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Source: *The World Bank Economic Review*, Sep., 1991, Vol. 5, No. 3 (Sep., 1991), pp. 493-511

Published by: Oxford University Press

Stable URL: https://www.jstor.org/stable/3990009

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THE WORLD BANK ECONOMIC REVIEW, VOL. 5, NO. 3: 493-511

Prospects for Agricultural Land Taxation in Developing Countries

Jonathan Skinner

Countries that collect tax revenue from the agricultural sector through export taxes, marketing boards, and overvalued domestic currencies are often loath to abandon these distorting policies because of the consequent revenue loss. One potential alternative is to replace these distortionary taxes with a land tax, which would not depress output prices or discourage foreign exchange earnings and which could be, in theory, a highly progressive tax. The advantages and disadvantages of a land tax are examined theoretically and using the specific experiences of Bangladesh, Argentina, and Uruguay. It is concluded that the land tax is not necessarily more efficient than other types of taxes; the Achilles Heel of land taxation is administration; progressive tax rates based on land holdings are nearly impossible to administer; land taxes have been ineffective at promoting nonrevenue goals; political support by farmers is necessary to implement the tax; and the most promising prospects for a moderate land tax system are in financing local, rather than central, government expenditures.

Many developing countries use a combination of export taxes, marketing boards, and overvalued domestic currencies to raise revenue from the agricultural sector. The effective rates of taxation on selected exports during 1980–84, for example, were 50 percent for wheat in Argentina, 34 percent for rice in Thailand, and 36 percent for cotton in Egypt (Krueger, Schiff, and Valdés 1988). Although these explicit and implicit taxes are highly inefficient, they do provide a substantial amount of government revenue. In 1977 the agricultural sector in Argentina accounted for just 15 percent of gross domestic product (GDP) but contributed 40 percent of total central government tax revenue (Trapido 1988). Despite the demonstrated benefits of reducing tax-induced distor-

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tions, most countries facing budgetary pressures are unwilling or unable to forgo the tax revenue.

One apparent solution to this problem is to replace currently used taxes with a tax on agricultural land. Such a tax causes no distortion of farm produce prices and can potentially raise significant revenue. In 18th century India the land tax accounted for more than two-thirds of all government revenue collected; in the first part of the 20th century it was still responsible for more than one-third of government revenue (Bird 1974, p. 35). Moreover progressive land taxes, in which rates rise with total land holdings, can theoretically ensure that wealthier farmers with extensive land holdings bear most of the tax burden. Given the prospect of raising revenue in an efficient and equitable way, shouldn't central governments be encouraged to adopt a land tax?

The presumed theoretical superiority of land taxation over other forms of taxation has been addressed in recent papers by Hoff (1991) and Skinner (1991). This article provides a broader perspective on the prospects for agricultural land taxation. Historical trends in the use of land taxes are examined, the theoretical literature on the efficiency of land taxes versus export and commodity taxes is reviewed, the effectiveness of the land tax in achieving nonrevenue objectives is considered, and recent experience with land taxation in Bangladesh, Argentina, and Uruguay is discussed. The article concludes with summary observations on the feasibility of, and conditions necessary for, replacing export, income, or commodity taxes with land taxes.

I. Historical Patterns of Land Tax Use

Agricultural land taxation has a long history matched only by the history of resentment on the part of taxpaying farmers. Most governments shifted to less contentious sources of revenue, such as indirect taxes on domestic and international trade, at the earliest opportunity (Bird 1974, ch. 6).

Figure 1 illustrates the declining importance of agricultural land taxation as a source of central government revenue for six countries between 1940 and 1988. The importance of land taxation decreased most sharply in Nepal, where the land tax accounted for 55 percent of central government revenue following World War II but less than 2 percent in 1988; the importance of land taxation also declined drastically in Egypt and India. The decline of the land tax in India during the 20th century continues a trend begun in the 19th century: land tax revenue as a fraction of total revenue fell from 69 percent in 1793/94, to 36 percent in 1891/92, to 16 percent in 1938/39 (Bird 1974, p. 133), and to less than 1 percent currently. Local land tax revenue for Indian states also receded from 13 percent of total state tax revenue in 1951/52 to only 2 percent in 1978/9 (Titus 1984, pp. 53–54).

Other countries have had similar experiences with land tax revenue. The agricultural land tax in Taiwan fell from 2.7 percent of central government revenue in 1975 to 0.3 percent in 1984 (Riew 1987). The land tax in Turkey was

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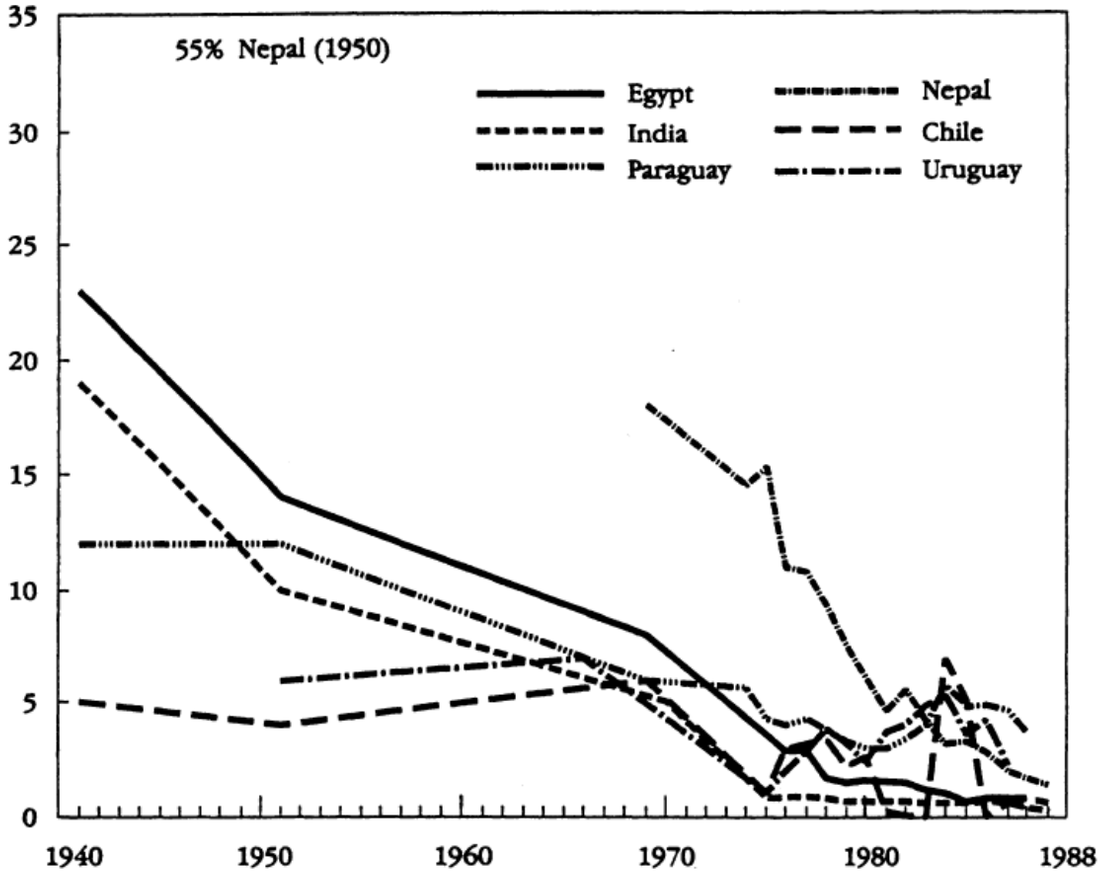
Figure 1. *Land Tax Revenue as a Percentage of Total Tax Revenue in Six Countries, 1940-88*



Note: Land taxes are defined as property taxes less corporate property taxes on financial and capital transactions. This classification includes urban taxes.

Source: Pre-1970 data, Bird (1974) pp.34–35. Post-1970 data, IMF (1984, 1989).

hobbled by lagging tax assessments in the mid-20th century, so that although the market value of land increased 50-fold between 1936 and 1960, land tax revenue rose less than threefold (Bird 1974, p. 68). The property tax on agricultural land in Indonesia has recently benefited from improved assessment and collection methods, but the effective rate on land value is just 0.1 percent. Although Chile and Uruguay have enjoyed some success with a federally administered land tax, these countries are exceptions to the overall trend. Currently, it is rare for more than 3 or 4 percent of total government revenue to be raised through land taxes.

Part of the land tax decline depicted in Figure 1 could be due to factors other than an absolute decline in the use of land taxation. If the share of agricultural GDP is declining over time (as one might expect in a developing economy), then a fall in the share of land taxes to total taxes should be expected. But the ratio of land tax to total tax has fallen over time, even after adjusting for the decline in

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the share of agricultural production.[1] The fact that land tax revenue is such a small fraction of total revenue implies that doubling or tripling land tax rates would have little impact on revenue. To boost land tax revenue to a significant fraction of total central government revenue would require a radical restructuring of current land tax systems.

II. Theoretical Aspects of Land Taxation

Nearly all taxes cause efficiency losses. Export taxes, for example, discourage domestic production, reduce foreign exchange earnings, and encourage domestic overconsumption of the taxed good. Income taxes may reduce labor supply, investment, and saving. The question of concern here is whether the land tax is necessarily more efficient than these alternative taxes.

Income taxes are not generally a viable option for taxing agriculture in developing countries because of unreliable farm records and home consumption of output. Tax authorities sometimes rely on presumptive income taxes based on an objective measure of farm productivity. Since land area and quality are the best indicators of farm productivity, the presumptive income tax becomes a de facto land tax (Bird 1974). Therefore in the theoretical section below the land tax is compared with an export tax. Export taxes (whether explicit or implicit) are most commonly used to raise revenue from the agricultural sector.

The effect of an export tax on domestic production and consumption of the agricultural good is shown in figure 2, in which the domestic demand curve, including both rural and urban consumers, is given by DD' and the domestic supply curve is given by SS'. Suppose that the country enjoys no monopoly power in world markets so that the world price of the commodity is fixed at P_0. Without the tax, producers receive P_0 and produce Q_0. The domestic quantity demanded is Q_1, so exports are $Q_0 - Q_1$. When a specific export tax is imposed, the world price remains at P_0, so that the price received by domestic producers declines by the full amount of the per unit tax, t. Domestic output falls to Q_2, domestic consumption rises to Q_3, and exports shrink to $Q_2 - Q_3$. The loss to producers from the export tax is the entire area *hjce*. Part of this loss, the shaded area *abcd*, is transferred to the government in the form of tax revenue and another part, the shaded area *hgde*, is transferred to domestic consumers in the form of lower prices and increased supplies available to the domestic market. By driving the domestic price below the world price, the tax also produces a deadweight loss equal to the area of the two triangles labeled α and β. The triangle β is the traditional production efficiency loss; the low net price to suppliers causes them to produce less than they would have without the tax. The

1. Adjusting the revenue share of land taxation by the ratio of GDP to agriculture value added corrects for the secular decline in the agricultural share of GDP. Because historical data are sparse, all of GDP was assumed to be from agriculture in earlier years. Even with this extreme assumption, the corrected ratio showed a strong decline in all countries except Chile, Paraguay, and Uruguay.

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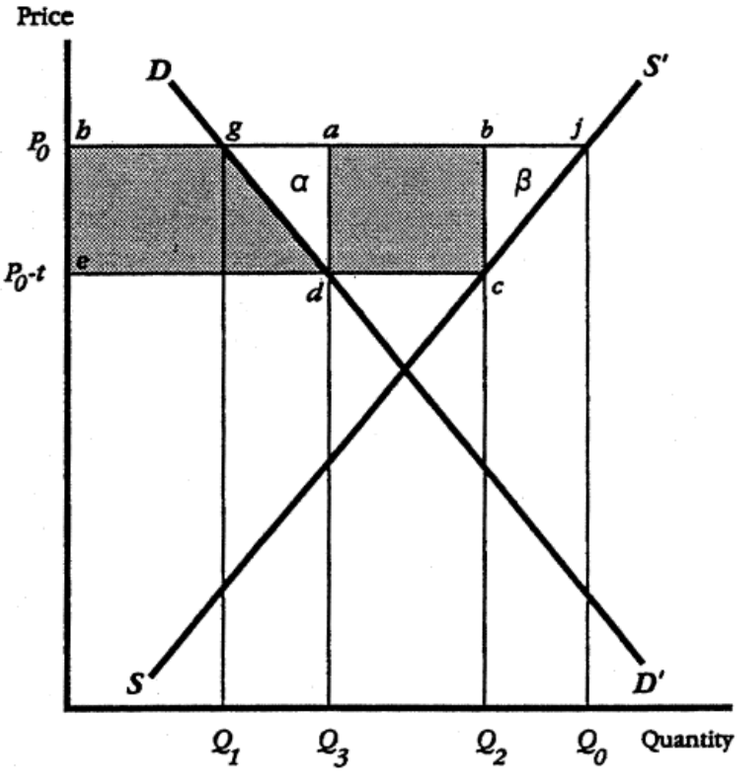
Figure 2. *Economic Effects of an Export Tax*



triangle α is the consumption efficiency loss; consumers respond to the lower domestic price by overconsuming relative to the good's value on the world market.

In contrast, a land tax assessed on the site value of the land (the intrinsic economic value of the land excluding improvements) causes no distortions because the site value cannot be altered or reduced by the producer. The producers therefore behave just as they did without taxes: they receive P_0, produce Q_0, sell Q_1 domestically, and export $Q_0 - Q_1$. Some proponents of the land tax even claim that the tax will increase supply (shift the supply curve rightward) as landowners, burdened with cash tax payments, are forced to use their land more efficiently. Such a shift of the supply curve would increase output and spur exports further. The deadweight losses α and β are not incurred, making the land tax a more efficient source of tax revenue. Because of its nondistorting nature the land tax enjoys a distinguished theoretical pedigree dating back to Henry George and David Ricardo.

Replacing an export tax with a land tax would affect more than farmers' incentive to produce. Because export taxes depress domestic as well as export prices of agricultural commodities, they are a very efficient way to transfer income from the rural to the urban sector (Trapido 1988). Because the replacement of an export tax with a land tax will increase domestic prices, farmers

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should prefer the land tax, whereas urban consumers should prefer the export tax.

Up to this point the analysis has assumed perfect certainty. When farm income is uncertain because of unforeseen yield or price fluctuations, the comparison between land taxation and export or commodity taxation changes. As Hoff (1991) has carefully shown, a fixed-rate land tax may be less desirable to farmers than an export tax because the land tax must be paid regardless of actual yields and prices. Land taxes thus increase the variance of net income. To the extent that governments have better access to credit markets than farmers, the export tax can serve a risk-pooling function (Newbery and Stiglitz 1981).

The empirical importance of risk pooling through export taxation in developing countries is not well established, but, even in a model incorporating uncertainty, land taxes may dominate export taxes. Numerical calculations suggest that the degree of output uncertainty must be high for even risk-averse farmers to prefer export taxes over land taxes (Skinner 1991). Deaton (1990) has argued persuasively that farmers are able to partially insure against bad harvests by precautionary saving so that the importance of risk pooling is reduced. In addition Hoff (1991) has shown that if risk-sharing institutions are imperfect, a combination of land taxation and commodity taxation dominates either tax in isolation. In Uruguay a land tax and a variable export tax are used in tandem, with appropriate adjustments in both taxes when world beef prices are low (Jarvis and del Rosario Medero 1988).

Orthodox economic theory showing that the land tax is more efficient than export or commodity taxes ignores administrative costs. A simple model developed by Skinner (1991) illustrates that administrative costs may be a relevant factor in choosing between land and export taxation. Under export taxation a farmer with more productive land will produce more output and pay more in taxes, all other things being equal, than a farmer with average quality land. Although export taxes may be avoided by smuggling goods past regulated shipping centers, harsh penalties for smuggling will induce a high degree of compliance even if the rate of detection is low.

Under a tax based on land quality, however, farmers have a strong incentive to misrepresent the productivity of their land. There is no "true" value of land, and reasonable people may differ over its inherent productivity or value, particularly when agricultural land markets are thin or when inflation is rampant. Assessing large penalties on taxpayers who incorrectly report low market land values could be viewed as confiscatory and patently unfair. To ensure equitable assessments, then, tax administrators must visit and evaluate individual plots of land. But such plot-by-plot surveying may lead to large numbers of appeals by landowners; Strasma and others (1987) suggest that just a 5 percent appeals rate can effectively shut down most land tax administration systems. Property assessment costs—the social cost of transferring resources from the taxpayer to the government—are an efficiency loss. Hence the land tax may be less efficient than the export tax once administrative costs are added in (Slemrod 1990).

If administering the land tax is so difficult, then why was it so important as a

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source of revenue in the 19th century? One reason is that alternatives such as income or trade taxes were not then capable of raising large sums of money because of low levels of trade and manufacturing. Also there may have been less concern in the 19th century with horizontal and vertical equity in tax collection. Countries may no longer be willing to exert the force necessary to stifle the "strenuous resistance and even uprisings" (Yamamura 1986) by farmers reacting to heavy land taxes.

Up to this point it has been assumed that the land tax is a pure site value tax on the implicit value of the land excluding all improvements. But as all tax administrators learn, one must give up "the quest for the Holy Grail of the 'true' value of land; there is no such thing . . ." (Bird 1974, p. 238). In practice, tax authorities typically choose one of three methods to assess the tax: an *in rem* (property) tax based on land area, a tax based on the net income or market value of the land, or a tax based on objective measures, such as soil quality, distance from market, and other factors, which are proxies for presumptive income or productivity.

Tax based on land area. An *in rem* tax based solely on land area is the easiest to administer. There is no need to assess land quality, so the cadastral requirements are minimal and tax authorities need not establish detailed ownership records. If cadastral records are incomplete and rates are low, farmers often prefer to pay the land tax, since it may help to establish ownership or title. The disadvantage of the tax based on land area is that the tax burden as a fraction of land value is largest on the least productive land and is smallest on the most productive land. If poorer farmers own less productive land, then the *in rem* tax is regressive, whereas the export or commodity tax tends to be progressive to the extent that poorer farmers consume more of their own output. Furthermore the revenue potential of an *in rem* tax is limited by the maximum acceptable burden on the least productive land. Because of these problems the *in rem* tax must remain a limited way to raise central government revenue.

Tax based on the net income or market value of land. A tax on the land's market value or net income includes improvements as well as the site value of the land, thereby partially shifting the tax to owners of capital and distorting incentives to improve the land.[2] Efficiency considerations are ignored here, and the focus instead is on the administrative difficulties of determining market value. One approach is to allow self-assessment of land value, but without penalties for underassessment such a method rarely yields much revenue. As one official commented concerning the self-assessment program in Colombia:

> . . . property owners' statements were—and are—highly undependable. Their memories are notoriously bad, both as to what they own and how much of it they own. And their modesty with respect to the value—for tax

2. For a debate on the neutrality of site value taxation, see Bentick (1979), Mills (1981), Tideman (1982), and Turnball (1987). For a good theoretical discussion of land taxation and shifting, see Bruekner (1986).

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> purposes—of their own property is simply incredible. (Morgan 1967 quoted in Bird 1974, p. 84.)

The problem with self-assessment is that there is often little or no penalty for "modesty." Accurate self-assessment may be encouraged by allowing the government or private individuals to bid on the disputed land; the taxpayer may then either sell the land for the bid price or pay the tax on the bid price (Strasma and others 1987). In equilibrium, all taxpayers will truthfully report the market value of their land. The disadvantage of such a technique is the potential for abuse or extortion (Bird 1974). For example, larger farmers can either buy out smaller farmers or force them to pay higher land taxes if they refuse to sell their land. Even if these bids are not actually carried out, they can be used as threats.

The other way to enforce market value taxation is to assess each plot of land using a cadastral survey and then to reassess the land periodically. This approach entails the substantial costs—before any revenue is collected—of conducting cadastral surveys; in Brazil the average cost per parcel was $220, or about $7 per hectare (Strasma and others 1987). It is estimated that the survey costs of a five-year cadastral revision cycle in Bangladesh would exceed the additional revenue collected (Skinner 1987). This method is also particularly vulnerable to inflation. In late 1986 the assessment on one plot of land in Bangladesh was fixed at its 1922 nominal rate! In theory it should be straightforward to index the tax rate to avoid the problem entirely, but in practice few tax authorities use indexing for land taxation. In part inflation may reflect real price shocks such as oil price increases. But politicians may also be loath to increase nominal tax rates and may choose to rely instead on ad valorem trade, income, and property transfer taxes that are buoyant with respect to inflation.

Tax based on objective measures. A land tax assessment that relies on objective features of the land, such as distance from the market, soil quality, and irrigation facilities, provides a crude measure of the income potential of the land. It is not a pure site value tax, because capital improvements such as irrigation increase tax assessments. In many respects this type of tax holds the greatest promise for future tax revenue. There is no need to rely on market assessments, and the tax can be adjusted for inflation by increasing the tax rate on the (constant) quality index of the land. Furthermore this type of tax can distinguish between as many or as few types of land as can be handled by tax administrators. For example, one could assess land tax based only on distance from the market or on objective measures of soil quality. For developing countries the administrative prospects for such objective grading of land are brighter than market-based approaches.

III. Nonrevenue Objectives of Land Taxation

Land taxation has often been viewed as a way to encourage a number of nonrevenue development objectives. One such nonrevenue objective is encouraging productive efficiency. That is, given output and input prices, it is thought

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that the land tax would encourage farmers to seek the most productive use of their land, perhaps even prodding large absentee landlords to sell "unproductive" land to small farmers. It is not clear at a theoretical level why a land tax should encourage more productive use of land, unless it is tied to a reduction in export taxation (which would increase domestic output prices). By definition an efficient tax should not affect land use decisions. However, it is possible that a sufficiently large land tax could spur landowners to work harder (an income effect) or to break away from reliance on traditional methods of production and seek new and more efficient methods (Leibenstein 1978).

The Meiji period in Japan has been cited as one illustration of how land taxation has improved agricultural productivity. Several researchers have suggested that after the imposition of a 25 percent tax on gross income during the latter part of the 19th century, farmers increased agricultural investments and sought to market their produce (Yamamura 1986). That is, the necessity of making cash payments to the government motivated farmers to work harder and more efficiently. One potential shortcoming of this explanatory link between land taxes and productivity is that other factors, such as improved regional markets and land reform, could have provided the incentive for improved agricultural investment. Furthermore the income effect of land taxation can cut both ways. Lindauer and Singh (1979) suggested that the heavy Indian land tax at the turn of the century may have reduced farmers' productivity and nutrition by cutting into consumption or may have forced peasants to borrow money during bad harvests. Subsequent defaults by small farmers increased the landless population and concentrated holdings among large landowners. In this case the income effects of land taxation discouraged productivity goals.

Land taxes are also sometimes believed to encourage efficient land use by discouraging speculation in idle land. Again the theory behind this belief is weak. Imposition of the tax reduces the market price of land, but, once speculators have suffered this one-time loss, their future expected profits from holding land are unchanged. To see this, suppose that the land tax reduces land prices by 20 percent and that land today is held in expectation that land prices will be higher next year. Because the tax reduces both the current and future land price by 20 percent, the rate of change in land prices is independent of whether the land tax is imposed or not (also see Tideman 1990). Land taxation would only effectively discourage speculation if it burst a speculative "bubble" in land prices.

A third nonrevenue objective of land taxation is to encourage land reform. Taxing large farm holdings at progressive rates could force their breakup into several smaller farms. Efforts to encourage land reform through this channel in Colombia and other countries have generally been unsuccessful for two reasons. First, commonly administered land tax rates have been neither large enough nor progressive enough to affect land use. In one study of Colombia, L. Harlan Davis concluded that:

> Because of low rates, the tax burden is a relatively small percentage of income and this fact . . . means that there is little opportunity for the

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> nonfiscal effects to operate . . . particularly . . . among the larger farmers, where the tax burden is lightest (Strasma and others 1987, p. 41).

Second, land taxation is politically unpopular because neither large nor small farmers like increased tax rates. At least the benefits of direct land reform are obvious to landless peasants (Bird 1974, pp. 262–67, and Strasma and others 1987).

More recently, land taxation has been proposed to promote the environmentally sound use of land. For example, land taxes could be assessed on environmentally harmful conversions of Amazon rain forests to cattle ranches, which would resemble a Pigouvian tax on the external effects of environmental degradation. Binswanger (1989) presents evidence that the existing land tax in Brazil actually encourages the destruction of the Brazilian rain forest because forest land is considered to be "unused" and as a consequence is subject to a higher tax rate. Even if the design of the land tax were to discourage deforestation in Brazil, the incentive is likely to be minimal given existing tax rates. Binswanger reports that for land plots above a minimum size, the statutory land tax rate in Brazil is 3.5 percent of the unimproved value of the land, with a reduction of up to 90 percent in tax liability, depending on land use. A more important factor in encouraging deforestation is the exemption of most agricultural profits from corporate and individual taxes in Brazil.

A land tax may still be able to affect environmental quality indirectly, by tying tax proceeds to a particular expenditure program. This "valorization" or earmarking of taxes may provide the most effective means for local self-financing of projects that combat deforestation, pollution, and erosion of waterways.

IV. Case Studies: Bangladesh, Argentina, and Uruguay

The experience of Bangladesh, Argentina, and Uruguay illustrates some of the advantages and disadvantages of the land tax described above.

Agricultural Taxation in Bangladesh

This section draws on Skinner (1987), Alm and Schroeder (1985), and World Bank data. In 1959–60 direct agricultural land taxes in Bangladesh (then East Pakistan) comprised 66.2 percent of all direct taxes and 19.8 percent of total central government tax revenue. Following independence small landowners with less than 8.25 acres were exempted from land taxes, but, because of the resulting fall in tax revenues, the government implemented the Land Development Tax (LDT) in 1976. The LDT consisted of a flat rate on commercial and residential areas, with a two-tier system for agricultural land: Tk3 ($0.09 in 1989 US dollars) per acre for holdings under 8.25 acres and a marginal rate of Tk15 ($0.45) per acre for holdings above 8.25 acres, with a minimum tax payment of Tk1 per land owner.

The commercial and residential rates were increased in 1980 and 1982, and in 1982 the agricultural rates were made sharply progressive, with nominal rates

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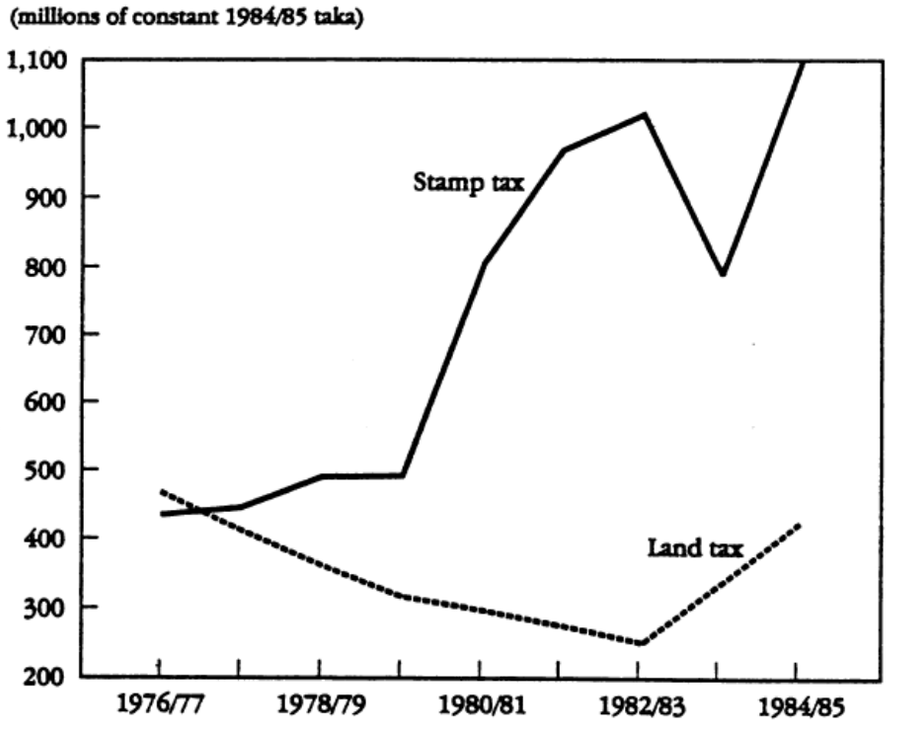
ranging from Tk3 per acre to a marginal rate of Tk145 ($4.35) per acre for land holdings larger than 25 acres. Following the 1982 adjustments, the industrial and commercial rates imposed on land near police stations (located in the cities of Dhaka, Khulna, and Chittagong) were 69 times higher than the maximum rate on agricultural land.

Total real revenue collected between 1976/77 and 1984/85, in 1984/85 prices, is shown in figure 3. Despite the substantial rate increases during the 1980s, inflation eroded the value of revenue collected, and only in 1985/86 did real tax collections regain the levels collected during 1976/77. LDT revenue also diminished relative to the aggregate tax revenue of the central government, and by 1987 the LDT accounted for only 0.2 percent of agricultural value added. Although some countries have simply replaced land taxes with indirect methods of raising revenue, such as overvalued domestic currencies and marketing boards, the Bangladesh government during the mid-1980s did not place such implicit taxes on the agricultural sector (Hossain, Rahman, and Akash 1985; World Bank data).

The difficulty of maintaining revenue from a nonindexed *in rem* land tax in the face of inflation contrasts with the ease of revenue collection for the Bangladesh nonjudicial stamp tax. In 1986 the stamp tax was assessed on property transfers at a progressive rate between 6 and 18 percent of the declared value of the property. As shown in figure 3, in 1976/77 revenue collection from the two

Figure 3. *Revenue from Land and Stamp Taxes in Bangladesh, 1976/77-1984/85*



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taxes were nearly identical, but by 1986 the stamp tax collected more than twice as much revenue. Property transfer taxes may be inefficient because they discourage the sale of property, but they are relatively easy to administer, and, because nominal property values rise with inflation, stamp tax revenue has been resilient to inflation in Bangladesh.

The 1982 revisions of the LDT made the tax substantially more progressive, with the ratio of the highest to the lowest marginal rate increasing from 5 (15:3) to nearly 50 (145:3). Given the substantial concentration of wealth in land holdings (Rahman 1982), the assessment on the wealthiest 1 percent of the population was calculated to be 55 percent of the total (projected) tax revenue of Tk453 million, or $13.6 million (World Bank data). This combined with the actual tax collections in 1985/86 of Tk485 million might suggest that the LDT is a highly progressive and effective tax. However, aggregate LDT revenue includes commercial and residential sectors, which, as noted above, are taxed at much higher rates than the agricultural sector. To measure the independent contribution of agricultural land taxes to LDT revenue, a survey of tax records was conducted in the Tangail and (rural) Dhaka districts.

In both tax offices the records of plot ownership and location dated from the early 1960s and were based on cadastral surveys from 1914. The most striking characteristics of the sampled records were the small average plot size and the high fraction of plots subject only to the Tk3 rate per acre (or the minimum Tk1 payment). Figure 4 shows the average tax rate by plot size and the corresponding number of plots. Sixty-eight percent of the sampled plots were smaller than 0.4 acres, and only 2 out of 111 plots were larger than 2 acres. Based on this sample, it seems clear that although some effort was made to assess progressive tax rates above the basic rate of Tk3 per acre, actual tax collections do not reflect the legislated degree of progressivity. Much of this lack of progressivity is due to the minimum Tk1 payment, which results in the smallest plots of land being assessed the highest average tax rates. But the degree of progressivity for the larger plots is still very slight.

The failure of the LDT as a progressive tax may result from the fragmented land holdings of larger farmers. According to the 1977 Agricultural Census, for example, 44 percent of large farmers reported owning 20 or more separate plots. Even among small farmers owning less than 1 hectare (2.47 acres) of land, 43 percent reported ownership of more than 6 plots. But aside from the very smallest plots of land subject to the Tk1 minimum, there was no agricultural plot of land in the sample subject to an average tax rate of more than Tk28 per acre.

There appeared to be substantial difficulty in matching plots of land to individual owners. The tax collector may have knowledge of local land ownership, but, given the large size of districts and land ownership outside of a single district, the collector may find it difficult to identify all the land held by a single owner. To complicate matters further, many plots are registered to long-dead owners (because of slow updating of records) or to multiple siblings or cousins

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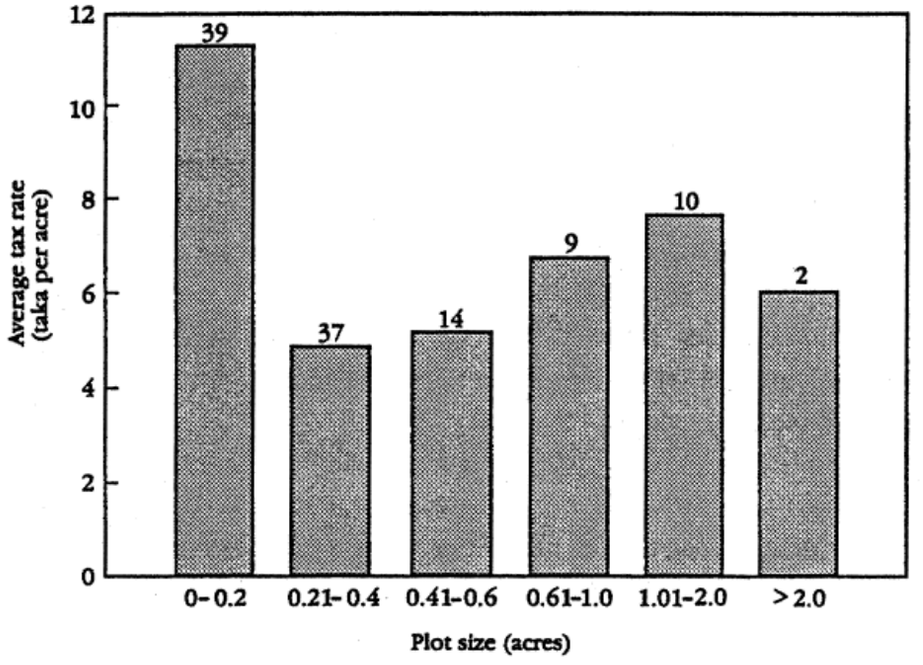
Figure 4. *Land Tax Rates per Acre by Plot Size in Rural Bangladesh, 1986*



Note: Numbers above the bars denote the number of plots in each size category.
Source: World Bank data and the author's unpublished data.

who have shared in a common inheritance. It appears that, in practice, many of the actual tax assessments were based on "discussion and imagination."

Even after adjusting for possible regional differences in the distribution of plot sizes (Miller and Wozny 1985), agricultural revenue cannot have accounted for more than two-thirds of total LDT revenue. It seems likely that much of the increasing LDT revenue collection in the mid-1980s resulted from collections in urban and commercial districts, and not in agricultural areas. Real tax rates for urban and commercial areas have risen in real terms between 1976 and 1986. Although Dhaka paid 5 percent of total LDT revenue in 1984/85, it accounted for 17 percent of the increase between 1984/85 and 1986/87.

The cost of administration must be subtracted from revenue to determine net revenue to the government. In 1985/86 administrative costs were 66 percent of tax collections, so only 34 percent of LDT revenue was available for central government use. The local tax office does provide valuable services, such as maintaining land records and providing land tax receipts, which are often viewed as informal land titles. Still the average administrative cost per taka of LDT revenue collected exceeds that for other taxes in Bangladesh by a factor of seven. In sum, the LDT on agricultural land is best thought of as a filing fee for annual ownership records, since it provides little revenue for central government operations.

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Land Taxation in Argentina

Whereas the land tax in Bangladesh is a dim memory of what it once was, the federal land tax in Argentina remains a dream of what it might be. As Trapido (1988) has discussed in his excellent survey, the intellectual basis for the land tax dates to the early 1960s, when it was viewed as a publicly palatable step toward land reform. The first federal government land tax, implemented in 1969 under the regime of General Ongania, imposed a flat tax of 1.6 percent of the market value of agricultural land. Despite public opposition, land tax collections averaged 24 percent of total agricultural taxes (or two-thirds of export tax revenue) during the few remaining years of the regime (Trapido 1988, p. 52). In successive administrations the land tax was converted to an agricultural income tax, and tax revenue lagged.

In 1986 a new land tax was proposed to replace the agricultural income tax. The land tax was viewed as preferable to an export tax because it would not depress output prices and would ensure a more stable supply of revenue to the government. Although the legislation introducing the land tax referred to the desirability of decreasing the export tax, this reduction was not explicitly linked to passage of the land tax. Furthermore the land tax revenue was designed not simply to replace revenue, which would be foregone if the export tax were eliminated (area *abcd* in figure 2), but to mop up the entire surplus from farmers (area *hbce* in figure 2), leaving them without surplus gains. Believing that the land tax would be added to an already heavy export tax, farmers opposed the land tax, and farming organizations worked to prevent legislative approval of the bill.

The vehement protests against the land tax should be understood in light of the historical tax bias against agriculture and, in particular, the large share of tax revenue contributed by the agricultural sector (Sturzenegger 1988; Trapido 1988). Furthermore the proposed land tax came on top of already quite heavy provincial land taxes. One study estimated local tax rates on net income from land at 10 percent for farmers in the Pergamino region (Trapido 1988, p. 45). A local land tax of this magnitude ensures stiff farmer opposition to a second layer of taxation imposed by the federal government.

An important lesson from the experience with the land tax in Argentina is that imposing a new land tax is a risky investment. The administrative apparatus of land taxation, including cadastral surveys and assessor training, must be put in place before a single austral can be collected. The tax can be thought of as a project with an up-front cost (for Argentina perhaps $6 million) and with a risky future return. For Argentina thus far the investment has not been successful; no revenue has yet been raised under the 1986 land tax proposal.

Land Taxation in Uruguay

Uruguay has enjoyed a more positive experience with land taxation. The land tax was first proposed in the 1960s by a group of cattle ranchers, who understood that, since only one-third of the country's beef output was exported, an

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equal-revenue land tax to replace the export tax would shift the terms of trade to favor producers. With the support of the World Bank, the tax was implemented in 1967, accompanied by a reduction in the export tax.

The land tax was originally a presumptive gross income tax based on an index of land quality measured in terms of its potential to produce beef and wool. The tax liability was the product of the land productivity index and an annual adjustment reflecting the output and prices of the baseline land yield. Costs of implementing cadastral and land record surveys were likely eased by the fact that more than half of Uruguay's agricultural land is in farms of more than 1,000 hectares (World Bank data).

A serious crisis occurred in 1974 when beef prices fell dramatically but land taxes based on productivity in 1973 came due. The total direct tax bill for 1973 (including a capital levy and social security taxes) was 43 percent of gross agricultural income in 1974, the year in which the tax was collected. Since net income (even before direct taxes) was negative in 1974, the land tax contributed to an already serious liquidity crisis for cattle ranchers. The ranchers argued successfully that the land tax should be based on net rather than gross income, which resulted in a new tax assessed on net imputed income. Neither the presumptive gross income tax nor the net imputed income tax relied directly on individual farmers' records of costs. During the 1980s the government attempted to move toward a tax based on the accounting records of individual ranchers, but this effort has not been entirely successful in increasing revenues. As an internal Bank study notes:

> The primary problem with the IRA (net income) tax is that it requires a reasonably sophisticated set of records, especially regarding inputs costs, which most Uruguayan farms and ranches cannot currently meet. It seems that such record keeping might be feasible over a period of years, but that the shift to IRA could not be applied on most farms without a significant decline in government revenue. Tax evasion is already a substantial problem in Uruguay.

Nevertheless the land tax contributes a substantial fraction of total taxes collected from the agricultural sector. Between 1977 and 1981 the land tax raised 31 percent of total agricultural tax revenue, and, although that percentage fell during the early 1980s, it had rebounded to 27 percent in 1986 (World Bank data).

The government did not eliminate the export tax entirely. Instead the export tax was often used to moderate the domestic price of beef during periods of high international beef prices. The export tax was used most heavily during the price boom of the early 1970s and later in 1977 and 1984. During downturns in beef prices the export tax was reduced or even removed. In contrast, the land tax collected a relatively stable fraction of agricultural product in the 1970s, although even this tax was removed during years of very poor beef prices (1982–83).

The land tax has provided a relatively steady source of revenue from the

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agricultural sector. Although Uruguay has stated its intention to phase out the export tax, it is a likely candidate to stabilize domestic beef prices should world prices rise in the future.

V. What Are the Lessons for Tax Reform?

Although one must be careful in drawing conclusions about the feasibility of land taxation from the historical experiences of a limited number of countries, a few lessons are suggested here.

The Land Tax Is Not Necessarily More Efficient Than Other Types of Taxes

At a theoretical level the land tax suffers from two general drawbacks. First, because the farmer is required to pay a given tax liability in each year, the land tax does not pool risk. The export tax, however, reduces the variance of annual net income so that risk averse farmers may prefer the export tax to the land tax (Hoff 1991). Although the increased risk to farmer income associated with land taxation may not be a fatal shortcoming (Deaton 1990; Skinner 1991), it does throw doubt on the theoretical supremacy of the land tax.

Second, the land tax may be costly to administer. On pure efficiency grounds it doesn't matter whether $1 is lost to society because of traditional inefficiency triangles or because an extra $1 is spent on administrative expenses. The higher cost of enforcing the land tax must be taken into account in comparing the overall efficiency of both tax systems. The question of which tax is preferred on efficiency grounds is ultimately an empirical one that has not been entirely resolved.

The Achilles Heel of Land Taxation Is the Problem of Administration

The theoretical tax base for land taxation is the net income or intrinsic value of the land, but determining land value is problematic. As was shown in Colombia, self-assessment is not particularly effective, since farmers have a strong incentive to underassess their land. There is indeed an incentive to evade any kind of tax. What makes land tax evasion more troublesome is that the true value of land cannot be precisely known. Even if each plot is assessed by trained officials, landowner appeals and the inflationary erosion of the assessment over time can quickly attenuate the revenue potential of a land tax.

Another option is to base the tax on objective measures such as land area and quality. A tax based simply on land area is easy to administer, but the tax is likely to be regressive if wealthier landowners own higher-quality land. Evidence from Latin America, and in particular Uruguay, suggests that land taxation based on crude measures of quality have been more satisfactory at collecting revenue than taxes based on market valuations and represent the most promising avenue for collecting land tax revenue.

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Progressive Tax Rates Based on Land Holdings Are Difficult to Administer

Most cadastral surveys are good at identifying land area, soil quality, and the owner of record. But the Bangladesh experience with attempting to link land records to trace ownership across parcels (and across regional districts) suggests that assessing progressive tax rates is difficult. Even if the tax administration could link land ownership records, taxpayers could still avoid the progressive rates by dividing land among family or business associates or by creating a twisted paper trail of ownership records. A small amount of tax evasion can result in large revenue losses under a progressive tax system. In Bangladesh, for example, splitting a 24-acre lot into three equal parts reduces land taxes owed by two-thirds. Evasion and incomplete land records often lead to quite disappointing revenue collection under a progressive tax system.

Land Taxes Have Not Proved Effective in Attaining Nonrevenue Goals

Development experts in the past held great hopes for land taxation to effect desirable nonrevenue goals. It was viewed as a means to encourage more productive use of land and to prompt "voluntary" land reform. However, it has not been successful in achieving these objectives. First, the theoretical underpinnings for why the land tax should promote such objectives is weak. Second, and more important, land taxes rarely have had sufficiently sharp teeth to affect land use decisions. More recently, land taxation has been proposed to encourage environmentally sound land management. Although it seems clear that the World Bank should discourage taxes that encourage environmentally unsound land management, land taxation at its current low rates is unlikely to have more than a marginal effect on improving land use. A better use of land taxation for environmental purposes would be to use the revenue thus collected for local environmental expenditures.

Political Support for the Land Tax Is a Necessary Precondition for Its Success

This may appear to be a tautology, but its fundamental truth is often overlooked. The contrast between the success of the land tax in Uruguay and its failure in Argentina is instructive. The land tax in Uruguay at least partially replaced export taxes in response to political pressure from the ranchers themselves, whereas Argentine farmers viewed the land tax as yet another attempt by urban political powers to extract resources from the agricultural sector. The 1986 Argentine tax reform might have enjoyed more success had farmers believed that the increase in land taxes would be accompanied by a reduction in export taxes.

The Best Potential for Land Taxation Is in Financing Local Governments

Although agricultural land taxation may provide only a trivial fraction of central government revenue, it often accounts for a large portion of local government revenue. For example, in many districts in Indonesia 60 to 70 percent

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of discretionary local revenue is provided by the land tax, despite its low rate of only 0.1 percent of assessed value. The lower revenue requirements of local governments allow the land tax to take the form of *in rem* taxes based solely on area or based on crude measures of land quality. As noted above, although these types of taxes cannot raise large amounts of revenue in an equitable way, they have the great advantage of being relatively easy to administer.

Another lesson from country experiences with land taxation is that to succeed, there must be some political sentiment in its favor. It is likely that a local land tax with proceeds used for local betterment or valorization projects would enjoy greater acceptance (or at least lessen smoldering resentment) than a central government tax used to finance projects in far-away cities. The wide acceptance of land taxation for local governments in many different countries (and particularly in Latin America) suggests that the brightest future for agricultural land taxation is not to replace central government export taxes but to provide a resilient source of financing for local government expenditures.

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