

Vietnam's Trade Policy Dilemmas

David Vanzetti and Pham Lan Huong¹
Australian National University and Central Institute for Economic Management

The Ninth Annual Conference on Global Economic Analysis
Addis Ababa, Ethiopia, June 15 - 17, 2006

Abstract

Vietnam faces alternative options in opening its economy to trade. It is about to join the World Trade Organisation; as a member of the ASEAN Free Trade Area it is contemplating extending the regional trade area to include China, Korea and Japan; and it has recently concluded a bilateral agreement with the United States. Opening up to trade is a two-edged sword, with the beneficial effects of improved market access and resource allocation liable to be partially or totally offset by adverse terms of trade effects and significant, albeit one-off, cost of structural adjustment.

Simulations of unilateral, bilateral, regional and multilateral liberalisation reform and a tariff harmonisation scenario are undertaken using a general equilibrium model, GTAP. Results indicate that significant welfare benefits could be obtained from unilateral liberalisation without the need to negotiate with others. Harmonisation of tariffs at the current average also shows to be beneficial in raising tariff revenues with little need for adjustment. The extension of AFTA brings moderate benefits, as does a multilateral reform which reduces applied tariffs by 50 per cent. There are only limited gains in the agricultural and resources sectors, as these major exports face low tariff barriers. However, the market for Vietnam's textiles and apparel is crucially important.

JEL subject codes F13, Q17.

Key words: Vietnam, trade, WTO negotiations

¹ Asia Pacific School of Economics and Government, Australian National University, Canberra and Central Institute for Economic Management, Hanoi, Vietnam, respectively. Contact: david.vanzetti@anu.edu.au. This project is funded by the Australian Centre for International Agricultural Research.

1. Alternative trade policy options

After decades of insularity Vietnam is integrating into the global economy. It has signed a bilateral trade agreement with the United States, is a member of ASEAN Free Trade Agreement, and is about to become a member of the World Trade Organization (WTO). The benefits are starting to show, with strong growth in investment, exports and incomes, and reductions in poverty. However, growth has required significant adjustment, as labour has moved out of agriculture into services, and from rural to urban locations.

The alternative trade policy options have positive and negative aspects. Multilateral negotiations under the auspices of the WTO provide the advantage of a rules based system with broad membership, but progress is slow and unwieldy. Regional agreements are between members who share common interests, and can hence be deeper, but the similarity of economies limits the benefits. Vietnam has relatively little trade with its ASEAN partners. Bilateral agreements are easier to negotiate but also limited in scope. There is also a danger of the larger economy taking advantage of its bargaining power to negotiate an unbalanced agreement. Unilateral liberalisation has beneficial domestic effects, but does not improve access to foreign markets, and erodes negotiating capital. Another option is to increase trade barriers, assuming that the reform process has gone too far already. Where trade taxes contribute substantially to government revenues, a harmonised tariff may be beneficial. This preserves revenues but eliminates distortions between imports.

The alternative options facing Vietnam are analysed in this paper.² In the next section we examine Vietnam's current trade flows and existing protection on imports. We also look at barriers impeding exports. In the following section several scenarios are described, and then simulated with the aid of GTAP, a general equilibrium model designed for trade policies analysis. Results are presented in the penultimate section and the paper concludes with implications, limitations and suggestions for further research.

2. Existing trade flows and protection

Vietnam has a population of 78.7 million generating output, in 2001, of US\$32 billion, an average of \$407 per person.³ The country is relatively poor and is considered an agrarian economy although only 23 per cent of its output comes from the primary and processed agricultural sector. However, 63 per cent of the labour force is used to generate this output. The more productive sectors are resources (oil and gas), textiles and apparel, light manufactures and services. Table 1 shows the contribution to output of the various sectors in 2001 using data from the GTAP v6 database.⁴

Table 1 Vietnam's output and trade flows, 2001

2 We do not, however, analyse the 'do nothing' or 'go back' options.

3 These data are according to the Vietnamese General Statistics Office (2005).

4 GTAP data are used in the simulations presented later in the paper. GTAP estimates for GDP differ from the national (GSO) data. Exchange rate difference account for some of this.

Sector	Output \$m	Exports \$m	Imports \$m
Rice	4560	418	16
Vegetables, fruit & nuts	946	256	71
Livestock	1028	64	39
Other crops	934	839	191
Fishing	821	49	6
Resources	4234	2315	1635
Meat	137	33	27
Sugar	217	14	39
Beverages & tobacco products	651	23	594
Other processed agriculture	2594	1390	684
Textiles	3538	2868	1741
Apparel	1690	1579	109
Chemicals	1596	497	2747
Metal manufactures	870	152	1448
Wood & paper products	1972	563	483
Manufactures	5363	1551	4698
Electronics	1118	447	985
Transport & communications	2409	534	2457
Business services	3132	975	4268
Services and activities NES	25743	576	2358
Total	63554	15143	24595

Source: GTAP v6.

The resources and textile sectors also dominate exports, which amount to around a quarter of total output. Rice is the most notable agricultural output, with the bulk of it going to Iraq and other members of the ASEAN Free Trade Agreement (AFTA). Coffee and rubber are exported predominantly to developed countries. Vietnam does not have preferential access into the European Union, as do the African, Caribbean and Pacific countries and least developed countries. Textiles are the major export sector of interest, as Vietnam is highly dependent on this sector, is excluded from developed country markets as a non-WTO member and competes with China.

The major markets for merchandise exports in 2005 were the United States (\$5.82 billion), the European Union (\$ 5.38 billion), Japan (\$ 4.46 billion), Singapore (\$ 1.66 billion), China (\$2.99 billion) and Australia (\$ 2.59 billion) (Ministry of Trade, cited in CIEM 2006, p.26). With the exception of China, with whom Vietnam shares a border, the bulk of the trade is with developed countries outside the region. Trade with other ASEAN members is around 17 per cent of the total.

The major service exports are air transport (\$ 650 million), sea transport (\$ 510 million), and financial, insurance and banking services (\$ 256 million), tourism, telecommunications (Op cit. p. 28).

The major imports are machinery (\$ 5.3 billion), fuel (\$ 5.0 billion), cloth for apparel production (\$ 2.4 billion), other materials for textiles, garments and leather products (\$ 2.3 billion), electronic components (\$ 1.7 billion), steel (\$ 3.0 billion) and plastics (\$ 1.4 billion). Service imports, such as transport and communications, and insurance, are also significant. The major sources of merchandise imports are from within Asia — China (\$ 5.7 billion), Singapore (\$ 4.7 billion), Japan (\$ 4.1 billion), Taiwan (\$ 4.3 billion) and Korea (\$ 3.7 billion), while Europe (\$ 4.7 billion) and the United States (\$ 0.9 billion) contribute lesser amounts (Op cit. p. 29). Imports swamp exports, indicating significant capital inflows to satisfy the requirement that the current and capital accounts must balance. The merchandise trade deficit amounted to \$ 4.8 billion in 2005, 9.3 per cent of GDP. Remittances account for a large portion of the capital inflow (CIEM 2006, p.29).

Perhaps of greater interest from a trade policy perspective is the applied tariffs imposed on Vietnam's exports and applied to its imports. These average tariffs are shown in table 2. Applied average tariffs on merchandise (excluding services, for which tariffs are not available) imports, at 12 per cent, are twice as high as tariffs on exports. These figures need to be matched with the trade flows in table 1 to be meaningful. For example, while tariffs on sugar exports are high, export volumes are low. Most significant is textiles and apparel, where imports into developed countries are limited by quota. On the import side the most significant tariffs are on textiles (26 per cent) and manufactures (16 per cent). Tariffs on apparel are higher (33 per cent) but the volume of imports is relatively low.

Table 2 Vietnam's and trade weighted applied tariffs on exports and imports

Sector	Tariff on exports	Tariff on imports
	%	%
Rice	13.9	12.5
Vegetables, fruit & nuts	12.5	25.4
Livestock	4.5	2.6
Other crops	3.7	4.7
Fishing	1.6	16.7
Resources	1.4	8.0
Meat	5.9	7.4
Sugar	60.0	7.7
Beverages & tobacco products	12.5	13.5
Other processed agriculture	4.9	17.0
Textiles	9.1	25.7
Apparel	10.4	33.0
Chemicals	14.3	3.7
Metal manufactures	1.8	4.0
Wood & paper products	1.8	8.9
Manufactures	2.3	16.0
Electronics	1.1	4.6
Transport & communications	-	-
Business services	-	-
Services and activities NES	-	-
Total excluding services	6.1	11.9

Source: (GTAP v6). – denotes not available. These estimates assume tariffs on trade between AFTA members are zero.

Bilateral tariff and trade flow data indicate that the most significant barriers faced by Vietnam, in addition to textiles and apparel exports to the European Union, the United States and Japan, are rice exports to Japan, chemicals to China and resources to Australia. However, the dominant issue is textile exports to the European Union. These were constrained by quotas until the expiration of the WTO's Agreement on Textiles and Clothing (ATC) in January 2005. However, inquota and outquota tariffs remain, and as a non-member Vietnam has limited access to these markets. Vietnam has restricted access to the US market through its bilateral agreement.

3. A quantitative assessment of alternative reforms

Tariffs and trade flows provide a guide as to the likely impacts from reform in particular sectors. However, such indicators may be misleading because of the linkages between the sectors. For example, tariffs on intermediate inputs, such as textiles, act as a tax on exports, in this case apparel. Reducing tariffs in one sector can have significant effects on upstream and downstream sectors. To capture these effects a general equilibrium model, GTAP, is used. The specific scenarios to be simulated are listed in table 3.

The scenarios

Unilateral liberalisation involves the complete removal of all trade taxes (tariffs and export taxes or subsidies) in Vietnam. This indicates the scope for gains that Vietnam could obtain itself without negotiating with others. These gains are substantial but the market access benefits are limited because other countries do not open their markets.

A harmonised tariff, in which all Vietnam's tariffs lowered or raised to current average, 11.9 per cent, is a variation of unilateral action and addresses the concern that tariff reform reduces a valuable source of tax revenue. This approach, commonly favoured by economists, removes the distortion between imports of various descriptions and origins, although it involves raising some tariffs and leaves in place the distortion in the treatment of traded and non-trade goods.

Bilateral trade agreements are relatively easy to negotiate but are of limited value if the two economies are similar. For developing countries, agreements with large developed countries are generally considered the most beneficial. An agreement between Vietnam and the European Union is considered here. The European Union is potentially a large market for Vietnamese apparel.

Regional liberalisation involves the extension of AFTA to include Japan, Korea and China. This has been under discussion with the ASEAN group for some time. There are some difficulties here. Japan

is not yet a member of any preferential trade group and China is a competitor of many ASEAN economies, with its large, low-cost labour force.

Multilateral liberalisation refers to a potential WTO agreement. Such an agreement was not reached at the WTO Ministerial meeting in Hong Kong in December 2005 so the terms are unknown. To simplify the analysis a 50 per cent reduction in tariffs, exports subsidies and domestic support for all regions is assumed.⁵

A final simulation is global free trade, which serves to indicate the potential gains from trade liberalisation and the opportunity cost of not liberalising fully. There are no changes in services protection in any scenario.

Table 3: Alternative liberalisation scenarios

Scenario	Title	Change in agricultural and industrial tariffs and export taxes
1	Unilateral	-100% in Vietnam
2	Harmonised	All tariffs 11.9% in Vietnam
3	Bilateral	-100% on trade between Vietnam and the European Union
4	Regional	-100% on trade between AFTA, Japan, China and Korea
5	Multilateral	-50% WTO members
6	Free trade	-100% all regions

The data

Simulations are undertaken using the GTAP version 6 database (GTAP 2005). The database has 87 countries and regions and 57 sectors that are aggregated as shown in Appendix table A1. The regional aggregation aims to split out the ASEAN countries as much as possible while grouping together African and Latin American countries with which Vietnam's trade is limited. The sectoral aggregation attempts to split out sectors with significant protection, such as textiles, apparel, motor vehicles and electronics. The database includes tariffs, export subsidies and taxes, subsidies on output and on inputs such as capital, labour and land. Border measures are specified bilaterally, so the impact of preference tariffs can be ascertained. The data applies to 2001. Preferential tariffs are included in the initial database. These are set to zero on trade between AFTA members. However, other preferential trading groups, such as NAFTA and Mercosur, are not treated in this way. Quota rents in textiles and apparel are modelled as export taxes, implying the rents accrue to exporting

⁵ This multilateral liberalisation scenario simulated here differs from the likely WTO outcome in that (i) non-members and LDCs make tariff reductions, (ii) there is no special and differentiate dtreatment for developing countries, (iii) reductions are from applied rather than bound rates, and (iv) reductions are linear and take no account of initial values.

governments. Compared with the previous version, tariffs in the current database are revised downward because inquota tariffs are used when the tariff is not more than 90 per cent filled.⁶ Many of the 1400 odd tariff rate quotas are unfilled for administrative reasons. This implies that the outquota tariffs has a zero weighting, and the gains from liberalisation are deceptively small.

The model

GTAP is a general equilibrium model that includes linkages between economies and between sectors within economies. Industries are assumed to be perfectly competitive and are characterised by constant returns to scale. Imports are distinct from domestically produced goods as are imports from alternative sources. Primary factors (land, unskilled labour, skilled labour, capital and natural resources) are substitutable but as a composite are used in fixed proportions to intermediate inputs. The standard GTAP closure is modified in two ways: (i) trade balances are fixed for all regions except the USA.⁷ This prevents balance of trade surpluses from increasing dramatically; and (ii) wages for unskilled labour in developing countries are fixed. This allows the unemployed or underemployed to sell additional labour should there be demand for unskilled labour intensive goods and services. This first modification effects the distribution but not the magnitude of the global welfare gains, while the second tends to enhance the welfare gains of developing countries.

4. The results

Trade negotiators are generally interested in the effects of trade liberalisation on exports, and are keen to avoided being flooded with imports, particularly from China. Policy makers also wish to preserve tariff revenues, especially if they make up a sizeable proportion of government revenue. Economists tend to focus on welfare, measured in GTAP as equivalent variation. This is a measure of consumption, and accounts for the necessity to use inputs to expand exports. Finally, policy makers may be concerned about the cost of structural adjustment. These are one-off costs that are not accounted for in our annual welfare measures, but are a real concern as they need to be incurred before the ongoing gains can be captured. To accommodate these points of view we present data on exports, imports, tariff revenue, welfare and an index of structural adjustment for each simulation.

⁶ See the GTAP website at https://www.gtap.agecon.purdue.edu/databases/v6/V6_shortdoco.asp, and Antoine Bouët, Yvan Decreux, Lionel Fontagné, Sébastien Jean, and David Laborde (2005) (<https://www.gtap.agecon.purdue.edu/resources/download/2229.pdf>) for a discussion of the methodology.

⁷ The GTAP model requires that imports minus exports equals investment less savings in each region. The standard macroeconomic closure allows investment to adjust to satisfy this condition. A current account deficit is offset by a capital inflow. In the closure used in this paper, capital in other regions would be absorbed by the USA whenever it exceeds regional savings. This is done by swapping the endogenous variable *dtbal* for *cgdslack* for *n-1* regions. To implement fixed wages *pfactreal* is made exogenous and *qo* endogenous. Kurzweil (2002) provides an example.

Exports

All scenarios, with the exception of harmonisation, lead to an increase in exports. Export growth may be somewhat surprising following unilateral liberalisation, where market access outside Vietnam is not improved, but the increase in imports following tariff reductions necessitates a corresponding increase in exports because of the requirement that the trade balance remains fixed. However, without this assumption exports would also increase because the lower costs of imports reduces the cost of production of exports where imports are used as intermediate imports. In addition, global imports in each sector must equal exports, raising demand for Vietnam's exports.

The Harmonised tariff scenario has little effect on total exports but sectoral changes are significant, indicating that current rates are out of kilter. The major impact is an increase in exports of apparel at the expense of various manufactures. Reducing textile tariffs lowers the cost of production of apparel, making it more competitive internationally. A bilateral agreement with the European Union has little impact on overall exports, although there is some increase in textiles and apparel. The regional agreement, extending ATFA to include, Japan, China and Korea, is much more beneficial, increasing exports by 27 per cent. The major exports gains are chemicals, rubber and plastics, an additional \$1330 million, to China, and textiles and apparel to the European Union (\$1,469 million) and Japan (\$997 million). There is some diversion in manufactures exported away from Thailand. The multilateral agreement, in which tariffs are reduced only 50 per cent, is almost as beneficial, with exports increasing 21 per cent overall, but the export gains are concentrated more on the European Union which increases imports of textiles from Vietnam. Finally, as expected, there are substantial export opportunities missed by not going all the way. The export gains under the hypothetical free trade solution are 56 per cent, similar to the Unilateral scenario.

The largest sectoral effects are in textiles and apparel. Apparel tends to attract higher tariffs than textiles, by virtue of greater amount of processing, so similar tariff cuts change relative prices. In addition, textiles are an input into apparel, so lower tariffs in Vietnam effect the cost of apparel production. Vietnam imports \$1.7 billion textiles but only \$109 million apparel. This leads to differential effects between the regional and multilateral scenarios, with a large increase in apparel exports in the first instance and a large increase in textile exports in the second. In other sectors, chemicals shows large percentage gains from a relatively low base. Growth in these sectors drags resources out of agriculture, and exports fall in several agricultural sectors. Vietnam is a major rice exporter, but not to the highly protected markets in Japan and Korea.

Table 4 Initial and change in Vietnamese exports from alternative scenarios

Sector	Initial	Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
	\$m	%	%	%	%	%	%
Rice	418	0	-5	1	17	16	31
Vegetables, fruit & nuts	256	-8	-1	0	26	10	29
Livestock	64	-19	-2	-1	-7	-7	-13
Other crops	839	-7	-3	0	-4	-8	-12
Fishing	49	-9	0	-1	-2	0	2
Resources	2315	0	-5	0	0	-2	-4
Meat	33	4	-14	-2	-23	6	8
Sugar	14	-10	-5	-1	-6	3	-1
Beverages & tobacco	23	16	-3	5	12	2	4
Other proc. agriculture	1390	-6	-8	0	-7	-10	-21
Textiles	2868	196	7	8	43	75	187
Apparel	1579	138	28	6	86	44	115
Chemicals	497	7	-21	-1	269	41	207
Metal manufactures	152	0	-22	-1	-5	-7	-15
Wood & paper products	563	100	-13	-1	7	39	88
Manufactures	1551	16	-14	0	10	3	4
Electronics	447	13	-31	-1	8	14	25
Transport & comm.	534	19	-4	0	6	10	21
Business services	975	-20	-8	-1	-9	-18	-36
Services and activities nes	576	-19	-7	-1	-7	-13	-27
Total	15143	57	-2	2	27	21	56

Source: GTAP simulations.

Imports

Tariff reductions increase imports. The unilateral and free trade scenarios involve the complete elimination of Vietnam's tariffs, and imports increase by over a third under both scenarios. Harmonising the tariff schedule has little impact on the overall level of imports, although there are significant sectoral changes. Regional integration sees greater imports from the new members, particularly manufactures from China (an additional \$3.6 billion in total) and less from current members. The multilateral reform sees China, Taiwan and the European Union as the additional suppliers.

Table 5 Change in Vietnamese imports from alternative scenarios

Sector	Initial	Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
	\$m	%	%	%	%	%	%
Rice	16	51	4	1	62	19	46
Vegetables, fruit & nuts	71	74	15	1	40	30	89
Livestock	39	37	-15	2	16	25	58
Other crops	191	21	-5	1	7	9	24
Fishing	6	32	-4	1	12	15	35
Resources	1635	33	-2	1	19	14	34
Meat	27	43	-1	5	17	17	52
Sugar	39	33	-2	3	3	14	36
Beverages & tobacco	594	7	0	2	8	-2	4
Other proc. agriculture	684	38	12	5	11	17	41
Textiles	1741	176	19	3	68	57	160
Apparel	109	82	34	5	59	26	77
Chemicals	2747	39	-5	1	23	15	45
Metal manufactures	1448	13	-8	1	4	5	11
Wood & paper products	483	56	0	2	17	20	54
Manufactures	4698	26	7	2	18	8	24
Electronics	985	12	-4	1	7	5	13
Transport & comm.	2457	23	-9	0	8	7	20
Business services	4268	21	-5	1	8	8	19
Services and activities nes	2358	27	-15	1	11	13	32
Total	24595	37	-1	1	17	13	36

Source: GTAP simulations.

Government revenues

A tariff cut may lead to a rise in tariff revenue if the positive change in import volumes exceeds the tariff cut. Revenues are likely to rise for small reductions, although obviously as tariffs are eliminated the revenue approaches zero. Initial and final tariff revenues are shown in table 6. The unilateral and free trade scenarios generate no revenue, and the regional scenario generates a significant reduction. The multilateral 50 per cent tariff reduction leads to a decrease in revenue of 26 per cent in Vietnam, reflecting the offsetting increase in imports. The harmonised tariff results in a significant increase in revenues, reflecting a shift from high tariffs on items with low trade flows to high trade flows.

Table 6 Vietnam's tariff revenues from alternative scenarios

Initial	Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
\$m	%	%	%	%	%	%
1846	-100	56	-8	-78	-26	-100

Source: GTAP simulations.

Welfare

Vietnam can obtain most of the potential gains from trade reform from unilateral liberalisation (table 7). These gains of \$3,459 million are a large fraction of the potential gains of \$4,705 million available once other countries also liberalise. This implies that most of the gains come from behind the border reforms rather than improved market access. In the unilateral scenario, allocative efficiency gains contribute \$1,585 million to welfare, while the movement of unemployed unskilled labour into productive uses contributes \$3,298. There are negative terms of trade effects of \$1,569 million, driven mainly by the fall in export prices of textiles and apparel.

Comparing scenarios, Vietnam gains more from multilateral (\$2,328 million) than regional (\$1,481 million) liberalisation, in spite of the greater increases in exports and imports under the latter scenario. This illustrates that focusing on trade flows can be deceptive.

From a negotiating perspective, the impact on other countries is instructive. Most countries gain from improved market access when Vietnam unilaterally liberalises, but some do not, including AFTA members, with which tariffs are already zero (in the database at least). Harmonisation generates winners and losers among trading partners, depending on where the bilateral tariff cuts occur. Regional agreements tend to disadvantage non-members. All regions experience welfare gains from multilateral liberalisation, although countries within a region may lose.

Labour use is obviously important. The total increase in unskilled labour use in Vietnam is estimated at 38 per cent, assuming fixed wages. This seems unrealistically high. The most significant increases in labour use by sector are textiles (251 per cent), apparel (185 per cent), wood products (71 per cent), and telecommunications (70 per cent). In the standard fixed labour closure, the welfare gains to Vietnam following multilateral liberalisation would be reduced to \$972 million, well down on \$2,382 million.⁸ Two thirds of the gains are coming from better use of available labour. A more realistic

⁸ Global welfare gains under the fixed employment scenario amount to \$60 billion, compared with \$532 billion with the fixed wage closure.

closure would have some trade-off between labour use and wages, but this relationship is not easily determined and beyond the scope of this study.

Table 7 Change in Vietnamese welfare from alternative scenarios

Region	Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
	\$m	\$m	\$m	\$m	\$m	\$m
European Union 25	1188	-85	-175	-1321	16216	27416
United States	241	-84	-5	-1906	6921	14362
Japan	330	-12	-7	27919	16904	36121
China	48	314	-11	7187	85237	159787
Korea	441	141	-1	26998	26115	58264
India	-128	-8	-2	-580	8040	14495
Indonesia	-89	-34	-1	720	2295	4670
Malaysia	-37	-53	-1	3083	2802	6117
Philippines	-21	-20	-1	51	2498	3855
Singapore	-132	-221	1	487	2210	4976
Thailand	-130	-127	0	2665	4071	8117
Vietnam	3459	666	248	1481	2382	4705
Rest of Southeast Asia	-13	0	0	45	1418	2527
Taiwan	403	61	-1	-2110	6848	13709
Australia	37	-8	0	-490	1111	2601
Latin America	-33	-5	-1	-730	25541	53132
Sub-Saharan Africa	-17	-4	0	-525	5368	11289
Central and Eastern Europe	-60	-10	-1	-54	2274	4277
Other developed	105	-6	0	-177	2102	4112
Rest of World	-200	-54	-4	-182	50386	97916
World	5392	451	38	62561	270739	532448

Source: GTAP simulations.

Structural adjustment

Perhaps the most common objection to trade liberalisation is the dislocation caused by moving resources — land, labour and capital — from one use to another. These are one-off costs, whereas the gains or losses occur annually, but the adjustment costs must be borne upfront, perhaps for a number of years before the gains flow through. In addition, the gains are uncertain, and may not occur despite the best predictions of economic modellers.

Changes in Vietnam's output by sector are shown in table 8 for each scenario. These changes are very similar to changes in labour use because of the assumption of labour mobility between sectors.

It is difficult to estimate the magnitude of the costs. It is not too difficult for farmers to switch from rice to maize, or perhaps from pigs to poultry, but more difficult for agricultural workers to move into textile or apparel production, or banking and insurance. The details are important. Nonetheless, it is instructive to compare the amount of adjustment required under different scenarios using an index of structural change.

Table 8 Change in Vietnam's output under alternative scenarios

Sector	Initial	Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
	\$m	%	%	%	%	%	%
Rice	4560	1	-2	0	2	3	5
Vegetables, fruit & nuts	946	1	-2	0	6	4	8
Livestock	1028	10	3	1	3	7	13
Other crops	934	-5	-2	-1	-5	-6	-10
Fishing	821	4	-1	0	2	3	5
Resources	4234	-1	-5	0	-3	0	-1
Meat	137	4	-3	0	-6	6	6
Sugar	217	-6	-2	0	1	-1	-6
Beverages & tobacco	651	6	-6	0	-5	4	2
Other proc. agriculture	2594	-9	-9	-1	-5	-7	-17
Textiles	3538	216	2	2	41	80	215
Apparel	1690	159	29	1	96	51	143
Chemicals	1596	23	-5	0	96	22	91
Metal manufactures	870	-5	-2	-1	-4	-4	-11
Wood & paper products	1972	51	-9	0	3	21	48
Manufactures	5363	-6	-17	0	-12	-3	-10
Electronics	1118	3	-14	-1	1	6	9
Transport & comm.	2409	40	2	0	12	18	43
Business services	3132	-6	4	0	-3	-7	-14
Services and activities nes	25743	7	1	0	4	5	10
Total	63554	13	4	1	5	7	15
Unskilled labour		38	0	0	13	17	42

Source: GTAP simulations. Total is value of GDP.

A commonly used index of structural change is given by the formula:

$$SCI = 0.5 \sum |x_{i,t} - x_{i,t-1}|$$

where $x_{i,t}$ and $x_{i,t-1}$ are the share of output contributed by each sector, x , following and prior to the shock. An index of 0 indicates no change whereas an index of 100 implies a complete reallocation of resources (Productivity Commission 1998, p.69). An index of 10 implies that 10 per cent of the economy's resources are reallocated between the specified sectors. The absolute values prevents positive and negative changes in shares cancelling each other out. The index is superior to merely looking at percentage changes in output because initial

shares are taken into account. For this application, the level of aggregation is important because the index varies with the number of sectors. If we had used three rather than 20 sectors, the index would indicate less change, with resources moving within rather than between sectors. Nonetheless, the index has been calculated for Vietnam following the alternative scenarios and the results are shown in table 9. There are significant (13) changes in the two free trade scenarios, less change with regional and multilateral and minimal change under harmonisation and bilateral scenarios.

The changes in all scenarios are dominated by the textiles and services sectors. Textiles shows large growth in a sector which contributes six per cent of initial output, whereas the services sector shows moderate (seven per cent) expansion in a sector that accounts for 40 per cent of the economy. Agriculture, from rice to other processed agriculture, contributes to 25 per cent of initial output, but a much larger share of employment.⁹

Table 9 Structural adjustment index in Vietnam under alternative scenarios

Unilateral	Harmonised	Bilateral	Regional	Multilateral	Free trade
13.2	2.6	0.2	6.1	5.6	13.8

Source: GTAP simulations

5. Implications and conclusions

The simulation results indicate that global free trade would be the best outcome for Vietnam. This scenario maximises annual welfare gains (\$4.7 billion) and increases exports (\$8.6 billion) by almost as much as any other option. Obtaining global free trade is beyond the control of any one country, and it is unlikely that it will come about in the near future. However, Vietnam could unilaterally liberalise by removing all tariffs, and the estimated welfare and export gains would almost be as much. A disadvantage of this approach would be a significant (37 per cent) increase in imports (although consumers would see this as an advantage), the elimination of tariff revenue, and significant cost of structural adjustment as 13 per cent of the economy's resource were shifted from one sector to another. Vietnam would also lose any bargaining power, apart from threatening to raise tariffs again.

⁹ The index could also be applied to employment. It would be lower in this case because agriculture has a higher initial share.

The free trade and unilateral scenarios are unlikely to be realised in the foreseeable future. Harmonisation of the tariff schedule generates welfare gains without significant dislocation in the economy. It also raises tariff revenues by over 50 per cent. If maintaining government revenues was the key objective, the tariff could be reduced further, generating further welfare gains. While the welfare gains stem from a better allocation of resources, the major effect is a transfer from taxpayers to consumers. Priorities will determine the best policy.

The bilateral scenario involving liberalisation with the European Union generates surprisingly few gains, with exports increasing only by 2 per cent. More troubling, the European Union appears to suffer welfare losses from the scenario and would be unlikely to enter into an agreement which generates such results. However, gains from improved investment and service sector reform are ignored here.

More realistic are the regional and multilateral scenarios. The regional option provides greater export gains, but the multilateral option provides greater welfare gains. The scenarios need not be seen as alternatives. Both forms of liberalisation can occur together, and indeed the second option is almost beyond Vietnam's control once it joins the WTO. As a member of ASEAN, it has relatively little influence on the extension of AFTA to include Japan, the Republic of Korea and China.

Overall, given multilateral liberalisation will happen regardless, Vietnam's preferred policy may be to advance regional cooperation as much as possible. Harmonisation seems to be a sensible option and unilateral reform provides substantial gains without the need to negotiate with others.

There are several limitations to this study. The results are understated because there is no account taken of dynamic gains, the effects on productivity from investment, competition, the transfer of technology and other factors that are associated with trade liberalisation. These factors may be as important as the static impacts but are difficult to estimate. In addition, by the time the policies are implemented, say 2010, an economy growing at seven per cent would double in size from the 2001 database. This implies the gains and losses would be greater than estimated here. However, sectors that appear to shrink in the comparative static analysis, such as metal manufactures, could continue to expand in a growing economy, albeit at a slower rate. This eases the problem of structural adjustment considerably. It is much easier to adjust to a slower growth rate than an absolute decline in output. Another limitation is the absence of protection data for services. This sector makes up about half of the national output, and much of the growth in the economy is expected to come from this sector. Removing the impediments to services trade would have a big impact on the economy.

An obvious drawback of modelling is the quality of the data, be they variables (trade flows), parameters (behavioural relationships such as elasticities) or policy variables (tariffs). For example,

the trade distortions considered are tariffs. The tariffication in the past of non tariff barriers such as quotas or subsidies and reduction of these tariffs has served to heighten the impact of the remaining non-tariff barriers. These include Sanitary and Phytosanitary measures and Technical Barriers to Trade barriers, which appear to be of increasing importance, especially in the agricultural sector. Most of these barriers are dealt with outside the agricultural negotiations but are relevant nonetheless. Exports may also be limited by supply constraints (ports and roads) or the preferences and practices of large marketing companies. Another data concern is the quality of Vietnam's input-output table in the GTAP database. It is not the most recent (i.e. 2000) input-output data, but an updated version of the 1996 input-output table. Between 1996 and 2000, the structure of the economy and trade has changed significantly. The economy shifted from agriculture to industry and construction, with the share of the latter increasing from 30 to 37 per cent, while exports diversified from primary products to manufactured by 11 percentage points. As a proportion of GDP, exports soared from 26 to 47 per cent. Hence, it is likely that the old input-output table would underestimate the positive impact of trade liberalisation.

The standard GTAP model used here assumes perfect competition and constant returns to scale. Some applied models now may incorporate increasing returns to scale and monopolistic competition. These models tend to increase the gains and losses, but require more data, on the number of firms for example, to ensure the results are not misleading.

A further consideration is rules of origin. This is relevant for preferential trade arrangements, where goods enter duty free from one country but not the next. Non-members cannot export to a second country through a third unless the third country adds value or processes the good in some way. Rules of origin are complex, but are assumed away in the current modelling. In this regard we overstate the gains from regional agreements.

A final concern is duty drawbacks. The Vietnamese government allows exporters to claim an exemption on tariffs on imported intermediate inputs, although it is not clear to what extent these provision are taken up (Athukorala 2006). Duty drawbacks have not been taken into account in this analysis.

Further research could usefully address some of these limitations. A methodology for handling services protection data is provided by Dee (2005). UNCTAD has a database of non-tariff barriers (UNCTAD 2005). Little has been done on addressing rules of origin issues within CGE modelling, although Fetzer and Rivera (2005) show how to incorporate rules of origin in a partial equilibrium framework. Increasing returns to scale and imperfect

competition could be incorporated into the CGE analysis, although whether this would provide additional insights for policy makers is debatable. Finally, the major effects of trade reform are concentrated in relatively few industries (textiles and apparel). Greater attention to these industries may be worthwhile.

Finally, policy makers should note that this is an economic analysis that does not address various social, environmental, political and other concerns that governments need to consider. The contribution of the paper is to lay out the various options and trade-offs, with providing a definitive guide.

References

- Athukorala, P. (2006) 'Trade Policy Reforms and the Structure of Protection in Vietnam' *World Economy* (29(2), pp.161-187).
- CIEM (2006) 'Vietnam's Economy in 2005', Theory and Politics Publishing House, Hanoi.
- Dee, P. (2005) 'Extending CGE modelling to the liberalisation of services trade', in Productivity Commission *Quantitative Tools for Microeconomic Policy Analysis*, Conference Proceedings, 17–18 November 2004, Canberra.
- Fetzer, J. and Rivera, S. (2005) 'Modeling modifications in rules of origin: A partial equilibrium approach', Paper prepared for the 8th Annual Conference on Global Economic Analysis, Lubeck, Germany.
- General Statistics Office. (2005) 'Statistical Yearbook 2004', Statistical Publishing House, Hanoi.
- GTAP www.gtap.org.
- Kurzweil, M. (2002) 'The need for a 'Complete' labor market in CGE modeling'. GTAP Working Paper, downloadable from www.gtap.org.
- Productivity Commission (1998), *Aspects of Structural Change in Australia*, Research Report, AusInfo, Canberra, December.
- Schmidt, U. (2003), 'Vietnam's Accession to the WTO - A roadmap for a rational approach in trade liberalization' – Duisburg Working Papers on East Asian Economic Studies No. 66 / 2003. (Universität Duisburg-Essen).
- UNCTAD (2005) 'Methodologies, Classifications, Quantification and Development Impacts of Non-Tariff Barriers', TD/B/COM.1/EM.27/2, 23 June 2005, Geneva.
- WTO [Agreement on Textiles and Clothing \(ATC\)](http://www.wto.org/english/tratop_e/texti_e/texintro_e.htm#(ATC)), [www.wto.org/english.tratop_e/texti_e/texintro_e.htm#\(ATC\)](http://www.wto.org/english/tratop_e/texti_e/texintro_e.htm#(ATC)).

Appendix

Table A1 GTAP sectoral concordance

Sector	
Rice	Paddy rice, processed rice
Vegetables, fruit & nuts	Vegetables, fruit and nuts
Livestock	Cattle, sheep, goats, horses, animal products nec, raw milk, wool, silk-worm cocoons
Other crops	Wheat, cereal grains nec, oil seeds, plant-based fibers, crops nec
Fishing	Fishing
Resources	Forestry, coal, oil, gas, petroleum, coal products
Meat	Meat: cattle, sheep, goats, horse, meat products nec
Sugar	Sugar cane, sugar beet, sugar
Beverages & tobacco products	Beverages and tobacco products
Other processed agriculture	Vegetable oils and fats, dairy products, food products nec
Textiles	Textiles, leather products
Apparel	Wearing apparel
Chemicals	Chemical, rubber, plastic products
Metal manufactures	Ferrous metals, metals nec, metal products
Wood & paper products	Wood products, paper products, publishing
Manufactures	Mineral products nec, motor vehicles and parts, machinery and equipment nec, manufactures nec
Electronics	Electronic equipment
Transport & communications	Transport equipment nec, transport nec, sea transport, air transport, communication
Business services	Financial services nec, insurance, business services nec, recreation and other services
Services and activities nes	Electricity, gas manufacture, distribution, water, construction, trade, PubAdmin/Defence/Health/Education, Dwellings

Table A2 GTAP regional concordance

Countries	Region
European Union 25	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Cyprus, Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia, Lithuania
United States	United States
Japan	Japan
China	China, Hong Kong
Korea	Korea
India	India
Indonesia	Indonesia
Malaysia	Malaysia
Philippines	Philippines
Singapore	Singapore
Thailand	Thailand
Vietnam	Vietnam
Rest of Southeast Asia	Rest of Southeast Asia
Taiwan	Taiwan
Australia	Australia
Latin America	Colombia, Peru, Venezuela, Rest of Andean Pact, Argentina, Brazil, Chile, Uruguay, Rest of South America, Central America, Rest of FTAA
Sub-Saharan Africa	Botswana, South Africa, Rest of South African CU, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Rest of SADC, Madagascar, Uganda, Rest of Sub-Saharan Africa
Central and Eastern Europe	Rest of Europe, Albania, Bulgaria, Croatia, Romania
Other developed	New Zealand, Canada, Switzerland, Rest of EFTA
Rest of World	Rest of Oceania, Rest of East Asia, Bangladesh, Sri Lanka, Rest of South Asia, Mexico, Rest of North America, Rest of the Caribbean, Russian Federation, Rest of Former Soviet Union, Turkey, Rest of Middle East, Morocco, Tunisia, Rest of North Africa