

CHAPTER 1

Development-Oriented Tax Policy

Joseph E. Stiglitz

INTRODUCTION

No public policy issue is more important than the *structure* and level of taxes. Governments have fallen because of tax reform. Proposals to extend the value-added tax (VAT) or increase its rates have caused political agitation in many countries, including Ecuador and Mexico. In many less-developed countries, a shortage of funds impedes development efforts, yet attempts to increase tax revenues not only meet enormous political resistance but are often futile. Simplistic recommendations to increase the power of the tax police often backfire, generating substantially more revenue for the tax collectors but very little extra for the public fisc.

Part of the problem lies in the fact that those providing advice on taxation to developing countries are insensitive to the differences in economic and political structures both among developing countries and between these countries and more developed ones, to the administrative difficulties faced by developing countries, or to their differing objectives. To take but one example: standard textbook expositions of the objectives of tax policy *for developed countries*, for instance, emphasize efficiency, and more recent expositions discuss problems of tax avoidance and evasion but seldom note corruption. But corruption has increasingly come to be recognized as one of the major challenges facing developing countries. Designing institutions and policies, *including tax structures*, that reduce the scope for corruption—what we call *corruption-resistant tax structures*—thus should be a central concern in tax design. While outside advisers often lecture moralistically on the need to improve tax administration and reduce corruption, they seldom address corruption as part of tax *design*. This illustrates how differences in the structure of the economy (where that term embraces institutional capacities—the ability to control corruption) and objectives (reducing corruption) dictate a difference in tax policy.

One important reason that differences in economic structures are important is that they affect compliance costs and the set of feasible taxes. Any particular tax can only be assessed relative to the set of feasible taxes and in the context of the *totality of taxes* imposed. Thus, although both developing and developed countries may view redistribution as an objective of tax policy, fewer instruments for redistribution may be available to developing countries. For instance, a well-known result holds that with an optimal income tax, there is (in a central case) no need to rely on commodity taxation for redistribution.¹ For countries that can impose a progressive income tax, the design of commodity taxation need not, accordingly, pay much attention to distribution concerns; for developing countries, which often have difficulty in enforcing effective progressive income taxes, distributive concerns may be paramount.

Objectives also differ. It is quite possible that tax policy should be used to promote development, or at least be designed not to impede it. And differences in economic structure interact with differences in objectives.

The Value Added Tax (VAT) illustrates many of these issues. One of the theses of this chapter is that, regardless of the virtues of a VAT for developed countries, such a tax may be inappropriate for many developing ones. This is partly because it may undermine development (a difference in objectives) and partly because differences in economic structures make it less successful in achieving commonly shared distributive and efficiency objectives: (1) a VAT may have an adverse distributive impact; (2) it may be less conducive to economic efficiency than other taxes. In developed countries, one of the reasons that a VAT is “efficient” is that it is comprehensive. It can be part of an overall progressive tax system because it can be combined with a progressive income tax as part of an “optimal” tax structure, achieving distributive goals at low compliance costs. By contrast, in most developing countries, the VAT is typically collected from just a fraction (often less than 50 percent) of the economy. This means that it interferes with *productive efficiency*, encouraging movement of production into the informal economy. It is effectively a tax on the organized sector of the economy—a distortionary tax on development. And because most developing countries find it difficult to implement a comprehensive progressive income tax, not only is it potentially highly distortionary, but the VAT can also result in a regressive (or at least not highly progressive) overall tax structure.

Even the VAT’s alleged administrative advantages (low compliance costs) may not be true for developing countries. One of the virtues of the

VAT in more-developed countries is its self-enforcing nature. Taxes paid at a lower level are refundable at the next level. Consequently, it would seem, the downstream firm has an incentive to report purchases, which are, of course, others' sales. If both the upstream and downstream firms' incomes are not easily observable (they are based on cash payments), however, the VAT may be difficult to collect at any stage of production. The so-called self-enforcing property of the VAT can easily unravel—and it often does in developing countries where farmers and small producers sell directly to consumers.

Similarly, if just some of the downstream firm's sales are hard-to-detect cash transactions, then it can claim a rebate on the VAT paid by the upstream firm without fully reporting revenues received—with the result that they record negative value added. If firms reporting negative value added receive rebates, the net revenue collected by government may be seriously undermined. However, if the government does not grant rebates to firms reporting negative value added, it may discourage legitimate negative value-added activities, such as start-ups.

Both developed and less-developed countries typically provide rebates on exports under the VAT. This is supposed to ensure that the tax is on domestic consumption, not on domestic production. But one developing country after another has had problems in its rebate system. Sometimes rebates are paid only after a long lag. For firms facing a shortage of capital, this can be crippling. Even worse, the rebates have become a source of corruption, as fake documents have been used to secure large payments to corporations. (Kenya provided the most infamous example.²)

As we have noted, a key issue in evaluating alternative taxes is the set of feasible taxes. Advocates of the VAT often argue that it is better than the existing tax structures (e.g., that the VAT may be an improvement over a corruptly enforced set of tariffs). The question, though, is, "What is the relevant set of alternatives?" Could a VAT be improved upon by the imposition of a tax on luxury imports at a higher rate? (Because there may be no domestic production of the luxury good, such a tax is equivalent to an excise consumption tax.) In many developing countries, a tax on oligopoly profits would be better in terms of both efficiency and equity than an increase in the VAT tax.

In many developing countries, a VAT may be a *part* of a well-designed tax structure. In a sense, this chapter is a critique of the excess zeal of VAT advocates, who sometimes suggest that there should be *just* a uniform tax on all goods. This chapter argues that that is seldom the case.

There should, in general, be differential taxation. It may also be wise to impose differential taxes on imports, including to promote development. It may be desirable to impose differential taxes on luxuries or oligopolies for a number of reasons, including that of promoting equity.

In the next two subsections, we take a closer look at two of the key differences between the structures of developed and developing countries: the fact that market failures are more pervasive in developing countries and information imperfections more widespread.

SECOND-BEST CONSIDERATIONS AND CORRECTIVE TAXATION

Taxation is quintessentially a problem of second best. With full information, there would be optimal lump-sum (nondistortive) taxation. Even distributive objectives could be achieved, because tax authorities could identify those with the capacity to earn higher income and impose higher lump-sum taxes on them.

But modern tax theory is based on the recognition that tax authorities never have the requisite information. They base taxes on observables (such as income). As a result, taxation is distortionary. All taxation is thus an exercise in the economics of the second best. One of Frank Ramsey's (1927) great contributions was to show what this implies for the design of tax structures. His analysis demonstrated the falsity of the simplistic argument that an income tax (which taxes interest income and thus affects intertemporal trade-offs) is worse than a consumption tax (which only affects the consumption/leisure choice) because it involves an extra distortion. The conclusion may be right, but it must be based on a much more subtle and complete analysis. The modern theory of taxation is remarkable because, despite the complexity of second-best economics, it has been able to derive a number of precise results.

Much of modern tax theory, while recognizing the distortionary nature of taxation, has assumed that in the absence of taxation, markets would be perfectly efficient. But another important strand of research over the past quarter century has analyzed a large number of market imperfections, including those derived from imperfect and asymmetric information. Tax distortions may interact with market distortions in various ways. In particular, taxes may be used to *correct* market distortions: One distortion may, at least partly, undo the effects of the other.

Modern tax theory thus emphasizes the role of corrective taxation—taxes designed to correct market failures, such as those associated with externalities. If market failures are more pervasive in developing countries, it means that there may be more scope for corrective taxation.

Discussions of corrective taxation have, for the most part, been relegated to environmental issues. Yet in developing countries, market failures (including imperfections of information and incomplete markets, associated with pervasive unemployment and capital market imperfections) provide a much wider scope for corrective taxation. Recent work on imperfections of information and incompleteness of markets has emphasized how a variety of actions/choices give rise to externality-like effects.³ Many of the endogenous growth models⁴ recognize the existence of returns to scale and externalities.

Remarkably, however, discussions of tax policy have often ignored the role that corrective taxes might play, generating revenues as they *improve* economic efficiency.⁵ A case in point is short-term capital flows, which are a major source of instability in developing countries. Chilean-style taxes on capital inflows can thus play an important role in stabilizing the economy, thereby promoting economic growth while raising revenue.⁶

Similarly, many developing countries have pervasive unemployment. Efficiency wage models provide a convincing explanation of this unemployment.⁷ But market equilibrium in efficiency wage models is generally not Pareto efficient, which provides scope for corrective taxation that would simultaneously raise revenue and increase market efficiency.

INFORMATION, THE SET OF ADMISSIBLE TAX STRUCTURES, AND CORRUPTION

Imperfections of information are at the core of many of the market failures prevalent in developing countries (including the efficiency wage models just discussed). But an understanding of the imperfections of *information* is central to an analysis of admissible tax structures: One can only tax what one can observe.⁸ Optimal lump-sum redistributive taxes are impossible because the government cannot directly observe individuals' abilities. It can only observe proxies, such as income, and using proxies causes distortions. In the informal sector, the government typically cannot observe market transactions.

New technologies and organizational structures have changed the calculus of observability. Large organizations need to record many transactions. (People are “replaceable parts.”) As a result, they leave an observable trail for tax authorities. Modern computers have made information control easier and, at the same time, have eased the burden of the tax collector. It is difficult for firms to maintain two sets of books (and, outside of certain limited areas, illegal), so that information provided to investors (intended to increase share market value) must jibe with information provided to the tax collector (designed to minimize tax burden), which in turn must agree with the *true* information required for managing the organization.⁹ The use of credit cards has provided an audit trail that makes collecting taxes from retailers far easier, and bank accounts have become so pervasive that a person who relies only or largely on cash becomes immediately suspect.

Yet these changes have largely bypassed developing countries. Financial depth is limited, and credit card usage is unusual. It is not just that many individuals might hide some income from the tax collector; they often do not even know their own income. They may know their savings—how much they have left over at the end of the year—but have no records showing how much of the revenues are spent on consumption and how much are used to purchase inputs into production. For an American or European firm, the lack of such information would be a great handicap; for the typical African, barely literate farmer, keeping such records would constitute an enormous burden.

In earlier stages of their development, the United States and Europe relied a great deal on tariffs, because imports often must go through a limited number of ports. (The cost of not going through such ports, of smuggling, can often be quite high.) That made them easy to monitor, which in turn made them easier to tax. Of course, industrial tariffs quintessentially represented a development-oriented tax structure, as explicitly recognized in the heated debates surrounding those tariffs in nineteenth-century America.¹⁰

By the same token, until quite recently, even in advanced industrial countries such as the United States, tax avoidance¹¹ among the self-employed was rampant. (Even today, aggregate reported incomes of partnerships in some recent years in the United States are negative, though that has more to do with taking advantage of certain tax loopholes than with nonreporting.) In developing countries, small businesses are the dominant form of economic organization. Why should we expect that

they have greater success in tax collection from small businesses than the United States or other advanced industrial countries?

Thus, information is at the root not only of admissible tax structures but of problems of enforcement, including issues of corruption. If there were perfect information, corruption would not be a problem. It would be known who was bribing the tax official, and presumably it would be easy to control. Corruption is a problem because it is so hard to observe. Understanding the limitations on available information is central to the design of corruption-resistant tax structures.

Many developing countries face a fine balance because the value of encoded information of the kind that can be used by tax authorities may be less, sometimes far less, for them than that for advanced industrial nations. Basing such taxes on this information (e.g., information contained in bank accounts) is more likely to destroy the information (the tax authorities get no more revenue and economic efficiency is impeded). It is noteworthy that the Chinese and Korean governments deliberately decided to forswear the use of such information, by allowing no-name bank accounts. This allowed proportional taxation of savings but made it impossible for the government to use banking information for more general tax purposes (e.g., for the imposition of progressive taxation).

NEOCLASSICAL ECONOMICS AND THE DESIGN OF TAX STRUCTURES

Although this chapter focuses on developing countries, much of the analysis is also applicable to developed countries. Modern tax theory (particularly optimal tax theory) has developed within the framework of standard neoclassical models, in which market failures play no role. Increasingly, we have come to realize that such models cannot explain key market phenomena. Interactions between market failures and tax distortions can be of first-order importance in both developed and developing countries.

VARIATIONS AMONG COUNTRIES

We should also underline the importance of differences *among* developing countries. This chapter argues that economic and political structures that affect, for instance, the set of admissible taxes and the extent of market failures are of first-order importance in designing taxation. But even

among developed (or developing) countries there can be large differences in economic structures, with different countries facing different constraints, which implies that a tax structure that might be desirable for one could be undesirable for another. (In this paper, we have nothing to say about *political constraints* and the broad set of political economy issues that affect the set of ideas that might constrain the set of taxes under consideration. This is partly because it is hard to know the nature of these constraints: What might have seemed “impossible” at one moment suddenly becomes possible in the next.)

A few developing countries have implemented an effective progressive income tax. Hence the redistributive argument against the VAT is irrelevant for them. In addition, a few countries may have other instruments to offset the adverse development impacts of the VAT; consequently, such a critique of the VAT would also be inapplicable to them.

GENERAL EQUILIBRIUM INCIDENCE ANALYSIS

Central to our analysis of the desirability of different tax structures is *a general equilibrium analysis*: an analysis of the impact of the imposition of one set of taxes (e.g. VAT) versus another set of taxes on the behavior of the entire economy, today and in the future, with particular attention to incidence—who actually bears the burden of taxation. General equilibrium incidence analysis of the kind attempted here is always complicated, but especially so when one departs from the simplistic competitive equilibrium with perfect information models that have been the basis of most analyses of tax policy. Even the distributive effects of a VAT are not always obvious. If a VAT were uniformly and comprehensively enforced, it would be equivalent to a wage tax (the reason it is loudly criticized by many developed countries). In developing countries, it is typically not imposed on the rural sector, in which the poorest people reside. This unintended exception may make the tax on net progressive, or at least not as regressive as critics suggest.

AN ASSESSMENT OF THE VAT FOR DEVELOPING COUNTRIES: A CASE STUDY IN THE PRINCIPLES OF TAXATION FOR DEVELOPING COUNTRIES

This section provides the analytic framework for our critique of the VAT. We focus on the VAT because it is the tax structure that has been consis-

tently pushed on developing countries by the IMF and others. But our interest is more by way of illustration: showing how sensitivity to the differences in objectives and economic structure should inform tax policies for developing countries. We thus present simple analytics showing how in models designed to capture key aspects of the economic structure of developing countries, the VAT is distortionary, may impede development and growth, and may result in increased unemployment *compared with other tax-feasible tax structures*.

THE VAT AS DISTORTIONARY TAXATION

As noted earlier, advocates of the VAT argue for both its efficiency and its ease of administration. It is efficient because it is comprehensive. They contend that these advantages more than offset a major disadvantage, its lack of progressivity. The question is, “Is it really efficient in developing countries?”

Economists have long recognized that any market taxation encourages nonmarket production, which can constitute a significant distortion. For instance, a family’s decision to buy a dishwasher (entailing a market transaction) can be affected by the tax rate. Labor inside the family (washing dishes) is not taxed; labor in the market (working to buy a dishwasher) is taxed. The high elasticity of labor supply associated with secondary workers may reflect the fact that, to some extent, the secondary worker is simply buying goods that are a substitute for the services the secondary worker would otherwise provide at home. As a result of the high elasticity, taxes on wages of secondary workers are highly distortionary.

Similar issues arise in developing countries. However, it is not only labor within the household that escapes taxation. Work in the informal sector, which typically cannot be easily monitored, or monitored at all, also slips through the net of taxation. Accordingly, a VAT shifts resources away from the formal sector into the informal sector, leading to an inefficient allocation of resources.

The question naturally arises, “Is there an alternative tax structure that is less distortionary than the VAT?” The answer is yes. Emran and Stiglitz (2002, 2004, 2005) provide a more complete analysis than is possible here. The following discussion provides a heuristic.

Assume there is an imported intermediate input used in both the formal and the informal sectors. Although we cannot monitor the output of

the informal sector and therefore cannot tax it directly, we may be able to tax it indirectly by taxing the usage of the imported intermediate good. A standard result of optimal tax theory—when all outputs can be taxed—is that one should not tax intermediate inputs, including imported inputs.¹² But as Dasgupta and Stiglitz (1971, 1972, 1974) showed, in the more reasonable case where not all outputs can be taxed, it may be desirable to tax intermediate inputs. Assume, at the extreme case, that a unit of output requires a unit of this imported intermediate input. In this case, a tax on the intermediate input is equivalent to a tax on the output—in both the formal and the informal sectors. The tax is completely nondistortionary. Converting this tax on imports into a value-added tax introduces a distortion: The formal sector faces a tax on its total value added, whereas the informal sector faces a tax only on its intermediate input (assuming it does not get a rebate on its input).¹³

More generally, of course, taxing the intermediate input does introduce a distortion—there is a substitution away from using this intermediate input (and toward other inputs—in the simplest case, labor). But introducing a surtax on imports of the intermediate input (with a corresponding reduction in the VAT) into a situation where only the formal sector pays the VAT always increases output, because the surtax reduces the effective differential tax rates between the formal and the informal sectors. In short, *it is never optimal to rely solely on a value-added tax.* (See Appendix A.)

This is one example in which tax policy for developing countries differs from that in developed countries. Another example is provided by Ramsey's classic result (1927) in optimal tax theory, which suggests that taxes should be levied at a rate inversely proportional to the elasticity of demand. Atkinson and Stiglitz (1976) showed that Ramsey's result depended on the absence of an optimal redistributive income tax, and Stiglitz (2009) showed that even with a simple linear income tax, the benefits of Ramsey taxation were very limited. The conclusion was that Ramsey's analysis was of limited relevance to developed countries. In developing countries, on the other hand, where income taxation is very limited, Ramsey's analysis is relevant. In particular, the Ramsey-like analysis argues that the government should, rather than imposing uniform tax rates, impose lower taxes on those formal industries that can most easily shift into the informal sector. (More generally, Atkinson and Stiglitz [1972] show how efficiency and distributive concerns can be balanced within an optimal tax structure in the absence of a redistributive income tax.) Again,

this goes against the spirit of the VAT, which suggests that one should not have differential taxation on different commodities.

The essential point of the Atkinson-Stiglitz (1976) analysis is that each tax needs to be viewed as part of the overall tax structure, particularly in light of other taxes that can be (or are) imposed. This, in turn, depends on what is observable. For instance, it is difficult to observe hours worked, which limits the use of an optimal wage tax—which might be better, in some respects, than an optimal income tax. It is difficult to observe any individual's consumption of particular commodities, and this limits governments' ability to use commodity-specific nonlinear consumption taxes. (Electricity is an exception, and nonlinear charges are typically imposed there.)

Much of the advocacy of the VAT is based on the simplistic pre-Ramsey reasoning to which we alluded in the introduction that assumes that uniform taxes are less distortionary than differentiated taxes because there are fewer distortions. This view turned out to be approximately correct for advanced industrial countries, for reasons that have little to do with the analyses employed by the advocates of VAT, but for developing countries it is clearly wrong.

HOW THE VAT MAY IMPEDE GROWTH

The previous section showed how the VAT lowers national income. It may also lower growth, which is of particular concern to developing countries. To see this, assume that the rate of productivity growth is higher in the formal sector. The simple case occurs when there is no productivity growth in the rural (informal) sector. Assume $Q_u = F(\lambda L_u)$, where Q_u is output in the formal sector, L_u is labor input, and λ is the productivity measure. Then the rate of growth of national output can be written $g_Q = g_\lambda s m$, where s is share of formal sector in national output, g_λ is the rate of growth of λ , and $m \equiv F' \lambda L_u / F$ (the share of labor in the formal sector. It is immediately clear that the larger m , the higher the rate of growth of national output, provided that as labor shifts into the formal sector, the share of labor does not decrease too much. The effect is even stronger if we introduce learning by doing. With learning by doing, $g_\lambda = \xi(L_u)$, $\xi' > 0$, so that the larger the size of the formal sector, the faster the rate of growth of productivity.¹⁴

HOW THE VAT MAY RESULT
IN INCREASED UNEMPLOYMENT¹⁵

Typically, the incidence of alternative taxes is analyzed within simple, competitive equilibrium models of the economy. While it is widely recognized that market economies differ in important ways from the competitive ideal, there is no widely accepted alternative model. Moreover, incidence analysis in models of economies with oligopolies, incomplete markets, monopolistic competition, and imperfect information is sufficiently complicated that the economics profession has shown a strong preference for being precisely and simply wrong rather than imprecisely and complexly correct. But developing countries are typically developing not just because they have few resources. Their markets, information, and institutions are often much less perfect. Such imperfections cannot be ignored.

Many developing countries have high levels of urban unemployment, which is associated with high urban wages (as a result, for example, of “efficiency wages”) that induce migration from the rural sector.¹⁶ A VAT imposed only on the urban sector (or collected more extensively in the urban sector than in the rural) is effectively a tax on urban wages.

In a standard migration equilibrium model with efficiency wages, labor productivity is higher in the urban than in the rural sector. Hence a VAT (effectively imposed only on the urban sector) lowers overall output by inducing labor to move to the low-productivity sector. If the rural sector has diminishing returns, a VAT leads to lower wages in the rural sector. Firms in the urban sector will then not have to pay workers as much to induce them to work hard, but the differential between the urban and rural wages will still increase. The equilibrium will entail not only lower urban wages but also higher unemployment. Thus, once again, the VAT has both adverse efficiency and distributional consequences. Appendix B provides a formal model showing this and demonstrates the existence of alternative tax frameworks without these adverse effects.

CONCLUDING REMARKS ON THE VAT

The usual argument for the VAT is that it is efficient, though not progressive. Governments should resort to other instruments for dealing with distribution. *But for developing countries, the VAT is not an efficient tax; it*

can, furthermore, lower growth and increase unemployment. Given the absence of other progressive taxes, however, the lack of progressivity of the VAT is of particular concern.

Our analysis shows not only that a VAT is not optimal but also that a country should tax imported goods differentially. If imported goods are disproportionately consumed by the well off, such differentiation introduces an element of progressivity.¹⁷

Even with World Trade Organization (WTO) restrictions on discrimination against imported goods, it may be possible to differentiate tax rates between *final* goods produced at home and imported final goods because they may differ in certain characteristics (e.g., imported goods may, on average, be of higher quality [price]). The country can impose a higher excise tax on luxury biscuits or luxury automobiles than on ordinary biscuits or ordinary automobiles; this discrimination may, at the same time, have favorable distributional consequences.

THE DESIGN OF CORRUPTION-RESISTANT TAX STRUCTURES

Recent policy discussions have focused on corruption in general and on tax systems in particular. Interestingly, traditional tax policy discussions have paid little attention to corruption.

Corruption takes many forms, including underreporting incomes by rich taxpayers, sometimes with the connivance of government officials, and insisting on bribes not to overreport incomes of “honest” taxpayers. Corruption can be viewed as a problem in observability. That is, if the income could be costlessly and objectively observed, then it would presumably be easy to devise administrative structures to ensure that every taxpayer paid exactly the amount that he should.

Some tax structures provide less opportunity for corruption than others. Some bases of taxation are easier to observe and verify. Consider, for instance, the window tax imposed in medieval England. The tax was very distortionary—it led to dark homes. It did have one advantage, however. It was easy to count the number of windows, and consequently it would have been easy to check on the collection efforts of any tax official: A random check could quickly ascertain whether he had by and large counted the number of windows correctly. If a tax official tried to charge a taxpayer for having too many windows, the aggrieved

taxpayer could appeal to a court, which could then verify the number of windows.

In today's world, other bases of taxation exist that can similarly be easily verified (e.g., the number and size of cars or the square meters of a house). It may be easier to design institutional arrangements for the collection of such taxes without corruption.

These "reforms" stand in marked contrast to many of the standard approaches to curbing corruption, which have often failed. For instance, one response to the failure of taxpayers to pay what they should has been to give the government strengthened powers of enforcement. Such policies enable corrupt tax police to extract more money from the private sector, thereby inhibiting development, often without generating much revenue for government.

Modeling corruption-resistant tax structures is beyond the scope of this chapter, but it focuses not simply on the issue of *observability* but also on that of *verification*. Tax collectors must not just "know" the income of the taxpayer, but be able to prove it in a judicial proceeding. By the same token, those trying to circumscribe corruption among government officials must not just "know" that some government official has acted corruptly, but be able to establish it in court. One must be able to distinguish between honest errors in judgment and outright corruption. There must be some confidence in the integrity of the judicial proceeding. But no judicial proceeding is without error. Penalties must exist, but they must be designed with the recognition that errors in judgment may occur.

GLOBAL GENERAL EQUILIBRIUM EFFECTS

If the VAT is imposed in all developing countries, it increases output of goods produced in the informal sector, with global general equilibrium effects. (The price of the *commodities* produced in the informal sector falls.) To the extent that differences exist between these goods and those produced in the formal sector, global effects on prices can occur. Many of the goods produced in the informal sector are inputs into production processes in the advanced industrial countries, whereas many of the goods produced in the formal sector are substitutes for goods produced in developed countries. To the extent that this is true, on a global scale, the VAT shifts the distribution of income/welfare to benefit developed countries at the expense of developing countries.

Each country, as it chooses its own tax structure, typically ignores these global general equilibrium effects. (It might be desirable for developing countries to attempt to coordinate tax structures, to shape “global general equilibrium effects” in ways that advantage—or at least do not disadvantage—themselves. Such a level of coordination does not yet exist.) But when international institutions like the IMF and the World Bank provide advice to developing countries, they should not.

CONCLUDING COMMENTS

This chapter (and this book) focuses on the many ways in which tax policy in developing countries ought to be different from that in developed countries. Policy objectives, economic structures, and administrative capacities differ. This book highlights these differences.

We have focused here on the VAT, in part because it illustrates so well the difference between the design of tax policies in developed and less-developed countries. For developed countries, it is efficient but regressive (or at least not progressive). But, in theory at least, progressive income taxes make up for the VAT’s lack of progressivity. Typically, developing countries have no effective income tax to make up for the VAT’s lack of progressivity. The VAT is also inefficient, however, and may impede development. When it is imposed in *all* developing countries, it may have further adverse effects through impacts on terms of trade.

One of the key issues on which tax policy for developing countries should focus is promoting development, which entails shifting resources into sectors with faster economic growth and more spillovers. Every successful country has imposed industrial policies. Under WTO rules, it may be more difficult for countries to use tariffs. This may imply that tax policies will become increasingly important in designing industrial policies and promoting development.

Some suggest that a lack of political will explains the slowness of developing countries to make the tax reforms advised by the International Monetary Fund (IMF). Politics do matter, but the developing countries may sense that the VAT is neither fair nor efficient and does not promote their development. They may also recognize that other, more important tax reforms—such as taxing the rents of oligopolies and monopolies—might increase both equity and efficiency. In most cases, politics helps explain the

failure to tax these sectors. (The vested interests use their resources to influence the political process.) It might be well if the international community in general and the IMF in particular devoted more of their efforts to these tax reforms.

It is not the intention of this book to provide all the answers, or even to provide a simple template. Indeed, one of the central themes of this book is that because countries differ in structure and objectives, the tax policy that is appropriate to one developing country may differ markedly from what would be best in another. Rather, our intent is to open up the debate on tax policy, which has too often been excessively circumscribed, with developing countries being encouraged to follow a simplistic formula (adopt a VAT) and to enhance understanding of how developing countries have been striving to raise taxes in a fair and efficient way.

APPENDIX A PROOF OF THE INEFFICIENCY OF THE VAT

We present a simple, heuristic argument showing why it is generally desirable to impose a differential tax on an imported good, used in both sectors, enabling one to lower the VAT tax rate *applied nonuniformly because of the unobservability of output in the informal sector*. The higher-input tax serves as an indirect tax on the output of the informal sector, which otherwise would have escaped taxation.

For simplicity, we assume constant returns in the formal sector and decreasing returns (but homotheticity) in the informal sector:

$$Q_u = F(X_u, L_u)$$

$$Q_r = G(X_r, L_r),$$

where Q_i is the output in the i th sector, X_i is the input of the imported good, and L is input of labor. The dual of the formal sector production function (giving the competitive equilibrium price of the output as a function of the wage and the price of the input) is written

$$P_Q = \Phi(w, p_X),$$

where P_Q is the (producer) price of output, p_X is the price of the input, and w is the wage.

The international prices of traded input and output are both assumed to be unity (these are just normalization), which implies that before taxes, the function

$$1 = \Phi(w, 1)$$

determines the real domestic wage in the formal sector. If the VAT is imposed to be non-trade-distorting (i.e., there are full rebates of the tax for exported goods), then the preceding equation still holds.

On the other hand, the price facing domestic consumers with a VAT is

$$q = 1 + t,$$

where t is the VAT. By assumption, the VAT is not collected on the output of the rural sector, but is imposed on the imported intermediate good that is used in its production. Thus producers in the rural sector maximize

$$qG - wL - x(1 + t)$$

so that

$$G_x = 1$$

$$G_L = w/(1 + t).$$

The VAT thus shifts production toward the informal sector and distorts the input mix in the rural sector toward labor. It is clearly distortionary.

We now ask, “What happens if we add a surtax on imported intermediate goods (fully rebated in the formal sector, on payment of the VAT) at the rate τ , which allows a reduction in the VAT rate (keeping government revenue constant)?”¹⁸ The revenue raised by the VAT is equal to the value of the output of the formal sector that is not exported. We assume trade balance, so that exports equal imports. Hence the VAT revenue is $t(F - X) + tX_r$. The net revenue raised by the import duty surtax is τX_r . Hence total revenue is

$$R = t(F - X) + (\tau + t)X_r,$$

and at $\tau=0$,

$$d\tau/dt = -\{[F-X](1 - t\eta_C) + X_r(1 - t\eta_Y)\} / [X_r - t\eta_{rX}]$$

where η_C is the (absolute value of the) elasticity of formal sector net output that is not exported with respect to the tax rate, η_Y is the elasticity of imports used in the informal sector with respect to the VAT tax rate, and η_{rX} is the (absolute) value of the elasticity. As the VAT increases, more output shifts to the untaxed sector, so that normally we would expect VAT revenue to be reduced.¹⁹

We can assess social welfare by an indirect social welfare function

$$V = V(q, \pi(q, (1 + t + \tau))),$$

where π is the rent in the rural sector. An increase in the surtax on imports allows a reduction in the VAT, which lowers q , which increases welfare. On the other hand, it will normally lower rents in the rural sector. *If we put little weight on the welfare of landlords (rents), then it is clear that it is desirable to have a tax on imported inputs.* Even if we put full weight on the income of landlords, however, normally a tax on imported inputs is desirable, because the gain in welfare to consumers from the lowering of the VAT outweighs the loss in landlord rents, which can be ascertained by taking the total derivative of V with respect to t .

APPENDIX B IMPACT OF THE VAT ON UNEMPLOYMENT IN AN EFFICIENCY WAGE MODEL

In this appendix we analyze the impact of a VAT on unemployment, using a variant of the Shapiro-Stiglitz efficiency wage model and the Harris-Todaro-Stiglitz migration equilibrium model. It is easy to derive (using the equilibrium migration constraint and the no-shirking constraint) that there is a simple relationship between the equilibrium urban wage w^u (which in turn is equal to the no-shirking wage at the equilibrium level of urban unemployment), w^s in the urban sector, urban employment, L^u , and the unemployment rate, u :²⁰

$$w^s = w^r(L^u/(1 - u))g(h(w^s)).$$

Moreover, since in equilibrium $u = h(w^s)$, we have what might be called a *generalized no-shirking constraint*, which we simplify as

$$w^s = \psi(L^u).$$

On the other hand, the labor demand equation gives

$$L^u = z(w^u).$$

In equilibrium $w^u = w^s$, so the equilibrium (before tax) is given by

$$w^* = \psi(z(w^*)).$$

The effect of a VAT (imposed only on the formal sector) is to shift down the urban demand curve for labor.

Figure 1.B.1 shows the standard equilibrium in the urban labor market with a demand curve for labor and the no-shirking constraint. In panel A, the rural wage is fixed, and the no-shirking wage can, accordingly, be drawn as a horizontal line. The VAT has the effect of shifting the demand curve for labor down, lowering urban employment but leaving the wage unchanged. That means, of course, that the unemployment rate is also unchanged. The tax simply shifts labor from the formal sector to the informal sector. National output

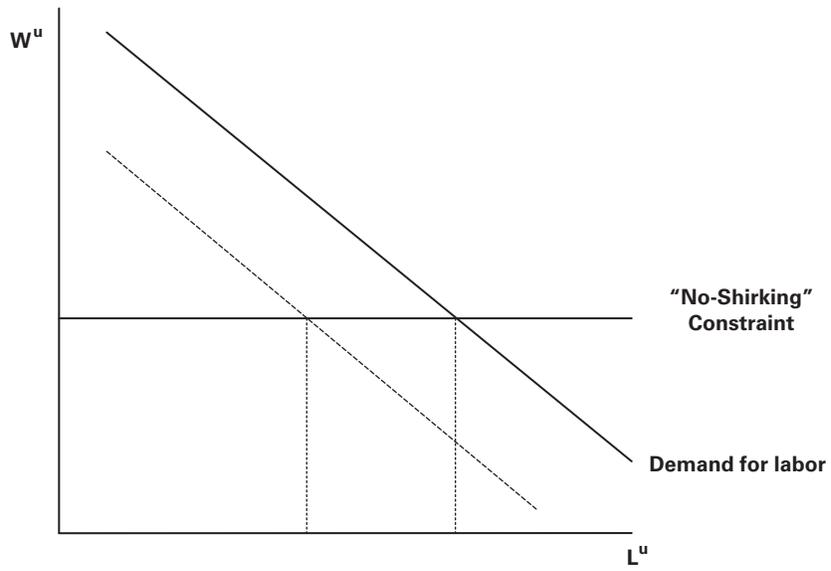
$$Q = F(L^u) + w^r(N - L^u/(1 - u^*))$$

is lowered as L^u is lowered, since (under the hypothesis that the urban rural migration equilibrium condition takes the form $w^r/w^u = 1 - u$)

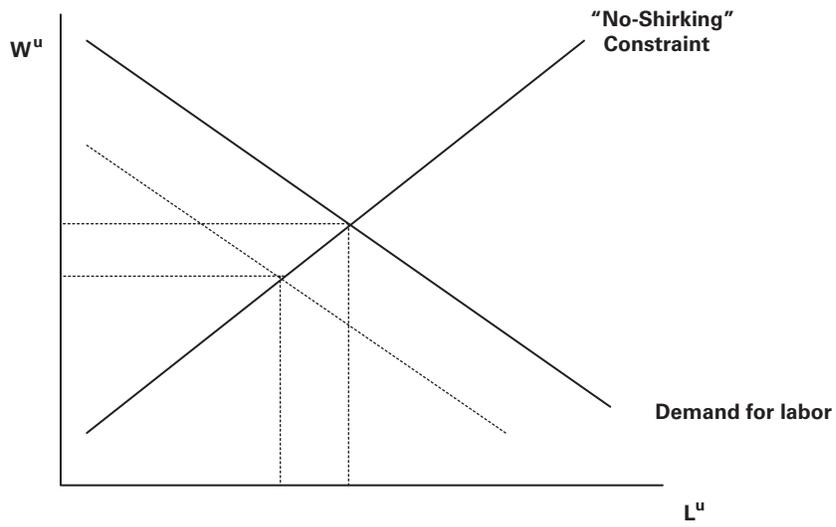
$$dQ/dL^u = [F' - w^r/(1 - u^*)] = tF',$$

where t is the VAT rate.²¹ Thus, even though each individual's labor supply is inelastic, so that in a standard model, the VAT, which is equivalent to a tax on labor, would have no adverse effect on output, here it clearly does.

In the case in which the rural wage is not fixed, the value added not only lowers the urban wage, but, as it drives workers into the rural sector, lowers the rural wage, so much so that the equilibrium unemployment



Panel A: Fixed rural wage



Panel B: Flexible rural wage

Figure 1.B.1 Standard Equilibrium in the Urban Labor Market.

rate actually rises. Let $G(L^r)$ represent rural output, where N^r is rural employment, then

$$Q = F + G$$

and

$$dQ/dt = (\partial Q/\partial L^u)(dL^u/dt)_{u=u^*} - w^r L^u/(1-u)^2 du/dt,$$

which is even more negative, since not only does labor move from the more productive to the less productive sector, but more labor moves into unemployment (zero productivity).

ALTERNATIVE TAXES

There may be alternative tax structures with less adverse effects on output and welfare. One obvious candidate is a tax on land, which leaves unaffected all the relations described in this model.

Similarly, a tax on imported consumption goods (which are not at the same time produced within the country) consumed by the rentier classes again leaves all the relationships unchanged and thus is nondistortionary.

Taxes on goods consumed by rentiers but produced within the country, or consumed by workers, have more complicated effects. A tax on imports of a good consumed by rentiers but produced within the country drives up the price of the domestically produced goods, shifting, in effect, the demand curve for labor. This has exactly the opposite effect of a VAT, increasing national output and lowering unemployment.

By contrast, a *uniform* tax, both on the production and import of the good, leaves the demand curve for urban labor unaffected and thus has no labor reallocation effect, except to the extent that the higher price of the good shifts demand toward or away from goods produced in the urban sector. If nontraded domestically produced goods in the urban sector are complements of the taxed imported good, then the demand curve for urban labor shifts down, with adverse effects on rural wages, workers' welfare, and unemployment.

NOTES

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1. See, e.g., Atkinson and Stiglitz (1976), Mirrlees (1975), or Stiglitz (1998).
2. Kenya has since required large refund claims to be certified by a certified public accountant. This has reduced refund claims by 40%, suggesting that many prior refund claims were indeed fraudulent. See Harrison and Krellove (2005).
3. Indeed, Greenwald and Stiglitz (1986, 1988) show that whenever information is imperfect and markets are incomplete, actions of competitive agents give rise to externality-like effects.
4. See, e.g., Lucas (1988), and Romer (1986).
5. See, e.g., Stiglitz (1998).
6. See, e.g., Stiglitz et al. (2006).
7. Efficiency wage theories are based on the presumption that productivity increases with wages, so that it may benefit a firm to pay a wage above the minimum level required to recruit workers (the “market” wage). It is worth noting that while modern efficiency wage theory focuses on problems of adverse selection and moral hazard based on imperfections of information, see Shapiro and Stiglitz (1984), the theory was originally developed by Leibenstein (1957) and Stiglitz (1974, 1976, 1982) for developing countries.
8. These ideas are developed further in the general theory of Pareto-efficient taxation. See Stiglitz (1987) and Brito et al. (1990).
9. See, e.g., Stiglitz and Wolfson (1988).
10. A few emerging markets have succeeded in implementing broad-based tax systems, but even today, most of the least-developed countries find it difficult to do so. The waning enthusiasm for import substitution strategies of development has undermined in some quarters the developmental argument for tariffs. Our later discussions question this growing orthodoxy.
11. Or evasion—the boundaries in this arena are tenuous.
12. Diamond and Mirrlees (1971).
13. See Emran and Stiglitz (2002, 2004), and Munk (2005).
14. See, e.g., Greenwald and Stiglitz (2006), where it is explained why one might expect the pace of productivity growth to be higher in the formal sector than in the informal sector. Of course, if there are high costs to entering the formal sector, those with entrepreneurial skills (and learning abilities) might be concentrated in the informal sector, in which case the adverse consequences that we have identified might not arise.
15. See also Stiglitz (1999).
16. See, e.g., Stiglitz (1969), Todaro (1968, 1969), Harris and Todaro (1970), Sah and Stiglitz (1992), Anam and Chiang (2007), Yabuuchi (2007), and Yang (2006).
17. In a sense, this analysis can be viewed as a special case of Dasgupta and Stiglitz (1971), which showed that the Diamond-Mirrlees result (1971) that there should not be differential taxes was not true if there are restrictions on taxes that can be imposed. (Here the restriction is on taxes in the informal sector.)

18. The new equations describing production in the rural sector are

$$G_X = (1 + t + \tau)/(1 + t)$$

$$G_L = w/(1 + t).$$

We solve this pair of equations for X_r and labor input into the rural sector (and hence output in the rural sector) as a function of t and τ .

19. Obviously, this could be reversed if informal sector production is sufficiently more import intensive than formal sector production, but normally, we would expect the opposite, reinforcing the general conclusion that the shift toward informal sector production reduces VAT revenue.

20. It is easiest to construct the no-shirking constraint in the case of a fixed rural wage, but one can also construct the curve with a wage in the rural sector that depends on the number of rural workers.

As in Shapiro-Stiglitz (1984), the no-shirking wage is a function of the unemployment rate (given an unemployment benefit, which for most developing countries can be assumed to be zero).

$$w^s = f(u), f' < 0,$$

or inverting,

$$u = h(w^s).$$

In equilibrium, the “no-shirking” wage is the urban wage (at the equilibrium level of unemployment), i.e., $w^s = w^u$. The equilibrium unemployment rate in turn is a function of the urban and rural wages:

$$w^u/w^r = g(u)$$

or

$$w^u = w^r(L) g(u),$$

where L is the number of urban job seekers. (If the total population is N , then the number of rural workers is $N-L$). We focus, in particular, on the Harris-Todaro model, where

$$w^r/w^u = 1 - u.$$

By definition

$$L^u/L = 1 - u,$$

where L^u is urban employment, or substituting once again, we obtain the generalized no-shirking constraint, where L^u is urban employment,

$$w^s = w^r(L^u/(1-u))g(b(w^s)).$$

21. In equilibrium, the urban wage is equal to the marginal product of labor, after tax, i.e., $w^u = (1-t)F'$.

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