A Critical Review of Studies on the Social and Economic Impacts of Vietnam's International Economic Integration

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Abbreviations

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BTA	Bilateral Trade Agreement
BTP	Beverage and Tobacco
CGE	Computational General Equilibrium
CIE	Centre of International Economics
CIEM	Central Institute for Economic Management
CIF	Cost, insurance, and freight
CV	Compensating Variation
DRC	Domestic Resource Cost
EV	Equivalent Variation
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNP	Gross National Product
GTAP	Global Trade Analysis Project
I-O	Input-Output
ICARD	Information Centre for Agricultural and Rural Development, Vietnam
ISG	International Support Group
MARD	Ministry of Agriculture and Rural Development
MFA	Multi-Fibre Agreement
MFN	Most Favoured Nation
MISPA	Mobilising Information for Agricultural Policies
NAFTA	North American Free Trade Agreement
NIAS	Nordic Institute of Asian Studies
NME	Non-market Economy
NTB	Non-trade Barriers
ROW	Rest of World

RTA	Regional Trade Agreement
SAM	Social Accounting Matrix
SOE	State Owned Enterprise
TRP	Transport Equipment
TRQ	Tariff Rate Quota
UNEP	United Nations Environment Programme
VAT	Value Added Tax
VHLSS	Vietnam Household Living Standard Survey
VLSS	Vietnam Living Standard Survey
WTO	World Trade Organization

1. Introduction

Vietnam is soon to join the WTO. Agreements were signed in Geneva on 7 November 2006 to this effect, and formal accession is expected in early 2006. Further economic integration will bring with it benefits to Vietnam in terms of providing access to markets and helping to develop traditional products in which Vietnam has comparative advantage. Implementing the commitments of the WTO will also help Vietnam to improve its business environment in conformity with international bst practices. At the same time, international integration presents new competitive challenges. Various attempts have therefore been made to assess the impact WTO accession is likely to have on the Vietnamese economy.

A recent study by Rama and Sa (2005) of the potential impact of WTO accession pooled the findings of two dozen studies recently conducted on Vietnam's integration process to try to infer some common patterns. They identified two groups of studies. One group relies on computable general equilibrium (CGE) models to simulate the economy-wide effects of changes in tariffs and subsidies. These models provide a framework for economy-wide analyses, taking into account existing relations among the different sectors, factor markets, households and the government. The second group of studies takes a partial approach. It ignores feedback links among markets and activities and relies instead on in-depth knowledge of specific sectors and the economic actors, who participate in them.[2] A third and final group of studies include various useful qualitative overviews such as Thang (2004) and Thanh (2005). They provide perspective and discuss problems and challenges but refrain from more precise quantitative estimates.

Rama and Sa (2005) emphasize that a major limitation of the CGE models is that the results are sensitive to key assumptions and can be manipulated to yield 'desired' outcomes. The closure of the models depends on assumed behavioural and macroeconomic relations, and critical choices have to be made about (i) which variables are exogenous; (ii) which variables are endogenous; (iii) which behavioural relationships are specified to explain the endogenous variables; (iv) which macroeconomic assumptions are included in the model; and (v) how to vary the models with respect to sector detail, tariff change assumptions, fiscal adjustments, poverty measures, productivity changes, etc.

The study by Rama and Sa (2005) focuses on identifying similarities between the findings of the CGE studies. The present study attempts, instead, to focus on differences. Do studies really

[2] World Bank (2005).

differ that much? This overall question is addressed by providing a detailed review of assumptions, data, methodology, and results of the CGE models. This overview makes it possible to assess another issue. The results of all the CGE studies tend to be rather aggregate in nature and they treat on issues which no longer appear that essential in the policy making process; i.e. tariffs rather than legal reform and 'services trade'.

The general contention of the CGE models reviewed is that the Vietnam trade regime misallocates resources. Studies by both Westerners and Vietnamese strongly criticize Vietnamese trade policy as being too illiberal, suggesting further gains from additional reform. Some of the problems highlighted are that (i) tariffs e.g. on clothing and agriculture are too high; (ii) state enterprises are inefficient, and (iii) foreign firms are restricted. Yet, economic growth since 1986 has exceeded 7.5 percent per year, which is rapid for a low income developing country. Trade has grown even faster, with a growth rate of 20 percent per year, reaching now over 140 percent of GDP, and poverty has been reduced much more than in most other low income countries. Furthermore, a time line which summarizes the trade agreements implemented by Vietnam demonstrates that sharp increases in exports coincided with past trade agreements. Yet, trade predictions from most CGE models were much too low, probably indicating that price effects of trade liberalization are insignificant compared to other factors like legal commitments, which are harder to assess in CGE models. Another possibility is that the assumptions of the models are simply too restrictive.

The structure of this paper is as follows. Section 2 presents background information and an overview of the development of the Vietnamese economy from 1990. We draw on Thanh (2004, 2005) as a recent source, but there are of course other studies in this category. A total of fifteen studies using CGE models are reviewed in Section 3.[3] They are described and categorized, and their predictions are compared. We highlight their general structure and assess whether they are likely to be useful in facing upcoming policy challenges. Section 4, in turn, presents an overview of the existing sector models, whereas Section 5 compares the results obtained in the CGE models with the analyses of the sector studies and concludes.

[3] A CD with these studies is available on request.

2. Economic Overview

There are several broad and insightful recent aggregate reviews of the general situation and challenges of the Vietnamese economy at the door step of WTO. Thang (2004) and Thanh (2005) are examples on which we rely in what follows where we aim at briefly summarizing information on actual outcomes in the Vietnamese economy. They can be compared to CGE model predictions. We also note that useful data are available in the World Bank World Development Indicators (WDI) on trends in total GDP, trade, FDI flows, and poverty measures. Data for the period 1986 to 2004 are provided in Table 2.1. As emphasized in the introduction, GDP growth has been above 7 percent over the period, and the poverty measure has decreased drastically. The trade share of GDP has increased to 140 percent, and the growth rate of exports has been phenomenal. Yet, FDI inflows have lagged behind.

Table 2.1 *Economic Growth, Trade, FDI, and Poverty in Vietnam, Selected Years*

		1986	1993	1998	2002	2004
GDP	Constant 2000 US$ Bill.	12.2	18.7	27.9	35.7	41.2
	Annual growth rate*		7.6	9.8	7.0	7.7
Trade	% of GDP	23.2	66.2	97.0	114.5	140.0
	Annual growth rate*		48.0	23.7	12.8	20.6
Exports	% of GDP	6.6	28.7	44.8	55	66.4
	Growth rate		80.4	26.6	14.2	19.7
Foreign direct investment FDI	Net inflow % of GDP		7.0	6.1	4.0	3.6
	Annual growth rate*			6.1	-4.2	1.5
Poverty	% headcount		14.6	3.8	2.0	0.0

Notes: * in the selected year.
Source: WDI

The rest of this section looks into these numbers in some more detail.[4] Table 2.2 shows the main export and import commodities over the period from 1999 to 2003. Over the period, crude oil and textiles and garments accounted for the largest shares of GDP, while seafood and maritime products and footwear were also important. The dominating imports are machinery and spare parts, petroleum, and textiles and garments materials.

[4] We refer the reader to Thang (2004) and Thanh (2005) for further detail.

Table 2.2 *Major Export and Import Products, 1999-2003*

	1999		2000		2001		2002		2003 (Jan–Nov)	
	Mio. US$	Share (in %)	Mio. US$	Share (in %)	Mio. US$	Share (in %)	Mio. US$	Share (in %)	Mio. US$	Share (in %)
Export	11,540		14,449		15,027		16,530		18,289	
Crude oil	2,092	18.1	3,503	24.2	3,126	20.8	3,226	19.5	3,392	18.5
Seafood and maritime products	951	8.2	1,479	10.2	1,778	11.8	2,024	12.2	2,091	11.4
Textiles and garments	1,747	15.1	1,892	13.1	1,975	13.1	2,710	16.4	3,360	18.4
Footwear and other leather products	1,392	12.1	1,465	10.1	1,560	10.4	1,828	11.1	1,996	10.9
Electronics, computer and components	585	5.1	783	5.4	596	4.0	505	3.1	627	3.4
Rice	1,025	8.9	667	4.6	625	4.2	726	4.4	729	4.0
Coffee	585	5.1	501	3.5	391	2.6	317	1.9	408	2.2
Latex	N.A.	–	170	1.2	161	1.1	263	1.6	352	1.9
Import	11,622		15,635		16,162		19,300		22,648	
Machinery and spare parts	2,005	17.3	2,571	16.4	2,741	17.0	3,700	19.2	4,960	21.9
Petroleum	1,054	9.1	2,058	13.2	1,828	11.3	2,017	10.5	2,180	9.6
Textiles and garment materials and parts	1,600	13.8	1,470	9.4	1,590	9.8	1,781	9.2	1,841	8.1
Electronics, computer and parts	630	5.4	882	5.6	163	1.0	689	3.4	855	3.8
Motorbikes (IKD & CKD)	399	3.4	787	5.0	668	4.1	356	1.8	272	1.2
Steel and steel billets	587	5.1	812	5.2	965	6.0	1,317	6.8	1503	6.8
Fertilizer	464	4.0	509	3.3	404	2.5	464	2.4	542	2.4
Plastics	346	3.0	480	3.1	495	3.1	615	3.2	700	3.1
Automobiles	128	1.1	219	1.4	427	2.6	576	3,0	739	3.3

Source: Schmidt (2004)

Table 2.3 demonstrates that currently applied tariffs in Vietnam are comparable to neighbouring China and Thailand countries, but higher than those of Indonesia and Malaysia, all of whom are already members of the WTO.

Table 2.3 *Nominal Tariff Rates in Selected East Asian Countries, 2000*

	Tariff measure		
	Mean	Weighted mean	Maximum
China			
All products	15	20	121
Primary products	14	19	
Manufacturing	15	16	
Indonesia			
All products	8	11	170
Primary products	7	5	
Manufacturing	16	26	
Malaysia			
All products	10	13	300
Primary products	5	12	
Manufacturing	15	16	
Philippines			
All products	8	7	60
Primary products	6	5	
Manufacturing	8	9	
Thailand			
All products	18	17	80
Primary products	16	14	
Manufacturing	19	18	
Vietnam (2002)			
All products	16	15	120
Primary products	19	17	120
Manufacturing	14	13	50

Source: Thang (2004)

Non-tariff measures (NTB) have a direct bearing on the participation of various types of enterprises in importing. They include non-automatic import licensing and special authority regulations. Furthermore, direct quantitative restrictions and foreign exchange control are key non-tariff measures in Vietnam which may also affect the ability of enterprises to import/export. In addition to the formal licensing procedures, administrative rigidities and delays in the customs administration have continued as important NTBs.

Thang (2004) emphasizes that the potential benefit of WTO accession may be further understood by asking a question about the cost of Vietnam not joining the WTO, particularly in light of China becoming a WTO member recently. China joined the WTO and took major steps in improving its legal and regulatory systems and also went further by making draft laws available for public discussion. These changes coupled with greater market access overseas would appear to explain much of the recent upsurge of FDI in China, in contrast to the somewhat sluggish flow of FDI commitments in Vietnam noted in Table 2.1. Some sector observations are made in what follows.

Agriculture: Under the WTO, Vietnam will be required to convert all its non-tariff restrictions on agricultural imports into tariffs. Table 2.3 illustrates that tariffs on agricultural products are not particularly high compared to other countries in the region. Furthermore, unprocessed agricultural products are production outputs of the majority of poor households, and Vietnam has clear comparative advantage in these products. Accordingly, imports are unlikely to penetrate through this channel, so Thang (2004) stresses that tariff rates on these products are redundant from a protection point of view. Vietnam will also have to abolish export subsidies. However, the level of subsidies is not now particularly large, and Vietnam has a strong comparative advantage in rice whose export subsidies account for over half of the total notified export subsidies. Thang (2004) notes also that some agricultural sub-sectors such as sugar, maize, and soybean may suffer and these are indeed sectors where an important number of poor households work. This topic will therefore be pursued further in the sector studies in Section 4.

Fisheries: Table 2.2 shows that Vietnamese exports of seafood and maritime products more than doubled from 1999 to 2003. Worldwide, the average tariffs for fish products continue to be more than 40 percent, well above the average of 6 percent for manufactured goods. The catfish dispute (see McCarthy and Kalapesi, 2003) between Vietnam and the US illustrates the potential effect of WTO accession on Vietnam. When entering the Bilateral Trade Agreement (BTA) with the US, Vietnam took up 20 percent of the US catfish market and the US has unilaterally attempted to reduce this share. Entering the WTO Vietnam will gain access to the WTO dispute settlement mechanisms, and this may certainly help put pressure on the US, although Vietnam had to accept non–market economy (NME) status in the WTO negotiations. This implies that there are limitations on Vietnam's possibilities in practice as high US import duties can be imposed with reference to producer costs in thirds party countries. Yet, it is clear that in the longer run Vietnamese exporters are competitive because of the geographic attributes of the Mekong delta, low labour costs, and accumulated traditional knowledge, so the terms and conditions of WTO membership will eventually be beneficial.

Textiles and Garments: Table 2.2 shows that Vietnamese exports of textiles and garments doubled from 1999 to 2003, while its share of total exports increased to 18.4 percent in 2003. Accession to the WTO will lead to the abolition of quotas on Chinese textiles and apparel exports to the US and the EU during a transition period up to 2007. This has led to fear of increased competition from Chinese exports, which is further discussed in Section 4.

With reference to a survey done on migration of workers, Thang (2004) argues that expansion of garment exports does not automatically benefit people in poorer provinces. There was little sign of worker migration from poorer northern to the expanding southern provinces.

Table 2.4 shows the development of the sectoral and employment structure from 1991 to 2002. The agriculture share of GDP decreased from 40.5 percent in 1991 to 23 percent in 2002, and while the industry share increased from 23.5 to 38.6 percent, the services share stayed roughly constant. The agriculture share of employment also decreased, but agriculture still employed 60.7 percent of the workforce in 2002. Employment has not gone from agriculture to industry, though, but from agriculture to the service sector, where the share of total employment increased from 14.1 to 24.2 percent.

Table 2.4 S*ectoral and Employment Structure, 1991-2002*

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sectoral share (% of GDP in current prices)												
Agriculture	40.5	34.9	29.1	27.4	27.2	27.8	25.8	26	25.4	24.6	23.7	23
Industry*	23.5	23.7	28.6	28.9	28.8	29.7	32.1	32.7	33.7	36.7	37.7	38.6
Manufacturing	*12.8*	*11.2*	*14.6*	*14.9*	*15*	*15.2*	*16.5*	*17.3*	*17.8*	*18.5*	*19.6*	-
Services	36	41.4	42.3	43.7	44.1	42.5	42.2	41.3	40.7	38.7	38.6	38.4
Employment Structure by Economic Sector (% of total employment)												
Agriculture	72.7	72.4	72.1	71.6	69.7	69.2	65.8	63.5	63.6	63.1	62.6	60.67
Industry*	13.2	11.3	11.3	11.4	13.2	10.9	12.4	11.9	12.5	12.2	13.1	15.13
Services	14.1	16.3	17.6	17	17.1	19.9	21.8	24.6	23.9	19.7	24.3	24.2

Note: * including mining, construction, and utilities (electricity, water)
Source: Thang (2004)

The general poverty incidence is shown in Table 2.5. Poverty, measured as the poverty rate, food poverty, and poverty gap, decreased over the period 1993 to 2002. For the population in general, the poverty rate ranged in 1993 from 86.1 percent of the population in the North East to 37 percent in the South East. In 2002, it ranged from 68 percent in the North West to 10.6 percent in the South East. Thus, the table gives a picture of reduced poverty in all regions.

Table 2.5 *Poverty Across Regions, Percent in Selected Years*

	1993	1998	2002
Poverty rate	*58.1*	*37.4*	*28.9*
Northern Mountains	81.5	64.2	43.9
North East	86.1	62.0	38.4
North West	81.0	73.4	68.0
Red River Delta	62.7	29.3	22.4
North Central Coast	74.5	48.1	43.9
South Central Coast	47.2	34.5	25.2
Central Highlands	70.0	52.4	51.8
South East	37.0	12.2	10.6
Mekong Delta	47.1	36.9	23.4
Food Poverty	*24.9*	*15.0*	*10.9*
Northern Mountains	42.3	32.4	21.1
North East	29.6	17.6	15.4
North West	26.2	22.1	46.1
Red River Delta	24.2	8.5	5.3
North Central Coast	35.5	19.0	17.5
South Central Coast	22.8	15.9	9.0
Central Highlands	32.0	31.5	29.5
South East	11.7	5.0	3.0
Mekong Delta	17.7	11.3	6.5
Poverty gab	*18.5*	*9.5*	*6.9*
Northern Mountains	29.0	18.5	12.3
North East	29.6	17.6	6.9
North West	26.2	22.1	24.1
Red River Delta	18.3	6.2	4.3
North Central Coast	24.7	11.8	10.6
South Central Coast	17.2	10.2	6.0
Central Highlands	26.3	19.1	16.7
South East	10.1	3.0	2.2
Mekong Delta	13.8	8.1	4.7

Source: Thang (2004)

By way of conclusion Thang (2004) notes that the gains from WTO accession will depend on how the current WTO members will be acting in practice, and he states that the advantages for Vietnam of joining the WTO are likely to include that Vietnam will: (i) gain greater market access and export opportunities; (ii) attract more FDI; (iii) get access to instruments for dispute settlements, or the so called "protection against protection", which is only available for WTO members; and (iv) have stronger motivation for accelerating domestic reforms towards perfecting the market-based economy for the benefit of the country as a whole. On the other hand, Thang (2004) notes that the challenges for Vietnam of joining WTO include: (i) Greater competition will force some sensitive or infant industries to close down, leading to a short term increase in unemployment, and (ii) agricultural sectors that are currently heavily protected and that do not have comparative advantage will be negatively affected (sugar, soybean, maize etc). Poorer households,

who depend on these sectors for their livelihoods, will be vulnerable in the transition period, so Thang (2004) identifies a series of measures that might be taken to limit the negative effects on poor and vulnerable groups.

3. CGE Models

A number of studies make use of CGE models to evaluate the economy-wide effects of the ongoing trade liberalization in Vietnam, including efforts related WTO accession. General assumptions and results of the papers which rely on such models are outlined below. Section 3.1 present general features; Section 3.2 discusses shortcomings; and Section 3.3 provides the overview of CGE based recommendations and predictions.

3.1 Methodology and Data

CGE models are computer-based simulations of future effects of a specified set of policy changes. In the trade field, CGE models are, as an example, used to gauge the trade, income, and poverty effects of different liberalization scenarios. They identify the sources of income gains or losses from further opening up to trade and show how these are distributed among countries or regions.[5] The CGE models take into account that any policy targeted at one sector or group has indirect economic effects on the rest of the economy. That is, the supply and demand sides of a shock and the mediating effects of markets are analyzed simultaneously. The models capture the effects of linkages through factor and product markets, to household decisions, further on to trading partners, and back again through the factor and product markets.

Most models combine household data with industry data. The data allowing disaggregating at the household level is the Vietnam Living Standards Survey (VLSS). This survey was done for 1992/93 (1993 VLSS), 1997/98 (1998 VLSS), 2001/2002 (2002 VHLSS), and in 2004. The VLSS contains a detailed breakdown of income sources and expenditure patterns for 6,000 surveyed households for the 1998 VLSS, while later versions include even more surveyed households. The VLSS contains a diversity of information, including health employment, migration, housing, fertility, agricultural, forestry and fishery activities, non-farm self-employment, food expenses and home production, non-food expenditures and durable goods, income from remittances, borrowing, lending and saving and anthropometric measures. In the papers reviewed, Vietnamese households are broken down into 1-20 groups. They are differentiated, most frequently, with respect to income and urban/rural location, while further disaggregation with respect to occupation is applied in some papers.

The industry data used in most papers is the 1996 Input-Output (I-O) table, with indicators for 97 sectors. Jensen et al. (2004) and Toan (2005) use the 2000 I-O table. Some papers calibrate to

[5] Piermartini and Teh (2005).

new industry data, using new data in the structure of one of these two I-O tables. The Input-Output table provides information on the links among sectors, the source and use of economic resources, and various other macroeconomic flows. In the papers reviewed, industries are aggregated into 9-33 groups.

Using the sources of data mentioned above together with macroeconomic data from the government and other sources (e.g. the World Bank and the IMF); a Social Accounting Matrix (SAM) can be constructed. The SAM is a matrix, which includes the necessary national accounting identities that must be respected. The SAM constructed in Chan et al. (1999) is composed from six groups of accounts: Factors (labour and capital), households (five household groups), enterprises, government, rest of the World (ROW), production activities (nine production sectors), domestic consumption and export commodities, and a capital account. A detailed description of the functioning of a SAM is given by Tarp et al. (2001).

Other CGE models on trade are based on the Hertel (1997) Global Trade Analysis Project (GTAP), which involves basic accounting relations that track value flows through the global data base. The national data base for Vietnam in the GTAP data base is based on a 1997 social accounting matrix constructed from the official Vietnamese 1996 I-O table. Compared to the SAM, GTAP includes the specific trading partners, while the SAM simply includes the rest of the world as one account. The GTAP uses the same structure for all countries, i.e. the aggregated same sectors, which might be a problem, as different sectors are important in different countries.

3.2 Benefits and Shortcomings of CGE Models

A main benefit of CGE models is that they offer a consistent economy-wide framework for analyzing trade policy questions. Piermartini and Teh (2005) emphasize that the results of the models vary depending on what goes into the models by way of structure and data. Choices among scenarios and model specifications can imply different results. They recommend using the numbers that come out of the simulations only to give a sense of the order of magnitude that a change in policy may imply for economic welfare or trade.

An assumption crucial to the results is the Armington elasticity assumption of import demand. Imported intermediates are assumed to be separable from domestically produced intermediate inputs. That is, firms first decide on the sourcing of their imports; then, based on the resulting composite import price, they determine the optimal mix of imported and domestic goods.[6] This

[6] Hertel (1997), p. 41.

assumption has been widely criticized in the literature. Hertel and Tsigas (1997) agree with the literature that more flexible forms are preferable, but stress that the literature has not yet been able to solve this problem. A more fundamental critique of the Armington approach is provided, they argue, by the literature on industrial organization, imperfect competition, and trade. Product differentiation is endogenous and it is associated with individual firm attempts to carve out a market niche for themselves. This can have significant implications for the effects of trade policy liberalization (Hertel and Lanclos, 1994). Hertel and Tsigas (1997) argue that, although they are not particularly content with the Armington assumption, it does permit explanation of cross-hauling of similar products and to track bilateral trade flows.

A second problem is that focusing on price changes might be misleading. Tariff changes are often unknown, but likely to be small since Vietnam's tariffs are not large. Yet, this drives the models. From past experience, Abbott et al. (2006) calculate the elasticity of substitution necessary to produce the actual increases in exports around the US-VN Bilateral Agreement. They find that the elasticity should have been unrealistically high to support the increases in exports, indicating that factors other than the price changes are causing the increase.

Abbott et al. (2006) note a third problem, being the uncertainty related to calculating tariffs, how to aggregate them, and how to 'tariffy' quantity restrictions. The 2005 Vietnam WTO offer implied, on average, a tariff reduction of 18 percent. The average tariff actually increased in the late 1990s as quantity restrictions were 'tariffied'. Furthermore, duty drawbacks on re-exported intermediates are difficult to measure.

Piermartini and Teh (2005) and Abbott et al. (2006) emphasize a fourth shortcoming of the CGE models: They are typically aggregated to a degree that can obscure important underlying relations. This was investigated by Jensen and Tarp (2005), reviewed below. Piermartini and Teh (2005) recommend instead forecasting independently impacts using disaggregated models and use the SAM to simply check consistency. Over time, though, there is a general tendency for the CGE models to become increasingly disaggregated, as technology improves and more data become available.[7]

Fifth, Piermartini and Teh (2005) stress static simulations are likely to miss crucial parts of the story while dynamic simulations are more complex and assumption-driven than static ones. They note that simulations could benefit from more systematic and informative employment of 'sensitivity analysis' to consider the impact of alternative assumptions. This is done in some of the

[7] For instance, Chan et al. (1999) note that they are working on a more disaggregated model, but that data difficulties prevent them from employing it.

reviewed studies and the conclusion is that results are particularly sensitive to the choice of demand elasticity. Piermartini and Teh (2005) stress that ex-post validation of past results of CGE models is needed to increase confidence in the results.

A sixth problem is that increases in productivity are regularly imposed from the outside by the modeller rather than generated within the model. This is, for instance, the case in the study by CIE (2002) where productivity increases are assumed ex ante. Related to this, the Vietnam Development Report (2006) questions the assumption of perfect competition. Comparisons between expected and actual outcomes after a major episode of trade integration such as the NAFTA also tend to show that CGE models do a rather poor job at predicting the surge in exports occurring in sectors that initially did not trade much with the rest of the world.[8] It is argued that one of the most important impacts of WTO accession is to foster domestic competition, thus helping to perfect market mechanisms 'behind the border'. Most CGE models assume that domestic markets are perfectly competitive from the outset, which prevents analysis of the competition dimension. Moreover, the Vietnam Development Report (2006) notes that the local dimension of business development in Vietnam renders the assumption of perfect competition questionable.

A seventh problem is that the specific behavioural assumptions may be unsatisfactory. The study by CIE (2002) emphasizes that the effect on household welfare also depends on the ability of those households to respond to the changes. Accordingly, the study by CIE (2002) identifies the impediments to adjustment by supplementing the CGE analysis with field surveys and desk reviews.

3.3 Overview of Studies on CGE Models

This section provides an overview of the methods and results in the CGE based studies. Emphasis is on model assumptions and results. The specific results of the models are compared with respect to effects on exports and total output at the sector level, disaggregated into agriculture, manufacturing, and services, and at the household level, disaggregated with respect to income and location. An overview of the basic model structure, including assumptions and simulation results, is presented in Appendix Table A.1. The predicted effects of integration on output and trade are reported in Appendix Table A.2, while the effects on household welfare are reported in Table A.3.

The review is meant to give an overview of all existing CGE studies on Vietnam and covers the 11 CGE studies in the Rama and Sa (2005) analysis, five additional CGE studies, and three studies

[8] This is the problem inherent in relying on Armington elasticities of substitution.

on the construction of SAMs (summarized in Appendix A). Put together, the 11 CGE models in the study by Rama and Sa (2005) include 36 scenarios for the global integration of Vietnam. Most of them investigate effects of changes in Vietnamese trade barriers, 11 also consider changes in trade barriers abroad, two assume changes in the extent of market competition, and three in technology. Two thirds of the scenarios introduce adjustments in tax rates to compensate for the loss of trade-related government revenue.

The main focus of the reviewed papers is WTO accession, while some analyze the bilateral agreement with the US and the accession to the ASEAN free trade area. Most papers identify a positive average income effect of integration, while the effects on inequality and poverty are ambiguous. A study by CIE (2002) provides exclusively an analysis of the impact of tariff reductions, while the rest of the papers combine the analysis with one of two different kinds of domestic tax reforms; one to compensate for the revenue loss and another to dampen inequality increases.

In general, the models show little impact of trade liberalization. These results are not supported when looking at actual data, ex post. Concerning the effect of the US-VN bilateral agreement, Thanh (2005) emphasizes that the exports of Vietnam to the United States increased more than fourfold from 2001 to 2003. One reason for the inadequate predictions emerging from CGE analysis might be that the models are mainly capable of analyzing price effects, which are not large, since most tariffs have already been reduced. The Armington problem alluded to above also looms in the background. Some authors note that the economic impacts might be large, nonetheless, since there are benefits in terms of the binding commitments included in trade agreements. As stressed by Thang (2004), accession to the WTO means having in place a more effective legal framework, inducing improved macroeconomic management and reduced transaction costs.

WTO accession also involves a need to accelerate domestic reforms. In some CGE models, the effects of domestic reform are exogenously imposed, rather than being a consequence of economic integration. In this sense, the CGE models can, in effect, only be interpreted as explaining the price effects of trade liberalization, which seem modest.

The conclusions on poverty effects are ambiguous and it is not uncommon to find trade liberalization increasing poverty in these studies. One argument is that growth raises wages and, therefore, might exclude more low-skill workers. Furthermore, the argument is that tariffs are reduced on luxury goods that only the rich consume; hence, no benefit for the poor. Thus, when analyzing exclusively the price effects, trade liberalization might include losses for the poor.

The CGE studies are discussed separately below. In addition to the 11 CGE studies from the Rama and Sa (2005) study, included here are studies by Fukase and Martin (1999a) on US-VN BTA, Nielsen (2002) on rice policies, Quoc-Phuong (2003), and Huong and Vanzetti (2006).[9] Three separate studies deal with the task of constructing the SAM framework. [10] The latter are reviewed in Appendix A.

1. Chan et al. (1999): Evaluating Tax Reform in Vietnam Using CGE Methods

Chan et al. (1999) investigate the aggregate welfare impacts of sales tax reform alone compared to a scenario combining sales tax reform with tariff reform. They note that as a member of AFTA, Vietnam will have to reduce tariffs to below 5 percent by the year 2006. Tariffs account for one third of the budget revenue and joining AFTA with the accompanying tariff reductions will have negative effects on the budget revenue. Chan et al. (1999) analyze the effects of covering this gap with sales tax reform.

Chan et al. (1999) use 1996 industry data and 1992-93 household data to predict the effects and apply the assumption about Armington differentiation between imports and domestic products. Their model follows Dervis et al. (1985) and Devarajan and Lewis (1990). The SAM is composed from six accounts: factors (labour and capital), households (five household groups differing with respect to income), enterprises, Government, Rest of the World (ROW), activities (nine production sectors), domestic consumption and export, and capital account. All existing indirect taxes at final consumer demand level are replaced by an equal-yield tax rate on all commodities except agriculture, with indirect tax rates endogenously determined so as to preserve the yield in the tax system.

With respect to choosing the size of elasticities, Chan et al. (1999) note the lack of any estimates on elasticities of substitution in trade, consumption and production for the Vietnamese economy and argue that there is no possibility to conduct necessary surveys to estimate these. Therefore, they chose elasticity parameters from the central tendency values following Piggott and

[9] Some of the sector analysis by Nielsen (2002) is included in the Rama and Sa (2005) study, but not the CGE part of the study.

[10] These three include Tarp et al. (2001) constructing the 1999 SAM; Tarp et al. (2002b) constructing the 2000 SAM; and Jensen et al. (2004) constructing the new 2000 VSAM. Only Tarp et al. (2002b) is included in the Rama and Sa (2005) study.

Whalley (1985) and Shoven and Whalley (1992) and from their assumptions after discussion with modellers from developing countries. In sum, their elasticity values range from 0.8 to 1.2.

The welfare gains/losses are in terms of money metric measures of utility, namely Hicksian Equivalent Variations (EVs) and Hicksian Compensating Variation (CVs). The results indicate a modest welfare gain of 0.29 percent of national income from indirect tax reform for the economy as a whole. However, this modest gain is accompanied by sharp redistribution. By broadening the base of the tax and including previously untaxed commodities, lower income households suffer and rich households (spending larger fractions of their income on taxed products) gain. The welfare gains are larger by a factor of three in the scenario combining sales tax reform with tariff reform and the redistributive effects are even larger. Chan et al. (1999) refer again to differences in the pattern of expenditure. These welfare effects of the scenario including tariff reform and tax reform are reproduced in Table A.3 in the Appendix. The predicted negative effect on the welfare of the poor does not correspond to the decrease in the actual poverty rate seen in Table 2.1. This could signify that the price effects of trade liberalization set the poor worse off, while, for instance, institutional effects benefit the poor.

Chan et al. (1999) provide a sensitivity analysis of the results using different elasticity specifications (ranging from 0.25 to 3) and find significant sensitivity due to choices of elasticities. The welfare impact in the scenario including both tariff and tax reform ranges from 0.16 to 2.13, compared to the base result of 0.89. This indicates that the sizes of the chosen elasticities are crucial for the magnitude of the results.

2. Fukase and Martin (1999a): The Effects of the US Granting MFN to Vietnam

Fukase and Martin (1999a) provide a quantitative evaluation of the United States granting Most Favoured Nation (MFN) status to Vietnam. Abbott et al. (2006) provide an ex post comparison of the predicted effects and the actual effects.

The model used by Fukase and Martin (1999a) is the Hertel (1997) Global Trade Analysis (GTAP) model. An important characteristic of the GTAP model is that it is disaggregated with respect to trading partners, where other studies rely on one aggregated block called 'Rest of the World'. The version used is GTAP 4. Documentation is provided in McDougall et al. (1998). The base year for this data set is 1996. It is assumed that tariffs on Vietnamese exports to the US fall from an average of 35 percent to 4.9 percent. These were calculated using 1997 MFN rates weighted by Vietnamese export shares.

Fukase and Martin (1999a) predicted that total Vietnamese exports to the US would increase by 127.4 percent. This increase is mainly due to a particularly significant increase in clothing exports by 1,512 percent. This estimated increase takes into account only the reduction in tariff rates on these goods, while trade liberalization brings with it much more than tariff changes.

Vietnamese exports to the US increased more than predicted, even in the short period from 1996 to 2000 and more than ten times more over the period from 1996 to 2004. Furthermore, the actual data do not support the huge increase in exports of clothing. Instead, textiles increased. Also electronics and machinery increased significantly more than predicted by Fukase and Martin (1999a). Both electronics and machinery and textiles had small shares in 1996, making it difficult for the model to prediction large increases with what is seen as reasonable elasticity assumptions.

In 2004, the largest increase was in transport equipment, which is not disaggregated in the study by Fukase and Martin (1999a) and, hence, this effect could not be identified in their study. The actual data show that resource constraints on expanding exports are not evident; the model by Fukase and Martin (1999a) does not take into account under- and unemployment and the fact that FDI relieves capital constraints.

Fukase and Martin (1999a) acknowledge existing methodological problems. They note that the model is sensitive to the Armington parameters, that the GTAP parameters are low, and that zero or low initial flows prevent new exports. In general, the authors expect more trade than the model predicts, but this is not modelled endogenously.

Abbott et al. (2006) calculate the Armington elasticities for specific expanding export sectors using a US share equation to find out how large the Armington elasticities should have been to drive the actual increases in exports. They find that the Armington elasticities should have been coffee (-5,400), fish and crustaceans (-375), cashews (-114). Thus, the elasticities which are required to make the Armington structure work are unreasonably large for expanding sectors, and export successes are not well explained within the limits of a tariff model. The tariff changes cannot be driving the actual increases in exports. Abbott et al. (2006) emphasize that institutional forces; regulation and foreign investment, not tariff changes, induced the growth in exports. They conclude that net additional trade with the US is grossly underestimated in the model by Fukase and Martin (1999a). Furthermore, Abbott et al. (2006) find that trade patterns are more specialized than the model predicts and that the predicted resource constraints are not evident.

3. Fukase and Martin (1999b): Quantitative Evaluation of Vietnam's Accession to AFTA

Fukase and Martin (1999b) provide a quantitative evaluation of Vietnam's accession to the ASEAN Free Trade Area. Five scenarios are differentiated with respect to the degree of discrimination and liberalization. The same model structure as the one used by Fukase and Martin (1999a) is used.

Fukase and Martin (1999b) argue that unilateral liberalization has two offsetting effects on output levels. On the one hand, reductions in the costs of intermediate inputs create beneficial forward linkages to domestic production and promote industrialization (Puga and Venables, 1998). On the other hand, more intense import competition has an adverse effect on the profitability of import-competing firms.

The model predicts modest effects on output in most industries, the largest expansion being in the apparel industry, where Vietnamese output is predicted to increase by 7-10 percent with AFTA accession. In contrast, the outputs of some import competing sectors are likely to contract due to increasing competition. In particular, transport equipment (TRP) and beverage and tobacco sectors (BTP) are predicted to contract if Vietnam liberalizes.

With respect to the effect on factor prices, the model predicts that AFTA raises real wages for both skilled and unskilled labour as well as the return to capital. The increases more than double when Vietnam extends its liberalization against the rest of the world. Since land is sector specific and labour is mobile, a portion of labour appears to shift from the agricultural sector to industrial sectors. In sum, liberalization is likely to promote industrialization in Vietnam.

Vietnam joined the ASEAN in 1995 and entered the ASEAN Free Trade Agreement in 2001, and reality has it that overall growth in Vietnam was 7 percent in 2002 and 7.7 percent in 2004. This is high compared to developing countries in general and compared to the prediction by Fukase and Martin.

Fukase and Martin also predict little effect of the AFTA on the export side, as tariffs in the trading countries were already low and as the countries were similar to Vietnam, leaving little basis for comparative advantages. Fukase and Martin (1999b) explain the relatively high predicted increase in exports to Thailand by the fact that Thailand gave substantial tariff cuts. In contrast, exports to Singapore are predicted to be unchanged as the initial tariff rates of Singapore are close to zero. However, exports to Singapore increased sharply, already in 2000. Fukase and Martin (1999b) explain the large predicted increase in exports to the Philippines by the fact that the Philippines included some important items such as processed rice in the Sensitive List. Instead,

exports to the Philippines had fallen in 2000, and did not reach as well the predicted increase in 2004.

On the import side, AFTA commitments exclude a number of commodities, diverting the trade of Vietnam away from non-ASEAN members, according to Fukase and Martin (1999b). The magnitude of increase in trade value is the highest with the non-discriminatory liberalization (scenario 4) which implies a 12.8 percent increase in imports and a 15.2 percent increase in exports.

In scenario 1 (AFTA 1), the overall welfare gain is close to zero since the gains resulting from increased trade with the ASEAN partner countries are offset by trade diversion away from the rest of the world. This causes a loss of tariff revenue. The net welfare gain from regional liberalization is more or less completely offset by the overall deterioration in the terms of trade. The largest welfare gain occurs in the unilateral scenario 4 and the APEC scenario 5, where real expenditure is predicted to increase by 1.4 and 1.3 percent of the expenditure level in the base year, respectively. Although Vietnam experiences larger terms of trade deterioration in its exports in these scenarios, the loss is outweighed by the improved resource allocation impacts.

Even though the model predicts no large effects of liberalization, Fukase and Martin (1999b) stress that the binding commitments of the agreement are essential for potential benefits. The binding commitments under AFTA and WTO can provide a credible signal of commitment to open trade policies that will help stimulate the upgrading of existing firms and investment in efficient and dynamic firms. The binding commitments and other institutional changes might have even greater impacts than anticipated by Fukase and Martin (1999b).

4. Chan and Dung (2001): CGE Model to Evaluate Tariff Policy in Vietnam

Chan and Dung (2001) analyze the impacts on the Vietnamese economy of a uniform reduction in tariffs on imported goods, combined with sales tax reform to maintain government revenue.[11] The VAT is yield determined. Their SAM includes the structure of the 1996 I-O table and the 1998 VLSS.

First, Chan and Dung (2001) compare two scenarios, both combined with sales tax reform: (i) reduction of all tariffs to 5 percent in 2003, and (ii) removal of all tariffs. Second, they run the simulations in scenario (i) again, relaxing the key assumptions to analyze the effect of these assumptions. Thus, scenario (iii) assumes that the ratio of consumption between imported and domestic goods is the same for all household groups. Scenarios (iv) to (vi) assumes that scenario

[11] These taxes are reviewed in Chan et al. (1999).

(iii) holds, while additional assumptions are relaxes: (iv) the specific factors are distributed to households in proportion to their total factor endowment, (v) the same consumption structure by sector applies to all households, (vi) the ratio of endowment between labour and capital is the same for all households. The last scenarios follows: (vii) doubling of all initial tariffs, (viii) capital of domestic sectors assumed immobile, (ix) capital of all domestic and export sectors assumed immobile.

Chan and Dung (2001) find that tariff reform increases welfare, particularly when all tariffs are removed, but it also increases inequality between rich and poor and between rural and urban populations. The increase in inequality is sharper when liberalization is based on removal of all tariffs. They argue that this increase in inequality can be caused by differences in expenditure patterns across households and differences in the ownership pattern of the factors they hold. By relaxing both of these assumptions, they find that the former, but not the latter, plays an essential role. Assuming that poor households consume the same fraction of imported goods as the rich, the poor gain more than when this is not assumed. The rich and urban people buy imported goods to a larger extent than the poor and rural, who primarily consume domestic goods, exposed to higher tax rates. This could be due to differences in purchasing power, but also a lack of imported goods in rural areas, since transaction costs are higher (due, in part, to immobile capital). In general, Chan and Dung (2001) find that groups, who buy proportionately more of the previously protected products gain, while owners of fixed factors in the highly protected sectors suffer.

The impact of trade liberalization on output of agriculture is negative and that on manufacturing is positive. Chan and Dung (2001) note that one reason for this apparent perverse output response could be the Armington structure in consumption and the associated low elasticity of substitution between the domestic and imported goods. Within the Armington structure, the consumer can only substitute between domestic and imported goods to a certain degree. Hence, even if the imported goods become cheaper due to trade liberalization, the consumer cannot instantly substitute away from the more expensive domestic goods. They note that simulations not reported in their study using higher values of the elasticity of substitution between domestic and imported goods show a reduction in the observed output response. Thus, this illustrates how the assumption is crucial for the result.

In scenario (i), exports and imports increase 7.8 and 5 percent respectively. However, the effects are different among sectors. The strongest changes are observed in the expanding sectors: Ceramic, glass, paper, wood products (26.6%), Chemicals, print and other industrial products (9%)

and Textiles (48%). Exports of Agriculture and allied activities either do not change or fall only a little. Furthermore, the model by Chan and Dung (2001) predicts falling exports in Mining (-8.4%), Hotel, restaurant and tourism (-4.7%), Finance, Banking and Insurance (-24.9%), and other public services (-44.9%). The fall or stagnation of agricultural exports is not supported by data from Comtrade, depicted in Table 3.1, which illustrates the leading sectors in Vietnamese exports and imports in 2003, ranked according to value. Agriculture was still a leading export sector in 2003.

Table 3.1 *Most Important Vietnam Trade in 2003, Ranked According to Value*

Imports	Exports
Medicinal and Pharmaceutical chemicals	Fish, Crustaceans, Mollusc
Fertilizer	Cereals
Plastics	Vegetables and Fruits
Leather	Coffee, Tea, Cocoa, Spices
Textile yarn and fabrics	Petroleum
Iron and Steel	Furniture
Machines	Clothing
Transport Equipment	Footwear
Telecommunications equipment	

Source: Comtrade

5. Roland-Holst et al. (2002): Accession to WTO: Projections to 2020

Roland-Holst et al. (2002) simulate potential effects for Vietnam in 2020 of the WTO accession, using the "1999 SAM" constructed by Tarp et al. (2001). This framework combines the 1996 I-O with the 1997/98 VLSS and 1999 macro-data.

The model runs forward to 2020, assuming that the 2002 Vietnam offer to WTO is accepted. Roland-Holst et al. (2002) simulate five scenarios: (i) the Vietnamese economy based upon Business as Usual trends, (ii) WTO accession, (iii) WTO accession followed by appropriate domestic reforms, (iv) parallel trade agreements (in particular US-VN BTA) used to analyze the possibility of Vietnam being caught in a low-wage trap, and (v) capital market liberalization, where inbound FDI is allowed to grow at twice the rate (together with the US-VN BTA). The four last scenarios are compared to the Business as Usual (BaU) scenario (i), where Vietnam continues without WTO accession.

Referring to the baseline data, Roland-Holst et al. (2002) note that too small a share of total exports accrues to sectors of more natural comparative advantage, like Agriculture, and desirable "modernization" exports like Manufactures. This is a prime example of the potential "low wage trap" that awaits countries opening trade from comparative advantage in low wage products. Comparing to the ASEAN region as a whole, Vietnam's trade composition is different. Vietnam

does not fully exploit the diversity of import demand by the world's leading economies. It could be argued that Vietnam represents an earlier stage of economic development than the average ASEAN level, with greater reliance on labour intensive and low skilled (low wage) agriculture, textiles and apparel, and services. More importantly, demand patterns from ASEAN's largest trade partners offer more diversified opportunities, and Vietnam could benefit by shifting its production capacity in the direction of these large markets. Roland-Holst et al. (2002) expect that the US-VN BTA will stimulate export growth and diversification for Vietnam, but these effects are not modelled endogenously.

Roland-Holst et al. (2002) find that compared to the BaU scenario, accession to WTO without reforms (scenario ii) only improves marginally on the growth rate. Their argument is that most of the benefits would accrue to Vietnam's trading partners, emphasizing the importance of economic readiness in advance of a complete opening. The growth rate in scenario (iii) with reforms is almost double the BaU or the WTO scenarios in 2020. According to Roland-Holst et al. (2002), the results from the last two scenarios emphasize the limiting force of specialization in traditional (low wage) activities and capital insufficiency. The growth rates in 2020 in scenarios (iv) and (v) with US-VN BTA and especially FDI are more than double the scenario with reforms alone. Higher wage employment and capacity expansion to meet increased US demand are explanatory factors. With respect to the composition of exports, the model predicts that diversification away from specialization in low wage textiles happens significantly in the scenario with both US-VN BTA and inbound FDI.

According to the data, a move towards less specialization cannot be observed. Data for Vietnamese exports to the US 1995-2005 actually show an increase in Vietnamese exports of textiles to the US until 2005. Noting that textiles exports were already among the top export commodities in 1995, this implies signs of *increased* specialization.

The model by Roland-Holst et al. (2002) predicts that the leading output sectors will be Services, Textiles and Apparel, and Manufactures, respectively when Vietnam accesses the WTO. The US-VN BTA will shift the importance of the last two, bringing down the share accruing to Textiles and Apparel. Roland-Holst et al. (2002) argue that the main constraint now is in investment in the more capital intensive high-wage Manufacturing. Including inward FDI flows, the model predicts that Manufacturing will be growing at the same rate as the low-wage Service sector. Furthermore, growth of Textiles and Apparel will be surpassed by the Construction sector. Regarding export trends, Textiles and Apparel is by far the leading sector in all scenarios. Inward

FDI includes Manufacturers, Processed Foods, and Services on the growth scene. Last, the model predicts that Manufacturers continues to be the leading import sector, followed by Textiles and Apparel and Energy.

These predicted trade patterns are contrasted somewhat by the observed trade patterns in 2003, shown in Table 3.1 above. Agriculture had a large share of total exports from Vietnam in 2003 and has certainly so far demonstrated a viable export potential.

Roland-Holst et al. (2002) warn that WTO accession can intensify Vietnam's traditional low-wage comparative advantages. This would narrow the basis for development, modernization, and productivity growth and not be in the economy's best long term interest. They argue that this can be avoided by complementary policies that promote economic diversification and external market access. Particular attention should in this context be paid to intensifying bilateral and regional arrangements.

6. CIE (2002): Integration and Poverty

A report by the Centre for International Economics (CIE) in Canberra (CIE, 2002) analyzes the impact of integration on poverty in Vietnam, not taking domestic reforms into account. The same data as used in Chan and Dung (2001) are relied on.

The study simulates effects on poverty in the following five scenarios: (i) unilateral removal of tariffs, (ii) tariff reductions by other countries by 10 percent (improvement of Vietnam's terms of trade), (iii) uniform improvements in productivity by 10 percent, (iv) MFN AFTA, US BTA, and (v) AFTA – US BTA combined. The results indicate that trade liberalization has beneficial effects on poverty across all scenarios, the results being valid for both indicators of poverty incidence and poverty gap. When Vietnam reduces its tariffs, CIE (2002) argues that there will be a sharp drop in prices of consumption, leading to significant increases in household real income, reducing poverty. There is a small decline (Gini from 0.35 to 0.34) in inequality following the removal of tariff protection.

In the scenarios assuming explicit improvement of Vietnam's terms of trade, the positive nominal income effect dominates the rising prices. The general improvement in terms of trade, brought about by the removal of tariff barriers against Vietnam is favourable to all the aggregate household groups, and on average more favourable to the urban households. Overall, poverty is reduced (both in terms of the headcount and the depth of poverty). From the micro-simulation analysis, these results lead to the possibility of a number of households losing. Mostly these are in

rural areas. While farmers experience an increase in their product prices, they also see increases in costs, in particular the costs of consumption. Households that are net consumers lose as a result. This effect is not as severe in the economy-wide model, as it allows for a supply response. But if production is constrained, or if land prices increase sufficiently, then some rural households may suffer as a result.

In the scenario with productivity improvement, the positive effect on nominal income is reinforced by favourable effects on consumption prices, resulting in the strongest reduction in poverty in all scenarios.

The study by CIE (2002) provides sensitivity analysis letting the following factors vary: Economy-wide responsiveness; capital labour substitution; labour supply, particularly for the poor households; and import substitution elasticities. They find that effects on income and poverty are sensitive to variations in these measures. In particular, they find that the urban households are more sensitive to changes in economy-wide responsiveness or labour supply than rural households. As an example, the simulations with higher import substitution give roughly similar results for the rural households, but noticeably lower real income changes for the urban households.

Thang (2004) emphasizes that, although this study is interesting and useful, the findings need qualifications. First, the model assumes perfectly competitive goods market, perfect movement of labour and capital as major production factors across both sectors and geographical regions. Thang (2004) notes these assumptions are restrictive and, therefore, the results of the analysis should be considered as an upper bound. Evidence indicates that the existence of some imperfections on the labour market may severely impede the ability of the poor to participate in and benefit from strong performance of export-oriented manufacturing sectors. Price signals cannot pass on fully to all geographical regions, due to relatively weak spatial integration of commodity markets. Instead, Thang (2004) stresses the importance of a sectoral approach.

Although the report by CIE (2002) does not explicitly address WTO accession, Thang (2004) argues that it is quite informative with regard to speculation about the poverty impact of the WTO accession in Vietnam. The main reason is that this study uses a CGE model to simulate a number of scenarios including the unilateral removal of all tariffs, which could (in the tariff perspective) be considered to be the maximum commitments under the WTO. Thang (2004) argues that both productivity improvements and improvement in terms of trade are likely impacts of Vietnam joining the WTO.

A critique of the CIE (2002) study is that it assumes increases in productivity, instead of including these as endogenous effects of trade liberalization. Hence, the study assumes from start what will happen and it is not surprising to find that trade liberalization is beneficial for the overall welfare when productivity increases are exogenously assumed.

7. Nielsen (2002): Vietnam's Rice Policy: Recent Reforms and Future Opportunities

Nielsen (2002) examines the economic consequences of the removal of the rice export quota and a quota on imported fertilizers in May 2001. He emphasizes that although these changes are clearly steps in the direction of liberalization, there are a number of remaining constraints – structural and political – that will restrict farmers from realizing the full potential of these reforms. In terms of politically motivated constraints, a key limitation of the reform of the rice export regime is that the Government will continue to nominate state-owned food companies to deal with Vietnam's key rice export markets. Hence, there is still a long way to go in terms of increasing private sector participation in rice exports. In terms of structural constraints – although there have been a series of land reforms over the past two decades – there are still restrictions on the conversion of rice land to other activities.

Nielsen (2002) uses a GTAP model to analyze the effects of the tariff removal. The author uses the 1996 I-O table with 1997 macro data. Sectors are aggregated into 12 groups and regions into 19. Nielsen (2002) simulates six scenarios: i) Removal of export quotas on rice, ii) Scenario i) plus removal of import quotas on fertilizer, iii) and iv) analyze the implications of the government's attempt at encouraging agricultural diversification, v) and vi) analyze the implications of the current system in EU of preferential access agreements. Nielsen (2002) finds that the rice export quota has been a restrictive policy instrument that has kept Vietnamese rice production and exports well below potential. Calibration of scenarios i) and ii) predicts an increase of exports of processed rice by 60.3 percent whilst exports of paddy rice increase by 24.6 percent. The export prices of Vietnamese paddy rice decline by 4.4 percent. Surrounding countries loose market shares, however. Scenario iii), where 5 percent of the paddy land is allowed for other agricultural crops, substantially restricts the potential of the rice sector, but has beneficial effects on other crops. Scenario iv), where the allocation of land is market-based, increases the production response compared to scenario ii), while results in scenario v), where EU's preferential agreements with other countries are eliminated, are not very different from scenario ii). Scenario vi), where Vietnam is given preferential treatment, increases Vietnamese exports to EU seven fold.

Nielsen (2002) notes that it may be concluded that liberalization of the Vietnamese rice policy regime generates the greatest welfare gains when accompanied by a market-based re-allocation of land. Nevertheless, the results also show that a forced diversification of agriculture through government-controlled land re-allocation is not a sensible strategy. Rice production and exports falls far below potential and welfare gains are more than 10 percent lower than without this initiative.

The lack of increases in scenario v) is due to the fact that the initial rice trade between Vietnam and the EU is of such a small magnitude that eroding the preferences of other exporters only has a marginal effect on the "final outcome" in Vietnam. However, a second reason has to do with the restrictive nature of the Armington specification. When initial trade shares are small, this specification of import demand in the model will never be able to generate very much 'action' and so the model will underestimate the potential for expanding Vietnamese rice exports to the EU as a consequence of e.g. trade policy reforms and/or the provision of preferential access.

8. Huong (2003): Impact of WTO Accession on Income Distribution in Vietnam

Huong (2003) analyzes the effect on income distribution of tariff reductions combined with indirect taxes and external borrowing, respectively.

The CGE model for Vietnam was developed by Huong (2000). The structure is similar to a model developed by Dixon et al. (1982). The industry data used is from the 1996 I-O table, while the household data is from the 1993 VLSS survey. Households are divided into the six groups according to income and rural/urban location. Labour is broken into four groups: Farm self-employed, non-farm self-employed, wage-earner unskilled and wage-earner skilled.

Huong (2003) finds that inequality is reduced when liberalization is combined with indirect taxation at the expense of lower growth. The mechanisms are explained as follows. On the goods market, lower tariffs reduce the prices of domestic goods and, therefore, increase average household real income. Removal of price distortions caused by tariff barriers leads to more efficient allocation of resources, ceteris paribus. Both the labour- and capital-intensive activity levels of industries are affected, which influences household income via factor incomes (supply side). On the demand side, the households adjust demand for consumption, and firms adjust their demand for intermediate goods according to income and price changes. In turn, this leads to second-round effects that also affect the supply side.

Several alternatives for the financing of government deficits exist, such as the raising of direct or indirect tax rates, domestic non-bank borrowing, money creation, and external borrowing, or aid. Direct taxation faces difficulties in Vietnam where the tax-base is thin due to low incomes and the limited administrative capability. The Huong (2003) study examines indirect taxation and external borrowing, since these are the most feasible policies under Vietnamese conditions.

Land is owned by the state, and is rented out to the rural population, who pays 10 percent of output in taxes. The agricultural sector employs 70 percent of the workforce. Rice cultivation contributes significantly to exports. It is found that trade liberalization in association with indirect taxation or external borrowing has a positive impact on macroeconomic variables. Indirect taxation introduces another distortion and, therefore, the economy grows at a lower rate. Income inequality within the rural household group decreases, as the rural poor gain more than the rural rich. Agricultural industries enjoy the largest gain, while manufacturing industries decline, hence narrowing the rural-urban income gap. The explanation is that in this model, manufacturing industries are hit more by the indirect taxation.

Financing the tariff reductions with external borrowing induces higher growth than trade liberalization in association with indirect taxation. Inequality is increased, both within rural households and between rural and urban households. Real wages of skilled labour increase more than employment of the three other labour categories. The result should be treated with caution, since debt service obligations are not taken into account.

9. Quoc-Phuong (2003): Impact and Implications of Vietnam's International Economic Integration

Quoc-Phuong (2003) uses the GTAP model to assess the economic impacts of the process of international integration on the Vietnamese economy. Based on the argument that Vietnam is currently integrating into the world economy under different trade arrangements, Quoc-Phuong (2003) proposes four scenarios for the assessments including (i) Vietnam unilateral integration, (ii) Vietnam joining AFTA, (iii) Vietnam following the requirements of APEC, and (iv) global liberal trade. The author finds that economic integration has positive effects on the Vietnamese economy with an increase in exports ranging from 0.4 percent when joining AFTA to only 3.3 percent as result of global liberalization. Imports are predicted to show increases ranging from 2.7 percent when joining AFTA to 9.9 percent with global liberalization. Last, GDP is predicted to increase between 1.6 and 4.0 percent in the two scenarios respectively. The effects of the other two scenarios lie in between those mentioned, and the effects found in this study are generally quite small.

10. Roland-Holst (2004): CGE Methods for Poverty Incidence Analysis

Roland-Holst (2004) proposes a new set of CGE based methods for poverty incidence analysis of Vietnam's accession to the WTO. The model is constructed and discussed, but quantified simulations are not put forward. The theory is that liberalization has important effects on market access and outward orientation, affecting the poor.

Roland-Holst (2004) uses the "2000 VSAM" constructed by Jensen et al. (2004) employing the 2000 I-O table, the 1998 VLSS, and 2000 macro data. This framework is combined with micro-simulation modelling of the household income generation process. The micro-simulation enables taking into account individual and household heterogeneity. The household survey used for estimation of the micro-simulation parameters is the 2002 Vietnam Household Living Standards Survey. Furthermore, in order to analyze poverty dynamics, Roland-Holst (2004) stresses that individuals and households should be tracked over time. However, it is not possible to identify the individuals of the households, who cross the poverty line. The poverty transition analysis is thus based on the assumption that only 10 percent of the unobserved effects (earnings and individuals) are transitory. Roland-Holst (2004) suggests using the three household surveys; 1993 VLSS, 1998 VLSS, and 2002 VHLSS. He notes that the 1998 VLSS is almost identical to the 1993 VLSS and that the 2002 VHLSS is less detailed than the 1998 VLSS.

Roland-Holst (2004) hypothesizes that the facilitated market access and its attendant price convergence can be a catalyst for trade-induced growth and poverty alleviation (for the poor in general and the population living in remote areas, in particular). His theory behind greater market access as poverty alleviation is that more remote areas lack urban infrastructure, are faced with highly distorted prices, are isolated from administrative and informal linkages that could facilitate market access and technology diffusion, and they, finally, suffer from limited capital accumulation and potential to invest. The paper seeks to identify the microeconomic channels by which externally driven price reform can promote market participation, agricultural diversification, and transition from poverty to higher and more sustainable levels of income and savings.

Roland-Holst (2004) assumes heterogeneous prices, emphasizing that the price differences between rural and urban areas embody essential information about the structural impediments to economic progress.

11. Jensen and Tarp (2005): Trade Liberalization and Spatial Inequality

Jensen and Tarp (2005) use a micro-simulation model and divide Vietnam into three zones. Their results show that the elimination of export taxes and import tariffs will increase the poverty rate by 1.3 percent and widen the regional disparity between regions. They use two poverty measures: Poverty headcounts and average poverty gaps.

Jensen and Tarp (2005) employ the aggregated "2000 SAM" established by Tarp et al. (2002b) with the 1996 I-O table, 1998 VLSS, and 2000 macro data. The degree of detail in the 1998 VLSS enables identification of differences in impact according to employment status (not only location and income), which is also the focus by Huong (2003). The impact across households differ by location (as emphasized in the papers by CIE, 2002 and Chan and Dung, 2001), but also with respect to employment status (farmer, self-employed, wage-worker, non-employed).

This top-down exogenous differentiation of households into 16 groups is compared to an endogenous income distribution between the 5,999 households in the 1998 VLSS. They present a methodology for measuring the poverty impact of macro policies within a CGE model framework, which does not rely on assumptions regarding intra-household distributions of income. This allows them to analyze feedback-effects from the micro level distribution of income and expenditures to macro level variables. They find that these feedback-effects are important in determining the poverty impact of trade policy interventions.

Data indicates that poverty headcounts and average poverty gaps among poor individuals living in farm households are relatively high in the northern and central regions and relatively low in the southern region.

Jensen and Tarp (2005) simulate three experiments: 1) Elimination of export taxes, 2) Elimination of import taxes, 3) Experiments 1 and 2, combined. They compare the effects between the exogenous top-down differentiations of household-groups to the endogenous income distribution. Two top-down approaches are distinguished including (a) the application of representative household consumption growth rates to micro-household consumption, and (b) the application of aggregate factor prices to initial micro-household factor endowments and the subsequent derivation of micro-household consumption and poverty. Most experiments use a standard revenue-neutral closure, where uniform variation in household tax rates make up for lost revenue from reduced trade taxes.

The elimination of export taxes in experiment 1 has a relatively small impact on regional poverty, regardless of the treatment of micro-households. However, poverty declines with

endogenous micro-households and increases with the aggregate consumption top-down approach, while it remains (virtually) unchanged with the disaggregate factor income top-down approach. Jensen and Tarp (2005) note the switch of sign, when micro-households are modelled endogenously, is an important methodological observation. The elimination of export taxes increases agricultural terms of trade as well as relative unskilled rural (male) wages. The model with endogenous households captures positive feedback effects of increasing rural incomes, on which the other top-down approaches miss out.

Turning to experiment 2, the elimination of import tariffs has a significant adverse impact on poverty, regardless of whether the income distribution is modelled endogenously or not. High industrial protection is concentrated in food processing sectors, and while food processing is an industrial sector, the intensive use of primary agricultural inputs in this sector means that the import tariffs are implicitly protecting agricultural production. It therefore comes as no surprise that elimination of the import tariff structure lowers the agricultural terms of trade and relative rural unskilled wages. This in combination with increasing household taxes increases poverty. Jensen and Tarp (2005) also note that the endogenous modelling of micro-household income and expenditure decisions shows a milder poverty impact as compared to the "aggregate consumption" top-down approach. This suggests that taking account of relative micro-household factor endowments and feedback effects from the endogenous modelling of income distribution has an important dampening effect on the negative poverty impact.

Jensen and Tarp (2005) analyze different scenarios combining trade liberalization with different financing scenarios including: (i) taxation of households, and (ii) a widening budget deficit. As Chan and Dung (2001), they recommend combining the trade liberalization with a proper fiscal response to avoid increasing poverty in the short- and medium term. Relying solely on increased household taxation when making up for the lost revenue from reduced trade taxes, increases poverty. Elimination of all trade taxes financed by increased household taxes would push 1.3 percent additional people into poverty. Half of these are poor rural farmers. At the other extreme, relying on pure deficit financing lowers the economy-wide poverty gap by almost 9 percent. The government should consider alternatives to increased household taxation, including increased enterprise taxation and/or reductions of expenditure levels.

Jensen and Tarp (2005) find that the elimination of export taxes leads to higher export prices as perceived by domestic producers, while the elimination of import tariffs leads to lower import prices as perceived by domestic consumers. Higher export prices and lower prices on (imported)

intermediate inputs drive domestic producer and value-added prices up, while declining import prices drive domestic demand prices down. The intuition behind the increase in value-added prices is that trade liberalization with compensatory direct taxation leads to a change in the composition of GDP at market prices. High export taxes are biasing price incentives against agricultural production, while high tariff protection of food processing industries is implicitly subsidizing agricultural production. The net impact can be judged from experiment 3, and it shows that value-added prices decline by 0.3 percent. This indicates that the overall Vietnamese trade tax structure is biasing price incentives slightly in favour of agricultural production and against non-agricultural production.

Finally, Jensen and Tarp (2005) analyze effects on measures of equivalent variation for each of the 16 aggregate household categories. It appears that no households gain from the combined elimination of trade taxes in experiment 3, and the small number of households with unemployed heads experience particularly strong losses. Comparing the poverty impact of trade liberalization between rural and urban areas, it appears that the number of poor expands more rapidly in rural areas compared to urban areas.

In sum, the experiments indicate that the elimination of export taxes and import tariffs per se will do little to raise people out of poverty, if the government responds with increased taxation at the household level. Furthermore, the modelling results depend on whether the household income distribution is treated exogenously or endogenously.

12. Dee et al. (2005): Evaluating Vietnam's WTO Accession in Services

Dee et al. (2005) focus on the effect on the Vietnamese economy of the WTO accession offer in services. Vietnam's recent WTO accession offer in services generally involves multi-lateralizing the measures taken under the US-VN BTA, generally restricted to liberalizing measures that limit foreign participation. Vietnam's current WTO accession offer reduces the margin of discrimination against foreign services suppliers in four of the seven services sectors: Banking, distribution services, telecommunications, and professions in accounting, legal services, architecture, and engineering. Examples of liberalization are (i) lifting limits on foreign equity participation in banking, distribution, legal services and telecommunications; (ii) allowing foreign banks to accept Vietnamese currency deposits and issue credit cards; (iii) allowing foreign distribution of firms to establish a first outlet as a right; and (iv) allowing foreign auditing companies to provide auditing

services to state owned enterprises. While the offer removes some of the discrimination against foreign operators, it also appears accordingly to Dee et al. to introduce new restrictions.

Dee et al. (2005) employ the CGE model, FTAP, taking the standard GTAP framework of Hertel (1997) as a description of the location of economic activity. The FTAP model differs from the GTAP model (Hertel, 1997) in three important respects: (i) the GTAP model is split up by ownership (foreign, domestic etc) in addition to location, (ii) instead of GDP (the income generated in a region), GNP (the income received by residents of a region) forms the basis of the welfare measure in FTAP, and (iii) the FTAP model allows the profits of foreign affiliates to be reinvested and makes allowance for FDI more general by allowing for saving and wealth accumulation in each region. The FTAP model differs from GTAP in other respects. In particular, the model allows for firm-level product differentiation.

Dee et al. (2005) predict the effects on the economy within four scenarios: (i) WTO accession offer in services, (ii) amended WTO accession offer, (iii) amended WTO accession offer including additional regulatory reform, and (iv) a full reform scenario, where all restrictions known to have adverse price effects are removed. The amended offer removes the restrictions imposed by the WTO offer. These restrictions include a new non-discriminatory requirement that accounting firms have a minimum of five qualified professionals, and a requirement that for two years after the date of establishment, foreign architecture and engineering firms can only serve foreign clients.

The results indicate that the net economic effects of the WTO accession offer in services, in either its current or amended form, are trivial, which is clearly somewhat surprising. The underlying mechanism is that while the restrictions on foreign business have created excess profits for incumbent firms, the loosening of these restrictions will shift the excess profits to the new foreign entrants.

However, when the amended offer is combined with additional unilateral regulatory reform, the effects are more impressive. These regulatory reforms will encourage competition among both locally-owned and foreign operators in air passenger transport and electricity generation. Such pro-competitive reforms could encourage better performance throughout these two sectors. Further, they would do so at least in part by lowering the real resource cost of doing business. As an example, Dee et al. (2005) predict a fall in the costs of electricity of up to 16 percent from the increased competition generated by pro-competition reform, which will spill over to the other sectors in terms of lower electricity prices.

The model by Dee et al. (2005) predicts that GDP will rise by 1.45 percent in the scenario with amended WTO accession offer including additional regulatory reform, while the increase is only 0.03 and 0.04 percent in the two first scenarios. When Vietnam's amended WTO accession offer is combined with further unilateral reform, the output of the sectors undergoing reform generally expands, but at the expense of slight declines in output in agriculture and food, and other primary, as well as in some of the services sectors (such as Transport) not undergoing reform. Because the services sector itself is intensive in the use of services, the benefits of services trade reform tend to be concentrated in services, and scarce resources flow into the services sector, at the expense of other sectors.

The model results show that the boost to real GDP comes about, in part, because service trade reform encourages additional capital accumulation and a higher capital stock. The percentage gain in real GDP or GNP well exceeds the percentage gain in available capital — the difference is made up by the productivity improvements that reform of cost-escalating trade barriers brings about. Aggregate employment of both skilled and unskilled labour is assumed to be fixed at the level it would otherwise take without the services trade reforms. Any labour market pressure that comes about through the expansion of services sector job opportunities is assumed to be absorbed instead through increases in real wages. Pro-competitive reform of regulations governing electricity generation would contribute almost 40 percent of this total gain. Reform in wholesale and retail would account for another 40 percent of the total gain.

Despite of the insignificant effects predicted by the model, Dee et al. (2005) stress that the accession offer has significant effects on the Vietnamese economy because the WTO accession is a legally binding commitment for Vietnam not to renege on these commitments in the future. This is not captured in the model, though.

13. Toan (2005): The Effect of Trade Liberalization on the Income Distribution in Vietnam

Toan (2005) investigates the main sources of welfare change after trade liberalization and WTO accession in a CGE model. How the welfare of eight household groups is affected is analyzed, assuming the reduction of tariff revenue is offset by the introduction of a uniform increment in indirect tax rates, endogenously determined so as to maintain revenue neutrality.

Toan (2005) uses the "2000 VSAM" from Jensen et al. (2004) with the 2000 I-O table, 1998 VLSS, and 2000 macro data. The model comprises 25 sectors, eight household groups (location and employment status) and 13 factors of production (labour is divided into 12 types). Equilibrium,

therefore, incorporates clearing of 12 labour markets, 25 commodity markets and one foreign exchange market, where the wage rates for each type of labour, the domestic commodity prices, and the foreign exchange rate are determined. The effects are projected until 2035.

The import tariff schedule reveals that Vietnam's 2000 tariff structure still explicitly restricts the import of consumption goods while encouraging imports for production and investment. That is, the highest import tax rates are on consumption goods: Tobacco (34%), Gasoline (19%), Alcohol (18%) etc. In the simulations, import tariffs of more than 5 percent are reduced to 5 percent, consistent with WTO commitments. Thus, imports of consumption goods become cheaper and the competition in these industries increases.

The model predicts that the manufacturing sector expands, while the agriculture and service sectors decline, both in output and exports. All three sectors are predicted to experience slight increases in imports, agriculture and services almost unchanged, though. In general, the expansion of the manufacturing sector comes at the expense of agricultural and service sectors where production decreases by 0.65 and 0.4 percent in the long run, respectively. Because the recent tariff structure of Vietnam strictly prohibits the import of consumption goods but favours the import of intermediate inputs, trade liberalization will probably not help reduce production costs significantly while encouraging people to use imported products rather than the domestically produced ones. In addition, the increase in indirect taxes makes domestic products less competitive. As a result, imports of the agriculture and service sectors are predicted to increase while their exports decrease.

The model predicts that total national welfare is negatively affected by liberalization and that the income gap between rural and urban households becomes wider, as rural household income declines more significantly than urban incomes. Benefits gained from change in the relative prices system of consumption goods are not so large that they can outweigh the losses in income, leading to a decline in welfare of all rural households in the long run. In contrast, both income and price effects seem to favour most of urban households. The decrease (or increase) in the total output will also have a negative (positive) effect on the total profit, which is in turn distributed to each household group according to the ratio of capital stock owned by each of them. Rural households spend about 20 percent of the total family budget on public services, such as education and health care. In the urban area, public services are one of the most important components in the consumption basket of households. An increase in the prices of public services has a negative impact on all groups of households at different levels.

The negative predictions of this model are a consequence of the setup, where only Vietnam reduces its import restrictions. Nonetheless, the beneficial effects might still be underestimated from the fact that the model does not include the legal commitments. What this model suggests is that when considering only the increased competition and cheaper consumption goods, economic integration may hurt the Vietnamese economy, as many households are producers of consumption goods.

14. Nguyen and Ezaki (2005): Impacts on Growth, Poverty and Income Distribution

Focusing on China-ASEAN, US-VN BTA, and multilateral liberalization, Nguyen and Ezaki (2005) find that regional economic integration generally has positive economic impacts. The integration is not only welfare enhancing, but also leads to a less unequal income-distribution.

Nguyen and Ezaki (2005) link a global CGE model with a GTAP 2001 I-O database with focus on international relations. The model includes 10 industries and 11 countries or regions (China, Indonesia, Malaysia, Thailand, Philippines, Vietnam, East Asian newly industrializing economies (NIEs), Japan, the North American free trade area (NAFTA), the European Union (EU) and the rest of the world). The model specifies two economic institutions; households and government. The authors focus on five different liberalization scenarios. The scenarios include removal of tariffs on the bilateral trade between: (i) Vietnam and ASEAN-4 (Indonesia, Thailand, Malaysia and Philippines), (ii) Vietnam, China and ASEAN-4, (iii) Vietnam, China, ASEAN-4, East Asian NIEs and Japan, (iv) Vietnam, China, ASEAN-4, East Asian NIEs, Japan and North America, and (v) Multilateral Trade liberalization.

The paper starts with an overview of the development of the Vietnamese economy over the past 20 years. An overview of the change in the direction of Vietnamese trade shows that while East Asian economies have remained the major import suppliers, the European Union and the United States of America have become increasingly important for Vietnamese exports. The estimated poverty incidence in 1985 was over 70 percent, while the rapid growth has lowered this percentage to 15 in 2002, but inequality has increased slightly. The urban economy, based largely on manufactures and services, grew twice as much as the rural economy, and the ratio of urban to rural income rose from 1.8 in 1993 to 2.2 in 1998.

Nguyen and Ezaki (2005) predict that household consumption and income rise significantly as a consequence of liberalization, and the poor and rural groups benefit more than the rich. Moreover, the removal of tariffs in trading partners provides Vietnam with greater market access, and exports

rise in all simulations. In terms of growth, trade liberalization may cause real GDP to fall, but the overall output loss is small. Under the four ASEAN scenarios, exports are predicted to increase the most in scenario (iv) with 13.9 percent. These figures should be compared to the actual figures reported in Table 2.1. Since 1998, exports' share of GDP has grown annually with more than 14 percent, reaching 19.7 percent in 2004.

The prediction by Toan (2005) is close, but still underestimated. The actual GDP growth rate lies between 7 and 9.8 percent in the same period, above the model predictions. The sector specific effects are closer to the actual changes than most other models. The assumptions by Nguyen and Ezaki (2005) are all neoclassical, so unemployment and other imperfections do not seem to be able to explain the size of changes in the leading sectors. Thus, the reason for this more realistic prediction might be that fewer new industries have emerged since the model was constructed. Recall that previous models had difficulties predicting the large increases in outputs and exports of in new industries. The highly underestimated GDP growth rate could be explained by the lack of institutions, imperfections and other rigidities in the model, but this is not clear.

15. Dimaranan et al. (2005): Impacts of Merchandise Trade Liberalization Under WTO Accession

Dimaranan et al. (2005) analyze liberalization of tariffs and textile export quotas and focus on industries rather than households.

The authors take into account the differences in tariff rates levied by Vietnam on exports of different products and from different suppliers. They use the 2003/04 tariff schedules for Vietnam, presented at an eight-digit level. They calculate the weighed average tariff rate in 2004 as 15.9 percent.

Vietnam is a major exporter of clothing but surprisingly, its highest weighted average tariff is on clothing (49.3 percent). Dimaranan et al. (2005) used the 2003-04 tariff schedule, converted to the 6-digit level, to estimate tariff rates that would accrue in the absence of restrictions imposed by the bindings negotiated in the context of the WTO negotiations. Weighted average tariff rates were then calculated for groups of regions and commodities that are based on the importance of particular suppliers and commodities in Vietnam's import mix. They find that the weighted tariff on clothing is substantially higher than that on textiles (31.5 percent), presumably reflecting a desire to provide higher effective rates of protection to clothing production for the domestic market through tariff escalation – that is, by having higher tariffs on final goods than on their intermediate inputs.

The current accession offer requires reduction of the weighed average tariff rate from the 15.9 percent to 12.9 percent, but the reduction varies greatly among sectors and across regions. For instance, the average tariff on imports of clothing falls from 49.3 percent to 24.7. The largest reductions in import prices under the fourth offer will be in textiles and apparel, where import prices will be reduced by an average of 12.3 and 16.5 percent, respectively.

Dimaranan et al. (2005) use the same GTAP I-O data as Nguyen and Ezaki (2005), but aggregated into 22 sectors and 12 regions. Therefore, the sector analysis is somewhat more disaggregated than the one by Nguyen and Ezaki (2005). This model includes two separate activities for each manufacturing sector: One domestically oriented that pays duties on its intermediate inputs and a second export-oriented one exempted from paying these duties.

Duty drawbacks were incorporated in the GTAP general equilibrium model following the methodology developed by Ianchovichina (2003) for the GTAP-DD model. This adjustment of the model involved the elimination of tariffs on imports of intermediate inputs of the export-oriented sub-sector of the following industries in Vietnam: textiles, clothing, leather, wood and paper, metals, motor vehicles and parts, equipment, and other manufactures. Thus, only the domestic-oriented activities in Vietnam's manufacturing industries pay tariffs on their imports of intermediates; the export-oriented sub-sectors of these industries enjoy duty drawbacks (DD). They compare the consequences of trade reforms with and without taking into account the effects of the duty exemption arrangements. Dimaranan et al. (2005) find that taking into account these arrangements reduces the measured welfare benefits of trade reform by over 70 percent, so modelling reform in Vietnam without taking these measures into account would substantially overstate the benefits of merchandise trade reform.

The simulations predict the largest increase in output in the clothing sector, where output is estimated to increase by 224 percent. The next largest is in output of textiles with an increase of 60 percent. The largest decrease will be in the sugar sector, where a fall in output of 64 percent is predicted as a result of the abolition of the quota on imports of sugar. The small reductions in output observed in many other sectors are the result of the need to free up resources to allow the substantial increases in output in textiles and clothing.

A similar pattern is seen with respect to exports, where the export of textiles and clothing are predicted to increase, while exports of most other commodities decline because the increased profitability of textiles and clothing allows these industries to bid up the price of resources, reducing the competitiveness of other sectors. Exports of sugar are predicted to increase (62 percent), though,

as a consequence of the fall in the domestic price resulting from the abolition of the quota on imports of sugar.

Dimaranan et al. (2005) note their analysis of quota abolition substantially understates the gains to Vietnam, because the model assumes efficient administration of the current export quota regime.

16. Huong and Vanzetti (2006): Vietnam's Trade Policy Dilemmas

Huong and Vanzetti (2006) provide the most recent CGE impact assessment of the WTO accession on the Vietnamese economy. Six scenarios are simulated in the GTAP 6 model: Unilateral, bilateral, harmonized, bilateral, regional, multilateral liberalization, and free trade. As Dimaranan et al. (2005), they predict only limited gains in the agriculture and resource sectors, but large effects on the textiles and apparel sectors.

Applied average tariffs on merchandise (excluding services, for which tariffs are not available) imports, at 12 percent, are twice as high as tariffs on exports. On the import side the most significant tariffs are on textiles (26%) and manufactures (16%). Tariffs on apparel are higher (33%) but the volume of imports is relatively low. 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.

All scenarios, with the exception of harmonization, lead to an increase in exports. The largest increases are in the unilateral and free trade scenarios. Huong and Vanzetti (2006) explain this by referring to the fact that the lower costs of imports reduces the cost of production of exports where imports are used as intermediate imports. The largest sectoral effects are in textiles and apparel. Apparel tends to attract higher tariffs than textiles, by virtue of a greater amount of processing, so similar tariff cuts change relative prices. In other sectors, chemicals show large percentage gains from a relatively low base. Growth in these sectors pulls 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.

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. Harmonizing the tariff schedule has little impact on the overall level of imports, although there are significant sectoral changes.

The model predicts that Vietnam can obtain most of the potential gains from trade reform from unilateral liberalization. These gains of $3,459 million are a large fraction of the potential gains of $4,705 million available once other countries also liberalize. This implies that most of the gains come from behind the border reforms rather than improved market access.

3.4 Comparing Predictions from CGE Models with Ex Post Observations

The models reviewed in Sub-section 3.3 mainly attempt to predict the effects of joining the ASEAN in 1995, joining APEC (Asia Pacific Economic Cooperation) in 1998, the bilateral agreement between the US and Vietnam in 2000, the ASEAN Free Trade Agreement (AFTA) in 2001, and WTO accession. Most models include domestic reforms to make up for the loss in government revenue due to tariff reductions in a revenue neutral manner.

One conclusion from the review is that underlying assumptions have large effects on results. In this sub-section, we provide a comparison of the results obtained with reference to Table A.1.

In general, the models do not predict large impacts of trade liberalizations. First, the impacts on output, exports and imports are typically modest, while impacts on specific sectors are larger. Exports and imports are usually predicted to increase as a consequence of lower tariffs, while some papers predict a fall in output. Table 2.1 demonstrates that this has not happened in actual experience. GDP has increased from 1986 to 2004 by more than 7 percent annually, highlighting the intricacies involved in establishing an appropriate counterfactual.

The predicted welfare effects are small, but positive. Some models predict increased inequality, especially the earlier models. Chan et al. (1999) and Chan and Dung (2001) even predict reduced welfare of the poor. Chan et al. (1999) show that this result is caused by a combination of the yield determined sales tax reform and tariff reductions which imply a larger increase in inequality than the scenario including only the tax reform. The data in Table 2.1 show reduced poverty (measured by headcount percentage) from 14.6 percent in 1993 to 3.8 percent in 1998 and down to 2 percent in 2002, so poverty decreased in reality. The headcount measure does not illustrate the depth of poverty, though.

Turning to the assumptions underlying the models, some papers perform analyses of the sensitivity of certain assumptions. Chan et al. (1999) provide a sensitivity analysis of the results using different elasticity specifications and find significant sensitivity. The study by CIE (2002) provides a sensitivity analysis, letting various factors vary (economy-wide responsiveness, capital labour substitution; labour supply, particularly for the poor households; and import substitution

elasticities). They find that effects on income and poverty are sensitive to variations in these measures.

Economic growth is exogenously imposed in most of the CGE models, not predicted. Hence, progress is not *explained* within the models. Productivity growth is also imposed exogenously, either consistent with imposed growth forecasts or assumed as a constant elasticity function of trade or GDP. Abbott et al. (2006) emphasize that there is a controversy as to whether this is supported by data. Furthermore, they note that potential sectoral productivity growth differences are missed. Another problem is the trade balance assumptions, which are critical in the macroeconomic closure of the models. In practice, endogenous exchange rate determination may affect the results. The balancing of trade deficits by capital flows may also be crucial for the results. Capital market imperfections are not included. Only Chan and Dung (2001) calculate two scenarios assuming immobile capital to domestic and both domestic and foreign export sectors, respectively. The latter scenario is associated with a drop in capital prices and, thus, a drop in welfare. Unemployment is ignored, and we have to resort to the sector studies for papers taking into account urban-rural migration.

Most of the models use the Armington trade elasticities. Abbott et al. (2006) demonstrate that observed increases in exports can only be obtained with unrealistically large Armington elasticities, indicating that the models as they stand are not really suited to capture the large increases evident in for example the export data from a low base.

Another important conclusion that can be drawn from the thorough overview of the CGE models is that they are, in fact, quite similar. The structure of the models is almost the same, except that some use the 1999 SAM, some use the 2000 SAM, others use the new 2000 VSAM, and yet others use the GTAP model structure that differs from the Vietnam SAMs through the inclusion of more trading partners instead of one large 'rest of the world' region. The factors driving differences in the results can be summarized as follows: (i) early models tend to have difficulties in predicting increases in sectors with a zero share of exports or output when the model was shaped, (ii) more recent models include data for industries that are already growing fast, and this makes it possible to predict large growth here, (iii) models assuming exogenous technology growth 'predict' larger increases in exports and output, and (iv) different tariff changes are assumed as a basis for economic integration.

To provide further background and put CGE model work in perspective, a review of sector studies is useful. Accordingly, the 13 available sector studies on the effects of liberalization are therefore reviewed in Section 4.

4. Sector Studies

One major critique of the economy-wide approach, discussed in earlier sections, is that it is unable to take account of sector specific details. Some authors, therefore, take a more sector-specific partial approach, and it is useful to take both approaches into consideration when analyzing the effects of international economic integration, including WTO accession. This section reviews existing sector studies for some key commodities: Rice, sugar, maize, livestock, fisheries, coffee, tea, groundnut, textiles, and clothing. One sector study (Nguyen and Grote, 2004) is added in to the 12 studies referred to by Rama and Sa (2005).[12]

The sectoral studies display as highlighted by World Bank (2005) an enormous diversity in methodology. Partial equilibrium models are used in eight of them, household surveys in five and focus group discussions in two. Some of the studies use more than one methodology. There is also a considerable diversity in their coverage. Five of the studies refer to rice, three to textiles, three to sugar, two to maize, two to coffee and two to tea. For some sectors, such as fisheries, only one study could be identified. But some studies cover several sectors at once. One study focuses on the overall economy. This was the study by Thang (2004), referred to in Section 2. Four studies focus on the agricultural sector, in general. The remaining studies focus on specific sectors.

4.1 Sector Studies on Agriculture

The report by ISG-MARD (2002) provides an overview of general changes in the agricultural sector. It is noted that a number of Vietnamese agricultural export commodities have affirmed their foothold in regional and international markets in recent years. They include rice, coffee, cashew nut, pepper, and tea. Thanks to production improvements and effective crop structure transformation, living standards in rural areas have strongly improved with average income per capita doubling from 1992/93 to 1997/98. However, it is noted that the income gap between rural and urban areas is widening. Over the 1990s, Vietnam has promoted its investment in rural infrastructure such as roads, bridges, irrigation works, electricity and water supply; facilitating the production and flow of goods and enhancing linkages among regions. It is argued that (i) economic integration and trade liberalization will have great impacts on the national economy in general and the agricultural sector, in particular, and that (ii) this will be a good opportunity to expand markets and receive modern and advanced technologies from developed countries, facilitating institutional development. However,

[12] Rama and Sa (2005) actually reviews 13 sector studies, but one of these is a CGE model (Nielsen, 2002), which we have chosen to review in Section 3.

trade liberalization has also created competition pressure on domestic production, strongly affecting traders, exporters and producers. Vietnamese exports consist mainly of primary low quality products, making the competition particularly fierce.

The report by ISG-MARD (2002) considers the impact of trade liberalization on two different agricultural sub-sectors; an exporting group (including rice, coffee and tea) and an import substitution group (sugarcane). In particular, the competitiveness of the sectors is analyzed.

Rice: From being an importer of rice in the 1980s, the rice sector of Vietnam has become successful in transforming Vietnam into the world's second largest rice exporter, after Thailand. The process started in the 1980s with the introduction of the 'contract system', in which farmers were allowed to use any extra amount of output over planned production for their own purposes. This was accelerated in 1989 with further decentralization of decision-making to farming households, and was complemented by a range of land law reforms and the liberalization of other sectors in the early 1990s. Asia (including Indonesia, the Philippines, Singapore, Malaysia and Hong Kong) remains the main importer of Vietnam's rice, accounting for over 50 percent of total rice exports. Middle Eastern countries such as Iran and Iraq are also big export markets of Vietnam's rice. Rice policy is evidently important, as rice accounts for three-quarters of the caloric intake and is grown by more than two-thirds of Vietnamese households.

Thanks to a long-lasting tradition of rice cultivation and favourable climate conditions, rice productivity of Vietnam is relatively high in comparison with other countries in the world. According to an evaluation by the International Food Policy Research Institute (IFPRI), Vietnam is one of the countries with the lowest rice production costs in the world, indicating high competitive advantages in international markets. However, ISG-MARD (2002) states that in recent years, lower worldwide rice demand and fiercer competition have reduced Vietnam's competitiveness in rice production. Despite recent fluctuations in the world rice markets, Vietnam still has rather strong competitive advantage in rice export. Therefore, ISG-MARD (2002) predicts that when Vietnam integrates further into the world economy, the country will have many opportunities to speed up exports to other markets.

Coffee: From 1990 to 2000, coffee output increased over 7.5 times, and its cultivation area also increased remarkably. The volume of coffee exports accounts for 95 percent of total output. However, like some other agricultural export products, like rice and rubber, coffee has also been strongly affected by fluctuations in international markets. From 1998, the world coffee price has witnessed substantial decreases, making Vietnam export coffee price fall dramatically. Europe

remains Vietnam's biggest coffee importer, accounting for about 50 percent of total coffee export value in the period of 1995-2000.

Vietnam's coffee productivity is much higher than the level in Indonesia, India, and the World on average. Previously, coffee was a profitable export agricultural product. However, the Domestic Resource Cost (DRC) of Vietnamese coffee increased from 1995 to 2000. At the same time, quick and big price reductions on the world markets have caused big decreases in coffee competitiveness. The coffee price competitive index of Vietnam in 2000 was only equal to half of the 1994 level. In addition, tight exchange rate policies have reduced price competitiveness of Vietnam's coffee exports. However, Vietnam is now the biggest Robusta exporter in the world and coffee remains a key export product of Vietnam. Trade liberalization may facilitate the expansion of coffee export markets.

While ISG-MARD (2002) notes that Vietnam is the biggest Robusta exporter in the world, no mention is made of the problem that world prefers the higher quality variety, Arabica.

Tea: Over the period 1990-2000, average growth rates of tea area and output were 4.17 and 9.28 percent, respectively. In recent years, Vietnam has expanded its tea markets to over 30 countries in the world, especially Iraq, Russia, England and Algeria.

Despite rather high economy-wide growth rates over the last 10 years, tea productivity remains rather low due to poor cultivation techniques. From observing the level of DRC, ISG-MARD (2002) concludes that Vietnam's tea sub-sector has a comparative advantage, even though not high. Recent world price reductions have reduced the competitiveness of tea significantly.

To analyze the impact of future trade liberalization, ISG-MARD (2002) provides a partial equilibrium analysis. The simulation predicts that international trade liberalization has substantial impacts on Vietnam's agriculture and especially on exportable crop sub-sectors such as rice, coffee, and tea, providing various opportunities for their promotion and efficiency improvement. Despite of positive effects of tariff barrier reductions for development of agricultural exports and efficient production reallocation, the benefits gained from trade liberalization might not outweigh losses caused by direct negative impact of unforeseeable crises in international markets. Market forces determining changes in world supply and demand are indeed, the ISG-MARD study notes, beyond the control of government, and the cyclic economic recessions and crises under trade liberalization are likely to have more powerful and earlier effects.

To improve the competitiveness and strengthen capacity of economic integration for Vietnamese agriculture including rice, coffee and tea, ISG-MARD (2002) recommends a series of

comprehensive policy measures: (i) further reduction/removal of all non-tariff barriers, particularly in administrative procedures so that marketing and trading cost can be decreased and price competitiveness can be enhanced; (ii) more support and effort by the state should be focused on product quality improvement and cost reduction through more active application of improved technologies and advanced scientific achievements; (iii) strengthened capacity in post-harvest processing facilities, and develop appropriate marketing and trading infrastructure; (iv) establishment of antitrust mechanisms for healthy competition, and the creation of a favourable institutional framework to encourage the participation of all economic sectors in international trade; (v) organize an appropriate trade promotion system focusing on large markets of the world; and (vi) design flexible foreign exchange control and exchange rate policies to support and accelerate international trade activities.

Que and Que (2000) also provide an overview of the agricultural sector with particular focus on rice, coffee, tea, and groundnut in the period 1990-1997. They stress large the impacts on the agricultural sector from WTO accession and liberalization in general.

Implementing the renovation policy shifting from subsidized, bureaucratic, centrally planned production to market-orientated commodity production with the development of many economic sectors under the management of the State has paved the way for the expansion of trade. The main exportable crops of Vietnam have grown both in quantity and export value. Vietnam has emerged in the world market as one of the main exporters of rice. Besides rice, there is also high potential for developing various exportable upland and root crops such as coffee, tea, rubber, groundnut, and so on. Regional and international markets have notably impacted on agriculture in Vietnam. The Government of Vietnam has been important by launching a series of economic and institutional reforms encouraging farmers and agents to promote their agricultural and agricultural processing activities and creating possibilities for market expansion, and subsidies have also been applied.

To meet rapidly increasing demand, Vietnam has invested in the expansion and upgrading of infrastructure. However, infrastructure, especially the transport system, is still backward and weak.

The assessment of the effect of trade liberalization at the national level is in the study by Que and Que (2000) based on different methods including econometric estimation of supply and demand behavioural parameters and partial equilibrium modelling of Vietnam's agricultural trade with special focus on four major exportable crops: rice, coffee, tea and groundnut. Together, these sub-sectors contributed 70 percent of total sown area and 66 percent of agricultural exports in the period from 1990 to 1997. According to the analysis results of various simulations with 1997 as base year,

Que and Que (2000) predict that if Vietnam removes all her export restrictions, the country's overall level of agricultural exports is likely to increase by nearly 26 percent. In addition to this, if the WTO agreement on agriculture is fulfilled, bringing about a 7 percent increase in the world prices for Vietnam's agricultural export commodities, Vietnam's agricultural export earnings might increase by more than 40 percent. In short, the analysis shows that the static effect of national and global trade liberalization seems to be great for Vietnam's agricultural sector.

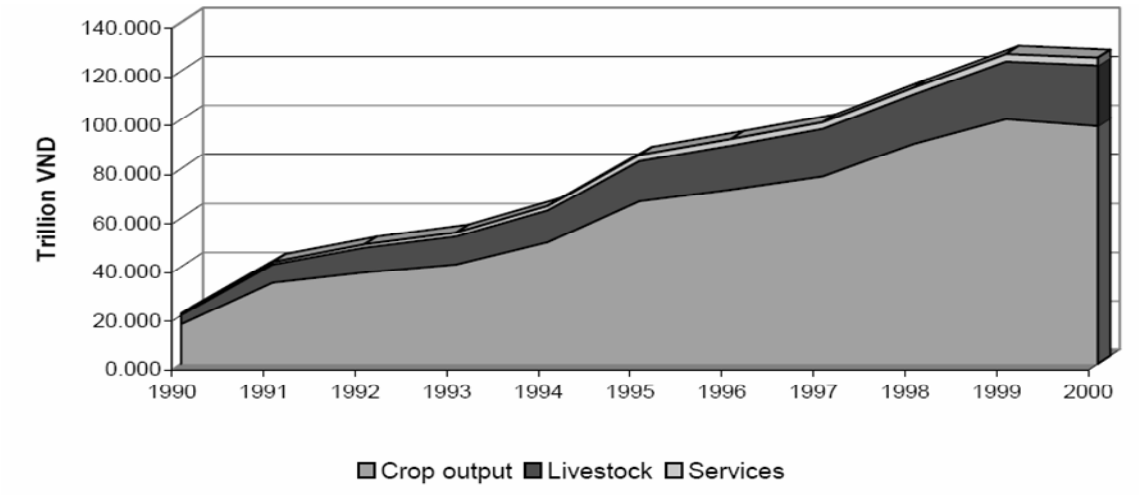
However, many difficulties and challenges emerging from world competition and the risk of economic instability caused by world trade fluctuation should be further considered. The impact of trade liberalization on agriculture at the farm level was also studied by using the partial budget approach. For the scenario with full trade liberalization, only prices for outputs of the four selected crops were assumed to be changed. In the free trade scenario, net return per hectare in the case of rice in the Mekong River Delta, coffee in Dak Lak province, tea in Thai Nguyen province and groundnut in Nghe An province is predicted to increase, but Que and Que (2000) stress that quantitative results are based on limited data and other information.

Due to the influence of trade expansion, the production of agricultural commodities has increased, and farmer livelihoods have improved. In particular, the lives of farmer households in zones producing export commodities, such as rice in the Mekong river delta and coffee in Tay Nguyen, have clearly improved. In spite of the positive impacts of expansion of trade on agriculturally production, Que and Que note that numerous restrictions remain in place. Administrative procedures have not been improved thoroughly and their implementation has been delayed. The relationship between farmer households and organizations dealing with processing and export has been loose, with no firm contracts. Similarly, while a strategy and policy measures for the year 2010 have been identified to promote competitive markets much remains to be done. This is so in markets for many agricultural commodities such as rice, coffee, rubber, cashew nuts, pepper, sugarcane, sugar, fruits, vegetables, and meat.

As a country of high potential for export of agricultural products, Que and Que (2000) stress that Vietnam needs to further improve its competitiveness in international agricultural markets through expanded programmes for enhancing product quality, upgrading its physical infrastructure, strengthening the banking system, reforming the inefficient state enterprise sector and creating more access for the private sector to domestic and foreign trade.

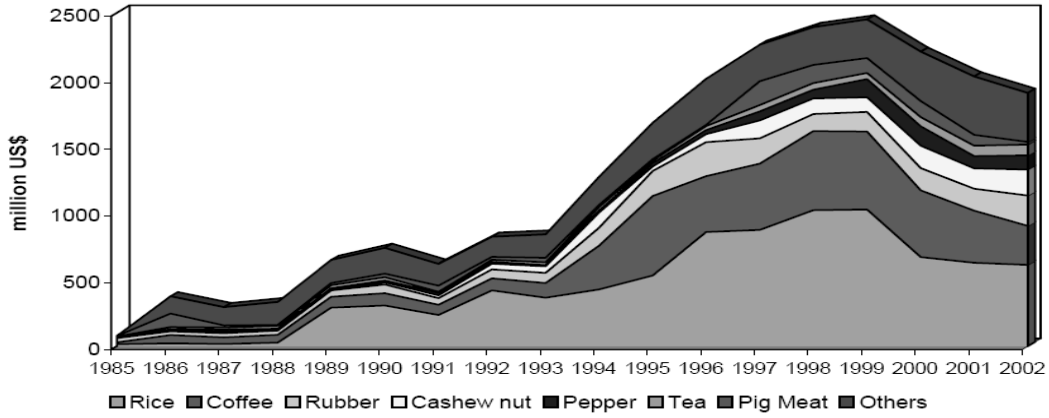
Nguyen and Grote (2004) provide another analysis of the agricultural sector. They contribute by providing figures on the relative shares accruing to crops, livestock etc. reproduced in Figure 4.1. The figure demonstrates that the output of crops takes up by far the largest share of the agricultural output over the period from 1990 to 2000. Figure 4.2 shows the relative shares of particular sectors of agricultural exports. Rice remains the largest export good over the period from 1985 to 2002, while coffee, rubber, cashew nuts, and 'other' also has large shares of the total exports.

Figure 4.1 *Development and Structure of the Agricultural Sector, 1990-2000*



Source: Nguyen and Grote (2004)

Figure 4.2 *Export Revenue of Major Agricultural Products of Vietnam, 1985-2002*



Source: Nguyen and Grote (2004)

4.1.1 Rice

Rama and Sa (2005) refer to four sector studies on the effects of liberalization on the rice sector.

First, Minot and Goletti (2000) analyze the effects of rice market liberalization on income and poverty in Vietnam. They note that as the overall economy has stabilized, rice prices have become less volatile. Yet, market liberalization does not seem to have had a noticeable effect on marketing margins between paddy and rice prices, between farm and retail prices, or between prices in the north and south of the country. Spatial market integration analysis indicates that the degree of market integration has increased somewhat since the late 1980s, but it remains weak.

Minot and Goletti (2000) compare domestic and border prices, finding that the existing rice export quota was binding at least over the period 1990–95 and that it was equivalent to an export tax of 20 to 25 percent.

In order to understand how rice policy affects the poor, the distribution of poverty in Vietnam is examined. Poverty is almost four times as widespread and five times as severe in the rural areas as in the urban areas. Furthermore, poverty tends to be concentrated in the more remote, hilly regions, namely the North Central Coast, the Northern Uplands, and the Central Highlands. Household survey data suggest that the two delta regions, with 45 percent of the population, are surplus regions that would gain from higher rice prices; the other five regions are rice-deficit areas that would lose on average. Higher prices would also benefit the average rural household at the expense of urban households.

The increase in rice prices is analyzed in a simulation model of regional trade, where the VLSS 1992-93 survey is used. Markets in the model follow the rules of spatial arbitrage, contrary to earlier results. Trade between two regions occurs when the price difference between them reaches the transfer cost. The model is simulated to reflect Vietnamese food markets in 1995. The export quota in 1995 was just 2.0 million tons, but large volumes of rice were smuggled into China. Both informal estimates and food balance estimates indicate that informal exports were about 0.5 million tons.

A uniform 10 percent increase in the rice prices would hurt urban households, non-farmers, and residents of the five deficit regions, although the effect on real income would be less than 2 percent on average. The price increase will mostly benefit farmers, particularly those in the Red River and Mekong deltas. In spite of the higher average income, the poverty rate would rise slightly from 25.0 to 25.2 percent in the long run.

With regard to the rice export quota, the model indicates that there is some justification for the concern of the Vietnamese government that eliminating rice export quotas would raise prices and hurt some Vietnamese households. The model confirms that rice prices would rise 14 to 22 percent (depending on whether internal restrictions were also removed) and have an adverse effect on urban households, non-farm rural households, and households in the Central Highlands. Furthermore, price changes in the Mekong Delta are not fully transmitted (in percentage terms) to the interior regions. Minot and Goletti (2000) note the strength of this result depends on the chosen demand and supply elasticities.

In a sensitivity analysis, they find that the effect of quota removal on rice and paddy prices is not greatly affected by *domestic* supply and demand elasticities, while rice prices are greatly affected by the *export* demand elasticity. When the quota is removed, production and exports are naturally higher with a more elastic supply. The income elasticity of rice has little effect on the results because the percentage change in income is relatively small.

At the same time, the model shows that the net gains to rice farmers and consumers would be around US$200 million. Three-quarters of this gain would represent a transfer from state-owned enterprises exporting rice and one-quarter a net gain to the country. Furthermore, poor households tend to gain both in absolute terms and relative to non-poor households because they are predominantly rural farmers who benefit from higher rice prices.

Minot and Goletti (2000) also do a simulation where the export quota is replaced by an export tax. The resulting price changes depend on the size of the export tax. Lastly, they analyze the effects of liberalization of internal marketing. They find that rice prices fall in the North and rise in the South as a result of reduced South-North transportation costs. These price changes cause production to fall in the North and rise in the South, while consumption moves in the opposite direction in each region.

Second, Oxfam (2001) focuses on the impact of market deregulation and rice-exports on the livelihoods of farmers in the poorest rural parts of Vietnam. Rice is at the heart of the livelihoods of most poor rural people living at or below the poverty line. The crucial question is how to achieve growth, poverty reduction, equity, and reduced vulnerability and, in particular, how to ensure positive impacts from trade liberalization for the poorest.

The methodology used is qualitative field research supported by secondary literature and data. The research questions evolve around the well being and livelihood strategies of households and the

decision making processes within these households. Furthermore, the report by Oxfam (2001) analyzes the market chain and regulations that influence price fluctuations in rice production, using, for instance, interviews of local officials. Oxfam (2001) uses the 'sustainable livelihoods' framework, employing the broad linkages between government policies and market rules, production assets, livelihood strategies, livelihood outcomes (income, equity etc), and vulnerability to price fluctuations.

Data show a steady increase in the value of rice exports from 1989 to 1999. The quality has increased, but the report emphasizes a need for further improvements to obtain price increases. The price has stagnated over the period 1995-1999.[13] The Vietnamese government has increased the demand for rice through credit subsidies to export companies in 2001 in a bid to keep prices above a minimum recommended price, but the policy has not been entirely successful.

The recent stagnation in the rice market, globally and domestically, appears good only for the net consumers. Only some farmers have benefited (the relatively better off) and the government's capability to respond to (local) disasters with food aid has not improved.

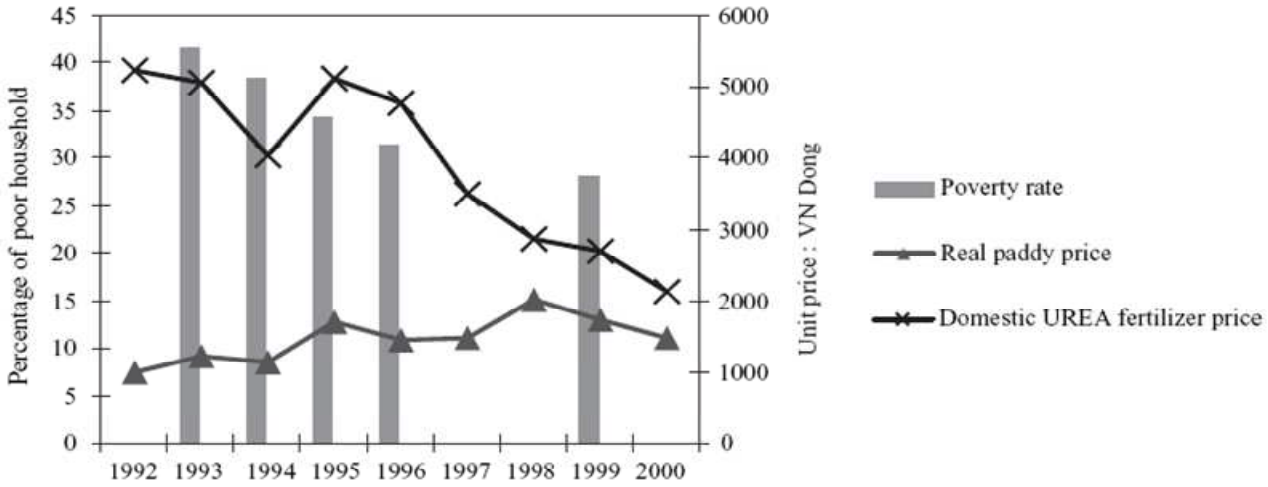
The Oxfam (2001) report emphasizes that the only direct positive impact channel of trade liberalization is to help increase non-farm employment, which is crucial for poverty reduction.

Third, a report by UNEP (2005) provides an integrated assessment of the impact of trade liberalization on the rice sector in seven countries: China, Colombia, Côte D'Ivoire, Indonesia, Nigeria, Senegal, and Vietnam. The present review focuses on the study of Vietnam. By identifying key relationships among trade, the economy, the environment, and society, UNEP (2005) states that integrated assessments provide policy makers with the information they need to develop policies that support sustainable development.

The report provides a figure of the trend in prices of paddy rice, fertilizer, and the poverty rate in the 1990s, reproduced below in Figure 4.3. The prices of fertilizer have decreased sharply from 1992 to 2000. Until 1998, the prices on Vietnamese paddy rice increased steadily, but have been falling from 1998 to 2000, and UNEP (2005) also notes that the poverty rate has fallen over to whole period, the decrease being larger in the beginning of the 1990s.

Figure 4.3 *Poverty Rate and Real Prices of Paddy Rice and UREA fertilizer, 1990s*

[13] Oxfam (2001) reports an estimated price in 2000. Since this estimate is not documented, it is not reported here.



Source: UNEP (2005)

For Vietnam, the report describes the removal of rice export quotas and abolishment of fertilizer import restrictions. Compared to the remaining reviewed studies on the rice sector, this study contributes by focusing on the environmental effects in addition to the effects on income and poverty.

For qualitative analyses, a field survey was conducted in the Red River Delta in Northern Vietnam and the Central Coast area, involving a total of 194 rice farmers of whom 110 were from the irrigated rice systems and 84 from rain-fed lowland rice systems. These studies focused on farmers' knowledge, perceptions, and actions with respect to the impacts of trade liberalization on rice production and the opportunities to produce rice using less pesticides and chemical fertilizers.

The aim of the quantitative analysis was to determine the economic impacts of the tariff reductions under the AFTA agreement, implementation of the US-VN bilateral agreement, and the WTO accession negotiations. The simulations predict the changes in 2005, where base simulations are calculated using the same growth rates as 2002.

The strategic screening undertaken during the first workshop gave the overall impression that the socioeconomic impact of trade liberalization in the rice sector was perceived as positive but environmental impacts were seen to be negative. However, positive impacts on forests were also expected, as rice intensification provides jobs and improves local food supply, thereby reducing pressures on natural forest exploitation for food. The survey conducted in the Red River Delta and Central Coast revealed that farmers perceived positive environmental impacts on living and water resources. However, UNEP (2005) reports that a study carried out in the 1990s showed that the actual rates of certain fertilizers in the Red River Delta and the Mekong Delta were higher than the

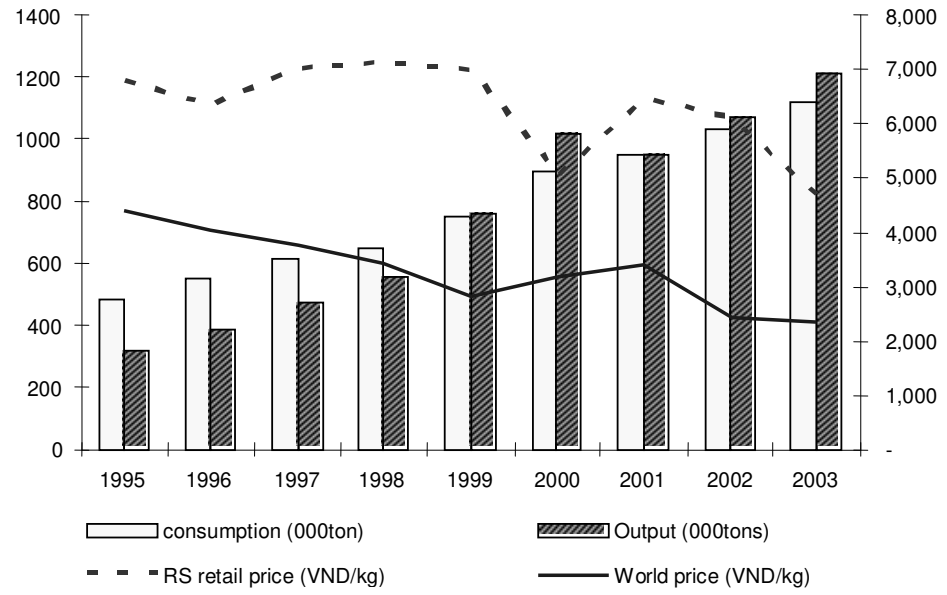
economically optimal rate. The actual rate of pesticide use was also higher than the economically optimal doses.

4.1.2 Sugar

While rice belongs in the export group (which also includes coffee and tea), the sugar industry belongs in the import substitution group. ICARD-MISPA (2004) analyzed the effect of international integration on the competitiveness and social impact on the Vietnamese sugar industry. The main problems addressed in the paper are market access and export subsidies. The report also sheds light on the significant extent of smuggling of sugar into Vietnam, which is argued to reduce the credibility of the official data.

Between 1995 and 2002, the average amount of industrial sugar production increased by roughly 34 percent, but demand did not increase correspondingly, leading to over-supply and decreasing prices. An illuminating figure is reproduced below in Figure 4.4.

Figure 4.4 *Sugar Supply, Consumption, and Prices in Vietnam, 1995-2003*



Source: ICARD-MISPA (2004)

The domestic sugar price in the period investigated was much higher than the international price (up to 56 percent). This led to the smuggling Vietnam, particularly in 1999. Meanwhile, the period also experienced formal import of sugar. Since 1999, domestic production has met domestic consumption demand, probably also a consequence of the so-called Million Ton Sugar Programme,

and sugar imports have decreased drastically. Some numbers for sugar trade are reproduced in Table 4.1.

Table 4.1 *Vietnam's Import and (Export) of Sugar in tons*

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
124,400	175,500	20,000	72,000	125,000	12,500	(80,000)	(60,000)	-	(50,600)

Source: ICARD-MISPA (2004)

In 2000, domestic sugar prices decreased substantially, ending up only somewhat higher than the CIF price. In 2000-2003, Vietnam *exported* sugar. At the beginning of 2002/2003, a number of factories had a generous amount of stock. Domestic market prices stabilized at a low level, hence preventing cross-border smuggling in 2002/2003.

The ICARD-MISPA (2004) paper predicts that the imbalance between demand and supply will worsen with tariff removals and goes on to analyze the competitiveness of the domestic sugar industry to establish how well it will manage under increasing international economic integration. The methodology is field surveys in the three main sugarcane production areas of the Cuu Long River Delta, the South East, and the North Central Coast, all material areas of the Lam Son Sugar Company. Six sugar factories and 300 households were interviewed. The household analysis shows that sugarcane development is considered to have a great potential for job creation and poverty reduction, leading to strong development of sugarcane farming amongst ethnic minorities.

The effect of specific trade agreements is also analyzed and the report stresses that the Doha Round will benefit Vietnam if EU removes its export subsidies. ICARD-MISPA (2004) state that Disadvantages of Regional Trade Agreements (RTAs) are: The competitive advantage that RTA traders have in partner markets would depend, to a large extent, on keeping the RTA status quo and on the other RTA parties not entering into similar RTA arrangements with new partners. The advantages of RTAs are in particular the pace and level of market liberalization they bring about. These are, it is argued, particularly advantageous when the constituent parties share similar traditions and social and economic development levels.

The report by ICARD-MISPA (2004) criticizes the AFTA initiative, arguing that the few exceptions to the tariff cap regime are used generally in order to protect the most inefficient businesses. The purpose of AFTA is to increase the competitiveness of the industries in the member states, but even within AFTA, sugar remains a protected market in several countries.

ICARD-MISPA (2004) also affirms that all available data indicate that the competitiveness of the Vietnamese sugar is weak in terms of quality, productivity, efficiency, and processing costs. In

the period 1990 to 1994, harvest technology was outdated and farmers had little support in terms of agricultural extension. This led to low quality with low sugar content. Some new sugar factories competed to begin sugarcane production early, and since there is delay in creating sets of good seeds for ecological areas. This affects sugar quality and output productivity adversely, and the production of low quality sugar has continued.

SOEs still lack the impetus to move forward, thereby not improving the competitiveness of the sector. ICARD-MISPA (2004) stresses the importance of reform of the management mechanism in the sector. Experience also shows, it is argued, that large scale companies are effective, while loss and big debts are often seen in small scale companies.

With own capability and determination, households in material areas of the Lam Son Sugar Company have considered and shifted their production to more beneficial crops. The surveys show that rice production is more profitable; and risks from the sugarcane plantation along with difficulties in harvesting and transportation are much higher than for rice production. Many households have, in fact, shifted to rice production.

ICARD-MISPA (2004) uses a spatial equilibrium model to simulate the effect of international integration on the sugar industry. Growth rates of GDP and population are assumed to be 6 and 1.2 percent ex ante and the increase in sugarcane productivity is assumed to be 1 percent per year. Four scenarios are simulated, differing with respect to assumed effect on the CIF price level of a tariff change. In the first scenario, the CIF price is assumed to fall and only large scale enterprises gain, while in the last scenario, the CIF price is assumed to increase the most and all processing companies gain. ICARD-MISPA (2004) warns that the benefit of trade liberalization on national social welfare (especially domestic consumers) may not be large enough to compensate for negative impacts caused by international market shocks.

The ICARD-MISPA report put forward the following policy recommendations: (i) increase overall efficiency by rearranging and closing down inefficient small and medium scale companies, helping large scale companies, inducing contract signing between households and large companies, and (ii) reduce disadvantageous social impact on the households who have had to adapt.

About the sugar industry, ISG-MARD (2002) emphasizes that even though the sugarcane industry has been one of the foodstuff processing industries gaining the highest growth rate over the period 1995 to 2000, it is relevant to ask whether the growth is sustainable. The growth rate in production has been lower than that of the region and the world as a whole. Besides, Vietnam sugarcane quality is rather low, and a decreasing trend can be noted in recent years. ISG-MARD

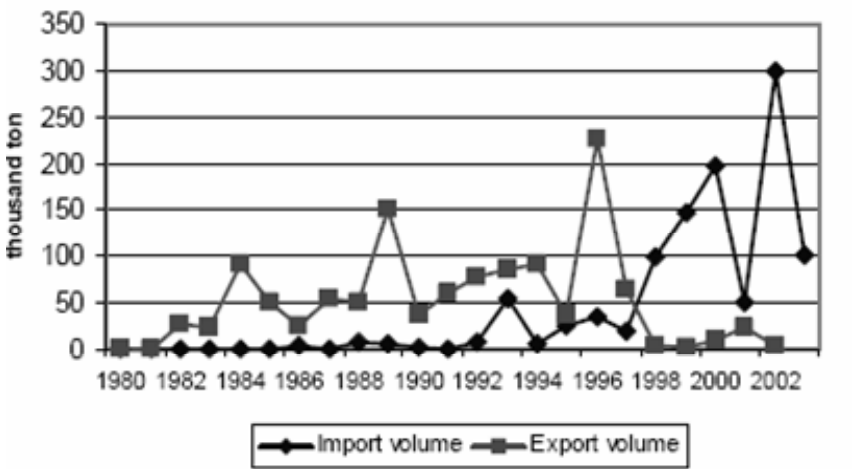
(2002) recommends that to increase the growth rate in yield average, higher quality varieties should be applied. Additionally, extension activities should be expanded to assist sugarcane growers in applying advanced farming techniques.

4.1.3 Maize

The report by Thanh and Neefjes (2005) is based on the observation that the poorest Vietnamese farmers produce maize. The report draws on survey data from four provinces; analysis of the national data sets on household expenditure from 1993, 1998, and 2002; and analysis of secondary sources. Using the 'sustainable livelihoods framework', links between maize and pig farming are explored, including the use of maize in industrially processed animal feed.

Vietnam exported maize throughout the 1980s and most of the 1990s, with a peak in 1996, and became a net importer in 1998, as shown in Figure 4.5.

Figure 4.5 *Annual Maize Imports and Export*



Source: Thanh and Neefjes (2005)

The general import tariff has been 7.5 percent since 1999. For imports from ASEAN countries, the maize tariff has been 5 percent since 2004, and this is also Vietnam's offer in the WTO accession negotiations. The domestic maize price has been favourable to maize growers throughout the 1990s, which has induced many, especially the poor, to go into maize production. Under current conditions this is not profitable. Productivity has increased (in part as a result of promotion of hybrid varieties, and availability of affordable fertilizer), but average productivity is still low by international standards. While Vietnam has lost its comparative advantage, the poor are still caught in the 'maize trap'.

Maize growers are much poorer than other Vietnamese farmers. Of all maize growers, about 1.8 million households are strongly dependent on maize for their income and food. More than 80 percent of maize growers raise at least one pig, and they are on average less poor than maize growers with no pigs. The report does not mention the reverse causality; higher income makes it possible to buy a pig.

Thanh and Neefjes (2005) find that past trade regulations regarding maize had little impact on maize prices as well as little impact on maize farmer income and poverty. Market integration is poor and the imported volume of maize has until now been quite limited, compared to total domestic production and consumption. The Thanh and Neefjes study predicts that further reduction of tariffs to 5 or 0 percent and elimination of quantitative import or export restrictions will have limited effect on overall poverty levels.

Thanh and Neefjes (2005) note a line of elements increasing the vulnerability of the poor: (i) Price fluctuations, (ii) increasing maize imports remain, hurting the poor households in maize production, (iii) urea fertilizer remains expensive as a result of high oil prices, (iv) improving import and transport efficiencies in Vietnam increases exposure to the world market, which Thanh and Neefjes (2005) argue will hurt the poor, and last (v) much of the current maize production is depleting soils and causing soil erosion, which often hurts the dependent poor the most. However, Thanh and Neefjes (2005) do not provide much line of reasoning as of how trade liberalization leads to these effects and how these effects lead to increased vulnerability of the poor.

Women's workload has risen more than that of men with maize expansion and intensification. Any gain from lower maize tariffs is expected to be taken as (small) profit by the animal feed industry. Initially, maize expanded because of (i) good prices and (ii) a lack of alternative farm and non-farm income opportunities. The prices are no longer as attractive as in the past and other income opportunities have emerged, so it would appear that the poor have an increasing incentive to shift away from maize.

The policy proposal by Thanh and Neefjes (2005) is to support the poor maize producers. They recommend withdrawing the offer of tariff reduction on maize grains, and recommend that if maize grain tariff reduction and TRQ (Tariff Rate Quota: Temporary tariff increase in the face of fluctuating import prices or volumes) must be phased out, this be done no sooner than 2015-2020. This is about the period within which today's children can get a full education and be fully prepared for alternative livelihoods.

4.1.4 Livestock

A report by ADB (2005) analyzes the impact of trade liberalization on the livestock sector in Vietnam. In agriculture, the livestock sector plays an important role in terms of income and employment generation. Issues restraining producers in the livestock sector include high feed prices, high meat productions cost, and low productivity. Furthermore, the livestock sector is characterized by small scale production with low competitiveness. Development of commercial farms has emerged recently but its share is still small.

The livestock sector has grown at an annual rate of around 5 percent since 1986, which is more than the average annual growth rate of agriculture of 4 percent. Poultry production has grown the most.

ADB (2005) outlines the problems of the livestock sector: (i) farm size is too small, (ii) low productivity of meat production as a result of low improved breeding adoption, waste-driven production pattern (using food residuals, fodder, raw materials), (iii) low quality of meat, (iv) poor infrastructure, long marketing channel with many middlemen, leading to high marketing margin (difference between farm gate price and retail price) of pig meat and other meat, (v) high feed price, (vi) poor veterinary system, (vi) unstable and poor export performance. Even with those constraints, the livestock sector plays an important role in generating cash income to households and the rural economy. Vietnam mostly exports pork, but competitiveness compared to other agricultural products such as rice and coffee is still low.

The paper simulates a partial equilibrium model of available data to analyze the effects of trade liberalization on the livestock sector. The AIDS model is employed and the simulation model shows that further trade liberalization in the livestock sector will not harm the country. Due to the high degree of self sufficiency, the Vietnamese economy is stable towards potential shocks to the livestock sector caused by liberalization. Feed is one of the most important factors for the development of the livestock sector.

ADB (2005) recommends the following policies to enhance competitiveness of the livestock sector in general and meat production in particular, and to reduce negative effects of economic integration: 1) eliminating or reducing import tax on feed materials including maize and soybean, 2) adopting hybrid and high yield varieties, 3) setting up a feed control and monitoring system as part of a market investigating board, 4) establishing an inspection and management body, 5) setting up disease information systems, 6) focusing the livestock development strategy on the domestic market, and 7) establishing mechanisms to provide insurance to producers.

4.2 Textile and Garment Sector

Turning now to the textile and garment sectors, two studies are concerned with these sectors. Nadvi et al. (2004) analyze challenges to Vietnamese firms in the world garment and textile value chain and the implications for alleviating poverty as a consequence of economic integration.

The Vietnam success story in textiles and garments in recent years stems from its successful export led growth strategy that emerged from the Doi Moi ('renovation') reforms of the late 1980s. This has required a shift in investment toward labour intensive manufacturing activities in general and a shift to manufactured exports in particular. Textiles and garments account for over half of the country's manufactured exports.

Until recently, Vietnam was excluded from the largest global garments market in the United States, while it had to reorient its textiles and garments exports following the collapse of its major markets in the former USSR and Eastern Europe at the end of the 1980s and early 1990s. The 'new' competition that marks the global textiles and garment sector is shaped by four distinct features: 1) the phase out of the Multi-Fibre Arrangement (MFA), the regime governing international trade in textiles and clothing, 2) competition from China, 3) pressures to meet international labour and environmental standards, 4) demands from global buyers for cheaper products, higher quality, and shorter lead times.

The paper uses a global value chain framework to analyze the Vietnamese experience and explore who the winners and losers are. This includes interviews of agents involved in the value chain on their beliefs of what will happen to the Vietnamese textiles and garments sector.

Vietnam's 1992 trade agreement with the EU gave it preferential garment quotas for the EU market. This explains much of Vietnam's phenomenal export growth to the EU. The US-VN BTA increased Vietnamese exports of textiles and garments greatly. These high exports were maintained even after the US introduced quotas on 1 May 2003. It is a general belief that once MFA quotas are phased out, Vietnam loses its current advantages. Competition from China can have a severe impact. SOEs and private firms in Vietnam voiced concerns that in their view, Chinese wages were lower. From the Nadvi et al. (2004) evidence, Vietnam's wage rates, at least in the state owned sector, are below those of China, but a number of leading global buyers remain of the view that China is currently the more cost-efficient supplier. China's advantage also extends to fabrics. Chinese textile mills had invested in advanced equipment, for printing and dyeing. The interviews suggest that new investment in Vietnam has been used selectively by enterprises to develop new specialities or strengthen existing ones.

Nadvi et al. (2004) emphasize that in general, Vietnam appears somewhat better positioned than countries like Bangladesh regarding the loss of quota markets under the MFA. Its competitiveness in the Japanese market shows clearly that Vietnamese firms can operate in a quota free environment and retain a respectable market share. They identify the winners within Vietnam as including the garment industry and the SOEs. The garment industry is highly export-oriented, while final sales of Vietnamese textiles are mainly to the domestic market. The garment sector has also experienced increased exports, largely with imported fabrics. Nadvi et al. (2004) provide evidence, reproduced in Table 4.2, showing that SOEs remain important, particularly in textile production. The household sector share both in garments and textiles has declined considerably, while foreign investors generate over a quarter of output in both sectors.

Table 4.2 *Garment and Textile Output in Vietnam by Ownership, Percent*

	Garments		*Textiles*	
	1995	*2001*	*1995*	*2001*
State sector	*34.8*	*31.7*	*56.8*	*48.5*
Central state sector	13.2	15.6	43.6	38.1
Local state sector	21.6	16.1	13.2	10.4
Non-state domestic sector	*47.1*	*43.2*	*25.9*	*23.3*
Collective sector	0.3	0.6	1.8	1.6
Private sector	1.6	1.2	1.5	1.2
Household sector	35.7	21.9	21.6	12.8
Mixed economic sector	9.4	14.0	1.0	4.7
Foreign-invested sector	*18.2*	*25.1*	*17.3*	*28.2*
Total	100.0	100.0	100.0	100.0

Source: Nadvi et al. (2004)

Interviews with 30 Vietnamese garment producers showed, among other things, the distribution of vulnerability. With the exception of smaller private firms, none were wholly dependent on one export market. Small private firms often supply smaller regional traders, operate in poorer working conditions, pay lower wages, and employ relatively more marginalized workers. The third group of winners are the women, who comprise the bulk of the Vietnamese garment and textile labour force.

Thoburn (2005) analyzes the effects of the Doi Moi on the textiles industry alone. Based on interviews with current and retrenched workers, the author demonstrates that working in export

industries can have some positive aspects. The qualitative and quantitative data is drawn from semi-structured interviews based on questionnaires with many open questions in 2001/2002. Interviews were carried out with 40 textiles workers, 40 retrenched workers, and workers from other industries for comparison. The textile workers had been in their jobs for nearly fifteen years.

Thoburn (2005) stresses that in a country like Vietnam with considerable regional variations in the incidence of poverty migration from less prosperous regions can be a powerful force to reduce poverty if migrants succeed in gaining employment in their new location. The finding is that 30 percent of the interviewed textile workers had migrated. Among these, the general consensus was that migrating had brought with it improved living conditions. However, the author refers to studies finding that the poorest of the urban poor in Vietnam are largely those with little education and not the secondary level education now required for employment in state textile companies. The interviews also asked questions about labour conditions. Thoburn (2005) did not find evidence that global buyers have improved labour conditions in textile SOEs, even though Vietnam's textile SOEs are among the winners of globalization. The paper traces the impacts on the livelihoods of their workers.

Over the period 1990-1999, the restructuring process set in motion by Doi Moi saw the size of the textile workforce fall by 30 percent. Jobs where women predominate – such as spinning and weaving – have become particularly subject to greater redundancies, as work becomes more capital and skill-intensive. The interviewed retrenched workers tended to be older and were characterized by poor health and lower educational levels, particularly amongst the women. Old age and work-related health problems were the most frequent reasons that workers thought had led them to lose their jobs. 60 percent of the interviewed retrenched textile workers regarded themselves at least as 'average' in terms of the material well-being compared to other households.

Thoburn (2005) concludes that the retrenched textile workers are the main losers from globalization. This conclusion is supported using another survey of textile workers done in South Africa, where many firms went out of business as a result of intense import competition, and other firms restructured in order to develop exports. Compared to South Africa, the retrenched workers in Vietnam did not fare as bad economically. They have been helped by social protection by the state sector, and by the fact that the enterprises that retrenched them generally have stayed in business and were able to pay redundancy payments.

4.3 Summary of Sector Impacts

ISG-MARD (2002) predicts that economic integration and trade liberalization will have great impacts on the national economy in general and the agricultural sector, in particular. This is supported by Que and Que (2000), who note that an important series of economic and institutional reforms were launched by the government, encouraging farmers and agents to promote their agricultural activities and creating possibilities for market expansion.

Despite lower worldwide rice demand and fiercer competition, Vietnam had still in 2000 rather strong competitive advantage in rice export. Therefore, ISG-MARD (2002) predicts that, in the coming years, when Vietnam pursues economic integration and trade liberalization, the country still has many opportunities to speed up exports to other markets. Minot and Goletti (2000) argue that increases in prices of rice, resulting from trade liberalization, benefits the poor, rural farmers. Surveys conducted by UNEP (2005) gave the overall impression that the socioeconomic impact of trade liberalization in the rice sector was perceived as positive but environmental impacts were seen as negative. However, positive impacts on forests were also expected, as rice intensification provides jobs and improves local food supply, thereby reducing pressures on natural forest exploitation for food.

Reductions of the World coffee price have caused the coffee price competitiveness index of Vietnam to decrease sharply from 1994 to 2000. Despite this and tight exchange rate policies, reducing price competitiveness of Vietnam's coffee exports, Vietnam is now the biggest Robusta exporter in the World and coffee remains as noted a key export product of Vietnam. It has also been argued that trade liberalization can facilitate further penetration of coffee export markets due to increased efficiency.

The simulation by ISG-MARD (2002) predicts that international trade liberalization has substantial impacts on Vietnam's agriculture and especially on exportable crops sub-sectors such as rice, coffee, and tea, providing various opportunities for their promotion and efficiency improvement. This is supported by the analysis by Que and Que (2000), adding rubber and groundnuts to the list of root crops.

ISG-MARD (2002) warns that the cyclic economic recessions and crises under trade liberalization are likely to have more powerful and earlier effects. Both ISG-MARD (2002) and Que and Que (2000) stress that although the infrastructure has been greatly improved, there is still a long way to go with infrastructure improvements. Que and Que (2000) emphasize additional problems. Administrative procedures have not been improved thoroughly and their implementation

has been delayed. The relationship between farmer households and organizations dealing with processing and export has been loose, with no firm contracts. The producers have not been sponsored, so when market prices go down below the production cost, they suffer losses. Nielsen (2002) argues there is another potential problem. In her interpretation, a key constraint that will restrict farmers from realizing the full potential of the reforms of the rice sector is that the Government continues to nominate state-owned food companies to deal with Vietnam's key rice export markets.

The Oxfam (2001) report argues that the only direct positive impact channel of trade liberalization is to help increase non-farm employment, which is crucial for poverty reduction.

ICARD-MISPA (2004) found that the competitiveness of Vietnamese sugar is weak in terms of quality, productivity, efficiency, and processing costs. However, a shift from imports to exports of sugar has occurred in the latest years. SOEs still lack the impetus to move forward, thereby reducing the competitiveness of the sector. ICARD-MISPA (2004) stress that reform of the management mechanism in the sector is important. Experience shows that large scale companies are effective, while loss and big debts are often seen in small scale companies. They find that many households have shifted to rice production.

Thanh and Neefjes (2005) find that past trade regulation regarding maize had little impact on maize prices and little impact on maize farmer income and poverty. However, they emphasize that price fluctuations lead to vulnerabilities of the poor because of increasing maize imports together with high levels of subsidies in exporting countries remain.

The conclusion by ADB (2005) concerning the livestock sector was that due to the high degree of self sufficiency, the Vietnamese economy is stable towards potential shocks to the livestock sector caused by liberalization. Feed is one of the most important factors for the development of the livestock sector.

Analyzing the textiles and garments sector, Nadvi et al. (2004) emphasize that the 1992 Vietnam trade agreement with the EU gave it preferential garment quotas for the EU market. The US-VN BTA also increased Vietnamese exports of textiles and garments greatly. These high exports were maintained even after the US introduced quotas on 1 May 2003. Nadvi et al. (2004) cast doubt on the belief that competition from China is worsened by the fact that Chinese wages are lower. From their evidence, Vietnamese wage rates, at least in the state owned sector, are below those of China. Analyzing the textiles sector in particular, Thoburn (2005) stresses that in a country like Vietnam with considerable regional variations in the incidence of poverty migration from less

prosperous regions can be a powerful force to reduce poverty if migrants succeed in gaining employment in their new location. The finding is that 30 percent of the interviewed textile workers had migrated. Among these, the general consensus was that migrating has brought with it improved living conditions. This is but one of the factors not taken into account by most of the CGE studies.

5. Conclusion

As is clear from this report, there are three sets of studies on the economic implications of Vietnam's international economic integration, which may be considered when drawing lessons about possible effects of Vietnam's accession to the WTO. First, there is a range of qualitative overviews such as Thang (2004), referred to in Section 2. They are helpful by providing a Vietnamese perspective on the integration process and they lay out a series of contextual pieces of information, which are needed in coming to grips with the overall socio-economic framework in Vietnam. Such understanding is essential in trying to evaluate future effects. There is also a range of sector studies (reviewed in Section 4). They are helpful in providing detailed partial equilibrium insights, but as was noted above, they tend to focus on making qualitative statements on policy measures required to realize future potentials. Little information of a quantitative nature in terms of predictions and assessments is provided through this channel. Finally, there is a large number of CGE studies, which do provide such quantified assessments, but we have argued that the usefulness of these studies in the policy making process in Vietnam is open to question.

In this concluding section we, therefore, discuss in more detail the predictions from the CGE models reviewed in Section 3, keeping in mind what was learned from the qualitative overview in Section 2 and the sector studies outlined in Section 4. Problems inherent in CGE modelling as presently practised are also pointed out and suggestions for the future are noted.

First, it is fair to observe that in a qualitative sense the CGE models seem capable of predicting correctly the increase in the Textiles and Garment sector. As examples, Fukase and Martin (1999b) forecast an increase of 1,512 percent in the Clothing sector as a consequence of the US-VN BTA, and Dimaranan et al. (2005) predict Clothing to increase with 224 percent as a consequence of WTO accession. Nevertheless, these estimates are only correct in the sense that the increase was significant and in the right direction. This reflects that CGE models are, indeed, capable of picking up and predicting increases in sectors that are already rising. Furthermore, the Fukase and Martin (1999b) estimate was in fact very low when compared to the subsequent actual performance of the Vietnamese economy. It appears that even more substantial underpredictions prevail vis a vis sectors with small initial shares, which leads us to our second set of critical set of observations of the CGE models.

Second, the CGE models have, in general, predicted that economic integration will lead to substantial contraction in sectors producing Equipment and Machinery, Electric Equipment, Personal Services, and Transport Vehicles. However, these sectors do not, at least not so far, seem

to have experienced falls when looking at the actual data. As an example, the model by Fukase and Martin (1999a) does not capture the large increase in exports to the US of the Transport sector as a consequence of the US-VN BTA. The main reason for this is that structure of the CGE model makes it impossible to predict new emerging sectors with small initial shares. Fukase and Martin (1999b) also predict large falls in output of the Beverages and Tobacco and the Transport sectors as a consequence of ASEAN and APEC liberalization and also the Electronics sector was predicted to experience a modest decrease. In contrast, there are no signs of a significant fall in Electronics so far.

Third, some of the assumptions of the static CGE models can be misleading. As an example, none of the reviewed CGE models take explicit account of inflows of FDI, except Roland-Holst et al. (2002), who assume an inward flow of FDI in one scenario. The scenario allowing for inward flows of FDI experiences by far the largest increase in output growth, but the inflow is not determined endogenously within the model, and coming to grips with the dynamic effects of trade liberalization are indeed complex. Among other reasons, this is due to the fact that the present composition of FDI is likely to be very different from what will happen in the future. Leung et al. (2005) emphasize that because of the historical protection of the state sector in the Vietnamese trade regime, 98 percent of the foreign joint ventures are with the SOEs. As a result, almost 30 percent of FDI projects are in heavy industries and in oil and gas. As expected, these are also highly protected industries, including car and motorbike production, cement, steel and consumer-electronic assembly. How this pattern will change in future with WTO accession has not been sorted out in exisitng modelling efforts. Morever, despite the fact that FDI companies in 2001 contributed about 13 percent to the GDP of Vietnam, 35 percent to industrial output, 23 percent to export, and 25 percent to total state budget, the contribution of FDI to overall employment was only 0.3 percent. This leads to a fourth closely related point.

Fourth, existing CGE models are almost exclusively constructed on the basis of the logic inherent in standard neoclassical trade theory with its focus on one off, static gains from trade. Effects of trade liberalization are therefore bound to be limited as compared to potential dynamic effects, and it has become clear that the perfectly competitive market assumptions inherent in much CGE modelling are simply not sustainable. As an example, the resource constraints predicted on the exporting sectors are not evident in the data. One observation in this regard is that the existence of under- and unemployment and the inflow of FDI makes standard assumptions debatable. Yet, the only study concerned with this is Huong and Vanzetti (2006).

Fifth, the available CGE models are, with only a few exceptions, focused on predicting the price effects of trade liberalization within markets where very few imperfections are considered, at best. Accordingly, the prediction that trade liberalization will not bring with it large economic changes can certainly be interpreted as indicating that price effects of trade liberalization are likely to be modest. Yet, this does not, in any way, preclude that much larger impacts may follow in reality where many other changes, including institutional changes, are going on. The recent economic historical experience of Vietnam provides, as documented here and in Abbott et al. (2006), telling stories of this basic insight, and since the data show larger changes than predicted by the models, something in addition to price effects must be driving the changes.

Sixth, the sector studies and past experience point in the direction of improved institutions and binding commitments being important. This is pointed out introductorily in many of the CGE papers, but not proven and generally not considered in model simulations. As an example, when Vietnam enters trade agreements, the country agrees to commit to the rules of the other partner/partners, which (i) increases confidence in the Vietnamese economy, increasing inflows of FDI and (ii) helps Vietnam resolve international and domestic legal disputes. Furthermore, the trade agreement brings with it other substantial institutional changes, which may be beneficial for Vietnam. Last, the liberalization gives rise to new industries that were not on the market before. To reiterate, a key inherent problem in the predictions of the CGE models is that they tend to predict increases in sizeable sectors that are already growing and not in small new and potentially important sectors, such as Transport. This is problematic since liberalization often tends to give rise to new industries that were not in the market before, and this is a key reason why the Nguyen and Ezaki (2005) predictions are somewhat more precise than those of other studies. Their study is more recent and some small sectors have already grown relatively large. However, the general conclusion is that it would appear that these key issues cannot be handled adequaltely within the framework of the CGE models, and much more needs to be known about the economic mechanisms through which policy changes affect the performance of the target variables.

In conclusion, history following previous trade agreements, not model based results, would seem to justifiy the belief that WTO accession will bring significant benefits as well as challenges to the Vietnamese economy and her exceedingly hard working people. It is clear from our review of past studies that many authors are aware of the basic limitations of the basic methods applied, and yet one cannot but note the difficulty in getting analytical simulations to conform with past experience and general expectations. We suggest that there is need for rethinking. We also stress

that any path forward will have to come to terms with the fact that development is a dynamic process. It is therefore essential to come closer to identification of the forces that determine the evolution of the capital stock and productivity in Vietnam, alongside the factors from outside that determine how market access for exports and their demand wil evolve.

References

ADB (2005) Impact of Trade Liberalization on livestock sector in Vietnam, ADB Report, Hanoi, Vietnam.

Abbott, P., Bentzen, J., and Tarp, F. (2006) Vietnam's Accession to the WTO: Drawing Lessons from Past Trade Agreements, Working Paper in progress.

Armington, P. S. (1969) A Theory of Demand for Products Distinguished by Place of Production, *International Monetary Fund Staff Papers* 16, 159-78.

Chan, N., D. H. Dao, H. M. Hai, and N. T. Dung (1998) Evaluating Tax Reform in Vietnam Using General Equilibrium Methods, Paper presented at the MIMAP Annual Meeting November 2-4, 1998.

Chan, N., M. Ghosh, and J. Whalley (1999) Evaluating Tax Reform in Vietnam Using General Equilibrium Methods, *University of Western Ontario Working Paper* 9906. http://www.ssc.uwo.ca/economics/econref/workingpapers/researchreports/wp1999/wp9906.pdf

Chan, N. and T. K. Dung (2001) Development of a CGE Model to Evaluate Tariff Policy in Vietnam, Paper presented at International Conference on Policy Modelling, Free University of Brussels, July 4-6, 2002.

CIE (2002) Integration and Poverty: An Economy-wide Analysis, Revised Draft, Centre of International Economics: Canberra and Sydney, prepared for the World Bank. http://www.thecie.com.au/publications/CIE-integration_and_poverty(revised).pdf

Cogneau, D. and A. Robilliard (2000) Growth, distribution, and poverty in Madagascar: Learning from a micro-simulation model in a general equilibrium framework, Trade and Macroeconomics Division Discussion Paper 61, International Food Policy Research Institute. http://www.ifpri.org/divs/tmd/dp/papers/tmdp61.pdf

Dee, P., L. T. Duc, and D. T. Hiep (2005) Evaluating Vietnam's WTO accession in Services, World Bank Report, Hanoi, Vietnam.

Dervis, K., J. de Melo, and S. Robinson (1985) General Equilibrium Models for Development Policies, *World Bank Research Publication*, Cambridge University Press: Cambridge.

Devarajan, S. and J.D. Lewis (1990) Policy Lessons from Trade Focused Two-Sector Models, *Journal of Policy Modeling* 12 (4), 625-657.

Dimaranan, B., L. T. Duc, and W. Martin (2005) Potential Economic Impacts of Merchandise Trade Liberalization under Viet Nam's Accession to the WTO, GTAP Resource # 1777, GTAP Resource Centre, Purdue University.

https://www.gtap.agecon.purdue.edu/resources/download/2164.pdf

Dixon, P., B. R. Parmenter, J. Sutton, and D. P. Vincent (1982) ORANI: A Multisectoral model of the Australian Economy, North Holland Publishing Company: Amsterdam.

Fukase, E. and W. Martin (1999a) The Effect of the United States' Granting Most Favored Nation Status to Vietnam, World Bank Policy Research Working Paper 2219.

Fukase, E. and W. Martin (1999b) A Quantitative Evaluation of Vietnam's Accession to the ASEAN Free Trade Area, World Bank Policy Research Working Paper 2220.

Hertel, T. W. and D. K. Lanclos (1994) Trade Policy Reform in the Presence of Product Differentiation and Imperfect Competition: Implications for Food Processing Activity, in M. Hartmann, P. M. Schmitz, and H. von Witzke (eds.), Agricultural Trade and Economic Integration in Europe and in North America, *Wissenschaftsverlag Vauk Kiel KG*: Kiel.

Hertel, T. W. (1997) Global Trade Analysis: Modelling and Applications, *Cambridge University Press*: Cambridge.

Hertel, T. W. and M. E. Tsigas (1997) Structure of GTAP, Chapter in book: Global Trade Analysis: Modelling and Applications, Chapter in book: Hertel, T. W. (1997) Global Trade Analysis: Modelling and Applications, *Cambridge University Press*: Cambridge.

Huong, P. T. L. (2000) Impacts of trade and investment policy on income distribution in Vietnam using a general equilibrium framework, Unpublished PhD thesis, the Australian National University, Canberra.

Huong, P. T. L. (2003) The impacts of Vietnam's accession to the WTO on income distribution using a general equilibrium model, *Asia Pacific School of Economics and Governement Working Paper* 03-7.

Huong, P. L. and D. Vanzetti (2006) Vietnam's Trade Policy Dilemmas, The ninth Annual Conference on Global Economic Analysis, Addis Ababa, Ethiopia.

Ianchovichina, E. (2003) GTAP-DD: A Model for Analyzing Trade Reforms in the Presence of Duty Drawbacks, *GTAP Technical Paper* 21, Center for Global Trade Analysis, Purdue University. https://www.gtap.agecon.purdue.edu/resources/download/1295.pdf.

ICARD-MISPA (2004) Sugar Competitiveness and Social Impact of Sugar Industry in Context of International Integration, MISPA Report 2003/02, Hanoi.

ISG/MARD (2002) Impact of trade liberalization on some agricultural sub-sectors of Vietnam: Rice, coffee, tea and sugar, Ministry of Agriculture and Rural Development, International Support Group, Report Summary.

http://www.isgmard.org.vn/Information%20Service/Report/Agriculture/Trade%20liberalization%20summary-e.pdf

Jensen, H. T., J. Rand, F. Tarp, P. L. Huong, and D. H. Minh (2004) A New Social Accounting Matrix for the Year 2000, Science and Technics Publishing House: Hanoi. http://www.econ.ku.dk/ftarp/Publications/Docs/newSAM2000_reformat.pdf

Jensen, H. T. and F. Tarp (2005) Trade Liberalization and Spatial Inequality: Methodological Innovations in Vietnamese Perspective, *Review of Development Economics* 9(1), 69-86. http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-9361.2005.00264.x

Leung, S., V. T. Thanh, and K. Reat (2005) Integration and Transition – Vietnam, Cambodia and Lao PDR, Asia Pacific School of Economics and Government, CIEM, NIM.

Malcolm, G. (1997) Adjusting Tax Rates in the GTAP Data Base, GTAP Technical Paper 11, Global Trade Analysis Project, Purdue University.

MARD (2006) Building a Roadmap for International Economic Integration of Vietnam's Sugar Industry, the CEG Facility/AUSAID, Extention to the Strengthening Capacity of the Agricultural and Rural Development Sector for International Integration Project.

McCarty, A. and Kalapesi, C. (2003). The Economics of the Non-Market Issue: Vietnam Catfish Case Study. http://www.eldis.org/static/DOC11402.htm.

McDougall, R. A., A. Elbehri, and T. P. Truong (1998) Global Trade Assistance and Protection: The GTAP 4 Data Base, Center for Global Trade Analysis, Purdue University: https://www.gtap.agecon.purdue.edu/databases/archives/v4/v4_doco.asp

Minot, N. and F. Goletti (2000) Rice Market Liberalization and Poverty in Viet Nam, International Food Policy Institute Research Report 114. http://www.ifpri.org/pubs/abstract/114/rr114.pdf

Nadvi, K. and J. Thoburn (2003) Challenges to Vietnamese firms in the world garment and textile value chain, and the implications for alleviating poverty, EADI Workshop.

Nadvi, K., J. Thoburn, B. T. Thang, N. T. T. Ha, N. T. Hoa, and D. H. Le (2004) Challenges to Vietnamese firms in the world garment and textile value chain, and the implications for alleviating poverty, *Journal of the Asia Pacific Economy* 9, 2, 249 – 267. http://www.ids.ac.uk/ids/global/AsianDriverpdfs/nadvithoburn.pdf

Nguyen, H. and U. Grote (2004) Agricultural Policies in Vietnam: Producer Support Estimates, 1986-2002, *MTID (Markets, Trade, and Institutions Division) Discussion Paper* 93. http://www.ifpri.org/divs/mtid/dp/papers/mtidp79.pdf

Nguyen, T. D. and M. Ezaki (2005) Regional Economic Integration and its Impacts on Growth, Poverty and Income Distribution: The Case of Vietnam, *Review of Urban and Regional Development Economics* 17, 3, 117-215. http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-940X.2005.00104.x

Nielsen, C. P. (2002) Vietnam's Rice Policy: Recent Reforms and Future Opportunities, *Danish Research Institute of Food Economics Working Paper* 8/02. http://www.blackwell-synergy.com/doi/abs/10.1111/1351-3958.00159

Oxfam (2001) Rice for the Poor and Trade Liberalization in Vietnam, Final Draft Report, Oxfam. http://www.maketradefair.com/en/assets/english/VietnamRiceResearch2001Final.pdf

Piermartini, R. and R. Teh (2005) Demystifying Modelling Methods for Trade Policy, *WTO Discussion Paper* 10. http://www.wto.org/english/res_e/booksp_e/discussion_papers10_e.pdf

Piggott, J. and J. Whalley (1985) UK Tax Policy and Applied General Equilibrium Analysis, *Cambridge University Press*: Cambridge.

Puga, D. and A. J. Venables (1998) Agglomeration and Economic Development: Import Substitution vs. Trade Liberalization, *Centre for Economic Performance Discussion Paper* 377. http://diegopuga.org/papers/dp0377.pdf

Que, N. T. and N. N. Que (2000) Effects of Trade Liberalization on Agriculture in Viet Nam: Commodity Aspects, *CGPRT* (Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific) *Working Paper* 52.

Quoc-Phuong, L. (2003) Vietnam's International Economic Integration: Impact and Implications, in Tran-Nam, B. and C. D. Pham (eds.) The Vietnamese Economy: Awakening the dormant dragon, *Routledge Curzon*: London.

Rama, M. and K. L. Sa (2005) Impacts of WTO Accession: Can They be Predicted? What to Do about Them? Paper Presented at the Workshop on 'Growth and Social Impacts of WTO Accession', Vietnamese Academy of Social Sciences, Hanoi. http://siteresources.worldbank.org/INTRANETTRADE/Resources/WBI-Training/288464-1152217173757/Session15_MartinaRama&LeKimSa.pdf

Robilliard, A.-S., and S. R. François Bourguignon (2001) Examining the Social Impact of the Indonesian Financial Crisis using a Micro -Macro Model, paper presented at the European ABCDE Conference of the World Bank, Bergen, Norway.

Roland-Holst, D. (2004) CGE Methods for Poverty Incidence Analysis: An Application to Vietnam's WTO Accession, GTAP Resource 1587. https://www.gtap.agecon.purdue.edu/resources/download/1876.pdf

Roland-Holst, D., Tarp, F., An, D. V., Thanh, V. T., Huong, P. L. and Minh, D. H. (2002) Vietnam's Accession to the World Trade Organization: Economic Projections to 2020, *CIEM/ NIAS Discussion Paper* DP0204. http://www.econ.ku.dk/ftarp/workingpapers/Docs/Vietnams%20Accession%20to%20the%20World%20Trade%20Organization_Economic%20Projections%20to%202020.pdf

Sadoulet, E. and A. de Janvry (1995) Quantitative Development Policy Analysis, *The John Hopkins University Press*: Baltimore.

Schmidt, U. (2004) Vietnam's integration in the global economy. Achievements and challenges, *Asia Europe Journal* 2, 63-83.

Shoven, J. B. and J. Whalley (1992) Applied General Equilibrium, *Cambridge University Press*: Cambridge.

STAR-Vietnam (2002) An Assessment of the Economic Impact of the United States – Vietnam Bilateral Trade Agreement, Annual Economic Report, The National Political Publishing House.

Tarp, F., D. Roland-Holst, J. Rand, P. L. Huong, and V. T. Thanh (2001) 1999 Social Accounting Matrix for Vietnam, *The Gioi Publishers*: Hanoi. http://www.econ.ku.dk/ftarp/Publications/Docs/VnSAM1999.pdf

Tarp, F., D. Roland-Holst, J. Rand, and H. T. Jensen (2002a) Trade and Income Growth in Vietnam: Estimates from a New Social Accounting Matrix, *Economic Systems Research* 14, 2, 157-184. http://taylorandfrancis.metapress.com/openurl.asp?genre=article&id=doi:10.1080/09535310220140951

Tarp, F., D. Roland-Holst, J. Rand, and D. Roland-Holst (2002b) A Social Accounting Matrix for Vietnam for the Year 2000: Documentation, CIEM/NIAS.

Thang, N. (2004) The Poverty Impact of Doha: Vietnam, Report funded by Department for International Development, Overseas Development Institute, London. http://www.odi.org.uk/iedg/Projects/Doha/05Poverty_Impact_Doha_Vietnam.pdf

Thanh, V. T. (2005) Vietnam's Trade Liberalization and International Economic Integration: Evolution, Problems and Challenges, *ASEAN Economic Bulletin* 22(1), 75-91.

Thanh, H. X. and K. Neefjes (2005) Economic Integration and maize-based livelihoods for poor Vietnamese, *Oxfam Discussion Paper*. http://www.isgmard.org.vn/Information%20Service/Report/Agriculture/MAIZE-e.pdf

Thoburn, J. (2004) Globalization and Poverty in Vietnam: Introduction and Overview, *Journal of Asia Pacific Economy* 9(2), 127-144.

Thoburn, J. (2005) Globalization and Poverty: Impacts on Households of employment and restructuring in the textiles industry of Vietnam, VN households Article.

Toan, N. M. (2005) The Effect of Trade Liberalization on Income Distribution in Vietnam – Dynamic Computable General Equilibrium Approach, Preliminary Draft of PhD dissertation, Graduate School of International Cooperation Studies, Kobe University, Japan.

UNEP (2003) Integrated Assessment of the Impact of Trade Liberalization on the Rice Sector, UNEP Country Projects Round III, Synthesis Report.

Van de Walle, D. (2002) The static and dynamic incidence of Vietnam's public safety net, *World Bank Policy Research Working Paper* 2791.

Weeks, J., N. Thang, R. Roy, and J. Lim (2004) The Macroeconomics of Poverty Reduction: The Case Study of Vietnam: Seeking Equity Within Growth, *UNDP Publication*, Bangkok.

World Bank (2003) Vietnam Development Report 2004: Poverty, Hanoi, Vietnam.

World Bank (2005) Vietnam Development Report 2006: Business, Hanoi, Vietnam.

Appendix A: Vietnam SAMs

In addition to data from GTAP data (see Hertel and Tsigas, 1997), the three main SAMs employed in the reviewed papers on CGE models in Section 3 are discussed briefly below.

A.1 Tarp et al. (2001): Construction of the 1999 SAM

Tarp et al. (2001) construct a social accounting matrix (SAM) for Vietnam, combining the 1996 I-O with the 1997/98 VLSS. Using 1999 macro-data, they name it the 1999 SAM. Their framework reveals an economic structure that has rapidly evolved since the Asian crisis, particularly in the trade-oriented sectors that will be most critical to Vietnam's growth and modernization policies.

Before examining more disaggregated accounts of the 1999 SAM, Tarp et al. (2001) review the overall Vietnamese economy with a MacroSAM. This table is essentially a double entry representation of the usual macroeconomic accounting identities, and it is used to ensure aggregate consistency of the more detailed activity, commodity, factor, and other institutional accounts in the disaggregated SAM. Intermediate goods are netted out.

Tarp et al. (2001) provide a detailed inspection of the different sectors, noting that examination of the export shares reveals many opportunities for Vietnamese development. As an example, significant export shares accrue to food and non-food crops such as rice and coffee. However, it is generally believed that these crops produce well below their long term output and revenue potential. Likewise, the Oil and Gas sector has a significant share of 1999 exports, but is only beginning to develop its long term potential by overcoming capital constraints. In manufacturing, Vietnam has not yet captured the export potential of dynamic growth sectors elsewhere in ASEAN, including technology, consumer durables, and even vehicles. These sectors not only leverage external demand for domestic employment and capacity development, but accelerate modernization and confer many growth externalities on the domestic economy.

A.2 Tarp et al. (2002b): Construction of the 2000 SAM

Tarp et al. (2002b) update the 1999 SAM into what they call the 2000 SAM. As in the 1999 SAM, the 1996 I-O table and the 1997/98 VLSS survey is used. The macro data used is from 2000, and tis is the main diference to the 1999 SAM. Thus, the structure of the 2000 framework is the same as the 1999 SAM, but the data is newer and the framework is updated in a variety of other details.

The 2000 SAM includes accounts for 97 activities and commodities, 14 factors, 16 aggregate households, and three enterprises as well as accounts for the current government budget, capital accumulation, inventories, and the balance of payments. The 14 factors include capital and land in

addition to 12 different kinds of labor categorized according to gender (male/female), location (rural/urban) and educational level (low/medium/high).

A.3 Jensen et al. (2004): Construction of the 2000 VSAM

Following the publication in 2001 of the 1999 Social Accounting Matrix (SAM) for Vietnam described above and the 2000 up-date hereof, important new data and information became available. They include in particular:

- A new and comprehensive set of input-output (I-O) tables for the year 2000, published by the General Statistical Office (GSO) in 2003, which is based on a 112 sector commodity disaggregation.
- Detailed and up-to-date data on marketing margins, by commodity, available in the new I-O, making it possible to properly analyze the decision to consume goods produced at home.
- Results from the 2001 enterprise census, leading to improved estimates of the various returns to capital flows in the enterprise sector.
- Up-dated and revised National Income and Product data, including for example new and detailed government budget data, on which basis the allocation of various consumption items was improved.
- Detailed trade statistics reconciled with official domestic sources.

All of the above factors, and the possibility of establishing a refined mapping of the factor income flow (i.e. from production activities to the respective factors), enterprise income flow (i.e. from enterprises to households), and allocation of government expenditures (incl. expenditures on culture, sports, and education) imply that it became desirable to produce a new and improved 2000 Vietnam SAM, which was published as Jensen et al. (2004).

The improvements are particularly important since this SAM (like the previously released version) as is clear from this report determine the structure of the Computable General Equilibrium (CGEs) models, which are built on top of the SAM.

The detailed data, including various aggregations of the most detailed SAM with 112 activities, 14 factors, and 16 household groups can be downloaded from the CIEM web-site as follows: http://www.ciem.org.vn

Appendix Tables

Table A.1: Basic Model Structure of Existing CGE Simulations of Vietnam's Trade Liberalization

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
1. Chan et al. (1999)	SAM combining: 1996 I-O table and 1993 VLSS.	Armington (1969) elasticity of 0.8-1.2. Structure follows Dervis, et. al. (1985) and Devarajan and Lewis (1990).	5 household groups (differing with respect to income), 9 sectors.	Unilateral tariff reduction.	i) Reform of sales tax only, ii) Tariff and tax reform.	i) Significant welfare gain and increased inequality, ii) Larger welfare gain, but higher losses to the poor.
2. Fukase and Martin (1999a)	GTAP 4 with 1996 I-O table.	Armington (1969) elasticity assumed. Constant returns to scale. Perfect competition. Constant demand elasticity (CDE)	10 sectors.	Reducing US tariffs against imports from Vietnam from average of 35% to 4.9%.	Reducing US tariffs against imports from Vietnam from average of 35% to 4.9%.	Effects shown in table 3.1: Largest increase in clothing, then basic manufacturing and electronics.
3. Fukase and Martin (1999b)	GTAP 4 with 1996 I-O table.	Armington (1969) elasticity assumed. Predicting 2010/2020 effects. Disaggregation with respect to trading partners.	13 sectors, 12 regions.	1)-3) Decreasingly discriminatory tariffs in AFTA, 4)+5) Unilateral and non-discriminatory scenario (APEC).	1)-3) The first three scenarios involve different degrees of trade liberalization between ASEAN-5 and Vietnam, 4) all APEC countries liberalize simultaneously, 5) All APEC members, including Vietnam, reduce tariffs unilaterally to 2.5%.	Expansion in apparel, contraction in import competing industries, in particular transport and beverages and tobacco industries. Small effect of AFTA and lowest increase in trade to countries that lowered tariffs the least.
4. Chan and Dung (2001)	SAM combining: 1996 I-O table and 1998 VLSS.	Armington (1969) elasticity assumed. Structure follows Devarajan and Lewis (1990). Perfect competition. Sector specific fixed factors, as well as mobile capital and labour. Assumption of immobile labour imposed in scenario viii) and ix). Higher ratio in consumption between imported and domestic goods is higher for rich household groups.	33 sectors, 17 produce for domestic sales and 16 for exports. 10 household groups classified by level of expenditure and urban/rural location.	Comply with AFTA or WTO. Uniform tariff applicable to imported goods having more than 5% tariff set at 5% and other tariffs remain unchanged.	All scenarios are combined with yield determined sales tax reform. i) Reduction of all tariffs to 5% in 2003, ii) Removal of all tariffs. The rest of the scenarios use scenario i) combined with removal of certain assumptions: iii) Ratio in consumption between imported and domestic goods is the same for all household groups, iv) Assumes iii) + the specific	i) Increased welfare, but also increased inequality, ii) Both effects even sharper, iii) poor and rural gain more than they did in scenario i), iv) same results as iii) , v) same results as iii), vi) total income of all households raises by double, but inequality increases, vii) those who gained before now gain three times more,

Table A.1 *continued*

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
4. Chan and Dung (2001) *continued*		Relaxed in scenario iii), iv), and v). Most of immobile capital specific factors belong to the urban and rich households, while the rural and poor households own only small portion of labour specific factors. Relaxed in scenario iv).			factors are distributed to households in proportion to their total factor endowment, v) Assumes iii) + same consumption structure by sector applied to all households, vi) Assumes iii) + the ratio in endowment between labour & capital is the same for all households, vii) Doubling of all initial tariffs, viii) Capital of domestic sectors assumed immobile, ix) Capital of all domestic and export sectors assumed immobile.	and those who lost before, now lose seven times plus, viii) No significant difference, ix) Welfare drops by half, since drop in capital factor prices.
5. Roland-Holst et al. (2002)	"1999 SAM" by Tarp et al. (2001) with 1996 I-O table, 1998 VLSS, and 1999 macro-data.	Armington (1969) elasticity assumed. Structure follows Tarp et al. (2001). Openness determines roughly 40 percent of productivity growth. Agricultural productivity is fixed at 2.5 percent per annum.	Predicts economic outcomes in 2020. 97 sectors aggregated into 18, 13 factors of production, 5 household types, and 94 international trading partners.	WTO accession	i) Business as Usual (BaU), where Vietnam continues without WTO accession, ii) WTO accession, iii) WTO accession followed by appropriate domestic reforms, iv) parallel trade agreements (in particular US-VN BTA), and v) capital market liberalization (together with the US-VN BTA), where inbound FDI is allowed to grow at twice the rate.	Without large inward FDI and bilateral agreements, Vietnam will remain economically marginalized including chronically low average wages, substandard capital formation and infrastructure development, and lagging technological development. No analysis of poverty.

Table A.1 *continued*

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
6. CIE (2002)	1996 I-O table and 1998 VLSS	Perfect competition, perfect mobility of capital and labour.	33 sectors, 10 household groups differentiated with respect to income and urban/rural location.	i) Removal of the average tariff rate of 14% on domestic industries.	i) Unilateral removal of tariffs, ii) tariff reductions by other countries by 10% (improvement of Vietnam's TOT), iii) uniform improvements in productivity by 10%, iv) Two way AFTA, v) MFN AFTA, vi) US BTA, vii) AFTA – US BTA combined	Reduced poverty in all scenarios, particularly in scenario iii) and increased growth by 2%, but increased inequality.
7. Nielsen (2002)	GTAP 5 model 1996 I-O table	The model is altered with the ALTERTAX procedure described in Malcolm (1997), taking the ordinary export tax and the tax equivalent of Vietnamese rice exports.	12 sectors, 19 regions	Removal of rice export quota and fertilizer import quota.	Six scenarios: i) Removal of export quotas on rice, ii) Scenario i) plus removal of import quotas on fertilizer. The rest are the same as scenario ii) plus: iii) The area under paddy is reduced to 5% and this land can then be freely used to other agricultural activity, iv) Reform to make allocation of land market-based, v) Removal of most of EU's preferential treatment of other countries, and vi) Vietnam is given the same preferences as India.	Scenarios i) and ii) predict an increase of exports of processed rice by 60.3% whilst exports of paddy rice increase by 24.6%. The export prices of Vietnamese paddy rice decline by 4.4%. Surrounding countries loose market shares. Scenario iii) substantially restricts the potential of the rice sector, but has beneficial effects on other sectors. Scenario iv) increases the production response compared to scenario ii), while results in scenario v) are not very different from scenario ii). Scenario vi) increases Vietnamese exports to EU seven fold.

Table A.1 *continued*

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
8. Huong (2003)	1996 I-O table 1998 VLSS	Structure follows Dixon et al. (1982). Distributional impact of tariff reductions under WTO accession on household income and consumption. Constant returns to scale and perfect competition. Trade account is assumed fixed. Household savings rates are fixed. Zero change in nominal government budget.	31 sectors. 6 household groups differentiated with respect to income and urban/rural location. Labour disaggregated into 4 groups.	Tariffs are reduced to 5 percent for all commodities, except tobacco, beverages, and transport.	Reduction in tariffs combined with i) indirect taxation, ii) external borrowing.	i) Decreased inequality, but lower growth, ii) Large gains for everybody and higher growth, but increased inequality.
10. Roland-Holst (2004)	"2000 VSAM" by Jensen et al. (2004) with 2000 I-O table 1993, 1998 VLSS, and 2002 VHLSS	Structure of SAM follows Jensen et al. (2004), combined with a micro-simulation derived from Robilliard et al. (2001). Heterogeneous prices.	The general 2000 VSAM includes 112 sectors, 14 factors, 16 household groups (farmer, self-employed, unemployed)x(rural, urban)xgender, 194 trading partners. These are aggregated into an unknown no. of groups.	N/A	N/A	The price differences between rural and urban areas embody essential information about the structural impediments to economic progress.
11. Jensen and Tarp (2005)	"2000 SAM" by Tarp et al. (2002b) with 1996 I-O, 1998 VLSS, and 2000 macro data compared to no aggregation of households.	Armington (1969) elasticity assumed. Household taxation unless deficit financing is stated.	10 aggregated sectors, 16 aggregated household-groups in the exogenous income distribution and 5999 individual households in the endogenous treatment, 3 geographical regions in Vietnam (North, Centre, South)	Export taxes, import taxes and both	1) Elimination of export taxes, 2) Elimination of import taxes, 3) Experiments 1 and 2. The outcomes of these experiments are compared between various scenarios. A. Comparing the effects between endogenous and exogenous income distribution, B. Comparing effects between household taxation and pure deficit financing.	A: 1) Poverty declines in endogenous income distribution and increases under exogenous, 2) Poverty increases, most under exogenous treatment. B: Slightly increased poverty when pure household taxation, while poverty decreases with 9% when pure deficit financing.

Table A.1 *continued*

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
12. Dee et al. (2005)	GTAP 5.4	Armington elasticity assumed. Amended GTAP including product differentiation. Pro-competitive regulations assumed to produce higher competition. Immobile labour across regions.	15 sectors	WTO accession offer in the following service sectors: Banking, distribution (i.e. wholesale and retail trade), maritime (ports), professions, telecommunication, air passenger transport, and electricity generation.	i) WTO accession offer in services, ii) amended WTO accession offer iii) WTO accession offer in services combined with additional unilateral reform, iv) full reform scenario, where all restrictions known to have adverse price effects are removed.	i) + ii) Trivial effects, iii) Increased output in sectors, except slight declines in output in agriculture and food and other primary, as well as in some of the services sectors (such as Transport nec) not undergoing reform.
13. Toan (2005)	"2000 VSAM" from Jensen et al. (2004)	Armington elasticity assumed. Predicted 2035 effects. Yield determined indirect taxation. All other parameters remain the same Fixed interest rate at 7.2%.	25 sectors, 8 household groups (urban/rural location and employment status) and 13 factors of production (labour is divided into 12 types).	Import tariffs of more than 5% are reduced to 5%.	WTO accession combined with indirect taxation.	Drop in welfare for urban households, and even more so for the rural. Increased manufacturing output, exports, and imports. Decreased agricultural and service output, exports, and imports.
14. Nguyen and Ezaki (2005)	2001 GTAP 6 2002 VLSS	Armington elasticity assumed. Standard neoclassical CGE model (Dervis et al., 1985). Fixed labour supply and capital stocks. Government consumption and savings are fixed shares of government revenue. Foreign savings are fixed. Homogenous prices. Constant Elasticity of Substitution (CES). 2001 is benchmark year.	57 industries aggregated into 10. 87 countries or regions, aggregated into 11. 20 household groups consisting of 10 rural and 10 urban. The 2002 VLSS includes 30,000 households, compared to 6,000 in the 1998 VLSS.	Removal of tariffs on bilateral trade between different trading partners.	The scenarios include removal of tariffs on the bilateral trade between: i) Vietnam and ASEAN-4 (Indonesia, Thailand, Malaysia and Philippines), ii) Vietnam, China and ASEAN-4, iii) Vietnam, China, ASEAN-4, East Asian NIEs and Japan, iv) Vietnam, China, ASEAN-4, East Asian NIEs, Japan and North America, v) Multilateral Trade liberalization.	Significant rise in consumption and income + poor and rural benefit more than urban and rich. Rise in exports, GDP might drop due to lower tariff revenue.

Table A.1 *continued*

Publication	Data	Key Assumptions	Model Description	Liberalization Measures	Scenarios	Simulation Results
15. Dimaranan et al. (2005)	2001 GTAP 6 (Hertel, 1997)	Armington elasticity assumed. Only the export-oriented sub-sectors of specific industries enjoy duty drawbacks.	GTAP-DD model (Ianchovichina, 2003). 57 industries aggregated into 22 and 87 regions aggregated into 12.	4th offer tariff reductions under WTO accession and reduction of textiles quotas. Reduction of the average tariff rate from 15.9% to 12.9%, but the reduction varies greatly between sectors and across regions.	Trade reforms i) with and ii) without taking into account the effects of the duty exemption arrangements.	Welfare benefits from WTO accession 70% lower in scenario i) than scenario ii). All other results are shown in scenario i).
16. Huong and Vanzetti (2006)	2001 GTAP 6	Trade balances are fixed for all regions except the USA. Wages for unskilled labour in developing countries are fixed.	57 sectors aggregated into 20, 20 regions	Import and export tariffs liberalized	i) Unilateral: -100% in Vietnam, ii) Harmonized: All tariffs 11.9% in Vietnam, iii)Bilateral: -100% in Vietnam and EU, iv) Regional: -100% on trade between AFTA, Japan, China, and Korea, v) Multilateral: -50% to WTO members, vi) -100% in all regions.	Increased exports and imports, except scenario ii). Increased welfare in all scenarios, especially vi), i), and v), respectively.

Table A.2 Predicted Effect of Integration on Output and Trade, Percentage Absolute Change from Baseline[a)]

Study	GDP Measure	Output				Trade value	
		Total GDP	Agriculture	Manufacturing	Services	Export	Import
Fukase and Martin (1999b), (i)	1996 GDP		-0.1 (processed agriculture, beverages etc)	-3.6 (electronics + basic manufacturing) to 10.1 (apparel)		3.9	3.1
Fukase and Martin (1999b), (ii)	1996 GDP		-1 (beverage and tobacco) to 7.8 (processed agriculture)	-4.7 (electronics) to 6.9 (apparel)		4.7	3.4
Fukase and Martin (1999b), (iii)	1996 GDP		-47 (beverages and tobacco) to 8.7 (processed agriculture)	-31.5 (transport equipment) to 7.9 (apparel)		7.2	6.3
Fukase and Martin (1999b), (iv)	1996 GDP		-55 (beverages and tobacco) to 2.5 (processed agriculture)	-48.1 (transport equipment) to 75.4 (apparel)		15.2	12.8
Fukase and Martin (1999b), (v)	1996 GDP		-53.8 (beverages and tobacco) to 1.2 (oil and gas)	-54.2 (transport) to 83.9 (apparel)		12.7	11.7
CIE (2002), (i) Unilateral	1996 GDP	3.3	2.6	2.5	4.3	Average: 10. Range: -7.5 (Fertilizer) to 122.4 (Transport)	
CIE (2002), (iv) Two way AFTA	1996 GDP	0.2	0.3	0.1	0.2	Average: 0.6. Range: -1.5 (Fertilizer + forestry) to 15 (equipment and machinery)	
CIE (2002), (iv) MFN AFTA	1996 GDP	1.8	1.1	1.3	2.3	Average: 5.7. Range: -5.7 (forestry) to 59.5 (cement)	
CIE (2002), (vi) US-VN BTA	1996 GDP	1.0	-0.2	1.5	0.4	Average: 10. Range: -29 (forestry) to 212.7 (beverage and tobacco)	
CIE (2002), (vii) US-VN BTA and AFTA	1996 GDP	2.1	0.8	2.0	1.5	Average: 12.1. Range: -25.6 (forestry) to 218 (beverage and tobacco)	
Dee et al. (2005), (i)	1997 GNP	0.03	0	0	-0.1 (transport + insurance) to 4.8 (financial services)		

Table A.2 *continued*

Study	GDP Measure	Total GDP	Output			Trade value	
			Agriculture	Manufacturing	Services	Export	Import
Dee et al. (2005), (ii)	1997 GNP	0.03	0	0	-0.2 (business services) to 4.8 (financial services)		
Dee et al. (2005), (iii)	1997 GNP	1.45	-0.2 to -1.0	1.6	-1.6 (transport nec) to 49.0 (air transport)		
Dee et al. (2005), (iv)	1997 GNP	2.44	-0.2 to -1.8	2.3	-3.2 (transport nec) to 63.8 (air transport)		
Toan (2005)	2000 GDP	Fall	-0.65	0.4	-0.4	Exports of manufacturing products increase, while agriculture and service decrease.	
Nguyen and Ezaki (2005), (i)	2001 GDP	-0.06				1.73	3.15
Nguyen and Ezaki (2005), (ii)	2001 GDP	-0.18				5.31	4.62
Nguyen and Ezaki (2005), (iii)	2001 GDP	-0.68				12.31	10.87
Nguyen and Ezaki (2005), (iv)	2001 GDP	-0.56				13.91	11.78
Nguyen and Ezaki (2005), (v)	2001 GDP	-0.55				18.24	15.39
Dimaranan et al. (2005)	2001 GDP		-64 (Sugar) to 5 (Dairy products)	-7.5 (Equipment) to 224 (Clothing)	-0.3 (Services) to 0.2 (Utilities)	Exports of clothing, textiles, and sugar increase (271, 82, and 62 % respectively), while other exports decrease (largest decrease in manufactures other than the mentioned).	

Table A.2 *continued*

Study	GDP Measure	Total GDP	Output: Agriculture	Output: Manufacturing	Output: Services	Trade value: Export	Trade value: Import
Huong and Vanzetti (2006), (i) Unilateral[b)]	2001 GDP	13	-9 (processed agriculture) to 10 (livestock)	-6 (manufactures) to 216 (textiles)	-6 (business services) to 7 (other services)	Average: 57. Range in Agriculture: -19 (Livestock) to 16 (Beverages and tobacco), Manufacturing: 0 (Metal) to 196 (Textiles), Service: -20 (Business Services + other services)	37
Huong and Vanzetti (2006), (ii) Harmonized	2001 GDP	4	-9 (processed agriculture) to 3 (livestock)	-17 (manufactures) to 29 (apparel)	1 (business services) to 4 (other services)	Average: -2. Range in Agriculture: -14 (Meat) to 0 (Fishing), Manufacturing: -31 (Electronics) to 28 (Apparel), Services: -8 (Business Services + other services)	-1
Huong and Vanzetti (2006), (v) Multilateral	2001 GDP	7	-7 (processed agr) to 7 (livestock)	-4 (metal manufactures) to 80 (textiles)	-7 (business services) to 5 (other services)	Average: 21. Range in Agriculture: -10 (Processed agr.) to 16 (Rice), Manufacturing: -7 (Metal) to75 (Textiles), Services: -18 (Business Services) to -13 (other services)	13

a) The effects are reported in ranges from lowest to highest, a simple average, or both.
b) In this study, predicted changes in exports are also reported in ranges within the broad sector groups.

Table A.3 *Predicted Effect of Integration on Household Welfare, Equivalent Variation, Percent of Baseline, Real Income or Real Expenditure*

Study	Poor	Medium	Rich	Urban	Rural	Aggregate Effect
Chan et al. (1999), (ii)	-4.7	3.2	1.4 to 3.1	N/A	N/A	0.89
Fukase and Martin (1999a)	N/A	N/A	N/A	N/A	N/A	0.9
Fukase and Martin (1999b), (i)	N/A	N/A	N/A	N/A	N/A	0.02
Fukase and Martin (1999b), (ii)	N/A	N/A	N/A	N/A	N/A	0.4
Fukase and Martin (1999b), (iii)	N/A	N/A	N/A	N/A	N/A	-0.04
Fukase and Martin (1999b), (iv)	N/A	N/A	N/A	N/A	N/A	1.4
Fukase and Martin (1999b), (v)	N/A	N/A	N/A	N/A	N/A	1.3
Chan and Dung (2001) (i)	0.2	loose	0.4	Increase more than rural	Increase	0.28
Chan and Dung (2001) (ii)	loose		0.8			0.39
CIE (2002), (i) Unilateral	5 to 6.7	5.8 to 8.3	7.2 to 9.0	5.0 to 7.2	5.9 to 9.0	6.9
CIE (2002), (v) MFN AFTA	2.8 to 3.3	3.0 to 4.3	3.4 to 4.2	2.8 to 3.5	3.1 to 4.3	
CIE (2002), (vi) US-VN BTA	0.8 to 1.6	1.6 to 1.8	1.9 to 2.4	1.6 to 2.4	0.8 to 1.9	

Table A.3 *continued*

Study	Poor	Medium	Rich	Urban	Rural	Aggregate Effect
Huong (2003), (i)	Gain most		Gain the least			
Jensen and Tarp (2005), (iii)	N/A	N/A	N/A	-3.8 to -1.2 (strongest loss in households with unemployed heads)	-3.4 to -0.7 (strongest loss in households with unemployed heads)	
Toan (2005)				-0.4 (non-employment) to 0.49 (self-employed non-farmers)	-0.72 (self-employed non-farmers) to -0.41 (non-employment)	
Nguyen and Ezaki (2005), (i)				1.6	2.0	1.67
Nguyen and Ezaki (2005), (ii)				3.9	4.8	4.15
Nguyen and Ezaki (2005), (iii)				8.0	8.7	8.09
Nguyen and Ezaki (2005), (iv)				8.4	8.8	8.41
Nguyen and Ezaki (2005), (v)				10.2	10.5	10.03