II Potential Revenue Implications of Trade Reform

Economists often rank trade liberalization reforms by order of importance, giving highest priority to the reduction or removal of quantitative restrictions and other nontariff barriers to trade or their conversion to tariffs. This is followed by reductions in both the number of distinct tariff rates and the range that they cover (i.e., their dispersion) and finally by reductions in the levels of tariffs. Although this liberalization strategy is typically justified on economic efficiency grounds (Box 1), the initial focus on the removal of nontariff barriers also has the advantage of helping preserve the revenue yield. The agenda for trade reform is also influenced by international practice and agreements and, in particular, by WTO rules and agreements on the design of trade reform.[1]

Reform of Quantitative Restrictions

In their study of countries undergoing World Bank–assisted trade liberalization, Papageorgiou, Choksi, and Michaely (1990) conclude that significant reductions in quantitative restrictions have often been a component of successful liberalization. Takacs (1990) outlines the different methods of liberalizing import quotas. These include

- Gradually raising quota ceilings to nonbinding levels.
- Converting quotas into equivalent tariffs (tariffication), with the goal of later reducing these tariffs. The equivalent tariff is set at a rate equal to the percentage difference between the domestic price and the import (world) price under the quantitative restriction.
- Auctioning licenses or permits to import a specific quantity of the item.[2] The number of licenses can then be gradually increased, or these licenses can be converted into tariffs.
- Converting quotas to tariff quotas and then reducing the tariff rates. Under a tariff quota, one tariff rate is applied to some specified volume of imports and a higher, often prohibitive, rate to any imports above that volume.

Of course, quantitative restrictions take many forms other than quotas, including bans, restrictive granting of import licenses, and state trading monopolies. There may also be limits on the ability of importers to buy foreign exchange, which often give rise to black markets in foreign currencies. These restrictions, which encourage rent seeking, have serious efficiency and distributional implications.

Typically, countries liberalize quantitative restrictions gradually, to minimize politically contentious disruptions to the domestic economy and to prevent a surge in imports that could lead to balance of payments problems. Maintenance of such restrictions may indeed temporarily limit imports, but balance of payments problems are best dealt with through appropriate macroeconomic policies, not through trade barriers. Restrictions are also usually reduced or eliminated first on raw materials, intermediate goods, and other goods not viewed as competing with domestic production. These reforms are then extended to final goods, including those competing with domestic production.

The channel by which the elimination of quantitative restrictions affects trade revenue will differ depending on the nature of the restriction and how it is eliminated. Tariffication of quotas that produces no change in the level of imports, for example, would lead to an increase in revenue, as economic rents are transferred to the government in the form of higher trade tax revenue. In addition, many goods subject to quotas are also subject to tariffs. Accordingly, if quotas are eliminated on these goods, revenue may increase as the value of imports of goods subject to tariffs increases (the volume is likely to increase, but the price of these previously restricted imports is likely to fall).

The impact on import volumes and revenue of relaxing quantitative restrictions also depends on the extent to which countries are able to improve their

[1]In addition, trade and trade-related measures recommended by the IMF should be consistent with members' obligations under WTO agreements.

[2]If license fees exceed the cost of issuing the license, there is some potential for license fees to violate WTO rules.

Box 1. Efficiency Gains from Trade Liberalization and the Budget Constraint

The design of an optimal trade or tax policy in the face of a government budget constraint is a complicated, second-best exercise whose solution depends on the range of tax instruments available to the government and on the structure of the economy. For one benchmark case—that of a small, open economy with the full range of commodity taxes available and no other distortions—the solution to the optimal tax problem provides no role for tariffs, given the desirability of satisfying productive efficiency (see, e.g., Dixit, 1985; Dixit and Norman, 1980). More generally, however, there are no clear-cut solutions, particularly when one tries to take account of the implications of trade reform for growth. Nonetheless, some practical judgments can be made concerning the circumstances under which trade liberalization can be expected to yield significant efficiency gains, even taking the government's budget constraint into account. On balance, these gains are most likely to be significant when

- Trade reform focuses on the removal of quantitative restrictions,
- The initial trade restrictions are high, and
- The existing tariff structure has multiple rates that induce evasion or avoidance.

The first condition is important because, besides generating no revenue, quotas are associated with wasteful rent-seeking activities and undesirable, noncompetitive strategic behavior, both of which typically result in efficiency losses greater than the excess burden distortions associated with tariffs.

On the other hand, there are circumstances where the efficiency gains may be modest. In particular, the net efficiency gains to liberalization are likely to be lower if a country has already implemented a comprehensive liberalization package that eliminates quantitative restrictions and rationalizes the tariff structure. In addition, the costs of collecting different types of taxes may alter the picture. If these costs are lower for trade taxes than for domestic taxes, minimizing both the excess burden and the cost of raising a given amount of revenue will generally result in greater revenue from trade taxes than if collection costs are ignored (Mihaljek, 1992). However, there is little empirical evidence on the structure and relative magnitude of collection costs for different taxes.

administrative capabilities. In an environment characterized by market prices rather than quantity controls on goods, customs administrations need to be able to certify the value of imports rather than rely strictly on physical control (Tanzi, 1994).

Tariff Reform

The second major element of trade reform is typically the rationalization and reduction of tariff rates. There are several distinct dimensions to consider.

Characterization of Tariff Structures

Tariff structures resist easy characterization by summary measures, and this complicates any analysis of the revenue implications of tariff reductions (Dean, Desai, and Riedel, 1994). Tariff schedules may contain dozens of different rates ranging from zero to several hundred percent. For imports, the unweighted average of tariff rates is sometimes taken as the simplest measure of the importance of tariffs. A simple average, however, is not very helpful because, for instance, a few very high rates that apply to only a small volume of trade would weigh disproportionately in the average. A weighted average of tariff rates can be calculated by weighting these rates by the percentage shares of imports to which they apply. Although this measure is generally preferable to a simple average, one drawback is that the observed demand for imports facing high tariffs is lower than it would be in the absence of tariffs, and this reduces the average. The collected tariff rate, calculated as the ratio of import tax collections to import values, is another alternative. Although the collected tariff rate reflects the level of statutory tariff rates, it also reflects the impact of evasion, exemptions, preferential tariffs, nontariff barriers, and changes in import demand owing to high tariffs. Given the emphasis on revenue in this paper, changes in the collected tariff rate are used here as one indicator of trade liberalization. Finally, the dispersion of tariff rates can be a useful supplementary indicator of tariff structure, because a low average rate may mask a large dispersion in rates, and hence potentially high effective protection.

Complicating measurement is the sometimes considerable difference between explicit and implicit tariff rates due to features of the trade regime that distort measurement of import values. For example, where foreign exchange controls are in effect, tariffs may be applied to import values at the official rate of exchange or at some other nonmarket exchange rate. This can result in implicit tariffs (the tariff charged as a percentage of the market value of the goods) being considerably different from explicit tariffs (the tariff charged as a percentage of the goods' official value). Or imported goods may be valued at reference prices set by the government, which may not reflect market value. When tariff reform occurs at the same time as reform of exchange rates and refer-

ence prices, changes in explicit tariffs may be a misleading indicator of changes in implicit tariffs because of these changes in valuation of the goods.

Reductions in Tariff Levels

The effect of tariff reductions on revenue depends on the levels and coverage of tariffs in effect before the reduction and on the extent to which they are then reduced. The precise impact is difficult to predict because it depends on complex economic responses. If import values are unchanged, the immediate effect of a reduction in tariff rates is to lower revenue. If goods subject to trade taxes are included in the base of domestic taxes on imports, this reduction in trade taxes will also be accompanied by a reduction in excise and value-added tax (VAT) collections levied on imports.[3]

The value of imports, however, can be expected to change in response to tariff reductions. If the price elasticity of net demand for imports is sufficiently high, the revenue gain due to increased demand for the now-cheaper imports may compensate for or even outweigh the revenue loss due to the tariff cut itself.[4] Although it is difficult to generalize, demand for imports of final consumption goods is likely to be more price elastic than that for imports of intermediate goods and raw materials (see, e.g., Clarida, 1996). In many developing countries, imports of consumer goods constitute only about 10 to 20 percent of total imports but are often taxed at the highest rates. Since many trade liberalization programs involve a disproportionate reduction in higher tariff rates, the demand elasticity of those goods subject to tariff reductions might be quite high, mitigating the revenue losses.[5] The response of import values also depends on the price elasticity of supply of import substitutes. The less elastic this supply, the smaller the reduction in output for a given fall in price and hence the smaller the increase in import values. Moreover, since price elasticities of demand and supply typically are not constant over the entire range of prices, the starting point for tariff reform is also likely to affect the economic response. Indeed, if protectionist motives have dominated the setting of tariff rates, tariffs may be above their revenue-maximizing levels.

Reduction in Tariff Dispersion

Although it depends somewhat on the circumstances, reducing tariff dispersion is typically consistent with a reduction in average effective protection. The revenue implications of reducing tariff dispersion are more ambiguous. If tariff reform reduces the dispersion of tariffs around an average value by lowering the higher tariffs and increasing the lower ones, the revenue effects would depend in part on the relative price elasticities of demand of the goods affected. On the presumption that higher tariffs levied for protection purposes apply mainly to elastically demanded goods, a reduction in tariff dispersion will tend to increase revenue. To the extent that reductions in tariff dispersion significantly reduce effective rates of protection, tariff revenue effects will tend to be further mitigated as imports replace import-competing production. Alternatively, a reduction in the dispersion of tariffs is often accompanied by an increase in the minimum rate, which could imply some overall increase in the average rate (at least temporarily), and this also bolsters the prospect that revenue would increase. This approach, however, is less common and may be restricted by WTO tariff bindings. (These are commitments undertaken by countries within the WTO not to raise tariffs on certain goods above a specified level.) Reducing tariff dispersion could also bolster revenue by reducing tax evasion (see below). Taxes that are levied at a uniform rate tend to minimize evasion and administrative difficulties, especially by reducing opportunities for misclassification and valuation mistakes.

Tariff Exemptions and Tax Evasion

In a study of several developing countries, Pritchett and Sethi (1994) find a nonlinear relationship between statutory tariff rates and rates actually collected. They argue that the higher the tariff rates, the greater the incentive for importers to put effort into seeking exemptions. As a result, revenue tends not to increase in proportion to an increase in tariffs. The converse may also apply: reducing very high tariffs may not always lead to a proportionate fall in revenue. Moreover, eliminating tariff exemptions can contribute to trade reform while preserving revenue, by broadening the tax base. In addition to their direct impact on revenue, when exemptions become more

[3]The precise outcome will depend on how the market prices of goods adjust. If, for instance, the market prices of goods that use imported inputs do not fall, then, implicitly, domestic value added on these goods has risen and VAT revenue would not fall.

[4]The revenue impact of a tariff change actually depends on the elasticities of both demand and supply. The revenue-maximizing tariff will be $t = (\in_s - \in_d)/{-\in_s}(1 + \in_d)$, where t is the ad valorem tariff rate, $\in_s$ is the elasticity of import supply, and $\in_d$ is the elasticity of import demand. See Blinder (1981) for an elaboration of this point. Note that the (absolute values of the) elasticities required to ensure that the value of imports increases following a tariff rate reduction would typically be less than those required to ensure an increase in tariff revenue, since the share of the tariff in the total price declines with the tariff rate reduction.

[5]Above-average tax rates are also often levied on inelastically demanded goods such as alcohol and tobacco, for both revenue and protection purposes. The focus of trade liberalization policies in these cases should be on ensuring that domestic production is not favored while satisfying revenue objectives.

prevalent, the incentive to classify taxable products as exempt also grows, further contributing to a lower rate of compliance.

The extent of tax evasion is directly related to the potential benefits to would-be evaders (Tanzi and Shome, 1993). The lower the tariff, the lower the marginal benefit from evasion. On the other hand, customs evasion is associated with many costs to the evader. These include the need to find alternative—often more expensive—routes to avoid customs checkpoints, to package goods so as to conceal their presence or their true value, and to bribe corrupt officials. Other costs include those stemming from the lack of proper invoices for subsequent use of the goods, such as crediting under a VAT, and the costs associated with punishment for those who are caught. Any reduction in the marginal benefit of evasion is therefore likely to bolster revenue.

Reduction of Export Taxes

Export taxes are typically levied on important primary commodities with relatively few exporters. There are three principal arguments for export taxes. First, they can be used as a substitute for the income tax, particularly in difficult-to-tax sectors such as agriculture. Second, they can be levied on windfall gains from changes in the international prices of commodities. And third, for goods in which the country has market power, they may reduce the supply and thus increase the price of the commodity exported. In the main, however, export taxes are mainly an expedient to raise revenue; improvements in the domestic tax system would be more desirable. Conversely, given that export taxes are often claimed to be substitutes for income taxes on hard-to-tax sectors, their elimination will be more likely if they are implemented as part of an overall tax reform package to broaden the tax base.

Export taxes often are levied as a combination of a basic tax and a progressively rising rate on price increments. Alternatively, they may take the form of implicit taxes; examples include an overvalued currency or a multiple exchange rate system, foreign exchange surrender requirements at nonmarket exchange rates, and the use of export marketing boards that do not pay producers market prices. These implicit taxes may distort the revenue picture in that they remain unrecorded.

Development of Regional Trade Arrangements

Regional trade arrangements lower tariffs among members but do not lower them for countries outside the arrangement. In the participating countries, many imports from within the region may arrive duty free, and trade tax revenue may therefore decline even in the absence of changes in external tariff rates. Foroutan (1993, p. 255) argues that revenue considerations in trade liberalization clash with the conditions that minimize the likelihood of trade diversion from outside the region to within the region. These conditions are, first, that the partners have extensive trade links and, second, that they not raise their trade barriers with the rest of the world. But the stronger the trade links among the partners, the greater the likelihood of a revenue loss from regional trade integration.[6] In fact, however, intraregional trade linkages among low-income countries participating in regional arrangements are often weak. Finally, the preexistence of regional trade agreements may mitigate the revenue effect of subsequent reductions in external tariff rates.[7]

Revenue Implications of the Indirect and Interactive Effects of Liberalization

Trade liberalization can interact with the domestic tax system and the macroeconomic environment, with implications for economic growth, revenue, and the overall budget.

Import Composition and Economic Growth

Both relaxation of quantitative restrictions and reform of tariffs may lead to changes in the composition of imports. It is difficult, however, to predict such changes, because they are likely to vary across countries. In particular, if trade reforms diminish the share of import-substituting industries in the economy, imports of the goods produced by these industries will increase. If these goods are taxed at a higher-than-average rate, this might induce an increase in revenue.

Considerable evidence has accumulated over time that trade liberalization is linked to higher rates of economic growth, which is its main objective (Escolano, 1995). Trade liberalization leads both to a better static allocation of resources and to a higher rate of output growth in the long run. This enhanced growth leads to expansion of tax bases, with a concomitant expansion of revenue potential. Over time, the influence of economic growth on revenue may

[6]However, in assessing the revenue implications of regional trade arrangements, it should also be noted that such arrangements are typically implemented only over a transition period.

[7]Regional trade arrangements may also influence the likelihood of further trade liberalization (Bhagwati and Panagariya, 1996).

dominate the influence of shorter-term changes in the trade regime.[8] To the extent that growth following liberalization is associated with an increased importance of trade, the ratio of trade taxes to GDP would tend to increase for a given level of tariffs. That said, along with this growth, the composition of revenue is also likely to change over time, with increased reliance on domestic taxes and reduced reliance on trade taxes, consistent with reductions in tariff rates.

The Role of Domestic and International Trade Taxes

Domestic indirect taxes may reinforce the protective elements of trade taxes through several channels. One is through the differential application of VATs to imports and domestic production.[9] Such discrimination is rare, although in a few cases surcharges are added to the VAT on imports. More common is the differential application of excise taxes to imports and to domestic production. Some countries apply two different schedules of excise rates, levying lower rates on imports than on domestic production—in some commonwealth countries, excise taxes apply only to domestic production.

Interactions with Accompanying Policies

Reform of tax policy and of tax and customs administration, by protecting the revenue base, provides essential support to trade liberalization. Successful trade liberalization can be greatly facilitated if steps are taken to strengthen domestic taxes, especially at the earliest stages of the process, because it takes time for tax and customs administrations to improve revenue collection. Box 2 outlines the critical reforms needed to improve tax structure and administration in low-income countries. In Africa, where there is a particularly heavy reliance on trade taxes, a number of countries have reformed their tax systems. A relevant example is Benin, although other countries have also made substantial progress (Abed and others, 1998). However, even when pursuing comprehensive tax reform, many countries facing fiscal imbalances have also resorted to short-term measures to mobilize revenue until the structural reforms take effect. For example, an important thrust of Kenya's fiscal reforms was to lower the average rate of effective protection, reduce the dispersion of rates, and phase out export duties. However, the authorities also planned to introduce a presumptive tax of 5 percent on the value of gross sales of agricultural products to offset the revenue loss from eliminating the export tax on coffee and tea.

Interactions with Macroeconomic Developments

The economic adjustments to trade liberalization may include significant changes in the macroeconomy as well. If trade balances initially worsen with tariff reductions, the currency may depreciate. Indeed, in many cases trade reform is accompanied by an intentional devaluation to forestall the need for offsetting adjustments to fiscal and monetary policy. In general, the effect of a fall in value of the currency on trade tax revenue is ambiguous (Tanzi, 1989). One benchmark case, however, occurs when the demand for imports is relatively inelastic. The increase in the value of imports in domestic currency terms following a depreciation can then bolster revenue, as was found in several successful stabilization cases in African countries, where a large share of imports consists of price-inelastic necessities without close domestic substitutes.

The 1994 devaluation of the CFA franc underscores the importance of the circumstances surrounding a change in the value of a currency for tax revenue. The CFA franc (the currency used by several francophone countries in West and Central Africa) had been overvalued prior to the devaluation, and imports had fallen because of weak economic activity in the region. Accordingly, when the currency was devalued as part of an overall adjustment package, imports by countries in the CFA franc zone expanded sharply (from 25.4 percent of GDP in 1993 to 34.8 percent in 1994) as a result of the overall recovery in demand. This surge had a positive impact on revenue.[10]

Conclusions

The revenue implications of trade liberalization will depend significantly on the form of liberalization and the circumstances under which it occurs. What is important for the analysis that follows is that certain trade reform strategies can achieve consider-

[8]Alternatively, the longer-term growth impact of trade liberalization works to alleviate concerns that measured elasticities of supply and demand are insufficiently high to offset the direct revenue consequences of tariff rate reductions.

[9]If a good is not produced domestically (e.g., automobiles in many countries, wine in some industrial countries), an excise tax and a tariff will have an equivalent effect if levied at the same rate. However, a tariff may induce domestic firms to begin producing the good, because it would confer an advantage on them, whereas an excise tax, applied without discrimination to both imports and domestic production, would not.

[10]The CFA franc devaluation was also associated with a series of IMF-supported adjustment programs for the countries involved (Clément and others, 1996).

Box 2. Best Practices

Theoretical and practical considerations have yielded a set of best practices in tax and tariff systems in developing countries (Abed, 1998; Shome, 1995). The best tax systems are those that cause a minimum of distortion in the allocation of resources, are equitable, and are relatively easy to administer.

In practice, comprehensive tax and tariff policy reforms typically include most or all of the following key elements:

- A broad-based consumption tax, notably a VAT, should be introduced or strengthened, preferably with a single rate, minimal exemptions, and a threshold to exclude smaller enterprises from taxation. Although VATs are often initially applied to manufactures and imports, they are typically subsequently extended to the distribution sector and to agricultural inputs. Experience suggests that excise taxes should be restricted to a limited list of products, principally petroleum products, alcohol, and tobacco. VATs and excises should be applied equally to imports and domestic products.
- Taxes on international trade should play a minimal role. Import tariffs should have a low average rate and a limited dispersion of rates, to reduce arbitrary and excessive rates of protection. Exporters should have duties rebated on imported inputs used for producing exports. Export duties should generally be avoided.
- The personal income tax should be characterized by only a few brackets and a moderate top marginal rate, by limited personal exemptions and deductions, by a standard exemption that excludes persons with low incomes, and by extensive use of final withholding. The corporate income tax should be levied at one moderate rate. Depreciation allowances should be uniform across sectors. There should be little use of tax incentives.
- These reforms may be usefully complemented in some countries by the introduction of a simplified tax regime for small businesses and the informal sector.
- Nontax revenue, to the extent that it reflects the extraction of surpluses from state enterprises or profits from central bank operations, should decline with the development of the economy and, especially, with the devolution of the state's role in productive activities.
- Reform of tax and customs administrations should include modernization of systems and procedures. Simplification of the tax and tariff systems is a prerequisite for administrative reforms. Typical reforms stress the reorganization of tax and customs administrations along functional lines; the adoption of effective procedures for a national system of unique taxpayer identification numbers; strengthening of audits; and improvement of taxpayer services. Computerization is generally a central component of reform, along with upgrading the skills of tax and customs officers and providing them with administrative autonomy and pay incentives.

able trade liberalization without overly adverse consequences for revenue mobilization. In principle, some strategies could even lead to increased revenue, especially in the initial stages of trade reform. Specifically, revenue will likely be least affected, and could increase, when

- The initial position is highly restrictive
- Trade liberalization involves the tariffication of quantitative restrictions, the auctioning of licenses to import, or both
- Trade liberalization includes such reforms as a reduction in tariff dispersion, the introduction of a minimum tariff, or the elimination of exemptions
- Trade liberalization is accompanied by reforms in customs and tax administrations, which also reduce the incentives to evade taxes, and
- Trade liberalization is supported by sound macroeconomic policies that ensure that liberalization is consistent with external balance.

Finally, even though certain trade reform strategies can minimize adverse revenue consequences, it may well be the case that trade liberalization would be pursued more vigorously if revenue concerns were absent. This point underscores the urgency of reforming domestic tax systems to diversify revenue bases.