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<u>Fiscal Dimensions of Trade Policy</u> */

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Abstract

This paper assembles findings on the use of trade taxes, examines the main contributing factors, and reviews the fiscal aspects of trade policy as they relate to both efficiency and macroeconomic stabilization. It demonstrates why trade taxes would generally not be part of an optimal tax package, and describes the conditions under which they could be used and what their structure would be. The paper also reviews the channels of the effects of trade taxes under fixed and flexible exchange rates, and concludes that the distortions and welfare loss that they create put them at a disadvantage vis-à-vis other fiscal and exchange rate policies.

<u>JEL Classification Numbers:</u>

4110, 3200, 1220, 4313

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Summary

This paper reviews the fiscal dimensions of trade taxes, a major instrument of trade policy. It shows that developing countries rely heavily on trade taxes because of low per capita income reflecting a narrow domestic tax base and a rudimentary tax administration and because of trade deficits and overvalued exchange rates.

The paper demonstrates why trade taxes would generally not be part of an optimal tax package. The origin or destination of commodities should not be a taxation criterion. Optimally, trade taxes should be harmonized with domestic taxes, and for production efficiency, inputs and intermediate goods should not be taxed. Only to the extent that domestic taxes are not available should imported inputs and intermediate goods be considered as taxable together with imports of final goods, which should be taxed at differential rates to minimize the welfare loss.

Given the distortions created by trade taxes, this paper discusses their effectiveness as an instrument for correcting macroeconomic imbalances. Unlike other fiscal policy measures that affect the external balance indirectly through the saving-investment mechanism, trade taxes affect the external balance directly through their effect on relative prices and indirectly through changes in government saving.

While trade taxes may be an appealing instrument of trade and fiscal policies, the distortions that they create for resource allocation and the welfare loss they involve put them at a disadvantage compared with other fiscal and exchange rate policies. If the fiscal imbalance is to be reduced through higher revenue, this revenue should be raised in such a way as to minimize distortions. Trade taxes would normally not be part of such revenue measures. To correct external imbalances, the use of the least distortive and most effective instrument would again exclude trade taxes.

The paper concludes that, considering the heavy reliance of developing countries on trade taxes, trade liberalization would have to be preceded by a tax reform to replace trade taxes with domestic taxes.

I. Introduction

The recent pattern of trade liberalization in developing countries and a renewed protectionist sentiment in industrial countries have revived interest in trade policy. Earlier trade reform failures in some Latin American countries still loom over the new liberalization drive. These failures have been attributed to a great extent to large budget deficits and policy inconsistencies that rendered the reforms unsustainable. A recent paper by Corden (1987) reviews the main analytical issues of protection and liberalization. The present paper focuses on the fiscal dimensions of trade policy. Its main purpose is to assemble empirical findings on the use of trade taxes and to review the fiscal aspects of trade policy as they relate both to efficiency and to macroeconomic stabilization. 1/

Trade policy generally describes the set of instruments employed to regulate a country's international trade. This set of instruments consists of trade taxes and subsidies, import and export quotas, and other nontariff barriers. The focus of this discussion, however, is trade taxes, which serve several objectives. First, they raise revenue for the government; second, they provide an instrument for correcting market distortions; third, they provide protection for local industry and employment; and, finally, they act as an instrument of macroeconomic stabilization. The use of trade taxes for each of these objectives inevitably gives rise to by-products: in particular, trade taxes for revenue will have protective effects, and trade taxes for macroeconomic stabilization will have fiscal effects.

The literature on optimal taxation and on trade and development has demonstrated that a reliance on trade taxes could create adverse effects for the efficiency of production and for the pattern of economic development. Developing countries have nevertheless relied on trade taxes in varying degrees to perform different functions. Reliance on trade taxes has also been noted in the context of Fund-supported programs. 2/ During 1980-84, over one third of Fund-supported adjustment programs employed general or selected increases in customs duties and import duty surcharges. At the same time, however, a similar number of programs included tariff reforms (reductions), and, more recently, trade liberalization has become a more frequent policy instrument in Fund-supported programs. Given the importance of trade taxes in developing countries, an abrupt reduction in reliance on them without compensatory measures could create budgetary imbalances and have destabilizing macroeconomic effects. Consequently, the need to weigh short-term stabilization

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1/ The income distribution aspects of taxes on international trade are discussed in Occasional Paper No. 46, International Monetary Fund (Washington, September 1986) pp. 19-20.

2/ International Monetary Fund (1986 and 1987).

objectives against long-term production efficiency has posed a dilemma for policymakers and for the Fund in designing programs. 1/

Section II of this paper presents an overview of the use of trade taxes by country groups at different levels of economic development during 1973-84 and analyzes the possible reasons for differences in their reliance on trade taxes. This section also explores channels of effects between different macroeconomic variables that may lead to higher or lower taxation of trade. Section III reviews the implications for efficiency of the use of trade taxes for revenue, for protection, and as an instrument for correcting market distortions. It also discusses the tariff structure when trade taxes are used as a "second-best" revenue instrument in the presence of collection costs. Section IV assembles the major conclusions of the literature on the macroeconomic effects of trade taxes under fixed and flexible exchange rates. Finally, Section V summarizes the major points raised in the paper and outlines the possible implications for policy.

II. The Use and Determinants of Reliance on Trade Taxes

In this section we present an overview of the actual use of trade taxes by all the countries reporting to the Fund. The aim is to determine observable patterns of increase/decrease in the importance of trade taxes for different groups of countries. Our data set on trade taxes includes import and export duties, profits of import and export monopolies, exchange profits and exchange taxes, and certain other taxes on international trade and transactions such as taxes exclusively on travel or insurance abroad. 2/ Nontariff barriers are not included in this study, mostly owing to a lack of information on their use in developing countries, nor are import duties on petroleum and related products separated from other import duties because of a lack of accurate data on this category of trade taxes.

1. Statistical overview of the worldwide use of trade taxes

Table 1 and Chart 1 present an overview of the recent evolution in the use and relative importance of taxes on international trade and transactions for different groups of countries. At the risk of over-simplification, a number of basic observations can be made from the table and the chart that are summarized here.

The most important determinant of reliance on trade taxes seems to be the degree of economic development (Chart 1, upper panel). Since 1972, industrial countries have shown a pattern similar to the world average by following a consistent policy of low reliance on taxes on

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1/ See Tanzi (1987).
2/ This definition coincides with the standard definition of taxes on international trade in the Fund's Manual on Government Finance Statistics.

2a

CHART 1
SHARE OF TRADE TAXES
IN CENTRAL GOVERNMENT REVENUE

ECONOMIC CLASSIFICATION

Non-oil developing countries

Developing countries

Oil exporting countries

World

Industrial Countries

REGIONAL CLASSIFICATION OF DEVELOPING COUNTRIES

Africa

Asia

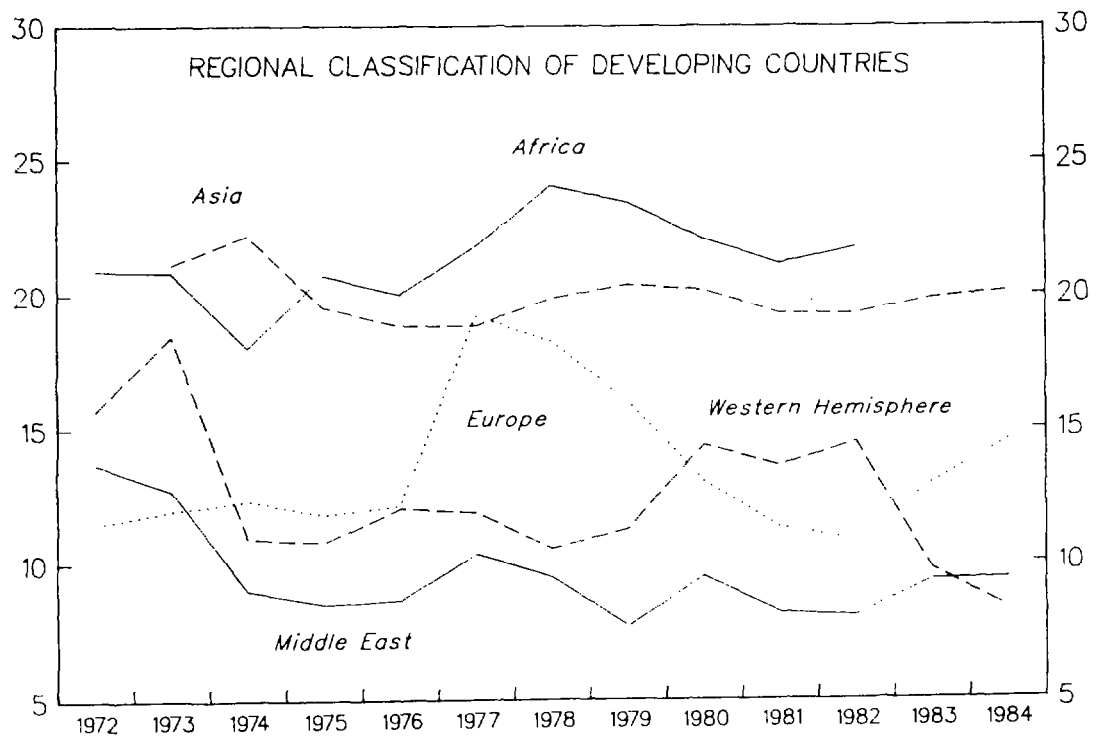Europe

Western Hemisphere

Middle East
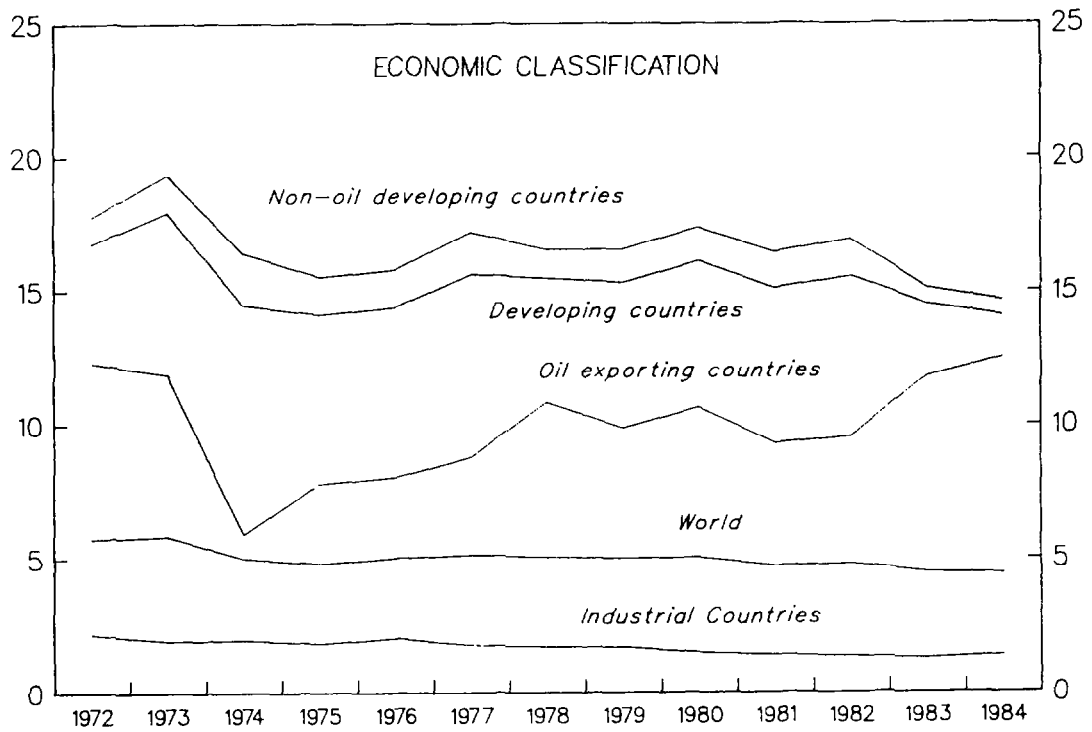
Table 1. Taxes on International Trade and Transactions,
Selected Years, 1973-84 1/

(As percentage of total central government revenue)

	1973	1975	1977	1980	1982	1984	Average 1972-84
World	5.8	4.8	5.1	5.1	4.8	4.4	5.0
Industrial countries	1.9	1.8	1.8	1.5	1.3	1.4	1.7
Developing countries:	18.0	14.1	15.6	16.1	15.5	14.0	15.3
Oil exporting countries	11.9	7.8	8.8	10.6	9.5	12.5	9.9
Non-oil developing countries	19.3	15.5	17.2	17.4	16.9	14.6	16.6
Regional classification of developing countries							
Africa	20.8	20.7	21.8	22.0	21.7	...	21.3 2/
Asia	21.1	19.5	18.8	20.1	19.2	20.1	19.9 3/
Europe	12.0	11.8	19.2	13.0	10.8	14.5	13.5
Middle East	12.7	8.5	10.3	9.5	8.0	9.4	9.6
Western Hemisphere	18.5	10.8	11.9	14.4	14.5	8.3	12.5

Source: International Monetary Fund, Government Finance Statistics, various issues; and International Financial Statistics, Supplement No. 11, 1986.

1/ The number of countries in each economic or regional group increases with time as more countries report data to the Fund.
2/ 1972-82.
3/ 1973-84.

international trade as a source of government revenue. Developing
countries, however, have followed a fluctuating pattern, with levels
consistently above those for industrial countries. Within developing
countries, the non-oil group reduced its ratio of trade taxes to central
government revenue during the entire period of 1973-84, with minor
interruptions in this pattern during 1977, 1980, and 1982. The oil
exporting countries, on the other hand, sharply increased their reliance
on trade taxes after 1974, owing mostly to increases in trade taxes on
petroleum.

Among developing countries, African and Asian countries consis-
tently showed a higher degree of reliance on trade taxes than other
groups, averaging 21 percent and 19 percent, respectively, during
1972-84. Ratios of trade taxation to government revenue of as much as
24 percent for African countries in 1978 and 22 percent for Asian
countries in 1974 were observed. The developing countries in the
Western Hemisphere followed a pattern of low trade taxes during 1974-78,
averaging 11-12 percent of government revenue and reflecting mostly
administrative restrictions on trade. After 1978 these countries showed
more signs of increased reliance on trade taxes as their share rose to
14-16 percent of government revenue, owing mostly to the adoption of
graduated trade liberalization programs that called for replacing non-
tariff barriers with trade taxes as a first phase in the program,
followed by an actual reduction to 8 percent in their ratio of trade
taxes to total government revenue after 1982. The developing countries
of Europe showed a period of reduction in their reliance on trade taxes
during 1978-82, to 11 percent of total government revenue, following a
long period with a sharply fluctuating pattern that ended in 1977.
These countries seem to have chosen a more tax-protected trade policy
since 1982.

2. Major determinants of revenue importance of trade taxes

In this subsection we try to identify empirically some of the
factors that affect governments' decisions to employ trade taxes,
notwithstanding the distortions that they create.

Trade taxes have historically been a major source of government
revenue during the early stages of economic development because they are
easier to collect than domestic income or consumption taxes when tax
administration is in a rudimentary stage of development and tax handles
are limited. A higher reliance on international trade taxes is there-
fore to be expected among countries with lower per capita incomes and/or
lower ratios of tax to gross domestic product (GDP) (TAX/GDP) because of
an unsophisticated domestic tax administration. Corden (1974) mentions
several channels of effects that explain the declining importance of
trade taxes as sources of revenue in developed countries compared with
developing countries. Among these channels are (1) a shift in the tax
pattern toward nontrade taxes because collection costs of trade taxes
decline less rapidly than those of other taxes, and (2) with improving
productivity and competitiveness in import-substitution industries, the

capacity to produce import-competing manufactured goods in response to a given level of tariff protection increases. As a result, a given structure of tariff rates has increasing protective effects on industry, and its production-distorting cost increases. The literature on tax efforts in developing countries also mentions the openness of the economy and the average height of the tariff structure--as long as it does not become prohibitive to trade--as being important determinants of their import taxation (Chelliah (1971) and Chelliah and others (1975)). One channel of effect from the openness of the economy to trade taxes can be Kuznets's suggested hypothesis that countries become less dependent on foreign trade as they become more economically developed (Kuznets (1964) and Corden (1974)). It is expected, therefore, that the openness of the economy relates positively to the revenue importance of trade taxes owing to a hypothesized negative relation between openness and economic development on the one hand and between economic development and trade taxes on the other. A simple version of this hypothesis was tested by Tanzi (1983b) who found a positive and significant coefficient for the ratio of total imports as a percentage of GDP as one of the determinants of the ratio of import duties as a percentage of GDP.

In an attempt to determine more accurately the channels of effect among variables, we separate the estimation of the determinants of import taxes from those affecting export taxes even though a number of variables may affect both.

a. Import taxes

The revenue importance of import taxes is estimated here as a function of (1) the average tariff rate, shown as ID/IMP; 1/ (2) the openness of the economy, which can be best represented as (imports plus exports)/GNP rather than IMP/GNP to take account of the possibility that a country may adopt an export-oriented strategy; (3) a measure of sophistication of the tax system, which, again, can be better identified as the ratio of domestically collected taxes to GNP rather than total tax revenue to GNP, to take account of the fact that trade taxes do not require a very sophisticated tax administration; and (4) the level of economic development as represented by per capita income. Table 2 presents some relevant statistics on these variables for a sample of developing countries.

In addition to the four variables mentioned above, we have included in our estimation additional variables arising from the following hypothesized relations.

1/   ID = import duties
        TX = total tax revenue
        IMP = total imports.

Table 2.   Major Determinants of Revenue Importance of Import Duties
(Averages: 1978-84) 1/

| | Import Duties | Import Duties | Trade | Domestic Taxes | Income per Capita |
	Total Tax Revenue	Total Imports	GNP	GNP	(US$)
Oman	5.1	1.9	85.1	11.4	6,090.2
Singapore	9.0	0.9	321.9	16.5	5,464.4
Israel	4.8	5.3	69.9	46.2	5,329.8
Venezuela	7.9	9.2	47.0	20.4	3,669.8
Barbados	17.7	7.7	85.2	21.1	3,496.7
Argentina	8.2	16.3	15.3	11.5	3,372.7
Cyprus	25.3	8.0	82.7	13.5	3,083.6
Iran, Islamic Republic of	27.4	18.1	29.5	5.9	2,945.6
Yugoslavia	37.2	13.8	39.6	5.6	2,518.4
Mexico	5.5	9.4	18.5	11.8	2,288.9
Portugal	5.4	4.2	56.6	27.3	2,155.5
Brazil	3.0	6.8	15.9	16.7	1,938.0
Korea	17.6	8.3	63.0	13.1	1,773.3
Fiji	30.6	13.6	70.6	13.1	1,716.6
Costa Rica	9.8	4.9	65.0	13.4	1,531.6
Ghana	16.5	16.8	12.7	3.1	1,482.3
Paraguay	16.2	12.3	19.9	7.4	1,475.5
Dominican Republic	29.9	16.4	32.4	6.6	1,294.1
Colombia	14.9	11.4	22.9	7.9	1,274.0
Turkey	10.2	16.5	23.2	15.6	1,233.8
Tunisia	33.6	21.6	64.1	16.6	1,189.4
Mauritius	38.7	15.0	82.0	8.3	1,156.3
Jordan	58.0	13.7	96.0	7.8	1,069.2
Swaziland	64.2	18.9	148.9	8.4	906.1
Nicaragua	15.9	9.3	52.3	15.1	882.1
Botswana	51.7	17.6	139.8	13.5	875.8
El Salvador	10.8	4.8	50.1	7.7	804.6
Morocco	21.7	17.7	41.1	16.5	722.3
Thailand	21.7	11.1	43.8	9.7	712.0
Philippines	25.9	12.6	36.7	7.7	674.5
Guyana	7.1	4.0	116.6	30.8	582.9
Zambia	7.8	5.8	58.8	19.5	579.5
Yemen Arab Rep.	68.2	23.2	62.2	6.6	444.3
Kenya	23.7	16.1	47.0	14.5	359.7
Sri Lanka	21.1	10.3	65.9	10.1	289.9
Tanzania	10.5	8.2	29.3	13.9	278.1
Zaire	21.7	33.2	33.0	11.6	200.8
Malawi	24.2	13.8	51.6	12.5	185.1
Burkina Faso	41.3	20.2	35.4	7.4	165.0
Burma	26.1	34.6	15.7	7.1	164.6
Nepal	34.1	14.5	21.7	4.4	140.9

Sources: International Monetary Fund, Government Finance Statistics and International Finance Statistics.

1/   Countries are ranked according to nominal level of per capita income.

(1) Macroeconomic imbalances have often been mentioned as a reason for resorting to trade protectionism. It is possible that a country with an increasing balance of trade deficit may try to restrict imports as an alternative to exchange rate adjustment, irrespective of the source of those trade imbalances. It is also possible that an increasing fiscal deficit may give the government an incentive to obtain more revenue through increased import duties if the revenue from that source is considered preferable to inflation taxation. We will there-fore test these two possibilities by including fiscal deficit and trade deficit in the list of explanatory variables.

(2) The relationship between the inflation rate and a protec-tionist trade policy may not be observable through simple statistical correlation methods. A high and/or accelerating inflation rate in a country can be considered a sign of the need for supply and/or demand adjustment in the economy. But the experience of many developing coun-tries has shown that trade protectionism was tried as an alternative to, or in conjunction with, real exchange rate adjustment or other measures designed to alter the existing configuration of aggregate demand versus aggregate supply. When the cause of high inflation remains untreated, the country's stand on trade policy and the revenue importance of trade taxes can be affected in several ways. For example, to the extent that inflation--in the absence of autonomous adjustments to the structure of tax rates--increases the inflation tax revenue from domestic sources, it may create a negative relationship between the rate of inflation and ID/TX. Such influence from inflation cannot be expected to last in the medium term because of the limited impact of inflation for revenue raising. Countries with increasing inflation rates may also choose to control demand for imports by increasing taxation of and/or quantitative restrictions on imports. By doing this, a positive channel of effect between the inflation rate and import taxes is created. As a result, even though economic theory provides ample information on the importance of inflation in determining a country's trade taxes, the sign of this correlation may be ambiguous.

For notational simplicity, let us define:

$Y \ = \ ID/TX$

$X_1 \ = \ ID/IMP$

$X_2 \ = \ $ total trade (imports plus exports)/GDP

$X_3 \ = \ $ domestic tax revenue (total tax revenue minus trade tax)/GDP

$X_4 \ = \ $ fiscal deficit/GDP (+ = deficit; - = surplus)

$X_5 \ = \ $ inflation rate

$X_6 \ = \ $ real effective exchange rate index

X_7 = per capita income (in nominal U.S. dollar terms)

X_8 = trade balance/GDP (+ = deficit; - = surplus).

We estimate an OLS regression between Y and X_2 to X_8 where all the variables, with the exception of X_4, X_5, and X_8, are defined in log terms. We exclude variable X_1 from the regression because of obvious correlation with the dependent variable. The results of the general form are reported in Table 3 (Regression (1)). Estimation using several different combinations of variables was also performed to check for multicolinearity between independent variables.

A common aspect observed from the regressions in Table 3 is that all variables show the expected sign and most are highly significant: openness of the economy and trade deficit show a positive and signifi-cant coefficient, while the rest show a negative coefficient with the fiscal deficit as the only consistently insignificant variable.

The relative importance of domestic tax revenue in relation to GDP is worth noting, as indicated by the high beta coefficient (-0.61). As mentioned above and discussed in Section III below, trade taxes and particularly import duties are an important source of revenue when the tax administration is at a rudimentary stage and domestic taxes are difficult to raise. Thus, the negative coefficient (-0.85) points to the inverse relationship between import taxes and domestic taxes. Per capita income was also highly significant and relatively important (β = -0.22), confirming the suggestion that the lower the level of per capita income, the greater the reliance on import taxes. The trade balance and the degree of openness of the economy were also found to be significant and with relatively high beta coefficients. This may indi-cate that import duties have been an important instrument in reducing trade deficits. Inflation and the index of real effective exchange rates were found to be statistically significant, but with relatively low beta coefficients. It is worth pointing out that the sign of the inflation coefficient is negative, which may suggest that when inflation is high, and with it the inflation tax rate, import taxes become less important. A possible channel of effect is the overvalued exchange rate in an economy with rising inflation rate, which leads to a fall in the value of imports (Edwards (1987b)).

The only variable with an insignificant coefficient in this regres-sion was the fiscal deficit in relation to GDP. This may suggest that governments resort to taxes on imports as a source of revenue, but not necessarily as a means of reducing fiscal deficits. It should be noted, however, that when the real effective exchange rate is left out of the regression (regression (4)), the fiscal deficit becomes significant while its beta coefficient remains low, indicating its relatively low importance. Multicolinearity between a number of independent variables may exist. For example, colinearity exists between domestic taxes and per capita income--as per capita income rises one expects domestic tax collection to improve. Therefore, specific importance should not be

Table 3. Statistical Estimation of Major Determinants
of Import Taxes; Regression Results 1/

Regression	Constant	$L_N(X_2)$	$L_N(X_3)$	X_4	X_5	$L_N(X_6)$	$L_N(X_7)$	X_8	R^2	SEE
(1) Coefficient	6.03	0.298	-0.85	0.004*	-0.002	-0.25*	-0.173	1.50		
t-Probability	1.0	1.0	1.0	0.65	0.99	0.89	1.0	1.0	0.65	0.455
Beta 2/	--	0.28	-0.61	0.03	-0.14	-0.06	-0.22	0.29		
(2) Coefficient	6.05	0.257	-0.94	0.003*	-0.003	-0.43		1.4		
t-Probability	1.0	1.0	1.0	0.48	1.0	0.99		1.0	0.62	0.478
Beta 2/	--	0.24	-0.66	0.03	-0.22	-0.11		0.27		
(3) Coefficient	7.73		-0.73	-0.002*	-0.003	-0.49	-0.15	2.25		
t-Probability	1.0		1.0	0.38	1.0	0.99	0.99	1.0	0.62	0.476
Beta 2/	--		-0.52	-0.02	-0.22	-0.13	-0.19	0.43		
(4) Coefficient	5.16	0.357	-0.87	0.009	-0.06*		-0.21	1.52		
t-Probability	1.0	1.0	1.0	0.94	0.30		1.0	1.0	0.64	0.462
Beta 2/	--	0.33	-0.62	0.08	-0.01		-0.27	0.29		

1/ Pooled data for 1978-84 for 39 developing countries. The 39 countries are the same as in Table 2, with the exception of Oman and the Yemen Arab Republic, which were excluded because of lack of complete data.

2/ Beta statistics are obtained by estimating an OLS regression using standard normalized values of the relevant variables instead of actual magnitudes. This statistic determines the change in the dependent variable, other things being equal, for a (normalized) unit change in each independent variable. As a result, beta statistics are comparable across equations, as well as within each equation.

* Not significant at the 90 percent level.

Dependent variable: Y = import duties/total tax revenue.

Independent variables: X_2 = total trade (imports plus exports)/GDP

X_3 = domestic tax revenue (total tax revenue minus trade tax)/GDP

X_4 = fiscal deficit/GDP (+ = deficit; - = surplus)

X_5 = inflation rate

X_6 = real effective exchange rate index

X_7 = per capita income (in nominal U.S. dollar terms)

X_8 = trade balance/GDP (+ = deficit; - = surplus).

assigned to the absolute magnitude of each variable, except that, as a group, they explain more than 65 percent of the variations in ID/TX. In order to reduce the possibility of multicolinearity, three other regressions were run. Regression (2) excludes income per capita, since it may directly affect the domestic tax collection (X_3). This hypothesis is, however, not supported by the results. Regression (4) shows that inflation (X_5) and the real effective exchange rate (X_6) may be highly correlated and that exclusion of one variable weakens the impact of the other.

b. Export taxes

Historically, export taxes have played a significant role in developing countries but have accounted for a limited part of their total tax revenues. This is partly because only particular categories of exports--primary products, with inelastic demand in international markets--can be successfully taxed by the government without substantially reducing the foreign exchange earnings of the country in the long run. 1/

Tanzi (1983b) has noted that in many developing countries with a significant agricultural sector it is generally impractical to try and tax directly the income of that sector. 2/ This leaves such countries with little choice but to tax agricultural exports. Notwithstanding the importance of the primary product sector in an economy, the issue of the uneven distribution of the tax burden between consumers, distributors, and producers of exported products has been a determining factor in a country's reliance on export taxes. The burden of export taxes usually does not fall on the domestic consumers of the products being taxed, nor is the tax always paid in its entirety by the exporter. As Table 4 shows, a close relationship between the importance of the export sector in the economy--as represented by the ratio of exports to GNP--and the share of export taxes in total government revenue is rarely observed. As mentioned above, this is mostly because the tax burden cannot be transferred to the consumers--unless the exporting country has monopoly power in the market--and does not always improve the terms of trade for the exporting country. The relationship becomes particularly difficult to judge in countries that collect export taxes as advance payments on income taxation, because in these countries export taxes are not considered a policy tool for the promotion or discouragement of exports but rather an insured prepayment on income taxes. Unlike taxation of imports, export taxation does not seem to be correlated with economic development (the countries in Table 4 are ranked from highest to lowest in terms of per capita income), since reliance on export taxation is

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1/ Extensive discussions on the role of export taxes appear in Tanzi (1983a) and Sánchez-Ugarte and Modi (1986).

2/ This is mainly because agricultural production is not well concentrated and the information required to tax agricultural income under income tax category is normally not available.

Table 4. Export Taxes in Developing Countries
(Averages: 1978-84)

| | Export Taxes as a Percentage of | | | Exports as a Percentage of |
	Tax Revenue	Exports	GNP	GNP
Oman	...	...	...	53.4
Singapore	...	...	...	141.6
Israel	...	...	...	24.6
Venezuela	...	...	...	27.2
Barbados	0.1	0.1	0.0	26.2
Argentina	4.3	5.9	0.5	8.5
Cyprus	...	...	...	25.5
Iran, Islamic Republic of	...	...	...	15.9
Yugoslavia	...	...	...	15.9
Mexico	13.6	21.6	2.0	10.2
Portugal	...	...	...	19.2
Brazil	2.1	4.3	0.4	8.2
Korea	...	...	...	29.0
Fiji	1.4	1.0	0.3	25.2
Costa Rica	12.9	7.8	2.3	30.5
Ghana	25.3	21.4	1.7	6.4
Paraguay	0.7	0.9	0.1	7.1
Dominican Republic	5.6	4.3	0.6	12.5
Colombia	6.3	5.9	0.6	9.9
Turkey	...	...	...	8.3
Tunisia	1.0	1.1	0.3	24.1
Mauritius	15.6	8.3	2.8	34.2
Jordan	...	...	...	17.6
Swaziland	4.9	2.4	1.3	54.9
Nicaragua	2.5	2.1	0.4	22.3
Botswana	0.3	0.1	0.1	59.1
El Salvador	23.7	11.9	2.8	23.6
Morocco	1.2	1.9	0.3	14.4
Thailand	4.0	2.8	0.5	18.3
Philippines	1.8	1.3	0.2	14.8
Guyana	0.3	0.2	0.1	54.1
Zambia	2.1	1.8	0.5	29.8
Yemen Arab Rep.	0.0	0.5	0.0	0.9
Kenya	1.1	1.1	0.2	18.1
Sri Lanka	25.6	19.4	5.2	25.4
Tanzania	3.9	6.1	0.6	8.9
Zäire	13.7	11.9	2.6	20.2
Malawi	...	...	...	21.5
Burkina Faso	2.5	5.6	0.3	6.7
Burma	...	...	...	6.7
Nepal	2.6	3.6	0.2	5.0

Sources: International Monetary Fund, Government Finance Statistics
and International Financial Statistics.

basically determined by the importance of exports as a tax base as well as the monopolistic market power of the country.

As for import taxes, we tested the possibility that each of the above-mentioned factors, i.e., the share of exports in GDP and in per capita income, or other factors such as the share of domestic tax revenue in total GDP, the real effective exchange rate index, or the height of export tariffs (as represented by the ratio of export duties to total exports) may significantly affect the revenue importance of export taxes. Table 5 represents the results of estimating the share of export duties in total tax revenue as a function of:

Z_1 = export duties/total exports

Z_2 = per capita income (in nominal U.S. dollar terms)

Z_3 = total exports/GDP

Z_4 = real effective exchange rate

Z_5 = total tax revenue minus trade tax/GDP

The results reported in Table 5 confirm that export taxes are inversely related to domestic tax revenue; as with import taxes, export taxes are relied upon in countries that do not have well-developed domestic tax administrations. Regressions (1) and (2) also indicate that the level of economic development and the relative size of the export sector are important determinants of export taxes. The beta statistics for the regressions show that the average effective export duty rate (Z_1) has the highest share in defining variations in the dependent variable. One way to explain this effect, is that countries apply taxes on export when export sectors are sizable in comparison with the total economy.

The basic results obtained from statistical observations and estimations confirm the importance of trade taxes as a source of revenue for low-income developing countries. Despite the ongoing concern in the literature about inefficiencies resulting from trade taxes, we find that import taxes are used in these countries as a major source of revenue when other sources of tax revenue are not sufficiently well developed. Moreover, the regression results suggest that import taxes are also used to reduce trade deficits. For export taxes, the ability to impose these taxes when a country has the monopoly power in its export market determines the extent of their use. Considerations of economic efficiency are given secondary importance by policy-makers in both cases.

Table 5. Statistical Estimation of Major Determinants
of Export Taxes; Regression Results 1/

Regression 1/	Constant	Z_1	Z_2	Z_3	Z_4	Z_5	R^2	SEE
(1) Coefficient	-0.11	1.04	-0.0005	0.13	0.015	-0.24		
t-Probability	0.06	1.0	0.92	1.0	0.84	0.99	0.84	3.80
Beta	--	0.88	-.05	0.21	0.04	-0.16		
(2) Coefficient	-0.62	1.04		0.13	0.015	-0.26		
t-Probability	0.346	1.0		1.0	0.84	1.0	0.833	3.81
Beta	--	0.88		0.22	0.04	-0.169		

1/ Countries included in the pooling of data are Botswana, Burkina Faso, Ghana, Kenya, Mauritius, Morocco, Swaziland, Tanzania, Tunisia, Zambia, Zaïre, Fiji, Nepal, Philippines, Sri Lanka, Thailand, Barbados, Brazil, Costa Rica, Colombia, Dominican Republic, El Salvador, Guyana, Mexico, Nicaragua, Paraguay, and Argentina.

Dependent variable: Y = export duties/total tax revenue
Independent variables: Z_1 = export duties/total exports
Z_2 = per capita income (in nominal U.S. dollar terms)
Z_3 = total exports/GDP
Z_4 = real effective exchange rate
Z_5 = total tax revenue minus trade tax/GDP.

III. Trade Taxes and Economic Efficiency

1. Introduction

This section assembles some of the major conclusions of public finance and trade theory pertaining to the consequences of trade taxes for efficiency. It reviews the efficiency of trade taxes for revenue, for protection of local industry and employment, and for correction of market distortions, and it focuses on the optimal structure of trade taxes when considerations of collection costs are present.

Few studies on public finance and optimal taxation theory deal explicitly with open economies and trade taxes. Those studies that allow for international trade generally extend the major principles of optimal taxation to include trade taxes. Accordingly, a tax on international trade creates both consumption and production distortions and would not be part of an optimal tax package, except for collection cost considerations. Optimally, trade taxes should be harmonized with domestic consumption taxes and levied at the same rate as domestic taxes: trade is taxed in the same way as domestic commodities, where, for efficiency of production, inputs and intermediate goods are exempted. However, little attention has been paid to collection costs, particularly in economies where income and domestic consumption are not easily taxable. In such cases, imported inputs and intermediate goods could be considered together with imports of final consumption goods, which would be taxed in accordance with the Ramsey rule to minimize the deadweight loss.

Trade theory deals with trade taxes in the context of their impact on the efficient allocation of resources across countries. Within the framework of the standard Heckscher-Ohlin trade model and under the assumptions of nonincreasing returns to scale and perfect competition, trade taxes disrupt the free flow of goods among countries. When the assumption of perfect competition is relaxed, and monopoly, monopsony, or other market power is introduced at the international level, trade taxes can be justified on the grounds of the "optimal tariff argument" from the perspective of the individual country. In the presence of domestic distortions, however, trade taxes are generally viewed as inefficient instruments in the hierarchy of corrective policies. In this vein, assistance to domestic industry, and particularly to infant industry, is generally better served by production subsidies than by protective tariffs.

2. Trade taxes for revenue and protection

a. Efficiency considerations

Non-lump-sum taxes levied for revenue purposes when lump-sum taxes are not available also introduce distortions, and the question posed by optimal taxation theory is how to raise a given amount of revenue with minimum distortion of the system. Diamond and Mirrlees (1971a, 1971b)

demonstrate that, with the introduction of non-lump-sum taxes in a closed economy, production efficiency is still desirable, although full Pareto efficiency is not achieved. A production plan is efficient if any other feasible production plan provides a smaller net supply of at least one commodity. The model derives the conditions for production efficiency and optimal commodity taxes. The relationship between consumer prices and the slope of the production frontier defines the optimal tax structure as: "for all commodities the ratio of marginal tax revenue from an increase in the tax on that commodity to the quantity of the commodity is a constant" (Diamond and Mirrlees (1971a), p. 16). Shadow prices are still equal to producer prices but differ from consumer prices.

Thus, finding a second-best optimal set of commodity taxes implies a violation of Pareto efficiency because the domestic rate of substitution in consumption is different from the domestic rate of transformation in production while maintaining production efficiency. The optimal commodity tax system includes no taxes that violate the conditions for production efficiency. When the Diamond-Mirrlees model is extended to allow taxing transactions between firms, the optimal tax structure includes no taxes on intermediate goods since they would prevent production efficiency. In the absence of "abnormal" profits, taxation of intermediate goods must be reflected in changes in final goods prices. Therefore, the revenue could have been collected by taxing final goods, causing no greater change in final goods prices and avoiding production inefficiency. This point is relevant to the discussion of the tariff structure and is pursued below.

As pointed out by Dixit (1985), international trade may be regarded as just another transformation activity; the origin of a commodity should not be a taxation criterion. Thus, the Diamond-Mirrlees efficiency condition for an open economy implies that the marginal rates of transformation between producing and importing should be equal. Therefore, under the small, open-economy assumptions, final goods sales direct to consumers should be subject to a tariff equal to the tax on the same sale by a domestic producer, assuming that domestic and trade taxes can be harmonized. 1/

An import tariff in a small, open economy imposed as a source of revenue (or for protection) introduces distortions into the system. The inefficiency can be best assessed by juxtaposing the distortions created by such a tariff and the distortions created by a domestic tax, say, an excise tax, where the two alternative taxes are designed to raise the same amount of revenue from an importable commodity that is both produced domestically and imported. Unlike an excise tax, which is a tax on consumption, a tariff is both a tax on consumption and a subsidy (negative tax) on production. In addition to the consumption

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1/ Tanzi (1983b) has pointed out the practical difficulty of coordinating domestic indirect taxes with import duties in developing countries.

distortions created by both taxes, the tariff also creates a production distortion, and, as a by-product, involves distribution effects in favor of domestic import-competing producers (Corden (1974)).

The combined production and consumption distortions as well as the income distribution effect are all present in import duties levied on luxury goods. A tax on luxury imports designed to discourage an unde-sirable demonstration effect tends to give rise to a domestically protected import-substitution industry, thus permitting the marginal rate of transformation of domestic resources into the importable good in question to exceed the marginal rate of transformation through foreign trade (Johnson (1965)). A more effective way of dealing with the equity factor would be to levy an excise tax on luxury goods that would not create production distortions and would apply equally to domestic uses and to imports (Tanzi (1983b)).

While optimal taxation theory has demonstrated that under certain assumptions trade taxes should not be part of an optimal tax package in the small, open economy, Section II above has shown that they have been an important source of revenue in developing countries. For the low-income countries, the taxing of income or even domestic consumption has proved more difficult and costly than the taxing of international trade. The latter normally requires a small administration stationed at the port of entry, and, unless tax rates are so high as to encourage smuggling, is relatively easily enforceable.

b.   The role of collection costs in determining trade taxes

Evidence shows that collection costs have been an overwhelming consideration in the recourse by developing countries to trade taxes as an important source of revenue. Collection costs, however, have been largely ignored in the literature on optimal taxation and trade policy (Corden (1974), Mansfield (1987)). Unlike transportation costs in trade theory, which introduce changes at the margin but leave the standard conclusions intact, the inclusion of collection costs can, in principle, change the structure of an optimal tax package. The issue of collection costs is discussed in trade theory by Corden (1974) and in optimal taxation theory in the context of closed economies by Yitzhaki (1979).

Collection costs consist of: the direct labor costs to administer and ensure compliance; and the resource costs incurred by taxpayers in their effort to minimize tax payments. Corden (1974) has shown that, with differential collection costs between an excise tax and a tariff in favor of the latter, it is possible to have trade taxes as part of an optimal tax package. The composition of such a package would depend on how collection costs are introduced.

Within the literature on optimal taxation, a model in which collec-tion costs are introduced explicitly is presented by Yitzhaki (1979). In his closed-economy model, the number of taxable commodities is a decision variable; the marginal cost of administration is defined as the

additional outlay needed to raise an additional dollar in tax revenue. Collection costs for each commodity are assumed constant. The social cost of taxation is the sum of collection costs and deadweight loss, and the objective is to minimize the social cost subject to a given level of revenue. In the optimal solution, the marginal collection cost and the marginal excess burden are equal. If this model is to be extended to an open economy and to the extent that collection costs on trade taxes are considerably lower than on domestic commodity taxes, it is conceivable that trade taxes could replace some domestic commodity taxes, although the deadweight loss of the former may be higher. However, international trade and trade taxes have not been formally introduced into such a model.

Collection cost considerations notwithstanding, the argument in favor of trade taxes as part of an optimal tax system cannot be carried too far. The distortions created by trade taxes in both production and consumption generally exceed the distortions created by other taxes. Moreover, the differential in collection costs between trade taxes and domestic taxes can be considerable only in low-income countries with rudimentary tax administrations. As countries develop, the tax base widens and the reliance on trade taxes for revenue diminishes (Corden (1974), Tanzi (1983a), and Section II of this paper).

The introduction of trade taxes for revenue purposes not as optimal but as a "third-best" policy is considered by Dixit (1985). However, the reasons for ruling out commodity taxes—collection costs—are not endogenized. Rather, a requirement is imposed such that government expenditure must be financed using trade taxes alone. As a result, domestic producer prices no longer equal international producer prices, and the equality of the domestic and foreign rates of transformation in production no longer holds.

c. The optimal structure of trade taxes

Once tariffs are introduced either as part of a "second-best" optimal or as a "third-best" policy, two questions arise regarding the tariff structure that minimizes distortions. First, whether the tariff should include inputs and intermediate goods; and second, whether the tariff structure should be based on the Ramsey rule, be uniform, or aim at providing uniform effective protection.

Diamond and Mirrlees (1971a) have shown that for production effi- ciency, intermediate goods should not be taxed either in a closed economy or in the context of international trade. Taxing inputs or intermediate goods prevents efficiency in production. Under the small- economy assumption, intermediate goods should not be subject to a tariff, but imported final consumer goods should be subject to the same tax as domestically produced goods. In another extension of optimal taxation to open economies, Dasgupta and Stiglitz (1974) have shown that even if the only taxes that can be levied are trade taxes, intermediate goods should not differ from the international price. If, however,

imports are used both as inputs and as final consumption goods and, if it is impossible to treat the same goods differently, then these goods should be taxed.

Corden (1974) has demonstrated that, by introducing collection cost considerations, tariffs could be part of an optimal tax package. In such a case, an optimal revenue tariff structure is likely to include tariffs on inputs. A tariff on inputs alone will avoid consumption distortions but introduce production distortions: first, the distortions created by the protection provided for the domestic production of the input; and second, the cost of negative protection imposed on the final good. However, if for a given revenue requirement taxes are to be levied on international trade, some optimum mix of the two tariffs--a tariff on a final good and a tariff on its input--is likely. This way, the protection to producers would be mitigated by the negative protection imposed by the tariff on the input. However, at the same time, a new production distortion would be created by the protection provided for domestic production of the input.

A discussion on the tariff structure that minimizes distortions would generally start with the Ramsey rule. The original optimal commodity tax structure was developed by Ramsey in the context of a purely competitive system with no foreign trade in a partial equilibrium setting. In order to minimize the distortion created by the tax--the excess burden or deadweight loss--the tax rate should be levied in inverse proportion to the demand elasticity. The more inelastic the demand for a commodity, the more highly taxed it should be. An extension of the Ramsey rule to a general equilibrium framework is presented in Stern (1984). Under the generalized Ramsey rule, the proportional reduction in the compensated demand owing to the imposition of the set of taxes should be the same for all goods. Consequently, the principle of differential taxation should be directed at those goods that cannot be varied by consumers. Only if all goods are equally complementary with leisure (and leisure is not taxed) will the Ramsey rule imply uniform tax rates for all goods.

A straightforward extension of the Ramsey rule to an open economy suggests that, to the extent that tariffs are part of a tax package, the tariff structure should consist of differential rates that are harmonized with domestic commodity taxes. A synthesis of domestic optimal taxation with the optimal tariff appears in Boadway, Maital, and Prachowny (1973). The tariff in their model plays a dual role. First, it exploits the monopoly-monopsony power and, second, it generates revenue that would otherwise have been generated through (non-lump-sum) distortionary domestic taxes.

Against the Ramsey rule of differential tax rates are arguments in favor of uniformity of proportionate rates. A general discussion of uniformity versus selectivity in tax structures appears in Stern (1987), who assembles three groups of arguments in favor of uniform tax rates: theoretical, administrative, and rent seeking. First, the theoretical

arguments for optimality of uniform indirect taxes would hold under special restrictive assumptions. Second, uniform tax rates are simpler to organize and collect than selective taxes with differential rates. Third, nonuniform taxes tend to give rise to lobbying by interest groups for special tax treatment. Another argument in favor of uniformity is the lack of information available to determine selective tax rates for individual commodities. While these groups of arguments were raised for general tax structures, they are also relevant for trade taxes. Stern, in the same paper, demonstrates that there are some grounds for uniformity but only within broad groups of goods. Uniformity for the system as a whole is neither feasible nor optimal. He notes that if tariffs exist because taxation of final goods and of income is more costly, there is still no presumption in favor of uniformity. 1/

A uniform nominal tariff on both inputs and output implies uniform effective protection when there are many importable inputs but no exportable or nontraded inputs. Theoretical justification for uniformity of both nominal and effective protection is discussed by Corden (1974). If the elasticity of supply of exportables and the domestic demand for exportables were zero, and there was zero substitution between leisure and work, then tariffs would not distort the production or consumption pattern relative to exportables or leisure. The only possible distortion would be in the pattern of production and consumption of importables. Under such conditions, the optimal tariff structure would imply a uniform tariff rate. If exportables were not used as inputs in the production of importables, then a uniform nominal tariff would also be a uniform effective tariff. If, however, substitution is allowed relative to exportables and leisure, the optimal tariff structure should not be uniform and should be based on the Ramsey rule of minimizing deadweight loss: taxes on low-elasticity goods should be higher than on high-elasticity goods. Another qualification to the uniformity of nominal tariffs and effective protection is with domestically produced inputs that are close substitutes for exports. In such a case, uniformity of nominal tariffs would not lead to a uniform and identical effective protection.

Following the requirement of production efficiency of optimal taxation theory on not taxing inputs, the exclusion of inputs from a tariff structure implies that even low nominal tariffs on final goods provide relatively high effective protection.

A detailed discussion on effective protection appears in Corden (1966) and further extensions and generalizations in Michaely (1977). Finally, a discussion on the limitations of the theory of effective protection appears in Dixit (1985), suggesting that trade policy is implemented by setting nominal tariffs; therefore, it might be better to conduct the entire analysis in these terms.

1/ On this issue, see also De Wulf (1980).

3. Trade taxes and market distortions

The existence of market distortions or failures in the form of externalities or monopolies, or other distortions caused by institutions or policy gave rise to the development of the "optimal tariff argument" and the theory of domestic distortions, including the infant industry argument. Landmarks in the developments in this area are Corden (1957), Johnson (1965), and Bhagwati (1971). Extensive reviews of the literature appear in Bhagwati and Srinivasaen (1983) and Corden (1984). A new analysis of trade under a variety of different market structures is developed by Helpman and Krugman (1985). The authors note, however, that one of the problems that remains unresolved is that of modeling trade policy under these market structures. This point ought to be stressed, as the conclusions of the literature have been based largely on specific assumptions on market structures.

The principle of the second-best approach to distortions or divergences between prices and marginal costs is to deal with the distortions as close as possible to the source of the distortions--Pigouvian policies--the main objective of which is the restoration of Pareto efficiency equating the domestic rate of substitution in consumption with both the domestic and the foreign rates of transformation in production. Trade taxes are discussed in this context as possible corrective instruments. One extension of this approach is the optimal tariff argument, by which countries with large market shares can restrict their trade to exploit their potential market power. Under such conditions, countries can impose import duties or export taxes. In the standard two-goods model, the optimal export tax is the inverse of the elasticity of the foreign demand for exports in terms of imports. 1/ A recent examination of the use of the optimal export tax by exporters of primary commodities found that in most of the primary producing countries the actual level of export taxation is higher than the level that can be considered country optimal (Sánchez-Ugarte and Modi (1986)).

Most other types of distortion discussed in the literature are domestic. When the distortions are domestic, no interference in international trade is called for except when the distortions arise in trade itself. An effective method of dealing with distortions is to list a hierarchy of corrective policy according to the side effects; the second best is the policy that does not create new distortions as by-products. Accordingly, a production subsidy should be used to deal with distortions in production and a consumption tax with distortions in consumption; distortions in the factor market should be dealt with by a tax or a subsidy on the factor of production. An argument often used in favor of a protective tariff is that it can alleviate unemployment problems in the domestic industry. If the domestic distortion is in the labor market--wage rigidity that causes unemployment--a second-best policy would be a uniform subsidy on employment, a third-best policy a subsidy to output, and, lower in the ranking, a mix of tariff and export

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1/ See Corden (1984), pp. 82-86.

subsidy and a tariff alone. If the sector for importables in the home country is labor-intensive, a tariff would increase employment and output. However, capital and labor will be drawn excessively into the protected industry and will create new distortions (Corden (1957) and Johnson (1965)).

One of the most widely used arguments for a protective tariff is the infant industry argument. Infant industry assistance has been viewed in much of the literature as a corrective policy for some market imperfections (Johnson (1965), Corden (1984), and Krueger (1984)). To the extent that the distortion or imperfection is in the labor market, an employment subsidy should be granted (Baldwin (1969) and Johnson (1970)). Alternatively, if the market distortion is in the under-developed capital market, a credit subsidy would be granted. Protective tariffs have generally ranked only fourth or fifth best.

Thus, to the extent that market distortions occur in areas not directly related to trade, the use of trade taxes as Pigouvian policies are viewed as inefficient. It is also worth noting that when encouragement for domestic production is desirable, as in infant industry, policy would generally call for a production or input subsidy rather than the tariff protection. This is true even though a tariff can also generate revenue whereas a subsidy incurs a burden on the budget. A subsidy is more efficient and creates less distortions, and revenue needs should be satisfied according to optimal taxation principles in the least distortive manner (Tanzi (1983b) and Dixit (1985)).

IV. Trade Taxes and Macroeconomic Stabilization

Trade policy in the form of trade taxes has been widely used as an instrument both to reduce budget deficits and to correct external imbalances. Unlike other fiscal measures that affect the external balance indirectly through the saving-investment mechanism, trade taxes affect the external balance directly through changes in relative prices and indirectly through changes in government and private saving and investment. This section briefly reviews the macroeconomic effects of trade taxes under fixed and flexible exchange rates.

With few exceptions (Tower (1973) and Dornbusch (1987)), the literature on the macroeconomics of trade policy has not dealt with the fiscal aspects of trade policy. The traditional literature, the Laursen-Metzler-Mundell approach, has focused on the terms of trade effects while assuming away their fiscal dimensions. Accordingly, a restrictive trade policy in the form of an import tariff whose proceeds are redistributed to the public would improve the external current account and increase output under a fixed exchange rate and, hence, have a contractionary effect on output and cause an appreciation of the exchange rate.

Recent studies on the macroeconomic effects of trade policy have employed intertemporal optimization frameworks while again assuming away their fiscal dimensions. In models of exportables and importables (Razin and Svensson (1983), and van Wijnbergen (1987)), temporary import tariffs tend to improve the external current account, while the result of permanent tariffs is ambiguous. When nontradables are added to the models (Edwards (1987a) and (1987b), and Ostry (1987)), it is generally impossible to determine a priori how a tariff would affect the current account.

The analysis on the macroeconomic effects of trade policy with fiscal policy draws on Mundell (1961), Tower (1973), Dornbusch (1980 and 1987), and Razin and Svensson (1983). Most contributions in this area have shied away from dealing with the impact of trade taxes for revenue, assuming that the proceeds from the tax are redistributed and that the initial tax is zero to avoid any welfare effects. Indeed, this issue has not yet been fully studied. Notwithstanding these welfare effects, Tower (1973) and Dornbusch (1987) study the macroeconomic consequences of imposing a uniform ad valorem tariff on imports for revenue purposes.

The imposition of a nonprohibitive tariff increases government revenue by the tariff rate times the value of imports--the tax base--and the proceeds are used to reduce the budget deficit and thus increase government saving. The tariff will have an income effect equal to the increase in the revenue generated by the tariff and a substitution effect (away from importables) caused by the change in relative prices. These two effects lead to a reduction in the demand for imports and under a fixed exchange rate regime to an improvement in the external trade and current account. In fact, if the import-demand elasticity is unity and in the absence of a relative price effect on saving--zero Laursen-Metzler effect--the improvement in the trade account (and current account) will be equal to the increase in government revenue (which is equal to the increase in government saving). The effect of a tariff on output will be expansionary if the import-demand elasticity is greater than unity (assuming a zero Laursen-Metzler effect). Under such conditions, the substitution effect that shifts demand from imported to domestic goods will outweigh the negative income effect caused by the tariff and an expansion in output will take place. The introduction of the Laursen-Metzler effect will not qualitatively change the direction of the effect of the tariff on either the external trade account or the output under a fixed exchange rate regime, nor is it likely to have direct fiscal effects.

Under a flexible exchange rate regime, income and substitution effects caused by the import tariff will cause an incipient external surplus that will be equilibrated by an appreciation of the exchange rate. This, together with a possibly contractionary Laursen-Metzler effect, will cause output to fall.

In the large-country case, the extent to which the rest of the world would have to pay for the imposition of the tariff would depend on

the relative strength of the income and substitution effects. A relatively strong income effect would tend to leave world prices unchanged but reduce demand, whereas a strong substitution effect would cause an improvement in the terms of trade for which the rest of the world would have to pay. The exact nature of the final outcome would obviously depend on the financial and trade policies of the rest of the world.

V. Summary and Implications for Policy

This paper has reviewed the fiscal dimensions of a major instrument of trade policy--taxes on international trade. Trade taxes are used for government revenue, for protection, for income redistribution, and for stabilization. First, the study has shown that developing countries rely heavily on trade taxes. While in industrial countries trade taxes constitute less than 2 percent of central government revenue, in non-oil developing countries they amount to some 16 percent. African and Asian countries generate over one fifth of central government revenue from trade taxes, while in developing countries in the Western Hemisphere the ratio is one eighth. An examination of the factors contributing to countries' reliance on trade taxes indicates that countries with low per capita incomes tend to rely more heavily on trade taxes, reflecting a narrow domestic tax base and a rudimentary tax administration. Other important factors are the trade deficit and the real effective exchange rate.

Trade taxes create distortions in both production and consumption and would generally not be part of an optimal tax package. The origin or destination of commodities should not be a taxation criterion. Optimally, tariffs should be harmonized with domestic taxes, and, for production efficiency, inputs and intermediate goods should not be taxed. Only to the extent that domestic taxes are not available would trade taxes be considered. In such cases, imported inputs and intermediate goods could be considered together with imports of final consumer goods, which would be taxed at differential rates to minimize the welfare loss. On the other hand, the exemption of imported inputs or intermediate goods could provide a relatively high rate of effective protection to local industry even if nominal tariff rates on final goods were low.

Within the standard Heckscher-Ohlin trade model and under perfect competition both domestically and internationally, trade taxes disrupt the free flow of goods among countries and create a welfare loss. When the assumption of perfect competition is relaxed, and monopoly, monopsony, or other market power is introduced at the international level, trade taxes could exploit this market power using the optimal tariff argument. Internationally, however, this would lead to a reduction in world trade and welfare.

Trade taxes are generally viewed in the hierarchy of corrective policies as inefficient instruments for correcting domestic distor-

tions. In this vein, assistance to domestic industry, particularly
infant industry, is generally better served by subsidies to labor or
capital. This is true even though a tariff can also generate revenue
whereas a subsidy incurs an additional burden on the budget. A direct
subsidy is more efficient and creates less distortions. Revenue needs
should be satisfied according to optimal taxation principles in the
least distortive manner.

Given the distortions created by trade taxes, the paper has dis-
cussed their effectiveness as an instrument for correcting macroeconomic
imbalances. Under a fixed exchange rate, a restrictive trade policy--
the imposition of a tariff on imports--can be effective in improving the
external current account and output, whereas under a flexible exchange
rate a restrictive trade policy will have a contractionary effect on
output and cause an appreciation of the exchange rate.

Unlike other fiscal policy measures that affect the external
balance indirectly through the saving-investment mechanism, trade taxes
affect the external balance directly through their effect on relative
prices, and indirectly through changes in government saving.

Recent studies employing intertemporal optimization frameworks have
demonstrated that temporary tariffs whose proceeds are redistributed to
the public under some conditions improve the external current account
for the time being, whereas the impact of permanent tariffs is ambi-
guous. When nontradables are added to the model, possible substitution
between present and future and between tradables and nontradables makes
it impossible to determine a priori how a tariff affects the current
account.

While trade taxes may be an appealing instrument of trade and
fiscal policies, the distortions that they create for resource alloca-
tion and the welfare loss involved should put them at a disadvantage
compared with other fiscal and exchange rate policies. Thus, in the
effective assignment of policy instruments to achieve economic objec-
tives, trade taxes would generally be excluded. Countries with fiscal
and external imbalances should aim at correcting them by applying the
most effective and least distortive policies. If the fiscal imbalance
is to be reduced through higher revenue, this revenue should be raised
in such a way as to minimize distortions, and trade taxes therefore
would normally not be part of such a revenue measure. To correct
external imbalances, the use of the least distortive and most effective
instruments would again exclude trade taxes. Although a temporary
tariff is likely to improve the external current account if it is
unexpected and although it may also raise revenue, trade taxes should
also be resisted even in the short term. Temporary measures tend to
become more permanent in nature.

Another important implication for policy that is not discussed in
this paper but requires further attention is the sequencing of trade
liberalization and fiscal adjustment. Considering the heavy reliance of

developing countries on trade taxes, a trade liberalization to reduce this reliance would first require a tax reform to replace trade taxes with domestic taxes. Failure to do this would cause large fiscal deficits and could make the trade reform unsustainable.

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