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THE SYNDROME OF PROTECTIONISM AND THE PROSPECTS FOR

TRADE LIBERAZATION IN DEVELOPING COUNTRIES

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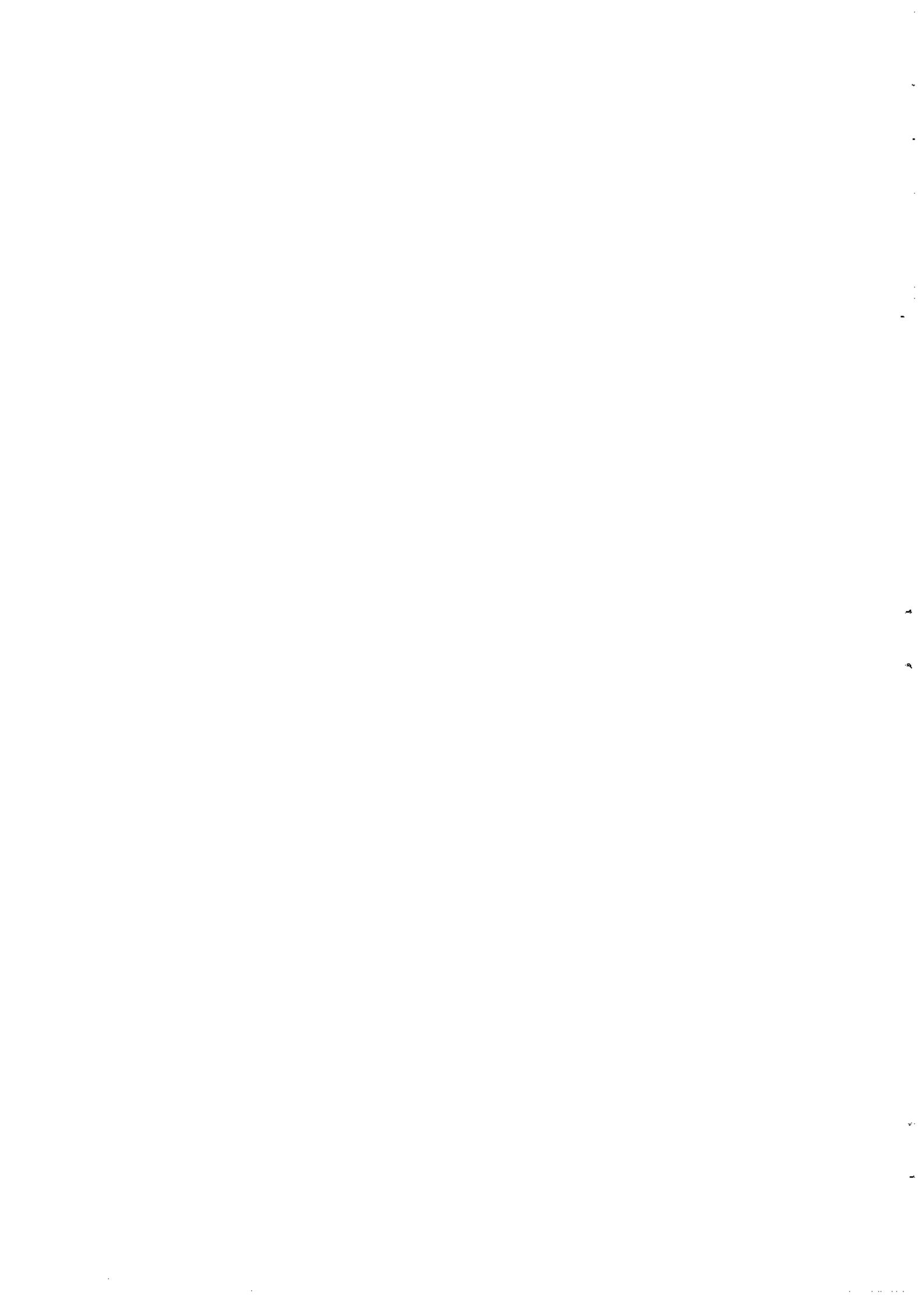
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1. INTRODUCTION

For the negotiations on a Global System of Trade Preferences (GSTP) to be successful, participating countries must have the political motivation and the economic capability to liberalize their trade and industrialization regime. The objective of our study of the syndrome of protectionism is to assess the feasibility of such a multilateral liberalization effort.

Many countries have attempted to liberalize their trade and industrialization regime and to reduce the anti-trade bias in the incentive system. However, due to the economic and political complexity of policy reform, many such attempts have failed. Case histories show that periods of liberalization may be succeeded by a return to protectionist policies. Also, collective efforts to liberalize the trade regime within the framework of a regional free trade area or a customs union have failed frequently, due to the unequal capacity of participating countries to liberalize, and the uneven distribution of "gains" in export markets and "losses" through import competition.

Particularly in developing countries, government and industrial producers are highly dependent for their income on the prevailing system of trade barriers. Such a state of affairs turns a liberalization plan into a sensitive economic and political issue. The more a country's trade and liberalization regime is characterized by protectionism and the more its economic performance is affected by its protectionist policies, the stronger the resistance against liberalization is likely to be.

The syndrome of protectionism is studied by means of principal component analysis. This technique has been applied to explore patterns in the behaviour of variables that are supposed to be affected by trade policy. The analysis is based on 11 such variables. From these 11 variables we extract three principal components. According to their scoring on these principal components, countries will be classified and clustered. The study is organized along the following lines. In section 2 we shall discuss the extent of government intervention in the trade regime in developing countries. In section 3 we shall analyse the syndrome of protectionism by means of principal component analysis. In section 4 we shall study the scoring of

countries on the principal component and subdivide countries accordingly. In section 5 we shall focus in particular on the performance of large countries and of low-income countries, two groups of countries that play a special role in any group-wise liberalization effort among developing countries. Finally we shall present in section 6 the results of additional analysis based on a somewhat reduced sample from which countries with exceptional natural wealth have been excluded.

2. GOVERNMENT INTERVENTION IN THE TRADE REGIME

2.1 Some general observations on protection and the propensity to liberalize

It is the type of government intervention rather than the extent of it which is typical of developing countries. *Laissez-faire*, or government abstinence from intervention, is a rare phenomenon in both the group of developed and developing countries. The distinction between the two groups of countries is in the way the government sector is financed and domestic activities are stimulated. Characteristic for the trade and industrialization regimes of most developing countries is the lack of free trade. The core of the trade-intervention system is the complex of administrative measures and taxes to control imports, while the regulation of exports, at least of manufactures, is less predominant.

Within the group of developing countries there are, nevertheless, wide differences in the way government intervenes in the trade sector. In every country a different mix of administrative and price regulations is in force and there is no way to classify countries in a straightforward fashion according to the degree trade is controlled by government. The system of trade control measures is complex, opaque and difficult to entangle. Consequently, its full impact on the size of the trade sector is hard to estimate. The studies by Bhagwati and Krueger *et al.* of the instruments in use to control trade show the difficulty to determine accurately the nature of the trade regime and its impact on the trade performance.[1]

The distinction into five broad categories of regimes - ranging from regimes characterized by quantitative controls to regimes characterized by price controls - certainly provides insight into the level of sophistication of government intervention, its market orientation, and also into the interests that government, industry and rent-seekers have in the prevailing system of controls. The same studies, however, show the limitations of such a classification scheme to determine the capacity of government to sustain a market-oriented and liberalized trade regime. Countries reiterate the process of transforming their trade regime from an administratively controlled regime towards a regime relying on price signals, and the experience with unilateral, regional, and world-wide liberalization efforts shows that regime transformation is not simply a one-way process.

Governments may have a preference for protectionist measures for many different reasons. Any attempt to liberalize trade in a concerted manner through a multilateral rule system that bypasses the factors underlying the prevailing system of administrative and price controls runs a great risk of failure.

Protection may be based on society's preference for relative autonomy and independence of world markets. Also, the application of trade control measures may be due to the lack of alternative efficient instruments to realize objectives of economic policy with respect to industrial production and employment, or the balance-of-payments position.[2] Also, the selection of this particular type of policy may emanate from the claims of lobby groups that have interests in reducing international competition, raising domestic prices and licensing of imports.[3]

These factors determine if and to what extent liberalization results in a potential increase in welfare for society as a whole. If society has a collective preference for trade suppression, protection *cum* export taxation is first-best policy and there is no rationale for liberalization whatsoever (Bhagwati).[4] In case society has a preference for a specific amount of industry - the case of industry as a public good - direct stimulation of such activity by means of a subsidy may be preferable over protecting it, but protection may be preferable over liberalization. However, in case stimulation through domestic tax collection and subsidy disbursement is less cost efficient than raising taxes on imports, protection may be first-best policy.[5]

In the short term, actual welfare effects of liberalization may be below their potential value due to adjustment costs and dislocation costs of liberalization. Since machinery, production and commercial knowledge, and physical and commercial infrastructure are industry and market specific and not a kind of homogenous putty, adjustment to liberalization entails relocation costs due to the need to create new efficient combinations of factors of production. Given the inadequacy of the general economic atmosphere that underlies the case of general protection of industry in a developing country, the limited capacity to subsidize training and to develop a commercial infrastructure for export industries, these relocation costs may be substantial. This holds particularly for countries where industry is in its infant stage and an export-oriented infrastructure including trans-portation, distribution and market-reconnaissance networks have not yet been developed. Additionally, dislocation costs may occur in case fixed

prices of factors of production such as sticky wages prevent an adequate adjustment to changes in relative product prices due to liberalization.[6]

Resistance against liberalization is not necessarily limited to the groups in society directly affected by it such as industrialists and labourers in the liberalized sector, or rent-seekers. Domestic resistance may be widespread when society has come to be characterized by a conservative welfare function and protection functions as an "insurance policy". Under such circumstances specific claims for prolongation of protection are supported generally for the sake of self-interest.[7]

Not unlikely, liberalization may result in a temporary worsening of the trade balance in countries with a poorly developed export sector. In the context of import liberalization through tariff reduction the factors causing the so-called J-curve effect of a devaluation on the trade position may be just as relevant here. Again, this holds particularly for low-income countries with a high dependence of industry on protection and a poorly developed infrastructure for export industries.

Given the vested interests in the prevailing trade and industrialization regime, and the balance-of-payments and debt-servicing difficulty many countries experience, there is an inclination to limit the liberalization of the trade regime to the extent necessary to acquire technology and vital inputs for export industries only, and to preserve to the maximum the domestic market for domestic industry. Such an approach of fragmented liberalization, or, to phrase it more accurately, *export-related-import liberalization*, has been implemented in several countries.
A dual approach to liberalization reduces the adjustment and dislocation costs of import competition and the political risks for government to conflict with vested interests, while it creates a delimited 'free trade' area for export industries that are stimulated in this way to contribute to the improvement of the trade balance. Under such circumstances negotiations on liberalization in a multilateral framework take the form of each participant seeking for export opportunities while minimizing so-called import concessions.

All this, however, does not invalidate that a strong multilateral rule system based on fairness and substantial concessions is, in itself, a factor supporting liberalization attempts in participating countries. Guaranteed concessions of potential trading partners contribute to the reduction of the potential short-term costs of liberalization and create therefore a

context conducive to liberalization as compared to a unilateral attempt
to liberalization in a protectionist multilateral system.

To realize a fair distribution of costs and gains of liberalization,
concessions must be differentiated according to the capacity of countries
to make concessions and their potential to reap gains from trade through
export expansion. Moreover, to have a substantial impact on trade and welfare,
countries with a large domestic market in particular must participate in
multilateral negotiations and offer sizeable cuts in trade barriers.

2.2 Cross-country analysis of government intervention in the trade regime

The contribution of taxes on international trade and transactions to total
tax revenue is presented in figure 1 for a sample of 68 developed and
developing countries. As indicated earlier, a relatively high dependence
on import duties for the financing óf government spending is typical of
developing countries, whereas in most developed countries the contribution
of duties on international transactions to total government revenue is
negligible.

The role of import duties in government finance and in the stimulation of
domestic activities in countries at different levels of development and
with different opportunities for domestic-market-oriented policies is
studied in a cross-section analysis, the results of which are presented
below. These results show that the lower the level of development of a
country, the higher import duties, the larger the contribution of taxes
on international transactions to total tax revenue, and the more government
is dependent on import duties for its total revenue.

Figure 1 Taxes on international transactions (1980).

Percentage share of taxes on international transactions in total tax revenue (y-axis)

GDP per capita in US $ (x-axis)
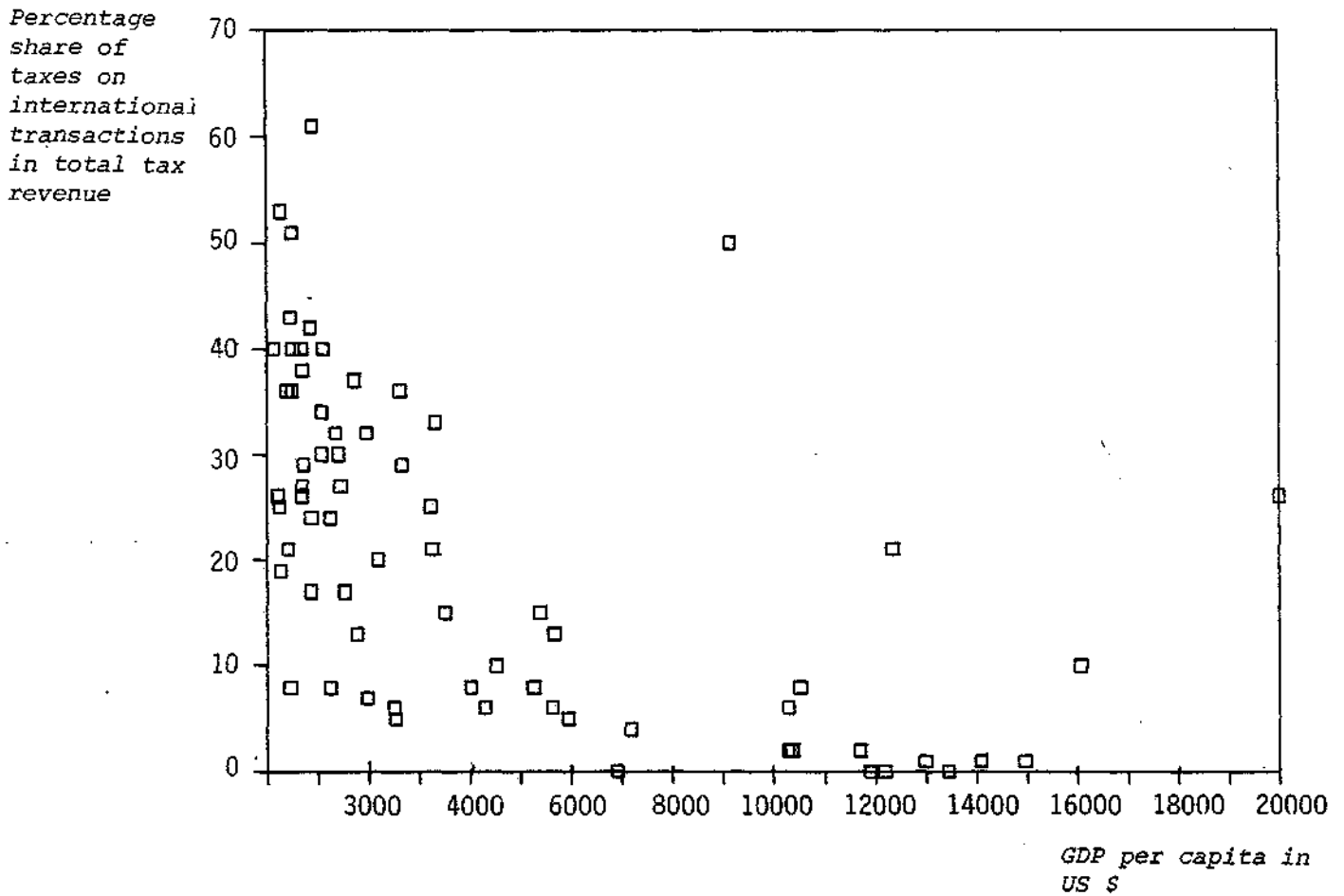
Sources: data on GDP *per capita* taken from UNCTAD, *Handbook of International Trade and Development Statistics, Supplement 1983*, United Nations, New York, 1983, table 6.1, and United Nations, *Yearbook of National Accounts Statistics 1981*, Volume I, New York, 1983. Data on government revenue taken from IMF, *Government Finance Statistics Yearbook*, Volume VIII, Washington DC, 1984. Exchange rates taken from IMF, *International Financial Statistics*, Volume XXXVII, Number 11, Washington DC, 1984.

Table 1. Taxes on international transactions, protection and government revenue, 1980.

Dependent variables	Constant term	GDP/P	P	n	R^2
T^m/M	3.75* (3.32)	-.67* (6.79)	-.15 (1.94)	68	.42
T^t/T	7.95* (6.90)	-.86* (8.56)	-.39* (4.85)	68	.57
T^m/GR	6.66* (6.21)	-.82* (8.75)	-.33* (4.42)	68	.57

Symbols: GDP/P = Gross Domestic Production per capita in US dollars.
P_m = size of population in thousands of inhabitants.
T^m/M = ratio of total import duty revenue (T^m) to the value of total imports (M).
T^t/T = contribution of taxes on international trade and transactions (T^t) to total tax revenue (T).
T^m/GR = contribution of import duty revenue (T^m) to total government revenue (GR).

Notes : equations are in double ln-form. The t-statistics are in parentheses. An asterisk (*) indicates that the variable is statistically significant at a 95 per cent confidence interval.

Sources: data on GDP and population taken from UNCTAD, Handbook of International Trade and Development Statistics, Supplement 1983, United Nations, New York, 1983, table 6.1, and United Nations, Yearbook of National Accounts Statistics 1981, Volume I, New York, 1983. Data on imports taken from UNCTAD, ibidem, table 6.1A. Data on government revenue taken from IMF, Government Finance Statistics Yearbook, Volume VIII, Washington DC, 1984.
Exchange rates taken from IMF, International Financial Statistics, volume XXXVII, Number 11, Washington DC, 1984.

Table 2 shows the impact of taxes on imports on the size of trade flows. In the upper part of the table the trade-policy related variables duties on total imports and imports of manufactures are included in an equation used in studies on pattern in development by Chenery et al.[8] As shown in the upper part of the table tariffs reduce significantly the values of imports and exports. The lower part of the table shows in a different manner the impact of protection on the market orientation of manufacturing. Tariffs on imports stimulate import substitution and create an anti-export bias.

Table 2. Protection and trade.

Dependent variables	Protection and the value of trade per capita (1980)					
	Constant term	GDP/P	P	T/M	n	R^2
Developed and developing countries						
M/P	-4.45 (6.59)	.86 (12.51)	-.34 (7.35)	-.14 (2.76)	59	.89
M_m/P	-4.77 (7.37)	.85 (12.90)	-.36 (8.23)	-.14 (2.74)	59	.89
E/P	-6.22 (6.92)	1.00 (10.90)	-.30 (4.86)	-.15 (2.14)	59	.84
E_m/P	-12.40 (7.59)	1.40 (8.40)	-.17 (1.50)	-.23 (1.83)	59	.74
Developing countries only						
M/P	-4.83 (5.43)	.81 (9.29)	-.32 (5.80)	-.40 (2.91)	49	.86
M_m/P	-4.80 (5.67)	.78 (9.41)	-.36 (6.78)	-.34 (2.65)	49	.87
E/P	-7.01 (5.97)	.95 (8.21)	-.26 (3.53)	-.51 (2.83)	49	.81
E_m/P	-13.00 (5.97)	1.27 (5.93)	-1.12 (0.92)	-.75 (2.24)	49	.65

Dependent variables	Protection, import substitution and the anti-export bias (1977)				
	Constant term	DD_m	T^m/M_m	n	R^2
Developed and developing countries					
M_m/DD_m	1.03 (10.70)	-.07 (8.27)	-.05 (3.53)	54	.57
E_m/O_m	.39 (4.09)	-.01 (1.71)	-.05 (4.10)	54	.25

Symbols: M = value of total imports.

M_m = value of imports of manufactures.

E^m = value of total exports.

E_m = value of exports of manufactures.

DD_m = value of domestic demand for manufactures $DD_m = O_m - E_m + M_m$.

O_m = value of output of manufactures.

all other symbols as of table 1.

Notes : Equations in upper part of table are in double *ln*-form, equations in lower part are in semi *ln*-form. The *t*-statistics are in parentheses. An asterisk (*) indicates that the variable is statistically significant at a 95 per cent confidence interval.

Sources: data on GDP and population as of table 1. Data on imports and exports taken from UNCTAD, *Handbook of International Trade and Development Statistics*, United Nations, New York, several issues. Data on tariff revenue taken from IMF, *Government Finance Statistics*, Washington DC, several issues. Data on values of manufacturing output taken from United Nations, *Yearbook of Industrial Statistics*, 1981 Edition, Volume 1, New York, 1983. Exchange rates taken from IMF, *International Financial Statistics*, Washington DC, several issues.

In the previous quantitative analysis as well as in all analyses to come that are related to the syndrome of protectionism in developing countries, tariffs are used as a proxy for protection. Admittedly, tariffs are only one of many devices government may apply to manage import flows. However, there is no consistent set of data on non-tariff barriers to imports available for a large sample of developing countries. The only relevant data available for nearly all countries are the amounts of government revenue from taxes on international transactions, published by the IMF.

3. THE SYNDROME OF PROTECTIONISM

3.1 Introduction

Some effects of protection on the performance of the economy have been studied in the previous section. The effects focused on follow in a straightforward fashion from the general equilibrium analysis of an economy. In this section we shall extend our analysis of the nature and manifestation of protection by exploring the relationship between protection and a number of selected variables and by exploring the interrelations among these variables.

3.2 Introduction to the selected variables

The principal component analysis is based on a dataset comprising the following 11 selected variables.

VAR 01 the share of import duties in government revenue.

VAR 02 the share of import duties and export taxes in government revenue.

VAR 03 the share of manufactured exports in total exports.

VAR 04 export concentration index.

VAR 05 the share of manufactured value added in gross domestic product.

VAR 06 imports *per capita*.

VAR 07 exports *per capita*.

VAR 08 manufactured exports *per capita*.

VAR 09 manufactured imports *per capita*.

VAR 10 a proxy for the overvaluation of the exchange rate.

VAR 11 balance of trade.

The relationship between these aspects of the economic performance of countries and the trade regime will be discussed briefly below.

Sources of government revenue (VAR 01, 02)

We have already highlighted that governments in developing countries are more dependent on tariff revenue for their income than governments in developed countries are. Taxing imports may be part of a cost-efficient way of tax collecting as collection costs of alternative tax regimes may be considerable higher. A high dependence of governments on import taxes may be a serious obstacle to trade liberalization. In such cases, the development of an alternative tax regime is a prerequisite for trade liberalization.

Governments in resource-rich countries have the additional option of taxing in a cost-efficient way primary exports. Governments in resource-poor countries, however, lack this option. In such countries foreign exchange has to be generated by non-traditional exports such as manufactures. To enhance the competitiveness of the export sector and to compensate for the stimuli given to domestic-market-oriented industries, export industries are stimulated by tariff rebating schemes and tax exemption schemes. The manufactured export sector is, consequently, not a major direct source of government revenue. Export taxes are important as a source of government revenue in resource-rich countries only.

The diversification of the economy (VAR 03, 04, 05)
Diversification and broadening the basis of the economy has often been used as a non-economic argument for protection. In most developing countries the net effective rate of protection for industrial activities exceeds by far the net effective rate of protection for non-industrial activities. In this way the system of protection tends to favour the use of domestic and foreign resources in industrial sectors over their use in other sectors. We expect this to be reflected in an increased share of protected industrial activities in total economic activities. Interestingly, Balassa found that within industry diversification increased significantly as a consequence of protection.[9] His regression analysis shows that, given the level of development and the size of the economy, tariffs tend to reduce the degree of specialization within the manufacturing sector by inducing production in sectors in which the country is not yet internationally competitive. A system of (generalized) protection indicates a lack of international competitiveness of the manufacturing sector. Import barriers, in contrast to subsidies, favour production for the domestic market over export production. The diversified structure of production, induced by the import barriers, is not reflected in the export structure. Countries with a protectionist trade and industrialization regime will be more dependent on non-industrial exports than countries with a more open trade regime. We expect this to be reflected in the export concentration index.

The market orientation of the economy (VAR 06, 07, 08, 09)
No matter for what reason import barriers have been applied, they reduce the share of traded goods in production and consumption. The impact of trade policy on this aspect of the economic performance of the economy has already been discussed in the previous section.

Balance-of-payments position (VAR 10, 11)

An argument used for applying trade barriers is to reduce a trade deficit. Gatt rules allow intervention in the trade regime for this purpose and especially developing countries restrict imports with tariff and non-tariff barriers as part of external adjustment programmes.

The exchange rate in many developing countries tends to be overvalued for several reasons that need not be discussed here. Such a situation stimulates imports and hampers exports. An overvalued exchange rate reduces the net effective rate of protection and may consequently be a strong argument for affected interest groups to lobby for higher barriers to imports.

3.3 Protection and the performance of the economy

Having introduced the variables that are used in the principal component analysis we shall proceed our study of the syndrome of protectionism along the following lines. First, we shall analyse the relationship between tariff protection and every individual original variable. Next, we shall explore the interrelations between the original variables, and reduce these variables to new composite variables. Finally, we shall analyse the relationship between the composite variables and tariff protection.

3.3.1 Correlation between individual variables and tariff protection

The ratio of total import duties to the value of total imports is taken as an indicator for protection. Table 3 shows the simple correlation coefficients of economic performance by tariffs.

The relationship between protection and the sources of government revenue (VAR 01, 02) is positive and strong: government in protectionist countries is relatively dependent on taxes on trade and especially on import duties. The relationship between protection and the contribution of manufactures to total exports (VAR 03) is as expected. However, the absolute value of the correlation coefficient is rather low.

The correlation between the export concentration index (VAR 04) and the level of tariffs is very low and not significantly different from zero. Indeed, the sign of the correlation coefficient is negative, whereas a positive sign would have been expected. It can be shown that the negative sign can be ascribed to the inclusion of a small number of resource-rich

Table 3. Correlation coefficients of indicators of economic performance
          by tariffs.

Variable		r	df	s
VAR 01	import duties in government revenue	.695	45	.001
VAR 02	import duties and export taxes in government revenue	.470	45	.001
VAR 03	manufactured exports in total exports	-.122	45	.415
VAR 04	export concentration index	-.067	45	.657
VAR 05	manufactured value added in GDP	-.118	45	.424
VAR 06	imports *per capita*	-.487	46	.001
VAR 07	exports *per capita*	-.469	45	.001
VAR 08	manufactured exports *per capita*	-.375	45	.009
VAR 09	manufactured imports *per capita*	-.517	46	.001
VAR 10	overvalued exchange rate	.313	45	.032
VAR 11	balance of trade	-.323	45	.027

Notes: r = simple correlation coefficient.
         df = degrees of freedom.
         s = level of significance (two-tailed).
         All data refer to 1980.

Sources: as of tables 1 and 2.

countries (especially OPEC-countries) in our sample. These countries have an
extremely high degree of concentration in exports and, at the same time,
pursue a free trade regime as defined earlier. Exclusion of these countries
results in a positive correlation between VAR 04 and protection, as will
be shown at a later stage of the analysis.

The relationship between tariff protection and the diversification of the
economy (VAR 05) is not straightforward. There is a low and negative
correlation between the share of the manufacturing sector in the economy
and the level of protection which is contrary to what was expected. In
another study of the impact of protection on the performance of the
manufacturing sector, we have shown that there is no significant relationship
between protection and the contribution of the manufacturing sector to GDP
(VAR 05), given the level of income *per capita* and the size of the domestic
market. Also, there is no significant relationship between protection and
the value of manufacturing production *per capita*. This has been found for
samples including and excluding developed countries.[10] However, there is a
significant positive relationship between tariffs and the share of domestic
supply in total demand (see table 2).

The impact of the trade regime on the size of the trade sector is significant: total and manufactured imports and exports (VAR 06 - 09) show a negative correlation with protection.

The relationship between protection and the balance-of-payments position may be complicated. The overvaluation of the exchange rate is defined by $(M-E)/M$ and the trade balance as $(E-M)/(E+M)$, E being exports and M being imports. Conceived in this way, protectionist countries have an overvalued exchange rate and a negative trade balance. In other words, there is a correlation between the level of protection and the lack of equilibrium in the trade balance. One should be careful in interpreting these results. Low income countries, in particular, have high taxes on imports and have large trade deficits at the same time. The partial coefficients of correlation for the tariff rate on VAR 10 and VAR 11 controling for GDP *per capita* are only .009 (s = .952) and -.116 (s = .444) respectively. This points to a spurious relationship between the trade regime and the balance-of-payments situation.

3.3.2 Interrelations between the variables

Up to now we have studied only the pairwise correlation between the original data and the level of tariff protection. We shall proceed by exploring the interrelations between the original variables. By doing so we may depict the relationship between protection and the performance of the economy in a more comprehensive and consistent manner. The coefficients of correlation between the variables are presented in table 4.

The correlation matrix is the start of the subsequent principal component analysis. Principal component analysis is a specific type of factor analysis. In contrast to other types of factor analysis, no assumptions are required with respect to the structure of the interrelations between the variables. Principal component analysis does not add information to the data, it is rather a new way of looking at the data. The aim is data reduction by transforming the observed variables into a new set of variables which will be pairwise uncorrelated (orthogonal). The first of these variables has the maximum possible variance, the second the maximum possible variance among those uncorrelated with the first, and so on. These new uncorrelated (= orthogonal) variables can subsequently be used for further analysis.

Table 4. Correlations between variables on the economic performance.

	VAR 01	VAR 02	VAR 03	VAR 04	VAR 05	VAR 06	VAR 07	VAR 08	VAR 09	VAR 10	VAR 11
VAR 01	1	.78	.07	-.10	-.13	-.35	-.44	-.24	-.38	.51	-.48
VAR 02		1	-.02	-.12	-.04	-.42	-.48	-.30	-.46	.44	-.35
VAR 03			1	-.54	+.54	-.11	-.07	.37	.18	.31	-.31
VAR 04				1	-.59	.19	.32	-.07	.18	-.48	.41
VAR 05					1	.17	-.07	.29	.12	.26	-.11
VAR 06						1	.85	.72	.94	-.23	.22
VAR 07							1	.61	.89	-.55	.46
VAR 08								1	.86	-.19	.15
VAR 09									1	-.34	.28
VAR 10										1	-.94
VAR 11											1

There are as many principal components as there are original variables. However, only some of the principal components will contribute a substantial proportion to the variance in the original data. It can be shown that the contribution of a principal component to the total variation in the data is proportionate to its corresponding eigenvalue. This is illustrated in table 5. The first factor accounts for 4.632/11 = 42.1 *per cent* of the total variance. The second and third factors account for 24.9 and 12.7 *per cent* respectively. These three factors alone account for 79.9 *per cent* of the total variance. All other factors have eigenvalues below 1 and are excluded from further analysis.

Table 5. Eigenvalue and share in variance of 11 factors.

Factor	Eigenvalue	Share in variance (%)	Cumulative share (%)
1	4.632	42.1	42.1
2	2.742	24.9	67.0
3	1.394	12.7	79.7
4	.817	7.4	87.1
5	.495	4.5	91.6
6	.360	3.3	94.9
7	.264	2.4	97.3
8	.184	1.7	99.0
9	.084	.8	99.8
10	.018	.2	99.9
11	.008	.1	100.0

Table 6. Factor matrix for three factors.

	Factor 1	Factor 2	Factor 3	Communality
VAR 01	-.660	.064	.602	.803
VAR 02	-.680	-.008	.456	.670
VAR 03	-.060	.798	-.154	.665
VAR 04	.366	-.696	.376	.760
VAR 05	-.003	.737	-.412	.713
VAR 06	.814	.353	.339	.902
VAR 07	.907	.053	.255	.890
VAR 08	.668	.554	.228	.805
VAR 09	.874	.361	.313	.992
VAR 10	-.700	.524	.248	.826
VAR 11	.641	-.485	-.312	.744

In order to attach a concrete meaning to the composite factors, it is assumed that these factors represent a number of latent variables, that account for most of the correlation between the observed variables. Therefore, we shall inspect the correlation coefficients between the observed variables and the composite factors. These correlation coefficients or factor loadings are represented in table 6. The table also shows the communality of the variables, *i.e.* the share of the variance in the original variables that can be attributed to the principal components. The communality equals the sum of the squared factor loadings. Thus, the variance of VAR 01 that is accounted for by the three selected factor is: $(-.660)^2 + (.064)^2 + (.602)^2 = .803$.

The relationship between the original variables and the three composite variables does not follow straightforward from the factor matrix. For instance, there is not much difference in the loading of VAR 06 on Factor 02 or Factor 03. This hampers an economically meaningful interpretation of the composite factors. The interpretation of the factors can be facilitated by factor rotation. By rotating the factor axes the relative positions of the variables with respect to each other remain unchanged. Only the positions of the variables in the factor space with respect to the factor axes are changed. The aim of factor rotation is to achieve that each variable loads high (close to 1 or -1) on one of the composite factors and low on all other composite factors. This is illustrated for the case of two variables and two factors in figure 2. The rotation technique applied is VARIMAX rotation which is an orthogonal rotation technique.

Figure 2. The loading pattern before and after orthogonal factor rotation.

factor 2
(unrotated)

factor 2
(rotated)

VAR_i

factor 3
(unrotated)

VAR_j
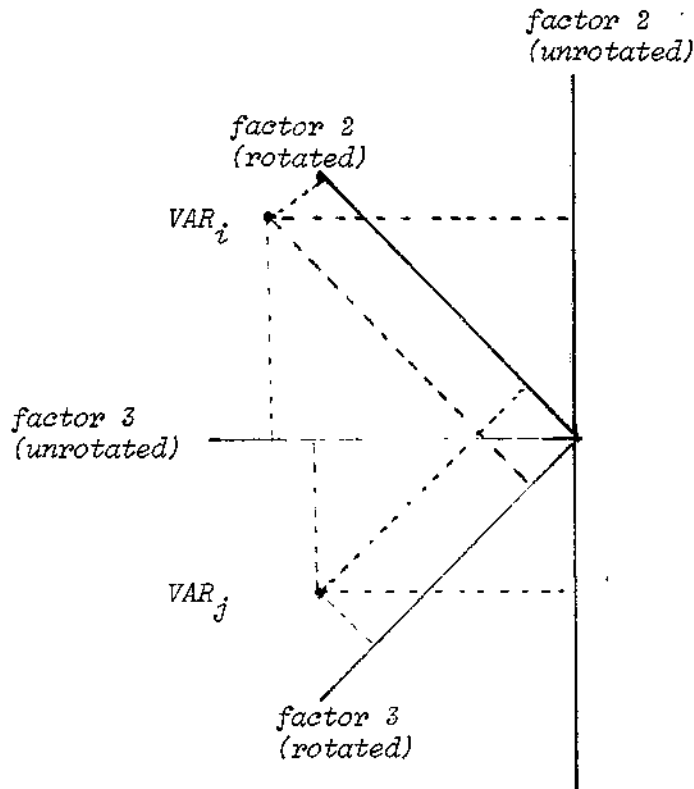
factor 3
(rotated)

After rotation the factor matrix shows a distinct pattern of loadings.
After rearranging the order of the variables according to the loading
pattern we find three groups of variables (see table 7).

VAR 09, 06, 08 and 07 load highest on PC1 and are all related to the trade
orientation of the economy. Hence we name PC2 trade orientation.

VAR 01, 10, 02 and 11 load highest on PC2. While VAR 01 and 02 are related
to government revenues from trade, VAR 10 and 11 are related to the overall
balance in the economy's revenues from trade. In a later stage of the
analysis it will be shown that these are two separate dimensions, loading
on two distinguishable principal components. We label PC2 revenues from
trade.

VAR 04, 05 and 03 load highest on PC3 and are all related to diversification
in production and exports. Hence its name: diversification.

Table 7. VARIMAX rotated factor matrix.

	PC1	PC2	PC3
VAR 09 manufactured imports *per capita*	.97	-.22	.02
VAR 06 imports *per capita*	.93	-.17	.01
VAR 08 manufactured exports *per capita*	.85	-.10	.26
VAR 07 exports *per capita*	.84	-.37	-.22
VAR 01 import duties in government revenue	-.17	.87	-.12
VAR 10 overvalued exchange rate	-.19	.77	.45
VAR 02 import duties and export taxes in government revenue	-.29	.76	-.11
VAR 11 balance of trade	.13	-.76	-.38
VAR 04 export concentration index	.18	-.15	-.84
VAR 05 manufactured value added in GDP	.10	-.10	.83
VAR 03 manufactured exports in total exports	.21	.15	.77

3.3.3 Relationship between composite variables and protection

The last step in the analysis is to study the relationship between the three extracted principal components and the rate of protection. The correlation coefficients of the principal components by tariffs are presented in table 8.

Table 8(1) may be envisaged as an aggregated presentation of table 3 in which the correlation coefficients of the 11 original variables on tariffs are presented. It follows that there is a straightforward relationship between protection and trade orientation and between protection and revenue from trade. However, there is no such clear relationship between protection and diversification, as discussed earlier. The countries included in the sample differ widely according to their structural characteristics such as level of development and natural resource endowment. Such structural characteristics may be correlated to the variables on economic performance of countries and on government behaviour. For instance, both the market orientation of the manufacturing sector and the tariff rates may be correlated to the overall level of development of the economy.

In table 8(2) we analyse the correlation between the three principal components and the tariff rate controlling for the level of development. The results confirm earlier findings but there is a change in the level of significance of the correlations.

Table 8. Correlation coefficients of principal components by tariffs.

(1)	Correlation coefficients of principal components by tariffs			
		r	df	s
PC1	trade orientation	-.391	44	.007
PC2	revenues from trade	.484	44	.001
PC3	diversification	-.117	44	.440
(2)	Correlation coefficients of principal components by tariffs controlling for GDP/P			
		r	df	s
PC1	trade orientation	-.181	43	.235
PC2	revenues from trade	.351	43	.018
PC3	diversification	-.209	43	.167
(3)	Correlation coefficients of principal components by tariffs controlling for natural resource endowment			
		r	df	s
PC1	trade orientation	-.374	43	.011
PC2	revenues from trade	.444	43	.002
PC3	diversification	-.348	43	.019

In table 8(3) correlations between composite indicators for the economic performance and tariffs are presented, controlling for the natural resource endowment. There is, indeed, correlation between natural resource endowment and diversification. In our sample, this correlation is due to a very large extent to a group of natural resource-rich countries specialised in primary exports. Nearly all of these countries are OPEC countries with a high concentration in exports and low tariff rates on imports. All imports can be financed by primary exports and consequently there is no need for additional foreign exchange revenue from manufactured exports. Tariffs on imports are not required for government finance purposes or the protection of import-substituting industries.

As will be shown in the next section these countries differ significantly from all other countries in our sample according to their economic performance as envisaged here. For that reason, this group of countries will be excluded from the sample in the subsequent analysis of the syndrome of protection, to be presented in section 6.

4. ECONOMIC PERFORMANCE AND THE PROSPECTS FOR LIBERALIZATION

4.1 Introduction

Next step in our study of the syndrome of protectionism is to investigate how countries score on the principal components that have been extracted from the 11 original variables, and to group countries according to their scoring. As indicated already in the introduction to this study, the assumption here is that there is a straightforward relationship between the actual economic performance of countries, as indicated by the factor score matrix in table 9, and their capacity or propensity to liberalize the trade regime. The more a country's economic performance is characterized by protection, the stronger resistance to liberalization will be.

4.2 Factor scores of countries

The scores of countries on principal component 1, the most general component that is extracted from variables on the trade orientation of the economy, show that small (island) economies and some OPEC countries are extremely dependent on foreign trade. The OPEC countries have an open trade regime and a small public sector according to the measures applied here, while the small economies in the sample generally pursue a moderate trade policy. For these countries it is true that they are heavily dependent on foreign markets and on an open world trade system.

To classify countries in terms of their propensity to liberalize, we shall first distinguish countries that have a high dependence on tariffs for government revenue purposes and balance-of-trade assistance and, at the same time, have a low degree of diversification. Countries that are dependent on tariffs as a source of government revenue (VAR 01, 02) and that have an unfavourable balance-of-payments position (VAR 10, 11) score high on principal component 2. We expect such countries to be reluctant to reduce tariffs. Countries with a low degree of diversification in production and export score low on principal component 3. It seems likely that in such countries there is no widespread lobby of exporting industries that favours liberalization. Such countries may not be in a strong position to gain from liberalization in partner countries.

Table 9. Factor score matrix.

	PC1	PC2	PC3
Argentina	-.649	-1.126	1.311
Bahrain	3.103	-.480	-.993
Barbados	.609	.926	.489
Brazil	-.804	-1.500	1.466
Burundi	-.063	1.282	-1.394
Congo	-.589	-1.719	-1.611
Costa Rica	-.280	-.327	.675
Cyprus	.462	.490	1.109
Dominican Republic	-.215	.868	-.322
El Salvador	-.397	.089	.255
Fiji	.141	.975.	-1.271
Guatemala	-.504	-.286	.233
Honduras	-.314	.482	-.334
Indonesia	-.954	-2.166	-.557
Jordan	.122	1.351	.229
Kenya	-.397	.210	-.108
Korea Republic	-.216	-.625	2.154
Kuwait	2.598	-2.204	-1.733
Liberia	-.240	.548	-1.316
Malawi	-.438	.047	-.354
Malaysia	-.261	-.387	.270
Malta	1.386	.965	1.845
Mexico	-.496	-.491	.084
Morocco	-.389	.142	.391
Nepal	-.296	.687	.107
Nicaragua	-.315	.302	.476
Niger	-.100	1.044	-1.764
Oman	.205	-1.756	-1.845
Pakistan	-.154	1.133	.455
Panama	-.260	.094	.229
Paraguay	-.454	.024	-.072
Peru	-.670	-.762	.655
Philippines	-.459	.101	.743
Senegal	-.130	1.427	-.167
Singapore	4.399	.004	1.720

(Table 9 continued)

	PC1	PC2	PC3
Sri Lanka	-.284	.864	-.055
Sudan	-.049	1.813	-1.126
Thailand	-.445	.087	.625
Togo	-.233	.736	-.766
Trinidad	.358	-1.164	-.641
Tunisia	-.032	.578	-.144
Turkey	-.650	-.769	1.275
U.R. of Cameroon	-.238	.932	-.986
U.R. of Tanzania	-.547	-.139	.188
Uruguay	-.354	-.473	1.226
Venezuela	-.510	-1.828	-.651

Note: Factor scores are calculated for each case according to
$fi = fsc_{1i} \ z_1 + fsc_{2i} \ z_2 + fsc_{11i} \ z_{11}$ where fsc_{ji} is the factor-score coefficient for variable j and factor i and z_j is the case's standardized value on variable j.

The positions of countries according to their scores on the principal components are plotted in figure 3. On the Y-axes are the scores on principal component 2, on the X-axes the scores on principal component 3. Countries that score high on principal component 2 and low on principal component 3 are situated in quadrant 2.

The following countries are in quadrant 2:

Burundi   Niger
Dominican Republic   Paraguay
Fiji   Senegal
Honduras   Sri Lanka
Kenya   Sudan
Liberia   Togo
Malawi   Tunisia
                           U.R. of Cameroon.

Figure 3.   Scores on PC2 and PC3.
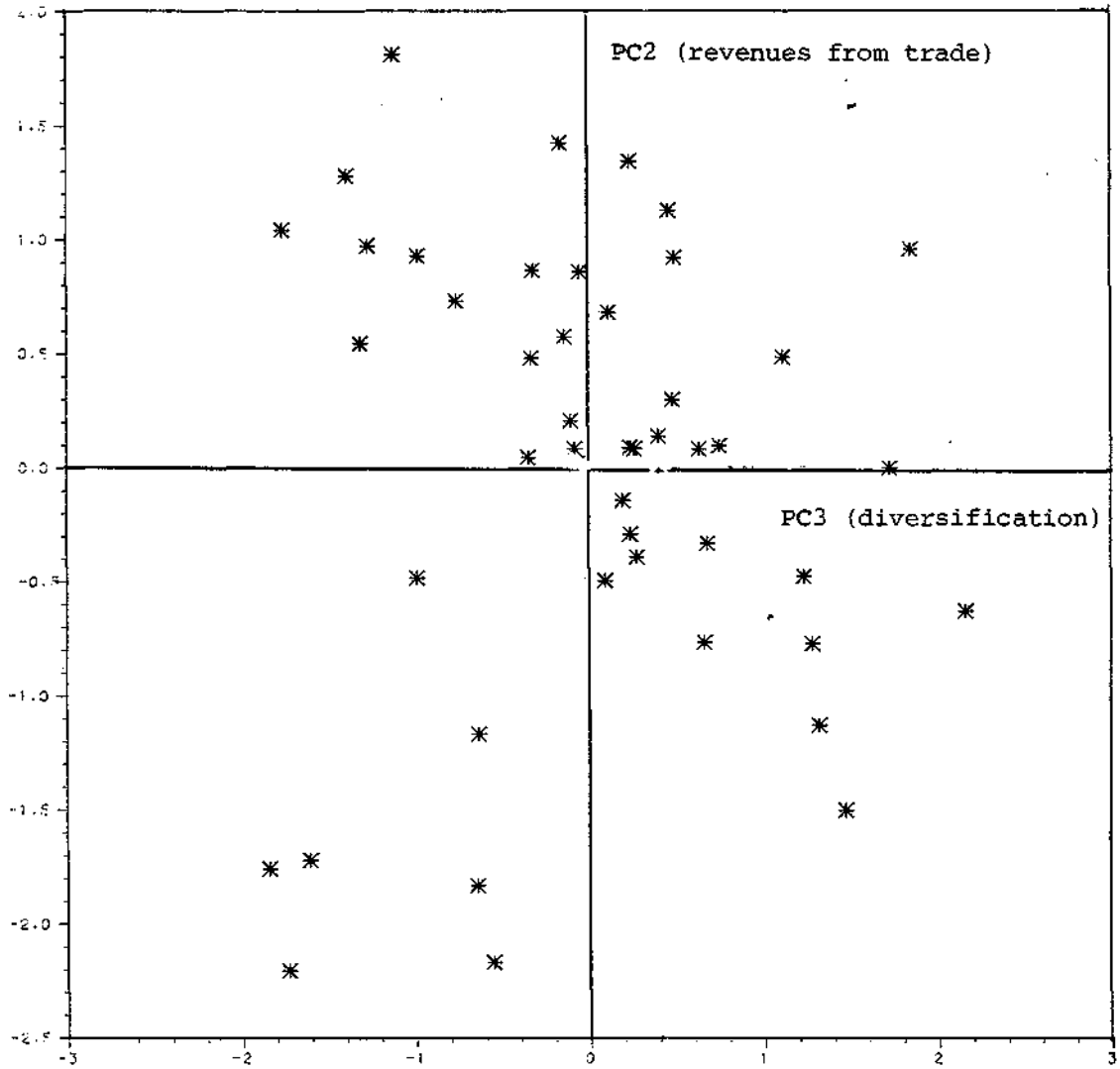
Apart from the Dominican Republic, Fiji, Paraguay and Tunisia, the countries
in this sample are low-income countries, *i.e.* countries with a level of GDP
per capita below US $ 1000.
Burundi, Malawi, Niger, Sudan and Togo even belong to the group of least
developed countries. It is striking that the countries in this group except
Fiji not only score high on principal component 2 and low on principal
component 3, but also score low on principal component 1. This combination
of factor scores indicates a low propensity to liberalize.

Countries that score low on principal component 2 and high on principal
component 3 are expected to experience less difficulty with liberalization,
as they appear to be better equipped for such a change in economic policy.
The following countries are in quadrant 4:

Argentina	Malaysia
Brazil	Mexico
Costa Rica	Peru
Guatemala	Turkey
Korea Republic	U.R. of Tanzania
	Uruguay

Except for Tanzania all countries in this group are at levels of GDP *per
capita* above US $ 1000. Additionally, nearly all countries in this group
have a relatively large domestic market: the GDP of these countries exceeds
10 billion US dollar. Only Costa Rica and Tanzania have a small domestic
market: the GDP of these countries is less than 5 billion US dollar.

Next we may distinguish countries that score low on principal components
2 and 3. Such countries are not dependent on tariffs for government revenue
purposes and do not have an unfavourable balance-of-payments situation
but their economy, and especially their export sector, is not well diversified.
We expect that these countries are relatively well equipped to liberalize
but it is not quite clear how liberalization in partner countries will
affect their highly specialized export sector.
The following countries are in quadrant 3:

Bahrain	Kuwait
Congo	Oman
Indonesia	Trinidad
	Venezuela

This group includes major oil-exporting countries (OPEC members) some of which have a free-trade regime and all of which have an export sector which is dominated by oil and oil products. Congo has also an extremely concentrated export sector. Trinidad shows an extremely low contribution of manufactures to total exports.

Finally we have a group of countries in quadrant 1. These countries score high on both principal components and are therefore not easy to be classified.

Barbados	Nepal
Cyprus	Nicaragua
El Salvador	Pakistan
Jordan	Panama
Malta	Philippines
Morocco	Singapore
	Thailand

By analyzing more closely the relative positions of the countries in this group, we may try to distinguish countries that score high on principal component 3 and low on 2 from countries that score low on principal component 3 and high on 2. While the first group shows more resemblence to countries in quadrant 4, the latter resembles more closely the countries in quadrant 2. It then follows that Singapore does have a favourable export structure which is a very substantial part of the economy, as indicated by principal component 1.

Cyprus and Malta also show scores on principal components 2 and 3 as well as 1 that indicate a well developed capacity to liberalize. This does not hold so much for countries such as El Salvador, Panama, the Philippines and Thailand.

Along the other axes we may find countries like Jordan and Pakistan. These countries score very high on principal component 2 and may not be so much inclined to liberalize.

5. THE PERFORMANCE OF LARGE COUNTRIES AND LOW-INCOME COUNTRIES

Many attempts have been made to liberalize the trade and industrialization regime, but in many a country such attempts have failed. Liberalization attempts have been made by individual countries and also in a co-ordinated way by groups of countries through the establishment of preferential trading areas. An ambitious attempt to co-ordinate liberalization efforts in developing countries has been undertaken under the auspices of GATT, supported and co-serviced by UNCTAD, in the early 1970s. A new effort has been made by UNCTAD since 1976 to implement a Global System of Trade Preferences among developing countries. Wide differences among countries in economic capabilities, pursued economic policies and negotiating strength complicate the negotiations that have been inconsequential up to now.

Ultimately, the positions that countries are likely to take in the negotiation process are determined by the expectations about their net gains from liberalization. The more a country has a competitive and diversified economy, the more it is likely to gain from concessions of partner countries. Countries with balance-of-payments problems or a heavy dependence on taxes on trade to finance the public sector and protect industry are probably reluctant to liberalize.

The size of the domestic market and the competitiveness of domestic industry are major sources of power when it comes to negotiating reductions in trade barriers. Countries with an import-capacity-based bargaining power and competitiveness-based bargaining power may dominate negotiations by compelling concessions via reciprocity.
In the real negotiations, therefore, concessions are spelled out by an inner group of countries with strong bargaining positions. As Cline puts it "(s)ome argue that in economic terms MFN has in practice been conditional because the products submitted for tariff liberalization have systematically been selected such that they came primarily from countries that offered tariff concessions in return, and tariff cuts might have been more limited had this not been the case".[11]

Countries with a small domestic market and an industry that is not sufficiently competitive are in a weak bargaining position. They have no substantial concessions to offer to trading partners and are not able to take advantage of the opening up of foreign markets. Therefore, equal rules for unequal partners in the negotiations may be an insufficient offer to be

acceptable for the countries least equipped for liberalization. Additional preferential treatment, exceptions to the reciprocity rule, and financial support to assist restructuring and to facilitate liberalization may be required to make such countries participate in the trade liberalization rounds. Such measures, it is suggested, should be part of the proposals for a GSTP.[12] In brief, for the GSTP to be substantial, countries with a large domestic market and a potentially large demand for imports should participate. For the GSTP to be general, the rule system should include specific measures that take into account the difficulties for the countries that are the least equipped to liberalize.

To investigate the capacity to liberalize of the two groups of countries referred to above, we have applied discriminant analysis.

Table 10 presents the results of the discriminant analysis on small and large countries and table 11 presents the results of the analysis on low- and middle-income countries. The tables show the group means, group standard deviations, the discriminant function coefficients and the rank of entrance of the discriminating variables used in the discriminant functions, and finally the classification results.

From table 10 it follows that the group of large countries as compared to the group of small countries scores low on PC1, low on PC2 and high on PC3. If the group scores on PC2 and PC3 were to be plotted in figure 3, the scores of large countries would be in quadrant 4 and the scores of small countries in quadrant 2. As indicated by the discriminant function coefficients, large countries, as compared to small countries, are distinct in having a more favourable structure of government revenue and a more favourable balance-of-payments position (PC2), and a more diversified structure of production and exports (PC3).

The classification results show the capability of the discriminant function to discriminate correctly, which follows from a comparison of the actual group memberships with the predicted group membership. The statistical chance for correct classification in a two-way division, of course, is 50 per cent. The classification results show that the discriminant function on small and large countries classifies 71.74 per cent of all cases correctly.

Table 10. Discriminant analysis, small and large countries.

Group means:	PC1	PC2	PC3
Small countries	.040	.440	-.204
Large countries	-.037	-.403	.187

Group standard deviations:			
Smallcountries	.816	.725	.918
Large countries	1.160	1.059	1.054

		PC2	PC3
Discriminant function coefficients:		.929	-.468
Rank of entrance:		1	2

Classification results:

Actual group	No. of cases	Predicted group membership	
		Small countries	Large countries
Small countries	22	15	7
Large countries	24	6	18
Percentage of cases correctly classified:			71.74

The results presented in table 11 show that low-income countries have an
unfavourable economic performance as compared to middle income countries:
they score low on PC1, high on PC2 and low on PC3. Scores of low-income
countries on PC2 and PC3 put them in quadrant 2 in figure 4,
while middle-income countries were to be put in quadrant 4. As follows
from the discriminant function coefficients, low-income countries have a
less favourable structure of government revenue and a less favourable
balance-of-payments position (PC2), a less diversified economic structure
(PC3) and a less marked trade orientation (PC1). The classification results
show that the discriminant function is capable of classifying 78.26 per cent
of the countries correctly.

Table 11. Discriminant analysis, low- and middle-income countries.

	PC1	PC2	PC3
Group means:			
Low-income countries	-.314	.421	-.321
Middle-income countries	.288	-.386	.294
Group standard deviations:			
Low-income countries	.225	.933	.763
Middle-income countries	1.315	.915	1.111
Discriminant function coefficients:	.605	-.777	.618
Rank of entrance:	3	1	2

Classification results:

Actual group	No. of cases	Predicted group membership	
		Low income	Middle income
Low-income countries	22	18	4
Middle-income countries	24	6	18
Percentage of cases correctly classified			78.26

6. CONTROLLING FOR EXCEPTIONAL NATURAL WEALTH

6.1 Introduction

The sample of 46 countries on which the previous analysis has been based includes a group of countries with huge natural resources. Such countries are in a position to finance their entire imports by exporting unprocessed natural products. Thus, these countries have a trade surplus and a very low export diversification. Also, they are often outward oriented and do not need import duties to finance government expenditure. Our analysis of protection and economic performance may have been biased by these countries with an exceptional natural wealth. In this section we shall exclude from the analysis countries in which the value of primary exports exceeds the value of total imports.
The following countries have been excluded:

Bahrain	Oman
Congo	Peru
Indonesia	Trinidad
Kuwait	Venezuela
Liberia.	

These are mainly OPEC countries that have an export sector dominated by oil. Liberia, Congo and Trinidad also have an exceptionally high product concentration in the export sector. In Peru, however, the sector is somewhat more diversified. It should be noted that most of these countries do not need import duties to finance government expenditure.

Factor analysis and discriminant analysis have been applied on the reduced sample excluding these resource-rich countries. Rather than presenting all results, we shall highlight only the major findings and compare them with the findings of the previous analyses.

6.2 Correlation between individual variables and protection

The correlation coefficients indicate a strong positive relationship between tariffs and the share of taxes on trade in government finance (VAR 01, 02), a consistent negative relation between tariffs and diversification in production and exports (VAR 03, 04, 05), a strong and negative relation between tariffs and the foreign trade orientation of the economy (VAR 06, 07, 08, 09), a positive relation between tariffs and the overvaluation of

the exchange rate (VAR 10) and a negative relation between tariffs and the trade balance position (VAR 11). Thus, by excluding from the sample countries with exceptional national wealth, the relationship between protection and economic performance has become clearer, and confirms our prior expectations.

6.3 Interrelations between the variables

The correlation matrix is presented in table 12. There are some differences between this matrix and the correlation matrix in table 4 but the underlying causes of these differences are hard to trace.

Table 12. Correlation between variables on the economic performance.

	VAR01	VAR02	VAR03	VAR04	VAR05	VAR06	VAR07	VAR08	VAR09	VAR10	VAR11
VAR 01	1	.66	-.12	.38	-.44	-.22	-.25	-.21	-.21	.20	-.20
VAR 02		1	-.28	.44	-.39	-.32	-.30	-.30	-.31	-.17	.15
VAR 03			1	-.47	.56	.39	.30	.43	.42	.05	-.04
VAR 04				1	-.50	-.14	-.15	-.17	-.14	.09	-.10
VAR 05					1	.41	.42	.46	.41	-.34	.36
VAR 06						1	.98	.98	.99	-.08	.06
VAR 07							1	.98	.97	-.20	.19
VAR 08								1	.98	-.13	.13
VAR 09									1	-.06	.05
VAR 10										1	-.98
VAR 11											1

By applying principal component analysis the interrelatedness among the original variables is revealed. Four factor can be extracted that have corresponding eigenvalues larger than 1 as shown in table 13.

Table 13. Eigenvalue and share in variance of 11 factors.

Factor	Eigenvalue	Share in variance (%)	Cumulative share (%)
Factor 1	4.886	44.4	44.4
Factor 2	2.147	19.5	63.9
Factor 3	1.894	17.2	81.2
Factor 4	1.043	9.5	90.6
Factor 5	.455	4.1	94.8
Factor 6	.288	2.6	97.4
Factor 7	.242	2.2	99.6
Factor 8	.026	.2	99.8
Factor 9	.013	.1	99.9
Factor 10	.006	.1	100.0
Factor 11	.001	.0	100.0

These four factors account for 90.6 per cent of the total variance in our
data set. As a consequence, the communality of the variables is generally
higher in this analysis than in our previous analysis, in which the common
share in the variance accounted for 79.7 per cent. After factor rotation
we find a distinct pattern of loadings and four rather than three groups
of variables can now be distinguished according to their loading pattern.
Table 14 shows the varimax rotated factor matrix after rearranging the
order of the variables according to the loading pattern.
VAR 06, 08, 08 and 09 load highest on PC1 and are all related to the trade
orientation of the economy.
VAR 10 and 11 load highest on PC2, the balance-of-payments position.
VAR 03, 04 and 05 load highest on PC3, diversification of the economy.
VAR 01 and 02 load highest on PC4, the sources of government revenue.

Table 14. Varimax rotated factor matrix.

		PC1	PC2	PC3	PC4
VAR 06	imports *per capita*	.98	.01	.13	-.11
VAR 07	manufactured imports *per capita*	.98	-.01	.16	-.09
VAR 08	manufactured exports *per capita*	.97	.07	.19	-.09
VAR 09	exports *per capita*	.97	.14	.08	-.14
VAR 10	overvalued exchange rate	-.06	-.99	-.03	.01
VAR 11	balance of trade	.05	.99	.05	-.01
VAR 03	manufactured exports in total exports	.30	-.12	.86	.06
VAR 04	export concentration index	.03	-.06	-.75	.38
VAR 05	manufactured value added in GDP	.30	.34	.68	-.30
VAR 01	import duties in government revenue	-.10	-.20	-.11	.90
VAR 02	import duties and export taxes in government revenue	-.21	.23	-.25	.84

6.4 Relationship between composite variables and protection

Table 15 shows the relationship between the extracted principal components and protection. As shown, protectionist countries are generally dependent on taxes on international trade to finance the public sector; they have a reduced trade orientation and, to a lesser extent, they have a high concentration in production and export. Finally, they have an unfavourable balance-of-payments position.

Table 15. Correlation coefficients of principal components by tariffs.

(1)   *Correlation coefficients of principal components by tariffs*

		r	df	s
PC1	trade orientation	-.279	35	.094
PC2	balance-of-payments	-.067	35	.697
PC3	diversification	-.142	35	.402
PC4	government revenue	.844	35	.001

Correlation coefficients of principal components by tariffs controlling for GDP/P

		r	df	s
PC1	trade orientation	-.184	34	.282
PC2	balance-of-payments	-.043	34	.802
PC3	diversification	-.049	34	.776
PC4	government revenue	.835	34	.001

6.5 Factor score matrix

The factor score matrix is presented in table 16. As compared with the factor score matrix given in table 9, the former factor PC2 - representing both government revenue from international trade and the balance-of-payments position - is split into two separate factors PC2 (balance-of-payments position) and PC4 (government revenue). It is noteworthy that PC2 and PC4 have quite frequently different signs, indicating for instance a deficit on the balance-of-payments (PC2 < 0) and a high dependence on duties to finance government expenditure (PC4 > 0). Such positions could not be disentangled in the previous analysis, in which both effects were combined, resulting in a low positive or negative factor score.

Table 16. Factor score matrix.

	PC1	PC2	PC3	PC4
Argentina	-.494	.900	1.047	-.130
Barbados	.603	-1.775	.209	-.201
Brazil	-.692	.823	.889	-1.540
Burundi	.104	-.960	-2.018	.576
Costa Rica	-.178	.158	.189	-1.125
Cyprus	.440	-.900	1.094	-.129
Dominican Republic	-.158	-.288	-.440	.466
El Salvador	-.415	.441	-.038	-1.291
Fiji	.417	-.428	-2.116	-.096
Guatemala	-.428	1.408	-.017	-.795
Honduras	-.256	.897	-.497	-.432
Jordan	.025	-2.273	.173	.281
Kenya	-.315	-.408	-.572	-.505
Korea Republic	-.283	.711	2.418	-.011
Malawi	-.281	.136	-.944	-.398
Malaysia	-.049	2.437	.090	-.342
Malta	1.348	-.687	2.117	1.151
Mexico	-.268	.969	-.713	-1.061
Morocco	-.333	.058	.371	.606
Nepal	-.336	-.836	.180	.692
Nicaragua	-.238	-.348	.149	-.286
Niger	.142	1.690	-1.969	1.436
Pakistan	-.297	-.410	1.197	1.877
Panama	-.184	-1.930	-.711	-1.750
Paraguay	-.300	.347	-.422	.207
Philippines	-.435	.653	.881	.368
Senegal	-.188	-.365	.372	1.792
Singapore	5.488	.677	.011	-.871
Sri Lanka	-.329	-.333	-.170	-.508
Sudan	-.043	-.715	-.760	2.264
Thailand	-.444	.409	.654	-.118
Togo	-.145	.070	-1.005	.255
Tunisia	.057	.225	-.148	.990
Turkey	-.605	-1.048	.598	-1.526
U.R. of Cameroon	-.149	1.244	-.796	1.235
Tanzania	-.509	-.906	-.473	-1.430
Uruguay	-.268	.359	1.170	.349

Table 17. Discriminant analysis, small and large countries.

	PC1	PC2	PC3	PC4
Group means:				
Small countries	-.015	-.421	-.309	-.066
Large countries	.016	.445	.327	.070
Group standard deviations:				
Small countries	.450	.971	1.046	.952
Large countries	1.379	.844	.860	1.072
Discriminant function coefficients:		.863	.668	
Rank of entrance:		1	2	

Classification results:

Actual group	No. of cases	Predicted group membership	
		small countries	large countries
Small countries	19	13	6
Large countries	18	4	14
Percentage of cases correctly classified:			72.97

Now that four common factors have been extracted, it is difficult to visualize in scatterplots the positions of countries according to their capacity to liberalize. Therefore we shall proceed directly with the formal discriminant analysis.

The results of the discriminant analysis on small and large countries, presented in table 17, indicate that large countries have a more favourable balance-of-payments position (PC2) and a more diversified economy (PC3) which are positive conditions for a liberalization effort.

Discrimination analysis on low- and middle-income countries, presented in table 18, shows that low-income countries are dependent on taxes on trade for government revenue (PC4), are less diversified (PC3) and are less trade oriented (PC1). These countries are in a more difficult position to implement liberalization. This may warrant to offer them a preferential position in any rule system to be established.

Table 18. Discriminant analysis, low- and middle-income countries.

	PC1	PC2	PC3	PC4
Group means:				
Low-income countries	-.234	-.103	-.277	.338
Middle-income countries	.247	.109	.292	-.356
Group standard deviations:				
Low-income countries	.184	.902	.864	1.038
Middle-income countries	1.399	1.110	1.073	.845
Discriminant function coefficients:	.535		.625	-.745
Rank of entrance:	3		2	1

Classification results:

Actual group	No. of cases	Predicted group membership	
		Low income	Middle income
Low-income countries	19	13	6
Middle-income countries	18	4	14
Percentage of cases correctly classified			72.97

Finally, a general observation is in place regarding the adequacy of our approach of country's capacity to liberalize. This capacity has been inferred from variables, or composite variables, that are related to the actual economic performance of countries. The assumption of a straightforward relationship between economic performance and positions that are taken in international negotiations on trade liberalization is a simplification of reality. At best the approach gives indications for likely starting positions of countries in negotiations to the extent that such positions are determined by economic performance criteria. The process of policy making, however, is complex and decisions are not based solely on macro-economic criteria.

NOTES

[1] J.N. Bhagwati, 1978; A.O. Krueger, 1978.

[2] For a review of arguments in favour or against simulation through protection see W.M. Corden, 1974.

[3] A.O. Krueger, 1974; T.N. Srinivasan, 1985

[4] J.N. Bhagwati and T.N. Srinivasan, 1983, pp. 237, 238.

[5] W.M. Corden, 1974, pp. 77-87.

[6] J.D. Richardson, 1980, pp. 319-336.

[7] W.M. Corden, 1974, pp. 318-322; R.E. Baldwin, 1982, pp. 263-286.

[8] See H. Chenery and M. Syrquin, 1975.

[9] B. Balassa, 1976, p. 15.

[10] P. van Dijck, 1986, pp. 89 and 90.

[11] W.R. Cline, 1983, p. 133.

[12] For a discussion of proposals for a GSTP see P. van Dijck, 1987.

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