

# Vietnam's terms of accession and distributional impact of WTO membership

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# VIETNAM'S TERMS OF ACCESSION AND DISTRIBUTIONAL IMPACT OF WTO MEMBERSHIP<sup>1</sup>

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## ABSTRACT

The strong growth of the Vietnamese economy over the last two decades has brought about sweeping economic and social changes. In particular, there has been a sharp downturn in poverty along with an upturn in social inequalities (albeit not as sharp as in China). This makes the question of the distributional impact of the country's WTO accession (January 2007) a particularly keen one. The first simulations made using our micro-simulation model point to mainly four types of redistributive effects induced by WTO membership: job gains (especially industrial jobs), growth in real wages, reduction in gender inequalities, and increase in inequalities between rural and urban areas (but slight drop in overall inequalities). Our findings demonstrate the importance of flanking measures to accompany WTO accession and making the most of the opportunities that arise, especially in the area of training, domestic migration, regional policies and assistance to wage earners affected by restructuring.

**Key Words:** International Trade; WTO; Labour; Inequalities; Vietnam.

## RESUME

La forte croissance de l'économie vietnamienne au cours des deux dernières décennies s'est accompagnée de profondes transformations économiques et sociales. En particulier, on a observé une forte réduction de la pauvreté, accompagnée d'une progression des inégalités sociales (quoique moins accentuée qu'en Chine). Dans ce contexte, la question de l'impact distributif de l'adhésion à l'OMC intervenue en janvier 2007 se pose avec acuité. Les premières simulations effectuées à l'aide de notre modèle de micro-simulation comptable indiquent que l'adhésion à l'OMC aura principalement quatre types d'effets redistributifs : gains d'emplois (en particulier industriels) ; croissance des salaires réels ; réduction des inégalités de genre ; progression des inégalités entre zones rurales/urbaines (mais tassement des inégalités globales). Nos résultats montrent l'importance de prendre des mesures pour accompagner l'entrée à l'OMC et saisir les opportunités offertes, en particulier dans le domaine de la formation, des migrations internes, des politiques régionales et de l'aide aux salariés touchés par les restructurations.

**Mots clés :** Commerce international ; OMC ; Emploi ; Inégalités ; Vietnam.

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## Contents

<b>INTRODUCTION.....</b>	<b>5</b>
<b>1 ACCESSION TO THE WTO CROWNS A PROCESS OF REFORM AND INTEGRATION INTO THE WORLD ECONOMY.....</b>	<b>5</b>
<b>1.1 Rapid growth and sharp drop in poverty .....</b>	<b>5</b>
The emergence of Vietnam since the launch of Doi Moi.....	5
A string of trade agreements .....	6
A sharp drop in poverty .....	7
<b>1.2 An export-based growth strategy.....</b>	<b>8</b>
Outstanding growth in exports.....	8
Asia’s weight in trade .....	10
<b>1.3 The boom in foreign investment .....</b>	<b>11</b>
The decisive contribution of foreign investment to exports.....	11
The country’s two leading economic regions attract nearly all the foreign investment.....	12
<b>1.4 WTO accession needs to be placed in context.....</b>	<b>12</b>
<b>2 ANALYSIS OF VIETNAM’S TERMS OF ACCESSION TO THE WTO .....</b>	<b>12</b>
<b>2.1 A market increasingly open to imports .....</b>	<b>13</b>
Sustained tariff reduction.....	13
Abolition of tariff exemptions.....	14
Export taxes remain .....	14
<b>2.2 Other non-tariff measures.....</b>	<b>15</b>
Prohibition of export subsidies .....	15
Extensive reform of the commercial and legal framework .....	15
More open to foreign investment .....	16
Continued privatization.....	16
<b>2.3 Access to the leading markets is still insecure despite the lifting of export quotas .....</b>	<b>16</b>
Lifting of export quotas on the American and European markets.....	16
Access to the American and European markets is still insecure .....	17
<b>2.4 The WTO accession agreement affects all the economic sectors .....</b>	<b>18</b>
<b>3 IMPACTS OF VIETNAM’S ACCESSION TO THE WTO: A REVIEW OF RECENT LITERATURE .....</b>	<b>19</b>
<b>3.1 The impact of the WTO on growth, poverty and inequalities.....</b>	<b>19</b>
The macroeconomic impact (growth and trade) .....	19
The impact on inequalities and poverty .....	22
<b>3.2 The case of Vietnam: the impact of WTO accession.....</b>	<b>23</b>
The impact on growth .....	24
The distributional impact of WTO accession.....	26
<b>3.3 The shortcomings of the studies on the WTO’s impact on Vietnam .....</b>	<b>28</b>
<b>4 ANALYSIS OF THE DISTRIBUTIONAL IMPACT OF VIETNAM’S ACCESSION TO WTO: SIMULATION BASED ON A MACRO-MICRO MODEL .....</b>	<b>28</b>
<b>4.1 Labour market structure and dynamics in Vietnam from 1997 to 2004.....</b>	<b>29</b>
The rising rate of wage employment.....	29
A large portion of underemployment among the labour force .....	31
A sharp rise in real wages in recent years .....	32
A growing proportion of wage income in the household budget .....	33
Growth in industrial employment and a lower increase in wages.....	33

<b>4.2</b>	<b>Presentation of the macro-micro model</b> .....	<b>34</b>
	Presentation of the CGE model.....	34
	Presentation of the micro-simulation model .....	36
<b>4.3</b>	<b>Analysis of the simulations</b> .....	<b>37</b>
	The scenarios simulated using the model.....	37
	The main aggregate results of the simulations.....	38
	Substantial sector reallocations of employment.....	39
	Extremely different impacts on urban/rural incomes and incomes by region .....	41
	<b>CONCLUSION</b> .....	<b>44</b>
	<b>REFERENCES</b> .....	<b>46</b>
	<b>APPENDICES</b> .....	<b>50</b>
	<i>Appendix A: Main commitments made by Vietnam for WTO accession</i> .....	50
	<i>Appendix B: SAM 2000, 31-sector disaggregation</i> .....	51
	<i>Appendix C: Rule for the allocation of variations in working hours</i> .....	52
	<i>Appendix D: Macro-micro interface variables</i> .....	53
	<i>Appendix E: Scenario parameters</i> .....	54

## List of tables

<i>Table 1: Growth in poverty by region (%)</i> .....	8
<i>Table 2: Apparel exports from the leading suppliers to the EU, United States and Japan (millions of US dollars and %)</i> .....	10
<i>Table 3: Geographic structure of foreign trade (2005)</i> .....	10
<i>Table 4: Share of foreign firms in exports in 2007*</i> .....	11
<i>Table 5: Destination of foreign investment projects in Vietnam by province, excluding oil</i> .....	12
<i>Table 6: Tariff commitments made by Vietnam under the terms of its WTO accession (%)</i> .....	14
<i>Table 7: Forecasts based on 23 scenarios from studies using CGE models on the impact of Vietnam's accession to the WTO (% variation)</i> .....	24
<i>Table 8: Rate of wage employment by region 1997-2004</i> .....	30
<i>Table 9: Rate of wage employment by population type 1997-2004 (residence, gender and skills)</i> .....	30
<i>Table 10: Rate of wage employment by economic sector</i> .....	31
<i>Table 11: Employment rates by skills in 2004</i> .....	31
<i>Table 12: Growth in wage level by type of manpower 1997-2004</i> .....	32
<i>Table 13: Growth in wage level by region 1997-2004</i> .....	33
<i>Table 14: Share of wage income in household budgets 1997-2004 (region and quintiles)</i> .....	33
<i>Table 15: Industrial employment structure and dynamics by type of manpower 1997-2004</i> .....	34
<i>Table 16: Description of the simulated scenarios</i> .....	38
<i>Table 17: Results of the simulations – macroeconomic aggregates</i> .....	39
<i>Table 18: Results of the simulations – central government revenue</i> .....	39
<i>Table 19: Results of the simulations – value-added by sector (in volume)</i> .....	40
<i>Table 20: Results of the simulations – wage rates and demand for labour by type</i> .....	41
<i>Table 21: Microeconomic results – household income</i> .....	42
<i>Table 22: Microeconomic results – poverty rates (%)</i> .....	43
<i>Table 23: Microeconomic results – Gini coefficient</i> .....	43

## List of charts

<i>Chart 1: Average GDP growth rate (2000-2007) in %</i> .....	6
<i>Chart 2: Growth in poverty and inequalities (1993-2004)</i> .....	7
<i>Chart 3: Growth in the market shares of Asian exporters</i> .....	9
<i>Chart 4: Share of manufactured goods in total exports (%)</i> .....	9
<i>Chart 5: Annual total of foreign direct investment projects (2000-2007)</i> .....	11

## List of Boxes

<i>Box 1: Non-market economy (NME) status</i> .....	17
<i>Box 2: Gravity models and computable general equilibrium models in the evaluation of trade policies</i> .....	19

## INTRODUCTION

Vietnam joined the World Trade Organization in January 2007. This accession came some 20 years after the launch of *Doi Moi*, which marked the country's transition to a "socialist-oriented market economy" and the start of a process of rapid economic growth and integration into the world economy.

The growth model followed by Vietnam over the last two decades has brought about sweeping economic and social changes. In particular, there has been a sharp downturn in poverty along with an upturn in social inequalities (albeit not as sharp as in China). This makes the question of the distributional impact of the country's WTO membership, as studied in this report, a particularly keen one.

The first part of this report presents an overview of the economic policies implemented by Vietnam since 1986, culminating in its WTO accession, and their results in terms of economic growth and social indicators, foreign trade and foreign direct investment (FDI).

Part two describes Vietnam's terms of accession. It shows that WTO-induced tariff liberalization is relatively limited on the whole and that most of the commitments concern other areas: competition, services, subsidies, openness to FDI, etc. Moreover, Vietnam has improved its access to the major international markets.

Part three reviews the work done on the distributional impact of trade liberalization in the developing countries and, more particularly, in Vietnam. The evaluations made to date of the impact of the trade policies on Vietnam (growth, poverty, income distribution, etc.) find modest effects.

Part four describes recent employment and income dynamics and presents some tentative findings on the distributional impact of the WTO by expanding on previous studies in two ways: first, by using a computable general equilibrium model combined with a micro-simulation model to hone the evaluation of the impact on households; second, by looking beyond the effects of tariff liberalization to assess the impact of market access gains and the additional direct investment secured.

## 1 ACCESSION TO THE WTO CROWNS A PROCESS OF REFORM AND INTEGRATION INTO THE WORLD ECONOMY

Over the last two decades, Vietnam has undertaken a programme of reforms that has dramatically changed the way the economy operates and led to accession to the World Trade Organization (WTO) at the beginning of 2007 (Chaponnière, Cling and Bin, 2007). These reforms have had three major socio-economic repercussions, which are briefly described in this section: rapid economic growth resulting in a sharp drop in poverty along with a certain rise in inequalities; growing integration into the world economy via an export-based growth strategy; and a boom in foreign direct investment flows, which have increased with WTO membership.

### 1.1 Rapid growth and sharp drop in poverty

After years of war, followed by economic recession and shortages, the 1986 launch of *Doi Moi* marked the beginning of a phase of strong growth for the Vietnamese economy, one of the fastest growing economies in the world along with China. This growth generated a sharp rise in the socio-economic indicators and a drastic drop in poverty. Yet this improvement is unevenly distributed among the regions and the different population groups.

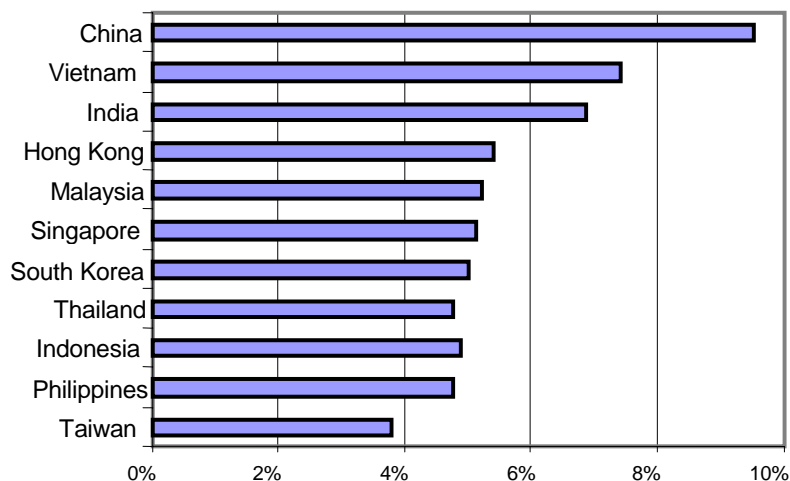
#### *The emergence of Vietnam since the launch of Doi Moi*

Since the beginning of the 1990s, Vietnam's GDP growth has hovered around 8% per year (a performance similar to China, with a growth rate of some 9% per year over the same period). The Vietnamese economy posts the highest growth in Asia after China (Chart 1).

This rapid growth is driven by the programme of economic reforms launched in late 1986 under the name of *Doi Moi* (“Renovation”). The adoption of this programme, coming a few years after the launch of a similar programme by China (1978), entailed the definition of the “socialist-oriented market economy” concept. Radical measures were steadily introduced over the years that followed:

- Decollectivization of agriculture and the abolition of price controls;
- Creation of a private sector made up of small and medium-sized enterprises;
- Partial dismantlement of the centrally planned economy;
- External liberalization with tariff reduction and the abolition of the State monopoly in foreign trade.

**Chart 1: Average GDP growth rate (2000-2007) in %**



Source: Chaponnière, Cling and Bin (2007).

### ***A string of trade agreements***

Since the 1993 lifting of the US trade embargo, Vietnam has resumed relations with the international community (return of international aid) and signed a number of trade agreements that have stepped up its process of economic growth and international integration launched with *Doi Moi*:

- Following its membership of ASEAN<sup>2</sup> (1997), tariffs on imports from ASEAN countries were gradually reduced and have stood at less than 5% within the Asian Free Trade Area (AFTA) since 2006. The other ASEAN members have also applied this tariff reduction to exports of Vietnamese products, improving access to their markets. The ASEAN-China Free Trade Agreement (ACFTA) signed in 2004 brought further tariff reductions in trade with China (already applied, in particular, to certain agricultural products);
- In 2000, Vietnam signed the United States-Vietnam Bilateral Trade Agreement (USBTA). This agreement opened the door for Vietnamese products to enter the American market (nevertheless subject to quotas). Vietnamese exports to the American market were granted most-favoured-nation (MFN) status under this treaty in 2002, and average tariffs on Vietnamese products fell from around 40% to 3%–4%. In return, Vietnam reduced its tariffs on imports from the United States and made a number of commitments to open up to American investors (see below);
- At the beginning of 2007, Vietnam joined the WTO following ten years of negotiations and exactly 20 years (to the nearest month) after the adoption of *Doi Moi*. As a member of the WTO, Vietnam now benefits from most-favoured-nation (MFN) status in all the member countries (which also means an end to quotas on its exports) and must, for its part, apply all the WTO rules. Accession to the WTO is therefore something of an endorsement of a long process of reform and integration into the world economy.

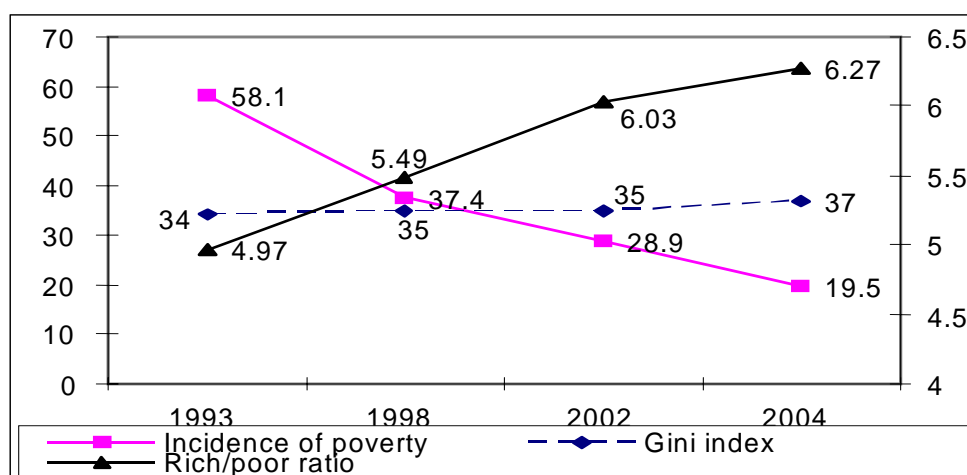
<sup>2</sup> ASEAN (Association of Southeast Asian Nations) has ten members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), Philippines, Singapore, Thailand and Vietnam.

### *A sharp drop in poverty*

The strong economic growth posted by the Vietnamese economy has sent poverty rates tumbling since the 1990s (Chart 2). The overall monetary poverty rate has been slashed by two-thirds since 1993 (from 58.1% to 19.5% in 2004; VASS, 2006).

At the same time, there has been an upturn in inequalities, albeit less marked than in China. The country's Gini index rose from 0.34 to 0.37 from 1993 to 2004. Yet the appraisal of inequality dynamics in Vietnam over the last decade remains a subject for debate. Although the Gini index has not risen substantially, other indicators point to a sharp increase in inequality pressures. For example, the interquintile ratio (ratio between the population's richest and poorest quintiles) rose from 4.97 to 6.27 over the same period, reflecting the emergence of an upper middle class concentrated in the cities. Moreover, analyses of the change in non-monetary welfare and health indicators (childhood malnutrition) reveal an increase in inequalities (Moser *et al.*, 2005; Tran *et al.*, 2003). One of the purposes of this study is to take a more detailed look at the issue of trade-policy-related inequalities.

**Chart 2: Growth in poverty and inequalities (1993-2004)**



Source: VASS, 2006; our own calculations.

The human development indicators (health, education, etc.) have also evolved in a highly positive manner. With a rate of nearly 100% of pupils finishing primary school and a 75.8% rate of enrolment in secondary education, Vietnam is way ahead of all the other countries with comparable levels of development. The same holds true for life expectancy, which stood at 68 years for men and 73 years for women in 2005.

At regional level, highly contrasting poverty trends are found (Table 1). In the region of Ho Chi Minh City (South-East) and, to a lesser extent, in the Red River Delta (Hanoi), monetary poverty has virtually disappeared and food poverty (generally called “extreme poverty” in the international reports) has been all but wiped out. However, certain regions have benefited less from the widespread reduction in poverty. In the North-West, in particular, overall poverty and food poverty have barely decreased and remain very high.

**Table 1: Growth in poverty by region (%)**

	1993	1998	2002	2004
<b>Overall poverty rate</b>	<b>58.1</b>	<b>37.4</b>	<b>28.9</b>	<b>19.5</b>
North-East	86.1	62.0	38.4	29.4
North-West	81.0	73.4	68.0	58.6
Red River Delta	62.7	29.3	22.4	12.1
North Central Coast	74.5	48.1	43.9	31.9
South Central Coast	47.2	34.5	25.2	19.0
Central Highlands	70.0	52.4	51.8	33.1
South-East	37.0	12.2	10.6	5.4
Mekong River Delta	47.1	36.9	23.4	19.5
<b>Food poverty rate</b>	<b>24.9</b>	<b>15.0</b>	<b>9.9</b>	<b>6.9</b>
North-East	29.6	17.6	14.1	9.4
North-West	26.2	22.1	28.1	21.8
Red River Delta	24.2	8.5	6.5	4.6
North Central Coast	35.5	19.0	17.3	12.2
South Central Coast	22.8	15.9	10.7	7.6
Central Highlands	32.0	31.5	17.0	12.3
South-East	11.7	5.0	3.2	1.8
Mekong River Delta	17.7	11.3	7.6	5.2

Source: GSO; our own calculations.

Table interpretation:

- Overall poverty: in 2004, an individual was considered to be poor (“overall poverty”) if his annual expenditure was less than 11 US dollars per month (173,000 Dong), defined as the monetary poverty line.
- Food poverty: this is defined based on the sum of money required to buy a basket of food to provide an intake of 2,100 calories/day, evaluated at 10 US dollars per month (160,000 Dong) in 2004. Overall poverty covers, in addition, non-food goods considered to be basic needs.

## 1.2 An export-based growth strategy

Since the launch of *Doi Moi* and in keeping with the East Asian “dragons”, Vietnam has conducted a trade policy that combines an export-based growth strategy underpinned by various subsidies (creation of export processing zones, in particular) with an import-replacement strategy. This has helped Vietnam create an automotive industry (mainly motorcycles), become the world number two exporter of rice, number one in Robusta coffee, etc.

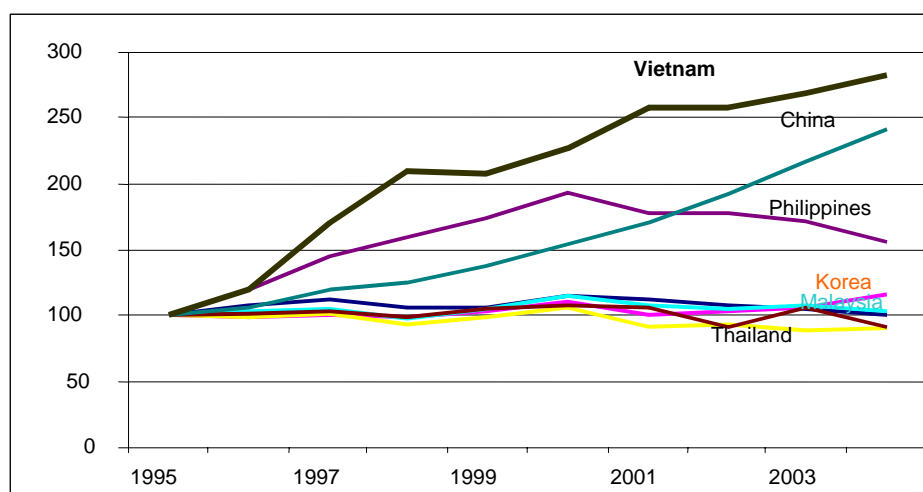
### *Outstanding growth in exports*

Growth in Vietnamese exports has been close on 20% per year in value terms since the mid-1980s, placing the country ahead of even China (approximately 15% per year). Vietnam’s competitiveness has benefited from the fall in the US dollar since 2003, insofar as the national currency is implicitly anchored to the US dollar.

This growth has led Vietnam to post the highest increase in world market share of all the Asian countries (Chart 3). It has tripled since 1995. Nevertheless, Vietnam remains a small exporter in global terms with just 0.3% of all world exports (as opposed to 1% for Thailand for example).



**Chart 3: Growth in the market shares of Asian exporters**  
(Base 100 = 1995)

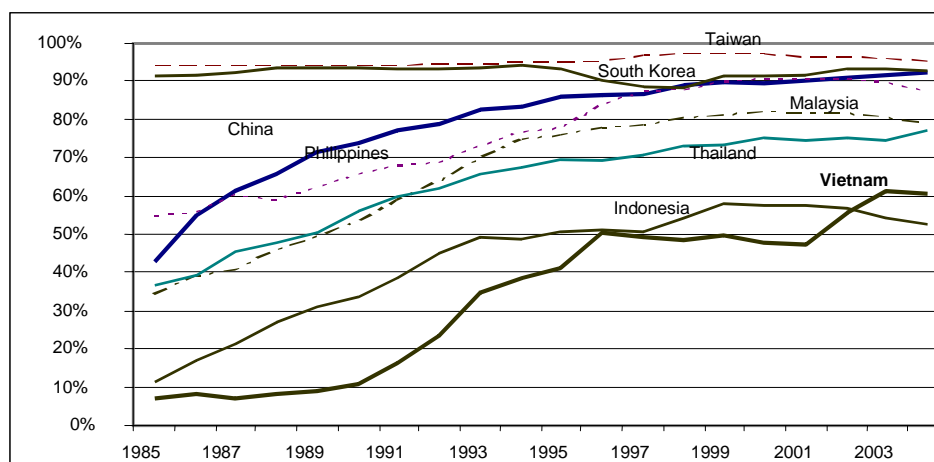


Source: Chaponnière, Cling and Bin (2007) based on CEPII/Chelem.

At the same time, the structure of exports has changed enormously in recent years. Since 2002, manufactured goods have accounted for the majority of exports (Chart 4). These are mainly textile and apparel products, but also increasingly electronic products.

The level of 50% industrial exports in total exports was attained by the Philippines in 1984, China in 1986, Thailand and Malaysia in 1989, and Indonesia in 1995. The fact that Vietnam is an oil exporter (approximately 20% of total exports) tends to reduce its share of finished goods. Nevertheless, the share of crude oil exports is set to fall in coming years following current construction of several refineries to meet domestic consumption demand.

**Chart 4: Share of manufactured goods in total exports (%)**



Source: Chaponnière, Cling and Bin (2007) based on CEPII/Chelem.

The structure of Vietnamese exports and the growing weight of textiles and apparel are characteristic of a developing country in the early stages of its industrialization process. Even before joining the WTO, Vietnam benefited from the EU's lifting of quotas on textiles and apparel from Asian countries at the beginning of 2005. Despite competition from China, it has become the world number six exporter in these products<sup>3</sup> (number five if Hong Kong is grouped together with China), with exports quadrupling from 2001 (on the eve of the USBTA) to 2006 (Table 2). In 2007, the lifting of quotas still imposed by the United States will foster the continuation of, if not rise in this growth.

<sup>3</sup> Based solely on the three leading world markets: the European Union, the United States and Japan.

**Table 2: Apparel exports from the leading suppliers to the EU, United States and Japan (millions of US dollars and %)**

	2001	2002	2003	2004	2005	2006	Change 2006/01 (%)	Market share (2006)
<b>1. China</b>								
<u>Total</u>	<u>28069</u>	<u>29098</u>	<u>35254</u>	<u>41869</u>	<u>55315</u>	<u>62476</u>	<u>+122.6</u>	
EU	7486	8810	11578	14322	21092	23934	+219.7	31.4%
USA	6416	7070	8667	10685	16774	19865	+209.6	27.1%
Japan	14167	13218	15009	16862	17448	18678	+131.8	83.4%
<b>2. Bangladesh</b>								
<u>Total</u>	<u>4471</u>	<u>4359</u>	<u>5302</u>	<u>6518</u>	<u>6686</u>	<u>8636</u>	<u>+93.2</u>	
EU	2527	2583	3515	4621	4400	5811	+130.0	7.6%
USA	1929	1757	1759	1871	2268	2808	+45.6	3.8%
Japan	15	18	28	26	18	18	+20.0	0.0%
<b>3. India</b>								
<u>Total</u>	<u>3862</u>	<u>4208</u>	<u>4839</u>	<u>5443</u>	<u>7233</u>	<u>8229</u>	<u>+113.1</u>	
EU	1979	2186	2688	3079	4028	4824	+143.8	6.3%
USA	1774	1939	2059	2256	3064	3235	+82.4	4.4%
Japan	109	83	92	107	141	171	+56.9	0.2%
<b>4. Hong Kong</b>								
<u>Total</u>	<u>4382</u>	<u>6129</u>	<u>6131</u>	<u>6354</u>	<u>5672</u>	<u>6052</u>	<u>+38.1</u>	
EU	2328	2208	2379	2440	2121	3200	+37.5	4.2%
USA	1994	3873	3708	3863	3507	2799	+40.4	3.8%
Japan	60	48	44	51	45	53	-11.7	0.2%
<b>5. Indonesia</b>								
<u>Total</u>	<u>4016</u>	<u>3590</u>	<u>3815</u>	<u>4169</u>	<u>4476</u>	<u>5613</u>	<u>+39.8</u>	
EU	1607	1391	1537	1662	1492	1812	+12.8	2.4%
USA	2203	2050	2153	2390	2868	3666	+66.4	5.0%
Japan	205	149	125	117	115	135	-34.1	0.2%
<b>6. Vietnam</b>								
<u>Total</u>	<u>1261</u>	<u>1988</u>	<u>3413</u>	<u>3839</u>	<u>4110</u>	<u>5052</u>	<u>+300.6</u>	
EU	689	656	591	788	857	1285	+86.5	1.7%
USA	47	873	2337	2503	2664	3152	+6606.4	4.3%
Japan	525	459	484	548	588	616	+17.3	0.8%

Sources: Chaponnière, Cling and Bin (2007) based on CEPII/Chelem.

### *Asia's weight in trade*

The geographic and sector-based structure of foreign trade varies quite a bit depending on whether the focus is on exports or imports, bearing in mind that, in both cases, Asia has a decisive share.

The United States (whose share is on the rise) and the European Union account for one-third of exports between the pair of them (Table 3), mainly in consumer goods (textiles and apparel in particular). However, these countries are in a modest position as suppliers to Vietnam.

**Table 3: Geographic structure of foreign trade (2005)**

Exports			Imports		
Country/ Regional union	Amount (bn USD)	Weight (%)	Country/ Regional union	Amount (bn USD)	Weight (%)
<b>1. United States</b>	5.9	18.2	<b>1. ASEAN</b>	9.3	25.2
<b>2. ASEAN</b>	5.7	17.6	- <i>Singapore</i>	4.5	12.2
- <i>Singapore</i>	1.6	4.9	- <i>Thailand</i>	2.4	6.5
- <i>Malaysia</i>	1.2	3.7	<b>2. China</b>	5.9	16.0
<b>3. EU</b>	5.5	17.0	<b>3. Taiwan</b>	4.3	11.7
- <i>Germany</i>	1.4	4.3	<b>4. Japan</b>	4.1	11.1
- <i>United Kingdom</i>	1.2	3.7	<b>5. EU</b>	2.6	7.1
<b>4. Japan</b>	5.2	13.8	- <i>Germany</i>	0.7	1.9
<b>5. China</b>	3.2	8.5	- <i>France</i>	0.5	1.4
<b>Total</b>	32.4	100.0	<b>Total</b>	36.8	100.0

Source: GSO; our own calculations.

The Asian countries (ASEAN, China, Japan, etc.) receive nearly half of the exports and drive an even larger share of imports. Exports to these countries (China and Japan in particular) are made up mainly of raw materials (crude oil and agricultural produce) while imports concern intermediate and capital

goods. Note that Vietnam does not yet take part to any real extent in the regional division of industrial labour, which is typified by sizeable trade in intermediate goods between China and its Asian partners, especially for electronic products.

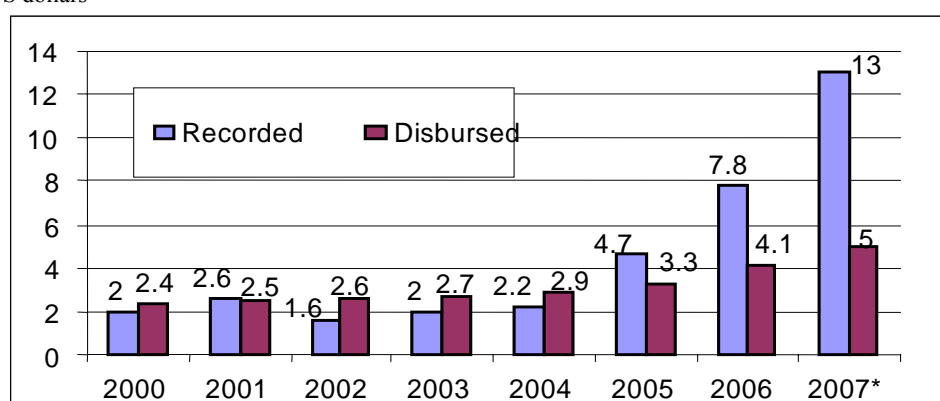
### 1.3 The boom in foreign investment

Although financial liberalization has been gradual and relatively modest, Vietnam has received considerable foreign direct investment inflows. FDI has shot up since 2005, nearing 15 billion US dollars in approved investment in 2007 (Chart 5). Direct investment inflows recorded in the balance of payments data came to some two billion US dollars per year through to 2005, the last year for which such data is available. They have probably also posted the same growth as the sum of investment projects.

The five leading investors, which are all Asian (Singapore, Taiwan, Japan, Korea and Hong Kong) account for nearly two-thirds of the investments made since 1988.

**Chart 5: Annual total of foreign direct investment projects (2000-2007)**

Billions of US dollars



Source: MPI; our own calculations.

\*: Forecast

Interpretation of the chart: On average, approximately half of the planned investment (recorded) was actually disbursed, given that the implementation of the major projects is spread over a number of years. During a project growth period, the gap between recorded and disbursed investment automatically widens due to the implementation lead times.

Half of the investment is directed at the manufacturing industry (cumulative flows). The (offshore) oil sector has received slightly less than one-quarter of the investment inflows disbursed in recent years and the tourism sector is the third leading sector for substantial investment inflows.

#### *The decisive contribution of foreign investment to exports*

Firms with foreign holdings make a decisive contribution to export buoyancy (Table 4). They make the majority (56%) of total exports and 48% of exports excluding oil. All oil production and exports are in partnership with foreign oil groups.

**Table 4: Share of foreign firms in exports in 2007\***

(amount and growth rate)

Type of firm/sector	Amount (millions of US dollars)	Total	Growth rate 2007/06
Domestic firms	20,086	43.8%	24.7%
Firms with foreign holdings	25,839	56.2%	15.9%
- Crude oil	7,594	16.5%	-11.3%
- Others	18,245	39.7%	32.8%
<b>Total exports</b>	<b>45,925</b>	<b>100.0%</b>	<b>19.6%</b>
Total exports ex. crude oil	38,331	83.5%	25.6%

Source: MPI; our own calculations.

\*: First eight months of the year

### ***The country's two leading economic regions attract nearly all the foreign investment***

Foreign investment is highly concentrated geographically speaking (Table 5). Ho Chi Minh City and its surrounding area receive nearly two-thirds of all FDI while the Red River Delta (Hanoi and its region) receives over one-quarter. All in all, the country's two leading economic regions attract some 90% of foreign investment whereas only 41% of the population lives in these regions. This concentration is behind some profound imbalances and a factor in the large flows of domestic migration by Vietnamese workers.

**Table 5: Destination of foreign investment projects in Vietnam by province, excluding oil (1988-2007)**

<b>%</b>	<b>Projects</b>	<b>Actual</b>	<b>Population</b>
<b><u>HCMC and surrounding area</u></b>	<u>61.2</u>	<u>63.6</u>	<u>19.1</u>
- South-East (HCMC)	58.7	60.2	15.3
- Mekong River Delta (Long An + Tien Giang only)	2.5	3.4	3.8
<b><u>Red River Delta</u></b>	<u>28.3</u>	<u>27.5</u>	<u>22.0</u>
<b><u>Total above</u></b>	<u>89.5</u>	<u>91.1</u>	<u>41.1</u>
<b>Rest of the country</b>	10.5	8.9	58.9

Source: MPI; our own calculations.

#### **1.4 WTO accession needs to be placed in context**

In this section, we place Vietnam's WTO accession in the context of the country's economic performance in recent years and the social repercussions of this performance, along with the trade policies conducted since the launch of *Doi Moi*.

A retrospective study of national and regional socio-economic trends (poverty, inequalities, foreign investment, etc.) points up the areas in which the WTO may have had an impact. We endeavour to evaluate these areas in the following sections.

In particular, we can deduce from this study that the tariff-change repercussions of WTO accession will be reduced by the fact that a large part of Vietnam's foreign trade is conducted with regional partners with whom it is associated in free trade areas already in operation (ASEAN) or being set up (China).

We can also observe that some of the effects of Vietnam's WTO membership (negotiated over many years) were anticipated in part by the economic operators, as demonstrated in particular by the recent boom in foreign direct investment.

## **2 ANALYSIS OF VIETNAM'S TERMS OF ACCESSION TO THE WTO**

In January 2007, Vietnam became the 150<sup>th</sup> member of the WTO after more than ten years of negotiations (1995). The signing of a trade treaty with the United States in 2001 (USBTA or the United States-Vietnam Bilateral Trade Agreement) sped up the process by putting Vietnam on the road to trade and institutional reform as well as integration into the global economy.

Vietnam had to agree to a number of commitments (see the summarized list in Appendix A) on its accession. As with other recent WTO members, these commitments are often more restrictive than those made by the members when the organization was first set up (Marrakesh agreements, 1994). In particular, agricultural tariffs will be set at levels below those in force in other comparable developing countries. Vietnam also had to undertake to stop subsidising its exports (which the other comparable developing countries are still allowed to do), to open up more to foreign investment, but to also continue to privatize its state-owned companies, etc.

In return, Vietnam has improved its access to WTO member markets and the quotas imposed on its textile and apparel exports were lifted at the beginning of 2007. Nevertheless, Vietnam's access to the world's leading markets (especially the United States and the EU), where it is still seen as a non-market economy (see Box 1 below), remains shaky.

## **2.1 A market increasingly open to imports**

Since the 1990s, Vietnam has rapidly reduced its tariffs and abolished most of the import quotas. The additional WTO-related trade liberalization, spread over a long period (12 years), is therefore modest and gradual.

### ***Sustained tariff reduction***

Vietnam largely pre-empted its accession to the WTO with rapid tariff disarmament starting in the 1990s. For example, the average tariff (arithmetic mean) was cut to 17.4% on the eve of accession compared with 23.3% ten years earlier.

The effective protection rate<sup>4</sup> fell even more quickly, as it more than halved from 59.5% in 1997 to 26.2% in 2001 (Athukorala, 2007). In industry, the effective protection rate dropped from 121.5% to 43.9%.

The average rate of tariffs is comparable with China before its accession. This rate is much higher than Indonesia, Malaysia and the Philippines. It is also much higher than China's current average rate (World Bank, 2006).

Vietnam has committed to binding<sup>5</sup> its tariffs on most products at rates of between 0% and 35% (Table 6). Tariffs on cars and motorcycles will remain higher, since Vietnam wants to protect the national industry (the car aspect only relates to assembly in small quantities). Certain sensitive products (eggs, tobacco, sugar and salt) will remain protected by quotas. Reductions on most of the bound rates, which will be reduced from 17.4% on average in 2007 to 13.6% in 2019, will be spread over a period of twelve years.

By and large, the average rate applied to agricultural produce will be brought down from 27.3% in early 2007 to 21.7% in 2019. This rate is lower than its neighbours: the average duties applied by Thailand and the Philippines to these products are 36% and 34% respectively.

Vietnam has signed the multilateral information technology agreement. Under the terms of this agreement, it undertakes to reduce its tariffs to zero on a number of electronic and IT products over a period of nought to eight years depending on the product.

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<sup>4</sup> The effective protection rate for a good is calculated as the sum of the rate of tariff protection applied to the good multiplied by the price for this good on the world market, from which is subtracted the protection rate applied to the intermediate goods incorporated into the production process, multiplied by the price for these goods on the world market.

<sup>5</sup> Bound tariffs are the maximum duty rates that a country has committed to apply to a given product vis-à-vis the WTO.

**Table 6: Tariff commitments made by Vietnam under the terms of its WTO accession (%)**

	2005 (pre-accession) <sup>(1)</sup>	2007 (accession)	2019 (final tariffs)	Implementation timeframe
<b>Mean</b>	<b>18.5</b>	<b>17.4</b>	<b>13.6</b>	<b>Up to 12 years</b>
<b>Agricultural produce</b>	29.4	27.3	21.7	Up to 5 years
<b>Non-agricultural products</b>	17.0	16.0	12.5	Up to 12 years
- Steel	9.7	17.7	13.0	Up to 2 years
- Oil	14.6	27.2	27.1	Up to 2 years
- Textiles-apparel	36.6	13.6	13.5	Upon accession
- Shoes	45.0	35.8	27.2	Upon accession
- Cars	63.6	84.8	58.7	Up to 12 years
- Motorcycles	100.0	100.0	74.3	Up to 12 years
- Electronic equipment	13.3	13.9	9.5	5 years
<b>Maximum tariffs</b>	150	150	85	
<b>No. tariff lines</b>	10,689	10,444	10,444	

Source: IMF (2007)

(1) Most-favoured-nation (MFN) tariffs applied to most of the countries excluding ASEAN.

Lastly, import quotas have been lifted on all but two products: since the end of 2005, only sugar and oil still have maximum import quotas imposed on them.

However, seven products are still subject to quotas without having an import ceiling placed on them: milk, eggs, maize, tobacco, salt and cotton. Higher tariffs are charged on these products when they exceed a certain amount of imports.

### ***Abolition of tariff exemptions***

The two main types of tariff exemption measures designed to foster exports or reduce imports will have to be abolished following accession since they are contrary to WTO rules.

***Duty drawbacks:*** Before WTO accession, imports of intermediate inputs used to produce goods intended for export were exempt from tariffs (the duty drawbacks system). The condition for tariff exemption was that the good had to be exported within 275 days of import of the duty-free products.

This system designed to foster exports was particularly cumbersome and gave rise to many cases of defrauding (Dimaranan, 2005). It will have to be abolished following WTO accession because it constitutes a prohibited export subsidy (see below).

***Localization ratios:*** In a number of business sectors (motor vehicles, mechanical products, and electric and electronic products, including television sets), an implicit subsidy was granted in the form of a preferential duty on imports of finished products and components for firms that satisfied certain production localization ratios.

This type of mechanism previously found in other developing countries (e.g. South Africa for cars) is prohibited by the WTO. Vietnam has therefore abolished these advantages for motorcycles since 2003 and for cars since the beginning of 2007.

### ***Export taxes remain***

The WTO rules allow Vietnam to tax exports of products in which it does not have a dominant position on the world market. Vietnam justifies these taxes on the grounds of strategic considerations, protection of natural resources and the environment, and the will to promote exports of manufactured products.

These taxes concern in particular crude oil (5%), which represents some 20% of exports, and mining products. For example, in June 2007, Vietnam announced the introduction of new taxes on exports of copper ore (10%) and nickel (5%).

## **2.2 Other non-tariff measures**

Tariffs aside, Vietnam has made some much more restrictive commitments than those set generally by WTO membership, especially as regards the abolition of export subsidies and opening up to foreign capital.

### ***Prohibition of export subsidies***

The Agreement on Subsidies and Countervailing Measures (ASCM) prohibits export subsidies on industrial products for countries whose per capita GDP is over 1,000 US dollars. Countries with a per capita GDP below this threshold are allowed to maintain these subsidies.

However, new WTO members are not entitled to this dispensation. Two countries with comparable development levels (in terms of per capita GDP), e.g. Vietnam and India, therefore have totally different leeway in this area: the former is prohibited from having any subsidies while the latter, despite its far superior size and hence potential impact on international trade, is entirely free to grant such subsidies.

In the case of Vietnam, this prohibition will force it to change its export processing zone system, which currently employs hundreds of thousands of workers (no accurate evaluation of their numbers has been published by the authorities). The benefits granted in these zones will therefore no longer be able to be linked to the businesses' export rates.

Likewise, Vietnam has had to undertake not to subsidise its agricultural exports. Cambodia also had to make this commitment when it joined in late 2003. This prohibition sets up blatant discrimination against these two new member countries, since the leading industrial countries continue to massively subsidise their agricultural exports.

Even though export subsidies are prohibited, Vietnam can continue, as a developing country, to subsidise its agricultural production provided that the rate of subsidies is less than 10% of the amount of the production of any given product. In practice, only subsidies on sugar production might have to be reduced pursuant to this rule (ADB *et al.*, 2006).

### ***Extensive reform of the commercial and legal framework***

In preparation for its accession to the WTO, Vietnam has substantially rewritten its commercial legislation and legal procedures in recent years. The legislative framework applicable to contracts, property rights and the settlement of trade disputes has hence been considerably simplified and modernized (ADB *et al.*, 2006).

Moreover, in joining the WTO, Vietnam has undertaken to give foreign businesses the same treatment as its national businesses (*national treatment* principle). A new business law was therefore passed in 2005 to apply the same regulatory framework to national (public and private) and foreign firms.

One of the consequences of the national treatment principle is that it becomes impossible for the government to continue subsidising domestic businesses. These subsidies currently take a wide range of forms (soft loans, export credits, etc.). In future, all of these aids will have to be granted on a non-discriminatory basis to all businesses, including foreign firms.

For the same reasons, state-owned companies will have to put out contracts for tender to all businesses regardless of their nationality (domestic or foreign) and award these contracts on purely commercial grounds.

Following its WTO accession, Vietnam also has to apply the agreements on intellectual property (TRIPS) bearing in mind that it already had to apply the bulk of these agreements to American businesses under the USBTA. Lastly, it has to immediately apply the agreements on sanitary and phytosanitary measures (SPS) and on technical barriers to trade (TBT).

### ***More open to foreign investment***

The foreign direct investment measures taken are in keeping with the TRIMs (Trade-Related Investment Measures) agreement.

Since Vietnam's accession to the WTO at the beginning of 2007, foreign banks can have 100%-owned subsidiaries in the country (the extent of this opening up should be kept in perspective in that the USBTA already provided for 100%-subsidiaries of American firms to be authorized by 2010). However, this measure will probably speed up the restructuring of the public banks.

In telecommunications, American companies have been entitled under the terms of the USBTA to enter the mobile telephone and Internet market since late 2005 and the fixed telephony market since late 2007. All foreign businesses now benefit from this entitlement. The maximum stake in these firms has been set at 49% and 45% respectively.

### ***Continued privatization***

The policy to privatize state-owned companies (*equitization*) was launched in the 1990s. A number of large corporations have already been privatized (Viet Nam Dairy Products Company or VINAMILK, Song Hinh-Vinh Son Hydroelectric Plant and Ho Chi Minh City Insurance) and Vietnam has announced that only companies in strategic sectors and a few very large corporations will remain in the State fold (i.e. 100% owned) in the long run. Some 600 new privatizations of state-owned companies are planned for 2007 and 2008, including large corporations such as Mobiphone, Vinaphone and the Vietcom Bank (Gide, Loyrette and Nouel, 2007). The partial privatization of the national airline (Vietnam Airlines) and a number of banks has also been announced. Foreign investors will be able to take a hand in these privatizations (conducted by floating the firms in question on the stock market). Foreign investment in the banking sector will remain more controlled than in the other sectors.

Although the commitments made in this area are different in nature to the others (they are relatively vague), Vietnam has nonetheless undertaken to send the member countries an annual progress report on its privatization programme every year. This policy is therefore largely consistent with the aim to gain recognition as a market economy from the other countries (see 2.3 below).

## **2.3 Access to the leading markets is still insecure despite the lifting of export quotas**

### ***Lifting of export quotas on the American and European markets***

One of the main gains of WTO membership for Vietnam is found in the lifting of the quotas imposed by the leading industrialized countries on its textile and apparel exports.

Since its accession, Vietnam has benefited from the new multilateral framework for textiles and the lifting of three decades of quotas imposed by the Multifibre Arrangement (MFA) in early 2005:

- The United States had imposed quotas under the terms of the USBTA, which the country lifted at the beginning of 2007;
- The EU pre-empted WTO membership and lifted the quotas on Vietnamese products at the beginning of 2005 following the signing of the bilateral agreement prior to accession (2004).



Moreover, Vietnam (which is smaller and so inevitably has less of an impact on the American market) did not have the same level of safeguard measures and textile-specific measures imposed on it as those that the United States temporarily imposed on China when it entered the WTO.<sup>6</sup>

### ***Access to the American and European markets is still insecure***

Vietnam joined the WTO with special non-market economy (NME) status (see Box 1). In imposing this discriminatory status (also imposed on China when it joined in 2001) on this country for a period of twelve years (through to 2019), the WTO has undermined access to the international markets for Vietnam's exports. The thing is that this status implies the use of a special methodology to assess antidumping cases (costs are evaluated on the basis of other countries' costs), which considerably reduces the burden of proof (Oxfam, 2004). Vietnam has therefore entered the WTO as a "second class" member, like China (McCarty and Kalapesi, 2003).

NME status therefore considerably reduces one of the main advantages of WTO membership, that is the chances of winning a case brought before the dispute settlement body should Vietnam have antidumping measures imposed on it by one of its trading partners (ADB *et al.* 2006).<sup>7</sup>

The United States has also granted temporary most-favoured-nation (MFN) status to Vietnam. Congress has still not passed Permanent Normal Trade Relation status (its last vote on this subject in November 2006 came down against the motion). So this status must be renewed yearly, which is allowed under WTO rules. Article XXXV of the GATT (and XIII of the WTO) entitles a member country to refrain from meeting its multilateral obligations towards a new member for political or other reasons. In the American case, the grounds put forward are that Vietnam prevents its citizens from emigrating (*Jackson Vanik amendment* blocking the normalization of trade relations with Communist countries).<sup>8</sup>

#### **Box 1: Non-market economy (NME) status**

At the request of the United States, Vietnam was given non-market economy status when it joined the WTO. This was also the case for China when it joined in 2001 (status still in force to date). In addition to these two countries, only a couple of former republics of the ex-Soviet Union (Kyrgyzstan and Moldavia) also have this status.

This status means that a member country can evaluate the production costs for a product exported to its market by the NME country based not on an observation of the costs in effect in this latter country, but in one or more "substitute" countries of its choice where market rules are deemed to effectively apply. It is therefore relatively easy for a country that wishes to apply antidumping measures to an NME country to prove the existence of dumping, since all you have to do is find the suitable substitute country even if the level of development and production conditions in the country are totally incomparable with the initial country (Nguyen, Nguyen and Le Thanh, 2007).

Since China's accession to the WTO, the number of antidumping actions brought against it has virtually doubled: to some 40 per year from 2002 to 2005 compared with around 20 in the years immediately preceding accession (1995-2001). Obviously, this surge cannot be put down entirely to NME status, since the boom in Chinese exports inevitably creates friction, but it has been fostered by this status since the country applying these measures stands little chance of having its case dismissed by the WTO should the Chinese complain.

When the EU imposed antidumping measures on shoe exports from Vietnam in 2006 (before its accession to the WTO), it applied NME status to this country.<sup>9</sup> The EU has been applying antidumping tariffs at a rate of 16.8% since this date on the basis of a comparison with production costs in Brazil. The result has been a sharp drop in Vietnamese exports.

<sup>6</sup> Safeguard measures can be applied to any product to block the growth of imports in the product if this growth is deemed too sharp and likely to disrupt the domestic market. Textile-specific measures go further: they block imports (and not just growth) of textiles and apparel for a certain amount of time in the event of market disruption.

<sup>7</sup> In 2004, the United States slapped antidumping measures on Vietnamese exports of catfish before the country joined the WTO. Non-market economy status reduces Vietnam's chances of winning this case at the WTO.

<sup>8</sup> Conversely, Vietnam is not bound to grant the same market opening concessions to the Americans as those it grants to other partners (should the USA withdraw MFN status from Vietnam).

<sup>9</sup> Non-market economy status is also applied by WTO member countries to non-member countries, such as Ukraine until recently.

Nevertheless, the WTO member countries (or at least some of them) could consider that Vietnam has become a market economy before the end of the given timeframe (2019). In 2007, the member countries of ASEAN (of which Vietnam is part) decided to grant Vietnam market economy status (and therefore undertake to refrain from applying different antidumping rules). Similarly, a partner country of Vietnam can choose to apply market economy status to just one economic sector (rather than the entire economy).

The vagueness of the definition of NME status, the discretionary manner in which it is ascribed and the arbitrary nature of the burden of proof to justify the introduction of antidumping measures all make the status a potentially damaging weapon against the Vietnamese economy. In particular, Vietnam's partner countries can use it for economic reasons that have little to do with the principles of healthy competition and it can even be used for political motives. It would be advisable for Vietnam to endeavour to shake off this marked source of uncertainty as soon as possible.

The main effect of this measure taken by the United States has been to increase Vietnam's vulnerability vis-à-vis the United States and the uncertainty surrounding its access to the American market (whereas one of the main aims of WTO membership is to secure this access), especially given that the country set up a mechanism in 2007 to monitor textile and apparel imports from Vietnam.

The anti-dumping measures applied by the EU to Vietnamese shoes in 2006 and the introduction by the USA of an import monitoring programme for Vietnamese textiles and apparel show that the world's two leading trade powers have placed Vietnam under observation and that its performances on the European and American markets could be put in issue at any moment.

#### **2.4 The WTO accession agreement affects all the economic sectors**

Our analysis of Vietnam's WTO accession agreement first shows that this membership is not an isolated event triggering sweeping changes to the economic and trade policies conducted by this country, but is part of a long process underway for over a decade. Our description of the main commitments made by the country then points to a few avenues that could be explored to determine the main elements to be taken into consideration to evaluate the impact of this accession.

Firstly, as regards trade in goods, the WTO's impact on tariffs has been modest overall insofar as the tariff protection rates have been gradually reduced to relatively low levels in recent decades. Most of the studies on trade liberalization (in both Vietnam and other countries) evaluate solely the impact of this tariff reduction. Yet the lifting of customs quotas (especially on the American market) is an important event, albeit hard to model, especially since the non-market economy status imposed on Vietnam permanently places a "sword of Damocles" over its access to the leading international markets.

Secondly, most of the reforms conducted for WTO accession actually concern essentially aspects other than the liberalization of trade in goods. In particular, the (already observable) positive effects of service liberalization (telecommunications, banks, etc.) on attracting foreign direct investment will combine with the positive effects of the new competition and foreign investment laws, the privatization of state-owned companies and improved market access for Vietnamese exporters. Unfortunately, the effect of these measures is much harder to evaluate using the usual tools.

All in all, there is a huge difference between the relative importance to Vietnam of the different parts of the WTO agreement (most of the commitments and impacts concern services, investments and other norms) and the variables usually introduced into the models as exogenous variables for the simulations, centred on changes in tariff protection. This discrepancy reduces the value of the studies that only consider this latter element. As we shall see in the following sections, we will endeavour to extend our scenarios to other effects that might be expected from accession.

### 3 IMPACTS OF VIETNAM'S ACCESSION TO THE WTO: A REVIEW OF RECENT LITERATURE

Following the transition of all the developing countries to export-based growth policies as promoted by the international institutions and the creation of the WTO (1995), many studies have sought to evaluate the impact of trade policies on growth and income distribution.

This section starts with a presentation of some of the general conclusions drawn by these studies and compares them with the findings of economic theory and empirical observation. It then conducts a critical review of the studies of Vietnam, focusing on those that use computable general equilibrium (CGE) models, which are ostensibly the most suitable for evaluating the macroeconomic impacts of trade policies. In addition to the findings regarding the main economic aggregates and growth, particular attention will be paid to distributional effects (poverty and inequalities).

As is generally the case for this kind of study on other developing countries<sup>10</sup>, evaluations to date of the overall impact of Vietnam's WTO membership on growth (GDP, exports, etc.) find relatively modest effects. This is because it is hard for the models used to cover all the effects. In particular, the estimates only cover the impact of trade liberalization on goods, whereas the main effects are often found in other areas (services, FDI, institutional reform, etc.). Consequently, the evaluations of distributional effects and the effect on poverty also find a relatively small impact, generally along the lines of an increase in inequalities and a reduction in poverty.

#### 3.1 The impact of the WTO on growth, poverty and inequalities

Since the 1990s, a large body of economic literature has explored the impact of trade liberalization on the developing countries. Many studies have set out to evaluate the economic impact of tariff liberalization, whether in relation to the WTO (multilateral) or in other contexts (unilateral liberalization, regional liberalization, etc.). In the most recent period and given the new poverty reduction focus of development policies, these studies have extended their coverage to evaluating the distributional impact and effect of trade policies on poverty.

##### *The macroeconomic impact (growth and trade)*

Virtually all the studies use CGE models to evaluate the macroeconomic impact of WTO accession. To our knowledge, only two studies have used an alternative method based on gravity models (see Box 2).

#### **Box 2: Gravity models and computable general equilibrium models in the evaluation of trade policies**

**Gravity models** are econometric models used to explain the intensity of trade between two countries and, by extension, the extent of trade by a given country with all its partners.

The principle of gravity models is based on the theory of gravity. By analogy with Newton's law, these models state that the intensity of trade between two countries depends on the relative size of their economies (generally measured by GDP) and is negatively linked to the transaction costs between them. These costs are generally estimated by the distance between the countries, to which are added other factors (landlocked status, insularity, existence of a border between the two countries, etc.). This corresponds to the assumption that trade costs increase with distance; that a country's landlocked status increases its transaction costs and that, conversely, this cost is reduced for two neighbouring countries. These specifications are econometrically parameterized.

Gravity models are frequently used to evaluate the impact of free trade agreements and, more recently, to study the impact of WTO membership on a given country's foreign trade. This is because, among other things, these models have considerable power to explain bilateral trade flows.

<sup>10</sup> With the exception of studies that include ad-hoc hypotheses of the effects of the trade policies on productivity and growth, which in effect magnify the impact of these policies.

**Computable general equilibrium (CGE) models** are non-econometric models representing a country's economy. They are based on the assumption of rational optimising behaviour by economic agents, which underlies Walras' general equilibrium theory. This theory (termed "neoclassical") states that households optimise their utility under the constraint of income and businesses maximise their profits.

To take the case of households, households are considered to be both consumers and owners of production factors (labour, capital, etc.). Household income is used to consume, which procures them utility. The CGE models are based on the assumption of "representative agents" (households and businesses). This assumption posits that all households have identical characteristics (at least within a given group such as skilled workers) in terms of utility function and factor endowments.

The CGE models are based on two types of data: 1/ a social accounting matrix (SAM) drawing on the country's national accounts, which provides an accounts-based representation of interactions between sectors and economic agents. Each sector of the economy is assigned a row (as a receiver of income) and a column (as a source of expenditure); 2/ the agents' behaviour functions (e.g. consumption function), for which the parameters are calibrated.

The simplifying assumptions underlying the CGE models have been gradually lifted as modelling and economic theory have moved forwards:

- Whereas all the models were initially static, the dynamic dimension has gradually been introduced;
- The assumption of perfect competition no longer applies to all transactions and economic sectors; in particular, the existence of export and import functions is based on the assumption of differentiation of internationally traded products and imperfect competition;
- Lastly, the representative agent assumption does not really allow for the distributional impact of a shock to be evaluated; the households therefore need to be differentiated, which is the purpose of the micro-simulation models in which each household is considered individually.

The CGE models are the most frequently used tool for evaluating the impact of economic policies (and trade policies in particular). Their advantage is that they provide a precise quantitative answer regarding the impact of a policy change while ensuring that the results are consistent from a theoretical point of view.

Source: Piermartini and Teh (2005)

The first study (Frankel and Rose, 2002) concludes that once gravity effects are taken into account, there is no significant additional effect on trade due to WTO membership (except where fixed country effects are introduced to take into account the unique characteristics of each country). The second study (Subramanian and Wei, 2003) estimates the same type of model and comes to quite the opposite conclusion, that is that WTO membership generates some 30% more trade for new members, with a more modest impact for the poorest developing countries.

Nevertheless, there are two major drawbacks to using gravity models: 1) there is no underlying theoretical model, and 2) they cannot evaluate the impact of the WTO on a given country. Lastly, gravity models can be used to measure *ex post* the deviation between actual observation and the model's predictions, which can be attributed under certain assumptions to the WTO effect, but cannot predict this impact *ex ante* (which is precisely what we want to do here with Vietnam). The rest of this section will therefore present a critique of the studies using CGE models, which are also in the majority.

The computable general equilibrium (CGE) models are largely used to evaluate the impact of multilateral trade agreements concluded under the WTO, unilateral trade liberalization policies and regional agreements. Note, however, that these models focus on analyzing the effects of trade liberalization measures applied upon WTO accession. They rarely consider other types of measures flanking this accession (such as changes in the legislative and regulatory framework governing the business environment), which are much more complicated to model.

Unlike economic studies that seek to demonstrate empirical relations based on regularities observed in the past (see, for example, the case of the gravity models), the CGE models with their neoclassical structure are based on strong assumptions: agent behaviour (households, businesses, etc.), market operations, and "calibration" of structural parameters.

Given these characteristics, these models are useful more from the point of view of revealing the mechanisms at work than putting a precise figure to the impact of economic policy decisions. They are used (give or take a few rare exceptions) to simulate *ex ante* the impact of the trade policy measures and not to explain *ex post* the impact of these policies in the past.

Most of the CGE models are based on assumptions of perfect competition on the goods and factor markets, constant returns to scale, full factor employment, and perfect labour mobility from one sector to another. Two types of simulations (or scenarios) are most frequently put forward using these models (excluding regional trade policies, which are not covered by our study), bearing in mind that a country's accession to the WTO combines, to a certain extent, both these effects.

*The impact of multilateral liberalization* (of the Doha Round type) is evaluated using multinational models. The reduction or abolition of tariffs worldwide on a given product results in an increase in world trade in this product. This represents a global income gain, due to the increased efficiency of factor use in each country and the additional purchasing power associated with the consumption of cheaper goods (conclusion when using a Heckscher-Ohlin model). In each country, the relatively most abundant factor will gain from the trade (increase in its remuneration due to greater demand for the factor) and the relatively least abundant factor will lose out.

All the countries share the net gain secured from the improved factor use worldwide, although variations in the terms of trade (ratio of export prices to import prices) in each country can increase or reduce this gain. The transfer effect of these terms of trade variations is zero worldwide.

GTAP (Global Trade Analysis Project) is the world leader in this kind of work.<sup>11</sup> The World Bank makes an evaluation every year of the gains to be expected from a WTO agreement based on the trade protection data supplied by GTAP. For example, according to the World Bank's estimates (2005), a full trade liberalization agreement (lifting of tariffs and quotas on all merchandise along with the abolition of agricultural subsidies) signed under the Doha Round would generate a global gain of 1.2% of national income for the developing countries by 2015 (0.8% for the entire world economy), albeit distributed highly unevenly among the countries.

*The impact of unilateral liberalization* (of the structural adjustment programme type) conducted in a single country is evaluated using national models. In the case of a small country (price taker, i.e. which has no influence on world prices, but for which these prices are exogenous), unilateral liberalization is always positive in terms of the country's total income; it reduces the distortions due to the existence of tariffs and hence improves productive efficiency.

Whatever the scenario envisaged, these models find modest effects (gains or losses) on each country, totalling a few GDP points at most in terms of level (Cling, 2006). Empirical observation of the link between trade policies and growth (country studies) also suggests that the effect is indeed modest in most cases, in keeping with the findings of the CGE models. There is a relative consensus among economists these days that the effect of the trade policies has been overestimated compared with the effect of other types of policy and other economic factors (World Bank, 2005) and that unilateral or multilateral liberalization has sometimes had negative effects on certain countries (African LDCs in particular).

Having said this, there are two main reasons why the CGE models find such modest effects, based on to their failure to take into account all the possible impacts of the policies: their oversimplified specification and the difficulty of putting accurate figures to the WTO agreements over and above the liberalization of trade in goods. In certain cases, improving the realism of the model specifications and simulation scenarios produces findings of much greater trade policy impacts. In addition to scientific considerations, this honing work also satisfies the concern to better substantiate the grounds for this type of policy and satisfies academic considerations (obtain significant findings).

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<sup>11</sup> See the list of publications on the website: [www.gtap.agecon.purdue.edu/about/project.asp](http://www.gtap.agecon.purdue.edu/about/project.asp)

Concretely and as regards the CGE models,<sup>12</sup> these exercises relax the usual simplified assumptions: assumptions of imperfect competition and growing returns, externalities (technology transfers) derived from growth in trade with a productivity surplus; introduction of unemployment and underemployment; direct investment surplus assumptions, etc. Most of these assumptions are largely *ad hoc*. Robinson and Thierfelder (2002) called this amplification process “*the quest for large numbers*” (title of their paper).

Most of the CGE models are static, i.e. they only cover one time period. One particular upshot of this is that productive capital is fixed and hence that investment affects demand, but not the productive supply. In recent years, there has been a move to build dynamic models; in these models, agents reason in an intertemporal manner; the investment decision in each period is made based on the expected return for all the coming periods; productive capital varies in line with investment and equipment obsolescence.

Dynamic models such as the CEPPII multinational Mirage model (Bchir *et al.*, 2002) incorporate the effects of trade policies on growth. Nevertheless, consideration of these effects is handicapped by the gaps in our theoretical and empirical knowledge of the openness-growth link (Cling, 2006).

All in all, despite their growing sophistication (consideration of the dynamic aspect and imperfect competition, etc.) and their heuristic value, the findings of CGE models are ultimately not very robust. These models approximate the effects of economic policy measures based on given assumptions. Moreover, since they fail to take into account the dynamics in their entirety and the adjustment costs, these models essentially analyze the long run, the paradox being that long-run mechanisms (e.g. the impact of openness on direct investment) are very hard to incorporate into the models.

### ***The impact on inequalities and poverty***

Analysis of the impact of trade liberalization on inequalities and poverty is a very recent field of research. Standard economic theory on international trade provides a model of income distribution trends following the development of trade. In the simplest set-up (Heckscher-Ohlin model), demand for the most abundant production factors increases and their relative remuneration rises (Stolper-Samuelson theorem) with growth in trade. So a developing country with abundant unskilled labour (and with less abundant skilled labour) would be expected to post a simultaneous reduction in inequalities and poverty.

The direct relation between trade and poverty is of interest only at the bottom of the income distribution. A trade liberalization measure (e.g. imported rice tariff reduction) could have a direct effect on the poor in a static approach (positive effect for consumers due to a drop in prices or negative effect for farmers due to a drop in their selling prices in addition to an impact on factor demand). Yet this measure could also have dynamic effects. For example, where openness has a positive impact on growth you would expect to find a downturn in poverty. Yet this impact depends on any change there may be in inequalities and their level, given that an upturn in inequalities can increase poverty (called “impoverishing” growth) and that, for example, a high level of inequalities reduces the elasticity of poverty to growth (Bourguignon, 2003; Cling *et al.*, 2004). We are therefore faced with potentially contradictory effects whose outcome is hard to determine.

The general equilibrium analyses simultaneously evaluate the impact of the effects (prices of goods and factors, central government revenue and expenditure, and effects on investment and growth in the case of dynamic models) while considering the agents’ response to these shocks. The CGE models used to evaluate the overall impact of trade liberalization (see Box 2 above) can also be used to evaluate its impact in terms of poverty and inequalities, provided that the households are sufficiently detailed by type and level of income.

The macro-micro model approach takes things a step further since it disaggregates all the households (hence relaxing the representative agent assumption) and models their behaviour at individual level

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<sup>12</sup> The potential impact is greater in absolute value, but it could be lesser, if not negative, in reality.

while taking into account the impact of this behaviour in the macroeconomic model (Cogneau, Grimm and Robilliard, 2003). It is based on the development of micro-simulation models (coupling CGE models and micro models), which has been made possible both by the availability of new household survey data and by the increased computing power of IT tools. As pointed out by Winters, McCulloch & McKay (2004), the *ex-ante* simulations made by these models are useful in that they help identify the household categories vulnerable to this type of shock.

The simulations of the distributional impact of trade liberalization using CGE models produce relatively contradictory findings. Mabugu and Chitiga (2007) consider that the impact on the poor is negative in the short run and positive in the long run in the case of South Africa. The same goes for Annabi *et al.* (2005) in the case of Senegal. Bannister and Thugge (2001) quote studies (South Africa and Indonesia) that posit that liberalization has a negative impact on the poorest households. Robilliard and Robinson (2005) use a micro-simulation model to simulate the impact of different trade liberalization scenarios and find that they all result in poverty reduction, without any variation in income inequalities.

Observation of developing countries shows that, despite greater openness: a) inequalities (especially wage inequalities) have rather tended to increase (World Bank, 2000; Goldberg and Pavcnik, 2007), particularly in the case of Latin America, but also China, Vietnam, etc.; and b) the impact of trade liberalization (but not of trade) on poverty appears to be very small (Wade, 2004). These observations contradict both the conclusions of standard economic theory and the findings of the CGE models (based in general on this theory).

Several economists have endeavoured to explain this paradox since the beginning of the 2000s with arguments based on both the countries' factor endowments and the functioning of the markets, which are seen to be out of line with the assumptions of standard theory.

The factor-specific models consider, for example, that certain factors are only used in a given sector, such as skilled labour in the aeronautics sector, without the possibility of mobility to another sector (Jones, 1971). In these models, price changes have an unambiguous effect on the remuneration of specific factors (independently of capital intensities). International trade benefits the production factor specific to each country's export sector, while it undermines the position of the factor specific to the competitive import sector. Yet the net effect on the mobile factor (work, for example) is unspecified: the unskilled workforce's relative remuneration in the developing countries could fall following the opening up.

In countries with relatively abundant unskilled labour resources, trade liberalization tends in principle to reduce poverty via growth in exports of labour-intensive goods. However, in countries whose comparative advantage lies rather in the abundance of their natural resources (the case of numerous Latin American and African countries), trade liberalization could be thought to stimulate these sectors rather than the labour-intensive sectors (Wood, 1997).

It is also possible that skilled workers in developing countries could correspond to low-skilled workers in industrialized countries, which would explain why workers in this category benefit from an increase in trade in the developing countries (Freeman, 2003).

Whatever the case, given the sometimes negative findings observed in other developing countries in the past, it is particularly important to evaluate the potential impact of Vietnam's WTO membership in order to look now into the flanking policies that should be implemented.

### **3.2 The case of Vietnam: the impact of WTO accession**

Vietnam is the first emerging Asian country to join the WTO since China in late 2001, bearing in mind that the accession negotiations took nearly twelve years from their start in 1995. It is hardly surprising, therefore, that many studies have sought to evaluate the impact of this membership in both overall

macroeconomic terms and in terms of its distributional effects. This section presents a summary of these studies, highlighting the main resulting messages and the shortcomings of the models used.<sup>13</sup>

As mentioned in the first section of this study, the Vietnamese economic growth model has been characterized by two major elements since the adoption of *Doi Moi* in 1986, which led to WTO accession in early 2007:

- Extremely rapid economic growth (nearly 8% per year on average over the last two decades) along with an even faster opening-up of the economy (nearly +20% per year for exports on average over the same period and an equivalent rate for imports);
- A very sharp reduction in monetary poverty (concerning 58% of the total population in 1993 and only 24% in 2004) along with an increase in inequalities; here again, as in China, the question of the distribution of the fruit of growth and openness is crucial to the country's social cohesion and political stability.

Given these circumstances, the question of the WTO's impact on economic growth (will we see additional income or growth as of 2007?), on inequalities and on poverty is extremely important.

### ***The impact on growth***

The macroeconomic impact of WTO accession on Vietnam has been evaluated by a number of studies based on CGE models. These were conducted before accession and are hence *ex-ante* studies (see definition above).

The models used have a number of characteristics in common. Most of them are based on assumptions of perfect competition (except Vanzetti and Huong – 2006 – who include unemployment). None of the studies considers growing returns to scale. Despite the availability of disaggregated data with a level of detail of 100 products (Social Accounting Matrix), the studies take a relatively aggregate view (generally just 20 sectors). Lastly, none of the studies takes into account the dynamic effects and all the models used are static (with the exception of the CEPII/ISD study, 2007; we do not comment on this study here since it was not yet finished at the time of writing).

Some studies (Dimaranan *et al.*, 2005; Nguyen and Ezaki, 2005) use the GTAP multinational CGE model to incorporate the impact of Vietnam's membership on other countries (improved access to their market for Vietnamese products, variation in world prices, etc.)

**Table 7: Forecasts based on 23 scenarios from studies using CGE models on the impact of Vietnam's accession to the WTO (% variation)**

Study	No. of scenarios	GDP		Exports		Imports	
		Min	Max	Min	Max	Min	Max
Roland-Holst <i>et al.</i> (2002)	7	0.2	3.3	0.6	12.1	n/a	n/a
Vanzetti & Huong (2006)	4	4	15	-2	56	-1	36
Dimaranan <i>et al.</i> (2005)	2	6.74	7.88	15.22	18.81	n/a	n/a
Fujii & Roland-Holst (2007)	3	-0.27	5.31	-0.82	20.53	-1.28	27.54
Fukase & Martin (1999) <sup>(1)</sup>	3	0.4	2.4	0.3	8.8	n/a	n/a
Tarp Jensen & Tarp (2005)	3	0.0	0.1	0.6	2.2	0.5	2.1
Nguyen & Ezaki (2005)	1	-0.55	-0.55	18.24	18.24	15.39	15.39

Source: Based on Abbott *et al.* (2007); updated by us.

(1) Effect of the United States granting most-favoured-nation status to Vietnam.

<sup>13</sup> This section refers to a number of comments taken from a critical review of literature by Abbott *et al.* (2007).



Table 7 presents the overall findings. WTO accession has given rise to trade liberalization by Vietnam vis-à-vis the rest of the world and by the other WTO members vis-à-vis Vietnam. Nevertheless, insomuch as most of the member countries already granted Vietnam the benefit of the most-favoured-nation (MFN) clause, accession reads more like a unilateral liberalization process conducted solely by Vietnam<sup>14</sup>. In general, these studies take little account of tariff reductions (see also and in particular the problem of converting non-tariff barriers) and none of them is based on the specific tariff reduction provided for in the WTO agreement.

*The impact of unilateral trade liberalization* (scenario chosen by a number of studies) is always positive, under the abovementioned assumptions, and in the case of a small country (i.e. which does not influence world prices). Nevertheless, the studies all find relatively modest gains – the maximum gain found for Vietnam is 3.3% of GDP (Roland-Holst *et al.*, 2002) – with the exception of two recent studies that relax the assumption of perfect competition and full factor employment. For example, Vanzetti and Huong (2006) find a 15% increase in GDP when they incorporate unemployment. Dimaranan *et al.* (2005) find a 7.9% upturn in GDP in the case of full trade liberalization, i.e. taking things much further than required by WTO accession alone (but the impact is reduced by 70% when considering the WTO-imposed abolition of duty drawbacks, which provide duty-free entry for imports of inputs used to produce export goods).

*The impact of multilateral trade liberalization is either positive or negative, depending on the study.* Nguyen and Ezaki (who also evaluate the impact of several regional integration scenarios, which we do not comment on here) find a –0.5% decrease in GDP (with a sharp rise in consumption), based on rather unrealistic assumptions of the government not absolutely offsetting its drop in revenue (over 40% drop in revenue and public spending). Tarp Jensen and Tarp (2005) obtain a gain of 5.3 GDP points in the case of multilateral liberalization (combined with unilateral liberalization following WTO accession).

As pointed out by Abbott *et al.* (2007), all these studies find extremely modest impacts compared with Vietnamese growth (7% to 8% per year on average, which corresponds to a doubling of GDP every ten years). The same could be said of the impact on exports (10% to 20% in the long run), compared with growth of nearly 20% per year for exports! This hiatus could be interpreted in two ways: either the reasons for Vietnam's growth are only marginally due to trade liberalization or the studies massively underestimate the real impact of these policies.

The authors observe that the bilateral trade agreements signed by Vietnam in the past (ASEAN, USBTA, etc.) have generated much larger new trade flows than those resulting from tariff reductions, which, all things considered, are modest. These new flows have seen the emergence of new traded products (with relatively keen specialization). So experience suggests that WTO membership will continue to drive up Vietnamese growth based on the development of international trade.

As is generally the case with the trade liberalization impact studies based on CGE models (see 3.1 above), the studies on Vietnam suffer from two main shortcomings: unrealistic model specification and the fact that the simulations focus on the (modest) reduction in tariffs and not on other more substantial effects. The low level of the findings is due primarily to the combination of these two effects.

*All the models used to date have therefore adopted a purely static approach* (with the exception, yet again, of the CEPII/ISD study not commented on here). Yet the static surplus associated with tariff reduction (Harberger triangle of gain associated with reallocation) is inevitably modest, especially since Vietnam's tariffs are low and the tariff reductions following WTO accession are relatively modest. In the mid-1990s, attention turned to the dynamic gains of trade liberalization (pro-competitive effects, productivity gains, etc.), deemed necessary to obtain substantial impacts. Yet these effects were modelled using largely *ad-hoc* specifications without being underpinned by explicit

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<sup>14</sup> In actual fact, Vietnam also benefits from improved market access due to the lifting of the quotas imposed on its textile exports, in particular by the United States and the European Union.

growth models. Roland-Holst *et al.* (2002) included productivity gains that they attributed to the reform of domestic policies. Yet these gains are introduced exogenously into the model.

*The non-tariff aspects of the WTO (competition, direct investment, etc.) should also be included in the simulations.* In particular, the institutional reforms accompanying the accession process need to be considered to predict the impact of Vietnam's WTO accession. The only study to have considered "pro-competition" effects in the case of Vietnam is the paper by Dee *et al.* (2005) on trade in services (not included in Table 7). The idea is that the opening up of the sector to foreign firms reduces the domestic firms' power of monopoly. Nevertheless, Abbott *et al.* note that the experience of other countries shows that a state monopoly is generally replaced by a monopoly/oligopoly of multinational firms (so there is no benefit of reductions in monopoly/oligopoly rents).

*Lastly, mention should be made of the problems encountered with modelling the extremely rapid opening-up of the Vietnamese economy.* Abbott *et al.* criticise in great detail the export (and import) demand function specifications. For example, the Armington substitution elasticities<sup>15</sup> are never estimated in the case of Vietnam due to a lack of data. Given the extremely sharp growth in exports, it could be assumed that the elasticities usually used in the models are not suitable (for example, these elasticities cannot be used to predict the impact of the USBTA).

### ***The distributional impact of WTO accession***

Two of the studies presented in the previous section focus on evaluating the distributional effects of WTO membership, and more particularly on the impact in terms of poverty. These studies combine the use of a CGE model with a micro-simulation model.

As stated by Abbott *et al.*: "Not surprisingly, low GDP impacts [found by the impact studies] make poverty predictions from trade liberalization inconclusive." So the direction of the effect varies depending on the studies, the scenarios presented and the macroeconomic closure assumptions. It depends in particular on the type of fiscal policy adjustment, which has at least as large an impact as tariff reductions.

*The first study* conducted by Tarp Jensen and Tarp (2005) uses a CGE model based on the 2000 VSAM developed by the authors (Tarp Jensen *et al.*, 2004). The model is coupled with the 6,000 1997/1998 VLSS survey households, representative of the entire Vietnamese population. Three types of micro-simulations are made:

- In the first, and also the most detailed, the 6,000 households' income and consumption distributions are modelled endogenously;
- In the second, the variation in the consumption of a set of 16 groups of representative households provided by the CGE model is applied to the consumption of the representative sample to deduce the consumption and poverty indices for all the households in the survey (top-down approach with aggregate consumption);
- In the third, the same top-down procedure applies the variation in factor prices to the 6,000 households based on their factor endowments to obtain the change in their income.

Three scenarios are then simulated: the elimination of export taxes; full trade liberalization (total elimination of import taxes); and the combination of these two scenarios.

Tarp Jensen and Tarp (2005) posit that when customs tariffs are eliminated, but government revenue remains unchanged (i.e. their disappearance is offset by an increase in other taxes), poverty increases. However, should the government decide not to offset the loss in customs revenues with an increase in taxes, the poverty gap would decrease 9%.

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<sup>15</sup> The Armington elasticities are defined as the variation in import demand for a 1% price change (CES functions: Constant Elasticity of Substitution). This also holds for the export demand functions.

A geographic breakdown into three regions (North, Centre and South) highlights the fact that poverty falls the most in the South in this latter case while the improvement in the North is less substantial.

This study suffers nonetheless from a methodological simplification in that the social accounting matrix that details the distribution of value-added by the different production factors presents the same structure for all the economic sectors (see below). This simplification largely limits the realism of the distributional impact of an economic policy simulation.

Fujii and Roland-Holst (2007) note that the majority of the rural poor have two channels by which they can participate in urban-based growth: migration and trade in agricultural produce. Yet none of the studies on Vietnam to date has considered migration. Therefore, if Vietnam, with its low level of urbanization where 75% of the population live in a rural area (mainly engaged in agricultural activities), is to benefit from WTO membership, it is vital for this agreement to generate gains for the agricultural sector and rural households.

The second study by Fujii and Roland-Holst (2007) uses an integrated micro-simulation model (CGE-1997/1998 VLSS). The authors also evaluate the geographic impact of WTO membership on poverty at the most detailed level, by drawing up “poverty maps” using the methodology proposed by Elbers *et al.* (2002, 2003)<sup>16</sup>.

The price and volume assumptions are provided by GTAP. The CGE model assumes full factor employment with labour and capital being mobile across economic sectors. Land is the factor specific to agriculture. Lastly, there is no imperfect competition or economies of scale or dynamic gains from trade.

Three scenarios are proposed:

- *UL (Unilateral Liberalization)* corresponds to WTO accession (taking into account only a tariff reduction effect on the Vietnamese side and the removal of export subsidies)<sup>17</sup>;
- *FL (Full Liberalization)* corresponds to WTO accession coupled with multilateral liberalization (hypothesis of a WTO agreement);
- *DSDT* corresponds to an FL type scenario, but one in which Vietnam removes its export subsidies, but preserves the benefit of SDT (special and differential treatment granted to developing countries); this means a lesser tariff reduction and domestic production support.

National poverty decreases 0.8% in the *UL* scenario and 6.8% in the *FL* scenario, while the poverty rate increases 0.6% in the *DSDT* scenario.

At regional level, the changes in poverty rates vary enormously, ranging from –2.4% to –14.3% in the *FL* scenario. These deviations are due to differences in the initial income distribution and also heterogeneity in the composition of the households and individuals. Another salient finding is the strong correlation between the initial poverty rate (*ex ante*) and the change in poverty in the different regions under the two *FL* and *DSDT* scenarios (–0.71 and –0.60). The *FL* scenario reduces poverty the most both nationally and in the poorest regions.

However, despite this correlation, regional differentiation becomes keener: poverty decreases the most (except under *DSDT*) in the coastal regions while the North-West of Vietnam and the Laos-Vietnam border show no significant improvement (although no deterioration either).

We will wind up this review of the recent literature by presenting two studies that evaluate the impact of trade liberalization *ex post*. Both studies analyse the change in income and consumption of a panel

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<sup>16</sup> The poverty maps use the 1999 census data combined with the 1997/1998 VLSS data. The principle of the poverty maps is to estimate income equations using the household surveys (VLSS here) and then to apply these predictive equations to the entire population (census data). Poverty can therefore be estimated by this method for any individuals based on their individual characteristics as identified by the census (which can be used to predict their income) and therefore for any geographic area, however small it may be.

<sup>17</sup> Yet this scenario apparently does not include improved market access due to WTO membership (in particular, the lifting of quotas imposed by the United States and the European Union).

of 4,300 households over the 1992/1993-1997/1998 period. The households were interviewed twice five years apart by the VLSS survey. The papers seek to identify the impact of trade liberalization based on the effect of price variations in selected agricultural products: both food crops (rice), produced or consumed (or both) by the households, and cash crops (coffee). Unlike the studies made using CGE models, these are partial equilibrium analyses based on the estimation of econometric models using microdata.

Niimi, Vasudeva and Winters (2003) estimate multinomial logit models applied to changes of state with regard to monetary poverty, given that half of the poor households in the panel broke out of poverty over the period (with a marginal number falling into poverty). Their findings show that a one standard deviation increase in a household's production of coffee more than doubles its chances of breaking out of poverty, while a rise of the same amount in rice production increases these chances by over 50%. The authors conclude that trade liberalization has a considerable positive effect on the households studied.

Isik-Dikmelik (2006) estimates multivariate regression models using the same panel of households. He observes much sharper growth in agricultural income than in the other components of the rural households' incomes. He concludes from this that the reforms implemented in the 1990s, especially the liberalization of rice, produced a substantial improvement in welfare.

This approach is interesting in that it is based on extremely limited theoretical assumptions and identifies detailed microeconomic effects. However, it remains essentially descriptive and confined to a very short time period (five years) for which the household panel data used is available. Most importantly, the method used does not differentiate between the different factors that influenced the change in the prices studied (in particular the relative effects of the domestic and trade policies, world price trends, etc.). It therefore falls foul of the critics of before-after methods, since the causal link between implemented policies and welfare is in no way guaranteed. It is therefore untenable to attribute the observed effects, as the authors have done, solely to the impact of the trade reform.

### **3.3 The shortcomings of the studies on the WTO's impact on Vietnam**

All in all, this section shows that the studies to date of the WTO's impact leave certain things to be desired. Firstly, most of them look at the impact of trade liberalization and not specifically at WTO accession. Secondly, they are generally too aggregated to be able to evaluate the distributional impact of these policies.

In the case of Vietnam, the studies suffer from the same shortcomings and only very partially cover the impact of the WTO:

- The studies measuring the *ex-post* effects of trade liberalization provide little directly useable information to evaluate the potential impact of accession; basically, these studies mix different effects that transcend trade liberalization *per se*;
- The *ex-ante* studies made using the CGE models evaluate primarily the impact of tariff liberalization without incorporating the other WTO effects; in addition, they are generally too aggregated and do not allow for the distributional aspects of this impact to be studied.

This is why further work is warranted in this field in order to include other sources of WTO impacts over and above the tariff shock and to hone the effect of this event on the different household categories. This work is presented in the following section.

## **4 ANALYSIS OF THE DISTRIBUTIONAL IMPACT OF VIETNAM'S ACCESSION TO WTO: SIMULATION BASED ON A MACRO-MICRO MODEL**

This section evaluates the distributional impact of Vietnam's membership of the WTO using a computable general equilibrium model (CGEM) applied to the Vietnamese economy and centred on the questions raised in the first three sections of the study. The CGE models' detailed representation of

trade flows means they can be used to simulate liberalization policies and are therefore often employed to analyse the impact of this type of policy. These models can also be combined with micro-simulation models to make a more detailed analysis of the distributional impact of the policies considered.

In our study, exploratory simulations are made using a static CGE model built based on a recent social accounting matrix (dating from 2000) and sequentially linked with a micro-accounting micro-simulation model in order to analyse the distributional issues. This type of tool has already been used to study, among other things, the impact of poverty reduction policies in Madagascar (Cogneau and Robilliard, 2001) and trade policies in Indonesia (Robilliard and Robinson, 2006).

This section is made up of three sub-sections. The first sub-section briefly analyzes the labour market structure and changes (employment and income) over the 1997-2004 period to clarify the basic environment in which the households will be affected by WTO membership. The second sub-section presents a brief description of the different stages in the construction of the macro-micro model in relation to the WTO accession shocks that we propose to model. The last sub-section analyses the findings of the different simulated scenarios.

#### **4.1 Labour market structure and dynamics in Vietnam from 1997 to 2004**

A large part of the macroeconomic “shock” occasioned by WTO accession will filter down to the households via the labour market (factor endowments and return on factors). The type of factors held by each household (more or less skilled labour), their remuneration (growth in wages and earned income) and their utilization rate (*ex-ante* volume of available employment) will play a key role in the households’ capacity to take advantage of the macroeconomic dynamics. For example, an increase in unskilled employment and wages in the textile sector will benefit primarily those households relatively the most endowed with this type of factor and which can increase their participation in the labour market.

The use of VHLSS (Vietnam Household Living Standards Survey) surveys paints a relatively accurate picture of the labour market configuration in Vietnam. The 2004 VHLSS survey, the most recent available to date, provides the weight and structure of the workforce by skills, and its breakdown by economic sector and region. These are key aggregates to understanding how earned income is distributed among the population. These data are all the more informative in that we used the 2004 VHLSS survey to both update the 2000 social accounting matrix (based on the 1997-1998 VLSS survey) and as the foundation for the different micro-simulation exercises. Moreover, there is a wealth of information to be garnered from comparing the developments observed in recent years. Inasmuch as WTO membership crowns a long process of international integration, the trends observed in the recent past should point in the direction of the main mechanisms at work. To do this, we analyse the last three surveys conducted in Vietnam in 1997-1998, 2002 and 2004.

##### ***The rising rate of wage employment***

Vietnam’s impressive economic growth over the last decade has triggered a sharp increase in the rate of wage employment, which is one of the striking facts of the labour market developments in recent years: the rate rose from 19% in 1997 to 32% in 2004 (Table 8). Starting out from very different levels at the beginning of the period, this rate has risen across all the regions. Even in regions where wage employment remains limited (North-East and North-West, and the Central Highlands), its weight has risen considerably. As might be expected, the rate of wage employment is highest in the South-East province (around Ho Chi Minh City): by the end of the period, nearly half of all workers were wage earners.

**Table 8: Rate of wage employment by region 1997-2004**

%	Population 2004	Employed workers 2004	Rate of wage employment		
			1997	2002	2004
<b>North-East</b>	11.4	12.1	9.2	18.6	20.3
<b>North-West</b>	3.0	3.0	4.5	13.4	13.6
<b>Red River Delta</b>	21.8	23.0	16.5	31.5	34.9
<b>North Central Coast</b>	12.8	12.2	13.0	18.2	20.6
<b>South Central Coast</b>	8.6	8.3	23.2	31.0	33.7
<b>Central Highlands</b>	5.7	5.1	4.4	19.5	22.3
<b>South-East</b>	15.9	14.9	37.0	48.1	49.5
<b>Mekong River Delta</b>	20.9	21.5	19.3	32.6	33.1
<b>Total</b>	100	100	18.6	29.5	31.8

Sources: VLSS 1998, VHLSS 2002 and 2004; our own calculations.

The rate of wage employment can be analyzed based on the typology used in the Social Accounting Matrix – SAM – to disaggregate the factors (area of residence, gender and skills; see Section 4.2).

Firstly, over three-quarters of employed workers live in a rural area. A total of 80% of the workforce are unskilled (i.e., according to the SAM, those who have not been educated past lower secondary school level; Table 9). Some 15% are considered to be semi-skilled (those who have been to upper secondary school). The skilled workforce (higher education) accounts for just 5% of employed workers. Note that the structure of skills barely moved over the 1997-2004 period.

Secondly, wage employment is obviously more developed among the most skilled manpower: 86% among the highly skilled as opposed to barely one-quarter among the unskilled. It is also more prevalent among urban dwellers and among men. As already mentioned, the spread of wage employment has affected all population categories even though substantial differences in level subsist. Although these deviations will probably continue in the coming years, it could be assumed that the rate of wage employment will continue to rise across all population categories (available manpower is becoming rarer among the most highly skilled).

**Table 9: Rate of wage employment by population type 1997-2004 (residence, gender and skills)**

%	Structure* 2004	Rate of wage employment		
		1997	2002	2004
<b>Rural</b>	75.7	12.2	23.7	25.2
<b>Urban</b>	24.3	42.4	50.4	52.4
<b>Male</b>	50.2	23.2	36.8	39.0
<b>Female</b>	49.8	14.3	22.3	24.5
<b>Unskilled</b>	80.2	14.4	23.3	25.1
<b>Semi-skilled</b>	14.8	30.7	44.1	49.4
<b>High skilled</b>	5.0	70.0	87.5	86.4
<b>Total</b>	100	18.6	29.5	31.8

Sources: VLSS 1998, VHLSS 2002 and 2004, our own calculations.

\*: All employed workers.

Wage employment grew particularly sharply in the industrial sector (inc. construction) from 1997 to 2004: +18 percentage points in textiles, +16 points in other manufactured goods, +9 points in construction (Table 10). Although wage employment in the agricultural sector is thin on the ground and appears to have stagnated at a low level since 2002 (less than 10%), there has been an increase in the rate of wage employment in the fishing sector (+12 points) following the boom in fish farming. In terms of structure, agricultural employment has fallen 14 points from two-thirds to half of the jobs held. This downturn in agriculture has occurred in equal proportions to the rise in services and the manufacturing sector. It is in this latter sector where employment has risen the most sharply (approximately 20% of all jobs in 2004).

**Table 10: Rate of wage employment by economic sector**

%	Structure (employed workers)			Rate of wage employment		
	1997	2002	2004	1997	2002	2004
<b>Agriculture</b>	65.2	52.3	51.0	4.6	10.4	8.2
<b>Fisheries</b>	1.9	3.0	3.3	15.6	31.0	27.3
<b>Food</b>	2.3	2.4	2.6	40.9	46.9	46.6
<b>Textiles</b>	2.8	3.7	3.5	53.9	60.2	72.2
<b>Other manufacturing</b>	5.1	7.1	7.0	52.0	60.0	68.0
<b>Construction</b>	2.3	6.1	5.2	88.6	74.5	97.3
<b>Services</b>	20.4	25.5	27.5	39.9	43.4	47.6
<b>Total</b>	100	100	100	18.6	29.5	31.8

Sources: VLSS 1998, VHLSS 2002 and 2004, our own calculations.

### ***A large portion of underemployment among the labour force***

The capacity to respond to a potential labour demand shock will depend, among other things, on the volume of labour available in the economy, in relation to its *ex-ante* utilization rate. If the Vietnamese economy posts full labour factor employment, a positive demand shock will push up wages. However, if a portion of workers is underemployed, the demand shock could be absorbed by an increase in employment, an increase in wages or both at once.

The VHLSS surveys can be used to calculate an indicator of the labour factor utilization rate. This indicator is defined as the ratio of the number of hours actually worked in the year (all jobs together) to the number of potential hours (each member of the labour force – employed workers and unemployed – being able to work a maximum of 48 hours per week, which is the statutory working week in Vietnam)<sup>18</sup>.

Table 11 shows that, despite an extremely low unemployment rate, the labour market is a long way off full employment: at national level, approximately one-quarter of the total volume of labour that could be mobilized was not used in 2004. Consequently, a labour demand shock induced by an increase in demand in production terms (growth in demand for exports and/or rise in domestic consumption) could be absorbed without triggering an increase in unit labour costs liable to undermine the competitiveness of firms in Vietnam.

**Table 11: Employment rates by skills in 2004**

%	Type of manpower			
	Unskilled	Semi-skilled	High skilled	Total
<b>North-East</b>	77.8	79.8	87.2	78.5
<b>North-West</b>	73.7	81.3	82.5	74.7
<b>Red River Delta</b>	79.3	80.2	85.4	79.9
<b>North Central Coast</b>	78.7	79.1	82.4	78.9
<b>South Central Coast</b>	75.4	78.6	82.1	76.2
<b>Central Highlands</b>	78.0	79.6	81.1	78.2
<b>South-East</b>	75.5	79.3	83.3	76.8
<b>Mekong River Delta</b>	67.4	72.9	83.8	68.2
<b>Total</b>	75.0	78.9	84.2	76.0

Source: VHLSS 2004, our own calculations.

<sup>18</sup> This indicator does not take account of the phenomenon of a rise in labour force participation rates (additional volume of labour from those who are currently out of the labour force and could present themselves on the labour market should conditions improve (job creations and increase in wages)).

Although the rate of underemployment is relatively uniform across the regions (with the exception of the Mekong River Delta where it seems to be more acute<sup>19</sup>), it is not homogeneously distributed by skills. Underemployment decreases the higher one climbs up the skills ladder: from 25% for unskilled manpower to less than 16% among the most highly skilled. The room for manoeuvre in terms of employment growth is consequently all the greater in that creations will concentrate on the least skilled jobs. Moreover, upward pressure on wages will be relatively stronger for skilled jobs in which there are already manpower shortages in certain sectors (such as information technology).

### *A sharp rise in real wages in recent years*

Despite this large block of underemployment, wages gradually rose from 1997 to 2004. Sharp economic growth prompted a 36.6% increase in wage earners' average annual remuneration over the period observed, which works out at an average annual growth rate of 4.6%<sup>20</sup>.

Real wages grew as much in rural areas as in urban areas (42% and 46% respectively from 1997 to 2004). The fact that the overall increase in wages is lower at national level (37%) is due to a structural effect in the form of wage earners moving to rural areas. In 1997, 52% of wage earners lived in rural areas. By 2004, their weight had risen to 72%. Wage dynamics by education level are strongly correlated with the rate of underemployment, which was lower for the low skilled (+24% compared with +43% for the high skilled). At the same time, the increase was lower for men versus women (respectively +32% and +45%). The distributional impact of these contrasting trends was considerable.

**Table 12: Growth in wage level by type of manpower 1997-2004**

	Average annual wage (1,000 Dong)			Nominal growth rate		Real growth rate (%)		
	1997	2002	2004	2002/97	2004/02	2002/97	2004/02	2004/97
<b>Rural</b>	4,008	5,633	7,335	40.5	30.2	23.4%	15.4%	42.4%
<b>Urban</b>	7,846	12,145	14,716	54.8	21.2	35.9%	7.4%	46.0%
<b>Male</b>	6,351	8,537	10,757	34.4	26.0	18.0%	11.7%	31.8%
<b>Female</b>	5,119	7,284	9,542	42.3	31.0	24.9%	16.1%	45.1%
<b>Unskilled</b>	4,781	5,906	7,609	23.5	28.8	8.5%	14.2%	23.9%
<b>Semi-skilled</b>	6,511	9,773	12,296	50.1	25.8	31.8%	11.6%	47.0%
<b>High skilled</b>	10,561	15,741	19,364	49.0	23.0	30.9%	9.1%	42.7%
<b>Total</b>	5,863	8,060	10,290	37.5	27.7	20.7	13.2	36.6

Sources: VLSS 1998, VHLSS 2002 and 2004, our own calculations.

The increase in real wages is observed across all the regions. However, it is more significant in the poorest areas (North-East, North-West and the Central Highlands), which consequently improve their relative position. Note that these three provinces are also the most remote, the least populated and post the lowest rates of wage employment (from 10% to 20% in 2004). Despite this upturn, wage levels remain much higher in the South-East province (twice as high as in the neighbouring Mekong River Delta province), differences that can only be marginally explained by regional price level deviations. However, the region around the capital of Hanoi (Red River Delta) posts wage levels lower than the national average.

<sup>19</sup> The high level of underemployment in the Mekong River Delta could tie in with the importance of agricultural work in this region, which is seasonal by nature. Underemployment might therefore be overestimated due to the survey date and call for additional checks.

<sup>20</sup> Note, however, that the sharp growth in real wages observed from 2002 to 2004 (+6% annual average) could be partly due to the poorer quality of data collected by the 2002 survey (underestimation of income and expenditure; Pettersson, 2005).



**Table 13: Growth in wage level by region 1997-2004**

	Average annual wage (1,000 Dong)			Nominal growth rate		Real growth rate (%)		
	1997	2002	2004	2002/97	2004/02	2002/97	2004/02	2004/97
	<b>North-East</b>	4,180	7,718	10,344	84.6	34.0	62.1	18.8
<b>North-West</b>	3,932	6,654	9,400	69.2	41.3	48.6	25.3	86.0
<b>Red River Delta</b>	5,479	7,575	9,878	38.3	30.4	21.4	15.6	40.3
<b>North Central Coast</b>	4,324	6,398	8,355	48.0	30.6	29.9	15.8	50.4
<b>South Central Coast</b>	5,487	7,544	9,342	37.5	23.8	20.7	9.8	32.5
<b>Central Highlands</b>	4,106	6,192	8,780	50.8	41.8	32.4	25.7	66.4
<b>South-East</b>	8,498	12,547	15,072	47.6	20.1	29.6	6.5	38.0
<b>Mekong River Delta</b>	4,155	5,610	7,139	35.0	27.3	18.5	12.8	33.7
<b>Total</b>	5,863	8,060	10,290	37.5	27.7	20.7	13.2	36.6
	<b>Average annual rate</b>			8.3	13.0	3.8	6.4	4.6

Sources: VLSS 1998, VHLSS 2002 and 2004, our own calculations.

### ***A growing proportion of wage income in the household budget***

The combination of these two positive trends (growth in the rate of wage employment and increase in real wages) ultimately impacts on the household budget. Wage income represents an increasing share of household consumption expenditure. This ratio virtually doubled in six years from 21% in 1997 to 38% in 2004. The proportion of wage income rose the most sharply in the regions where wage employment and wages were lowest (i.e. the poorest regions). In 2004, the sum of wages in proportion to consumption came to 30% in the poorest regions as opposed to 44% in the richest region (South-East), whereas the deviation ranged from 6% (North-East) to 34% in 1997. The share of wages is found to be constantly rising regardless of the per capita expenditure quintile considered. It obviously grows with the household's level of wealth, but it is never less than approximately one-quarter (24% for the poorest quintile compared with 44% for the richest). Even in rural areas, this ratio is nearly one-third (43% in the urban areas), marking the rapid ruralization of wage earners.

**Table 14: Share of wage income in household budgets 1997-2004 (region and quintiles)**

%	1997	2002	2004		1997	2002	2004
<b>North-East</b>	9.8	32.7	36.0	<b>Quintile 1</b>	15.6	31.2	23.5
<b>North-West</b>	5.6	25.9	29.6	<b>Quintile 2</b>	14.5	35.4	29.9
<b>Red River Delta</b>	18.2	36.9	38.4	<b>Quintile 3</b>	16.3	35.0	33.6
<b>North Central Coast</b>	13.8	26.7	30.1	<b>Quintile 4</b>	17.6	35.0	38.0
<b>South Central Coast</b>	24.1	40.5	39.8	<b>Quintile 5</b>	26.5	42.8	43.5
<b>Central Highlands</b>	4.2	29.2	29.4				
<b>South-East</b>	34.1	50.8	44.0	<b>Urban</b>	33.4	47.2	43.1
<b>Mekong River Delta</b>	16.7	34.4	32.6	<b>Rural</b>	12.3	31.6	32.6
<b>Total</b>	20.8	38.4	37.6	<b>Total</b>	20.8	38.4	37.6

Sources: VLSS 1998, VHLSS 2002 and 2004, our own calculations.

### ***Growth in industrial employment and a lower increase in wages***

Given the expected impact of tariff changes, export demand and foreign direct investment inflows, the effects should be felt mainly in the manufacturing sector, and especially in textiles. An analysis of past employment and wage dynamics in industry should provide a benchmark framework to better understand the developments to be expected from WTO membership.

Wages in the industrial sector have grown more slowly than in the other sectors (+18% rise in real wages as opposed to 37% for all wage earners), especially the service sector (+58%). It could be assumed that this trend will continue given that it stems from a more restrictive wage policy

constrained by greater international competition in the manufacturing sector. The positive impact of the dynamic on industry could therefore come more from the rise in employment than remuneration. Industry's contribution in terms of job creations was indeed huge from 1997 to 2004, with +57% growth in the industrial workforce (as opposed to 8% for the economy as a whole) and +104% for wage earners (compared with +84% for all sectors). This meant that the number of wage earners in industry doubled from 1997 to 2004.

**Table 15: Industrial employment structure and dynamics by type of manpower 1997-2004**

	Employment (2004)			Rate of wage employment (%)		Real wage	
	(1,000) Total	Wage earner	% structure Wage earner	1997	2004	(1,000 Dong) 2004	% growth 2004/97
<b>Urban</b>	2,978	2,311	36.6%	68.4%	77.6%	14,111	37.4%
<b>Rural</b>	5,505	4,007	63.4%	48.0%	72.8%	7,535	24.2%
<b>Male</b>	5,222	4,228	66.9%	63.2%	81.0%	10,477	16.6%
<b>Female</b>	3,262	2,090	33.1%	49.7%	64.1%	8,854	20.1%
<b>Unskilled</b>	6,418	4,627	73.2%	56.7%	72.1%	8,065	14.4%
<b>Semi-skilled</b>	1,663	1,321	20.9%	59.1%	79.5%	12,273	17.7%
<b>High skilled</b>	403	369	5.8%	67.2%	91.8%	25,079	10.6%
<b>Total Industry</b>	8,484	6,318	100.0%	57.5%	74.5%	9,940	18.4%
<b>Total Textile</b>	1,586	1,144		53.9%	72.2%	9,165	11.1%
<b>Total National</b>	45,572	14,482		18.6%	31.8%	10,290	36.6%

Sources: VLSS 1998 and VHLSS 2004, our own calculations.

An analysis of the structure of the industrial workforce by gender reveals the predominant weight of men, who account for two-thirds of the total (66.9%). However, the textile and apparel sector is an exception in industry, with a highly female workforce (76%).

Although wage deviations subsist between the different manpower categories, the development of the industrial sector has helped narrow them. Over the 1997-2004 period, the increase in wages was more marked for women (+20% as opposed to +16% for men), even though the average level of remuneration for the female workforce remains below their male colleagues. Similarly, the least skilled industrial wage earners (unskilled and semi-skilled) saw a sharper rise in their remuneration (respectively +15% and +18% as opposed to +11% for the highly skilled). Lastly, although wages grew less sharply in rural areas than in the towns, the distributional impact of the shift towards the ruralization of industrial jobs (77% of industrial jobs are situated in rural areas as opposed to 56% of service jobs in 2004) has been beneficial to the rural regions.

## 4.2 Presentation of the macro-micro model

### *Presentation of the CGE model*

The *Social Accounting Matrix* (SAM) used was developed from the SAM constructed for the year 2000 by CIEM (Jensen *et al.*, 2004) and data drawn from the 2004 VHLSS survey. The matrix's level of disaggregation chosen for this study is as follows:<sup>21</sup>

- 31 activities/31 commodities (Appendix B);
- 14 production factors including 12 types of labour (rural/urban, male/female and three skills levels);
- 4 institutional accounts (1 household, 1 business, government and rest of world);
- 1 savings/investment account.

<sup>21</sup> The SAM constructed by CIEM comprises 112 sectors, but in view of the correspondence problems at both "macro" level (shock given by the CEPII) and "micro" level (VHLSS data), this is too high a level of disaggregation. We therefore applied a less detailed level of aggregation to the SAM.

CIEM's SAM study showed that the sub-matrix of payments of value-added to production factors – especially the flows remunerating the different types of labour – presents an artificial regularity (identical structure of flows of value-added derived from the 31 activities and paid to the different types of labour) suggesting a calibration of all the flows based on an “average” structure when the SAM was constructed. In addition to being unrealistic, this regularity is problematic in that any shock triggering a reallocation of factors among sectors “inevitably” induces a strictly identical increase in the remuneration of the different production factors and consequently an underestimation of the distributional effects generated by the shock in question.

Since the distributional question is the focus of the study, the SAM had to be “corrected” by constructing a more realistic sub-matrix (Factors-Activities). This was done by using the 2004 VHLSS survey data stating the characteristics, economic sector and wages of each individual. This information was used to recalibrate the structure of flows in the matrix (Factors-Activities), subject to a few adjustments due to the fact that the SAM's sector disaggregation does not correspond to the VHLSS activity code disaggregation.

*The model.* The model code used is taken from CIEM and corresponds to the standard IFPRI model (Löfgren *et al.*, 2001). This model constitutes the macro model of the macro-micro model. In its current version, the model is a static multisector model used to choose from a small number of macroeconomic closure possibilities and fairly standard closure possibilities (perfect flexibility or perfect rigidity) for the factor markets.

A number of improvements have been made to the model, concerning more particularly:

- The modelling of foreign trade, especially export demand;
- The modelling of the labour market, including the introduction of wage rigidities (Phillips curve).

The introduction of an export demand function into the model takes account of the fact that the share of Vietnamese exports in world trade is constrained by various barriers, especially non-tariff barriers (quotas) in the textile sector. WTO membership should lift these barriers and therefore increase demand for exports (see section 2). This effect can be simulated by manipulating the export demand function parameters. To be more precise, the export demand function is written for each commodity C:

$$QED_C = qed_C^0 \left( \frac{pwe_C}{PED_C} \right)^{\eta_C}$$

Where  $QED_C$  is the demand for exports of commodity C

$qed_C^0$  is the demand for exports of commodity C in the base year

$pwe_C$  is the world price for commodity C in local currency

$PED_C$  is the domestic export price for commodity C

$\eta_C$  is the price elasticity of export demand for commodity C  
(Armington elasticity)

As regards labour market functioning, the model represents a relatively segmented market with twelve types of labour considered. In the standard version of the model, a wage rate is associated with each factor and two alternative representations of labour market functioning are possible:

- Either the wage rate is flexible and supply and demand for each labour type is balanced in keeping with a full factor employment hypothesis;
- Or the wage rate is fixed and the supply-demand balance comes about by adjusting the labour supply in keeping with a factor underemployment hypothesis.

The introduction of a wage curve (Phillips curve) provides an intermediate representation of labour market functioning. To be more precise, the supply-demand balance is secured by adjustments to both the wage rate and the labour supply. The wage curve is written:

$$\log(WF_F) = A1_F + A2_F \log(U_F) + A3 \log(WG_F)$$

Where  $WF_F$  is the wage rate for factor F

$A1_F$ ,  $A2_F$  and  $A3_F$  are the curve parameters

$U_F$  is the level of unemployment of factor F

$WG_F$  is the wage rate for factor F in the administration

A number of choices are also possible when it comes to the model's macroeconomic closure. Macroeconomic closure refers to all the rules applied to attain the model's macroeconomic equilibrium. In the model we use, there are three of these rules:

1. Fiscal equilibrium can be attained by adjusting government savings or by adjusting its revenue;
2. Current-account balance equilibrium can be attained by adjusting the real exchange rate or foreign savings;
3. Savings-investment equilibrium can be attained by adjusting investment or adjusting the savings of one of the model's agents.

### ***Presentation of the micro-simulation model***

*The data.* On the micro side, the decision was made to construct a micro-accounting (excluding behaviour) micro-simulation model using data from the 2004 VHLSS survey. The microeconomic base includes:

- The structure of wage income by type of labour (12);
- The structure of non-wage income by sector (31);
- The structure of non-labour income (6);
- The structure of consumption by product type (31).

The complete 2004 VHLSS survey contains some 45,000 households, but consumer expenditure was only collected for 9,000 of them. So it is only these 9,000 households that are included in the model.

*The model.* The study of the distributional impact of the shock considered compares the distribution of a welfare indicator in the base year (before the shock) with the distribution of the same welfare indicator after the shock. The welfare indicator used is per capita income. The micro-simulation model takes as its starting point the distribution observed from the 2004 VHLSS data and simulates a new distribution by discounting to present value the different types of household income on the basis of the variations generated by the CGE model. This discounting is based on the following income model:

$hhincpc0$  is per capita income in the base year defined as the sum of the different types of income divided by the size of the household:

$$hhincpc0 = (hhwageinc0 + hhsselfinc0 + hhnlabinc0)/hhsiz$$

where  $hhwageinc0$  is wage income in the base year

$hhsselfinc0$  is self-employment income in the base year

$hhnlabinc0$  is the sum of non-labour income in the base year

$hhsiz$  is the size of the household

More precisely, these three types of income are written as follows

$$hhwageinc0 = \sum_f wt0(f) \text{ where } f = 1 \text{ to } 12$$

$$hhsselfinc0 = \sum_a revb0(a) \text{ where } a = 1 \text{ to } 31$$

$$hhnlabinc0 = revdivid0 + revtrpub0 + revtrpri0 + revremit0 + revimmob0 + revterre0$$

where  $wt0(f)$  is the wage income derived from factor  $f$  in the base year  
 $revb0(a)$  is the self-employment income  $a$  in the base year  
 $revdivid0$  is the income from financial assets in the base year  
 $revtrpub0$  is the sum of public transfers in the base year  
 $revtrpri0$  is the sum of domestic private transfers in the base year  
 $revremit0$  is the sum of remittances from abroad in the base year  
 $revimmob0$  is the income from real estate assets (excluding land) in the base year  
 $revterre0$  is the income from land rental in the base year

The simulated per capita income calculation is based on the simulation of the different types of income making up the sum total and on the simulation of a specific price index to take account of the differences in households' consumption structures. The simulation of the different elements of income is based on the base year data and the variations in price and quantity generated by the CGE model (see list of macro-micro link variables in Appendix D).

As stated in the presentation of the CGE model, several types of labour market closure are possible. In the case of a labour market adjustment by prices and quantities, a rule has to be found to distribute the increase in value-added remunerating the 12 labour factors in the different sectors (macro level) at household level (micro level). This increase is made up of two components: an increase in the quantity of labour (volume) and an increase in wages (price). The solution chosen consists of taking account of the rates of underemployment at the level of each household to distribute the growth resulting from the change in terms of volume of labour. The rule for the allocation of increases in working time is presented in Appendix C.

The CGE model and the micro-simulation model are used sequentially:

- The shock considered is initially simulated using the CGE model;
- This model generates, for each simulation, a vector of variations in a certain number of variables;
- These vectors constitute the shocks that are fed into the micro-simulation model's simulations.

All of these variables and the correspondences between the macro and micro variables are presented in Appendix D.

### 4.3 Analysis of the simulations

In this third sub-section, we present the scenarios simulated using the micro-simulation model (Table 16) and then the main results of the simulations from both the macroeconomic and microeconomic point of view (tables 17 to 22).

#### *The scenarios simulated using the model*

Using the model chosen for the study, we analyse three types of economic shocks we consider to be the main shocks following WTO accession:

- A decrease in import tariffs; this corresponds to Vietnam's commitments to reduce customs protection (tariff and non-tariff);
- An increase in demand for exports of goods from Vietnam; this corresponds to what the WTO members do in return for Vietnam's trade liberalization commitments (in particular, lifting of the textile quotas imposed by the United States);
- An increase in foreign direct investment (FDI); this increase (which can already be observed, see section 1) is due to Vietnam's greater appeal to foreign multinationals following its entry into the WTO (easing of restrictions imposed on FDI, improved market access for exporting firms, etc.).

Scenarios 1 and 2 are calibrated to the exogenous shocks modelled by the CEPII (combination of tariff shocks and export demand), which correspond to the first two abovementioned types of shocks.

We then add to these concomitant shocks an industrial FDI increase shock (scenarios 3 and 4). This increase would be expected to drive up the stock of available capital in the sectors in which foreigners invest. However, since our model is static, it does not directly model the conversion of investment flows into additional capital. These flows simply constitute another form of demand on the commodity market. Data on the structure of industrial capital in Vietnam show that foreigners hold approximately 35% of the capital in the industrial sector. Consequently, a doubling of FDI flows should eventually culminate in a 35% increase in the stock of capital in the industrial sectors. We have modelled our FDI shock to include this increase<sup>22</sup>.

The macroeconomic closure rules applied to all the scenarios considered are as follows:

- Savings-investment equilibrium is attained by adjusting investment;
- Fiscal equilibrium is attained by adjusting government savings;
- Current-account balance equilibrium is attained by adjusting the real exchange rate.

Lastly, each simulation is considered under two alternative labour market closure assumptions: full employment (adjustment by wages) and underemployment with wage rigidities (adjustment by wages and labour supply), which, as seen above, better reflects the functioning of the labour market in Vietnam.

All the simulations are made for a five-year forecasting period starting in 2004, set as the base year. Table 16 presents all the simulated scenarios and Appendix E presents the parameters for these scenarios.

**Table 16: Description of the simulated scenarios**

External shocks	Labour market closure assumption	
	Flexible (full employment)	Rigid (underemployment with wage rigidity)
Decrease in import tariffs and increase in export demand for textiles	<b>Scenario 1</b>	<b>Scenario 2</b>
Decrease in import tariffs and increase in export demand for textiles + 35% increase in the stock of capital in the industrial sectors	<b>Scenario 3</b>	<b>Scenario 4</b>

***The main aggregate results of the simulations***

From the point of view of the macroeconomic aggregates, the first two scenarios, which combine a tariff decrease with an increase in export demand, only have a modest impact on real GDP, zero in the scenario under the assumption of full factor employment (scenario 1, where only a pure factor reallocation effect is observed) and positive in the scenario under the assumption of factor underemployment (Table 17).

Nevertheless, trade flows grow considerably with a 3.6% (resp. 3.8%) increase in the volume of imports and a 1.5% (resp. 1.9%) increase in the volume of exports for scenario 1 (resp. 2). This increase in trade flows occurs in tandem with an appreciation of the Vietnamese currency associated with the upturn in export demand.

The additional macroeconomic impact due to the increase in the stock of capital in the industrial sectors (scenarios 3 and 4) gives rise to significantly greater effects: real GDP increases 2.2% (resp. 3.3%) while the volume of imports increases 6.3% (resp. 7.1%) and the volume of exports increases 5.8% (resp. 7.0%) in scenario 3 (resp. scenario 4).

<sup>22</sup> In reality, the huge surge observed in FDI does not concern solely industry, but also services (offices, tourism, etc.). Nevertheless, without data on foreign holdings in these sectors, it is hard to evaluate the total rise in capital due to FDI; we have therefore preferred, at this stage, to consider solely the effect of the additional industrial FDI.

**Table 17: Results of the simulations – macroeconomic aggregates**

	Base	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Real GDP	44,164.7	0.0	0.4	2.2	3.3
Exports	24,189.5	1.5	1.9	5.8	7.0
Imports	25,365.9	3.6	3.8	6.3	7.1
Exchange rate	100.0	-1.7	-1.5	-2.4	-1.8

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation. Exchange rate: a drop corresponds to a Dong appreciation.

Not surprisingly, the macroeconomic impact is systematically higher in the scenarios under the assumption of labour factor underemployment (scenarios 2 and 4): in a demand shock situation, the additional effect on GDP is obtained via an increase in the employment rate. The mechanism is similar in the case of an increase in capital stocks in the industrial sectors (scenarios 3 and 4): this increase has a direct effect on the economy's production capacities.

Tariff reduction plays a part in a decrease in tax revenues (Table 18). *Ex ante*, this decrease represents 5.6% of customs receipts (0.8% of the State budget). *Ex post*, the tax loss associated with liberalization is partially offset by the increase in the volume of imports (the drop in tariff revenues *ex post* comes down to 4.7% in scenario 1) and by the increase in other sources of tax revenues (at constant taxation rates).

The Vietnamese tax system is based on various taxes collected on the institutions' incomes (households and businesses), at economic sector level (value-added tax and tax on output) and on consumer goods (special consumption taxes). Yet the factor reallocation triggered by the tariff reduction shocks and the increase in export demand is in the direction of the sectors where these rates of taxation are relatively high. Moreover, these shocks have a positive effect on the institutions' incomes, contributing overall to a slight upturn in direct taxation revenues.

**Table 18: Results of the simulations – central government revenue**

	Base	Structure	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Transfers from Rest of World	202.8	2.2%	-1.7	-1.5	-2.4	-1.8
Direct taxes	2,794.3	30.8%	2.4	3.1	-1.2	1.1
Taxes on factors	1,122.5	12.4%	1.6	2.3	-0.3	1.9
Taxes on imports	1,359.5	15.0%	-4.7	-4.3	-3.4	-2.0
Taxes on value-added	1,506.7	16.6%	3.3	3.6	1.3	2.2
Taxes on productive activities	1,701.5	18.7%	0.8	1.2	4.1	5.5
Taxes on consumer goods	387.6	4.3%	0.9	1.3	4.0	5.3
Total	9,074.9	100.0%	0.9	1.5	0.2	1.8

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation.

### ***Substantial sector reallocations of employment***

At sector level, the combined impact of tariff reduction and the increase in export demand (scenarios 1 and 2) gives rise to a reallocation of factors to the textile sector (Table 19). It is indeed this sector that has posted the sharpest increase in export demand: accession to the WTO has induced a rise of nearly 40% in demand for Vietnamese textile products<sup>23</sup>. This demand shock triggers a sharp rise in the sector's value-added, which increases by anything from 10% to over 25% depending on the scenarios. The sharpest increases are obviously under the scenarios that include the capital stock shock (scenarios 3 and 4), and especially under the assumption of factor underemployment (scenario 4).

In the first scenario, since the quantity of labour is fixed in the economy, but is nonetheless mobile between sectors, the sector demand shock brings about a reallocation of labour towards the textile sector at the expense of most of the other sectors, which consequently experience a downturn in their value-added (on the basis of the quantity of capital being fixed both in each sector and overall). The hardest hit sectors in relative terms are the metallurgy industry and the fertiliser production sector. In absolute terms, the hardest hit sectors are the oil sector and the other services as well as the real estate

<sup>23</sup> The model does not separate out different foreign regions: the foreign trade flows concern just one region called "Rest of World".

sector, banking and telecommunications. These findings remain valid under the assumption of labour underemployment (scenario 2), albeit to a lesser extent.

**Table 19: Results of the simulations – value-added by sector (in volume)**

Sector	Base	% Variation			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>Primary sector</b>	<b>10,749</b>	<b>-0.6</b>	<b>-0.4</b>	<b>-0.5</b>	<b>0.4</b>
Including:					
Rice	3,400	-0.6	-0.4	0.6	1.8
Coffee	409	-1.4	-1.2	-3.6	-2.5
Sugar cane	206	0.1	0.3	6.4	7.5
<b>Secondary sector</b>	<b>15,375</b>	<b>0.9</b>	<b>2.1</b>	<b>8.0</b>	<b>10.2</b>
Including:					
Cement	298	1.1	1.6	5.1	6.9
Textiles and apparel	1,277	9.5	10.0	23.4	25.0
Chemicals	798	-0.9	-0.4	9.0	10.7
<b>Tertiary sector</b>	<b>14,592</b>	<b>-0.1</b>	<b>0.4</b>	<b>1.3</b>	<b>2.5</b>
Including:					
Construction	2,287	1.8	2.4	1.7	3.6
Retail-wholesale	4,124	1.0	1.5	7.6	9.0
Transport	862	-0.7	-0.3	-0.7	0.4

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation.

In the sectors most open to trade, save the textile and apparel sector whose export demand rises sharply, the impact of the tariff reductions and export demand shocks (scenarios 1 and 2) is negative on the whole. This finding is explained by the appreciation of the Dong, the effect of which is that non-tradeable commodities become more expensive than tradeable commodities. These mechanisms largely explain the downturn in value-added in most of the agricultural sectors in the first two scenarios. Conversely, non-tradeable activities, especially the retail and wholesale sector and construction, gain a relative benefit from the appreciation of the Vietnamese currency.

In the last two scenarios (3 and 4), the increase in the stock of capital in the manufacturing sectors offsets the negative impact of appreciation in most of the sectors. This increase pushes up all manufacturing output with positive effects on the production of the other sectors, especially those that supply the most intermediate inputs to the manufacturing production sectors (cement, chemicals, etc.). In all the scenarios, the secondary sector (industry) emerges as the main winner of WTO accession, followed by the tertiary sector and then the primary sector in which gains are virtually zero.

These sector reallocations go hand in hand with variations in factor remuneration, especially the wage rate for the different types of labour. The figures presented in Table 19 show that the simulated shocks exert strong upward pressure on wages, even under the assumption of labour underemployment. In this case, the pressure on the labour markets is solved by an increase in both wage rates and the quantity of labour.



**Table 20: Results of the simulations – wage rates and demand for labour by type**

Wage rate			Base	% Variation			
				Scenario 1	Scenario 2	Scenario 3	Scenario 4
Rural	Male	Unskilled	0.298	0.4	0.5	5.3	3.4
		Semi-skilled	0.606	1.5	1.0	5.8	3.7
		High skilled	1.620	1.0	0.6	0.1	0.6
	Female	Unskilled	0.179	1.1	0.8	6.3	3.9
		Semi-skilled	0.413	2.8	1.5	7.9	4.6
		High skilled	0.853	0.8	0.5	2.2	1.5
Urban	Male	Unskilled	0.740	2.3	1.5	6.4	4.3
		Semi-skilled	2.027	0.9	0.7	4.0	2.8
		High skilled	6.288	1.2	0.7	3.3	2.1
	Female	Unskilled	0.611	3.9	2.1	11.1	6.5
		Semi-skilled	1.542	5.2	2.7	8.5	5.0
		High skilled	2.806	1.3	0.8	2.2	1.8
Labour demand			Base	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Rural	Male	Unskilled	14,982		0.3		1.9
		Semi-skilled	2,194		0.6		2.0
		High skilled	465		0.4		0.4
	Female	Unskilled	17,235		0.5		2.1
		Semi-skilled	1,781		0.9		2.5
		High skilled	292		0.3		0.9
Urban	Male	Unskilled	2,783		0.9		2.4
		Semi-skilled	958		0.4		1.6
		High skilled	407		0.4		1.2
	Female	Unskilled	3,226		1.2		3.2
		Semi-skilled	899		1.5		2.6
		High skilled	378		0.5		1.0

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation.

However, the pressures on the labour markets induced by the simulated shocks are more or less strong depending on the type of labour. For example, the sharpest increases are found in the wage rates for urban semi-skilled and unskilled female labour, the factors most in demand by the textile sector: these increases are sharper in full-employment scenarios 1 and 3 than in underemployment scenarios 2 and 4, where the wage rate increases are lower but are accompanied by an increase in the labour demand for these factors. Whatever the scenario, women's wages rise more than their male counterparts (the deviation is as high as five points in scenario 3), in particular as regards the large number of unskilled and semi-skilled wage earners in the textile and apparel sector. WTO accession has therefore helped reduce the wage gaps between genders.

### ***Extremely different impacts on urban/rural incomes and incomes by region***

These price variations and, depending on the case, quantity variations are then worked into the micro-simulation model in keeping with the rules presented in the previous section. Household incomes are formed from an aggregate of different types of incomes that post varied changes depending on the sector (for self-employment income) or the factor (for wage income) on which they depend. The impacts of the simulated shocks on the three types of income are presented in Table 21.

All the types of income increase with the exception of non-labour income, which depends in part on fixed foreign-exchange remittances from abroad whose value in Vietnamese currency diminishes due to the appreciation of the Dong. Urban incomes from wage-earning and self-employment activities post the highest increases: in the last scenario, these increases are as high as 17.7% for wage income and 12.5% for self-employment income.

**Table 21: Microeconomic results – household income**

	Base	% Variation			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>Wage income</b>					
Urban	17,737.6	2.5	4.9	6.2	13.8
Rural	5,336.7	0.8	2.2	5.5	9.9
National	8,623.7	1.3	3.0	5.7	11.1
<b>Self-employment income</b>					
Urban	15,772.2	2.9	3.1	10.7	11.8
Rural	12,640.3	0.6	0.9	6.7	7.6
National	13,470.4	1.1	1.4	7.5	8.5
<b>Non-labour income</b>					
Urban	11,552.6	0.0	0.1	-0.3	-0.1
Rural	3,994.1	0.0	0.1	-0.1	0.0
National	5,997.5	0.0	0.1	-0.2	0.0
<b>Per capita income</b>					
Urban	10,657.6	1.8	2.1	5.9	7.3
Rural	5,009.3	0.4	0.7	4.1	5.0
National	6,466.4	0.8	1.1	4.6	5.6

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation.

At aggregate level, the increase in earned income generates sharp increases in per capita income, in both rural and urban areas, albeit with a significant advantage to the urban areas: depending on the scenario, per capita income growth is two to five times higher in urban areas than in rural areas. This deviation reflects essentially sector effects: the industrial sector, set up mainly in urban areas, is the leading WTO winner (along with services to a certain extent) while the impact on agriculture, the main activity in rural areas, is less positive on the whole.

This increase in per capita incomes ultimately induces sharp drops in the incidence of poverty, which can be analysed at regional level by the VHLSS survey data on which the micro-simulation model is built (Table 22)<sup>24</sup>. First of all, the decreases systematically appear highest in the urban areas. This finding is explained first by the sharper rise in wage rates for labour in urban areas (see above) and second by the fact that poverty rates are lower in urban areas and that a 1% increase in average per capita income prompts a sharper reduction in poverty: for example, in scenario 2, a 1% increase in average per capita income results in a 3.6% drop in the incidence of poverty in urban areas as opposed to just 1.9% in rural areas.

<sup>24</sup> Nonetheless, bear in mind that the macro model (CGE) only represents market functioning at national level. In other words, the model is built on an assumption of perfect commodity and factor market integration and the price and quantity variations generated are not differentiated by region. They are, however, differentiated by their production factor endowments and hence by the structure of the resident households' incomes.

**Table 22: Microeconomic results – poverty rates (%)**

	Base	% Variation			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>Urban areas</b>					
Red River Delta	4.7	-2.7	-8.8	-11.7	-36.2
North-East	6.9	-4.3	-14.2	-18.6	-28.2
North-West	6.6	0.0	0.0	0.0	-14.7
North Central Coast	7.0	-16.5	6.6	-10.5	-48.3
South Central Coast	5.2	0.0	-15.0	-6.9	-41.3
Central Highlands	10.0	0.0	0.0	-4.1	-14.1
South-East	0.9	0.0	-10.5	-23.6	-10.5
Mekong River Delta	8.3	-2.9	-9.3	-0.8	-42.9
<b>Urban average</b>	<b>4.7</b>	<b>-3.4</b>	<b>-7.5</b>	<b>-8.4</b>	<b>-33.8</b>
<b>Rural areas</b>					
Red River Delta	17.5	0.1	-2.1	-8.1	-8.8
North-East	33.4	0.7	0.4	-4.6	-7.9
North-West	55.2	1.2	0.1	-2.6	-4.9
North Central Coast	39.0	-1.9	-2.2	-4.5	-8.8
South Central Coast	25.3	-0.2	-2.5	-7.0	-8.0
Central Highlands	33.9	0.0	0.7	-7.8	-10.9
South-East	10.0	0.3	0.3	-14.0	-18.5
Mekong River Delta	16.6	-2.6	-2.7	-15.6	-18.7
<b>Rural average</b>	<b>24.6</b>	<b>-0.6</b>	<b>-1.3</b>	<b>-7.5</b>	<b>-10.3</b>
<b>National</b>					
Red River Delta	14.7	-0.1	-2.5	-8.4	-10.7
North-East	28.4	0.5	-0.3	-5.2	-8.8
North-West	48.9	1.2	0.1	-2.6	-5.1
North Central Coast	34.8	-2.3	-2.0	-4.7	-9.8
South Central Coast	19.6	-0.2	-3.4	-6.9	-10.5
Central Highlands	27.3	0.0	0.6	-7.4	-11.2
South-East	5.1	0.3	-0.8	-15.0	-17.7
Mekong River Delta	15.0	-2.6	-3.5	-14.0	-21.4
<b>National average</b>	<b>19.5</b>	<b>-0.8</b>	<b>-1.7</b>	<b>-7.5</b>	<b>-11.8</b>

Note: The base year values are presented in the first column. In the following columns, save where otherwise stated, the results of the simulations are presented in percentage variation.

Contrasting results are also found at regional level: the regions with the highest level of factors demanded by the textile sector post the sharpest drops in poverty: these decreases are particularly sharp in the South-East (including Ho Chi Minh City) and the Mekong River Delta (where the high level of underemployment accentuates the drop in poverty).

From the point of view of inequalities (Table 23), there is a very slight positive impact – i.e. inequalities increase – in the first three scenarios and a negative impact in the last scenario. In general, growth in inequalities is lower under the assumption of labour underemployment (scenarios 2 and 4). This can be explained by the fact that the labour allocation rule is progressive insofar as it provides work to households that haven't any and that are likely to be the poorest.

**Table 23: Microeconomic results – Gini coefficient**

	Base	% Variation			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>National</b>	40.9	41.1	41.0	41.2	40.8
		0.5%	0.2%	0.7%	-0.2%
<b>Urban areas</b>	38.0	38.0	37.8	38.1	37.6
		0.0%	-0.5%	0.3%	-1.1%
<b>Rural areas</b>	35.4	35.5	35.4	35.5	35.2
		0.3%	0.0%	0.3%	-0.6%

Note: The Gini coefficients are calculated on the basis of per capita income and are therefore higher than the coefficients generally reported in the studies on the distribution of welfare in Vietnam. These latter coefficients are obtained based on per capita consumption and are lower due to consumption smoothing phenomena.

Growth in national inequalities is the sum of the change in inequalities within urban and rural areas and in inequality between urban and rural areas. A study of the growth in inequalities within urban and rural areas shows that these inequalities increase little, if not decrease. So the national increase in inequalities is due mainly to the widening of urban-rural inequalities, itself due to a sharper rise in urban incomes (see Table 21). In the case of scenario 4, this rural-urban divergence is nevertheless offset by a not-inconsiderable downturn in urban inequalities, which could be attributed to the progressive labour allocation rule.

The increase in inequalities between urban and rural areas is the result of a fairly simple mechanism: the figures in Table 22 show that labour remuneration (and labour demand in the case of scenarios 2 and 4) increases more sharply in urban areas than in rural areas. This is true for all types of labour. This contrasting impact is itself due to a structural effect: urban labour is employed mainly by sectors that post the sharpest increase in value-added following accession.

The divergence in living standards between rural and urban areas is nothing new in Vietnam. Glewwe *et al.* (2000) showed that the increase in inequalities observed in the 1990s against a backdrop of sharp growth was due mainly to this divergence and their finding was confirmed by VASS (2006) for the 1993-2004 period. In the case of WTO accession, this increase could nevertheless remain modest due to the progressive aspect of growth in labour remuneration: the increase in unskilled labour remuneration is higher than that for skilled labour.

**Lastly, note that our model underestimates the effect of the WTO shock on inequalities since we make the assumption of perfect labour mobility, which assumes in particular the free movement of manpower. This assumption does not hold in Vietnam due to the controls imposed on internal migration. A more realistic modelling of the manpower reallocation process should therefore be introduced at a later stage.**

## CONCLUSION

In this study, we have endeavoured to place Vietnam's accession to the WTO in the context of the economic and trade policies conducted by the country in recent years. This has enabled us to relativize the event represented by this accession, insofar as it is part of a long process of trade liberalization and integration into the world economy.

At the same time, recent economic history has shown that the trade agreements signed by Vietnam (ASEAN, USBTA, etc.) have all had a considerable effect on Vietnamese growth. As pointed out by Abbott, Bentzen and Tarp (2007), the studies made *ex ante* have tended to systematically underestimate the impact of these policies.

In the case of the WTO, the commitments made by Vietnam are much farther reaching than a simple tariff disarmament agreement. They affect all sectors of the economy, which makes it hard to model their impact. This is why virtually all the studies made previously are limited to an evaluation of the tariff impact, based moreover on provisional assumptions in that the access negotiations had not yet been concluded.

We have endeavoured here to expand the study in three areas:

- Firstly, our study is the first (with CEPPI/ISD, 2007) to take into account the precise terms of the WTO agreement from the point of view of both Vietnam's trade liberalization commitments and the WTO members' commitments with regard to Vietnam;
- Secondly, our findings are also interesting in that we have not only evaluated the impact of the reduced tariff protection (which is actually modest), but also the additional foreign demand (improved market access) and foreign direct investment (which had not been done before).
- Lastly, our approach goes further than most of the studies conducted using CGE models, since the use of a simple micro-simulation model relaxes the representative agent assumption so that the distributional impact of the WTO can be studied.

The initial simulations made using our micro-simulation model show that WTO accession will have mainly four types of distributional effects (bearing in mind that our static model cannot really evaluate the overall gain in income): job gains, especially in industry, which is the great winner of WTO accession; growth in real wages; reduction in gender inequalities; and increase in regional inequalities and between rural and urban areas.

In each of these fields, the direction of the growth found by the model is in keeping with previous trends. This finding is hardly surprising since, as mentioned above, WTO accession is not an isolated shock, but part of a long process of international integration. We also note that the findings on growth in regional inequalities are consistent with those of recent studies on this subject, presented in section 3 of our study.

These findings (conditional on the assumptions made in our model) show the importance of taking measures to accompany entry into the WTO and make the most of the opportunities offered. Four questions of major importance arise in this regard:

- Training is a determining factor of a smooth adjustment on the labour market, as well as a means to get more qualified and better paid jobs. As three quarters of the active population are considered as unskilled, the challenge is huge. In the short run, it is especially important for people leaving areas to have the proper skills in order to get jobs in town. In the long run, training highly skilled people is a pre-requisite to avoid bottlenecks in new industries and services (to attract FDI in particular) and to prevent Vietnam from entering a “low-skilled labour intensive exports trap”;
- Internal migration trends will have a decisive effect on wage adjustment; obviously, the migration policy conducted by Vietnam also needs to take into account other social considerations (such as putting a brake on the rural exodus to the cities in a move to check already-galloping urban growth); but growth in internal migration would seem inevitable to ensure that the cross-sector reallocation of employment, set to accelerate, occurs as smoothly as possible (and without excessive wage pressures). Steps should be taken to ease the migrant registration system (*ho khau*);
- Regional policies are needed to limit the widening of interregional and urban-rural inequalities; the extreme concentration of FDI in what are already the richest employment areas (Ho Chi Minh City and Hanoi), which our model cannot study directly, is expected to sharpen this trend; the government could organise a partial redistribution of the gains secured by the WTO to the poorest regions (such as the North-West), which will not benefit (and will even lose out) from accession;
- Lastly, the policies to assist members of the workforce who lose their job should be continued, if not expanded, insofar as WTO membership will step up cross-sector reallocation and, within the sectors themselves, greater competition will reduce employment in the non-performing businesses (which is not evaluated by our simulations).

The study also suggests a few directions to improve our knowledge of these phenomena. First of all, our understanding of employment and labour market functioning in Vietnam (including the role of the informal sector) is still in its very early stages. The employment survey conducted by the General Statistics Office in August 2007 should further knowledge in this field. Likewise, it would be useful to have a more in-depth understanding of the rural textile sector, its integration into the industry at national level and its reaction to the opening up of the markets to be able to make a more accurate evaluation of the impact of the WTO on the sector in general.

Moreover, better account could be taken of recent developments in the Vietnamese economy if a new updated SAM were constructed to replace the old one (some of whose data is now ten years old; see the household account).

Last but not least, the microeconomic impact of WTO membership also needs to be evaluated in greater detail. These avenues of research should take two directions. Firstly, sector studies should be conducted to understand in detail the dynamics of certain key sectors in the Vietnamese economy (financial sector, distribution, new technologies, etc.). Secondly, work should be done on improving the modelling both at macroeconomic level (introduction of the dynamic aspect and of market imperfections related to the expected effects of WTO accession – services, competition, etc.) and at microeconomic level and macro-micro interface level (introduction of individual behaviour functions, integrated macro-micro models, etc.).

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## APPENDICES

### Appendix A: Main commitments made by Vietnam for WTO accession

Policy area	Commitment
Tariff reductions	Tariffs to fall from their current level of 17.4% to a final bound of 13.4%. Agricultural tariffs to decline from 23.5% to 21%.
Trading rights	All foreign firms and individuals to be able to import and export, except on items subject to state trading. Importers can choose their domestic distributors. No minimum capital requirements for firms engaging in trading activity. Transition period up to January 2009 for foreigners for pharmaceutical products considered essential to human life and other products considered sensitive to public morals or public order. Transition period up to January 2011 for foreigners for rice.
State trading enterprises	Manufactured tobacco products; culturally sensitive products such as newspapers, journals and audiovisual materials; and petroleum and aircraft which are considered natural monopolies.
Excise duties	Within three years, a single rate will apply for all forms of beer (draught, fresh, bottled and canned) and a single rate for all spirits containing 20% alcohol or more.
Tariff rate quotas	Tariff rate quotas (TRQs) to apply to eggs, un-manufactured tobacco, sugar and salt. Quota volumes increase 5% annually.
Quantitative restrictions	Import bans on cigarettes, cigars, large motorcycles and used cars to be abolished. Production quotas (including imports) for cigarettes and manufactured tobacco.
Export restrictions	Export controls on rice for food security reasons. Controls on wood products and minerals for environmental reasons and to prevent illegal exploitation.
Standards	Comply with TBT (Technical Barriers to Trade) and SPS (Sanitary and Phytosanitary) agreements upon accession.
Agricultural subsidies	“Amber box” or supports that have direct impact on prices or quantities of 3.96 trillion Dong in addition to the <i>de minimis</i> allowance to developing countries of up to 10% of the value of domestic agricultural production.
Subsidies and countervailing measures	Comply with the Agreement on Subsidies and Countervailing Measures (ASCM) upon accession. Subsidies in the form of investment incentives contingent upon exports to be phased out over five years.
Incentive mechanisms	Comply with Trade-Related Investment Measures (TRIMS) upon accession. Preferential state credit and import tariffs contingent upon localization ratios to be abolished.
Intellectual property	Comply with Trade-Related Intellectual Property Rights (TRIPS) upon accession.
Information technology (IT)	International technology agreement. Agreement signed. Around 330 lines on IT products to be reduced to zero mostly over 3-5 years, but some after seven years.

Source: Vietnam Development Report 2007

**Appendix B: SAM 2000, 31-sector disaggregation**

<b>A01-RICE</b>	Rice
<b>A02-COF</b>	Coffee-bean
<b>A03-SUCAN</b>	Sugarcane
<b>A04-OCROP</b>	Other crops
<b>A05-LIVSTOC</b>	Livestock and poultry
<b>A06-FOR</b>	Forestry
<b>A07-FISH</b>	Fishery
<b>A08-IRR</b>	Irrigation service
<b>A09-OASER</b>	Other agricultural services
<b>A10-OIL</b>	Crude oil, natural gas (except exploration)
<b>A11-MIN</b>	Coal, Metallic ore, Stone, Sand, gravel & other non-metallic min.
<b>A12-FPROC</b>	Processed food
<b>A13-TOBABA</b>	Tobacco, Alcohol, beer and liquors
<b>A14-SUGAR</b>	Sugar, refined
<b>A15-CEMEN</b>	Cement
<b>A16-PAPER</b>	Paper pulp and paper products and by-products
<b>A17-FERT</b>	Fertilizer and pesticides
<b>A18-AUTO</b>	Automob. and other transp., Motor vehic., motor bikes & sp. parts
<b>A19-STEL</b>	Ferrous metals and products (except machinery equipment)
<b>A20-GALEAT</b>	Garment-leather
<b>A21-CHEM</b>	Chemicals
<b>A22-OMANU</b>	Other manufacturing
<b>A23-EGW</b>	Electricity-gas-water
<b>A24-CONS</b>	Construction
<b>A25-TRADE</b>	Retail-Wholesale
<b>A26-TRANS</b>	Transportation
<b>A27-EDU</b>	Education-training
<b>A28-HEALTH</b>	Health-social-protection
<b>A29-ADMDEF</b>	Administration-social-security-defence
<b>A30-BATESCI</b>	Finance-Banking-telecom-science
<b>A31-OTHSER</b>	Other services

## Appendix C: Rule for the allocation of variations in working hours

Two rules were defined

- Rule 0
- Uniform increase in hours worked
  - The unemployed remain unemployed
- Rule 1
- Increase in hours worked proportional to the individual contribution to “non-employment”

$qfdisp_h$  is the quantity of labour “available” in household h

$te_h$  is the employment rate of household h

$qf0_h = te_h * qfdisp_h$  is the actual quantity of labour of household h in the base year

$qf1_h$  is the simulated actual quantity of labour for household h

$\alpha$  is the aggregate variation in the quantity of labour (CGE)

$\delta$  such that  $qf1_h = qf0_h + \delta$

Aggregation constraint:  $(\sum_h qf1_h - \sum_h qf0_h) / \sum_h qf0_h = \alpha$

Three types of situations

1. Full-time worker:  $te_h = 1$ ,  $qf0_h = qfdisp_h$
2. Part-time worker:  $0 < te_h < 1$ ,  $qf0_h < qfdisp_h$
3. Unemployed:  $te_h = 0$ ,  $qf0_h = 0$ ,  $qfdisp_h > 0$

### Increase in hours worked based on the two allocation rules

	0	1
Full time	$\delta = \alpha \cdot qf0_h$	$\delta = \alpha \cdot \sum_h qf0_h \cdot [(1-te_h) \cdot qfdisp_h / (\sum_h (1-te_h) \cdot qfdisp_h)]$
Part time	$\delta = \alpha \cdot qf0_h$	
Unemployed	$\delta = 0$	

Problem with rule 1: what wage income should be attributed to newly hired ex-jobseekers?

$wt1_h$  is the wage income for household h in the base year

$wt0_h$  is the simulated wage income for household h

$\beta$  is the variation in the wage rate (CGE)

$\varepsilon$  such that  $wt1_h = wt0_h + \varepsilon$

### Increase in wage incomes based on the two allocation rules

	0	1
Full time	$\varepsilon = (\alpha + \beta + \alpha\beta) \cdot wt0_h$	$\varepsilon = (\alpha + \beta + \alpha\beta) \cdot \sum_h wt0_h \cdot [(1-te_h) \cdot qfdisp_h / (\sum_h (1-te_h) \cdot qfdisp_h)]$
Part time	$\varepsilon = (\alpha + \beta + \alpha\beta) \cdot wt0_h$	
Unemployed	$\varepsilon = 0$	

## Appendix D: Macro-micro interface variables

Variable	Lines	Definition	Dimension	Micro correspondence	Micro aggregate	Definition
VANOM-A	1 to 31	Nominal random variable by sector	31 sectors	<i>revb01</i> to <i>revb31</i>	<i>hhselfinc</i>	Self-employment income
				<i>revimmob</i>	<i>hhnlabinc</i>	Non-labour income
VAREA-A	32 to 62	Real random variable by sector	31 sectors			
VANOM-F	63 to 76	Nominal random variable by factor	14 factors	<i>revterre</i> <i>revdivid</i>	& <i>hhnlabinc</i>	Non-labour income
VAREA-F	77 to 90	Real random variable by factor	14 factors			
LABOR-WF	91 to 102	Labour remuneration	12 factors	<i>wt1</i> to <i>wt12</i>	<i>hhwageinc</i>	Wage income
LABOR-QF	103 to 114	Quantity of labour	12 factors	<i>qf1</i> to <i>qf12</i>	<i>hhwageinc</i> *	Wage income
LABOR-U	115 to 126	Labour underemployment	12 factors			
LAND	127 to 132	Land remuneration	6 sectors			
CAPITAL	133 to 163	Capital remuneration	31 sectors			
TRANSPRI	164	Private transfers	HH-ALL	<i>revtrpri</i>	<i>hhnlabinc</i>	Non-labour income
TRANSPUB	165	Public transfers	HH-ALL	<i>revtrpub</i>	<i>hhnlabinc</i>	Non-labour income
TRANSFOR	166	Foreign remittances	HH-ALL	<i>revremit</i>	<i>hhnlabinc</i>	Non-labour income
PRICE	167 to 197	Consumer price	31 goods	<i>pbexp01</i> <i>pbexp31</i>	to <i>hhpci</i>	Consumer price index
HHINC	198	Average household income	HH-ALL			
HHEXP	199	Average household expenditure	HH-ALL			
DIRTAX	200	Direct taxes	HH-ALL			
TINS	201	Rate of direct taxes	HH-ALL			

\* If labour market closure under the assumption of underemployment with wage rigidities

Measurement of welfare = per capita income deflated by the price index specific to each household, i.e.

$$hhincpc = (hhwageinc + hhselfinc + hhnlabinc)/(hhsz * hhpci)$$

Whereby  $hhwageinc = \sum wt(f)$  where  $f = 1$  to  $12$   
 $hhselfinc = \sum revb(a)$  where  $a = 1$  to  $31$   
 $hhnlabinc = revdivid + revtrpub + revtrpri + revremit + revimmob + revterre$

## Appendix E: Scenario parameters

### Parameters for the tariff reduction shock on imports by product

TMSIM	BASE	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4
C02-COF	1.5	0.0	0.0	0.0	0.0
C04-OCROP	4.8	-4.2	-4.2	-4.2	-4.2
C05-LIVSTOC	1.3	0.0	0.0	0.0	0.0
C06-FOR	0.0	-2.4	-2.4	-2.4	-2.4
C07-FISH	11.6	-9.5	-9.5	-9.5	-9.5
C10-OIL	14.9	0.0	0.0	0.0	0.0
C11-MIN	0.9	0.0	0.0	0.0	0.0
C12-FPROC	8.3	-16.9	-16.9	-16.9	-16.9
C13-TOBABA	34.8	-1.7	-1.7	-1.7	-1.7
C14-SUGAR	5.1	0.0	0.0	0.0	0.0
C15-CEMEN	1.0	0.0	0.0	0.0	0.0
C16-PAPER	10.5	-14.3	-14.3	-14.3	-14.3
C17-FERT	0.2	0.0	0.0	0.0	0.0
C18-AUTO	12.7	-2.4	-2.4	-2.4	-2.4
C19-STEL	1.6	0.0	0.0	0.0	0.0
C20-GALEAT	2.9	-44.8	-44.8	-44.8	-44.8
C21-CHEM	3.0	-10.0	-10.0	-10.0	-10.0
C22-OMANU	2.7	0.0	0.0	0.0	0.0
C23-EGW	17.2	0.0	0.0	0.0	0.0

Note: The base year values are presented in the first column. In the following columns, the shock values are presented in percentage variation.

Source: CEPII (with our own reclassification based on the model's nomenclature)

*The tariffs applied to the base year ("Base" column) correspond to the rates calculated in the social accounting matrix (SAM) for each product based on the ratio of tariffs received to the amount of imports.*

*The tariffs therefore differ from the applied tariffs (termed Most Favoured Nation or MFN) such as they are presented in Table 6, p. 18. The deviation is explained mainly by the fact that Vietnam benefits from preferential agreements and that the tariffs applied to imports from ASEAN are often exempt from customs duties. For the same reason, the tariff reduction in the above table is lower than that which results from the tariff commitments presented in Table 6, p. 18.*

*Moreover, the above table does not show tariffs for products that are not imported (rice, sugar cane, services, etc.) and certain lines of the nomenclature are therefore missing.*

### Parameters for the world export demand shock by product

QEDPSIM	BASE	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4
C01-RICE	0.6	-3.5	-3.5	-3.5	-3.5
C02-COF	625.0	-0.3	-0.3	-0.3	-0.3
C04-OCROP	1,180.0	-0.3	-0.3	-0.3	-0.3
C05-LIVSTOC	82.1	1.0	1.0	1.0	1.0
C06-FOR	62.3	-1.8	-1.8	-1.8	-1.8
C07-FISH	477.5	-0.2	-0.2	-0.2	-0.2
C10-OIL	4,962.9	-0.1	-0.1	-0.1	-0.1
C11-MIN	157.9	-0.1	-0.1	-0.1	-0.1
C12-FPROC	3,245.6	0.0	0.0	0.0	0.0
C13-TOBABA	33.3	0.0	0.0	0.0	0.0
C14-SUGAR	54.9	0.4	0.4	0.4	0.4
C15-CEMEN	4.0	-0.3	-0.3	-0.3	-0.3
C16-PAPER	80.9	1.3	1.3	1.3	1.3
C17-FERT	7.4	0.1	0.1	0.1	0.1
C18-AUTO	40.0	0.6	0.6	0.6	0.6
C19-STEL	95.3	0.7	0.7	0.7	0.7
C20-GALEAT	4,575.4	37.9	37.9	37.9	37.9
C21-CHEM	223.3	0.1	0.1	0.1	0.1
C22-OMANU	3,061.3	1.9	1.9	1.9	1.9
C23-EGW	149.8	-2.1	-2.1	-2.1	-2.1

Note: The base year values are presented in the first column. In the following columns, the shock values are presented in percentage variation.

Source: CEPII (with our own reclassification based on the model's nomenclature)

### Parameters for the foreign direct investment shock on capital stocks by sector

QFSIM	BASE	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4
A01-RICE	112.5	0.0	0.0	0.0	0.0
A02-COF	82.0	0.0	0.0	0.0	0.0
A03-SUCAN	14.0	0.0	0.0	0.0	0.0
A04-OCROP	715.0	0.0	0.0	0.0	0.0
A05-LIVSTOC	216.6	0.0	0.0	0.0	0.0
A06-FOR	160.4	0.0	0.0	0.0	0.0
A07-FISH	472.2	0.0	0.0	0.0	0.0
A08-IRR	17.0	0.0	0.0	0.0	0.0
A09-OASER	49.5	0.0	0.0	0.0	0.0
A10-OIL	2,269.5	0.0	0.0	0.0	0.0
A11-MIN	154.5	0.0	0.0	0.0	0.0
A12-FPROC	661.6	0.0	0.0	35.0	35.0
A13-TOBABE	150.7	0.0	0.0	35.0	35.0
A14-SUGAR	118.4	0.0	0.0	35.0	35.0
A15-CEMEN	179.9	0.0	0.0	35.0	35.0
A16-PAPER	91.3	0.0	0.0	35.0	35.0
A17-FERT	96.9	0.0	0.0	35.0	35.0
A18-AUTO	232.6	0.0	0.0	35.0	35.0
A19-STEL	35.7	0.0	0.0	35.0	35.0
A20-GALEAT	586.1	0.0	0.0	35.0	35.0
A21-CHEM	326.8	0.0	0.0	35.0	35.0
A22-OMANU	872.9	0.0	0.0	35.0	35.0
A23-EGW	664.1	0.0	0.0	0.0	0.0
A24-CONS	1,044.7	0.0	0.0	0.0	0.0
A25-TRADE	1,711.5	0.0	0.0	0.0	0.0
A26-TRANS	392.8	0.0	0.0	0.0	0.0
A27-EDU	277.7	0.0	0.0	0.0	0.0
A28-HEALTH	129.2	0.0	0.0	0.0	0.0
A29-ADMDEF	137.4	0.0	0.0	0.0	0.0
A30-BATESCI	1,404.7	0.0	0.0	0.0	0.0
A31-OTHSER	1,094.9	0.0	0.0	0.0	0.0

Note: The base year values are presented in the first column. In the following columns, the shock values are presented in percentage variation.

Source: Our own calculations