	28,327.00
5. Rahimyar Khan	4,491.00	4,619.00	3,234.00	2,215.00	14,559.00
Sind					
1. Jacobabad	1,786.00	1,224.00	500.00	653.00	4,163.00
2. Larkana	3,076.00	2,491.00	968.00	1,203.00	7,738.00
3. Nawabshah	5,486.00	4,176.00	1,626.00	1,963.00	13,251.00
4. Hyderabad	1,765.00	1,239.00	438.00	540.00	3,982.00

Source: Table 1 and 2.

Table 5

Estimates of Total Tax Revenue in the Punjab and Sind, 1972-1973

Province	Total Tax Revenue (Million Rupees)				
	under 12.5	12.5 to under 25.0	25.0 to under 50.0	50.0 and over	All Groups
		High Estimates			
Punjab	—	365.00	554.00	902.00	1,821.00
Sind	—	209.00	130.00	294.00	933.00
Total	—	574.00	684.00	1,196.00	2,454.00
		Medium Estimates			
Punjab	—	250.00	278.00	372.00	900.00
Sind	—	125.00	77.00	180.00	382.00
Total	—	375.00	355.00	552.00	1,282.00
		Low Estimates			
Punjab	—	231.00	259.00	266.00	756.00
Sind	—	62.00	35.00	81.00	178.00
Total	—	293.00	294.00	347.00	934.00

Source: Table 4.
Note: Assumptions about the alternative estimates and tax rates are given in the text.

Table 6

Provincial Agricultural Tax Revenues in Pakistan, Selected Years

Source of Revenue	Agricultural Tax Revenue (Million Rupees)				
	1969-1970	1970-1971	1971-1972	1972-1973	1973-1974
Land Revenue	156.00	134.00	151.00	159.00	157.00
Agricultural Income Tax	6.00	4.00	4.00	5.00	5.00
Irrigation[a]	107.00	54.00	77.00	48.00	18.00
Total	269.00	192.00	232.00	212.00	180.00

Source: [7, Annexure II, Table 4].
[a]These are total revenue receipts (including capital) for irrigation, drainage, etc.

Management Section, Ministry of Agriculture. One puzzle remains. Why does intellectual investment in studies on land tenure and agricultural taxation in Pakistan remain so negligible. I wonder if the apparently persistent barriers have been entirely intellectual in nature:

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