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CONSEQUENCES OF LIMITED RISK MARKETS AND IMPERFECT INFORMATION FOR THE DESIGN OF TAXES AND TRANSFERS: AN OVERVIEW

1991

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Working Paper No. 8

This publication was made possible through support provided by the U.S. Agency for International Development, under Cooperative Agreement No. DHR-0015-A-00-0031-00.

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Consequences of Limited Risk Markets and Imperfect Information
for the Design of Taxes and Transfers: Overview

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The central thesis of this book is that sound policies for the rural sector of developing countries must be based on an understanding of the structure of rural organization, and that rural organization can, in turn, be interpreted as partly the consequence of limitations on information and the absence of a complete set of risk markets. Part I of this book developed theories of rural credit markets, theories that help inform us concerning the consequences of various government interventions in that area. Part II examined the land market and the consequences of government policies, such as land reforms and titling, for not only the land market but also the credit and labor markets.

We observed that institutions are, to some extent at least, endogenous. Institutions such as customary law respond to, and become an important part of, the economic environment. What happens in one market can give rise to institutional changes that affect other markets, and these interactions across markets go well beyond the simple price interactions captured in standard general equilibrium models.

This part of the book addresses the role of taxation and government pricing policies in LDCs. In almost all countries governments intervene in

the market for agricultural goods. The intervention may take the form of taxes on producers, subsidies to urban consumers, or trade taxes or quotas. Government's effects on prices are more hidden when government exercises a monopoly on marketing rights over a product. In such cases government marketing boards buy the farmers' output and sell it either to the urban sector or for export. The wedge between the buying and selling prices is equivalent to a tax or subsidy, but it may not be visible.

There are many rationales for government interventions. Most obviously, the rural sector is the largest sector of most LDCs,¹ and so is a natural source of tax revenue.

Government marketing boards were established in many countries in an attempt to eliminate the monopoly power of middlemen (who frequently were of different ethnic backgrounds than the producers). But inefficiency and corruption within government marketing boards has sometimes resulted in wedges between producer and consumer prices that are at least as high as those of the displaced middlemen.

Other kinds of market failure that provide a justification for government interventions in price policy or provision of credit and insurance are the absence of risk markets or credit markets. In addition, concern about the distribution of income generated by the free market provides a justification for redistribution programs through, e.g. food subsidies in the urban sector, public works projects, or regional targeting of public investment.

But in many of the official explanations for government interventions, there is more rhetoric than rationality. As Newbery [21] comments in his

¹See the statistical survey in Baum and Tolbert, 1985.

chapter on commodity price stabilization, government programs ostensibly designed to alleviate the consequences of imperfect risk markets are far different from those that would be designed if that were really their main objective. Many programs justified as measures to reduce income inequality would also be designed differently, if that were really their objective. On standard egalitarian criteria, it makes little sense to take money from poor farmers to give it to less poor urban dwellers, or to subsidize grains consumed disproportionately by relatively high-income urban dwellers. A surprising finding of Braverman, Kanbur et al.'s [22] case study is that the ad hoc policies of price stabilization implemented by Brazil in the 1970s induced greater price instability for several crops than would have occurred in a free market.

Still, the fact remains that there is a role for government in correcting market failures. When markets are incomplete and information is imperfect, there is no presumption that market allocations will be (constrained) Pareto efficient, so that there is a potential role for corrective (Pigouvian) taxation. Some governments, moreover, do exhibit a genuine dissatisfaction with the distribution of income yielded by the market process and a corresponding genuine concern for redistributing income. An understanding of the theory of rural organization, and the theories of imperfect information and imperfect markets upon which it rests, can help governments attain their objectives.

Limitations on government have been a very active research area over the past decade. Here, we do not wish to dwell on the political economy limitations--the complex of forces that lead governments to undertake policies that, in the name of redistributing income from the rich to the poor or of

increasing economic efficiency, do just the opposite. Rather, we wish to focus on another set of limitations: those that arise out of the limited powers of government. Since Ramsey's (1927) classic paper, public finance economists have been concerned with the question of how to design tax systems when the government cannot impose individualized lump sum taxes.² These problems are sometimes referred to as *problems of the second best*: it is obviously better to impose lump sum taxes than distortionary taxes.

Two basic lessons emerged from the earlier literature: (a) the design of the tax system is highly dependent on the set of instruments that the government has at its disposal; (b) the set of instruments at its disposal should be viewed endogenously. Let us illustrate each proposition. If the government can use income taxes to redistribute income--as it can and does in most developed countries--then there will be much less need to rely on excise taxes to redistribute income. (In some cases, there will be absolutely no need for redistributive excise taxes, as Atkinson and Stiglitz [1976] point out.) Second, what instruments the government has at its disposal depends, inter alia, on the country's history of taxation, its infrastructure, its dependence on world trade, the level of commercialization, the rate of literacy, and the availability of a skilled workforce to draw on to administer taxes. Expanding the set of instruments in use is often feasible at some administrative cost, as described in the chapter by Besley [20].

More recently, attention has focused on a third basic lesson (see Sah

²A government can, of course, impose uniform lump sum taxes. But the government does not have the information required to undertake redistributive lump sum taxes between the rich and the poor. To judge who should be taxed or who should receive subsidies, the government must look to observable variables, like income, and these are almost inevitably under the control of the individual. Basing taxes and transfers on such variables distorts behavior.

and Stiglitz [1991]), which perhaps should have been obvious, but has seemingly been missed in much of the literature (see, e.g. papers in Newbery and Stern 1987): the design of tax structures should be sensitive to many more elements in the economic environment than are summarized by elasticities of demand and supply. Earlier literature on optimal tax theory focused on economic environments in which there was full employment and no market distortions. The sole concern of tax policy was to raise revenue and redistribute income in such a way as to minimize the distortions caused by the tax/subsidy system. It was not designed to correct pre-existing distortions. Corlett and Hague [1953] showed that one could interpret the optimal tax system as one which was designed to offset the distortions induced on the supply of labor. Income taxes lead to too small a supply of labor; and commodity taxes, by taxing complements of leisure and subsidizing substitutes, could reduce this distortion.³ But surely, the central problem in LDCs with high unemployment rates is not that taxes will somehow reduce the supply of labor: reducing the supply of labor, and thereby reducing the magnitude of open unemployment, might actually be viewed as a good thing.

It is here that the theory of rural organization in LDCs becomes particularly relevant. The design of tax and pricing policies needs to take into account the nature of the institutions and markets within rural and urban organization. Earlier work (e.g. Stiglitz 1974) showed how optimal pricing policies depended on the nature of labor markets and urban-rural migration. The chapters in this Part show how standard results with regard to agricultural tax policy change when account is taken of imperfections in risk

³Atkinson and Stiglitz [1972] showed that their interpretation can be extended beyond the three-commodity example which they had investigated.

and credit markets, the nature of land tenure, and the possibility that changes in the tax structure or pricing policies may affect rural organization in the long run. Institutions cannot be simply treated as immutable.

Consequences of Limited Risk Markets

Limitations on risk markets provide a telling example of the importance of an understanding of rural organization for the design of tax policy. Just as economists have had a longstanding preference for lump sum taxes, so too have land taxes been a subject of veneration at least since Henry George. Such taxes are non-distortionary (and in some cases, may even raise all the revenue required to pay for public goods and services (Stiglitz, 1977)). Since land is generally held by richer individuals, such taxes were viewed as desirable as well on equity grounds. The failure of governments to institute such taxes was seen as evidence of perversity on the part of government--or at least evidence that government was in control of landed elites.

But if there are imperfect risk markets, then land taxes have the disadvantage that they do not vary with farmers' output; they are not "state contingent." The tenants and the landlords must bear all the risk. There may be high costs associated with making the private sector bear this risk--not only in terms of reduced welfare, but in some cases reduced output as well. Taxes that are related to output represent a sharing and pooling of risks.

An analogy will be useful. Sharecropping contracts are often preferred to rental contracts because rental contracts are not state-contingent. In a rental contract, the payment from tenant to landlord does not depend at all on the level of output. If workers and landlords, in their voluntarily arrived

at agreements, decide to use state-contingent contracts (sharecropping), shouldn't that be an indication that in the "contract" between the government and its citizens, a state-contingent contract might be desirable? In particular, the government is arguably in an even better position to absorb risk (since it can spread and pool risk over the entire population) than landlords are.

Hoff [18] formalizes this argument. She shows that a mix of output taxes and land taxes is preferable to a pure land tax regime, thus reversing the longstanding presumption in favor of land taxes only.

She also shows that when there is sharecropping in the rural sector, the terms of the sharecropping contract may change as the government changes its tax structure. If landlords were risk neutral, landlords would presumably not alter the contract that they offered their workers as a result of a land tax on the landlord, while if the land tax was imposed directly on the tenants, then the contract would be changed so that the landlord absorbed the risk. But the assumption of risk neutral landlords is an extreme one. If landlords are risk averse and if their risks are increased (as a result of a switch from an output tax to a land tax), then they may share some of that risk with tenants through a reduced sharecropping rate; and this in turn will reduce incentives. Thus the proposition that a mix of output and land taxes is preferable to a pure land tax regime holds as well when there is sharecropping in the rural sector. Of course, contract terms may adjust slowly, but there is often "hidden consideration" so that actual terms adjust even when the explicit terms of the contract remain fixed. In the long run, a switch from one tax regime to another can have the kinds of deleterious effects we have just described.

When there is sharecropping in the rural sector, taxation in the rural sector thus needs to take into account the already pre-existing "distortion." For example, a 50-50 share contract means that the peasant already is paying, in effect, a 50 percent tax on his output. That "tax" may be optimal--given the absence of alternative risk sharing mechanisms--but nonetheless it has real consequences. Deadweight losses from taxes increase with the square of the tax, so that government-imposed taxes in that context may be particularly distortionary.

Concern about the absence of risk markets provides the explicit rationale for another set of government programs, commodity price stabilization schemes. Such schemes are considered in the chapters by Newbery [21] and Braverman, Kanbur et al. [22]. Newbery [21] suggests that a closer look at these schemes raises questions about the extent to which that is really their objective. In practice, such schemes often seem a way not so much to stabilize but to transfer income across groups.

A second issue that Newbery raises is that when governments rely on commodity taxes for a large part of their revenue, how should government's concern to stabilize prices, and to reduce inequality, get reflected in the adjustment of the tax rates to changes in commodity price levels? There are important tradeoffs here, which may mean that government would not wish to stabilize farmers' prices.

An important question is whether private institutions might be developed to accomplish the risk reduction objective, institutions that would be less vulnerable to political and fiscal pressures? One possibility is the use of futures markets. These have the great advantage that the individual can decide on how much he wants to have his income stabilized, i.e. to what extent

he wants to sell his crop forward. So long as there is uncertainty about the size of the farmers' crop, futures markets cannot eliminate all risk--they may not be able to do as good a job at stabilizing incomes⁴ as an appropriately designed commodity price stabilization program--but they can do a far better job than many, perhaps most, currently employed stabilization programs. (See also Newbery and Stiglitz, 1981.)

There is, however, one major obstacle: The absence of futures markets should not be taken as a happenstance. Even in the United States, only limited use of futures markets is made by farmers. There is a simple reason: asymmetries of information, contributing to a high degree of imperfection of competition. U.S. markets for grains, for instance, are dominated by five or fewer firms. Small farmers are much less informed than these large traders concerning future market conditions. They do not feel that trading on the futures market is playing on an even field. They worry that the large traders will take advantage of their lack of information.

Consequences of Credit Rationing

The absence of a complete set of risk markets is the market imperfection whose consequences for tax policy are the focus of this Part, as discussed above. However, the general point that taking account of pre-existing economic distortions can overturn standard results in tax policy can also be illustrated by an example involving credit markets and the role of fertilizer subsidies. Economists have had a longstanding presumption against such

⁴What farmers are concerned with is, of course, the variability of their income, not the variability of prices per se. Where price and quantity move in opposite directions, stabilizing prices may actually increase the variability of income.

subsidies, which seem to interfere with economic efficiency. The traditional argument is that only if there is some externality associated with the use of fertilizer would a subsidy be called for. (In those terms, a tax is more likely to be desirable than a subsidy, since water runoff from fertilized fields can pollute water supplies in the long run.) This efficiency argument is strengthened by an equity argument: those farmers most likely to take advantage of the subsidy are rich farmers.

These arguments may need to be qualified in the presence of credit rationing. Assume small, relatively poor farmers can obtain only a limited amount of credit with which to buy fertilizer. The marginal value of fertilizer to them is much higher than to rich farmers. Lowering the price of fertilizer is of greater value to poor farmers than to rich: though they buy less fertilizer, the credit constraint is more important to them. Moreover, output is increased, because the "shadow" value of fertilizer is quite high. Finally, even the government may benefit, since the government recaptures a share of the increased output through its taxes on output.

Limitations on Government

These examples show how rural institutions should affect the design of tax policies. We now turn to see how limitations on government, in the context of taxation in the rural sector, affect the design of tax policy.

The most basic limit on government is that on its information. Skinner [19] emphasizes the importance that this has for land taxation. Earlier, we noted that the reason that government does not impose lump sum taxes is that it lacks the information required to differentiate the taxes according to ability to pay, or according to any other "fair" criterion. A uniform lump

sum tax would be viewed as unfair. Just as government lacks information on the basis of which to differentiate taxes on individuals, so too does government lack the information on the basis of which to differentiate fairly taxes on land. Land is of different quality. In well-functioning markets, land prices would reflect those differences in quality, just as wage differences would reflect differences in individuals' abilities. But in LDCs, markets for land are notoriously imperfect. Markets are sufficiently thin that government cannot rely on transaction prices to value land. And leaving land valuation to government officials--in the absence of strong checks provided by the market--is an invitation to corruption. (In the United States in the nineteenth century, the property tax became greatly vilified, because of the seeming capriciousness, or corruption, of assessors.) These information limitations thus provide a second reason, beyond that provided by Hoff, for looking askance at heavy reliance on a land tax.

Just as the limitations on governments' information has strong implications for the design of taxes, so too limitation on government information has strong implications for the design of subsidies, which are explored in the paper by Besley [20]. The government needs to target its limited funds where the funds are most valuable, i.e. to those whose real incomes are lowest. In the design of transfer systems, most economists have until recently argued that redistributions should take place through cash expenditures or tax policies, not through in-kind payments. The disadvantage of transfers in the form of goods or services (when resale is difficult or impossible) is that they distort consumption. Recently, economists have recognized that the efficiency cost of consumption distortions may be outweighed by the advantages of in-kind transfers in targeting the needy. (See

Blackorby and Donaldson, 1988 and Besley 1992.) For example, if the poor are offered transfers of cash, everyone has an interest in representing himself as poor. But if food-for-work programs are provided instead, only the intended beneficiaries may be interested in the transfers. In that case, the transfers have the property that they are self-targeting. Such transfers may eliminate the need for costly (and generally imperfect) certification of eligibility.

Another approach to transfer policy when information on individuals is very costly to obtain is to use an indirect indicator of poverty -- such as region of residence, age, or ethnicity. This approach is called statistical targeting. Many developed countries have implemented statistical targeting for the aged, and many less developed countries have implemented it on the basis of region. Regional targeting is the subject of the final case study in this Part. In that chapter, Ravallion [23] simulates the effect on poverty in Indonesia of substituting a set of regional-based transfers for Indonesia's current system of transfers from the federal to the provincial government. His result is that such targeting would have a greater impact in reducing poverty than Indonesia's current set of transfers, but that nonetheless the impact on poverty is small.