



Deutscher Tropentag 2004:

Conference on „Rural Poverty Reduction through  
Research for Development and Transformation“

October 5 - 7, 2004, Humboldt-Universität zu Berlin,  
Agricultural and Horticultural Faculty

---

## Agricultural Trade Liberalisation in the WTO and its Poverty Implications: the Case of Rural Households in Northern Vietnam

Daude<sup>a</sup>, Sabine

a Universität Hohenheim, Institut für Agrar- und Sozialökonomie in den Tropen und Subtropen, Lehrstuhl für  
landwirtschaftliche Entwicklungstheorie und -politik (490a), 70593 Stuttgart, Germany.  
email: daude@uni-hohenheim.de

### Abstract

The objective of the paper is to analyze poverty implications of the agricultural liberalization process discussed within the WTO Doha Negotiations for rural households in Northern Vietnam. In preparation of the WTO Ministerial Meeting in Cancún, Mexico, in September 2003, the WTO suggested in the Harbinson Paper further liberalization of the agricultural sector to break up the deadlock in the negotiations. The impact of these suggestions for Vietnam's agriculture is simulated. Vietnam is currently not a WTO member but it is in the process of accession negotiations. The objective of the Vietnamese Government is to accede to the WTO within the Doha Round by 2005. Two agricultural trade liberalization scenarios are simulated: one with Vietnam being member of the WTO and a second with Vietnam not being a member of the WTO.

The chosen methodology is a macro-micro approach which uses first a general equilibrium setting (standard GTAP model) to assess and analyse the price changes of the Harbinson suggestions. The data for the macro simulation are from the GTAP database (2001). In a second step, to estimate poverty implications for the households, data from a household survey from Northern Vietnam (2001) are used together with the price changes resulting from the macro simulation. Within this post-simulation analysis household data are mapped to the GTAP data. In order to estimate the net income and poverty effects of trade liberalization the income side (via factor price changes) and the consumption side (via consumption price changes) are considered. Households are classified according to their income structure and their consumption shares for different product categories. Results show how rural farmers in Northern Vietnam may be affected by agricultural trade liberalisation and the country's accession to the WTO; the effects on farmers' net income and thus their poverty situation are assessed.

### 1 Background and aim of the study

Within the liberalization efforts during the last years the World Trade Organization (WTO) played an important catalytic role by establishing a multilateral trading system where up to January 2004 148 member countries were accepted by the Ministerial

Conference. However, during the present Negotiation Round, also called the Doha Development Round, some drawbacks occurred and scheduled deadlines could not be met, especially not for the agricultural sector. In preparation of the Ministerial Meeting in Cancún, Mexico, in September 2003, the WTO suggested further liberalization for the agricultural sector in the so called Harbinson Paper to break up the deadlock in the negotiations. This was meant to lay a ground for further discussions in the sensitive area of agricultural liberalization. Although the participating countries could not agree during the Ministerial Conference in Cancún on further commitments to liberalize the multilateral trading system, efforts are still under way to bring the Doha Development Round to a successful end with further agreements to be reached. An important step was the agreement in July 2004 on a framework for modalities which frees the way for the further Doha Work Programme.

Vietnam is currently not a WTO member but is in the process of accession negotiations. The desire to join the WTO is one step within the opening of the Vietnamese economy during the last years. The country started a reform process (Doi Moi) from a centrally planned economy to a market-oriented economy in 1986. During this transition Vietnam experienced extraordinary economic growth mainly based on trade. After the first years of reform the process lost some of its momentum due to the Asian crisis but also to the challenges to implement domestic reforms in Vietnam. The objective of the Vietnamese Government is to accede to the WTO within the Doha Round by 2005. The incentive to fully join the trade system of the WTO will largely be driven by the possible gains that can be expected from the accession besides the wish to promote domestic reforms.

The discussion about trade and its role in the development process can be traced back over decades. The last years put more emphasis not only on development but on the explicit eradication of poverty as a precondition for further development within countries. Theories of the effects of trade on the poor and their poverty situation emerged and attempts to quantify the poverty impacts of trade liberalization became prominent. The challenge is to trace the effects of international trade liberalization on the individual household level where poverty occurs. The objective of this paper is to analyze implications of trade liberalization, as discussed within the Doha Round on rural households in mountainous regions of Northern Vietnam. The paper will examine how poverty rates for households in Northern Vietnam are affected when prices change due to agricultural trade liberalization.

## 2 Methodology and data

A two-step micro-macro synthesis approach is chosen combining the GTAP general equilibrium model with a post-simulation analysis to examine the effects of multilateral trade liberalization on rural households in Northern Vietnam. The term micro-macro synthesis is a recent term in the literature examining the relationship between trade and poverty. Used in this context it means the “sequential linking of a model based on micro-level data with a model based primarily on macro-level data” (Reimer, 2002).

### **2.1 Micro-macro synthesis – first step: general equilibrium simulation with the GTAP Model**

The GTAP modelling framework employs a standard CGE model based on the neoclassical theory of firm and household behaviour assuming perfect competition, rational and utility optimizing behaviour. The standard model is a comparative static model which means that after introducing an exogenous shock like a policy change the model works out a new equilibrium in all markets and determines new values for the

endogenous variables. The model and its characteristics are extensively documented in the literature (Hertel, 1997; Brockmeier, 1996).

Following the mandate from the Doha Ministerial Declaration and in preparation of the WTO Ministerial Meeting in Cancún, Mexico a proposal for further liberalization in the agricultural sector was submitted by the chairperson of the agricultural negotiations, Mr. Harbinson, in February 2003. It tried to bridge the immense gaps between parties in the negotiation process. A slightly revised version of this so-called Harbinson paper (March 2003) is the basis for the following two GTAP simulations. Table 1 summarizes the scenarios:

**Table 1: Content of agricultural trade liberalization scenarios**

Simulation 1: AgrLib	Agricultural trade liberalization following Harbinson II <b>without</b> Vietnam's accession to the WTO				
	- export subsidies are reduced to zero				
	- import tax are reduced along the schedule following tax bands				
	For industrialized countries:				
	Tax band	> 90%	15% - 90%	< 15%	
reduction	60%	50%	40%		
For developing countries:					
Tax band	> 120%	60% - 120%	20% - 60%	< 20%	
reduction	40%	35%	30%	25%	
Simulation 2: AgrLib+AccVn	Agricultural trade liberalization following Harbinson II <b>with</b> Vietnam's accession to the WTO				
- the same export subsidy and import tax reductions as in scenario 1					
plus:					
Vietnam implements the agricultural liberalization itself as all other WTO members					
Vietnam enjoys the lower tariff rates that are applied between all WTO members					

## 2.2 Micro-macro synthesis – second step: post-simulation analysis

Having obtained the price changes from trade liberalization scenarios from the GTAP general equilibrium model the post-simulation analysis aims at showing the implications at the household level. Households are affected by price changes in the commodity and the factor markets because adjustments are transmitted through these two channels (Reimer, 2002). The net income effect can thus be obtained as follows: Net income effect = consumption effect + earnings effect.

The aim of the post-simulation analysis is to match the GTAP price changes with the household data in order to obtain the net income effect and the implications for poverty. The post-simulation analysis is done in five steps (Friedman, 2000):

1. Matching the simulated price changes to household consumption
2. Measuring the level-of-living
3. Measuring changes in the cost-of-living (compensating variation)
4. Measuring changes in household earnings
5. Estimating the net effects of trade liberalization

The following description of the methodological approach is based on these five steps and based on calculations suggested by Neil McCulloch (McCulloch, 2003).

### 2.2.1 Matching the simulated price changes to household consumption

From the GTAP results commodity price changes and price changes for different production factors are taken. The consumption information is derived from household surveys. Special attention is given to the consumption of self-produced goods. The value of consumption of the households for different goods is calculated following the commodity aggregates of the global equilibrium framework. Then mean expenditure shares for different commodities and different household categories are derived for different household categories. The expenditure shares for consumption goods reveal the importance that price changes for these goods have: The bigger the expenditure share the bigger the influence from a price change of this product.

### 2.2.2 Measuring the level-of-living

In order to measure the level-of-living a binary index poor/non-poor is used (Friedman, 2000). The choice to categorize a household as poor or non-poor depends crucially on the definition of a poverty line: if a household falls under this line he is deemed to be poor.

### 2.2.3 Measuring changes in the cost-of-living (compensating variation)

The consumption effect can be calculated by multiplying the price changes with the consumption expenditure shares that are spent for the different consumption goods. Friedman suggests to additionally taking into account consumption of self-produced agricultural goods. In the case of decreasing prices for agricultural goods households with self-consumption are relatively worse off compared to households that buy their food (Friedman, 2000). Therefore, the imputed values for self-produced goods are treated as negative expenditures to calculate an adjusted measurement. The percentage effect on the cost-of-living can be written as (adapted from McCulloch, 2003):

$$\frac{\Delta CL}{CL} = \sum CS_{jb}^c \left( \frac{\Delta p_{jb}^c}{p_{jb}^c} \right) - \sum CS_{js}^c \left( \frac{\Delta p_{js}^c}{p_{js}^c} \right) \quad (1)$$

with  $CL$ : cost-of-living

$CS_{jb}^c$ : consumption expenditure share of consumption good j bought

$p_{jb}^c$ : price of consumption good j bought

$CS_{js}^c$ : consumption expenditure share of consumption good j self-produced

$p_{js}^c$ : price of consumption good j self-produced

Equation (1) shows that the change in the cost-of-living for a household depends on the differences in relative prices among the bundle of consumed goods as well as on the consumption expenditure budget share spent on each good. In the case of decreasing prices both terms become negative and the second term is then added and thus increases the cost-of-living of self-producing households relative to the rest. In the case of increasing prices households that consume their own-produced goods are relatively better off. In this case the two terms are positive and the second term is then deducted and thus reduces the cost-of-living of self-producing households. So far, this analysis only incorporates the consumption side. With the next steps the earning side will also be included in the analysis.

#### 2.2.4 Measuring changes in household earnings

From the GTAP simulations changes in returns to production factors can be derived. These changes are brought together with the available household data on earnings generation. From the household data different sources of earnings are derived like earnings from wages and salaries, earnings from agricultural production, earnings from non-agricultural own business and other minor sources. The share of each category shows the relative importance for total household earnings (McCulloch, 2003).

The household earning change can thus be calculated as (adapted from Friedman, 2000, McCulloch, 2003):

$$\frac{\Delta EARN}{EARN} = \sum ES_i^h \left( \frac{\Delta p_i^h}{p_i^h} \right) \quad (3)$$

with  $EARN$ : earning

$ES_i^h$ : earning share of production factor i for household h

$p_i^h$ : price of production factor i for household h

With the different assumptions and the above equation (3) it is possible to calculate the earnings effect of the simulated agricultural trade liberalization via the price changes of the production factors and the commodity price changes.

#### 2.2.5 Estimating the net effects of trade liberalization

When both the consumption and the earnings effects are determined the net effect of trade liberalization is easily obtained by subtracting the consumption effect from the earnings effect to get the net income effect for each household (Friedman, 2000). It has to be kept in mind that the results obtained are “worst case” scenarios because no quantitative response is assumed neither through substitution effects in consumption nor through earning generation changes (McCulloch, 2003). For poverty alleviating policy measures it is important to know the “worst case” to help the poor to manage this transition process. With the net income effects calculated it is possible to determine the new extent of poverty and compare it with the original poverty rates calculated before.

### 2.3 Data

The database used in the macro model is the GTAP dataset, version 6.1 with reference year 2001 (Dimaranan and McDougall, 2003). It consists of 85 countries and regions, 57 economic sectors and 5 production factors (skilled labour, unskilled labour, land, capital and natural resources). An aggregation of regions and sectors which follows the needs of the research question is necessary and is shown in Table 2:

**Table 2: Aggregation of regions and sectors (12x10)**

<b>Regions</b>	<b>Sectors</b>
Vietnam (VNM)	Paddy rice (PDR)
ASEAN	Vegetables & fruits (V F)
China, Taiwan, Korea (CHTWKO)	Cereals, oils seeds, raw sugar, fib (COSF)
Japan (JPN)	Other crops (OCR)
Australia, New Zealand (AUSNZ)	Animals & animal products (AnimP)
United States of America (USA)	Primary products (PrimP)
European Union (EU15)	Meat (MTP)

CEE Countries (CEEC)	Processed rice (PRR)
Rest of developing countries (RDC)	Other processed food (OPRF)
Rest of industrialized countries (RIC)	Textile & cloth manufacturing (TCMNFC)
	Other manufacturing (OMNFC)
	Services (SVCES)

The EU15, CEEC, USA, Japan, Australia & New Zealand, and the rest of industrialized countries (RIC) are defined as industrialized countries and the remaining regions are sub summarized under developing countries.

Household data are from 247 Vietnamese households from a survey that was done in two subprojects (F1/F2) of a research project of the University of Hohenheim called “The Uplands Program – Research for Sustainable Land Use and Rural Development in Mountainous Regions of Southeast Asia”(Dufhues and Wirth, 2002). This program is an interdisciplinary Thai-Vietnamese-German Collaborative Research Program.

Households are located in several villages in Son La province (district Yen Chau) and Bac Kan province (district Ba Be) in Northern Vietnam. Both regions give a good picture of the situation of poor rural farmers in the mountainous areas of Northern Vietnam. They are considered among the group of the poorest districts of the country due to the geographical conditions and the marginalization of ethnic minorities within the population. The survey was done in two rounds from November 2001 until April 2002 and relates to the time period 2001.

### 3 Results and their discussion

The first part gives the price results for the macro-simulation before proceeding to the presentation of income and poverty results for the households of the survey following the different steps of the post-simulation analysis in the second subchapter.

#### 3.1 Price effects of macro-simulation

When the multilateral trading system continues liberalization in the agricultural sector while Vietnam is still no member of the WTO this results in declining prices in Vietnam over all sectors as can be seen in Table 3. The magnitude in the agricultural sectors is greater (-1% to -3%), whereas the manufacturing and service sector is only affected by price declines of under 1%. The results of simulation 2, when Vietnam is a member of the WTO, reveal price increases over all sectors. The strongest price increase happens in the primary production sector (+3.5%) whereas the weakest increase for the agricultural sector can be observed for the other processed food (OPRF) sector with an increase of less than half a percent. Also the manufacturing and service sectors experience only small price increases.

**Table 3: Price effects for Vietnam (%)**

Products/sectors	Sim 1 AgrLib	Sim 2 AgrLib+AccVn	change
PDR	-1.68	2.54	4.22
V_F	-1.88	3.20	5.08
COSF	-2.06	3.45	5.51
OCR	-2.80	3.18	5.98
AnimP	-1.92	2.49	4.41

PrimP	-1.94	3.50	5.44
MTP	-1.37	1.38	2.75
PRR	-1.60	2.32	3.92
OPRF	-0.91	0.38	1.29
TCMNFC	-0.56	0.19	0.75
OMNFC	-0.63	0.34	0.97
SVCES	-0.74	0.06	0.80

Source: GTAP data, own calculations.

The price effects on the labor market are modest (Table 4). In the case that Vietnam is not in the WTO and agricultural trade liberalization is pursued wages for Vietnamese unskilled and skilled labour go down equally by -0.8%. The downward trend holds even when Vietnam becomes a member of the WTO but is then much smaller. Wages for unskilled labor nearly stay unchanged with a slight decline of -0.1% and skilled labor suffers from a wage decrease of -0.3%.

**Table 4: Wage effects for skilled and unskilled labor for Vietnam of simulation 1 and 2 (%)**

	Sim 1 AgrLib	Sim 2 ArgLib+AccVn	change
Unskilled labour	-0.8	-0.1	0.7
Skilled labour	-0.8	-0.3	0.5

Source: GTAP data, own calculations.

### 3.2 Income and poverty effects for households in Northern Vietnam

To examine the income and poverty effects of the price changes of the trade liberalization scenarios the outcomes of the macro model are linked with the household post-simulation analysis. The consumption and earning effects are determined to finally derive the net income and poverty effects.

#### 3.2.1 Consumption effect

For rural households in Northern Vietnam subsistence agriculture and especially the cultivation of rice for own-consumption plays a dominant role. For that reason subsistence consumption is included in the calculation of consumption shares, evaluated at their local market value (see also World Bank, 2003). When including subsistence consumption into total consumption minimum and maximum per capita consumption are at 428800 VND/year (equivalent to 29,12 USD) and 3785300VND/year (equivalent to 257,07 USD) respectively with an average of 1395300VND/year (equivalent to 94,76 USD). The share of subsistence consumption can attain up to 92 percent of total consumption with an average of around 50 percent over all households of the survey. The per capita consumption terciles and the distribution of consumption expenditure shares taking into account subsistence consumption are illustrated in Table 5.

**Table 5: Consumption expenditure shares by tercile of per capita consumption including subsistence consumption (%)**

	1 n=165	2 n=70	3 n=12	avg n=247
FOOD TOTAL	84,0	83,8	83,7	83,9
FOOD total bought	29,4	35,5	39,5	31,6

Husked rice	0,2	0,1	0,0	0,2
Rice	6,2	7,4	5,2	6,5
Maize, cassava, sweet potato	0,9	1,0	1,3	1,0
Fruits, vegetables, beans	2,1	2,8	4,1	2,4
Meat, eggs	12,0	15,5	17,4	13,3
Oil, salt, sugar, tea, cigarettes, alcohol	8,1	8,8	11,5	8,4
FOOD total subsist.	54,5	48,4	44,3	52,3
Husked rice subsistence	40,1	36,0	33,9	38,7
Fruits, vegetables, beans, subsistence	6,8	5,3	4,5	6,3
Maize, cassava, sweet potato, subsistence	2,4	0,9	0,0	1,8
Meat, eggs subsistence	5,2	6,2	5,9	5,5
NON-FOOD TOTAL	16,0	16,2	16,3	16,1
Wood	0,1	0,4	0,6	0,2
Soap, petrol, lamp oil	4,5	4,8	6,8	4,7
Electricity	0,8	1,4	1,4	1,0
Clothing	10,1	7,3	7,4	9,2
Building maintenance	0,6	2,1	0,1	1,0
TOTAL	100	100	100	100

Source: Household survey SFB 564 project F1/F2, own calculations.

Rice from self-production is the dominant consumption share with an average of nearly 40 percent of total consumption expenditures followed by meat and egg consumption (bought and self-produced) with expenditure shares between 17 and 23 percent. For non-food items clothing expenditures dominate with their relative importance in total consumption being 10 percent for the poorest terciles and around 7 percent for the upper terciles. Other manufactured products (soap, petrol, lamp oil, etc.) attain a share of around 5 percent with slightly increasing tendencies over the terciles.

Expenditure shares for consumption goods reveal the importance that relative price changes for different goods have: the more important the share of a product category within total consumption and the bigger the share of bought consumption goods the more is the household influenced by price changes of this product category.

Assuming that the level-of-living is measured via consumption expenditures the next step is to choose a poverty line. Households falling with their expenditures below this line are defined as being poor. Three different approaches to poverty lines are used in Vietnam.

1. Poverty lines of the Ministry of Labour, Invalids and Social Affairs (MOLISA)
2. Poverty lines of the General Statistical Office (GSO)
3. Poverty lines of the World Bank

Taking the per capita consumption expenditures of the household survey in Son La and Bac Kan Province and assuming a binary index who defines those households that fall below a poverty line as poor and the others as non-poor the initial extent of poverty



before any liberalization in this regions following the different poverty lines can be determined.

Taking the commodity price changes from the two GTAP simulations together with the expenditure shares it is possible to calculate the short run changes in the costs-of-living for the households which corresponds to the consumption effect. Results are displayed in Table 6:

**Table 6: Consumption effect (cost-of-living effect) from trade liberalization assuming consumption expenditure shares with subsistence consumption for households in Northern Vietnam (%)**

Changes in the cost-of-living	1 n=165	2 n=70	3 n=12	avg n=247
AgrLiberalization (Sim 1)	0,4	0,1	0,0	0,3
AgrLib+Accession Vn (Sim 2)	-0,8	-0,4	-0,3	-0,7

Source: Own calculations.

In case that Vietnam does not accede to the WTO (simulation 1) the figures indicate that households in Northern Vietnam would suffer from a slight increase in their costs-of-living of up to 0.4 percent. The poorest tercile suffers from a bigger increase in its costs-of-living than the upper terciles. In the case of Vietnam's accession to the WTO and further multilateral liberalization (simulation 2) costs-of-living for households in Northern Vietnam generally decline by an average of -0.7 percent. The poorest tercile benefits from a stronger decline in its costs-of-living compared to the upper terciles. The reason for the results lays in the calculated GTAP price changes and the consumption shares which are different for the terciles.

### 3.2.2 Earning effect

So far the effects of price changes on the consumption side have been analyzed, but the earnings side has been neglected. Trade liberalization does not only affect prices of consumption goods: agricultural households who are selling their products are affected by the same price changes through the effect on their earnings. Moreover, prices of production factors like wages can change, and their share in total earnings determines how much a household is affected.

For rural households agricultural earnings are in most cases the most important income source. In order to get a better picture how this agricultural earnings are generated the shares of different crop and livestock activities are determined. Other earning categories include earnings from non-agricultural own-business, wages and salaries as well as a category "transfers". Table 7 shows the contributions of different categories to total earnings for terciles of per capita consumption (including subsistence consumption):

**Table 7: Earning shares by tercile of per capita consumption (%)**

	1 n=165	2 n=70	3 n=12	avg n=247
AGRIC INCOME	81,4	79,4	73,6	80,4
Rice cultivation	32,4	31,6	31,4	32,1
Veg & fruits cultivation	8,6	9,1	6,9	8,6
Maize, cassava, sweet potato cultivation	22,9	18,9	10,4	21,2
Livestock	17,5	19,8	24,9	18,5
OFF-FARM SMALL OWN-BUSINESS	6,3	6,0	6,4	6,2
WAGES & SALARIES	8,6	9,0	20,0	9,3
TRANSFERS, PENSIONS	3,7	5,5	0,1	4,0
TOTAL	100	100	100	100

Source: Household survey SFB 564 project F1/F2, own calculations.

The figures confirm that the households are predominantly agricultural households with rice being the most important earning source. Differences between consumption terciles can be observed within the agricultural earnings for cultivation of other cereals and livestock production. Wages and salaries are the second important income source followed by income from off-farm self-employment. Transfers and pensions play a minor role but are nonetheless present, especially in the lower terciles.

In order to relate the price changes from the macro-simulations to the earning information from the household survey several assumptions are made how to match the two and then the change in earnings is calculated (Table 8):

**Table 8: Earning change results for households in Northern Vietnam (%)**

Changes in earnings	1 n=165	2 n=70	3 n=12	avg n=247
AgrLib (Sim 1)	-1,8	-1,7	-1,6	-1,8
AgrLib+AccVn (Sim 2)	2,3	2,2	1,9	2,2

Source: Own calculations.

The earning changes for all terciles reveal that the differences between them are relatively evenly distributed. For simulation 1 earnings decline on average by -1.8 percent with the strongest effect in the lower tercile. For simulation 2 earnings increase by an average of 2.2 percent. Again, the bottom tercile shows the biggest effect with an increase in earnings of 2.3 percent. Again, the results are determined by the GTAP price change results and the different earning shares for the terciles from the household data.

The results from Table 8 only show the impacts on earnings of rural households in Northern Vietnam following multilateral trade liberalization. In order to get a complete picture of the effects the next part will bring together the consumption effect and the earnings effect to derive the net income effect.

### 3.2.3 Net income effect

Combining both effects, i.e. a household's consumption pattern and its earning pattern, we calculate the net income effect. For simulation 1 the consumption and earning effects go both in the same negative direction: costs-of-living go generally up and the earnings go down thus resulting clearly in a negative net income position. In the case of simulation 2 households are positively affected in their net income both by declining costs-of-living as well as by increased earnings. The net income effects for the two simulations are shown in Table 9.

**Table 9: Net income effects from trade liberalization for households in Northern Vietnam (%)**

Changes in net income	1 n=165	2 n=70	3 n=12	avg n=247
AgrLib (Sim 1)	-2,2	-1,9	-1,7	-2,1
AgrLib+AccVn (Sim 2)	3,1	2,6	2,3	2,9

Source: Own calculations.

In the case of simulation 1 households in Northern Vietnam suffer from an average net income decrease of around 2 percent due to the same factors that determined the separate consumption and earning effects. Households in the lower tercile are more negatively affected than the upper terciles. For simulation 2 when Vietnam is in the WTO the results look different: households in Northern Vietnam benefit from net

income increases with an average increase of nearly 3 percent. Households in the poorest tercile can grasp higher net income increases than the upper terciles.

### 3.2.4 Poverty effect

Having obtained the percentage changes in net income for different household terciles in Northern Vietnam following two agricultural liberalization scenarios the question remains how this affects the poverty situation in this region. A comparison between the extent of poverty before and after agricultural trade liberalization is given in Table 10.

**Table 10: Poverty rates before and after agricultural trade liberalization for households in Northern Vietnam (%)**

	MOLISA Rice poverty line, 1997	GSO Food poverty line, 1996	World Bank Food poverty line, 1998	World Bank Total poverty line, 1998
Before liberalization	10,0 %	48,2 %	51,8 %	76,5 %
Sim 1 (AgrLib)	10,8 %	49,4 %	52,6 %	76,9 %
Sim 2 (AgrLib+AccVn)	9,6 %	46,6%	49,0 %	74,9 %

Source: Own calculations.

If agricultural liberalization is pushed further within the multilateral trading system and Vietnam is not member of the WTO households in Northern Vietnam are negatively affected, although moderately. The extent of poverty as measured by the MOLISA rice poverty line and the WB food poverty line increases by 0.8 percent; the GSO poverty line experiences the highest increase with 1.2 percent and the WB total poverty line the smallest increase with 0.4 percent. The rise of poverty by MOLISA's measure can be interpreted that more people will live in absolute poverty and are chronically undernourished. In the case of the second simulation when agricultural liberalization is going on and Vietnam is member of the WTO households in Northern Vietnam are positively affected. Declines in poverty can be observed measured by all poverty lines. Taking the MOLISA rice poverty line poverty goes down by 0.4 percent whereas following the GSO food poverty line it declines by 1.6 percent. The strongest reduction in poverty is shown if the food poverty line as defined by the World Bank is applied; poverty shows a reduction of 2.8 percent falling under 50 percent to 49.0 percent. For the total poverty line of the World Bank the poverty reduction amounts to 1.6 percent compared to the situation before liberalization and amounts to 74.9 percent.

## 4 Conclusions and policy recommendations

Developing countries including Vietnam need to pay special attention to the impact of agricultural trade liberalization on their poor population; agriculture is still the most important income source of the poor in developing countries. To analyse the linkages between trade and poverty is therefore an important task and the outcomes of such analysis are important for national policies and especially for targeted poverty reduction programmes.

If Vietnam is not member of the WTO and agriculture is further liberalized in the multilateral trading system remote areas such as Son La and Bac Kan in Northern Vietnam are adversely affected. Due to their consumption and earning patterns costs-of-living go up and earnings decline, thus leading to a net income decrease of -2 percent. This leads to an increase of extremely poor households as measured by a Vietnamese rice poverty line by 0.8 percent. Other poverty lines show an increase in the extent of poverty between 0.4 and 1.2 percent. In the case of Vietnam's accession to the WTO prices increase over all sectors, especially in the agricultural sector. Combining this

information with the household data it can be seen that costs-of-living go down due to the high share of subsistence production. On the other hand, earnings go up because households in Northern Vietnam get most of their income from agriculture. Both costs-of-living and earning developments lead to a raise in net incomes of 3 percent and declines in poverty rates of 0.4 to 2.8 percent.

For rural households in Northern Vietnam it is more beneficial if the country accedes to the WTO. However, what might be good for them might be less good for other poor groups with different consumption and earning patterns and a lesser degree of subsistence production. Therefore, it is necessary for the Vietnamese government to determine the impact of international policies on various groups of the population, like the rural and the urban poor. The results of these analyses have to be integrated in national poverty reduction policies. Special attention has to be given to the role of subsistence production and how it is included in the analysis as this has a great influence on the final outcome. Moreover, the definition and use of different poverty lines can help to determine the poorest parts of the population and poverty reduction efforts should start there.

The first channel to reduce poverty is through an increase in earnings and less through a reduction in costs-of-living. Therefore the challenge for the government is to create better income opportunities in those sectors where the poor have their highest income share, i.e. in the agricultural sector. This can happen through the creation of functioning markets to sell agricultural products. By ameliorating infrastructure or extension services to produce a higher quality product which is especially relevant for remote areas like the mountainous regions in Northern Vietnam, poor households can be linked to market opportunities created through liberalization. Moreover, sustainable agricultural systems need to be promoted which allow for more income and which do not harm the environment. In mountainous regions in Northern Vietnam with high rates of erosion and declining soil fertilities this is of special concern as the environment is the basis for income generation for the poor.

#### Reference List

- Brockmeier, Martina. 1996. A Graphical Exposition of the GTAP Model. GTAP Technical Paper No. 8. Purdue, USA: Purdue University, Center for Global Trade Analysis.
- Dimaranan, B. and McDougall, Robert. 2003. GTAP data base 6.1. Purdue, USA: Purdue University.
- Dufhues, Thomas and Wirth, Thomas. 2002. Joint Questionnaire for Rural Households: subproject F1 "Land Tenure and Natural Resource Management in the Upland Areas of Vietnam" and subproject F2 "Rural Financial Market Development in Northern Vietnam". SFB 564 The Uplands Program, First Phase 2000-2003. Hohenheim, D: University of Hohenheim.
- Friedman, Jed. 2000. Differential Impacts of Trade Liberalization on Indonesia's Poor and Non-poor. Paper prepared for the Conference on International Trade and Poverty, Stockholm, Oct 20-21, 2000.
- Hertel, Thomas W. 1997. *Global Trade Analysis - Modeling and Applications*. Cambridge, USA: University Press.
- McCulloch, Neil. 2003. The Impact of Structural Reforms on Poverty: A Simple Methodology with Extensions. Policy Research Working Paper 3124. Washington D.C., USA: World Bank.
- Reimer, Jeffrey J. 2002. Estimating the Poverty Impacts of Trade Liberalization. Purdue, USA: Purdue University.
- World Bank. 2003. *World Development Indicators 2003*. Washington D.C., USA: World Bank.