Pakistan Journal of Applied Economics, (1994), Vol.X Nos.1&2, (77 – 97)

REVENUE ESTIMATES FROM LAND TAXATION IN PAKISTAN

Anjum NASIM*

I. Introduction

Agricultural incomes are exempt from income tax under the present income tax law in Pakistan. Exemption to agricultural incomes from income tax was first provided in 1886. This position remained unchanged till the time of independence in 1947. In the post independence period the exemption from income tax was retained. Farm incomes, however, were subjected to other forms of taxation, both direct and indirect [see e.g., Qureshi (1987); Hamid, Nabi and Nasim (1990), (1991); Dorosh and Valdes (1990); Chaudhry (1991); and Nasim and Akhlaque (1992)].

Hoff (1991); and Skinner (1991a), (1991b); discuss some of the economic, political and administrative considerations for not extending the standard income tax to the agricultural sector. A uniform application of the income tax, in Pakistan, is also constrained by the nature of Pakistan's Constitutional structure. Under the constitution, taxation of agricultural incomes is the jurisdiction of the provincial governments, while taxation of incomes and profits from non-agricultural sources is the sole responsibility of the federal government. The provincial governments have not taken the initiative in imposing an agricultural income tax.

The first ever attempt to extend income tax to the agricultural sector in Pakistan was made in 1977 when the National Assembly adopted a bill allowing the federal government to levy an agricultural income tax. The law was later suspended and its implementation cancelled by the martial law regime which replaced the civilian government in July 1977 [National Taxation Reform Commission Report (1986)]. A more recent attempt to levy an agricultural income tax was made in August 1993 by the caretaker government of Moeen Qureshi. His government introduced a land

* The author is Mian Mohammad Shafi professor of Business-Government Relations, at the Lahore University of Management Sciences, Lahore.

tax based on quality index or PIUs (Produce Index Units) of land. In so far as PIU ownership is an indicator of potential farm income, the PIU based land tax is a presumptive tax on agricultural incomes. As the PIU based land tax has been interpreted as an income tax, its implementation has to await legislative measures by the provincial assemblies. We argue later that the issue of whether the tax in its present form is a provincial or a federal subject is by no means unambiguous.

Notwithstanding the arguments for a tax on agricultural incomes [see e.g., NTRC Report (1986)], a simple extension of income tax to the agricultural sector may be less desirable than a tax on agricultural incomes through output taxes or a combination of output and land taxes. A discussion of these and related issues in land taxation is provided in Hoff (1991) and Skinner (1991a), (1991b).

Agricultural incomes in Pakistan have been taxed directly through Land Revenue and *Ushr* and indirectly through trade policies (including monopoly control of international trade in cotton and rice), exchange rate and price policies. The PIU based land tax is likely to partially substitute for the existing taxes on agricultural incomes. While Land Revenue and *Ushr* will not only be retained and their collection system most likely streamlined, recent reforms in the trade and exchange regimes and the higher support prices offered to farmers suggest that the burden of implicit taxes on the farm sector will decline. The estimated burden of direct and indirect forms of taxation of farm incomes are reported in Qureshi (1987), Hamid, Nabi and Nasim (1990), (1991), Dorosh and Valdes (1990), Chaudhry (1991) and Nasim and Akhlaque (1992). In this paper an attempt is made to estimate the revenue potential from the PIU based land tax proposed by the government in August 1993 and from some other forms of land taxes.

Skinner (1991b) discusses the theoretical superiority of 'a pure site value tax on the implicit value of land excluding all improvements' over the more conventional export tax on agricultural commodities. He points out that it would be unrealistic to expect that a pure site value could be determined and that in practice a land tax takes one of three forms: (i) tax based on land area; (ii) tax based on the net income or market value of land, and (iii) tax based on objective measures of land such as soil quality, distance from market, and other factors, which are used as proxies for presumptive income and productivity.

In the following section we provide estimates of revenue from a tax based on objective measure of land productivity (PIUs). In Section III revenue estimates from a tax based on land area are provided while Section IV reports estimates from a tax based on market value of land. Some concluding remarks are made in the last Section.

II. Estimates of Revenue from the PIU Based Land Tax

The PIU based tax on agricultural incomes, introduced by the caretaker government of Moeen Qureshi, has bee termed 'agricultural income tax' although

it is in effect a land tax. The base of the tax is the Produce Index Units (PIUs) which is a measure of farm productivity. A tax on PIUs is, therefore, a tax on land measured not in terms of acres but in units of its quality. In this paper we would refer to the tax as Agricultural Income Tax (AIT) 1993.

A set of revenue estimates from a PIU based land tax similar to that introduced by the government of Moeen Qureshi is given by Khan (1991). We have reproduced in Appendix I an annex from Khan's paper which provides the assumptions, methodology and revenue estimates from a presumptive income tax with PIUs as thebase. Since the exemption limit and the tax rate per PIU are different in Khan's paper from those proposed in the new tax, the rate structure is revised in Appendix II to conform to AIT 1993. Except for the rate structure, all other assumptions in Appendix II are the same as in Appendix I.

The rate structure we have used in Appendix II for calculating the revenue from the PIU based land tax provides an exemption for land ownership upto 4,000 PIUs while the remaining PIU holdings are taxed at the rate of Rs.2 per PIU. This rate structure is the one proposed under AIT 1993.

The estimated revenue from the calculation in Appendix II is Rs.772 million. The contributions from Punjab, Sindh and NWFP being Rs.504 million, Rs.212 million and Rs.56 million respectively. This compares with the total budgetary estimates of provincial direct taxes of about Rs.1 billion in 1992-93.

We have attempted to estimate potential revenue from a presumptive income tax on farm incomes using an alternative methodology. We base our estimates on data from Pakistan Census of Agriculture 1980 [Government of Pakistan (1983)]. The Central Board of Revenue (CBR) estimated the average PIUs in Punjab, Sindh and NWFP in 1977 to be 63, 26 and 28, respectively. If farmers who own 4,000 PIUs are exempt from payment of tax as proposed under AIT 1993, then on the average, farmers who own 64 acres in Punjab, 154 acres in Sindh and 143 acres in NWFP would be exempt from payment of 'agricultural income tax', provided the CBR estimates of average PIUs are valid. To get indicative figures for tax revenue we have made some simplifying assumptions. The assumptions and the estimated revenue from this approach are given in Appendix III. (Appendix III is based on data in Appendices IV to VI. The latter are taken from Pakistan Census of Agriculture 1980). The estimated revenue is Rs.266 million which is about a third of that estimated using the distribution of PIU ownership.

In calculating revenue potential from the Agricultural Census data, we have implicitly assumed that the distribution of PIUs is independent of the distribution of farm size. This implies, for example, that for the province of NWFP, the average PIU per acre is 28 whether we consider farm size 'less than 150' or '150 and above'. The data in Appendix VI, taken from Pakistan Census of Agriculture 1980, suggests that this assumption might not hold and that in fact the average PIUs in the size group "150 and above" may be less than 28 and, therefore, a greater number of farm acres

would be exempt from tax than we have allowed in our calculation.[1] In other words, the potential revenue would be less than Rs.266 million.

The revenue estimate from land tax of the order of Rs.250 million compares with a figure of Rs.31 billion which was the projected revenue from income and corporate tax for FY 1992-93. The contribution of the agricultural sector should be of the order of Rs.10 billion if the agricultural sector's contribution to income and corporate taxes were to match its share in the GDP. It is obvious that the proposed form of land tax falls far short of achieving this objective.

So far we have focused on estimating the revenue potential of a presumptive income tax. We next present some evidence to suggest that the rate structure proposed in the AIT 1993 results in a lower income tax burden on the farm sector when compared with the tax burden of the income tax on the non-farm sector. Appendix VII taken from Cheema and Saleem, (1993) provides net farm incomes for small, medium and large farmers in the Punjab. It is seen from the appendix that medium and large farmers (those who own 12.5 to 25 and 25 and above acres respectively) earn about Rs.1,450 per acre per annum. If the farmers were to be taxed under the same income tax law which applied to the non-agricultural sector, the exemption from income tax would be available to farmers who earn Rs.30,000 per annum, i.e., own 21 acres on average. Under the proposed AIT 1993, exemption from tax is available to farmers who own 64 acres.

[1] Let X stand for PIUs and Y for farm size, then independence of X and Y would imply

$$E(X.Y) = E(X/Y)\,E(Y) = E(X).E(Y)$$

If we consider $Y > 150$ then independence requires that

$$E(X.Y.I_{\{Y>150\}}) = E(X).E(Y.I_{\{Y>150\}}) = E(X).E(Y) \quad (1)$$

where $I_{\{a\}} = 1$ if a is true; 0 if a is not true.

$E(X) = 28$ (Average number of PIUs in NWFP).

From Appendix VI, $E(Y.I_{\{Y.150\}}) = 366$ acres.

Thus,

$$E(X).E(Y.I_{\{Y>150\}}) = (28)(366) = 10{,}248 \text{ PIUs} \quad (2)$$

We also know that X and Y lie in the range [a, b] and [c, d] respectively such that

$$b \times d \leq 8{,}000 \quad (3)$$

(the maximum allowable limit for PIU ownership is 8,000).

Thus,
if X and Y are independent, then

$$E(X.Y) = E(X).E(Y) \leq b.d \quad (\text{since } E(X) \leq b,\ E(Y) \leq d) \leq 8{,}000 \quad (4)$$

From Equation (1) if X and Y are independent, then,

$$E(X).E(Y) = E(X).E(Y.I_{\{Y>150\}}) \quad (5)$$

$E(X).E(Y) \leq 8{,}000$ [from Equation (4)] and $E(X).E(Y.I_{\{Y>150\}}) = 10{,}248$ [from Equation (2)], it follows that Equation (5) is not satisfied and therefore the independence condition does not hold.

There are, of course, a number of arguments which can be made for a higher exemption level of income for the farmers. First, a fixed tax based on PIUs does not accommodate the considerable variability in farm incomes, unlike income tax on business incomes. Second, as the quality of life in the rural areas compares less favourably with that in the urban areas, some compensation in the form of 'discriminatory' tax structure is justified. Third, because many services e.g., schooling, health care, entertainment, etc., are available to farmers at a higher cost (after allowing for transport cost and adjusting for quality of services) than it is in the cities, lower tax on farmers is an adjustment for this locational disadvantage. Fourth, land tax cannot be evaded whereas businesses grossly under-report their incomes. Fifth, lower tax in the farm sector is a form of incentive to stem the flow of rural-urban migration, as urban centres are already overcrowded and civil amenities are stretched to the limit. Sixth, food security considerations are critical and necessary incentives should be provided to keep farming a viable investment opportunity.

The revenue estimates from a PIU based land tax for which we used the Agriculture Census 1980 relied on the CBR estimates of the average PIUs per acre for the Punjab, Sindh and NWFP. To see whether the average PIUs of 63, 26 and 28 correctly reflect the relative productivity of land in the three provinces, we attempted to estimate the average gross value of production per acre in Punjab, Sindh and NWFP in 1989-90 (the last year for which published data on production and acreage of crops is available for each of the four provinces). Based on some of the major crops [wheat, rice (Basmati), rice (Irri), cotton, sugarcane, tobacco, and mustard and rapeseed] we estimated that if average PIUs in the Punjab are normalized at the 1977 figure of 63, the PIUs in Sindh would be 55 per acre and 41 per acre in NWFP. Although further analysis, using data sets on all the major and minor crops, is required to get more precise figures on the relative productivity of land in the three provinces, there is strong evidence that the PIUs need to be revised to correctly reflect the quality of land, [see also Chaudhry (1986)]. If PIUs were to be adjusted in this manner, the revenue from Agricultural Income Tax would increase considerably.

III. Estimates of Revenue from a Tax Based on Land Area

We now turn to the second form of land tax mentioned in Section I, namely, a tax based on land area.

This form of tax is the simplest to implement. Total farm area in Pakistan is 47 million acres. Tax rate can be fixed easily to ensure a predetermined level of revenue. If the objective is to raise Rs.10 billion[2] from the agricultural sector in land

[2] The budget estimate of revenue from income and corporate tax was Rs.31 billion in 1992-93 [Government of Pakistan (1993)]. If Rs.10 billion is raised from 'agricultural income tax', the share of agricultural sector in total income tax would be the same as its share in the GDP.

taxes, then the tax per acre works out at Rs.213 per acre. If exemption is provided to farmers with less than 5 acres of land, the average tax rate increases to Rs.228 per acre. If exemption is provided to farmers with under 25 acres, the tax rate per acre jumps to Rs.518. Appendices VIIIa to VIIIe provide average tax burden for each farm size category under alternative assumptions on tax exemption.

The average tax burden on large farm holdings increase quite rapidly as more category of farmers are exempted from tax. If there were no exemptions, the tax would be proportional to farm area but may not be proportional to income. Some evidence from Census of Agriculture 1980 suggests that the average productivity of land (PIUs) may be negatively correlated with farm size. Incomes are, therefore, not likely to grow in proportion to farm area. This suggests that a proportional tax based on farm area may in effect be a progressive one. But judgement on this should be reserved till a detailed joint distribution of PIUs and farm size is available.

IV. Estimates of Revenue from a Tax on Land Value

The wealth tax on agricultural land in Pakistan is, in principle, a tax on the value of land except that land is not valued at market prices. Until recently, landowners were exempt from wealth tax if they were not liable to income tax. For others, land was valued at the rate of Rs.100 per PIU for wealth tax purposes. An amendment to the Wealth Tax Act was made by the government of Moeen Qureshi in 1993. As a result of the amendment, a PIU of land is valued at Rs.200. The amendment also removes the clause which allowed an exemption from wealth tax to farmers if their non-agricultural incomes were not in the taxable bracket.

Khan (1991), estimated revenue yield from wealth tax by valuing PIUs at the rates of Rs.200 and Rs.400 respectively. In order to arrive at his estimates, Khan (1991) had to make certain assumptions on the asset distribution of landowners (see Appendix IX). He estimated a revenue yield of Rs.491 million if PIUs were valued at Rs.200, and a yield of Rs.2.3 billion if PIUs were valued at Rs.400. Under the same assumptions as in Khan (1991), but with the wealth tax rates applicable for FY 1993-94, we estimated the yield from wealth tax to be Rs.709 million if PIUs were valued at Rs.200 as proposed in the amendment to the wealth tax.

Although we have not investigated the plausibility of the assumptions in Khan's paper, the assumptions on asset ownership (other than land) for each class of land holding is quite critical in arriving at the overall tax liability. Khan (1991) provides no explanation for the basis of his assumption. Since no alternative information on asset ownership of landowners is available to corroborate Khan's assumption, the estimates of revenue yield from the wealth tax should be treated with caution.

Next we look at whether the market value for land is underestimated by assigning each PIU a value of Rs.200. We note that in Punjab, an average acre of land would be valued at Rs.12,600 by wealth tax authorities (63 PIUs per acre valued at

the rate of Rs.200 per PIU). If the average net farm income per acre was Rs.1,450 in 1990-91 in the Punjab, as reported in Cheema and Saleem,(1993), (see Appendix VII), then this would imply investors' real discount rate of 11.5 per cent for the valuation to be realistic[3], or a nominal discount rate of about 23 per cent if the rate of inflation is close to the official figure of about 10 per cent.[4] Given the prevalent interest rate on commercial bank loans of around 22 per cent, the nominal discount factor of 23 per cent may not be an overestimate. However, if one were to consider that cash flow stream from land is more risky than a highly collateralized loan repayments to a bank, then the appropriate required rate of return from investing in land should be greater than 22 per cent. This would then suggest that the valuation of land at Rs.200 per PIU overestimates the market value of land.

Finally it may be important to point out that both AIT 1993 and the wealth tax on land, use PIUs as a base for taxation. The only difference between the two is the rate of tax per PIU that is employed in arriving at the tax liability of a farmer. It is not clear why a PIU based 'agricultural income tax' is treated as a provincial subject and a PIU based wealth tax as a federal subject. The constitutional position on provincial jurisdiction over 'agricultural income tax' and the federal jurisdiction over 'wealth tax' may be unambiguous, but where both these taxes are presumptive in nature, the constitutional position is less clear. Even if the provincial jurisdiction over presumptive income tax on agriculture is conceded, the federal government can prod recalcitrant provincial governments into introducing an 'income tax' by raising the spectre of further increasing the wealth tax. If the provincial governments are obdurate, the wealth tax can be increased simply by an upward revision in the PIU valuation (from the present Rs.200 per PIU).

V. Conclusion

In this paper we have provided estimates of revenue from a presumptive income tax on land and other land taxes. The tax which was proposed by the government in recent months has not yet been enforced. It is still not certain whether the provincial legislative assemblies will adopt the PIU based presumptive income tax. In any case, the tax will add very little to the provincial revenues if the present rate of Rs.2 per PIU is not revised. This paper has provided two alternative sets of estimates of

[3] The discount rate was obtained by solving for i, the following equation:

$$12{,}600 = \frac{1{,}450}{i}$$

where 12,600 is the present value of a perpetual annuity of Rs.1,450.

[4] For a given inflation rate (p) the nominal discount rate, r, is obtained from the equation:

$$r = \frac{1{,}450}{12{,}600}\ (1 + p) + p$$

revenue from the proposed tax. The revenue ranges from about Rs.250 million, using data from Pakistan Census of Agriculture 1980, to Rs.770 million using data from Land Revenue Departments.

We have also looked at revenue yield from a tax based on farm area and its impact on various farm size categories. We have obtained revenue estimates from a tax on agricultural wealth. We have suggested that valuation of land by tax authorities for wealth tax purposes may not be entirely unrealistic. In addition, we have commented on whether the tax burden from the proposed PIU based land taxwas comparable with the tax burden of income tax on the non-agricultural sector. The estimates indicate that the burden of tax is lower under the land tax. On the basis of some preliminary estimates of average gross value of production per acre, it appears that there is a need to adjust the PIUs in Sindh and NWFP upwards in relation to the PIUs in the Punjab.

Finally, we underline the point that the base of both the 'agricultural income tax' and the 'wealth tax' on land is the PIUs. The only difference between the 'wealth tax' and the proposed 'agricultural income tax' is in the rate structure of the two taxes. Although the Constitutional position on the federal or provincial jurisdiction over these presumptive taxes is unclear, it is in principle not difficult for the federal government to make the provincial governments institute an 'income tax' by using wealth tax rates on agricultural land as a leverage.

Lahore University of Management Sciences
Lahore

References

Chaudhry, G., 1991, Commodity taxation and input subsidies in Pakistan's Agriculture, Islamabad: Pakistan Institute of Development Economics.

Chaudhry, S.A., 1986, Pakistan : Agricultural Taxation Issues, Lahore : University of Management Sciences.

Cheema, M.A., and M.A.Saleem , 1993, Farm accounts, family budgets of rural families and cost of production of major crops in Punjab: 1990-91, Lahore: Punjab Economic Research Institute.

Dorosh, P., and A. Valdes. 1990, Effects of exchange rate and trade policies on agriculture in Pakistan, Washington DC: International Food Policy Research Institute.

Government of Pakistan, 1983, Pakistan Census of Agriculture, 1980, Islamabad: Agricultural Census Organization, Statistics Division.

Government of Pakistan, 1993, Economic Survey 1992-93, Islamabad: Finance Division.

Hamid, N., I. Nabi and A. Nasim, 1990, Trade, exchange rate, and agricultural pricing policies in Pakistan, World Bank comparative studies, Washington DC: World Bank.

Hamid, N., I. Nabi and A. Nasim, 1991, Chapter on Pakistan, in: A. O. Krueger, M. Schiff and A. Valdes, eds., The political economy of agricultural pricing policy, Maryland: The John Hopkins University Press.

Hoff, K., 1991, Land taxes, output taxes, and sharecropping: Was Henry George right? The World Bank Economic Review.

Khan, M. H., 1991, Resource mobilization from agriculture in Pakistan, The Pakistan Development Review.

Nasim, A., and A. Akhlaque, 1992, Agriculture taxation and subsidies, in: A. Nasim, ed., Financing Pakistan's development in the 1990s, Karachi: Oxford University Press.

National Taxation Reforms Commission, 1986, Government of Pakistan, Islamabad: Final Report.

Qureshi, S. K., 1987, Agricultural pricing and taxation in Pakistan, Pakistan Institute of Development Economics.

Skinner, J., 1991, If agricultural land taxation is so efficient, why is it so rarely used? The World Bank Economic Review, 5 (I)

Skinner, J., 1991, Prospects for agricultural land taxation in developing countries, The World Bank Economic Review, 5 (3)

APPENDIX I

Tax Estimates from PIU based Land Tax
for Pakistan as given in Khan (1991)

Method I :

1. The following distribution of land owners has been assumed, based on land ownership data in the early 1980s (Land Revenue Departments).

PIUs	Distribution of Landowners (in millions)		
	Punjab	Sind	NWFP
Upto 1,000	6.555 (88.0%)	0.430 (65.0%)	2.036 (94.0%)
1,001 - 2,000	0.447 (06.0%)	0.099 (15.0%)	0.065 (03.0%)
2,001 - 4,000	0.223 (03.0%)	0.066 (10.0%)	0.032 (01.5%)
4,001 - 6,000	0.186 (02.5%)	0.046 (07.0%)	0.026 (01.2%)
6,001 and over	0.037 (00.5%)	0.020 (03.0%)	0.006 (00.3%)
Total	7.449	0.662	2.166

2. Assume the following land tax rates:

	Upto 1,000 PIUs	- No Tax
I.	1,000 - 2,000 PIUs	- Rs. 1,000 + Re.1 /PIU
II.	2,001 - 4,000 PIUs	- Rs. 3,000 + Re.1 /PIU
III.	4,001- 6,000 PIUs	- Rs. 6,000 + Rs.2 /PIU
IV.	6,001 PIUs and over	- Rs.10,000 + Rs.2 /PIU

3. Assume the following average number of PIUs for each class of land tax payers:

Class	Punjab	Sind	NWFP
I.	1,400 PIUs	1,400 PIUs	1,200 PIUs
II.	2,500 PIUs	3,000 PIUs	2,400 PIUs
III.	4,800 PIUs	5,000 PIUs	4,500 PIUs
IV.	6,800 PIUs	7,000 PIUs	6,500 PIUs

4. The land revenue assessment will then be:

Land Class	Punjab	Sind	NWFP
	Million Rupees		
I.	Rs.1,072.8	Rs. 237.6	Rs. 143.0
II.	Rs.1,226.5	Rs. 396.0	Rs. 172.8
III.	Rs.1,785.6	Rs. 736.0	Rs. 390.0
IV.	Rs. 873.2	Rs. 480.0	Rs. 138.0
Total	Rs.4,958.1	Rs.1,849.6	Rs. 843.8

Method II

1. The only change in this method is about the tax rates. All other assumptions are the same as in Method I.

2. Assume the following tax rates:

Upto 1,000 PIUs	- No tax
More than 1,000 PIUs	- Rs.2/PIU

3. The land revenue assessment with these rates will be:

Land Class	Punjab	Sind	NWFP
	Million Rupees		
I.	Rs.1,251.6	Rs. 277.2	Rs. 156.0
II.	Rs.1,115.0	Rs. 396.0	Rs. 153.6
III.	Rs.1,785.6	Rs. 460.0	Rs. 234.0
IV.	Rs. 503.2	Rs. 280.0	Rs. 78.0
Total	Rs.4,655.4	Rs.1,413.2	Rs. 621.6

Source: Khan (1991), pp. 473-475

APPENDIX II

Estimate of Revenue from "Agricultural Income Tax' 1993

The estimates of revenue are based on the methodology in Khan [(1991), see Appendix I].

The only change in this method from that in Appendix I is the assumption on tax rates. All other assumptions are the same as in Appendix I.

We have assumed the following tax rates:

Upto 4,000 PIUs	- No Tax
Above 4,000 PIUs	- Rs.2/PIU

The exemption limit and the tax rate per PIU are the same as proposed in the Agricultural Income Tax, 1993.

The revenue assessment with these rates will be:

Land Class	Punjab	Sind	NWFP
	Million Rupees		
I.	Rs. 0	Rs. 0	Rs. 0
II.	Rs. 0	Rs. 0	Rs. 0
III.	Rs.297	Rs. 92	Rs. 26
IV.	Rs.207	Rs.120	Rs 30
Total	Rs.504	Rs.212	Rs.56

APPENDIX III

Estimated Revenue from Agricultural Income Tax usingData from Pakistan Census of Agriculture, 1980

Size of Farms (acres)	Farms (numbers)	Farm Area (acres)	Estimated Farm Area Exempt from tax	Farm Area Eligible for tax (acres)	PIUs Eligible for tax (million)	Estimated Tax revenue (Rs. million)
Col (1)	Col (2)	Col (3)	Col (4) = Col (2)xX[a]	Col (5) = Col (3) - Col (4)	Col (6) =Col (5)xY[b]	Col (7) = Col (6)x2
PUNJAB						
Above 64	58,239	5,581,460	3,727,296	1,854,164	116.80	234.0
SINDH						
Above 150	2,395	644,438	368,830	275,608	7.17	14.0
NWFP						
Above 150	1,481	542,476	211,783	330,693	9.25	18.5
Total						266.5

a) X is the number of acres exempt from taxation and equal 64 for Punjab, 154 for Sindh and 143 for NWFP.

b) Y is the average number of PIUs per acre estimated by the Central Board of Revenue in 1977 and equal 63 for Punjab, 26 for Sindh and 28 for NWFP.

Note:

(a) We have assumed that:

i) The number of farms and farm area in Sindh in size group "above 150" would be close to those for size group "above 154".

ii) The number of farms and farm area in NWFP in size group "above 150" would be close to those for size group "above 143".

(b) For Punjab we have collapsed the size category "50 - 150" and "150 and above" under one category of "50 and above". The size category "above 64" was constructed by assuming that 14% of the farms were in the size category 50 - 64 and that 14% of the farm area also falls within this range.

Source: Columns 2 and 3 are taken from Appendix IV - VI

APPENDIX IV

Number and Area of Farms by Size of Farm
PUNJAB

Area in Acres

Size of Farm (Acres)	Farms		Farm Area		Cultivated Area		Cultivated Area as % of Farm Area	Average Size of	
	Number	Percent	Total	Percent	Total	Percent		Farm Area	Cultivated Area
1	2	3	4	5	6	7	8	9	10
All Farms	2,544,520	X	29,975,097	X	26,341,383	X	88	X	X
Government Farms	107	X	77,215	X	32,597	X	42	X	X
Private Farms: Total	2,544,413	100	29,897,882	100	26,308,786	100	88	11.8	10.3
Under 1.0	109,338	4	53,810	*	49,039	*	91	0.5	0.4
1.0 to under 2.5	290,118	11	464,522	2	436,498	2	94	1.6	1.5
2.5 to under 5.0	404,428	16	1,419,132	5	1,347,076	5	95	3.5	3.3
5.0 to under 7.5	430,192	17	2,551,367	9	2,426,143	9	95	5.9	5.6
7.5 to under 12.5	566,249	22	5,462,486	18	5,136,854	20	94	9.6	9.1
12.5 to under 25.0	493,594	19	7,981,134	27	7,204,505	27	90	16.2	14.6
25.0 to under 50.0	183,960	7	5,791,675	19	4,953,676	19	86	31.5	26.9
50.0 to under 150.0	59,250	2	4,230,682	14	3,384,671	13	80	71.4	57.1
150.0 and above	7,284	*	1,943,074	6	1,370,324	5	71	266.8	188.1

X = Not Applicable * Percentage less than 0.5

Source: Pakistan Census of Agriculture,1980, Agricultural Census Organization, Statistics Division, Government of Pakistan.

APPENDIX V

Number and Area of Farms by Size of Farm
SINDH

Area in Acres

Size of Farm (Acres)	Farms		Farm Area		Cultivated Area		Cultivated Area as % of Farm Area	Average Size of	
	Number	Percent	Total	Percent	Total	Percent		Farm Area	Cultivated Area
1	2	3	4	5	6	7	8	9	10
All Farms	794,729	X	9,217,998	X	7,822,624	X	85	X	X
Government Farms	37	X	11,359	X	4,242	X	37	X	X
Private Farms: Total	794,592	100	9,206,639	100	7,818,382	100	85	11.8	9.8
Under 1.0	5,241	1	2,817	*	2,658	*	94	0.5	0.5
1.0 to under 2.5	64,332	8	105,262	1	102,136	1	97	1.6	1.6
2.5 to under 5.0	131,792	17	478,265	5	462,702	6	97	3.6	3.5
5.0 to under 7.5	156,291	20	907,526	10	876,758	11	97	5.8	5.6
7.5 to under 12.5	244,784	31	2,328,959	25	2,193,707	28	94	9.5	9.0
12.5 to under 25.0	132,002	17	2,258,205	25	1,958,162	25	87	17.1	14.8
25.0 to under 50.0	42,756	5	1,392,865	15	1,112,168	14	80	32.6	26.0
50.0 to under 150.0	15,099	2	1,088,302	12	771,939	10	71	72.1	51.1
150.0 and above	2,395	*	644,438	7	338,152	4	52	269.1	141.2

X = Not Applicable * Percentage less than 0.5

Source: Pakistan Census of Agriculture,1980, Agricultural Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VI

Number and Area of Farms by Size of Farm
N.W.F.P.

Area in Acres

Size of Farm (Acres)	Farms		Farm Area		Cultivated Area		Cultivated Area as % of Farm Area	Average Size of	
	Number	Percent	Total	Percent	Total	Percent		Farm Area	Cultivated Area
1	2	3	4	5	6	7	8	9	10
All Farms	527,912	X	4,107,178	X	2,625,216	X	64	X	X
Government Farms	28	X	8,592	X	4,522	X	53	X	X
Private Farms: Total	527,884	100	4,098,586	100	2,620,694	100	64	7.8	5.0
Under 1.0	63,567	12	30,565	1	28,121	1	92	0.5	0.4
1.0 to under 2.5	133,890	25	211,559	5	177,907	7	84	1.6	1.3
2.5 to under 5.0	125,659	24	424,677	10	330,549	13	78	3.4	2.6
5.0 to under 7.5	73,629	14	421,650	10	324,929	12	77	5.7	4.4
7.5 to under 12.5	62,563	12	586,746	14	436,637	17	74	9.4	7.0
12.5 to under 25.0	41,388	8	691,090	17	493,354	19	71	16.7	11.9
25.0 to under 50.0	17,054	3	544,676	13	350,830	13	64	31.9	20.6
50.0 to under 150.0	8,653	2	645,147	16	320,644	12	50	74.6	37.1
150.0 and above	1,481	*	542,476	13	157,723	6	29	366.3	106.5

X = Not Applicable * Percentage less than 0.5

Source: Pakistan Census of Agriculture,1980, Agricultural Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VII

Net Farm Incomes in Punjab (1990-91)

Farm Size Category	Farm Acreage	Net Farm Income per Farm	Net Farm Income per Cultivated Area
Small A	0 - 6.25	3580	852
Small B	6.25 - 12.5	10,966	1,182
Medium	12.5 - 25.0	24,534	1,452
Large	25 and above	53,352	1,458
Overall		13,083	1,270

Source: Cheema and Saleem, (1993). Farm accounts family budgets of rural families and cost of production of major crops in Punjab: 1990-91; Punjab Economic Research Institute, Publication No.289, June 1993.

APPENDIX VIII-a

Average Tax Burden by Size of Farm

Assumption: No Tax Exemption, (Tax Rate: Rs.218 per acre)

Size of Farms (acres) Col (1)	Number of Farms Col (2)	Average Size of Farms (acres) Col (3)	Average Tax Burden (Rs.) Col (4) = Col (3)x 218
Under 5	1,386,451	2.4	523
5 to under 7.5	684,585	5.9	1,286
7.5 to under 12.5	919,353	9.6	2,092
12.5 to under 25.0	705,173	16.5	3,597
25.0 to under 50.0	263,699	31.8	6,932
50.0 to under 150.0	96,141	71.9	15,674
150 and above	14,027	285.4	62,217

Source: Column 1 - 3 are taken from Pakistan Census of Agriture1980, Agriculture Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VIII-b

Average Tax Burden by Size of Farm

Assumption: Exemption for upto 5 acres (Tax Rate: Rs.228 per acre)

Size of Farms (acres) Col (1)	Number of Farms Col (2)	Average Size of Farms (acres) Col (3)	Average Tax Burden (Rs.) Col (4) = Col (3)x 228
Under 5	1,386,451	2.4	0
5 to under 7.5	684,585	5.9	1,345
7.5 to under 12.5	919,353	9.6	2,188
12.5 to under 25.0	705,173	16.5	3,762
25.0 to under 50.0	263,699	31.8	7,250
50.0 to under 150.0	96,141	71.9	16,393
150 and above	14,027	285.4	65,071

Source: Column 1 - 3 are taken from Pakistan Census of Agriculture,1980, Agriculture Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VIII-c

Average Tax Burden by Size of Farm

Assumption: Exemption upto 7.5 acres, (Tax Rate: Rs.252 per acre)

Size of Farms (acres) Col (1)	Number of Farms Col (2)	Average Size of Farms (acres) Col (3)	Average Tax Burden (Rs.) Col (4) = Col (3)x 252
Under 5	1,386,451	2.4	0
5 to under 7.5	684,585	5.9	0
7.5 to under 12.5	919,353	9.6	2,419
12.5 to under 25.0	705,173	16.5	4,158
25.0 to under 50.0	263,699	31.8	8,014
50.0 to under 150.0	96,141	71.9	18,118
150 and above	14,027	285.4	71,920

Source: Column 1 - 3 are taken from Pakistan Census of Agriculture, 1980, Agriculture Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VIII-d

Average Tax Burden by Size of Farm

Assumption: Exemption upto 12.5 acres, (Tax Rate: Rs.323 per acre)

Size of Farms (acres) Col (1)	Number of Farms Col (2)	Average Size of Farms (acres) Col (3)	Average Tax Burden (Rs.) Col (4) = Col (3)x 518
Under 5	1,386,451	2.4	0
5 to under 7.5	684,585	5.9	0
7.5 to under 12.5	919,353	9.6	0
12.5 to under 25.0	705,173	16.5	5,329
25.0 to under 50.0	263,699	31.8	10,271
50.0 to under 150.0	96,141	71.9	23,224
150 and above	14,027	285.4	92,184

Source: Column 1 - 3 are taken from Pakistan Census of Agriculture, 1980, Agriculture Census Organization, Statistics Division, Government of Pakistan.

APPENDIX VIII-c

Average Tax Burden by Size of Farm

Assumption: Exemption upto 2.5 acres, (Tax Rate: Rs.518 per acre)

Size of Farms (acres) Col (1)	Number of Farms Col (2)	Average Size of Farms (acres) Col (3)	Average Tax Burden (Rs.) Col (4) = Col (3)x 518
Under 5	1,386,451	2.4	0
5 to under 7.5	684,585	5.9	0
7.5 to under 12.5	919,353	9.6	0
12.5 to under 25.0	705,173	16.5	0
25.0 to under 50.0	263,699	31.8	16,472
50.0 to under 150.0	96,141	71.9	37,244
150 and above	14,027	285.4	147,837

Source: Column 1 - 3 are taken from Pakistan Census of Agriculture, 1980, Agriculture Census Organization, Statistics Division, Government of Pakistan.

APPENDIX IX

Estimates for Revenue from Wealth Tax on Agricultural Land in Pakistan as given in Khan (1991)

1. Following distribution of ownership holdings are taken for the provinces (1980 Censusof Agriculture, Table 12.1):

	Number of Ownership Holdings		
Size of Holding	Punjab	Sindh	NWFP
10 - 20 hectares	155,725	41,530	15,921
20 - 60 hectares	73,063	23,986	9,163
60 and more hectares	12,780	6,210	2,377

2. Average number of PIUs per hectare in each province are based on the Report of the National Taxation Reform Commission, 1986 (p.143):

Punjab	156 PIUs per hectare (63 PIUs per acre)
Sindh	64 PIUs per hectare (26 PIUs per acre)
NWFP	69 PIUs per hectare (28 PIUs per acre)

3. Existing rates of wealth tax in Pakistan are as follows:

First Rs.500,000	@0.5%
Second Rs.500,000	@1.0%
Third Rs.500,000	@1.5%
Fourth Rs.500,000	@2.0%
Rest	@2.5%

4. The formula for wealth tax liability according to the Wealth Tax Act of 1963 is:

Amount subject to Wealth tax = Taxable Assets other than Agricultural Land
plus
Value of Agricultural Land minus 100,000
Minus
Rupees one million

5. Assume following numbers of PIUs in each class of landholdings:

Size of Holding	Average Number of PIUs		
	Punjab	Sindh	NWFP
10 – 20 hectare	2,000	950	1,000
20 – 60 hectare	5,500	2,800	3,000
60 and more hectare	9,500	4,000	4,300

6. Assume the following values of assets other than agricultural land for each class of landholding:

Size of Holding	Average Number of PIUs			Value of Assets other than Agri-cultural Land
	Punjab	Sindh	NWFP	
10 - 20 hectares	2,000	950	1,000	Rs.250,000
20 - 60 hectares	5,500	2,800	3,000	Rs.500,000
60 and more hectares	9,500	4,000	4,300	Rs.1 million

7. Wealth Tax Revenues, based on Rs.200 per PIU (Scenario I) and Rs.400 per PIU (Scenario II), will be as follows:

Province	Scenario I		Scenario II	
	Total Revenue (Rupees)	Number of Taxpayers	Total Revenue (Rupees)	Number of Taxpayers
Punjab	451,037,500	85,843	2,104,721,000	85,843
Sindh	27,945,000	6,210	157,912,200	30,196
NWFP	12,122,700	2,377	73,430,300	11,540
Total	491,105,200	94,430	2,336,063,500	127,579

Source: Khan (1991), pp. 475-476