

The Whys and Why Nots of Export Taxation

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A country with market power can benefit from imposing an export tax, regardless of the behavior of other exporting or importing countries. The same cannot be said for countries without market power.

The World Bank
Policy Research Department
Public Economics Division
and
International Economics Department
International Trade Division
November 1996



Summary findings

Devarajan, Go, Schiff, and Suthiwart-Narueput review the arguments for taxing exports, considering two cases: one in which a country has market power in the export commodity, and one in which it does not. Among their conclusions:

For a country with market power in the export commodity, there are strong analytical and practical arguments for an export tax. While the optimal level of the export tax may depend on the strategic behavior of other exporting and importing countries, on such practical issues as long-run market power, on whether smuggling is present, or on general equilibrium effects, such factors do not reverse the fundamental desirability of export taxation for countries with market power. And while alternative instruments such as export quotas and

cartels could potentially yield a better outcome, they have their own practical limitations and do not negate the conclusion that a country with market power can benefit from imposing an export tax at the margin.

But the same cannot be said for countries without market power. In most small, open economies that do not have market power in export markets, taxing exports is harmful not only to exports but also to general economic welfare and growth. Export taxes generate serious economic distortions and disincentives and are a poor instrument for encouraging higher-value-added activities. And in revenue generation, they are likely to be dominated by other tax instruments and should be viewed as at best a transitional measure to be replaced as soon as tax administration improves.

This paper — a joint product of the Public Economics Division, Policy Research Department, and the International Trade Division, International Economics Department — is a response to the renewed interest in developing countries in export taxation. Recent economic reforms, by lowering import protection and depreciating the real exchange rate, have raised the relative domestic price of exports, prompting policymakers and Bank country economists to ask whether these exports should be taxed. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Bernardo, room N10-053, telephone 202-473-7699, fax 202-522-1154, Internet address prdpe@worldbank.org. November 1996. (26 pages)

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The Whys and Why Nots of Export Taxation

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Introduction

Export taxation has a long and varied history.² England imposed export duties on wool and hides as far back as 1275 and applied them to more than 200 articles by 1660. Most export duties were however eliminated in Europe in the 19th century, but a few were continued to encourage domestic processing. In the United States, export duties were prohibited by the Constitution at the insistence of southern states that produced agricultural staples (e.g., cotton, tobacco, sugar, and rice) for export.³ After their declining use in Europe, export duties were introduced in colonies in Asia, Africa, and Latin America primarily to raise revenue. They were also used to favor exports to the colonizing country and shipping in national-flag carriers through discriminatory rates and rebates.

After World War II, implicit export taxes from the surpluses of export marketing boards became popular in many newly-independent developing countries in Africa, Asia, and Latin America.⁴ Export marketing boards were at one point or another important in many other countries, including Burma, Cote d'Ivoire, Ghana, Nigeria, Philippines, Thailand, and Uganda; they usually monopolized the export of commodities such as cotton, groundnuts (peanuts), cocoa, coffee, coconut products, palm kernels and palm oil, rice and sugar. Stabilization funds are popular in francophone Africa. Explicit export taxes are applied to a wide range of major tropical agricultural products including

²See, for example, Levin (1960) and Goode (1984).

³With the advent of the cotton gin, cotton produced by the southern states accounted for more than half of U.S. exports from 1800 to 1860. See, for example, Willis and Primack (1989).

⁴In its broadest sense, export taxes include not only explicit custom duties but also implicit taxes from surpluses of state marketing boards and stabilization funds, and profits from multiple exchange rate systems.

coffee, tea, sugar, bananas, rice, ground nuts, vegetable oils, rubber, jute, sisal, logs, hides, tin, copper, bauxite, and other commodities.

Today, a change in circumstances has led to renewed interest in export taxation. Two of the more common reforms undertaken by developing countries since the 1980s have been lower protection to import substitutes and a depreciation of the real exchange rate. Both imply an increase in the relative domestic price of exports. As a result, several countries are asking whether these exports should be taxed. Some commodity-exporting countries fear that higher producer prices for exports will result in higher output, lower terms of trade and hence lower incomes. This is commonly referred to as the “adding up” problem. From 1980-92, the World Bank’s index of non-oil commodity prices fell by almost 50 percent. The index for beverage crops (cocoa, coffee, tea) fell by 60 percent. By taxing exports, could any one of these countries prevent or mitigate the decline in world commodity prices? The answer depends crucially on whether or not the country has market power in the commodity.

Even when a country has no market power in the commodity, there is another reason for the heightened interest in export taxation: the potentially lucrative source of revenue now that domestic (relative) export prices have risen.⁵ How important are export taxes in the revenues of developing countries? Between 1970 and 1990, at least ten countries - five of which are shown in Table 1- collected more than 20 percent of their tax revenue from export duties in at least one year during the period. Nineteen countries collected between ten and twelve percent in one year during the same

⁵This argument is sometimes framed in terms of insulating domestic producers from fluctuations in export prices. However, price stabilization schemes have generally resulted in the taxation of exports.

period, and twelve collected between five and ten percent. The number of countries collecting between one and five percent was 23, and several, mainly industrialized, countries collected none. Regardless of its importance to government revenue, the decision to tax exports should depend on the distortionary cost - if any - imposed by the tax compared with alternative means of raising the same revenue.

Table 1 - Countries with Export Taxes Greater than 20% of Government Revenue

Country	Export taxes as share of revenues (%)	Years
Burundi	26	1977-78
Sri Lanka	30	1978-79
Mexico	27	1982
Ethiopia	20	1977-78
Guinea	44	1988-90

Source: International Monetary Fund, *Government Financial Statistics*

This paper reviews the various arguments for taxing exports. We consider two different cases: (1) when the country has market power in the export commodity; and (2) when it does not. In each case, we spell out the underlying analytical foundation, then ask whether the practical considerations involved are likely to reverse the analytical findings. We conclude with some simple rules for evaluating the desirability of an export tax. While export taxes are typically levied on agricultural as well as forest and mineral products, we focus mainly on exports of agricultural commodities since the taxation of natural resources like forest and mineral products and the related issues of Dutch disease require a separate and distinct treatment.⁶

⁶See, for example, Corden and Neary (1982), Slade (1984, 1986) and Neary (1986).

1. COUNTRIES WITH MARKET POWER

1.1 The Analytical Case for Export Taxes

The possession of market power by an exporting country with competitive producers provides a strong analytical case for an export tax (or export quota; on quotas, see below).⁷ As indicated in Bhagwati (1971), unexploited market power on the world market is a distortion from the viewpoint of the exporting country. By levying an optimal export tax which targets this distortion, a country with market power can improve its terms of trade and welfare. While there are several possible interventions which could improve the country's terms of trade, an export tax is the preferred instrument on analytical grounds because they precisely correct this underlying distortion without inducing others. A production tax in a country with market power, for example, could also improve its terms of trade by lowering exports *via* curtailed production but would be less efficient than export taxes. A country with market power can improve its terms of trade by reducing exports, which are the difference between domestic production and consumption. Since an export tax is equivalent to a tax on domestic production and a subsidy on domestic consumption, an export tax reduces exports by simultaneously reducing production and

⁷ In general equilibrium models of trade, it does not make any sense to distinguish between market power in export v. import markets. A country has market power if it faces an offer curve that is not a straight line. In theory, the optimal tariff for such a country could be *either* an export tax *or* an import tariff since the two should yield similar results due to Lerner symmetry. Both have a similar impact on net import demands and the marginal quantities traded.

The above is only true if the export tax is on all exports and the import tax is on all imports. Since the optimal export tax only applies to commodities with market power and not to all exports, there is no symmetry between specific commodity export taxes and uniform tariffs. For more on this, see the section on general equilibrium issues below.

increasing consumption. By contrast, production taxes (or consumption subsidies) exploit only one route for reducing exports.⁸

In standard theory, this optimal or welfare-maximizing export tax is given by the inverse of the elasticity of demand.⁹ Facing a less than perfectly elastic demand curve is theoretically sufficient to warrant a positive export tax. Note that neither full monopoly power nor inelastic demand is required. By contrast, a country with no market power faces an infinitely elastic demand curve and has an optimal tax of zero. Intuition for the above result can be gained by thinking of the analogy with firms. Price exceeds marginal revenue for firms which face a downward-sloping demand curve. They can therefore increase profits by restricting output below the level where price equals marginal cost.¹⁰ Similarly, an optimal export tax restricts the exports of competitive producers to a level which maximizes national welfare.

While the welfare of the producer country would be increased by such a tax, consuming countries will lose more than the producing countries gain and world welfare will fall. It would be better for all concerned if the producing countries pursued a free trade policy and the consuming countries compensated the producing countries for their losses with lump-sum transfers. Why does this not happen? A basic problem is credibility. Under free trade, the world price would be

⁸More formally, individual country optimality requires that the domestic rate of transformation (DRT), the domestic rate of substitution (DRS), and the foreign rate of transformation (FRT, or the slope of the foreign offer curve) be equated. However, in the large country case, the FRT is no longer equal to the ratio of world prices. An optimal (export) tariff breaks the equality between domestic prices (DP) and world prices (WP) in such a way that $DRS=DRT=DP=FRT \neq WP$. By contrast, however, a production tax induces additional distortions by destroying the equality between DRS and DRT. See Bhagwati and Srinivasan (1984).

⁹For instance, if the export demand elasticity were -20, the optimal export tax rate would be 5 percent. To be precise, these are offer or relative demand curve elasticities since we are dealing with general equilibrium. Also, we ignore other distortions in that economy.

¹⁰Again, note that this is also true in an oligopoly or monopolistically competitive setup. Full monopoly is not required.

lower but the producer price would be higher than under export restrictions. The higher producer price would stimulate investment and output in the long run. Once these investments were made, the consuming countries could stop compensating the producing countries. Thus, producing countries may prefer to exercise control over the income transfer by implementing trade restrictions.¹¹

The above considered the case for an export tax in the absence of any **strategic considerations**. How is the above prescription changed once strategic considerations are incorporated? In what follows, we consider the implications of strategic behaviour on the part of domestic exporters; other exporting countries; and by importing countries (i.e., trading partners). We argue that a country with market power should benefit from imposing an export tax, *regardless* of the behavior of other exporting or importing countries. The latter affects the optimal *level* of the export tax, but not its basic desirability.

If domestic exporting firms perceive their collective market power and privately coordinate exports, then there is no need for government intervention by way of an export tax.¹² This is likelier when there are relatively few domestic exporters which facilitates collusion.¹³ Encouraging such private coordination in lieu of an export tax, however, is no panacea. An

¹¹ This is the outcome of a strategic game between producing and consuming countries in the case of hysteresis or irreversibility of investment decisions. If producing countries could increase or decrease investment and output with no adjustment cost, then lump-sum transfers from consuming countries would be acceptable to producing countries. For a discussion of hysteresis, see Pindyck (1988, 1994), Dixit (1989, 1992), and Dixit and Pindyck (1994).

¹² See Bhagwati, J. N. and T. N. Srinivasan, *Lectures on International Trade*. Cambridge: MIT Press, 1984, p. 178.

¹³ Sustaining a collusive outcome requires that individual deviations (i.e., exporting more than the agreed upon level) be readily detectable and punishable. Both are likelier when there are fewer firms and where each firm's output is identifiable. Sustaining a collusive outcome is less likely when there are many firms and the product is homogeneous. The output externality refers to the fact that an individual exporting firm does not take into account the negative effect that increasing its exports has on other exporting firms via a reduction in export price.

industry which colludes and exercises monopoly power when exporting is also likely to do so when buying or selling domestically, leading to domestic distortions. Furthermore, production of most non-mineral commodities in developing countries is done by large numbers of small-scale producers (farmers), with prohibitive transaction and monitoring costs of collusion, unless exports are carried out by a few colluding firms or by a marketing board (see below).

Suppose such domestic coordination is not forthcoming and the government considers imposing an export tax. How should the behavior of fellow exporting countries affect the government's decision? If the other exporting countries are small and have no market power, then they are unlikely to have an export tax. Nonetheless, they are likely to benefit from improved terms of trade and increase exports after the large country imposes an export tax. Although it does not fully appropriate all the benefits of restricting exports, the large country is still likely to benefit from having an export tax.¹⁴

If the other exporting countries are large, they may also impose an export tax. If the exporting countries do not collude, each individual country ignores the positive benefit that raising export taxes and restricting exports has on other countries. It is then likely that in equilibrium the individual export taxes will be too low from the standpoint of collective exporter welfare.¹⁵ Coordination among the exporting countries would raise their collective welfare. However, as discussed further below, this may not be feasible in practice. Alternatively, exporting

¹⁴Unless the supply elasticity of the other countries is so large that it wipes out any terms of trade improvement induced by the export tax. Since the other countries are "small" by assumption, this is not likely to happen.

¹⁵For instance, this would be the case under a Nash strategy, where each country sets its export tax in order to maximize welfare taking the other countries' export tax as given.

countries may behave non-cooperatively but may choose to maximize government revenue rather than welfare.¹⁶ In this case, both export taxes and welfare are likely to be higher in equilibrium.¹⁷

Does the importing country's response alter the desirability of an export tax? If the importing country is large, it may also impose an optimal tariff in retaliation to the export tax.¹⁸ In equilibrium, it can be shown that the exporting country can still be better off than under free trade despite such retaliation.¹⁹ Tariff retaliation therefore does not necessarily undo the case for an optimal export tax.²⁰ Note that for products such as coffee and cocoa, retaliation by importing countries is unlikely. On the contrary, the latter have supported export restrictions by the producing countries through arrangements such as the International Coffee Agreement (ICA) and the International Cocoa Organization (ICCO).

In sum, the key analytical point remains: *a country with market power can benefit from imposing an export tax, regardless of the behavior of other exporting or importing countries.*

¹⁶For instance, a number of commodity exporting countries have a thin tax base and may choose export taxes in order to maximize government revenue. There are other reasons why a country might charge revenue-maximizing export taxes. Many exporting countries are characterized by a large number of small producers with exports controlled by a parastatal marketing board (or by a few colluding exporters). In that case, the private or public exporter(s) may act as a monopsonist with respect to the producers and as a monopolist with respect to the world market. If the objective is to maximize profits, then the entity behaves as if it is a revenue-maximizer.

¹⁷Panagariya and Schiff (1994) show that Nash revenue-maximizing taxes are higher than Nash welfare-maximizing taxes for each exporting country. They also show that if Nash taxes are chosen to maximize government revenue, they are likely to generate higher welfare than Nash welfare-maximizing taxes. Welfare-maximizing Nash taxes are smaller than the cooperative (monopoly) taxes which maximize welfare for the producing countries as a whole. Since revenue-maximizing Nash taxes are larger than welfare-maximizing Nash taxes, there is a possibility that the producing countries will be closer to the cooperative tax level and that they will result in higher profits. In simulations with a model for cocoa (Panagariya and Schiff, 1995), they found that welfare is higher in each of the nine producing countries under revenue-maximizing Nash taxes (85% higher on average). By levying the higher revenue-maximizing export taxes, producing countries can increase revenue as well as welfare. This result does not hold under cooperative (collusive) behavior by the exporting countries.

¹⁸Recall that this retaliatory tax can be either an import or export tax *per* Lerner symmetry.

¹⁹See Johnson, H. G. "Optimum Tariffs and Retaliation." *Review of Economic Studies* 21, no. 55 (1953-54): 152-53.

²⁰This is because the game-theoretic equilibrium will occur in the area formed by the intersection of the two countries' free trade offer curves.

The latter can affect the level of the optimal export tax, but not its basic desirability. However, practical considerations may affect this analytical conclusion, an issue we turn to next.

1.2 The Practical Case for Export Taxes

While countries with market power have a strong analytical case for export taxes, we consider whether and how practical considerations may affect this finding. We argue that even when evaluated from a practical standpoint, export taxes remain preferable to alternative means of restricting exports such as quotas, cartels, or marketing boards.²¹ Implementing the export tax also requires taking into account (1) long-run demand and supply elasticities; (2) the likelihood of smuggling; and (3) general equilibrium effects. While these are important practical considerations which may affect the optimal *level* of the export tax, they do not reverse the case for its basic *desirability*.

Alternative Instruments

Under certain circumstances, an export **quota** is equivalent to an export tax for a single exporting country.²² In their modern incarnation, export quotas include voluntary export restraints (VERs), which have been applied on such diverse goods as automobiles from Japan and textiles and apparel from developing countries.

²¹Recall that we have already established in the preceding section that on analytical grounds, export taxes are preferred over other instruments such as production taxes.

²²However, in the case of more than one large exporting country, Panagariya and Schiff (1992) have shown that a symmetric Nash equilibrium with export quotas is likely to be more restrictive and yield higher welfare than the equilibrium with export taxes. These results are also supported by simulations for the cocoa market. Welfare was found to be 30% higher on average in all producing countries in the case of export quotas and government revenue -- assuming the quotas are auctioned -- 150% higher on average in each country.

However, relative to export taxes, there are several practical problems involved with export quotas. First, the quota has to be allocated to the various producers and most allocation mechanisms have generally led to inefficiencies. Unless the quota is auctioned or a secondary market for the quota exists, the allocation will be inefficient in the sense that not all producers who obtain a quota share will be among the most efficient producers (marginal production costs will not be equalized across producers). Second, additional resources will be wasted in rent-seeking activities devoted to capturing quota rights. Third, export quotas are likely to be less efficient than export taxes in a world of fluctuating market conditions (which characterize many commodity markets) since the latter allow for a supply response while the former, by definition, do not.

A **cartel** will maximize welfare for the cartel as a whole by charging the cooperative or monopoly export tax. In theory, this would be the optimal solution for the producing countries. In practice, large cartel (or monopoly) profits may be elusive. First, the cooperative export tax set by a cartel is larger than the export taxes that the exporting countries would each set individually.²³ If producing countries are similar in production conditions, they will agree to levy the larger cooperative tax. But if the countries differ significantly in production conditions, some countries may refuse to go along because their output and exports will fall significantly (or entirely) and they may lose. In theory, a compensation system could be set up. In practice this may not be feasible due to the credibility problem discussed earlier.²⁴ Consequently, export

²³This compares the single period Nash outcome with the single period collusive outcome. It is also possible to sustain a collusive (Nash) outcome without a formal cartel arrangement in a repeated game setting.

²⁴A country which lowers production of, say, coffee (or copper) will see its stock of trees (or its mines) deteriorate over time, and will thus lose its bargaining power to ensure that compensation continues at the same level (or at all).

reductions of the member countries are often allocated according to a different rule (e.g., in an equiproportionate manner). Hence, the export quotas determined by the cartel are not optimal in the sense of equating marginal production costs across member countries, and cartel profits will be lower than those obtained by a pure monopoly.

Second, as in every cartel, each member has an incentive to cheat (free ride) and sell more than its quota at a price close to the high cartel price. Such cheating has often led to the temporary or permanent demise of cartels.

Third, supply shocks may destabilize cartels. Even though OPEC has been a remarkably successful cartel, commodities such as coffee, cocoa and tea are different from oil. The output of oil is essentially controllable and predictable since it can easily be stored simply by not extracting it and leaving it in the ground. This is not the case with coffee, cocoa and tea, where significant annual output variation may result in severe disagreements on the size of the export quotas. For instance, a country experiencing a significant increase in output due to favorable climatic conditions may demand a higher export quota, especially since storage costs are high. If such an output increase is permanent, then the pressure to obtain a higher quota will be even larger.

Fourth, demand shocks may destabilize cartels as well. For instance, what triggered the collapse of the ICA (the International Coffee Agreement) was the increase in the price of Arabica relative to that of Robusta (maybe due to the secular income increase). This led the ICA to try, unsuccessfully, to lower Brazil's quota (Brazil being a major producer of Robusta).

In sum, a cartel is an unstable institution because of the incentive to cheat and because demand and supply shocks can destabilize it. It should be noted that cartels such as the ICA have

collapsed *despite* support by the consuming countries. Given the political interests of the EU in Africa and of the U.S. in Latin America, the EU and the U.S. supported the ICA (International Coffee Agreement) and the ICCO (International Cocoa Organization) until their collapse.²⁵

A monopoly export **marketing board** or parastatal can coordinate domestic producers and charge the optimal export tax (by paying producers less than the export price). However, if the marketing board tries to maximize its revenues, it will exercise monopsony power over producers as well which would be a source of inefficiency.²⁶

Other problems with marketing boards relate to political-economy issues. These boards may be used for patronage, whereby the authorities give cushy jobs to important political players in exchange for their loyalty. Moreover, the boards are often run inefficiently, with a bloated labor force and no pressure to make profits. Rather than being a source of revenue, they become a sink. The population obtains little or no benefit from the implicit export tax while producers are heavily taxed. One example is Ghana's Cocoa Marketing Board which, in the early 1980s, had about 100,000 employees.

Second, there is often a lack of transparency in the accounts of these boards. Strong suspicions exist that, for many of them, not all the revenues (over and above the bloated costs) find their way to the general budget. Third, the pricing rules of the boards often eliminate private sector activity. By setting constant prices regardless of geographical location or time of year,

²⁵Recently, ICA has been re-established in some form by Colombia, with the support of Brazil and others, with some success.

²⁶Unless producing countries exhibited Nash behavior, in which case, export taxes above the welfare-maximizing Nash taxes are likely to raise welfare.

marketing boards reduce the incentive for the private sector to invest in transportation or storage and often lead to inefficient production location decisions.

Implementation Issues

Determining the appropriate level of the export tax requires taking into account long-run demand and supply elasticities; smuggling; and general equilibrium effects. We consider each in turn.

Properly estimating the degree of market power requires producing countries not to underestimate the ability of consumers and of existing and potential suppliers to respond to long run price changes. For instance, the response of both consumers and producers to the creation of OPEC has been considerable (with energy conservation, shift to other sources of energy, and new sources of oil supply). OPEC's policy has led it to lose market share and power over time. Nevertheless, the members of OPEC certainly gained from forming the cartel (in terms of present value of income or wealth). Thus, pursuing a policy which results in a gradual loss of market power may be optimal. The problem occurs when that gradual loss is larger than expected so that export taxes are set too high relative to the optimum.

In the case of cocoa, the fall in Ghana's output due to its highly overvalued currency in the early 1980s led to a significant output response in Cote d'Ivoire and Brazil as well as among such recent entrants as Malaysia, Indonesia, and Oceania. With lower prices in recent years, Cote d'Ivoire, Brazil and Malaysia have reduced output. This suggests that the elasticity of excess-demand for cocoa facing individual producing countries is quite large and their market power may

have been overestimated. In a simulation of the cocoa market, Panagariya and Schiff (1990) calculated long-run (steady-state Nash) welfare-maximizing taxes assuming large supply elasticities (a value of 3.0) for newcomers Malaysia, Indonesia and Oceania. The optimal Nash export tax was small for these three countries but not for the traditional producers with lower supply elasticities. The tax was 25% for Cote d'Ivoire, 20% for Ghana and 15% for Brazil.²⁷ These taxes raised average welfare in the cocoa sector of producing countries by 23% relative to free trade.²⁸

The possibility of smuggling imposes additional constraints on the level of the export tax. As with any tax, excessively high rates lead to evasion. The export tax rate should be lower than the cost of smuggling. If neighbouring countries also have export taxes, then the difference in tax rates must be lower than the cost of smuggling. Otherwise, the high-tax country will lose its tax base. For instance, in the early 1980s, significant amounts of cocoa were smuggled from Ghana to Cote d'Ivoire due to the enormous tax caused by Ghana's highly overvalued currency and the low cost of smuggling, as cocoa is produced in an area that spans both sides of the border.

General equilibrium considerations are also important in setting the level of the optimal export tax. According to the Lerner (1936) symmetry result in international trade, we know that under a fixed trade balance an import tax is equivalent to an export tax. An export tax subsidizes domestic consumption and taxes domestic production of exportables, while an import tariff

²⁷It should be noted that these optimal taxes are smaller than the tax which would have been obtained from maximizing the present value of welfare rather than steady-state welfare.

²⁸As noted before, if the countries maximized tax revenue, then Nash taxes would be significantly higher still. Under revenue maximization, welfare was 125% higher on average compared to free trade and 83% higher than under optimal taxes.

subsidizes domestic production and taxes domestic consumption of importables. Both therefore have a similar impact on net import demands.

Industrial protection therefore results in a tax on exports, which must be taken into account when designing trade policy for commodity exports. Import liberalization raises the price of exportables relative to importables and nontradables (because of real exchange rate depreciation) and leads to higher exports, including commodity exports. Hence, optimal explicit export taxes will be higher when import taxes are reduced. Of course, it is preferable to have lower import taxes and a higher commodity export tax than the opposite because import taxes distort relative prices by taxing all exports as well as nontradables.²⁹ This issue is further examined in the *Appendix* (See Fallacy 1). The appendix also examines the issue of the optimal export tax when the goods subject to the tax are also consumed in large quantities in the producing countries (see Fallacy 2).

In sum, implementation issues are not likely to reverse the case for explicit export taxes. Export taxes are relatively simple to administer, dominate other policy instruments, and raise producing countries' welfare.³⁰ *While practical issues such as long-run market power, smuggling, and general equilibrium considerations may affect the optimal level of the export tax, they do not reverse their fundamental desirability for countries with market power.*³¹ However,

²⁹This issue is examined in more detail in Schiff (1995).

³⁰Though welfare-maximizing Nash export quotas are likely to generate higher profits than welfare-maximizing Nash export taxes, the former suffer from potentially severe and costly implementation problems. Revenue-maximizing Nash taxes are likely to raise welfare above welfare-maximizing Nash export taxes as well, but without generating implementation problems. Being equilibrium taxes, Nash taxes do not suffer from the sustainability problem cartels face.

³¹The first two considerations imply lower export taxes, while liberalization of imports implies higher export taxes.

the same can certainly not be said for export taxation by countries without market power, which we consider next.

2. COUNTRIES WITHOUT MARKET POWER

2.1 The Analytical Case for Export Taxes

According to the theory of optimal commodity taxation (Diamond and Mirrlees, 1971), there should be no distortionary taxes on production. To allow for efficient production, revenue should be raised through taxes on consumption. Clearly, this theory does not favor export taxes, which would be distortionary for countries without market power.

Hence, in most small, open economies where market power in export markets is non-existent, taxing exports is a bad idea, harmful not only to exports but economic welfare and growth. Conventional economic wisdom places a high premium on market-friendly policies and non-distortionary taxes that foster, for example, a neutral trade or investment regime. Furthermore, superior export performance, generally viewed as an outcome of economic and trade liberalization, is linked with rapid economic growth, particularly in high-performing East Asian countries.³² The standard arguments in trade reform that often call for lower trade protection or zero import tariffs are easily extended to no export taxes (Lerner 1936). Finally, the design of a consumption tax, such as the value-added tax (VAT), invariably recommends that exports are zero-rated.

³²See, among others, Balassa (1978) and Pack (1988). In fact, liberal fiscal incentives, rather than export taxation, are generally associated with export activities in most high-performing East Asian countries (see World Bank, 1993).

Yet, export taxes persist in countries without market power. As with other inefficient taxes, export taxes have been tolerated or even recommended under special circumstances.³³ It is sometimes argued that special circumstances in developing countries do not fit the assumptions of Diamond and Mirrlees (1971) which requires, for example, that all goods be taxable and that profits can be taxed completely or that profitable sectors are publicly owned.³⁴ It is easy to see how these assumptions may not hold in developing countries. For example, there exist large informal and agricultural sectors where transactions are hard to tax (in goods or factor markets). A fixed factor like land, which is supplied inelastically, receives profits or rents (e.g., in agricultural production) and it may not be possible or desirable that all land be owned publicly so that land rents accrue only to the government.

2.2 The Practical Case for Export Taxes

Are there practical considerations which would reverse the above analytical finding and warrant developing countries without market power to engage in export taxation? Without going into the details of the theory of taxation for developing countries,³⁵ this section reviews the major arguments for and against export taxation in these economies, including (1) the encouragement of higher value-added activities; and (2) the difficulty of implementing alternative taxes; and (3) the desirability of windfall taxes. *We conclude, however, that export taxes are dominated by other policy instruments and should at best be viewed as a transitional measure.*

³³To cite a few sources, see Goode (1984), Andic, Andic, and de Alonzo (1990), and Gómez-Sabaini (1990).

³⁴See, for example, Newbery (1987). Alternatively, the Diamond and Mirrlees (1971) model requires production under constant returns to scale with zero economic profits if profits cannot be completely taxed.

³⁵See Newbery and Stern (1987).

Encouraging Higher Value Added

Export taxes have been used as an indirect form of protection (Gómez-Sabaini 1990). By taxing primary exports, proponents hope to encourage production and export of higher value added goods through the dampening effects on domestic prices, which act as indirect subsidies to the next stage of processing (e.g., export taxes on rawhide to encourage export of leather in Argentina). It is also argued that export taxation will improve export quality when applied to low quality products (e.g., unwashed wool).

The protection argument, whether through import or export taxes, is generally discredited. From the standpoint of efficiency, there are other interventions and instruments available (such as direct subsidies to the activity to be encouraged) which are less distortionary if the goal is to encourage particular activities. However, in the absence of any compelling source of market failure, this begs the question of why these particular activities should be encouraged in the first place. Furthermore, even if such a market failure should be identified, the preferred policy intervention would be to target that particular distortion directly. Many arguments for encouraging higher value added typically rely on some form of credit market failure for their justification. In this case, addressing such credit market failures directly would be a superior policy intervention to instituting export taxes.

Aside from efficiency losses, encouraging higher value added through export taxation could be highly inequitable in practice. Often, the primary producers in question are many and the potential beneficiaries at the next stage of processing are few. (Indeed, if the reverse were

true, then there is no obvious reason why processing would need to be further encouraged.³⁶⁾ Finally, if entry to the manufacturing stage is regulated, it may lead to oligopolistic practices, which should be avoided.

Revenue Generation: The Difficulty of Implementing Alternative Taxes

Export taxes on primary goods are generally used as a means of taxing agriculture and rural producers. In general, developing countries with poor tax administrations find in primary exports a significant taxable base that can easily be exploited. Export taxes have obvious administrative advantages for taxing the income of numerous small farmers who are otherwise difficult to reach through income or land taxes. Indeed, every tax, with its own informational requirements, is incomplete unless the administrative factors are included (Stern 1982, Besley 1989, and Slemrod 1990). The best argument for export taxes is that they economize on information because they are more easily monitored. Taxes on output may require knowledge of marketed sales of numerous farmers. In addition, income taxes will require information on production costs, wages, and profits as well. Land taxes, to be equitable, must vary with land quality as well as acreage. The difficulty of assessing land values in rural areas of developing

³⁶If there is an equity case for export taxes, this should be weighed against the efficiency cost of the distortions induced as well as against alternative means of addressing equity considerations (e.g., through other tax and expenditure policy).

countries makes land taxes even less implementable.³⁷ In such a situation, export taxation is an attractive substitute.³⁸

Collection issues and revenue needs make export taxation of agricultural commodities seem compelling. At best, however, it should be looked at as a temporary and transitional measure, to be replaced immediately as tax administration improves (Linn 1990). As a substitute tax, there are many problems associated with it: (1) it creates an incentive to produce that part of agriculture which is not exported; (2) even if output is entirely exported, it is a good substitute for a land tax only if supply is completely inelastic, which is often not the case, e.g., because of possible crop substitution; (3) if crop substitution leads to less labor-intensive activities, then rural laborers may be significantly worse off with a fall in wages or rise in unemployment; and, (4) a fall in rural wages in turn may increase rural-to-urban migration and urban unemployment and may depress urban wages as well.

In some cases, equity considerations may also be important if land ownership in agriculture is heavily concentrated in a privileged few and export taxation is the only reliable means to taxing them. In such situations, the benefits of taxing rent incomes of the few through

³⁷The land tax, despite its efficiency in theory, has several drawbacks. Hoff (1991) argued that while the intake of an output tax can vary depending whether the harvest is above or below average, land taxation (which is normally not tied or indexed to output) increases the riskiness of net farmer income given imperfect risk markets in rural areas. Skinner (1991) also found, in addition to (i) the increase in income risks, that (ii) capitalization effects of the land tax impose a large burden on the current generation; and (iii) administration of the land tax entails costly informational requirements. The last was found as the best explanation of the weak link between theoretical and practical aspects of land taxation. Note that some of the above drawbacks apply equally to export taxes. Similarly to (ii), export taxes also generate capitalization effects through lower producer prices.

³⁸Also, in some countries (e.g., Argentina), a land tax was seen as expropriation and resisted, while an export tax was not and therefore acceptable.

export taxes must be judged against the various costs cited above. Furthermore, if these households are so few, it should be easy to identify and tax them directly.

Windfall Taxes

Some countries (e.g., Argentina and the Philippines in several occasions) taxed their primary exports during a commodity price boom in the world markets or when there was a substantial devaluation of the foreign exchange rate taking place in the economy as a way for the government to partake in the temporary economic windfall. Such a windfall tax functions as a substitute tax in the absence of a well-functioning direct income tax on agriculture. The same arguments cited in the preceding section apply to the windfall tax. Taxing exports is also used as a means of making a devaluation politically more acceptable (particularly in the presence of import-substituting industries and if exportables are an important part of the consumption basket.) However, arguments calling for a windfall tax on exports should also allow for a compensating export subsidy when the exchange rate is overvalued (e.g., during the period prior to the devaluation). Since no subsidy is usually given when the currency is overvalued, no windfall tax should apply after devaluation. Moreover, the new literature on irreversibility and investment under uncertainty also calls attention to the observation that profits sometimes need to reach a threshold much beyond the restoration of an old level before investment will again take place (i.e., hysteresis).³⁹ Hence, under risky conditions, when export prices are volatile in the world markets, a windfall tax during a price boom or devaluation may be just the wrong policy.

³⁹See, for examples, Pindyck (1988, 1994), Dixit (1989, 1992), and Dixit and Pindyck (1994).

There is a related argument which stems from the fact that world prices for many commodities fluctuate. Farmers in developing countries may not be able to diversify their risk whereas governments are in a better position to do so. A tax-cum-subsidy scheme which eliminates the price risk to farmers (and transfers it all to the government) may therefore be welfare-improving. However, this argument too needs to be treated with caution. First, to be welfare-improving, the policy must be a tax during high prices and a subsidy during low prices. As noted earlier, the latter has rarely occurred. Price stabilization schemes have typically depressed producer prices below world prices. Second, that governments are better able to diversify risk than private producers is a questionable assumption. While in principle, governments have access to a wider array of risk-spreading instruments, in practice they frequently do not optimize across these instruments.⁴⁰ As a result, the government is also highly exposed to commodity price shocks -- which is why they are reluctant to pay out subsidies during periods of low world prices.

3. CONCLUSION: A SUMMARY CHECKLIST FOR EVALUATING AN EXPORT TAX

Export taxation has a long history. It is enjoying renewed interest among developing countries because recent reforms have raised the relative domestic price of exports by lowering import protection and depreciating the real exchange rate. As a result, several countries are asking whether these exports should be taxed. Such a relative price increase, however, is not

⁴⁰Note that because the government collects taxes from a variety of sectors which are imperfectly correlated, it is likely to be in a better position to absorb risk. However, this applies generically to virtually any comparison of private and public risk-bearing.

adequate grounds for imposing an export tax. We conclude with a summary checklist for evaluating the case for an export tax. The single, most critical question is:

Does the country have market power in the export commodity?

- *If not, then there is unlikely to be a compelling analytical or practical case for an export tax.* From both an efficiency and equity standpoint, export taxes are a poor instrument for encouraging higher value-added activities. From the standpoint of revenue generation, they are likely to be dominated by other tax instruments and should at best be viewed as a transitional measure.
- *If so, then there is likely to be a strong analytical and practical case for an export tax.* Both strategic (i.e., the likely response of fellow exporters and importers) and practical (e.g., long-run elasticities, smuggling, and general equilibrium) considerations affect the level of the optimal export tax, but are unlikely to reverse the case for their basic desirability.⁴¹ Similarly, the possibility that alternative forms of intervention (e.g., export quotas or cartels) might yield a superior outcome under certain circumstances does not negate the finding that national welfare would be improved by the imposition of some export tax at the margin.⁴²

⁴¹Except in the particular case where domestic producers collectively perceive and have internalized the externality associated with the market power.

⁴²Moreover, as shown earlier, other forms of intervention suffer from a number of implementation problems which are not present in the case of export taxes.

Appendix: Some Fallacies Related to Export Taxes

Fallacy 1

Structural adjustment policies work against export taxes by exacerbating the “adding-up” problem and should therefore not be pursued in countries with market power.

The fact that structural adjustment implemented in a number of countries will lead to higher relative export prices, to an expansion of commodity output, and to a fall in the terms of trade of these countries, does not imply that structural adjustment policies (SAPs) should not be pursued. On the contrary, second-best theory teaches that distortions should be attacked at the source. In this case, it implies that domestic policy instruments should be used to correct domestic distortions and trade policy instruments such as export taxes should be used to deal with issues such as market power on the world market (Panagariya and Schiff 1990). As indicated by Bhagwati (1971), unexploited market power on the world market is a distortion from the viewpoint of the producing countries. Thus, SAPs should be pursued - including macroeconomic stabilization and trade and domestic liberalization - and optimal export taxes should be levied on commodity exports where market power prevails. Optimal export taxes following the SAP will be larger than in the absence of an SAP.

Fallacy 2

If the goods subject to an export tax are also consumed in large quantities in the producing countries, then the optimum export tax is lower because such a tax lowers consumer welfare in the producing countries.

Unlike production taxes which also distort domestic prices, export taxes are a policy instrument which precisely targets the particular distortion of export market power. Consumer welfare in the producing country is therefore not hurt by the imposition of export taxes. Indeed, domestic consumers gain from the export tax because it is equivalent to a subsidy on domestic consumption combined with a tax on domestic production. Of course, consumers in other countries will be hurt by the higher world price induced by the export tax. If our objective were to maximize the welfare of the developing countries as a whole (including consumers in other developing countries), then the optimal export tax would be lower.

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