Trade Policy Reforms and the Structure of Protection in Vietnam

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1. INTRODUCTION

FOLLOWING the announcement of *doi moi* (renovation) policy in 1986, the trade policy regime in Vietnam has undergone significant changes. With a slow and hesitant start in the late 1980s, significant reforms were undertaken in the first half of the 1990s with a view to reshaping the former closed command economy into a relatively open, market-based economy. The reform process lost momentum during 1996–98 partly due to the East Asian crisis of 1997–98, but partly (perhaps even more so) due to domestic policy ambivalence and complacency resulted from the success of the initial reforms. There has, however, been a renewed emphasis on completing the unfinished reform agenda over the past three years. The key recent reform measures included dismantling of quantitative import restrictions (on all products except sugar and petroleum products), significant reduction in tariffs leading to some reduction in both the level and dispersion of effective rate of protection, initiatives to expose public sector enterprises to greater market discipline, relaxing restrictions on foreign direct investment, particularly in export-oriented projects, and lifting restrictions on private-sector participation in foreign trade and setting up business ventures by private entities (individuals and companies).

In recent years the government of Vietnam has also taken initiatives to 'locking in' domestic (unilateral) liberalisation reforms by committing itself to play an active role in regional, bilateral and multilateral trade liberalisation initiatives. In July 1995 Vietnam became a member of the Association of South East Asian Nations (ASEAN) and the ASEAN Free Trade Area (AFTA). The long-draw

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trade negotiations between the governments of Vietnam and the USA culminated in the signing of a bilateral trading agreement (the Vietnam–United States Bilateral Trading Agreement, VNUSBTA) in July 2001. The VNUSBTA, which is considered the most comprehensive of all bilateral trading agreements the US has ever signed with a developing country, came into effect on 10 December, 2002. Vietnam applied for membership in the WTO in 1995. The emphasis on WTO accession has gained added impetus following China's accession to the WTO in 2001. Following a series of preparatory sessions, on 10 December, 2003, the WTO Working Party started negotiating the terms of Vietnam's membership. Vietnam is currently engaged in market access negotiations with members of the Working Party.

The purpose of this paper is to examine the trade policy regime in Vietnam in the context of the trade liberalisation and other market-oriented reforms implemented over the past one-and-a-half decades. The core of the paper is an in-depth analysis of the structure of protection based on fresh estimates of effective rates of protection (ERP) using the latest input-output table (for 2000) and nominal tariff schedule as at mid-2003. Going beyond the conventional practice of examining effective protection for import-substitution production, the paper also focuses on the bias in the incentives structure against export production compared to import-substitution production ('anti-export bias'). Estimates of effective protection and anti-export bias are related to industry-level output, export and employment to examine the implications of the policy regime for industrial performance.

The paper is arranged in six main sections. Section 2 surveys policy shifts and the key elements of the trade policy regime. Section 3 looks at the structure of import tariffs, which is the main instrument of trade policy, in comparison with selected countries in Asia. Section 4 examines the overall resource allocation effects of the trade regime through the estimation of effective rates of protection. Section 5 brings together available information on the impact of the structure of protection on the performance of domestic manufacturing. The key findings and policy inferences are summarised in the final section.

2. POLICY TRENDS AND KEY ELEMENTS OF TRADE POLICY

Vietnam embarked on market-oriented policy reforms with a predominantly import-substituting manufacturing sector developed under a long-standing protectionist, state-led trade regime. Given the deep-rooted import-substitution bias in the policy regime, the emphasis on export promotion has essentially involved introducing certain counterbalancing measures in support of export-oriented activities with a view to offsetting the anti-export bias embodied in the protectionist regime. The following discussion is arranged in line with this fundamental

dualistic characteristic of the trade policy regime. We first look at instruments used for protecting domestic market-oriented industries, followed by a discussion on policies implemented to redress anti-export bias.[1]

a. Instruments of Import Protection

(i) Import tariffs

During the command-economy era, trade taxes were not important either as a revenue-raising instrument or as a tool of development policy in Vietnam (as in other former centrally-planned economies). The Law on Import and Export Duties introduced on 1 January, 1988, marked the beginning of the present trade tax system. The original import tariff schedule was replaced in 1992 by a detailed, consolidated schedule based on the harmonised system (HS) of tariff nomenclature. The tariff structure was fine-tuned in subsequent years, reflecting a trend towards an increasingly selective protection of consumer goods (cosmetics and some categories of food products), upstream activities related to textiles and garments (silk, cotton and certain fibres) and some specifically protected intermediate goods (metal products, cements and glass). Following the accession to the ASEAN Free Trade Area (AFTA) and in preparation for the WTO accession, steps have been taken over the past five years to restructure and rationalise the tariff structure.

Under the Common Effective Preferential Tariff (CEPT) of the AFTA, Vietnam is committed to reducing tariffs on all but a few sensitive items from AFTA member countries to less than five per cent by the year 2006. Vietnam joined AFTA with a long list of items excluded from tariff reduction (Exclusion List, EL). However, over the past three years these items have been gradually lifted to the Inclusion List, resulting in a decline in the average tariff applicable to imports from AFTA countries to about 7.3 per cent compared to 12.8 per cent at the time of becoming an AFTA member. The impact of these tariff reductions on the average tariff level of Vietnam remains rather small because the extended Inclusion List contained mostly goods that already had zero or low rates. Tariff reductions are yet to be announced on products included in the general exception list.

(ii) Non-tariff barriers

After one-and-a-half decades of trade reforms, tariffs are now the major instruments used in regulating imports to Vietnam. However, a number of non-tariff barriers (NTBs) still remain.

[1] For useful surveys of the reform process in Vietnam, see Dollar (1992), Riedel (1993), Riedel and Comer (1997), Auffret (2003) and Thanh (2005).

By 1998, nine major products remained under import quotas: petroleum, fertiliser, steel, cement, construction glass, motorcycles, cars of 12 seats, paper, sugar and liquor. These products accounted for approximately 40 per cent of total merchandise imports and over 45 per cent of total manufacturing production (Athukorala, 2002a). In 1999 the number of products under quota restrictions was doubled mainly as a temporary measure to avert balance of payments pressure in the wake of the Asian financial crisis. Over the past two years quotas have been gradually eliminated as part of the new emphasis on speeding up trade liberalisation. Currently, only two products, namely sugar and petroleum products, are subject to quotas, and the government has committed to lifting quotas on sugar imports by 2005.

Seven agricultural commodities were brought under tariff rate quotas (TRQs) with effect from 1 July by the Prime Ministerial Decision No. 91/2003/QD issued on 9 May, 2003. The products were raw milk (HS 0401), condensed milk (0402), poultry eggs (0407), maize (1005), raw tobacco (2401), salt (2501) and cotton (5201, 5202, 5203). Of these, the last three items were to come under TRQs with effect from 1 July, 2003. The Ministry of Trade was given authority to introduce TRQs on the remaining four commodities depending on conditions of domestic production and foreign trade. TRQs are obviously less trade distortionary compared to prohibitive tariffs (or general import quotas). However, the market access rules under TRQs generally introduce scope for discriminating in the allocation of TRQs between source countries and domestic importers. In particular, the administration of such quotas tends to legitimise a role for state-owned trading agencies.

The current list of prohibited imports includes military equipment, toxic chemicals, antiquities, narcotics, firecrackers, poisonous toys, cigarettes, used consumer goods, and right-hand driving automobiles. In addition, a considerable number of import items (e.g. pharmaceuticals, some chemicals, some food items, fertiliser, and recording and broadcasting equipment) still require approval from relevant ministries. By 2000, around ten per cent of imports (in value terms) were subject to this form of regulation. As in many other countries, these regulations are generally maintained for health and security reasons and they do not seem to distort trade patterns.

From time to time import flows have also been regulated in line with government priorities through regulating the release of foreign exchange by banks for meeting import payments. For instance in late 1998, in the face of the widening current account deficit following the onset of the East Asian crisis, the MPI in consultation with the Ministry of Trade and other relevant ministries, resorted to such control on imports of some groups of consumer goods. The two major instruments used were, limiting foreign exchange release for imports by foreign invested enterprises to the actual amount of foreign exchange they have brought into the country in the year (‘balance’ their foreign exchange); and an advanced

payment requirement for importing consumer goods. In September 1998, the State Bank of Vietnam (the Central Bank) imposed a foreign exchange surrender requirement for exporters under which all exporting firms had to sell 80 per cent of their foreign exchange earnings to banks within 15 working days of transfer of these funds into their accounts. The surrender requirement was reduced to 50 per cent in August 1999 and to 40 per cent in May 2001, and finally removed in December 2004.

b. Policies to Redress Anti-export Bias

So far we have discussed the key elements of the trade policy regime that determine profitability of production for the domestic market. As the famous Lerner symmetry theorem stipulates, these restrictions on imports act as a tax on export production. They increase the cost of inputs to all industries thereby reducing relative profitability of exporting compared to production for the domestic market. As many other developing countries which attempt to promote exports in the context of a restrictive trade regime, Vietnam has resorted to a number of measures to redress such anti-export bias.

A duty rebate scheme was introduced in 1991 with a view to providing export producers with duty-free access to the imported intermediate inputs. In 1993, a duty suspension facility was added to the scheme, enabling export-oriented firms (firms exporting more than 50 per cent of output) to suspend duty payments for up to 90 days. The suspension period was further extended to 275 days in 1998 for all enterprises, which import inputs for export production.

There is evidence that the operation of the duty rebate scheme has improved considerably over the years (World Bank, 2002). The time involved in processing duty rebate claims has become considerably shorter (now around 3–5 weeks compared to over three months at the formative stage of the scheme) as the customs officials gained experience in the implementation of the scheme. However, compared to the highly successful duty rebate schemes in other Asian countries such as Korea, Taiwan and Malaysia, the Vietnamese scheme has two structural limitations. First, it provides only for refunding duties paid by export producers on imported inputs. Local intermediate goods producers who supply inputs to export producers ('indirect exporters') are not eligible for duty rebates on imports used in production (that is, a local producer who supplies textile to producers of garments for export is not eligible for duty rebate on imports of cotton yarn). This essentially creates an unnecessary bias in favour of using imported inputs, discouraging intermediate processing of inputs for use in export industries. Second, duty rebates are estimated on a shipment-by-shipment basis based on actual utilisation of imported inputs in export production (not on the basis of a pre-announced list of duty rebate rates). This practice works well for firms which import on a continuing basis, but problems arise when new and different cases

have to be dealt with. In addition to these limitations, there are also other administrative problems with the duty drawback system, including some unnecessary paper work required by Customs. For example, exporters are required to submit a certificate of export issued by the overseas importer to get a duty refund. There is anecdotal evidence that, because of the rigid implementation procedures of the duty rebate schemes, some private firms (mostly small and medium-sized firms) tend to rely on State-Owned Enterprises (SOEs) for exporting their produce and for procuring imported inputs.

In the early years of market-oriented reforms, Vietnam introduced export duties on a number of export items. They were justified at the time on grounds of protecting the environment, natural resources conservation and reserve inputs for domestic production. These duties were subsequently eliminated. By 1998 only two products – crude oil and scrap metal – were subject to export duties.

Concessions are given to exporters relating to corporate income tax and turnover tax, creating a tax wedge in favour of export production over production for the domestic market. Profit from export production is taxed at a concessionary rate depending on the degree of export orientation of production. Firms exporting between 50 and 80 per cent of production are taxed at 20 per cent for 12 years (from the date when the project commences production) while firms exporting at least 80 per cent of production are taxed at a more favourable rate of 15 per cent for 15 years. Exports are also exempted from value-added tax and other domestic taxes. There are no significant direct subsidies to exporters. A Credit Fund for Supporting Exports was set up in the late 1990s, but so far its role has been limited to providing some investment loans to SOEs (Athukorala, 2002a).

The government of Vietnam passed legislation for the setting up of export processing zones (EPZs) in 1991 in order to attract export-oriented foreign investors. There are three EPZs in operation – Linh Trung and Tan Thuan in the South (Ho Chi Ming City) and Numura in the North (Hai Phong). Firms operating in EPZs have duty-free access to all inputs and enjoy various tax concessions comparable to or more attractive than those located in FTZs in other countries in the region (Athukorala, 2002b).[2]

3. TARIFF STRUCTURE

This section looks at the structure of applied tariffs (nominal protection) in Vietnam, in order to set the stage for examining the structure of effective

[2] The share of FTZ enterprises in total non-oil manufactured exports increased from 11 per cent in 1995 to over 22 per cent in 2001. Total employment in the two zones amounted to over 80,000 by the end of 2003.

protection in the next section. The present import duty structure in Vietnam has three different rates of tariffs: (1) Common Effective Preferential Tariff (CEPT) rates applicable to imports from the member countries of the ASEAN Free Trade Association (FTAs); (2) Most Favoured Nation (MFN) rates applicable to countries with which Vietnam enjoys MFN status (the European Union, Japan, most Asian countries outside ASEAN, New Zealand and Australia); and (3) general rates (50 per cent above MFN rates) applicable to imports from countries that do not fall under (1) and (2). Of these three categories of rates, by far the largest share of imports (over 95 per cent in 2002) enters Vietnam under MFN rates (category (2)). The CEPT rates are currently applicable to only about 3.5 per cent of total import value (or about ten per cent of imports from ASEAN countries). Imports under general rates are believed to be negligible. For these reasons, the analysis in this and the following section focuses only on MFN tariffs.

The distribution of tariff lines at the six-digit level of the Harmonised System (HS) is summarised for 1995, 1997, 2001 and 2003 in Table 1. The maximum tariff rate came down from 200 per cent in 1997 to 120 per cent in 2001 and then to 113 per cent in 2003. In all four years less than one per cent of total tariff lines

TABLE 1
Vietnam: Summary of the Import Tariff Structure:[1] 1995, 1997 and 2001

Percentage Distribution of Tariff Lines	*May 1995*	*March 1997*	*December 2001*	*December 2003*
0	31.1	31.3	32.5	31.7
1–5	20.5	22.3	18.7	17.0
5–10	9.6	9.6	8.6	7.9
10–15	2.1	3.1	0.0	2.0
15–20	18.2	10.2	0.0	8.2
20–30	8.2	9.2	10.3	10.3
30–40	6.1	8.9	10.6	11.8
40–60	3.2	4.8	9.3	10.0
60–80	0.3	0.3	0.0	0.1
80–100	0.0	0.1	0.8	0.3
100+	0.5	0.2	0.1	0.1
Total tariff lines	3,135	3,126	5,724	5,107
Total tariff bands	36	35	15	60
Range of tariff rates	0–200	0–200	0–120	0–113
Mean tariff rate	12.8	13.4	15.7	16.65
Coefficient of variation (CV)	131	128	116.3	114.77

Notes:
[1] Applied rates.
CV standard deviation as a percentage of the mean.

Source: 1995 and 1997: Institute of Economics (2001); 2001 and 2003: compiled from the tariff schedules provided by the Ministry of Finance.

(accounting for around five per cent of import value) had tariff rates above 50 per cent.[3] About one-third of the tariff lines had zero tariffs in all four years. While some high rates have been eliminated over the years, there has been virtually no reduction in middle-range tariffs.

The number of tariff bands in the tariff schedule declined from 36 in 1995 to 15 in 2002. This trend towards simplification of the tariff system seems to have unfortunately reversed in the process of fine-tuning of tariffs over the past two years. By mid-2003, the number of tariff bands stood at 60. This increase has come from the introduction of fractional rates at the lower end, presumably reflecting the government's attempt to respond to lobbying pressure from importers of intermediate goods (mostly SOEs).

The average (unweighted) tariff rate remained unchanged between 2001 and 2003, following a mild increase from 13.4 to 15.7 between 1997 and 2001. However, the dispersion of tariff rates (measured by the coefficient of variation) has declined persistently over time. This decline has come predominantly from a compression of rates at the lower end of the rate distribution.

An analysis at the HS chapter level reveals considerable non-uniformity of rates within and between HS chapters (Athukorala, 2004). For example, currently there are 11 different duty rates for various kinds of animal and vegetable oil (HS 15), 19 rates for plastic products (HS 39), 15 rates for iron and steel products (HS 73) and 41 rates for electrical and non-electrical machinery (HS 84 + 85). Tariff rates are generally higher for manufacturing compared to agriculture and other primary product sectors. Within manufacturing, tariff rates are particularly high for food processing and for certain consumer goods (notably garments, footwear, ceramic products and leather goods). Certainly, there are likely to be significant unintended effects of this complex tariff schedule.

A comparison of tariff rates for intermediate goods and final goods across HS chapters provides clear evidence of tariff escalation with the stage of production. The weighted-average tariff on final goods in 2003 was 19.8 per cent compared to 11.4 per cent on intermediate goods. At the sectoral level, industries producing intermediate goods (chemicals, fertiliser, metal products and construction material, for example) have relatively low rates of tariff protection. By contrast, final-goods producing sectors (in particular, food and drinks, pharmaceuticals and garments) have relatively high tariffs. There is also a similar tendency within sectors that produce both intermediate and final goods. For example, in the case of metal products (HS 72 to 81), tariffs on intermediate goods vary in the range of 0–8 per cent, whereas most of the final-goods tariffs are above 20 per cent. It is important to note that, while intermediate goods tariffs are generally

[3] These high tariff rates remained concentrated in four HS chapters: Beverages, spirit and vinegar (HS 22); tobacco and manufactured tobacco (HS 24), worn clothing (HS 63) and vehicles and vehicle parts (HS 87) (Athukorala, 2004).

TABLE 2
Summary of the Tariff Structure in Selected Asian Countries

	Number of Tariff Lines	*Number of Tariff Bands*	*Range of Tariff Rates*	*Average Tariff Rate*	*Coefficient of Variation of Tariff Rates*
China (2001)	5,098	57	1–122	17.48	71.3
Indonesia (2001)	5,110	52	0–170	8.43	127.8
Malaysia (2001)	5,106	45	0–1,195	10.20	340.3
Philippines (2001)	5,112	38	0–60	7.60	93.9
Thailand (2002)	5,056	45	0–80	18.48	84.4
Vietnam (2003)	5,107	60	0–113	16.65	114.8

Source: Compiled from Tariff Schedules provided by the Ministry of Finance.

lower than tariffs on end products, intermediate imports used as inputs in some industries where Vietnam has comparative advantage in export trade are much higher than those on intermediate imports used in import-competing industries.

Vietnam's tariff structure is compared in Table 2 with that of China and four fellow member countries of AFTA, namely Indonesia, Philippines, Malaysia and Thailand. The average (unweighted) tariff rate in Vietnam (16.7) is a little lower compared to China (17.5) and Thailand (18.5), but much higher compared to Indonesia (8.43), Malaysia (10.2) and the Philippines (7.6). The degree of dispersion of tariff rates in Vietnam is much higher compared to China, the Philippines and Thailand, and lower compared to Indonesia and Malaysia.[4] In sum, in spite of considerable adjustment over the past decade, Vietnam's tariff structure is still out of line with the general patterns of the ASEAN countries and China.

4. EFFECTIVE PROTECTION AND ANTI-EXPORT BIAS

As we have seen in the previous sections, the tariff structure in Vietnam is 'cascading' in nature; tariffs are generally higher on final goods than on production inputs. An important implication of this cascading tariff structure is that the nominal tariff rates do not provide an accurate picture of the resource allocation effects of the overall tariff system. The resource allocation effects of a cascading tariff structure on a given product sector depend not only on the tariff rate applicable to that sector but also on tariffs on all other sectors which provide production inputs (intermediate and capital goods) to the sector, both directly and

[4] The degree of dispersion of tariff rates (measured by the coefficient of variation, CV) in Malaysia is disproportionately affected by a few extremely high tariff rates for alcohol (1,000 per cent or more) and motor vehicles (over 300 per cent). When these items are excluded, the CV decline from 340 to 62.

indirectly. In this section we attempt to examine the overall incentives provided for domestic traded goods production by the tariff structure by combining the tariffs on each sector and tariffs on its input-supplying sectors in the context of input-output linkages within the economy. The analytical tool used for this purpose is the effective rate of protection (ERP) (Corden, 1971; and Greenaway and Milner, 2003).

a. The Basic Concept of ERP and Key Insights

The ERP measures the proportionate increase in per unit value added of a sector due to the complete system of tariffs. More specifically, it takes into account the protection on output and the cost-raising effects of protection on inputs. By definition, the ERP for sector j can be expressed as follows:[5]

$$\mathrm{ERP}_j = \frac{t_j - \sum_{i=1}^{n} a_{ij} t_i}{1 - \sum_{i=1}^{n} a_{ij}}, \tag{1}$$

where t_j is the nominal tariff on sector j, t_i is the nominal tariff on input i, and a_{ij} is the share of intermediate inputs i in the final value of product j. Equation (1) tells us that effective protection enjoyed by a given product depends upon tariffs on outputs and inputs and on the free trade input share. Overall protection to value added depends upon the interplay between output and input tariffs (t_j and t_i) and the share of imported inputs in production costs (a_{ij}). In other words, the overall tariff structure has both a tax and a subsidy element; whereas tariffs on the final good operate as a subsidy, tariffs on intermediate inputs operate as a tax.

We have so far assumed that import tariff is the only instrument of trade protection. In practice, countries use other instruments such as subsidies and import quotas in addition to tariffs as instruments of trade intervention. To capture these impacts, t_j should be defined in broader terms to combine the nominal tariff on activity j and tariff equivalent of subsidies, quantitative restrictions and other forms of trade intervention.

The conventional practice is to estimate a composite ERP for a given sector incorporating both incentives for export- and import-competing protection. However, in the context of an economy like Vietnam (and most developing countries) where export-promotion policies are pursued alongside import-substitution policies, it is important to estimate ERP for import-competing and export-oriented activities separately.

[5] For details of this formula see Corden (1971) and Greenaway and Milner (2003).

Let us denote ERP for production for domestic market and production for export in the same industry by ERP_d and ERP_e respectively. Combining the two measures provides us with a useful summary measure of the export bias embodied in the overall incentive structure. That is:

$$EBI = \left[1 - \frac{(1 + ERP_d)}{(1 + ERP_x)}\right] * 100, \quad (2)$$

where EBI = export bias index.

A positive EBI implies an incentive bias against exporting (that is, a bias in favour of import-competing production) and a negative EBI implies an incentive bias in favour of exporting (a bias against domestic sales). For example, an estimated EBI of 25 for a given industry suggests that under the given structure of protection, value added (returns to primary factors, labour and capital) in production for the domestic market in that industry is 25 per cent higher compared to production for export. By contrast, an estimated EBI of –25 suggests that value added in production for export made possible by the structure of protection is 25 per cent higher than that in production for the domestic market.

b. Data

The estimates of ERP reported in this paper are based on the tariff schedule as at mid-2003 provided by the Ministry of Finance and intermediate import coefficient derived from the Input-Output Table for 2000 prepared by the General Statistical Office (GSO). The nominal rates used in estimation are simply the official applied tariff rates ('*ex-ante*' rates) summed up at the input-output sector level using import value weights.

The use of *ex-ante* tariff rates for measuring the price-raising effect of the tariff structure is of course problematic. These rates are likely to overstate the price-raising effects given the presence of various formal and informal tax exemptions and tariff evasion through smuggling (World Bank, 2002). In principle, the '*ex-post*' rates derived from actual duty collections and recorded imports appear to offer an adjustment for such potential upward bias. But, disaggregated data on customs collection are not available for Vietnam. In any case, the '*ex-post*' rate provides a precise measure of the tariff-inclusive border price only if there is uniform exemption on the *ex-ante* rates for all importers (and for all sources of import) relating to a given import item. With non-uniformity in the application of exemptions, it will be the marginal rather than the average influence (captured by the weighted rate) that is important. In this case, the '*ex-post*' tariff may be a downwardly biased measure of the price-raising effect of border taxation of imports and the *ex-ante* rates may more accurately capture the structure of protection (Greenaway and Milner, 1991).

Second, *ex-ante* (as well as *ex-post*) tariff rates fail to take account of quantitative restrictions and other forms of non-tariff barriers. We have noted above that, while quantitative restrictions are now applied only to sugar (and petroleum products, which are not covered in our calculations of ERP), imports are subject to various forms of non-transparent administrative protections. In the presence of such restrictions, the *ex-ante* rate tends to understate the price-raising impact of actual border protection. The obvious preferred strategy is to estimate the price-raising effect directly by comparing border (world) prices and domestic prices of the given products. It is not possible to adopt this strategy in Vietnam because data on domestic prices are not readily available. However, the available price comparisons for a limited number of commodities suggest that the wedge between the domestic price and border price are not very different from (and in some cases even lower than) scheduled tariffs (Athukorala, 2002a).[6] In particular, in the domestic market for sugar (the main product under quantitative restriction), a combination of smuggling and market saturation resulting from a surge in domestic production has caused prices to fall to the import parity level after about 1999 (CIE, 2001). Thus, it is unlikely that the use of applied tariffs as the measure of a price-raising impact of the trade policy regime would result in a significant downward bias in the estimated incidence of effective production.

Given the paucity of data, precise measurement of incentives for export-competing production (ERP_x) is even more difficult than measuring protection for import-competing production (ERP_d). Because of this reason, we come up with three alternative EBI indices based on three alternative measures of ERP_x. The first index (EBI1) represents the extreme case in which the export producer suffers from higher prices for intermediate goods imports, but is unable to benefit from exemptions of import duties on imported inputs or any other tax exemption (a case of complete failure of various policy measures aimed at cushioning the export producer against the anti-export bias of the protectionist trade regime). Because export-oriented activities are often subject to tariffs on inputs and will not benefit from tariffs on exported output, this case implies an anti-export bias across all sectors. Only the magnitude of the bias varies across sectors depending on the output tariffs. The second index (EBI2) incorporates a tax wedge of six per cent but assumes only 80 per cent of the import duties on intermediate imports are reimbursed under the import duty rebate scheme.[7] The third index

[6] There is anecdotal evidence that thriving illegal cross-border trade acts as a cushion against the price-raising effects of QRs and other non-tariff barriers in Vietnam.

[7] These figures are from Athukorala (2002a). The first figure (six per cent tax rebate) is based on returns to a survey of 170 firms recently conducted by the Institute of World Economy, Hanoi. It is also consistent with the findings of a firm-level survey conducted by the ILO and the European Institute of Japanese Studies (Ronnas and Ramamurthy, 2001). The second figure (80 per cent duty rebate) is a rather arbitrary choice, but it is broadly consistent with exporters' perceptions of the operation involved in the use of the current duty rebate scheme (World Bank, 2002).

(EBI3) depicts the case in which the duty rebate scheme is fully functional in reimbursing the exporter the total amount of duties paid on imported inputs and the existing tax exemptions create a price wedge of six per cent for export sales compared to domestic market sales (or tax exemptions amount to a six per cent net subsidy for export production over production for the domestic market). We believe that EBI2 depicts closely the experience of the average exporter and EBI3 the case of well-established, large exporting firms.

c. Effective Protection for Import-competing Production

Effective protection estimates for import-competing production for 2003, together with the underlined input and output tariff and input coefficients, are reported in Appendix Table A1. The estimates are summarised for the three major sectors of the economy – agriculture, mining and manufacturing – in Table 3, together with estimates for 1997 and 2000 from a previous study (Athukorala, 2002a).

The estimated ERP for import-competing production in all traded-goods sectors in 2003 is 25 per cent, compared to 58 per cent in 2001 and 72.2 per cent in 1997 (Table 3). A comparison of NRP and ERP estimates for the three years suggests that this decline has come predominantly from an *increase* in input tariffs. The NRP (on final goods) has changed only marginally over this period. The degree of dispersion of ERP across sectors (measured by the coefficient of variation) increased from 156 per cent in 1997 to 172 per cent in 2001 and then declined to 134 per cent in 2003.

TABLE 3
Vietnam: Summary of NRP and ERP Estimates, 1997, 2001 and 2003

	1997		*2001*		*2003*	
	NRP	*ERP*	*NRP*	*ERP*	*NRP*	*ERP*
Weighted average						
Agriculture	8.12	7.74	6.28	7.43	11.06	12.52
Mining	9.42	6.05	8.91	16.39	3.55	−0.03
Manufacturing	30.63	121.47	25.28	95.97	29.23	43.94
Total tradables	20.95	72.22	17.92	58.46	18.20	24.87
Simple average	23.32	59.54	20.14	54.10	19.98	26.23
CV	133.81	156.01	149.90	172.34	106.51	134.93

Notes:
CV Coefficient of variation.
NRP Nominal rate of protection.
ERP Effective rate of protection.

Source: Athukorala (2002a) and Appendix Table A1 (this paper).

The estimates also point to a clear bias against agriculture (and in favour of manufacturing) in the tariff structure. Despite decline in manufacturing protection and a mild increase in agricultural protection, this anti-agricultural bias has remained virtually unchanged across the three years. The mild increase in agricultural protection between 2001 and 2003 has emanated predominantly from an increase in output tariff, whereas an increase in input tariff seems to have played a key role in the sharp decline in manufacturing protection.

The disaggregated estimates for 2003 reveal a high degree of ERP variability in ERP across industries (Table A1). Three sectors – liquor, beer and processed rice – have ERPs well over 100 per cent. ERPs for 11 sectors (tea, bricks and tiles, home appliances, textiles, clothing, carpets, plastic products, home appliances, motorcycles, bicycles, and motor vehicles) range between 50 and 88 per cent. All other sectors have ERPs in the range of 0 to 50 per cent, with the majority clustering at the lower end of the distribution. Very high protection provided to products such as tea, coffee, rice and wearing apparel, in which the country has a clear comparative advantage, remains a major anomaly in Vietnam's tariff structure.

The implications of the cascading nature of the tariff structure for the incentive structure for domestic manufacturing is vividly demonstrated by the ERP estimates for individual I-O industries. Since the NRP on final goods are generally higher than those on intermediate goods, the net effect of the nominal tariff structure has been to yield ERPs that exceed the nominal tariff rate in most industries. The rank correlation coefficient between NRP and ERP across the 83 sectors is rather weak (a mere 0.4), pointing to the importance of intermediate tariffs in determining the net protective effect of the tariff structure. As already noted, the significant decline in ERP for manufacturing as well as ERP for total traded goods production has come from an increase in input tariff introduced with the objective of protecting SOEs involved in intermediate production, rather than from reduction in final goods tariffs.

Table 4 compares the ERP estimates for Vietnamese manufacturing with those available for seven major East Asian economies. A strict comparison of estimates across the countries is not possible because of significant differences in estimates in terms of the coverage given to various elements of the trade regime in each country. But based on the order of magnitude alone, one can safely infer that *the current level of effective protection to domestic manufacturing in Vietnam is clearly out of line with the protection levels in other countries in the region*. By the mid-1990s, the level of manufacturing ERP in Indonesia, Malaysia and the Philippines was less than half of the present (mid-2003) level of manufacturing ERP in Vietnam (49 per cent). Thailand's overall manufacturing ERP was a little higher, but this was because of high protection given to the automobile industry, which has been scaled down in recent years. But, it is important to note that the current (2003) level of manufacturing protection is higher than the level of

TABLE 4
Effective Rate of Protection (ERP) in Manufacturing in Selected East Asian Countries

	Year	*ERP*	*Source*
Indonesia	1975	74	World Bank (1993)
	1987	70	Fane and Condon (1996)
	1990	59	World Bank (1993)
	1995	25	Fane and Condon (1996)
South Korea	1970	40	World Bank (1993)
	1975	55	World Bank (1993)
	1980	67	World Bank (1993)
	1985	80	World Bank (1993)
	1988	28	Panagariya (1994)
Malaysia	1969	45	Salleh and Meyanadan (1993)
	1979/80	31	Salleh and Meyanadan (1993)
	1988	23	Panagariya (1994)
	2003	16	Athukorala (2005)
Philippines	1992	32	Panagariya (1994)
	1999	10	WTO (1999)
Thailand	1981	74	World Bank (1993)
	1988	51	Panagariya (1994)
	2002	25.2	Athukorala et al. (2004)
	2004	22.7	Athukorala et al. (2004)
Vietnam	1997	121	Athukorala (2002a)
	2002	95	Athukorala (2002a)
	2003	44	This paper (Athukorala, 2006)

protection enjoyed by Korean manufacturing at the early stage of export-led industrialisation.

d. Export Bias

In the previous section we have examined the incentives faced by import-competing production in Vietnam. This analysis has implications for export policy because import protection by definition is a tax on export-competing production. However, to get a fuller picture about the nature of relative incentives for export-competing production, it is important to make a direct comparison of returns to domestic sales (or import-competing production) with the returns to export sales (export-competing production) within individual sectors. This is the purpose of this section.

The estimated export bias indices (EBIs), together with the underlying estimates of effective rates of protection for domestic-market-oriented and export production (ERP_d and ERP_x), are presented in Appendix Table A2. For obvious reasons our focus here is only on the manufacturing sectors. The three alternative EBI estimates for total manufacturing in 2003 are compared with those for 2001 (from Athukorala, 2002a) in Table 5.

TABLE 5
Vietnam: Estimates of Anti-export Bias in the Manufacturing Sector, 2001 and 2003

Export-bias Index		*2001*	*2003*
EBI1	Captures the impact of import protection only	483.2	105.4
EBI2	Import protection + 80% duty rebate + 6% tax wedge for export production over domestic market-oriented production	137.1	57.7
EBI3	Import protection + 100% duty rebate + 6% tax wedge for export production over domestic market-oriented production	55.0	25.0

Source: Athukorala (2002a) and Appendix Table A2 (this paper).

EBI1, which assumes that existing export incentive policies (duty rebate and other tax exemptions) completely inactive, provides a useful benchmark for our analysis. According to this index all industries suffer significant anti-export bias, with an average anti-export bias of 105 per cent for all industries listed (implying that selling in the domestic market is almost twice as profitable compared to exporting). A comparison of EBI1 with the other indices clearly points to the important role played by the duty rebate and other tax exemptions in mitigating the anti-export bias in the tariff regime. Under the assumption of 80 per cent import duty refund and a six per cent price-wedge arising from other (domestic) tax exemptions (EBI2), the average anti-export bias declines from 105 to 58 per cent. Under the assumptions of complete duty exemption and a six per cent price-wedge arising from domestic tax exemptions (EBI3), the measured degree of anti-export bias declines further to 25 per cent.

Between 2001 and 2003 there has been a clear reduction in the degree of anti-export bias in the incentive structure facing Vietnamese manufacturing in terms of all three alternative measures (Table 5). It seems that recent reductions of tariffs on final goods have played an important role in reducing the bias against exporting. This observation needs to be treated with care because, given the presence of an import duty rebate scheme for exporters, an *increase* in import tariffs automatically tilt EBI2 and EBI3 in favour of export production. However, the decline in anti-export bias is significant even in terms of EBI1 which does not capture the import duty rebate effect.

A comparison of the three indices across industries (Table A2) clearly suggests that, while various indirect measures to counterbalance the anti-export bias of the protectionist regime seem to have had some effect, they are unlikely to achieve the desired neutrality in the incentive structure even if the efficiency of their implementation is substantially improved. More importantly, even in terms of EBI3 (which assumes complete duty rebate) there is a considerable bias against exporting in several of the sectors where a country of Vietnam's level of development has ample scope of achieving export success, such as garments, plastic products, leather goods, ceramics and other manufacturing. While there is

much room to improve the efficacy of the duty rebate scheme and other tax exemptions, the objective of removing anti-export bias cannot be achieved through these cushioning measures alone, without further actions to rationalise the tariff structure.

Note that the estimated EBI2 and EBI3 for a number of product sectors (such as wood products, basic organic chemicals, inorganic chemical fertiliser, pesticides, plastic products, various types of machinery, ferrous metal and animal feed) are negative, implying a *positive* bias in favour of export production. These estimates simply reflect the fact that, given the high defence of imported inputs which are imported at relatively high duty, the existing duty rebate scheme makes export-oriented production in these sectors relatively more profitable compared to production for the domestic market (for which producers in these industries have to pay duty on imported inputs). This by no means implies that the existing trade policy regime will be *capable of* making these industries export oriented. Export success depends primarily on the comparative advantage of a given sector in international production. Relative domestic incentives are only a facilitator of export success.

5. THE STRUCTURE OF PROTECTION AND MANUFACTURING PERFORMANCE

We have observed in the previous section that tariff policy in Vietnam has been basically derived by protection motive and that the Vietnamese economy has incurred considerable cost of resource misallocation owing to such policy. An obvious related question is whether protection can be justified on grounds of setting the stage for industrial transformation.

Table 6 brings together our effective rate of protection estimates and selected performance indicators for the manufacturing sectors. Given the highly aggregative nature of the data, it is not possible to undertake any meaningful statistical analysis of the relationship between protection and the structure and performance of manufacturing. But, a number of interesting patterns emerge from these data. First, it is clearly evident that high protection rates are generally associated with industries dominated by SOEs and/or foreign-invested enterprises (which are mostly joint ventures with SOEs). Most of the industries with greater participation of private enterprises, such as leather and leather products, rubber and plastic products, and furniture and other manufacturing, operate under relatively low protection. Thus, there is no evidence to suggest that the existing structure of protection can be justified on grounds of infant industry protection.

Second, the price cost margin (an indicator of profitability) is generally higher in highly protected industries (compare columns 1 and 5). This comparison suggests that the existing structure of protection may have enabled certain industries to maintain profit margins at excessively high levels, at the expense of

TABLE 6
Vietnam: Effective Protection and Key Indicators of the Structure and Manufacturing Performance

Industry Code	*Industry*	*ERP* (1)	*SOE Share in Output* (2)	*FIE Share in Output* (3)	*Employment Share (Per cent)* (4)	*Price-Cost Margin (Per cent)*[1] (5)	*Capital per Worker*[2] *(Millon dong)* (6)	*Growth of Output 1990–2000* (7)	*Growth of Employment 1990–2000* (8)
15	Food, beverages and tobacco	72.98	48.8	39.3	12.2	21.5	16.0	8.0	–2.2
16	Tobacco products	55.30	98.5	1.5	1.0	42.2	8.0	9.8	–5.0*
17	Textiles	70.97	49.8	43.4	10.5	20.7	16.7	13.2	–3.1
18	Wearing apparel	70.56	34.2	47.1	15.5	14.4	5.0	15.4	10.2
19	Leather products	39.15	17.5	67.7	19.2	5.2	6.3	3.0	38.3
20	Wood and wood products	1.15	31.1	28.5	2.5	14.7	2.2	12.9	3.8
21	Paper and paper products	17.09	58.6	17.2	2.7	12.8	9.6	8.3	3.6
22	Printing and publishing	–4.09	97.1	1.1	1.8	21.7	6.6	–19.8	6.0
23	Coke and petroleum products	2.90	—	76.7	0.1	14.4	36.2	14.1	73.7*
24	Chemicals and chemical products	9.67	50.8	38.9	4.0	15.7	7.4	18.2	4.8*
25	Rubber and plastic products	35.67	47.7	28.5	3.5	17.4	12.6	13.3	18.1*
26	Non-metallic mineral products	50.83	62.7	29.6	7.1	27.2	11.2	10.7	–3.6*
27	Base metal products	0.75	40.8	56.5	2.9	11.3	10.1	15.9	1.5*
28	Fabricated metal products	–20.94	23.9	58.4	2.3	13.1	10.7	13.5	8.8*
29	Machinery and equipment	–8.58	43.0	36.6	2.8	19.1	4.2	14.6	3.0*
30	Office, accounting and computing machines	–14.15	—	100.0	0.3	4.2	49.6	20.4	42.7*
31	Electrical machinery	13.15	47.7	40.8	2.4	15.4	8.3	12.6	–9.0
32	Television and communication equipment	13.43	15.1	82.9	1.4	16.6	32.2	12.0	–10.6
33	Medical and optical equipment, and watches	–2.95	22.9	71.5	0.4	14.5	14.0	13.1	15.5*
34	Motor vehicles	79.22	18.2	77.0	1.0	25.6	12.9	19.9	16.1*
35	Other transport equipment	28.10	24.1	70.8	2.3	11.8	4.1	13.2	7.5*
36	Furniture and other manufactures	23.61	8.5	60.7	4.0	10.2	3.5	12.2	4.4*
37	Total	43.90	43.6	45.4	100.0	18.0	10.2	9.5	1.8

Notes:
[1] Price-cost margin = [(gross output – material input – wages)/gross output]∗100.
[2] End-of-year stock of machinery and equipment investment divided by the number of employees.
* Data for 1995–2000.
— Zero or negligible.

Source: Column 1: Appendix Table A1; columns 2–6: compiled from Statistical Publishing House (2000), *Analysing the Results of the Industrial Survey of Vietnam – 1999*, Hanoi; and columns 7 and 8: compiled from General Statistical Office, *Statistical Yearbook*, Hanoi (various issues).

consumer welfare. This is an important aspect of the protection-industry performance nexus, which certainly warrants further in-depth study.

Third, capital intensity of production (measured in terms capital per worker, column 6) are generally higher than those in highly protected industries. This implies that the existing structure of protection is not consistent with the employment generation objective of industrial policy. During 1990–2000, total manufacturing output grew by an impressive 9.5 per cent, but employment grew by only a mere 1.8 per cent, reflecting the inherent capital intensity of the growth process. The relative contribution of heavily protected industries such as motor vehicles, other transport equipment, and fabricated metal products to total industrial output and employment has continued to remain low compared to many other sectors enjoying relatively low protection.

Finally, it is pertinent to comment briefly on the implications of the anti-export bias for export performance, an issue which has led to some controversy in the recent policy debate in Vietnam (Parker and Riedel, 2002, pp. 11–12). In recent years, Vietnam has achieved rapid export growth in industries (in particular, wearing apparel, shoes and furniture and electronics) where the incentive bias against exporting under the existing trade regime is very high. Does this mean that the anti-export bias as measured in this study is a misleading indicator of the impact of the incentive structure on export performance?

The anti-export bias is an indicator of the relative profitability of production for the domestic market compared to exporting. It is relevant for the production decision of a firm only if both these two options carry important weights in making its marketing decisions. Selling in the domestic (Vietnamese) market is not an option for firms (mostly foreign firms) who select Vietnam as an export platform as part of their global sourcing. What is important for these firms is the relative profitability of producing in Vietnam compared to producing in other countries. In fact, the data on the ownership structure of manufacturing exports from Vietnam clearly suggest that foreign-invested enterprises (FIEs) have accounted for much of the recent export expansion. The share of FIEs in total manufacturing exports from Vietnam increased from about 20 per cent in the mid-1990s to over 70 per cent by 2002. On average, FIEs accounted for over 90 per cent of the annual increment in manufacturing exports during this period. The upshot of this emerging export pattern is that Vietnam has so far failed to entice pure local firms, in particular small and medium-scale firms (which always have a tendency to place a greater weight on the option of selling in the domestic market) to enter export markets. Presumably, persistent anti-export bias embodied in the incentive structure constitutes an integral part of the explanation of this policy failure. There is certainly a need for a systematic analysis of the extent to which anti-export basis impact on relative export performance of domestic firms, while paying attention to other factors that undermine the investment climate for local companies compared to SOEs and FIEs.

6. CONCLUSION AND POLICY INFERENCES

Over the past one-and-a-half decades, Vietnam has made significant progress in market-oriented reforms. The transition to a market economy is far from complete, however. Despite some significant recent efforts to rationalise the tariff structure and to remove some QRs, tariffs are still high and non-uniform. Effective rate of protection for traded goods production (manufacturing, in particular) has recorded a significant decline over time. Moreover, increase in import duties on intermediate goods has played a much more important role than reduction in duties on final goods in the recent decline in ERP. Thus, the structure of trade protection in Vietnam is clearly out of line with that of the major trading nations in the region, both in terms of the level and the dispersion of nominal and effective protection rates.

The counterbalancing effect of measures implemented to redress the anti-export bias in the trade regime (duty rebate, turnover tax concession and profit tax concession) is much smaller in magnitude compared to the price-raising impact of the existing import tariff structure. Consequently, there is a clear anti-export bias in the incentive structure, even though the degree of the bias has considerably declined in recent years. Ironically light manufactured goods industries such as garments, ceramics, footwear and sport goods, which have proved to be the cradle for exporters in East Asian countries, are among the sectors with above average anti-export bias (owing to very high import duties). Anti-export bias in the incentive structure presumably hinders the emergence of pure private sector firms (small and medium scale firms in particular) as a powerful vehicle for export expansion. Much of the recent expansion in manufactured exports has come from export-oriented foreign firms for which anti-export bias in the domestic incentive structure is presumably not a major concern. Given that tariffs on most intermediate imports have already reduced to low levels and there is limited room for giving further tax concessions and/or introducing new financial incentives for exporters, the only effective strategy available for Vietnam to reduce/eliminate anti-export bias is further tariff reduction.

With tariffs coming down from highly restrictive levels, and QRs to be removed completely in the coming years, it is time to look at the entire tariff structure in totality, and to bring substantial uniformity into it. Apart from the cost of resource misallocation involved, the multiplicity of rates implies that protectionist lobbies find it easier to lobby for tariffs, whereas, if uniformity is adopted as a policy, it would become relatively unprofitable to lobby for one's tariff because of two reasons. First, the government could always argue that a specific demand for a higher tariff could not be met because it would involve raising all other tariffs, which the government cannot do. Second, the lobbyist's advantage from getting the higher rate, thanks to its own lobbying (which cost money) would be reduced because other tariffs, including its own rate, would rise

equally. A move towards uniformity would be an effective way of reducing the corruption involved and the arbitrary nature of the tax administration. A move towards a greater uniformity in tariff rates will also help in reducing delays and malpractices involved in customs procedures. However, even under the most optimistic scenario for liberalisation reforms in Vietnam, tariffs are unlikely to come down to warrant abolishing the existing duty rebate scheme. As long as there are significant tariffs on intermediate imports there is a clear need for an efficient duty rebate scheme for providing export producers with 'free-trade conditions' in procuring inputs.

APPENDIX

TABLE A1
Vietnam: Effective Rate of Protection and its Components, 2003 (Per cent)

I-O Code	*I-O Industry/Sector*	*Value added*	Σa_{ij}	$\Sigma a_{ij}t$	*NRP*	*ERP*
	Agriculture[1,2]	57.68	23.44	1.52	11.06	12.52
1	Rice	19.01	28.33	1.06	13.84	17.84
2	Natural rubber (piece, sheet or tape)	0.96	18.75	0.48	3.00	3.10
3	Coffee beans	2.35	27.63	0.24	28.60	39.19
4	Sugar cane	1.18	18.70	0.47	0.00	−0.58
5	Tea	0.26	24.76	0.79	50.00	65.41
6	Other crops	15.24	15.00	0.34	1.24	1.05
7	Pig meat (all kinds)	3.42	43.79	3.65	0.00	–6.49
8	Cow (all kinds)	0.28	38.71	2.55	5.00	3.99
9	Poultry	2.03	28.80	2.96	2.50	–0.64
10	Other livestock	1.63	35.68	2.73	5.20	3.83
13	Forestry	3.27	13.00	0.97	5.00	4.63
14	Sea and aquatic fishing	3.72	20.02	3.72	30.00	32.85
15	Fish farming	4.32	18.30	4.55	30.00	31.15
	Mining[2]	2.19	29.34	3.59	3.55	–0.03
16	Coal	1.25	26.84	2.51	2.47	–0.05
17	Metallic ore	0.10	41.04	1.30	1.22	–0.14
18	Stone/granite	0.41	36.45	6.81	7.56	1.17
19	Sand, gravel	0.19	24.50	4.17	5.00	1.09
20	Other non-metallic minerals	0.24	29.15	4.17	2.16	–2.84
	Manufacturing[2]	40.14	55.30	11.07	29.23	43.94
22	Processed, preserved meat and by-products	0.34	60.82	2.92	10.00	18.08
23	Processed vegetable, and animal oils and fats	0.40	56.03	2.81	13.61	24.57
24	Milk, butter and other dairy products	0.61	56.54	11.93	23.76	27.22
25	Cakes, jams, candy, cocoa, chocolate products	0.43	44.50	11.95	48.17	65.25
26	Processed and preserved fruits and vegetables	0.30	42.71	4.52	34.30	51.98
27	Liquor (excluding beer)	0.17	39.33	10.40	102.15	151.24

28	Beer	1.40	37.62	7.30	100.00	148.60
29	Non-alcoholic beverages	0.48	53.20	9.09	50.00	87.41
30	Sugar of all kind	0.92	58.03	4.37	18.65	34.00
31	Coffee, processed	0.08	53.87	16.57	43.62	58.65
32	Tea, processed	0.19	43.17	20.33	50.00	52.20
33	Cigarettes and other tobacco products	0.59	65.42	15.15	34.28	55.30
34	Processed seafood and by-products	2.15	65.77	18.72	31.15	36.31
35	Rice, processed	2.21	85.52	12.17	30.00	123.18
36	Other food manufactures	1.07	71.03	7.24	17.08	33.96
37	Glass and glass products	0.35	38.51	5.62	23.94	29.81
38	Ceramics and by-products	0.17	53.31	3.99	23.38	41.53
39	Bricks, tiles	1.32	45.28	10.47	49.96	72.16
40	Cement	1.78	50.30	15.28	40.00	49.73
41	Concrete, mortar and other cement products	0.25	47.11	8.63	25.20	31.32
42	Other building materials	0.24	45.69	8.17	8.32	0.29
43	Paper pulp and paper products and by-products	0.87	49.17	6.93	15.62	17.09
44	Processed wood and wood products	1.39	56.29	3.98	4.48	1.15
45	Basic organic chemicals	0.06	35.09	6.78	1.48	–8.18
46	Basic inorganic chemicals	0.19	42.81	1.94	1.99	0.09
47	Chemical fertiliser	0.69	46.32	1.68	0.36	–2.45
48	Other fertiliser (non-chemical)	0.13	41.01	1.89	0.00	–3.21
49	Pesticides	0.20	37.01	2.98	3.20	0.34
50	Veterinary drugs	0.10	38.69	1.78	0.00	–2.91
51	Medicine	0.58	51.10	2.76	4.72	4.01
52	Processed rubber and by-products	0.78	46.89	2.99	7.99	9.41
53	Soap, detergents	0.16	64.04	2.41	21.42	52.84
54	Perfumes and other toiletry preparation	0.65	57.78	3.71	18.05	33.99
55	Plastic, original and semi-processed	0.20	56.77	2.03	1.01	–2.36
56	Plastic products	1.23	52.73	3.37	30.98	58.41
57	Paints	0.25	58.54	2.68	3.77	2.63
58	Ink, varnish and other painting materials	0.02	44.37	3.54	4.96	2.55
59	Other chemical products	0.16	50.10	3.72	4.36	1.27
60	Medical instruments and apparatus	0.20	39.00	3.00	0.13	–4.70
61	Precision and optical equipment	0.04	48.70	4.83	7.63	5.46
62	Home appliances and parts	0.21	51.78	10.02	35.97	53.83
63	Motorcycles and accessories	1.26	68.59	32.39	60.00	87.91

TABLE A1 *Continued*

I-O Code	*I-O Industry/Sector*	*Value added*	Σa_{ij}	$\Sigma a_{ij}t$	*NRP*	*ERP*
64	Bicycles and accessories	0.10	65.88	17.43	30.83	39.27
65	Machine tools	0.15	49.57	5.99	6.44	0.88
66	Other general-purpose machinery	0.11	54.06	4.13	6.33	4.79
67	Special-purpose machinery	0.52	56.28	9.18	2.99	–14.15
68	Motor vehicles	1.10	47.22	26.95	68.75	79.22
69	Other transport equipment	0.75	28.17	5.12	24.23	26.60
70	Transformers	0.08	45.33	4.38	11.68	13.35
71	Other electrical machinery and equipment	1.02	59.19	7.22	4.67	–6.26
72	Broadcasting, TV and communication machines	0.56	62.15	11.03	16.11	13.43
73	Non-ferrous metals and products (except machinery equipment)	1.26	61.27	5.44	5.74	0.75
74	Ferrous metals and products (except machinery equipment)	0.50	56.72	14.50	5.43	–20.94
75	Textiles	1.10	60.98	10.98	38.67	70.97
76	Fibres, thread (all kinds)	0.47	43.39	4.20	4.94	1.32
77	Clothing	2.23	65.75	23.24	49.58	76.92
78	Carpets and tapestry textiles	0.06	53.57	7.72	40.00	69.51
79	Weaving and embroidery of textiles (except carpets)	0.42	43.85	10.35	30.91	36.61
80	Leather (products of tanneries)	0.33	52.59	6.89	7.64	1.60
81	Leather goods	2.30	63.23	13.68	30.08	44.61
82	Animal feeds	0.43	63.11	9.96	10.00	0.12
83	Products of printing industry	0.52	21.34	13.54	8.90	–5.90
84	Publishing	0.23	34.82	4.83	4.77	–0.09
85	Products, unclassified	1.07	26.74	13.78	31.08	23.61
	All traded goods sectors[2]	100.00	36.38	5.40	18.20	24.87

Notes:
[1] Agriculture excluding irrigation and agricultural services (I-O sectors 11 and 12).
[2] Weighted average (based on value added).

Source: Methodology and data sources are discussed in Section 3.

TABLE A2
Vietnam: Anti-export Bias and Related Data (Per cent)

Code	*Commodities*	*Export/Output*	*Export Share*[2]	*EBI1*	*EBI2*	*EBI3*
22	Processed, preserved meat and by-products	14.82	0.39	27.59	7.98	2.39
23	Processed vegetable, and animal oils and fats	41.94	0.76	33.07	14.77	9.61
24	Milk, butter and other dairy products	21.25	0.94	75.37	38.52	11.79
25	Cakes, jams, candy, cocoa, chocolate products	11.40	0.29	110.62	76.59	49.13
26	Processed and preserved fruits and vegetables	24.71	0.39	65.00	45.91	37.57
27	Liquor (excluding beer)	9.17	0.06	203.21	161.22	128.63
28	Beer	1.27	0.09	181.55	147.96	126.79
29	Non-alcoholic beverages	0.60	0.02	132.57	92.64	66.12
30	Sugar of all kind	8.04	0.51	49.59	26.47	17.24
31	Coffee, processed	2.33	0.01	147.60	88.27	40.39
32	Tea, processed	59.83	0.58	136.99	85.76	37.66
33	Cigarettes and other tobacco products	1.66	0.14	176.39	88.70	32.34
34	Processed seafood and by-products	81.59	15.62	200.81	84.76	15.98
35	Rice, processed	19.32	9.80	1,300.69	200.80	57.78
36	Other food manufactures	8.77	1.11	78.61	33.01	10.98
37	Glass and glass products	13.29	0.20	42.86	26.70	18.27
38	Ceramics and by-products	44.26	0.57	54.75	33.50	25.41
39	Bricks, tiles	0.65	0.04	112.91	79.98	55.15
40	Cement	0.29	0.04	116.22	71.17	33.60
41	Concrete, mortar and other cement products	0.00	0.00	56.93	33.61	17.94
42	Other building materials	0.17	0.00	18.04	1.29	–9.69
43	Paper pulp and paper products and by-products	9.20	0.59	35.57	16.05	4.73
44	Processed wood and wood products	44.39	4.30	11.29	–4.97	–11.06
45	Basic organic chemicals	27.77	0.08	2.54	–8.98	–15.95
46	Basic inorganic chemicals	24.63	0.20	3.60	–7.14	–9.41
47	Chemical fertiliser	0.09	0.00	0.70	–10.24	–12.26
48	Other fertiliser (non-chemical)	3.72	0.02	0.00	–10.05	–12.15
49	Pesticides	5.77	0.04	5.33	–5.10	–8.39
50	Veterinary drugs	0.00	0.00	0.00	–9.65	–11.56
51	Medicine	11.46	0.34	10.23	–3.48	–7.36
52	Processed rubber and by-products	7.65	0.30	15.94	2.45	–1.69
53	Soap, detergents	9.00	0.10	63.84	37.31	30.99
54	Perfumes and other toiletry preparation	6.37	0.24	46.88	25.00	17.32
55	Plastic, original and semi-processed	4.42	0.06	2.45	–11.33	–14.26

TABLE A2 *Continued*

Code	*Commodities*	*Export/Output*	*Export Share*[2]	*EBI1*	*EBI2*	*EBI3*
56	Plastic products	4.97	0.32	70.56	48.05	40.57
57	Paints	1.52	0.02	9.73	–6.10	–10.34
58	Ink, varnish and other painting materials	0.00	0.00	9.52	–2.97	–7.43
59	Other chemical products	9.73	0.08	9.44	–4.51	–9.60
60	Medical instruments and apparatus	19.67	0.15	0.22	–10.01	–13.24
61	Precision and optical equipment	179.46	0.37	16.42	1.24	–5.58
62	Home appliances and parts	0.00	0.00	94.17	60.54	36.81
63	Motorcycles and accessories	0.32	0.04	—[1]	413.47	57.77
64	Bicycles and accessories	71.51	0.73	184.71	81.54	18.44
65	Machine tools	7.99	0.07	14.49	–1.47	–9.84
66	Other general-purpose machinery	10.80	0.07	15.14	–1.02	–7.31
67	Special-purpose machinery	196.64	6.22	8.65	–11.44	–24.51
68	Motor vehicles	0.84	0.04	266.18	154.13	60.92
69	Other transport equipment	9.20	0.29	36.32	23.34	16.84
70	Transformers	117.54	0.46	23.22	8.40	2.14
71	Other electrical machinery and equipment	29.71	2.42	13.90	–6.76	–18.27
72	Broadcasting, TV and communication machines	69.57	3.54	60.06	22.57	–2.09
73	Non-ferrous metals and products (except machinery equipment)	7.31	1.06	17.23	–3.35	–12.76
74	Ferrous metals and products (except machinery equipment)	23.83	0.79	18.88	–9.20	–30.57
75	Textiles	15.23	1.54	137.92	84.10	48.18
76	Fibres, thread (all kinds)	33.46	0.84	9.43	–3.20	–8.39
77	Clothing	78.96	21.44	450.17	179.74	50.55
78	Carpets and tapestry textiles	82.63	0.28	103.34	70.17	50.11
79	Weaving and embroidery of textiles (except carpets)	1.64	0.03	67.49	42.40	23.42
80	Leather (products of tanneries)	5.77	0.11	18.86	0.56	–9.82
81	Leather goods	60.24	16.49	130.23	67.05	24.32
82	Animal feeds	0.40	0.02	37.13	5.75	–13.89
83	Products of printing industry	0.00	0.00	13.67	0.26	–12.57
84	Publishing	1.19	0.01	7.91	–3.26	–8.51
85	Products, unclassified	60.73	4.72	52.24	32.71	14.25
	Total manufacturing	29.70	100.00	105.04	57.64	24.96

Notes:
[1] EBI is undefined because value added in export production is negative (implying extremely high (infinite) anti-export bias).
[2] Sectoral share in total manufacturing exports in 2000.

Source: Methodology and data sources are discussed in Section 3.

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