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Effective Anti-Export Bias of the Sri Lankan Manufacturing Industry

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Contents

EFFECTIVE ANTI-EXPORT BIAS OF THE SRI LANKAN MANUFACTURING INDUSTRY

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I. *Introduction*

Many of the advocates of export promotion have come to define an export-oriented economy simply as a trade regime with *neutral bias* between import substitution and export-oriented production, though in relation to this there seems to be a difference of opinion among some economists.[1] A trade regime is said to be 'neutral', in terms of effective protection, when both the import substitution and the export-oriented sectors receive the same level of protection to value added per unit of output. Although the governments of developing countries have often been quite enthusiastic to measure the protective effect of their trade intervention on manufacturing production, they have paid little attention to evaluate the 'trade bias' of the regime resulting from such interventionist measures.

Since the introduction of a market-oriented policy package in 1977, the Sri Lankan trade regime has come to be described as an 'export-oriented' economy. Rationalization of protection has been a major feature of the policy package as the existing anti-export bias of the economy under the pre-1977 inward-oriented trade regime had to be eliminated. Apart from the drastic change in exchange rate policy,[2] an essential element of the 'export-oriented' policy regime has been reforms in commercial policy to provide a reasonably 'low' and fairly 'uniform' level of protection. Along with the revisions in tariffs and the removal of quantitative restrictions on imports, various commercial and fiscal policy incentives were also introduced for the promotion of manufactured exports.

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Over the period of more than a decade since 1977, an important feature of the continuous policy reforms that were designed to 'rationalize' protection for the manufacturing sector was, however, that the rationalization was exclusively concerned with effective protection of the import substitution sector in general, and its tariff protection in particular. Although the post-1977 'market economy' model has been regarded as export-oriented, it is arguable whether the protective structure has yet been rationalized in terms of constituting a 'neutral' protection for both import substitution and export promotion.[3] *A Trade Strategy for Industrialization in Sri Lanka* (MI, 1989:3) expected that 'there will be complete neutrality between import substitution and export orientation among industries'. Nevertheless, in practice the need for a 'reasonable' protection for *both* import substitution and export promotion that constitutes a 'neutral' trade regime seems to have been continuously disregarded by the industrial policy circles.

The issue of 'trade bias' of the Sri Lankan manufacturing sector has been a source of controversy in the literature on the trade regime. A number of studies that were based on an effective exchange rate approach have claimed that the system of trade incentives to the manufacturing sector in the post-1977 trade regime has been 'pro-export biased' (Athukorala, 1986:75; Cuthbertson and Athukorala, 1991:379; Kelegama and Wignaraja, 1991:51). However, it is plausible to cast a considerable doubt upon this claim because, according to the estimates based on the same exchange rate approach, the pre-1977 import substitution regime has been also pro-export biased (Cuthbertson and Athukorala, 1991:379; Rajapathirana, 1988:1147). Furthermore, contrary to a situation that any one would envisage, the level of pro-export bias of the pre-1977 regime has been substantially higher than those for the post-1977 export-oriented trade regime.

The reports of the Presidential Tariff Commission (PTC) on effective protection to the manufacturing sector (Cuthbertson and Khan, 1981; PTC, 1991; Walton, 1988) provide some evidence to suggest that the manufacturing sector suffers from the legacy of 'high' anti-export bias. Yet the PTC reports do not analyze adequately the structure of effective protection to the export sector. The major concern of the PTC reports seems to be with evaluating protection to the 'average' manufacturing industries without making a distinction between their import substitution and export-oriented activities,[4] and guiding the industrial policy circles almost exclusively for tariff liberalization. There was, however, a frequent claim by some others including the World Bank (Ratnayake, 1988; SLEDB, 1990; World Bank, 1987) that the manufacturing sector was highly anti-export biased. Despite that, as Edwards (1992:48) argues that '...export subsidies given in Sri Lanka seem to have been substantially reduced in recent years....' If this is the case of the so-called Sri Lankan export-oriented trade regime, the estimates of effective protection by the PTC reports for 'average' industries (ie. the industries that contained both import substitution and

export-oriented activities) seem to have been 'overstated' in terms of effective protection of the export sector.

Given the confusing interpretations of the trade regime data and the 'biased' concern of the policy circles exclusively through tariff liberalization to achieve a 'neutral' trade regime, the issue of anti-export bias of the Sri Lankan manufacturing industries, thus, stands as a subject of topical interest. In Part II we compare the merits of effective protection versus effective exchange rate approaches to the measurement of anti-export bias. Part III presents the methodology and Part IV its application to the manufacturing industries in Sri Lanka. In Part V we draw out the conclusions and policy implications of the analysis.

II. Effective Protection versus Exchange Rate Approach

The aggregate 'net' price effects of the structure of protective measures of trade strategy on import substitution over export promotion, or *vice versa*, determine the 'trade bias' of the regime. Contributions to the measurement of trade bias have come independently from the studies conducted (a) for the National Bureau of Economic Research (NBER) by Bhagwati (1978) and Krueger (1978), and (b) for the World Bank by Balassa and associates (1971, 1982).[5] The former approach has been based on the nominal effective exchange rate (NEER) for imports over that for exports, while the latter on the effective protection coefficient (EPC) for domestic sales over that for exports. The NEER on exports is defined as the units of domestic currency that can be obtained for a unit of foreign exchange worth of exports. Correspondingly, the NEER on imports is defined as the units of domestic currency that would be paid for a unit of foreign exchange worth of imports. The EPC of either an importable or an exportable is defined as the ratio of value added per unit of output assisted by the protective structure (ie. at domestic price) to that in the absence of a protective structure (ie. at free trade price). When anti-export bias is defined as the ratio of NEER for imports to that for exports (NEERm/NEERx), it indicates the amount of domestic currency paid for imports over that can be obtained from exports. The EPC definition of anti-export bias given by the ratio of the EPC of import substitutes to that of exports (EPCm/EPCx) signifies the excess of domestic value added obtainable as a result of effective protection in producing import substitutes over that obtainable in producing export products.

From the theory of effective protection, we know that the effects of the protective structure on the price of output, or *nominal price*, of a commodity do not determine resource allocation, but consumers' decision making. Since resource allocation is affected by the prices of both output and inputs of the commodity, the theory of effective protection is concerned with the *effective price*,

or the price of value added affected by the structure of protective measures of trade strategy.[6] The distinction between nominal and effective price effects of protective measures is therefore important in determining resource allocation effects of trade strategy between import substitution and export promotion. Therefore, the effective protection approach is superior to the exchange rate approach in quantifying the trade bias of an economy mainly for two reasons.

First, the given definition of the NEER is a 'nominal' concept in that it does not account for the price of *value added*, but that of the *output* exported or imported. Hence this approach is inadequate to quantify the resource allocation effects of protective measures. Bhagwati and Srinivasan (1979:7) suggest that when the NEER is redefined as to include the incentives and disincentives on output as well as those related to inputs, the EPC definition of anti-export bias is identical with its NEER definition. In other words, the meaning of such a redefinition is that the NEER should be stated in terms of *value added* of imports and exports.[7] This claim for a redefinition of the NEER is problematic. Though it seems to be easy to define the NEER on value added in exports, a similar definition for that on imports does not seem sensible because the importers' decisions depend solely on the nominal price and there is no an 'effective price' or a price of value added in imports paid by the importers in domestic currency.

The second problem of measuring anti-export bias through the NEER approach also relates to its given definition. The protective devices are not confined to those applied only on import and export trade. The application of protective measures on *domestic production* through fiscal incentives (production subsidies) or disincentives (production taxes) is typical in every economy, while they affect both the nominal and the effective protection received by producers of either import substitutes or export goods unless exemptions are granted. It is impossible to define the NEER inclusive of these protective measures on production other than those applied on import and export trade. For these two reasons, an identity between the NEER and the EPC definitions of anti-export bias cannot be established.

Although the EPC approach to the measurement of anti-export bias thus appears superior to the NEER approach, the empirical application of the former by Balassa and associates (1982) has been based strictly on an implicit assumption that all traded goods can be sold either in the domestic market or the export market, depending only on producers' own decision making. Hence anti-export bias is measured for the same commodities or the same groups of commodities regardless of whether the commodities are *actually* exported or not. In other words, this means that there is commodity and technological (input-output) 'homogeneity' between the traded goods produced for the domestic and export markets. This assumption does not seem to be realistic, particularly with respect to manufacturing production in developing countries that possess a relatively

'underdeveloped' industrial sector. In this case, the differentiations between import substitution production and export-oriented production in terms of their quality standards and input-output relations of commodities may be important and particularly the latter is part of the determinants of anti-export bias that has been disregarded by this EPC approach.

III. The Model of Anti-Export Bias

The formulation of the coefficients of *effective bias against exports* (EBAX) is based on the theory of effective protection that concerned with *net* price effects of protective measures on resource allocation. The familiar assumptions of the theory of effective protection that will be retained throughout this discussion are: (a) small country assumption, (b) fixed input-output coefficients, (c) trade remains after protection, and (d) no substitutional relationships between traded and nontraded goods.[8] An industry is considered to be producing both import substitution and export-oriented commodities. The EBAX coefficient of the industry, thus, explain the *relative* effective protection, ie. the average EPC for the import substitution activities (EPCm) over that for export-oriented activities (EPCx) within the industry. When the world (or free trade) prices of traded final goods and their traded inputs are given, in the absence of transport costs, any divergence of their domestic prices from the free trade levels is a result of the protective measures.

For simplicity, let us assume that there is an industry **J** consisting of two production activities, one producing an import substitute (m_j) and the other an export good (x_j). There are only two protective measures, a tariff and an export subsidy. The import substitution product is protected through a nominal tariff rate (t_j) on imports of j, while the export product is granted a subsidy protection through a nominal subsidy rate (s_j) on exports of **j**. Let us assume further that each activity uses a single input which is an either importable or an exportable. The input used by the import substitution activity is denoted by $\mathbf{m_i}$ and its protective rate by $\mathbf{t_i}$, while that used by the export activity by $\mathbf{x_i}$ and its protective rate by $\mathbf{s_i}$.

The $\mathbf{EBAX_J}$ is the ratio of effective protection coefficient of the import substitution activity ($EPCm_j$) to that of the export-oriented activity ($EPCx_j$).[9]

(1) $$EBAX_J = \frac{EPCm_j}{EPCx_j}$$

Where the EPCs are the ratios of the effective domestic prices of both production activities ($EDPm_j$ and $EDPx_j$) to their effective world prices ($EWPm_j$ and $EWPx_j$). The effective price or the price of value added is equivalent to the nominal world price of the product *minus* the nominal price of the input. Nominal world prices of the import substitute and the export good is denoted by $NWPm_j$ and $NWPx_j$ respectively, while those of their inputs by $NWPm_i$ and $NWPx_i$.

(2) $$EBAX_j = \frac{EDPm_j}{EWPm_j} \cdot \frac{EWPx_j}{EDPx_j}$$

(3) $$EBAX_j = \frac{NWPm_j(1+t_j) - NWPm_i(1+t_i)}{NWPm_j - NWPm_i} \cdot \frac{NWPx_j - NWPx_i}{NWPx_j(1+s_j) - NWPx_i(1+s_i)}$$

Let the input-output coefficient of the import substitute be Am_{ij} and that of the export product be Ax_{ij}. Then nominal world prices of inputs can be expressed in terms of input-output coefficients *times* nominal world prices of the respective outputs.

(4) $$EBAX_j = \frac{NWPm_j(1+t_j) - Am_{ij}NWPm_j(1+t_i)}{NWPm_j - Am_{ij}NWPm_j} \cdot \frac{NWPx_j - Ax_{ij}NWPx_j}{NWPx_j(1+s_j) - Ax_{ij}NWPx_j(1+s_i)}$$

(5) $$EBAX_j = \frac{(1-Ax_{ij})[(1+t_j) - Am_{ij}(1+t_i)]}{(1-Am_{ij})[(1+s_j) - Ax_{ij}(1+s_i)]}$$

In a situation where there is an 'effective anti-export bias', then, $EBAX_j > 1$, because the import substitution production activity receives a higher effective protection than that granted to the export-oriented production activity. When $EBAX_j = 1$, ie. the so-called 'neutrality', both the production activities of the industry receive equal effective protection. In contrast, if $EBAX_j < 1$, then the import substitution activity is discriminated against the export-oriented activity and this condition is said to be an 'effective export bias'. The factors that determine the extent of the EBAX coefficient are the rates of tariffs and export subsidies on the outputs and their inputs, as well as the input-output coefficients. This implies that although the protective structure is designed to provide equal incentives for both the import substitution and export-oriented production in a manner which would ensure both tariffs and export subsidies at the same rate, the extent of effective anti-export bias is determined by differences in input-output coefficients. The

greater the input-output coefficient of the import substitution activity relative to that of the export-oriented activity, the higher is the effective anti-export bias.

Generally a reduction in tariffs on output of the import substitution sector and an increase in export subsidies on output of the export-oriented sector will reduce anti-export bias. In the case of 'input' protection, an increase of that in the import substitution sector and a reduction of the same in the export-oriented sector will reduce anti-export bias. Yet, since not only the protective structure but also the input-output structure is part of the determinants of effective anti-export bias, the effects of the reforms in protective structure that are undertaken to eliminate anti-export bias can vary widely. To identify the *nature* and the *magnitudes* of the response of effective anti-export bias to reforms in each protective measure, equations *(6)* to *(9)* represent the differentiations of the equation *(5)* with respect to each protective measure on outputs and inputs.

(6) $$\frac{\delta(EBAX_j)}{\delta t_j} = \frac{(1-Ax_{ij})}{(1-Am_{ij})} \cdot \frac{1}{(1+s_j)-Ax_{ij}(1+s_i)}$$

(7) $$\frac{\delta(EBAX_j)}{\delta t_i} = -\frac{Am_{ij}(1-Ax_{ij})}{(1-Am_{ij})} \cdot \frac{1}{(1+s_j)-Ax_{ij}(1+s_i)}$$

(8) $$\frac{\delta(EBAX_j)}{\delta s_j} = -\frac{(1-Ax_{ij})}{(1-Am_{ij})} \cdot \frac{(1+t_j)-Am_{ij}(1+t_i)}{[(1+s_j)-Ax_{ij}(1+s_i)]^2}$$

(9) $$\frac{\delta(EBAX_j)}{\delta s_i} = \frac{Ax_{ij}(1-Ax_{ij})}{(1-Am_{ij})} \cdot \frac{(1+t_j)-Am_{ij}(1+t_i)}{[(1+s_j)-Ax_{ij}(1+s_i)]^2}$$

The *direction* of changes in effective anti-export bias depends on whether the differentiations of the EBAX coefficient are smaller or larger than zero. As $\delta(EBAX_j)/\delta t_j>0$ and $\delta(EBAX_j)/\delta s_i>0$, the effects of changes in t_j and s_i are positively related to the $EBAX_j$; an increase in either tariffs on output or subsidies on inputs will result in an increase in effective anti-export bias. In contrast, $\delta(EBAX_j)/\delta t_i<0$ and $\delta(EBAX_j)/\delta s_j<0$, and hence, positive changes in tariffs on inputs or export subsidies on output will cause the anti-export bias to be reduced. However, these patterns of changes will be in *opposite* directions if the input-output coefficient of either import substitution or export-oriented activity exceeds unity, ie. 'negative' value added at world price (VAwp). A negative VAwp signals an industry that could not exist without

protection.[10] A negative VAwp produces a negative EPC which signifies higher effective protection than any positive EPC. Unless technological factors of such 'inefficient' production activities are affected by changes in protective measures, a reduction in tariff protection or an increase in export subsidy protection on outputs will not therefore result in a decline, but an increase in the effective anti-export bias of the industry.

The *extent* of changes in EBAX coefficient depends on the *relative* magnitudes of a number of independent variables. To simplify the analysis, we assume that *ad valorem* rates of tariffs and export subsidies are smaller than unity. This implies that the value of tariffs or export subsidies does not exceed the free trade value of traded goods to which such protective measures are applied. Under this condition, the first fraction of the differential equations *(6)* to *(9)* can take any value larger than zero that depends on the difference of the input-output coefficients between import substitution and export-oriented activities. The value of the second fraction can be equal to, or larger or smaller than zero depending on the nominal protection on outputs and their inputs as well as the input-output coefficients of the activities. Hence the product of the two fractions can be also positive, negative or equal to zero in each of the differential equations as a response to a positive or negative change in any protective measure.

Following these propositions, the effect of tariff reforms aimed at eliminating anti-export bias may be quite different from what is expected. Either a reduction of nominal protection on output or an increase of that on inputs of the import substitution sector, can reduce, raise or leave unchanged the effective anti-export bias. Such effects depend on the existing protective and the input-output structures of the economy under the assumption of fixed input-output coefficients. This suggests that policy reforms that are designed to eliminate anti-export bias should be based on specific considerations rather than on general claims for liberalization of tariffs. Apart from that, the magnitude of the sensitivity of effective anti-export bias to changes in protective measures along any direction appears to also vary widely. Finally this points to the fact that, in order to maximize the desired response of anti-export bias to changes in protective measures, the 'weight' on each protective measure given by policy reforms should be based on the existing protective and input-output structures of individual economies.

IV. Application of the Model

The Level and the Structure of Effective Anti-Export Bias

Due to the limited availability of detailed input-output data for the Sri Lankan manufacturing sector,[11] the empirical application of the model is confined to a limited number of industries (at 3-digit ISIC level), which represent the domestic private sector-owned manufacturing sector. In practice, there is no unanimous criterion to classify the 'trade orientation' of production activities within an industry and as such we used proportionate sales of each activity between domestic and export markets to make this classification. Accordingly, firms that sell over 50 percent of their output in the domestic market were classified as import substitution activities and those that export over 50 percent were classified as export-oriented. In estimating effective anti-export bias, our concern has been with 'direct' protective measures that are currently operating in Sri Lanka. In the case of import substitution production, they involve import duty, turnover tax,[12] Export Development Board cess, surcharge and excise duty and, in the case of export production, export subsidies, Export Development Board cess, duty rebate scheme,[13] and export tax are the direct protective measures.

The structure of effective anti-export bias of the manufacturing industries as of 1988 is given by the industry-wise EBAX coefficients reported in Table 1, in an ascending order of the coefficients. The estimates follow the Corden method that incorporates the value added in nontraded inputs also as part of the value added in production activity that use such nontraded inputs.[14]

Among the industries reported, only industrial chemicals sector appears to be 'export biased' as shown by its EBAX coefficient of 0.79 which is smaller than unity. Yet, the industry is effectively 'disprotected' in producing both the import substitutes and exports, although the disprotection given to the latter is less than that received by the former. All other industries appear as anti-export biased, while four of them with *negative* EBAX coefficients due to their negative VAwp appears to be producing import substitute goods. In the case of export goods, none of the industries shows negative VAwp. Because a negative EPC due to negative VAwp signifies higher effective protection than any positive EPC, the industries with negative EPCms can be classified as 'pro-import substitution biased'. Given the EBAX coefficient of 1.43, pottery, china and earthenware show a relatively 'low' anti-export bias, but the industry is also effectively disprotected in producing exports. All others are highly anti-export biased as shown by their EBAX coefficients ranging from 1.85 in cutlery, handtools and hardware to 16.10 in textiles.

Table 1 Effective Anti-Export Bias (EBAX) Coefficients 1988

ISIC	Industrial Category	EBAX	EPCm	EPCx
Pro-Import Substitution Biased Industries				
356	Plastic products	-41.05	-44.33	1.08
324	Leather footwear	-13.19	-14.25	1.08
355	Rubber products	-3.83	-12.14	3.17
384	Transport equipment	-2.17	-2.23	1.03
Export Biased Industries				
351	Industrial Chemicals	0.79	0.74	0.94
Anti-Export Biased Industries				
361	Pottery, china and earthenware	1.43	1.36	0.95
381	Cutlery, handtools and hardware	1.85	1.98	1.07
323	Leather and furniture	2.05	2.28	1.11
353	Petroleum refineries	2.43	1.29	0.53
369	Cement, lime and plaster	2.73	2.48	0.91
383	Electrical machinery	2.88	3.11	1.08
352	Medicine and soap etc.	3.12	3.24	1.04
341	Pulp, paper and paperboard	3.40	3.60	1.06
390	Other manufacturing (n.e.c.)[a]	4.60	5.06	1.10
311	Meat, dairy and fruit etc.	11.35	6.24	0.55
321	Textile	16.10	18.19	1.13
Manufacturing Sector[b]		**3.59**	**2.44**	**0.68**

a Not elsewhere classified.
b Figures for the manufacturing sector are the respective averages weighted by VAwp.

On an average, the manufacturing sector is 'highly' anti-export biased in *effective* terms as shown by the average EBAX coefficient of 3.59. This is a result of not only the high effective protection enjoyed by the import substitution activities, but also the effective 'disprotection' received by the export-oriented activities under the current protective structure. On an average, the EPC of the import substitution sector is 2.44, while that of the export-oriented sector is 0.68. The level of effective protection received by the import substitution sector appears to be highly varied across the industries with the EPCm ranging from high *negative* to high *positive* values. Yet among the export-oriented industries, an exception can be granted only to rubber products that received a high EPCx of 3.17. The EPCx of all other export-oriented activities remains closer to unity, while some of the industries appear to be effectively disprotected.

Sources of Effective Anti-Export Bias

The nominal protection coefficients on outputs and inputs of import substitution and export-oriented activities (NPCm and NPCx), given in Table 2, signify some important characteristics of the protective structure as part of the sources of anti-export bias. On an average, the level of nominal protection afforded by the import substitution sector is 50 percent above that of the export-oriented sector. The current system of export incentives appears to be unable to create any positive divergence of the nominal domestic price of export products from their nominal world price, as shown by the average NPCx of unity. In addition to that, the NPCx on outputs of any industry does not exceed 1.05, while in some industries it is even below unity.

Table 2 Nominal Protection Coefficients on Outputs and Traded Inputs

ISIC	Industrial Category	Outputs NPCm	Outputs NPCx	Inputs NPCm	Inputs NPCx
Pro-Import Substitution Biased Industries					
356	Plastic products	1.67	1.04	1.17	1.00
324	Leather footwear	1.83	1.05	0.92	1.02
355	Rubber products	1.60	1.05	1.01	0.82
384	Transport equipment	1.46	1.04	1.18	1.06
Export Biased Industries					
351	Industrial Chemicals	1.06	1.05	1.17	1.06
Anti-Export Biased Industries					
361	Pottery, china and earthenware	1.36	1.05	1.36	1.24
381	Cutlery, handtools and hardware	1.47	1.04	1.19	1.00
323	Leather and furniture	1.67	1.03	1.34	0.99
353	Petroleum refineries	1.42	1.00	1.45	1.45
369	Cement, lime and plaster	1.56	0.95	1.14	1.61
383	Electrical machinery	1.58	1.05	1.29	1.02
352	Medicine and soap etc.	1.35	1.05	1.22	1.06
341	Pulp, paper and paperboard	1.65	1.03	1.34	1.00
390	Other manufacturing (n.e.c.)	1.83	1.04	1.38	1.00
311	Meat, dairy and fruit etc.	1.74	0.70	1.43	0.71
321	Textile	1.97	1.02	1.14	1.02
Manufacturing Sector[a]		1.50	1.00	1.31	1.32

a Figures for the manufacturing sector are the respective averages weighted by value of outputs in the case of nominal protection on outputs and value of inputs in the case of nominal protection on inputs, both at world price (VOwp and VIwp).

Surprisingly, in the case of nominal protection on inputs, both sectors face almost the same level of average domestic price which is more than 30 percent above their world price. Given the duty-free access to imported inputs into many export-oriented manufacturing activities, it is arguable now, why the export-oriented sector faces almost the same domestic price of inputs as the import substitution sector does. The main reason is that some of the important export activities are not entitled for the duty rebate incentive. Apart from that, the domestic price of exportable inputs into export activities and also the domestic price of the tradable component of nontraded inputs are higher than their world prices.

Table 3 Free Trade Input-Output Coefficients

ISIC	Industrial Category	Import Substitution Sector	Export-Oriented Sector
Pro-Import Substitution Biased Industries			
356	Plastic products	1.01	0.53
324	Leather footwear	1.06	0.47
355	Rubber products	1.04	0.90
384	Transport equipment	1.08	0.32
Export Biased Industries			
351	Industrial Chemicals	0.75	0.86
Anti-Export Biased Industries			
361	Pottery, china and earthenware	0.40	0.34
381	Cutlery, handtools and hardware	0.65	0.42
323	Leather and furniture	0.65	0.63
353	Petroleum refineries	0.78	0.51
369	Cement, lime and plaster	0.69	0.05
383	Electrical machinery	0.84	0.50
352	Medicine and soap etc.	0.94	0.55
341	Pulp, paper and paperboard	0.86	0.54
390	Other manufacturing (n.e.c.)	0.88	0.63
311	Meat, dairy and fruit etc.	0.94	0.91
321	Textile	0.95	0.95
Manufacturing Sector[a]		0.83	0.50

a Figures for the manufacturing sector are the respective averages weighted by value of output at world price (VOwp).

Since the NPCm on output is higher than that on inputs, the level of average effective protection of the import substitution sector is also higher than its nominal protection on output. By contrast, since the NPCx on output is smaller than that on inputs, the level of average effective protection of the export-oriented sector is also smaller than its nominal protection on output.

Table 4 The Impact of Negative VAwp on Effective Anti-Export Bias, EBAX Coefficients Excluding Activities with Negative VAwp

ISIC	Industrial Category	EBAX	EPCm	EPCx
Pro-Import Substitution Biased Industries				
356	Plastic products	3.01	3.25	1.08
324	Leather footwear[a]	-	-	1.08
355	Rubber products	19.60	24.31	1.24
384	Transport equipment	7.89	8.13	1.03
Export Biased Industries				
351	Industrial Chemicals	0.83	0.78	0.94
Anti-Export Biased Industries				
361	Pottery, china and earthenware	1.43	1.36	0.95
381	Cutlery, handtools and hardware	1.79	1.91	1.07
323	Leather and furniture	1.74	1.93	1.11
353	Petroleum refineries	2.43	1.29	0.53
369	Cement, lime and plaster	2.53	2.30	0.91
383	Electrical machinery	2.77	2.99	1.08
352	Medicine and soap etc.	0.94	0.98	1.04
341	Pulp, paper and paperboard	3.08	3.26	1.06
390	Other manufacturing (n.e.c.)	4.60	5.06	1.10
311	Meat, dairy and fruit etc.	3.05	1.68	0.55
321	Textile	10.14	10.65	1.05
Manufacturing Sector		**2.73**	**1.83**	**0.67**

a The industry in the data sample does not contain production activities with positive VAwp.

The high level of effective anti-export bias of the manufacturing industries is a result of not only the structure of protective measures but also the structure of input-output coefficients. The export-oriented sector is more efficient than the import substitution sector, in terms of their input usage under free trade condition.[15] As Table 3 shows, the free trade input-output coefficients of most of the import substitution activities are greater than those of the export-oriented

activities. On an average, the input-output coefficient of the import substitution sector is 0.83 as compared with 0.50 of that of the export-oriented sector. The smaller the nominal protection on inputs relative to that on outputs, the greater are the positive effects of input-output coefficients on the level of effective protection. Hence the high level of effective protection enjoyed by the import substitution activities is a result of not only the tariff protection, but also the relatively high input-output coefficients.

The argument that the import substitution sector is relatively *less* efficient than the export-oriented sector is further buttressed by the concentration of production activities with negative VAwp in the import substitution sector.[16] An exclusion of production activities with negative VAwp, in fact, understates the *average* effective protection (Guisinger, 1969). Nevertheless, since their existence results in an higher level of average effective protection, the concentration of these 'inefficient' activities in the import substitution sector involves a substantial positive effect on the 'high' level of *average* effective anti-export bias of the manufacturing sector. Table 4 shows the estimates of EBAX coefficients exclusive of the activities with negative VAwp. With a reduction of the level of effective protection in many of the import substitution industries, the average EBAX coefficient shows a substantial decline from 3.59 to 2.73. What is confirmed by the decline of the average EBAX coefficient is that the 'high' level of effective anti-export bias of the manufacturing sector is not an *exclusive* outcome of the protective structure itself, but the 'inefficiency' of the import substitution sector relative to that of the export-oriented sector as well. However, the 'efficiency' and the 'protection' are interrelated phenomena, since they reinforce each other.

The Response of Anti-Export Bias to Policy Reforms

The effectiveness of policy reforms, as a means of achieving 'zero' anti-export bias, can vary largely among the protective measures on outputs and inputs of import substitution and export-oriented industries as well as across the industries, depending on the existing structure of protection and input-output relations. By introducing a 10 percentage points uniform change in NPCs on outputs and inputs of import substitution and export-oriented industries, the potential responses of the EBAX coefficient are shown in Table 5. The analysis follows the differentiations of the EBAX coefficient introduced earlier and, hence it permits to explore the effectiveness of one variable at one time while others are held constant.[17]

Table 5 The Response of EBAX Coefficients to Changes in Protection

ISIC	Industrial Category	0.1 Change in NPCm on Output Positive	0.1 Change in NPCm on Inputs Negative	0.1 Change in NPCx on Output Negative	0.1 Change in NPCx on Inputs Positive
Pro-Import Substitution Biased Industries					
356	Plastic products	-8.46	-8.55	-8.00	-4.20
324	Leather footwear	-1.53	-1.63	-2.31	-1.09
355	Rubber products	-0.71	-0.74	-1.24	-1.12
384	Transport equipment	-1.18	-1.28	-0.31	-0.10
Export Biased Industries					
351	Industrial chemicals	0.43	0.32	0.59	0.51
Anti-Export Biased Industries					
361	Pottery, china and earthenware	0.17	0.07	0.23	0.08
381	Cutlery, handtools and hardware	0.27	0.17	0.30	0.12
323	Leather and furniture	0.26	0.17	0.51	0.32
353	Petroleum refineries	0.88	0.69	0.96	0.49
369	Cement, lime and plaster	0.35	0.24	0.32	0.02
383	Electrical machinery	0.57	0.48	0.54	0.27
352	Medicine and soap etc.	1.51	1.41	0.67	0.37
341	Pulp, paper and paperboard	0.68	0.58	0.69	0.37
390	Other manufacturing (n.e.c.)	0.73	0.64	1.13	0.71
311	Meat, dairy and fruit etc.	2.81	2.63	24.00	21.95
321	Textile	1.81	1.72	28.17	26.74
Manufacturing Sector[a]					
-	**including** the industries with negative changes	**0.88**	**0.73**	**1.06**	**0.53**
-	**excluding** the industries with negative changes	**0.76**	**0.61**	**0.90**	**0.45**

a Figures for the manufacturing sector are the respective averages weighted by VAwp.

The response of the EBAX coefficients to changes in nominal protection is quite irregular across industries because the manufacturing sector has been characterized by highly erratic distribution pattern of protection and input-output coefficients *within* and *between* import substitution and export-oriented industries. Nevertheless, in general, effective anti-export bias of the industries with 'high' input-output coefficients or 'low' effective protection coefficients appears to be highly

sensitive to changes in respective protective measures. More particularly, the case of high input-output coefficients is a characteristic of many import substitution industries (though they have high EPCs as well), while the latter case, the low EPCs, is associated with the export oriented sector.

In an overall assessment of the effectiveness of tariff protection (NPCm on output) versus export subsidy protection (NPCx on output) on effective anti-export bias, a change in the latter appears to be more effective than that in the former in most of the industries listed. On an average, the EBAX coefficient for the manufacturing sector will decline by 1.06 as a result of an increase in average subsidy rate by a 10 percentage points. A reduction in tariffs by the same rate will result in a decline of the average EBAX coefficient by 0.88. Even after excluding the pro-import substitution biased industries with a 'negative' response to changes in protective measures from the averages, the effectiveness of export subsidy reforms remains greater than that of tariff reforms. In the case of input protection, effective anti-export bias seems to be more responsive to a change in NPCm than to a change in NPCx.

Indirect Protective Measures and Anti-Export Bias

Our estimates of EBAX coefficients were based on quantified effects of 'direct' protective measures applied on import substitution and export promotion. Although it is difficult to quantify the price effects of 'indirect' protective measures,[18] it seems necessary to extrapolate their importance in determing the level of anti-export bias.[19] On the import side, quantitative restrictions (QRs) through specific import licences are the most important indirect protective measure. As the Sri Lankan trade regime after 1977 has made a drastic departure from the QR regime that was in effect prior to 1977 by replacing most of the QRs with tariffs, currently specific import licences are applied only on few items. For this reason, though the impact of QRs seems to be important in the case of certain manufacturing products such as specific food items, beverages, tobacco, specific chemicals and petroleum products, their importance in raising the *average* level of effective protection of the import substitution sector may be marginal.

The provision of indirect assistance to manufactured exports is, however, a significant part of the current export promotion strategy, and hence their effects on anti-export bias seem to be substantial. Perhaps, the major elements of these various forms of indirect export incentives can be classified as (a) tax exemptions, (b) credit preferences and (c) duty-free allowances for capital goods.[20] An important characteristic of these major indirect export incentives is that they are implemented in the form of certain 'exemptions' granted for export-oriented industries from the 'negative' measures generally applied in the economy. This means that if such measures are

incorporated into the estimates of anti-export bias,[21] the protection for the rest of the manufacturing sector (import substitution sector) will be affected with an exemption for the export-oriented sector. The result will be a decline of the level of effective protection of import substitution industries. Hence it is plausible to suggest that as a result of indirect export incentives the high level of anti-export bias will decline, but leaving the effective 'disprotection' of the export-oriented sector unchanged.

V. Conclusion

The findings of the present study in terms of *relative* effective protection to manufacturing industries conclusively suggests that the Sri Lankan manufacturing sector under the current trade regime is far from being export-oriented, while the export-oriented sector is effectively 'disprotected'. The major consideration of the industrial policy circles in order to achieve a so-called export-oriented trade regime through mere tariff liberalization, therefore, appears to be an either 'exaggerated' or 'biased' policy concern. Although there were some incentives granted for export promotion, the level of effective protection received by the export-oriented sector relative to that given to the import substitution sector has hardly been considered at policy level.

In fact, as our estimates revealed, import substitution sector enjoys a substantially high level of effective protection. Yet the price effect of 'indirect' protective measures that are applied on production on a large scale with an exemption granted to exporters is likely to result in a substantial reduction of effective protection for import substitution. For this reason, any attempt for further liberalization of tariffs should be based on a careful consideration of the protective effects of the 'overall' protective structure that includes the direct as well as the indirect protective measures.

Promoting import substitution and export-oriented production are not 'black and white' type trade strategies as they are often discussed and debated, while the export-orientation can be intervention-propelled or market-propelled. Despite that, given the policy and political constraints, either over-liberalization of imports or over-subsidization of exports are not *feasible* or even *desirable* as a means of achieving an export-oriented trade regime. Apparently, trade liberalizing policies are required to a certain extent to drive the economy from an import substitution to an export-oriented regime. Yet dismantling effective protection of the import substitution sector plays only a limited role in achieving an 'effectively' neutral trade bias. Trade liberalization alone, with the aim of rationalizing the effective protection of the import substitution sector, is unlikely to bring about an 'effectively' neutral trade bias in the Sri Lankan

manufacturing sector, since the export-oriented sector receives an effective disprotection under the current structure of protective measures. With regard to the reforms in the overall structure of protective measures to ensure a 'reasonable' level of effective protection to manufactured exports at the current stage priority should be given to reform the export subsidy structure which also appears to be more effective than making reforms in the tariff structure. This appears to be the most important, though most difficult, task that should receive immediate consideration.

Notes

1. On the one hand, many critiques of an export-oriented trade strategy have failed to capture the divergence between an **export-oriented regime** and a **free trade regime**. Some proponents of export promotion, on the other hand, have come to define it as one with over-subsidization of export-oriented industries: They argue that an export-oriented regime is just like an import substitution regime which is characterized by an overall high tariff protection to import substitution industries. Given these confusions, much of the post-war debate on the choice of trade strategy can be attributed to the debators' own interpretations. (Abeyratne, 1992).

2. This included a marked devaluation of the Sri Lankan rupee by 42% against the dollar, a unification of the dual exchange rate and an adoption of a 'floating' exchange rate system; see Athukorala (1986), Lakshman (1986), and White and Wignaraja (1992).

3. The term 'protection' is referred to here in a broad sense as the effects of policy measures of a trade regime that induce a divergence between interventionist and free trade prices of any traded good, either importable or exportable.

4. Perhaps the PTC report of Cuthbertson and Khan (1981) is an exception to this claim because relative to other studies it has paid some attention on export-oriented industries as well.

5. It is important to note that there are some other empirical studies that have analyzed 'trade bias'. Using multiple-criteria definitions, these studies such as Agarwala (1983), Donges (1976) and Greenaway and Nam (1988) have classified the trade orientation of a number of countries.

6. Among the contributions made on a large scale to the development of the theory of effective protection, for instance, see Balassa (1965), Balassa and associates (1971) and Corden (1966, 1971).

7. Such a redefinition of the NEER has been, however, confined only to a suggestion, while in empirical studies on the issue (Bhagwati, 1978; Krueger, 1978) the estimates of anti-export bias were based on the usual NEER definition in 'nominal' terms.

8. For details, see Balassa (1971) and Corden (1971).

9. In the same way, the coefficient of **nominal bias against exports** of the industry J, that can be designated by $NBAX_j$, is given by the ratio of nominal protection coefficient of the import substitution activity ($NPCm_j$) to that of the export-oriented activity ($NPCx_j$). Yet our analysis of this paper is confined only to anti-export bias in 'effective' terms that affects resource allocation between import substitution and export-oriented production.

10. As Soligo and Stern (1965) argue, industries can produce negative VAwp for three reasons leading to high unit costs; efficient size of the industries which exceed their market size, excess investment in such industries due to their high profitability created by excessive protection, or the 'infant' stage of the industries. There are some other reasons as well, as Corden (1971:52-53) puts forward, such as monopoly pricing, under-utilization of capacity, wrong technological choice, high transport and packaging costs of inputs, transfer pricing, and restrictions on production (monopoly) and on trade (export taxes) in the import-supplying countries.

11. The input-output data for the study was obtained from a manufacturing survey of the Ministry of Industries and Scientific Affairs, Sri Lanka. On average the data sample represent 77 percent of import substitution production and 57 percent of export production of the economy in terms of manufacturing output.

12. In the PTC reports of PTC (1991:26) and Walton (1988:19), the turnover tax, was not incorporated in the estimates of effective protection on the grounds that, as it is imposed **equally** on imports and domestic products its incorporation does not change domestic-world price relatives. This is not correct because, though the turnover tax rates on both imports and domestic products are the same, it is levied in different ways. The domestic-world price relatives increase due to the turnover tax. For details see Abeyratne (1992:22, 166-67).

13. The producers of most of the manufactured exports are entitled to duty-free access to imported inputs through either Import Duty Rebate Scheme or Manufacture in Bond Scheme. As both are alternative systems of **incentives to inputs**, in estimating effective anti-export bias in this study the Import Duty Rebate Scheme is treated as a protective measure on inputs, not that on outputs, of export-oriented activities.

14. As Corden (1971:158) argues, 'protection for an activity producing a tradable represents not only protection for those primary factors intensive in that activity but also protection for those industries producing nontraded inputs in which that activity is intensive and thus, indirectly, protection for the primary factors intensive in these nontraded input industries'. By contrast, under the Balassa method (Balassa, 1965), nontraded inputs are considered just like any traded inputs with a zero protective rate on them. However, as the estimates of the EBAX coefficient is based on the 'relative' effective protection for import substitution over export-oriented activities, the effects of the difference between the Corden and the Balassa methods can be very small or even zero; any difference between the EBAX coefficients estimated under the two methods depends on the extent to which the ratios of nontraded inputs to output between the import substitution and export oriented activities differ (Abeyratne, 1992:68).

15. Some other studies have also confirmed this argument. For instance, the study of the PTC (1991:64-72) finds that the export-oriented industries are more efficient than the domestic market-oriented ones in terms of their domestic resource costs (DRCs).

16. Among the import substitution production units, about 33% of the observations appear to have negative VAwp, while among the export-oriented production units, only 5% of the observations show negative VAwp.

17. A necessary assumption that has to be maintained here is that the input-output relations are not affected in the short-run by changes in the structure of protection.

18. The terms 'direct' and 'indirect' protective measures are used in this paper in an arbitrary sense for the purpose of making a distinction between the protective measures which can be incorporated and those which cannot be incorporated directly into the estimates of EBAX coefficients respectively.

19. In the Sri Lankan context, the level of effective protection in all studies seems to have been 'overstated' partly due to the exclusion of the price effects of 'indirect' protective devices (Edwards, 1992:47).

20. Apart from these main elements of indirect export incentives that affect the domestic-world price relatives of manufactured exports, many other forms of assistance are available for exporters. Major categories of these incentives are release of foreign

exchange, insurance facilities, market information, advice and training, bridging finance facilities and equity investment participation.

21. In this connection, the estimates of anti-export bias may not necessarily be in terms of protection to value added, but to some other concepts such as operating surplus or cash flows. A theoretical introduction to the concept of protection to 'capital' (and to labour) has been developed by Corden (1966). For similar treatments in empirical studies, see Balassa and associates (1982) and Edwards (1975).

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