The Role of Export Taxes in the Field of Primary Commodities

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I. INTRODUCTION

Long-term declines in the prices of many primary commodities relative to other products, combined with high price volatility, have been long-standing issues in international trade. A large number of poor countries depend on one or few commodities for their export earnings. Negative trends in the secular terms of trade, uncertainty arising from price variability, and difficulties in achieving economic diversification have all contributed to persistent development challenges and low incomes in such countries.

Table 1 and Table 2 provide an indication of the economies most likely to be at risk. These include countries that show a high degree of export concentration, which renders them very sensitive to export price variations. Also included are those countries whose exports are highly dependent on unprocessed primary products and have experienced secular declines in relative prices and high price variability, such as in the case of coffee, cocoa, and coconut oil.

The importance of the commodity issue is recognised in the WTO. Part IV of GATT 1947 makes explicit reference to the need to devise measures in order to attain stable, equitable and remunerative prices for primary commodities. More recently, the issue has been included in the work of the Committee on Trade and Development.

Table 1: Export concentration - Top 20 non-fuel exporters

Country	Concentration index	Number of commodities	Major commodity export
Comoros	88.1	5	vanilla, cloves
Botswana	80.9	129	pearl, precious, semi-preci stones
Burundi	72.5	9	coffee and substitutes
French Polynesia	70.6	44	pearl, precious, semi-prec stones
Malta	66.4	95	transistors, valve
Suriname	65.9	35	base metal ores, conc nes
New Caledonia	65.0	55	pig iron, etc
Saint Kitts and Nevis	58.6	14	switchgear etc, parts nes
Saint Lucia	57.6	17	fruits, nuts, fresh, dried
Jamaica	57.1	74	base metal ores, conc nes
Tonga	54.9	11	fish, root crops
Greenland	54.8	15	shell fish fresh, frozen
Guinea	54.2	32	bauxite, alumina, gold, diamonds
Tajikistan	54.1	46	aluminium
Ethiopia	53.4	27	coffee and substitutes
Papua New Guinea	49.5	57	precious metal ores, waste nes
Saint Vincent and the Grenadines	45.8	22	fruits, nuts, fresh, dried
Dominica	43.3	16	fruits, nuts, fresh, dried and soap and cleansing
Philippines	42.7	201	transistors, valve
Macao, China	41.1	44	outer garments knit non-elastic

Source: WTO and UNCTAD, Handbook of Statistics, 2002.

Table 2: Dependency on unprocessed primary commodities exports - Top 10 non-fuel exporters

Country	Share of unprocessed exports in total exports	Major commodity export
Uganda	74.1	coffee and substitutes
Nicaragua	61.9	coffee, shell fish
Kenya	61.4	tea and mate
Panama	56.9	fruit, nuts, fish
Honduras	54.9	coffee/ shell fish
Zimbabwe	54.9	tobacco
Guatemala	49.8	coffee, shell fish
Paraguay	48.9	seeds for soft fixed oil
Chile	42.7	copper/ base metal ores
Bolivia	39.9	base metal ores

Source: World Trade Report, 2003 and WTO.

Concerns about declining relative prices for commodities and large fluctuations in those prices have led governments of many developing countries to intervene in various ways. These include international commodity agreements, marketing boards, export quotas and direct taxation of these exports.

This paper will focus on export taxes in the field of commodities. The paper has been prepared in response to a request from an informal group (supported by the Commonwealth Secretariat) that was established about two years ago to consider commodity issues. This group has been instrumental in efforts to bring commodity issues onto the WTO agenda. The paper also responds to the request from Switzerland (document WT/COMTD/W/129) for further analysis of the costs and the benefits of export taxes in relation to the possible role of such measures in addressing the volatility of commodity prices.

Export taxes are not prohibited by the WTO. About one third of WTO Members impose export duties. For example, Indonesia applies taxes on palm oil exports, and Madagascar on vanilla, coffee, pepper and cloves. In December 1995, the EU imposed a $35 per ton export tax on wheat. In contrast, on the basis of the recognition that export taxes distort trade, many regional trade agreements have prohibited them. For example, export taxes are prohibited among the member countries of the EU, NAFTA, CARICOM, MERCOSUR and ANZCERTA. Some bilateral trade agreements also prohibit export taxes, examples include Canada-Chile, Canada-Costa Rica, Japan-Singapore and EU-Mexico.

Export taxes are mainly used by developing and least-developed countries (LDCs). Of the 15 LDCs reviewed in the context of the WTO Trade Policy Review Mechanism, 10 impose export duties, while only 3 of 30 OECD countries use them. The products on which export taxes are primarily imposed are: agricultural products, such as sugar, coffee and cocoa, forestry products, fishery products, mineral and metal products and leather, hides and skins products (see Appendix Table and OECD, 2003).

The paper will first examine the economic effects of an export tax on commodity prices and the volume of exports. This section will also show how welfare is redistributed among foreign and domestic consumers, producers and the government as a consequence of an export tax, and it will distinguish between short-term and long-term effects. The discussion will then focus on positive and negative aspects of an export tax as an instrument of trade policy to improve developing countries' terms-of-trade, reduce commodity price fluctuations and inflationary pressures, favour economic diversification, ease government revenue collection, and help the poor in a country. Selected countries' experiences in implementing an export tax on commodities illustrate some of the economic implications of export taxes. A final section draws some conclusions.

II. THE ECONOMIC IMPLICATIONS OF EXPORT TAXES

A. INSTRUMENTS OF EXPORT RESTRICTIONS

There are various forms of export restrictions. These include export taxes, export bans, regulated exports, supervised exports.

Export taxes can take different forms. It can be an *ad valorem* tax, specified as a percentage tax of the value of the product; or a specific tax, specified as a fixed amount to pay per unit of a product. It can be a progressive tax, i.e. characterised by a high tax rate when the price of the product is high and a lower tax rate when the value of the product is low. All types of export taxes have the effect of reducing the volume of exports and are therefore a form of export restriction.

Export bans have frequently been applied on live fishery products, wildlife, hides and skins of certain endangered species, or to prevent exports of dangerous materials. However, Indonesia, for example, banned exports of palm oil and cooking oil in December 1997 in an attempt to control domestic prices in the aftermath of a huge depreciation of the rupiah. Two fundamental problems are related to the use of this policy: it is not a long-term credible policy (the effectiveness of an export ban is seriously curtailed by the anticipation of the ending of the ban) and it often leads to smuggling (Marks et al., 1998).

Regulated exports include quotas and licensing requirements. Quotas define a maximum volume of exports, while licensing requirements establish that a commodity can be exported only through approved exporters. The trade regime in this case is designed in such a way that the government allocates export quotas to some registered exporters. This system is sometimes adopted to capture economic rents associated with a perceived position of market power in an exporting country. However, it introduces a strong discretionary element in the trading system through quota allocation arrangements and may encourage the formation of powerful export cartels and, in general, rent-seeking activities.

Supervised exports is a mixed form of control used for some commodities to ensure an adequate domestic supply of "essential goods" at a reasonable price.

It is generally argued that export taxes are the preferred instrument among the various policy options to restrict exports. Taxes are a credible policy, yielding the government some revenue while being transparent and simple to administer. The rest of the paper focuses on export taxes. However, some of the economic implications of using the other instruments mentioned above can still be drawn from this analysis.

B. OVERALL WELFARE EFFECTS FOR THE EXPORTING COUNTRY, THE IMPORTING COUNTRY AND THE WORLD

Suppose that a country imposing an export tax is a "large" country, in the sense that it controls a large share of the world supply of the taxed good. A large country has market power in the world market. Consequently, variations in its volume of exports will affect the world price. A large country is a price setter. Therefore, as it reduces its exports, the international price of the good will rise.

A ban or a tax on exports implemented by a large country depresses the domestic price of the taxed commodity, increases the international price and reduces the volume of trade. Suppose, for simplicity, that the EU, say, is a large exporter of sugar, so that it possesses a certain monopolistic power in setting the sugar price. Suppose that the EU imposes a tax on exports of sugar. It will now be more expensive for EU exporters to trade sugar. Therefore, the supply of sugar in the international market will fall. As a result, the world price of sugar will increase. Since the EU is a large country in the sugar market, the price of sugar both produced in the rest of the world (ROW) and imported from the EU will increase. The higher price will reduce the demand for sugar from ROW. Reduced EU exports to the ROW will shift the EU supply of sugar onto the EU market, where the domestic price of sugar will fall. Since EU suppliers of sugar must receive the same price for their product at home and abroad, the price differential across countries will equal the tax.

What are the welfare implications of an export tax for the importing and the exporting country? A useful way of interpreting the effects of an export tax on welfare is in terms of efficiency and terms-of-trade effects. If a "large" country implements an export tax, there will be an efficiency loss in

both the exporting and the importing country, and an improvement of the terms-of-trade for the exporting country, but a worsening of the importing country's terms-of-trade.

Efficiency losses stem from distortions caused by the export tax, affecting both producers and consumers. Production distortions result from the fact that too little is produced in the exporting country, while too much is produced in the importing country. On the one hand, a tax on exports discourages efficient local producers in the exporting country. On the other hand, it leads foreign producers in the importing country to produce locally what consumers could purchase more cheaply abroad. Consumption distortions result from the fact that too much of the taxed good is consumed domestically, because of the reduced domestic price,[1] while foreign consumers consume too little.

The terms-of-trade gains in the exporting country arise because of the increase in the commodity export price caused by the implementation of the export tax. It is important to notice that this effect arises because it has been assumed that the exporting country is "large", and therefore can affect foreign prices. However, if the country imposing the export tax is a "small" country, in the sense that it represents a small share of the world supply of the taxed good, variations in its volume of exports will not affect the world price. In this case, the terms-of-trade gain disappears, so the cost of implementing an export tax unambiguously exceeds its benefit.

To sum up, in the case of a "large" exporting country the implementation of a tax on exports may raise national welfare. The tax evokes both positive and negative effects: there is a positive terms-of-trade effect and a negative efficiency effect. Thus the net national welfare effect can be either positive or negative. The gain depends on the ability of the country imposing the export tax to increase world prices. Thus, the overall welfare effect of implementing a tax on exports will be negative in the case of a "small" country. Finally, welfare in the importing country will unambiguously fall. The importing country loses both in terms of efficiency and in terms-of-trade.

That is, an export tax is a "beggar-thy-neighbour" policy.

The overall world static welfare effect of an export tax is also unambiguously negative. The terms-of-trade gain to the exporting country is equal to the terms-of-trade loss to the importer countries. Thus, a tax on exports results in a production efficiency loss, due to the substitution of cheaper imports with more expensive domestic production in the foreign country and the decline in output in the home country; and a consumption efficiency loss associated with negative consumption distortion effects in the two countries. In the discussion that follows, consideration will be given to arguments for export taxes that cannot be captured by the foregoing analysis, which is static in nature and therefore precludes the possibility of externalities and market failures, and disregards distributional issues.

C. INCOME DISTRIBUTION EFFECTS

We have already seen that a "large" exporting country may gain from implementing a tax on exports, a small exporting country will lose, while the importing country will certainly lose. However, not all agents of an economy gain or lose. An export tax also has redistributive effects both for the exporting and the importing country.

This Section examines how income is redistributed between consumers and producers of the commodity whose exports are taxed, what the impact is of an export tax on a specific commodity on other sectors of the economy and finally how income is redistributed across factors of production.

(a) Income distribution effects between consumers and producers of the taxed commodity

The impact of an export tax on income distribution between consumers and producers of the taxed commodity differs for a large and a small implementing country.

If a "large" exporting country (or a group of small countries producing identical goods) levies an export tax, domestic production will fall, thus exports will decline and the world price will increase. Consumers in the home country benefit from the lower domestic prices because of a

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[1] They consume to the point where the marginal utility of an additional unit of consumption of the good is equal to the lower price subsidised by the export tax.

positive purchasing power effect. In contrast, producers will lose. The price decline induces a decrease in output, employment and profit and/or payment to fixes costs. Producers will suffer from a negative gross income effect. Government tax revenue will increase and the beneficiaries of government programmes will gain too. Income will be redistributed from producers to consumers and to the government.

In the foreign country, consumers will lose since both the imported good price and the domestic price will increase (negative purchasing power effect). However, producers will gain, because the increased price of their product in the domestic market will induce higher production or the entry of new firms, and will also increase employment, profits or the payments of fixed costs (positive gross income effect). Overall, in the importing country there will be a redistribution of income from consumers to producers.

On the other hand, if a "small" economy imposes an export tax, the domestic price of the commodity will fall below the world price, but the latter will remain unchanged. In this case, domestic producers will bear the full cost of the export tax.[2] They will not be able to pass it on to foreign consumers. In the exporting country, there will still be an income redistribution from producers to consumers, whereas there will be no income distribution effects in the foreign country.

(b) Income distribution effects on other sectors of the economy

The impact of a tax on exports is not limited to the market of the taxed commodity. It extends to the markets of substitutable and complementary goods, and also to those of the goods backwards and forward in the production chain.

A tax on exports reduces the price of the taxed commodity. Suppose that an export tax is imposed on coffee. Then, because of its lower price, domestic consumers will increase the demand for coffee and reduce that for a substitute for coffee, say tea. The tea industry will lose. In contrast, the demand for coffee-maker machines will increase and this industry will gain. In general, a tax on the export of a commodity will have a negative impact on the sector producing a substitute good, while it will have a positive impact on the sectors producing complementary goods.

As regards the impact of an export tax on the sectors producing goods backward or forward in the production chain, a tax on exports of a raw commodity, for example, by depressing its domestic price, effectively subsidises the domestic processor that uses that raw commodity as a primary input. This policy actually transfers welfare from the sector producing the raw commodity to the processing industry that uses it. Raw commodity production is discouraged, and employment and wages fall in this sector. However, the processing industry will benefit from lower prices of inputs, gain competitiveness in the international market and expand.

(c) Income distribution effects across factors of production

We have already seen that domestic consumers will benefit from the lower price of the taxed good. To the extent that the cost of an export tax will, in part, be borne by local producers (i.e. when the elasticity of supply is low and the elasticity of demand is high), it is worth looking at how the cost will be shared across factors of production.

The impact of an export tax on the remuneration of production factors will depend on whether the factor of production is specific or mobile across sectors. As the price of the taxed commodity falls in the domestic market, the return to *specific* factors that cannot be easily moved to production in another sector, and to factors *used intensively* in the production of the taxed good will decline.[3] On the other hand, mobile factors will move to other productive sectors of the economy and will not suffer in the same way.

To sum up, the impact of an export tax on an economy is complex and it is limited neither to the market of the taxed commodity nor to the country imposing the tax. There are winners and losers across countries and within a country. Moreover, as pointed out in the next subsection, winners and losers may also change over time.

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[2] Except to the extent that domestic producers' losses might be compensated by appropriate government policy.

[3] This follows from the well known Stolper-Samuelson theorem of international trade. This theorem states that as the relative price of a commodity increases the real remuneration of the factor used intensively in that industry rises and that of the other factor falls.

We have already seen that foreign consumers bear part of the cost of an export tax, only if the implementing country is "large". As a general rule, the cost of an export tax will be borne more by foreign consumers the more domestic producers manage to reduce exports and raise the world price of the exported commodity, and vice versa. That is, the conditions of demand and supply determine how the actual economic burden is shared between foreign consumers and domestic producers.

The elasticity of the world demand facing the exporting country is crucial. For example, a "small" country is a price taker in the world economy. It faces perfectly elastic world demand.[4] That is, at a given world price, the country can export whatever quantity it supplies, but its exports would fall to zero if it imposed a price higher than the world price, because foreign consumers would buy from other suppliers. In this case, domestic producers will bear the full cost of an export tax.

In particular, economic analysis shows that the share of the cost that falls on foreign consumers is higher, the lower the price elasticity of world export demand and the higher the price elasticity of supply.[5]

Various factors determine demand and supply responsiveness to price variations (elasticity). The elasticity of demand will be principally determined by the existence of substitute goods, their prices and consumer preferences. In the long run, as new substitutes will be developed and preferences change, world demand will become more elastic, hence the cost of an export tax will tend to fall on producers rather than foreign consumers.

The quantity of a good produced will respond to price variations only to the extent that resources used in the production can be shifted from other sectors of the economy. The specific characteristics of a good, such as the type of technology used and specialisation required, and the reaction of an entrepreneur to market incentives, such as his entrepreneurial capacity and the entrepreneurial environment in which he operates, are major determinants of the elasticity of supply. In general, small producers with lower possibility of mobility are more likely to bear the cost of a tax than large producers that may more easily direct production toward different types of goods.

Second, structural characteristics of commodity markets tend to make commodity supply inelastic *vis-à-vis* price variations. The following considerations are relevant in this context: (i) when crop yields have peaked, the possibility of adjusting production to market conditions is limited; (ii) unexpected weather conditions can entail large losses or increased harvests; (iii) technological changes (such as pesticides, fertilisers, disease-resistant varieties of crops); and (iv) the use of stocks stored by big producers or buffer stocks of international agreements can balance production disturbances.

Finally, time is also an important determinant of supply elasticity. Over a long time period, factors of production and resources are more likely to adjust to new incentives, so the elasticity of supply is deemed to increase too.

To sum up, in the long-run both demand and supply become more elastic. Therefore, neither the domestic producer nor the foreign consumer will bear the cost of an export tax in the long run. The cost of the export tax will be borne by those factors of production specific to the production of the taxed good that cannot move to another sector.

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[4] Demand elasticity is the percentage fall in the demanded quantity of a good as its price increases by one per cent. A higher elasticity denotes higher responsiveness of the demand to price variations. A perfectly elastic demand has an elasticity equal to infinity – that is, any marginal variation in price results in either a drop in demand to zero (if the price increases) or to infinite demand (if the price decreases).

[5] Supply elasticity is defined as the percentage increase in the quantity of a good produced following a one per cent increase in its price.

III. HOW ROBUST ARE ARGUMENTS FOR EXPORT TAXES?

Among the objectives for which export taxes have been used are to stabilize prices, influence resource allocation, alter income distribution outcomes, and increase fiscal revenue. This section will examine, in turn, each of the typical justifications for imposing an export tax and attempt to answer the following questions:

- does an export tax improve a country's terms-of-trade?

- does it reduce the volatility of domestic price of commodities and stabilise income?

- does it reduce inflationary pressures?

- does it favour export diversification?

- is it an appropriate response to tariff escalation?

- does it ease government revenue collection?

- and, finally, does it increase the income of the poor?

A. THE TERMS-OF-TRADE ARGUMENT

When a country possesses a degree of monopolistic power in the international market for a particular commodity, an export tax levied on the good in question can improve the country's terms-of-trade, that is, the relative price of a country's exports compared to its imports. An export tax imposed by a large country will increase the world price of the taxed commodity, and this, in turn, will increase the relative price of exports compared to imports. For each unit of the exported commodity, the country imposing the export tax will be able to import more, and thus increase welfare.

Data in Chart 1 show a deterioration of developing countries' terms-of-trade since 1980. Could an export tax constitute a solution? The terms-of-trade argument for export taxes is applicable only in the case of a "large" country. Since many developing country exports only represent a small fraction of world exports in a particular commodity, countries would need to collude in order to implement this policy successfully. In recent decades, various international commodity agreements have been signed among developing countries with this purpose in mind. However, for the most part these international agreements have failed to deliver the desired gains. One obstacle to success has been the difficulty of sustaining the requisite degree of collusion over an extended period. It is important to note that in practice many of these commodity agreements have involved quantitative export limitations rather than taxes.

Chart 1: Developing countries' TOT deterioration
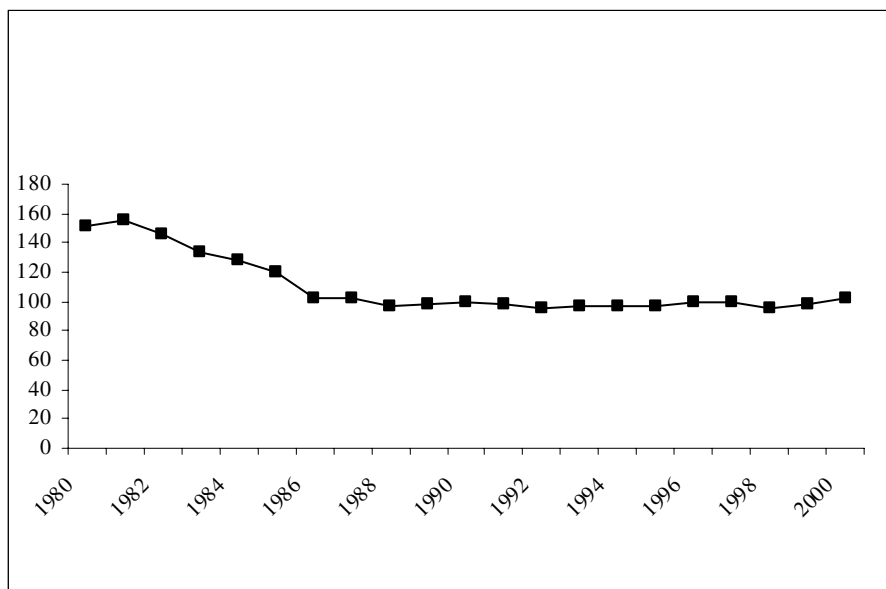
Note: Base year 1990.
Source: UN Handbook of Statistics, 2002.

Second, the terms-of-trade argument is valid under the assumption that other countries do not retaliate by raising tariffs themselves. Imposing export taxes is a "beggar-thy-neighbour policy". Therefore, it is possible that importing countries who see their welfare reduced by the policy of their trading partners will retaliate. If countries abroad retaliate, the imposition of an export tax by a "large" country (or a group of colluding "small" countries) is not likely to deliver the desired welfare gains.

Third, the prolonged use of an export tax by a country with a monopolistic position in the world market provides an incentive to develop substitute goods or technologies and favours the entry of new producers in the market. In the long term, the use of export taxes runs the risk of penalising the export sector. The exporting country can lose market share and foreign currency income.

Fourth, the value of an optimal export tax (i.e. that maximises national social welfare) depends on specific assumptions about the degree of market competition and the contestability of markets. The literature on optimal export taxation argues that if domestic firms are perfectly competitive in the domestic market the optimal export tax is equal to the inverse of the absolute value of the world price elasticity of export demand for the commodity concerned.[6] However, when markets are imperfectly competitive, the existence of a positive optimal export tax is more ambiguous. The welfare implications of an export tax depend in this case on the specific assumptions of the model, such as whether free entry/exit is assumed[7] (Rodrik, 1989; Helpman and Krugman, 1989; De Santis, 2000). For example, numerical simulations of the impact of introducing an optimal export tax on textile, wearing apparel and transport equipment in Turkey (where these markets are imperfectly competitive) estimate losses of up to 3.5 per cent of consumer income. This is a very large loss, taking

into account that the three sectors on which the export tax is applied comprise barely 10 per cent of Turkish GDP (in 1990, the base year for estimation).

Finally, knowledge of the world elasticity of demand is crucial for the policy maker in determining the value of an optimal export tax. Yet, the true value of the world elasticity of demand is uncertain. Estimates of world export demand elasticity differ across different specifications of econometric models. Moreover, historical data may not reflect recent changes in policy. The risk exists that incorrect estimates of the elasticity of demand may provoke large welfare losses consequent upon the application of an export tax. A recent study (Warr, 2001) reports, for example, that available econometric estimates for the world demand elasticity of rice facing Thailand ranges between -1 and -4. This implies optimal export taxes ranging from 25 to 100 per cent. The results of numerical simulations suggest that welfare losses of overestimating the elasticity of demand are large. Thus, the use of export taxes in this case is discouraged.

In conclusion, the use of export taxes by a "large" country can be supported on the basis of a terms-of-trade argument. However, since many developing countries' exports only represent a small fraction of world exports in a particular commodity, the terms-of-trade argument requires that countries collude in the application of this policy. The difficulties in implementing this policy, together with the risk that the trading partners of the tax implementing countries retaliate, and that the export tax is set too high or too low, makes the use of taxes on exports to improve the terms-of-trade a risky policy that may diminish rather than increase national welfare. It is not possible to be too dogmatic, however, in regard to arguments for interventions aimed at improving national welfare through the manipulation of the terms-of-trade. Oil exporters have enjoyed some success in this regard over an extended period. On the other hand, the particular characteristics of the oil market (naturally finite supplies controlled by a small number of countries and a relatively low price elasticity of demand) make this success story difficult to replicate in the case of other commodities.

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[6] This argument is similar to that made for the imposition of an import tariff when the importing country possesses monopsony power in the international market for that good.

[7] In the context of imperfectly competitive markets where the number of firms is fixed, such that imposing an export tax does not affect the degree of competition among domestic firms (a partial equilibrium model), economic theory suggests that the optimal export tax is positive, but lower than in perfect competition (Rodrik, 1989; Helpman and Krugman, 1989). A recent study on the impact of applying this export tax – optimal in partial equilibrium – in a general equilibrium framework, where the number of firms is endogenously determined by the model, shows that the estimate is biased upwards (De Santis, 2000).

Short-run instability of commodity prices and the consequent instability of export earnings is a major obstacle to sustained development. Table 3 provides an index of export earning variability across selected LDCs and other developing countries. The table shows that the average export earnings variability for LDCs is significantly higher than the world average and even higher than the average across the most concentrated economies.

Due to imperfect capital markets and the insufficient spread of modern risk management instruments[8] among developing countries, instability of export earnings may significantly reduce economic welfare. First, it may disrupt investment planning decisions, misallocate resources and adversely affect growth. Small farmers facing liquidity constraints may be unable to buy the fertilisers or new seeds necessary to maintain quality and production capacity. This will imply opportunity losses and lower economic welfare when prices recover.

Table 3:   Variability of export earnings

LDCs	Variability Index	Top 20 most concentrated economies	Variability Index
Burundi	71.30	Nigeria	16.63
Congo, Rep.	33.57	Comoros	N/A
Rwanda	31.67	Iran, Islamic Rep. of	N/A
Central African Republic	20.91	Botswana	2.27
Zambia	19.73	Oman	2.94
Nigeria	16.63	Saudi Arabia	N/A
Niger	8.75	Burundi	71.3
Burkina Faso	5.36	French Polynesia	N/A
Tanzania	4.48	Syrian Arab Republic	N/A
Mozambique	4.33	Malta	1.85
Uganda	4.03	Suriname	12.18
Guinea	4.00	New Caledonia	N/A
Benin	3.36	Venezuela	4.54
Congo, Dem. Rep.	3.32	Azerbaijan	N/A
Mauritania	3.19	Saint Kitts and Nevis	1.32
Chad	2.99	Algeria	N/A
Myanmar	2.89	Saint Lucia	1.46
Guinea-Bissau	2.83	Jamaica	1.83
Mali	2.28	Tonga	N/A
Gambia	2.27	Guinea	4
World	**2.5**		

Note: Variability index is the coefficient of variation (CV) of export earnings growth rates. The CV is the ratio of the standard deviation to the mean. This standardisation allows comparison of the variability of two series with different means. *Source:* WTO.

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[8] New forms of risk management include contracts such as swaps, futures and options.

Second, instability of export earnings increases the costs of "consumption-smoothing" over time, thus imposing negative effects on farmers' living conditions. For small-farmers whose family income depends on sales of their harvest abroad, a fall in the world price threatens income and food security, as the liquidity constraints impede them from borrowing when prices are low and saving when prices are high. Third, instability of export earnings can generate balance of payment problems and may result in a high level of external debt. Commodity price volatility can generate large trade imbalances in a country whose exports depend principally on that commodity. In particular, under a regime of fixed exchange rates, this would yield large losses or an accumulation of foreign reserves, and might result in a currency crisis. Finally, price instability can also exert a negative impact on public finances. When prices boom, and export earnings increase, government revenue increases too. Governments may be tempted to commit to long-term spending on the basis of this temporary increase in government revenue, which is likely to lead to higher public debt.

In all of the above circumstances, the use of export taxes can be supported on the basis of a second-best argument. Developing more efficient stock markets and financial markets, introducing a flexible exchange rate regime, extending the tax base and improving the tax administration system could all contribute to solving the problems discussed above without distorting the economy and therefore at a smaller economic cost.

In order to reduce domestic price instability for export producers, many developing countries have used a system of variable tax rates – that is, high rates when export prices are high and vice versa, with a zero tax rate, say, below a threshold price that reflects costs. For example, Papua New Guinea established an export tax/subsidy rate for cocoa, coffee, copra and palm oil equal to one half the difference between the reference price – calculated as the average of the world price in the previous 10 years – and the actual price for the year (Bautista, 1996). At the same time as insulating farmers from some price instability, this tax mechanism tries to ensure that domestic prices do not diverge from the long-term world price trend, in order to promote allocative efficiency.

A progressive export tax system under which a high tax rate is imposed when world commodity prices increase, but is reduced or removed when commodity prices fall, could capture part of the gains arising from increasing commodity prices and could mitigate the adverse impact of falling prices on producer's incomes. Three motives justify the use of an export tax in these circumstances. First, it would mitigate the spillover of higher world prices into the domestic market (recall that the impact of an export tax is to lower domestic prices), thus protecting local consumers. Second, it would increase government revenue, thus easing fiscal imbalances. Third, it would tax windfall gains of exporters, thus responding to a principal of fair redistribution of income.[9]

However, the use of an export tax to stabilise income is not without hazards. First, the trade tax needs to be properly defined: a flat export tax that would not differentiate between price increases and price falls would not be effective in smoothing the transmission of world price shocks to the domestic economy.

Second, a progressive export tax system can reduce the transmission of external shocks to the domestic economy and act as an income stabiliser only if governments are willing to adjust their expenditure patterns so as to smooth government expenditure over time. Volatility of world prices will result in fluctuations in tax revenue. In order to stabilise income in the domestic economy, governments will have to save in a period of high tax revenue and spend more in periods of low tax revenue. If the government has a higher propensity to spend than consumers, then the income multiplier is higher the higher the export tax, so even a progressive export taxes system would fail to stabilise the economy.

Finally, there is need for political and social institutional flexibility to allow for adjustments to changing conditions (see next subsection for further details). Often the causes that have prompted the implementation of a tax can peter out quickly. Changed conditions would require a quick policy

[9] A similar justification for the use of export taxes is used for the case of a large currency depreciation. There is generally strong political support for imposing an export tax at the time of a large currency depreciation. In these circumstances exporters receive windfall gains and a tax on these gains is regarded as a means to increase government revenue, while responding to a principal of fair redistribution of income. It is worth noting that the large currency depreciation argument for taxation of exports justifies only temporary export taxes and potentially justify taxation of all exports, including those commodities in respect of which the exporting country possesses no monopoly power.

reversal. But many countries, especially developing countries, lack such political and institutional flexibility.

To sum up, notwithstanding that the imposition of an export tax is a second-best policy option for income stabilisation, its success will depend on appropriate design, the government pursuing a long run sustainable spending programme, and the country enjoying adequate political and institutional flexibility.

C. CONTROLLING INFLATIONARY PRESSURES

An increase in the international price of a commodity also consumed domestically may create inflationary pressures at home. In these circumstances some governments have reverted to export taxes as a policy instrument to keep inflation under control. For example, concerned with the increasing international price of cooking oil,[10] the Indonesian Government imposed export taxes on palm oil products, including crude and palm cooking oil in 1994.

The rationale for the use of export taxes to control inflationary pressures relies on the following three points. First, an export tax reduces the domestic price of the taxed commodity, thus partially offsetting the inflationary pressures coming from higher prices abroad. Second, an export tax on primary commodities will be reflected in lower costs for processing industries, thus furthering lowering consumption prices for processed goods. For example, in the case of Indonesia in 1994, the export tax on crude oil would reduce the price of crude palm oil, and this would be reflected in lower prices for cooking oil. Third, by reducing the income derived from exports in the short run, an export tax also reduces the impact that higher international prices have in the domestic market through their adverse effect on consumption.

There are, however, limits to such policies. The extent to which lower production costs, due to lower costs of the intermediate input commodity, are passed on in lower prices for processed goods depends on the market structure of the processed product. If markets have an oligopolistic structure, consumers might not benefit from lower prices for the processed commodity. In the case of Indonesia,

for example, the palm oil industry is largely concentrated. The five biggest refiners represent over 60 per cent of the industry and control the leading brand-names in cooking oil (Larson, 1996), which might suggest a potential oligopolistic market structure. Empirical studies have shown that export taxes in Indonesia were effective in mitigating the transmission of higher foreign prices into higher domestic prices. However, market intermediaries rather than final consumers appropriated most of the benefits. In fact, while the ex-factory and wholesale prices of palm cooking oil fell significantly, retail prices did not (Marks et al., 1998; see also Section IV.2).

In addition, export taxes may have long-run inflationary consequences on the economy. Export taxes may depress the incentive to invest in the production of the taxed commodity. The long-term supply of the good might fall, thus resulting in higher domestic prices.

To sum up, the successful use of an export tax as a control for inflationary pressures depends on the structure of the product market. In the long term export taxes might yield opposite consequences to those intended.

D. INFANT INDUSTRY ARGUMENT

Export taxes can be justified on the basis of the so-called infant industry argument. The argument relies on the belief that primary commodity exporters lag behind exporters of manufacturing products. Countries that specialise in lower value-added sectors (less dynamic manufacturing sectors according to a modern version of the infant industry argument) will be locked into a production structure that entails lower growth rates than those of countries specialised in higher value-added (more dynamic) sectors. Temporary protection or subsidisation of a newly established domestic manufacturing industry that is less productive than foreign industries is seen as a way of trying to develop a comparative advantage in that industry. If productivity will rise with experience, there is a first-best argument for a subsidy and a second-best argument for protection.

Export taxes on primary commodities (especially unprocessed) work as an indirect subsidy to higher value-added manufacturing or processing industries. Export taxes on primary commodities can be used to reduce the domestic price of primary products in order to guarantee supply of

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[10] The Indonesian Government considers cooking oil an "essential commodity", so it is very concerned with its price dynamics.

intermediate inputs at below world market prices for domestic processing industries. In this way, export taxes provide an incentive for the development of domestic manufacturing or processing industries with higher value-added exports.

What are the drawbacks associated with the utilisation of export taxes as a form of subsidy to the processing industry? First of all, the infant industry argument relies on the belief that the industrial structure is static, there are no technological spillovers across countries or industries, and that the ranking of industries according to their productivity growth is constant over time. On the contrary, there is evidence that industries experience periods of high and low productivity growth, the most dynamic sectors are different across countries and across time, and there is also evidence of technology transfer. Second, there is a risk that export taxes, as other forms of subsidisation, may encourage the development of inefficient industries that will depend on government subsidies to survive in the market.

Other important issues more strictly related to export taxes rather than infant industry policies in general concern: their redistributive effects, their perverse effects when the internal and international markets are imperfectly competitive and the possibility of adverse environmental effects.

As regards income distribution, an export tax on a raw commodity entails the redistribution of welfare from primary commodity suppliers to downstream processors. This might increase income inequality within a country and severely affect the poorest strata of the population.

As far as market imperfections are concerned, since there are several layers that separate the raw commodity growers and processors, a one-to-one pass-through from farmers to processors cannot be expected. For example, in Mozambique, cashew growers receive only around 40-50 per cent of the after tax boarder price, most of the difference going to local and regional traders. Imperfect competition in the internal market lowers the cost-saving effect of an export tax on a raw commodity price for processors and this might undermine the effectiveness of an export tax as industrial development policy. Moreover, if for example, the international market for the processed good is monopsonistic, then the transformation from raw-commodity exporter to processed-good exporter

would result in a worsening of the country's terms-of-trade.

Finally, negative environmental effects can be associated with the use of export restrictions on natural resources. For example, an export tax on lumber may encourage the development of the domestic wood processing industry, thus favouring the depletion of forests. Moreover, export taxes may provide a disincentive for owners of the resources to conserve them, and for processors to use them efficiently without wastages. For example, in the case of Indonesia, where high export taxes on lumber exports are levied, some studies have found wastage ratios of up to 50 per cent in some wood-processing factories, about double the international average (World Bank 1995, 1997, 1998). Other studies have identified a link between export restrictive trade policy on timber that lowers the price of logs and poor logging, conservation and scrapping practices. Low timber prices discourage sales of scrap wood (burning scrap wood might be an easier solution) and re-plantation practices, thus penalising the environment (for more details see Section IV.5 and WTO, 1998).

In conclusion, evidence and theoretical arguments seem to suggest that export taxes on raw commodities may not be a suitable measure to achieve sustained development – distributional effects, imperfections in internal and international markets, and the possibility of negative environmental consequences all suggest caution.

E. RETALIATING TO TARIFF ESCALATION IN EXPORT MARKETS

Export taxes have been suggested as a retaliation policy or strategic response to tariff escalation. Tariff escalation is the practice of charging higher import tariffs on processed goods than on unprocessed ones (Table 4). To the extent that developed country imports are crucial in the development of a high value-added industry in developing countries, tariff escalation in developed countries may hinder the development of a local high value-added industry in developing countries, while simultaneously favouring processing industries in developed countries. Tariff escalation in developed countries discourages diversification of production in developing countries and increases their reliance on unprocessed primary commodities.

In this situation, the removal of tariff escalation would be the first-best policy that does not create distortions. Export taxes are a second-best policy. An export tax on the unprocessed commodity, by reducing its domestic price, will favour the development of the local processing industry, thus offsetting the distortionary effect created by tariff escalation.

In principle, then, an export tax on unprocessed goods can work to compensate for the supposed disadvantage created by developed country tariff escalation. There are, however, a few notes of caution. Firstly, all the problems highlighted in the previous discussion that are associated with the use of an export tax as infant industry policy also hold in the present case. In brief, imposing a tax on exports of raw commodities (i) will discourage investment in the exporting sector; (ii) will reduce the income of poor raw commodity producers (making it necessary to assess whether gains accruing to workers in the processing industry dominate the losses incurred by farmers); (iii) might be ineffective if the internal markets are imperfectly competitive and intermediate traders rather than processors appropriate the lower cost margin, (iv) might turn the terms-of-trade against

the country if the international market for the processed good is monopsonostic and (v) might have negative environmental effects.

Turning more specifically to the issue of tariff escalation, the degree of escalation differs greatly across countries. Table 4 shows that the biggest differential in average applied rates in developed countries is 22 per cent in the case of Japan on cocoa. The biggest differentials in applied rates are 7 and 8 per cent in the case of the United States (coffee) and the EU (cocoa) respectively. The tariff escalation found in some developing countries is more prominent. For example, in the case of Mexico the differential in applied tariffs on coffee is nearly 120 per cent, and in the case of Turkey the differential is nearly 40 per cent (WTO, 2003). Not accounting for non-*ad valorem* rates,[11] the degree of tariff escalation found in average applied rates in developed countries (for the commodities selected in Table 4) appears to be relatively low. This seems to suggest that factors other than tariff escalation may actually discourage the development of the processing industry. Direct interventions addressing these factors would be the first-best policy in this case.

Table 4:   Developed country tariff escalation

(Average applied tariffs for selected commodities in per cent)

	COMMODITY				
	Cocoa	Coffee	Jute	Non-ferrous Metals	Sugar
Australia					
Unprocessed	0.0	0.0	0.0	0.0	N/A
Prepared or preserved	5.0	0.0	0.0	4.4	5.0
Canada					
Unprocessed	0.0	0.0	0.0	0.0	N/A
Prepared or preserved	5.2	0.0	5.5	2.9	7.8
European Communities					
Unprocessed	0.0	4.2	0.0	0.0	N/A
Prepared or preserved	8.0	9.8	3.0	4.0	13.4
Japan					
Unprocessed	0.0	0.0	0.0	0.0	N/A
Prepared or preserved	21.7	19.8	0.0	2.1	19.8
United States					
Unprocessed	0.0	0.0	0.0	0.0	N/A
Prepared or preserved	6.3	6.8	0.0	2.8	8.1

Source: WTO.

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[11] Different methodologies exist to calculate ad valorem equivalents (AVEs). An analysis of the tariff profile across countries including AVEs goes beyond the scope of this paper.

For many developing countries with a poor tax administration system, primary commodity exports constitute an easily exploitable taxable base (Table 5). In those countries where agricultural and livestock production is divided among many small and medium-sized producers, net income taxes and land taxes require an efficient tax administration system to verify the declaration of net income and to evaluate land properties. When the goods produced and exported have known international prices, export taxes can be more readily applied and are more transparent.

However, export tax systems are neither free of administrative problems nor are they a solution for a sustainable government budget. Customs officers may encounter problems in verifying the value of a good when its international price is not known. Moreover, government revenue may be exposed to the risk of large fluctuations. In fact, export tax revenues are highly unstable. Fluctuations in the international price of primary commodities, supply fluctuations and variability of the real exchange rate are among the factors which cause export tax revenue volatility in developing countries.

As argued in Section III.2, a progressive export tax system that contributed to the stabilisation of export earnings might actually accentuate government revenue instability.

Governments can limit the adverse budgetary consequences of a tax system highly dependent on export taxes by establishing a buffer fund, where export tax revenues are deposited when prices are high and from which subsidies to producers are drawn when export prices are low. However, historically, these solutions have not proved to be very efficient. Many national and international stabilisation funds have been set up. These include national commodity marketing boards, international cartels and associations, the IMF's compensatory financing facility, the EC's STABEX and UNCTAD's Integrated Programme for Commodities.[12] Although the utility of a stabilisation fund working along the lines described above has been accepted in many quarters, the implementation of stabilisation policies in developing countries has suffered from the limited flexibility of political and social institutions (Andic et al., 1990). Moreover, some funds did not manage to intervene effectively because of lack of sufficient resources and others have failed to find an equitable mechanism to divide compensation among countries.

Table 5:   Ratio of export tax revenue over total tax revenue for selected developing countries

(Percentage)

Country	1990	1995	2000	1990-2000
Argentina	N/A	0.11	0.09	0.34
Cameroon	1.71	10.83	2.00	4.97
Costa Rica	N/A	3.04	0.21	1.66
Dominican Rep.	0.08	0.02	0.01	0.02
Ghana	N/A	13.81	4.05	11.23
India	N/A	0.14	0.07	0.15
Indonesia	0.12	0.26	N/A	0.45
Madagascar	N/A	3.92	0.00	2.65
Malaysia	9.27	2.05	2.19	3.82
Thailand	N/A	0.21	0.34	0.24

Source: Government Finance Statistics Yearbook 2001, IMF.

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[12] STABEX is a compensatory finance scheme to stabilise export earnings of the ACP countries. It was set up under Lomé I and it establishes that if particular export commodity earnings from export to the Community fall below a four year average, member countries can borrow (for further details refer to Koehler, 1997). The Compensatory Financing Facility of the IMF finances members facing balance of payment problems due to export earnings' shortfalls.

G. Does an export tax help the poor?

Like any indirect tax or similar intervention, an export tax creates winners and losers within a country. Whether the poor or the rich gain depends principally on who owns the factor used intensively in the production of the taxed good, the share of budget expenditure on this commodity and, how the government redistributes higher tax revenues among the population.

An export tax has three effects on household income. The gross income effect occurs through the impact of an export tax on the returns to factors of production (land, capital and skilled and unskilled labour). Second, the purchasing power effect operates through the relative change in the prices of consumed goods. Third, the disposable income effect works through the government's redistribution of the fiscal revenue derived from the tax.

Let us assume that an export tax is levied on rice. As the price of rice falls in the domestic market, the return to specific factors, such as land, and factors used intensively in the production of rice, such as unskilled labour, fall. Landowners and unskilled workers will receive lower remuneration, while skilled workers and owners of mobile capital used in the production of alternative commodities will increase (see Section II.2.c). Provided that the poor are more likely to be suppliers of unskilled labour,

that there are no government regulations in the country (such as a minimum wage) and that unemployment is high (i.e. few alternative job opportunities), they will suffer a decline in their gross income (*negative gross income effect*).

In addition, an export tax on rice will reduce its domestic price. The purchasing power of both rich and poor households will increase (*positive purchasing power effect*), but most of the gain will occur in that segment of the population which spends a higher percentage of its budget on rice. As long as the poor allocate a higher share of there expenditure to rice than the rich, they will gain more from a fall in the price of rice than the rich.

Finally, the overall effect of an export tax on the poor will also depend on how the government will redistribute the higher fiscal revenue generated by the export tax. The more redistributive the government policy is, the larger the gains for the poor (*uncertain disposable income effect*).

To conclude, it is worth highlighting that an export tax on primary commodities might not benefit poor households. The benefits arising from lower prices might be offset by lower real wages. Moreover, to the extent that unskilled workers are a mobile factor of production, and not many job opportunities exist, an export tax on a certain commodity might also keep wages of economy-wide unskilled workers down.

IV. EVIDENCE ON THE ECONOMIC IMPACT OF EXPORT TAXES THROUGH SELECTED CASE STUDIES

This Section reviews some empirical studies on the effect of export taxes.

A. THE CASE OF COPRA[13] IN THE PHILIPPINES: CONTINUED FLUCTUATIONS IN EXPORT EARNINGS, LOWER WELFARE FOR UNSKILLED WORKERS

The devaluation of the Philippines currency in 1970 and the world commodity boom (1972-1974) led to significant gains for coconut producers and other major crop exporters. As the large devaluation had entailed windfall gains for exporters, political support for an export tax policy emerged. Moreover, in the 1970s the Philippines was the largest exporter of copra and coconut oil in world trade. There was, therefore, a reason to suppose that the Philippines possessed a certain degree of monopoly power (namely, it was a "large" country in this market) and that the coconut industry faced negative elasticity in world export demand. An export tax would improve the Philippines' terms-of-trade, mitigate inflationary pressures coming from the external shock of higher prices, and respond to the principle of a fairer distribution of income. The Government of the Philippines intervened by levying stabilisation export taxes of 6 per cent for copra and 4 per cent for other coconut products. An additional tax ranging from 20 to 30 per cent was levied in 1974 on the premium that coconut exporters received from the increased price. The export levy was abolished only in 1985.

The implementation of a copra export tax in the Philippines did not yield the desired effects. First, the taxation of exports did not reduce the instability of the domestic price for copra in the Philippines below that of its world price, but rather it amplified the transmission of world price fluctuations onto the domestic market. The reasons are twofold. First, as empirical studies examining the impact of copra export tax in the Philippines pointed out, the Philippines should have been treated as a "small" country. The reason is that coconut oil can be substituted by other vegetable oils, and represents only a small percentage of the expenditure on vegetable oils of the major trading partners of the Philippines (Bautista, 1996). These studies suggest that the optimal export tax might have been much lower than that set by the Government, and the expected benefits from improved terms-of-trade were not realised. Second, sector-specific policies and economy-wide policies during the 1970s led to an overvalued exchange rate in the Philippines. The resulting loss of competitiveness further reduced prices, thus discouraging production. As a consequence, when international prices fell, the drop was even more substantial in domestic market.

Another undesired effect of the use of export taxes in the Philippines was that export taxes on copra reduced the welfare of coconut exporters and unskilled workers throughout the economy. Coconut producers, among the poorest people in the Philippines, suffered a reduction of their income. This negative gross income effect dominated the positive purchasing power effect due to lower domestic prices, resulting in lower welfare overall for this segment of the population. Moreover, lower relative prices for coconut products led to lower wages economy-wide for unskilled workers, since the coconut industry is both unskilled-labour intensive and a large employer of unskilled labour in the Philippines (Warr, 2002).

B. INDONESIAN PALM OIL INDUSTRY: FAILURE TO CONTROL INFLATION

Concerned with increasing prices of cooking oil, the Indonesian Government imposed export taxes on palm oil products in 1994. The affected products included crude palm oil; refined, bleached, deodorized palm oil; crude olein and refined, bleached, deodorized olein (cooking palm oil). In 1998, following the economic crisis and political turmoil, exports of crude palm oil and palm oil products were banned.

Indonesia is the world's second largest producer of palm oil, behind Malaysia. In 1993, Indonesia supplied 27 per cent of world crude palm oil production. However, in terms of the market for vegetable oil, Indonesian palm oil represents less than 5 per cent of production. Whether the imposition of an export tax could also be justified on the basis of the terms-of-trade argument therefore remains unclear.

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[13] Copra is the unprocessed inner flesh of the coconut, and is the intermediate product normally sold by coconut producers.

How did the export tax impact the Indonesian economy? Who were the winners and losers from this policy? First, the price of palm oil products decreased, so consumers gained. However, the positive impact of lower palm oil prices on inflation and consumer welfare was very small. This is because cooking oil represents only 4 per cent of the budget of the poorest 20 per cent of rural households, and 1.4 per cent of the basket of goods in the Indonesian CPI. Moreover, the fall in ex-factory prices was not fully reflected in lower consumer prices. It is also worth noting that the increase in the world price of palm oil (at the origin of the trade policy intervention) was temporary. To a large extent, the reduction in Indonesian palm oil prices was the consequence of the world price reduction rather than the introduction of the export tax on palm oil.

Second, export taxes reduced the revenue of palm oil producers, but increased that of palm oil distributors. Palm oil producers are small-holders. They account for 22 per cent of production, whereas the Indonesian Government and private estates hold 33 per cent and 43 per cent respectively of total production. An empirical study (Marks et al., 1998) estimated a loss equal to nearly $70 million for palm oil producers, and well above $100 million for private estates and the Government. Palm oil distributors were estimated to have gained about $100 million. This meant that the fall in crude oil prices was only partially passed on to consumers – retail prices fell by less than the price of crude oil.

Third, export taxes reduced the total revenue of the Government from palm oil and the profits of palm oil processors. Empirical estimates show that the increased tax revenue was not sufficient to compensate the Government for the loss of income incurred by state-owned palm oil estates.

With regard to the palm oil refining industry, a study by the World Bank finds that the way in which the export tax was implemented[14] contributed to increased uncertainty regarding the profit margins of the processing industry and reduced the scope for effective risk management, thereby hindering investment (Larson, 1996).

Finally, the export tax on palm oil products also affected the coconut oil market. The major sources of cooking oil in Indonesia are copra (raw material for coconut oil) and crude palm oil. Palm cooking oil is used more than any other cooking oil in Indonesia, accounting for about 75 per cent of the market. Palm cooking oil is also exported. Coconut oil covers about 17 per cent of the local market. The tax on palm oil has diverted the supply of palm oil from exports to the local market, thus putting downward pressure on the price of coconut oil. Under this competitive pressure, many coconut factories closed down.

To sum up, in the case of Indonesia, the modest control of inflation achieved by the imposition of an export tax occurred at the expense of significant losses in terms of economic efficiency. The effects of the tax also spread to the coconut market.

C. COTTON AND YARN MARKETS IN PAKISTAN: A CASE OF INFANT INDUSTRY PROTECTION

Between 1988 and 1995, the Government of Pakistan imposed an export tax on raw cotton, with the objective of encouraging the development of the yarn cotton industry, a higher value-added industry. The export tax on raw cotton was to reduce the price of cotton fibre so that yarn cotton producers could benefit from lower input costs.

What have the effects of these policies been? At first glance, the policy appears to have been successful. After 1988, cotton exports decreased significantly, but production and exports of yarn increased.

However, two important considerations should be mentioned. First, a recent study on the cotton and yarn industry in Pakistan shows that the lowering of the price of cotton has not significantly affected yarn production because demand for cotton in the yarn industry in Pakistan is highly inelastic[15] (Hudson and Ethridge, 1999). Therefore, the positive contribution of the export tax on cotton (indirect subsidy) towards increased growth rates in the yarn sector was marginal at best. Yarn spinners in Pakistan were already paying between 20 and 35 per cent less than yarn spinners in other countries. Thus, there was no real incentive to respond to

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[14] In particular, the fact that export taxes on crude palm oil and its products were fixed independently from the percentage of crude palm oil in its refined products.

[15] As a caveat, note that however, the short time spell of the study 1988-1993 might be the reason why this study estimates such a highly inelastic demand.

marginal increases or decreases in the price of cotton. The indirect subsidy to the yarn sector in Pakistan might have helped the sector to keep up with international competition deriving from the introduction of cost-saving technology in other countries, but arguably provided a disincentive for Pakistan to upgrade its own technology.

Second, the export tax had a detrimental effect on the cotton sector. The raw fibre sector grew at a much lower rate than it would have grown at had growers received international prices in free market conditions. Export taxes transferred income from cotton growers to yarn producers.

In conclusion, the case of cotton and yarn highlights the fact that the efficacy of an export tax in developing the processing sector depends crucially on the demand relationship between the primary commodity and the processing sector. It also points to one of the risks of using export taxes as a subsidy to higher value industries – while in the short run a subsidy may enhance the competitiveness of an industry, it may also reduce the incentive to invest in new technology, thus being detrimental to the long-term growth of the high-value sector.

D. EXPORT TAX ON RICE IN THAILAND: UNDESIRED INCOME DISTRIBUTION EFFECTS

Thailand imposed export taxes on rice until 1986. Export taxes were subsequently abandoned as a consequence of their negative impact on the income of people living in rural areas, and because of the emergence of new forms of tax revenue with the development of a better administration. The debate over reintroducing an export tax has often been reopened, especially after the economic crisis in Thailand in 1997. At that time Thailand suffered from a large currency depreciation and a growing public deficit. In these circumstances, an export tax on rice appeared particularly desirable.

Supporters of the reintroduction of an export tax on rice backed their proposal with several arguments. First, an export tax on rice might have helped to contain inflationary pressures originating from currency depreciation. Second, it might have increased foreign currency earnings, given Thailand's market power in international markets. Thailand's exports of rice accounted for 26 per cent of world trade in rice from 1975 to 1998. Third, it might have helped to alleviate the strain on the poorer segments of the population, by reducing the price of rice, a staple commodity that represents a large share of the budget of poor households. Fourth, it might have represented an important source of government revenue. Finally, it would have been paid by rice exporters, who gained most from depreciation.

A recent study[16] on the impact of an imposition of an export tax on rice in Thailand highlights, however, the possibility of two major undesired distributional consequences of the tax (Warr, 2001). On the one hand, the rural poor and the poorest urban quartile of the population will lose. The loss derives from the decline in the return to unskilled workers and for the rural poor, in particular, from the fall in the return to land. In fact, in Thailand the rural poor draw a large proportion of total income from land ownership. Numerical simulations suggest that for the poorest strata of the population, the gain in terms of purchasing power due to the lower price of rice, an essential commodity, does not compensate this income loss.

On the other hand, the urban rich and the richest rural quartile would gain. The urban rich gain both in terms of income and purchasing power. The positive income effect results from the wage increase for skilled workers and increased returns to non-agricultural capital, a major source of income for rich urban households. The richest rural quartile also gain because of the relatively higher importance of skilled labour as source of income *vis-à-vis* the rural poor.

E. EXPORT TAXES ON FORESTRY PRODUCTS IN INDONESIA: NEGATIVE ENVIRONMENT EFFECT

In Indonesia, about 80 products were affected by export taxes until 1998: forestry products, agricultural products, such as crude palm oil and coconut oil, and mining and metal products. Most products were levied an *ad valorem* export tax of 30 per cent. Specific export taxes imposed on raw/split rattan and logs reached a tariff equivalent rate of 500 per cent and 4,000 per cent respectively (WTO, 1998). In 1998, export taxes on these products were set at the 30 per cent *ad valorem* rate (scheduled to fall to 10 per cent by 2000). A checklist of prices set by the Ministry of

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[16] The study uses a very disaggregated model of the Thai economy (60 sectors) and includes other existing distortions in the economy (such as import tariffs, excise taxes, corporate taxes, value added taxes and income taxes), so that estimation takes place in a second-best environment.

Industry and Trade was used as the basis for levying export taxes in order to prevent under-invoicing. Therefore, to the extent that prices on the checklist did not correspond to international market prices the effective tax differed from the nominal tax.

Several reasons were put forward to justify the use of export taxes by the Government, including protection of natural resources, the development of processing industries, and to ensure an adequate supply of essential goods.

What were the actual effects? The imposition of export restrictions on sawn timber has promoted the development of plywood factories in Indonesia, and led to plywood exports. However, there have also been some negative side effects. First, low prices of logs have encouraged inefficient logging practices and inefficient wood processing. For some wood-processing factories, for example, the World Bank has estimated a wastage ratio of up to twice the international average. Second, powerful export cartels have emerged in wood and wood products to capture the economic rents of the restrictions. Third, low log prices have discouraged investments towards the protection and sustainable development of timber. Studies from some non-governmental organisations indicate forestry trade policy as one of the possible explanations for the escalating forest fires in Indonesia, as it gives inappropriate incentives to protect timber as a natural resource (reported in WTO, 1998).

V. CONCLUSION

Declines in the prices of some commodities and high price volatility over the years have presented significant challenges for commodity-dependent developing countries. Export taxes have sometimes been suggested as a trade policy instrument to tackle the commodity issue. It has been argued that export taxes can be used to improve the terms-of-trade, to smooth export earnings volatility, to foster diversification of the production structure and as a means of income redistribution to the poor.

This paper began with a simple theoretical analysis of the impact of an export tax on an exporting country and its trading partners. It then looked at the costs and benefits of using export taxes to address the issue of volatility of commodity prices, tariff escalation, government revenue, income redistribution and as an industrial policy. Finally, the paper surveyed the experiences of some countries that have used export taxes.

This paper has argued that in normal situations – that is, when there is no crisis – the use of an export tax is unlikely to be a first-best policy. A more appropriate policy response is to target the cause of the problem as close as possible to its source. Such responses might include regulatory reforms to remove inefficiencies in the financial system that impede diversification and efficient risk management, the development of a broad-based tax system and social safety nets, the use of appropriate monetary, fiscal and exchange rate policy to address the problem of deteriorating terms-of-trade and the removal of tariff escalation.

Export taxes change prices, but tax-inclusive prices do not signal the real trading opportunities open to a country. They therefore encourage inefficient production and consumption patterns as well as inefficient resource allocation. As in the case of a tariff, this engenders a deadweight loss for the world economy.

Notwithstanding the efficiency costs of export taxes, the usual justification for their imposition is that they might have short run benefits or that they might be a *second-best policy* option. First-best policy options are not feasible for some countries. For example, insufficiently developed financial markets make it impossible to hedge the risk of price variability in international markets. Or because of an administratively weak tax system, a country may not be able to extend the VAT-based tax system to resolve fiscal imbalances. Resort to export taxes in these cases can be justified as a short-term measure.

In summary, the analysis in this paper and the examination of the economic implications of an export tax illustrated through selected case studies point to the following conclusions:

(i) The effects of an export tax are complex and are not limited to the market of the taxed commodity. It is also important to analyse the markets for substitutable and complementary goods, and the backward and forward markets in the production chain.

(ii) An appropriate application of export taxes as a short-run policy measure would require the specification of an explicit timetable for their removal. The cause prompting the use of an export tax as a policy measure might fade, while the export tax stays in place. Pressure can be exercised by those who gain from keeping an export tax in place for longer than required by economic conditions. Inefficient firms might develop as a consequence of the distorted incentives put in place by the export tax, and these firms might resist any policy reversal. The overall consequences of maintaining export taxes for longer than their short-term justification warrants are efficiency losses, lower welfare and lower growth in the long run. Adequate social and political flexibility and adequate legal and institutional infrastructure are therefore preconditions for an efficient intervention.

(iii) Even a temporary measure can have long-lasting effects. Therefore, dynamic effects also need to be taken into account.

VI. REFERENCES

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VII. APPENDIX TABLES

Table I: List of countries using export taxes

Country	Year	Commodity	Tax Rate
Europe/Middle East			
Bahrain	2000	ready-made clothes	total export fees $300,000
Turkey	1998	unshelled hazelnuts shelled hazelnuts semi-processed leather	$0.04 per kg $0.08 per kg $0.5 per kg
Asia/Pacific			
Bangladesh	2000	tax at source	0.25%
Fiji	1997	sugar and gold	3%
Hong Kong, China	1998	manufactured clothing and footwear items	HK$0.3/HK$1,000 value
India	2002	hides, skins, and leathers (tanned and untanned)	60%
Indonesia	1998	logs, sawn timber, rattan and minerals palm oil	10% 40%
Malaysia	2001	certain fish, birds' eggs, certain fruit, nuts, palm seeds, gum, resin, rattan, crude and semi-processed palm oil, palm kernel, animal feeds, slags, magnesite, petroleum oil, rough wood, articles of stones, certain precious metal ferrous wastes and scraps, certain base metals and their waste	2.5% to 30%
Pakistan	2001	crushed bones uncrushed bones raw/wet blue hides and skins	10% 5% 20%
Papua New Guinea	1999	sea cucumbers, mineral ores and concentrates, crocodile skins rattan (cane) unprocessed round logs Sandalwood	5% 15% higher progressive rates 15%
Philippines	1999	logs	20%
Solomon Islands	1998	fish products and logs	
Sri Lanka	1995	silica quarts, steel, tea, rubber, coconut, cashew-nuts in shell, raw hide and skins, leather of bovine and equine animals	
Thailand	1999	rice and glutinous rice metal scraps of any kind rubber of genus Hevea in various form such as sheets or slabs fish(pulverized or only baked) unfit for human consumption hides of bovine animals;wood,sawn wood and articles made of wood;raw silk (not thrown),silk yarn and yarn spun from waste silk and noil silk (B 100 per kg); goods not elsewhere specified or included in the export tariff listing	10% 50% 40% 75%
Africa			
Benin	1997	diamonds, precious stones and metals, cocoa beans and crude oil	1.04%
Burkina Faso	1998	livestock products	
Cameroon	2001	logs transformed forestry products	17.5% 3% or 4%
Côte d'Ivoire	1995	rough timber, plywood, coffee, raw cocoa, cola nuts and uranium ores and concentrates thereof	
Gabon	2001	manganese un-squared tropical woods (okoume and ozigo)	3% 15%
Ghana	2001	cocoa, gold, bauxite, manganese, and certain processed timber aviation jet fuel	6%

Country	Year	Commodity	Tax Rate
Africa (cont'd)			
Guinea	1999	all products apart from minerals and derivatives(gold, diamonds, scrap) scrap handicraft gold and diamonds coffee re-export of all products on leaving Guinea bauxite alumina	2% GF25,000 per tonne 3% $13 per tonne 2% $8 to $9 per tonne $1.75 per tonne
Kenya	2000	fish timber	0.5%
Lesotho	1998	rough, unpolished diamonds	
Madagascar	2001	raw logs (raw timber and hardwoods) processed wood products	4% 1.5%
Mali	1998	gold specific duty on fish	3%
Mauritania	2002	pelagic fisheries products	
Morocco	1996	hydrocarbons crude phosphate	5% 34 dirhams per tonne
Mozambique	2001	cashews	18%
South Africa	1998	unpolished diamonds	
Uganda	2001	coffee	1%
America			
Argentina	1999	raw materials of cattle (including raw hides and skins) unprocessed oilseeds	5% to MERCOSUR and 10% to third country markets 3.5%
Antigua and Barbuda	2001	lobsters and fish	
Colombia	1996	coffee, crude oil, gas, coal and ferro-nickel	
Costa Rica	2001	bananas	2.8%
Dominican Republic	2002	fish molluscs and crustaceans mineral substances in their natural state or in the form of metalliferous concentrates	RD$0.03 per kg 5% 5%
Guatemala	2002	coffee	1%
Mexico	2002	sub-products of endangered species (particularly turtles) and certain plants and other human organs	
St. Kitts and Nevis	2001	live animals, lobster and cotton	
Uruguay	1998	dry, salted and pickled hides	5%

Source: WTO, Trade Policy Review country reports (1995-2002).

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