

DO MARKETS CARE ABOUT ETHNIC MINORITIES? EVIDENCE FROM A CGE MODEL FOR NORTHWEST VIETNAM

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1. Introduction

Trade liberalisation is associated with reductions in tariff and non-tariff barriers. The impacts of market opening, however, go well beyond the removal of such national boarder measures. Insufficient transportation, imperfect trade structures and inadequate institutional infrastructure effectively function as trade barriers and exclude particularly disadvantaged areas in developing countries from participation in national and international markets (ADB, 2002; McCulloch et al., 2001; Rodriquez and Rodrik, 1999). Such limited market access generally leads to negative relative price effects, inefficient allocation of resources and limited production opportunities. Several case studies support the hypothesis that improved infrastructure has positive impacts on production and productivity (von Oppen and Gabagambi, 2003; Deichmann et al., 2000). Transportation infrastructure plays the most direct role in this process, because of the straightforward links between road infrastructure and transportation costs (Minten and Kyle, 1999; Limao and Venables, 2001). This study hypothesises that improvements of infrastructure effectively function like lower tariffs and lead to the same kind of economic benefits.

In Vietnam, disparities in economic development are linked to geographic location and ethnic affiliation. Especially the mountainous regions are left behind in the successful national economic development. Regional disparities are aggravated by the high share of ethnic minorities living in these regions. (Bautista, 2001; Glewwe et al., 2002; Vietnam Consultative Group (VCG), 2003; Minot, 2000). An average annual growth of 6.8 % translated into a national poverty reduction from 58% to 29% between 1993 and 2002 (VCG et al., 2003). Nonetheless, poverty in the north-western mountainous region over the same period has only fallen by 13% and stood at 68% in 2002 (VCG, 2003). The study area of Son La is one of

three provinces classified as northwest Vietnam. Seasonally impassable roads, an insufficient number of physical market places, market information and a lack of a sound legal framework between buyers and sellers effectively function as trade barriers and increase transaction costs. This leads to substantial price differences of traded goods compared to other regions of Vietnam (Cuong, 2005).

85% of the province' inhabitants belong to ethnic minority groups. In addition to their geographic isolation, these groups are characterised by a low level of education, a shortage of capital, slow adoption of technical innovations and insufficient and untargeted government policies contribute to the weak economic performance of ethnic minority groups. Furthermore, language and cultural barriers lead to a "different income generation model" and a "culture of poverty" (Dao in Baulch et al., 2002; Thu and Winters, 2001; v. d. Walle and Gunewardena, 2001). Two different "paths to prosperity" for ethnic minority groups in Vietnam can be observed: the first is a strategy of economic and cultural assimilation that leads to the most successful economic performance. Groups that pursue the second path integrate economically, while retaining their cultural identity. Complete isolation leads to stagnant economic development and exclusion from rising living standards (Baulch et al., 2002). This study classifies the Thai as semi-adopters, while the Hmong, as the poorest ethnic minority, who live exclusively in rural areas and particularly at higher altitudes are classified as non-adopters.¹

Five channels can be identified through which these households are affected by market opening: commodity price changes and the availability of goods, factor prices changes and employment effects, growth effects caused by changes in incentives for investment and innovation, vulnerability and short run risks to negative external shocks and government income and redistribution (Winters, 2000). Since households tend to be more specialized in income than in expenditure, factor markets might be the most important linkage between trade and household welfare (Reimer, 2002; Hertel and Reimer, 2004). Labour markets in Vietnam are characterised by a strong correlation between labour mobility and the availability of transportation, access to formal and informal networks and education levels (Dang, 2003). It is therefore expected that sector-specificity of labour hinders especially remotely living and low-skilled households to profit by market opening in the study region.

The study employs a computable general equilibrium (CGE) model to examine the impacts of market opening. More specifically, a representative household approach (RHA) is employed that comprises geographical aspects and household disaggregation by ethnic group. Geography is implicitly included by the regional focus of the model. For the household specific focus it is argued that the simple economic structure and the intra-group homogeneity of ethnic minority households in the research area give a realistic picture of linkages and therefore the impacts of market opening on selected ethnic minority groups in the northern mountainous region (NMR). In that sense, this local approach to computable general equilibrium (CGE)-based impact analysis combines the advantages of RHA, while minimizing the disadvantages by concentration on small area and homogenous groups. As a way to explore the local economy-wide impacts of improved transportation infrastructure, the study simulates the effects of an exogenous price decrease for all imported goods and an exogenous price increase for exported goods. Additionally, two labour market settings with special relevance for the study region are studied. The first is a model of labour-specificity, implying that one or more labour categories are activity-specific. The second is a model that allows for unemployment. In this case, each activity is free to employ the labour quantity it requires at a fixed wage.

The objectives of this study are (1) to analyse the distributional impacts of market opening for a local Vietnamese economy and (2) to assess the role of price changes in import and export markets (3) to explore the role of labour-specificity for economic development and household income. The paper proceeds as follows: Section 2 extends a price transmission mechanism model to disadvantaged areas. Section 3 presents the database underlying the model and the model specification. Section 4 introduces key characteristics of the Son La economy, especially the trade balance, household characteristics and labour market in the context of key channels, through which households are affected by market opening. Section 5 presents the simulations and the results. Section 6 concludes.

2. Market Opening and Price Transmission

Economic theory suggests that open markets are better for growth in the long run. The more specific discussion, on how far market opening, structural characteristics of economies and growth are causally linked and how growth affects household welfare is less obvious. (Dollar and Kraay, 2004; Milanovic, 2004; Ravallion, 2004; Rodriguez and Rodrik, 1999). Several

lessons can be learned from empirical evidence. First, straightforward relations between trade liberalization and household welfare do not exist. In fact, complementary measures in the field of macroeconomic policy, institution building and infrastructure in the context of successful liberalization might play a similarly or even more important role (Rodriguez and Rodrik, 1999; McCulloch et al., 2001). Second, generalisations are hardly possible. Policy-relevant analysis thus calls for case by case studies that make use of household data (McCulloch et al., 2001; Reimer, 2002) and even within countries, impacts of market opening vary significantly. Third, trade liberalisation is extremely difficult to measure. It can rarely be observed as a single phenomenon and the complexity of interrelations and causal relationships between different measures is difficult to disentangle (Berg and Krüger, 2003).² Finally, market opening might produce losers even in the long run and developing countries often do not have the means to compensate them. Especially fringe groups such as ethnic minorities are more likely to be among the losers. They are often not the primary target group of government support programs, are less well endowed with capital and skills, their access to information and public services is often worse and they tend to live in remote areas (VCG, 2003, Baulch et al., 2002).³

In the context of national trade liberalization many studies have emerged using general equilibrium models. In this class of models, macro-micro synthesis and general equilibrium simulation with post-simulation analysis can be differentiated. Post-simulation analysis of impacts on household models varies in complexity on the household-model side. Generally such approaches have the advantage of incorporating a large number of households. One example is a study by Daude (2004) linking liberalisation results from the GTAP model to household survey data. Limitations of such studies include the fact that price transmission within a country is largely neglected, multiplier effects within the local context are ignored and macroeconomic consistency does not exist. Market opening on the household level is by its nature a general equilibrium problem, as exogenous shocks change the structure of production, prices of commodities, the terms of trade and factors. Second-round effects or multiplier effects are captured by CGE models, which is of particular importance in rural areas, where inter-sector and consumption linkages often have strong impacts on income distribution and poverty (Winters, 2004, Bautista, 2000, Breisinger, 2004). The representative household approach (RHA) does not have these shortcomings. This comes at the cost of neglecting intra-household group distributions. Bourguignon et al. (2003) compare results of an advanced version of macro-micro model with a RHA approach for different kinds of

shocks and find that results might differ substantially.⁴ The paper concludes that results and the nature of the bias vary depending on the circumstances and that the choice of the model once again depends on the specific case.

An assessment of tariff and non-tariff barriers at the national boarder, however, is only of limited use for intra-country market opening scenarios. For remote areas with their generally higher transaction costs an additional step in the price transmission model is particularly useful, because national market liberalisation might not affect isolated regions at all. In Mexico, for example, cuts of agricultural tariffs had no significant impact on remote areas due to high transportation costs (Nicita, 2004). Figure 1 illustrates price transmission mechanisms of tradable goods and the three major “barriers” that separate remote households from the international market. Imported goods are distributed within the country and consequently face costs for transportation and trade. The world market price of good A is increased by tariffs, non-tariff barriers and the exchange rate to constitute (p_b). Within the country, the good eventually faces domestic taxes, fees, regulations, compulsory payment procurements of authorities and transport costs to become the wholesale price (p_{ws}) (McCulloch et al., 2001). From the distribution centre the good is moved to regional and local markets facing additional costs for trade and transport that largely depend on road conditions and trade structures.

This study defines market opening as a process in which physical barriers to trade are reduced (improvement of transportation infrastructure), imperfect markets (caused by lack of market places, competition between traders, lack of information) become more competitive and institutional obstacles (corruption; lack of appropriate laws, regulation and executive power) are removed. Disentangling these effects should ideally be done in a sector- and location specific way along the supply chain, which proves difficult in practice. Market opening, however, can also be seen as a practical outcome rather than a set of policies. This assumption is supported by the fact that isolated measures in the context of market opening can practically not be observed in real world affairs (Winters, 2002). Furthermore, benefits of interventions that improve market access and competition are extremely hard to quantify. Benefits of road improvements for instance go well beyond producer and consumer surplus considerations (v.d. Walle, 2002). However, empirical evidence from China confirms high marginal returns to public investments of road infrastructure. Especially lower-quality roads (mostly rural roads) have high benefit-cost ratios for national GDP (Fan, et al. 2002; Fan and Chan-Kang, 2005).

3. Database and CGE model specification

The analyses of the present paper are based on a SAM for Son La province, Vietnam (Breisinger and Heidhues, 2004; Breisinger and Ecker, 2005). The SAM represents the year 2002 and includes information from a variety of sources including the Statistical Yearbook of Son La, the Yearbook of Commercial Statistics for Son La, the Agricultural Yearbook of Son La, the Tableau of Provincial Intermediate Consumption and Value-added Data, the National Input-Output Table and the Vietnam Household Living Standard Survey (VHLSS) for the year 2002, conducted by the General Statistics Office (GSO), Hanoi. It comprises 28 provincial production activities, 32 commodities, 4 factor types, 6 household groups and private and public enterprises. The government receives income from 2 tax accounts and the rest of the world includes intra-national and international transactions. The SAM captures distinct ethnic characteristics by defining 6 household groups by their ethnicity and rural/urban location. Households are grouped into Kinh (ethnic Vietnamese), Thai, Hmong and other ethnic minority groups in rural areas, and Kinh and ethnic minorities in urban areas. This household disaggregation results from the high share of ethnic minorities in the study region and their distinctive group-specific differences (see section 4). Regarding factor markets, the SAM distinguishes between capital as well as employed, agricultural and self-employed labour. ‘Agricultural labour’ includes income from farming, livestock raising, silviculture, aquaculture and hunting, trapping and domestication of forest animals. All other income resulting from private self-employment is recorded in ‘self-employed labour’. Income from wages and salaries of household members is included in ‘employed labour’. Table 1 shows the SAM disaggregation in detail. The documentation of the 2002 Son La SAM is available on the author’s website.

<http://www.uni-hohenheim.de/i3v/00065700/88701041.PDF>.

This SAM serves as the database for the CGE. The CGE represents a macro-economically consistent framework, while by the same time incorporating defined behaviour of institutions and households. A standard CGE model is used and calibrated to the 2002 SAM (Löfgren et al., 2002). Specification of model parameters and closures are presented subsequently.

Functional forms and elasticity specification

The CGE requires parameters that govern production activities, trade and household consumption. Producers maximise profits according to a production technology, which at its

top level uses a Leontief production function. Value-added is modelled as a CES function of primary factors; aggregate intermediate inputs are determined by a Leontief function of sectoral intermediate inputs. Household consumption differentiates between products, purchased at market prices and self-produced items valued at producer prices. Total household consumption is allocated across market and home-consumed commodities according to linear expenditure system (LES) demand functions. Elasticity is set at 0.5 to reflect the imperfect substitutability between home-consumed products and marketed products. Consumption elasticities for agricultural products classified by rural and urban were estimated by IFPRI, 2003 for the northern mountainous region and used for parameter specification.⁵ For industrial and service products it is assumed that they are uniform across commodities and set at unity for all households. The equilibrating mechanism for the factor markets is discussed in the experiment definition in detail. The Armington assumption is used for the specification of trade flows (Armington, 1969). Sectoral exports are determined by constant elasticity of transformation (CET) and sectoral imports by constant elasticity of substitution (CES) functions. In the regional setting the model assumes a uniformly high substitutability between provincial (domestic) products and products from the rest of Vietnam plus the rest of the world. CET and CES are set at 6 for the primary and secondary sectors, assuming a relatively high transformability between domestic sales and exports. For the service sector, CET and CES are set at 2 due to the fact that the services are mostly local in their nature and tradability therefore lower.

Macro closures

The macroeconomic closure rules determine how equilibrium is achieved in the trade balance, the government balance and the savings-investment account. In the present model, the exchange rate is fixed, which allows the trade deficit and foreign savings to vary freely. Savings drive investment. Savings of households and enterprises are fixed. For the government closure, the direct tax rate is fixed and government savings are flexible.

4. Markets and Households

Son La has about one million inhabitants and ranks fifth out of 61 provinces of Vietnam in surface area. Provincial GDP in 2002 stood at 165 million USD or 175 USD per capita as compared to a nationwide average of 432 USD (GSO, 2003). The economy is simply structured with a low level of diversification in production sectors. In 2002, 57% of the total

GDP was generated by the primary sector (agriculture, forestry and fishery), only 12% by the secondary sector and 31% by the tertiary sector (services). Industry is dominated by food processing and construction materials. Major intermediate goods including machinery, chemicals and fuel are not produced locally. The tertiary sector in the province comprises a high share of public services. Other relevant services include construction, trade and hotels and restaurants (Breisinger and Heidhues, 2004).

The trade balance defined as the ratio of trade between the province and the rest of Vietnam plus the rest of the world is negative and accounts to about 45% as a percentage of nominal GDP (Table 9). On the import side, processed food, machinery, rice, chemicals, fuel and textiles make up 56% of total imports to the province (Table 2). 61% of the major staple food rice is imported. Similarly, imports of processed food and textiles exceed local production. Exports out of the province are largely concentrated in the agricultural and forestry sector. Crops constitute 58% and forestry 12% of total imports respectively. Due to the high share of imports, a decrease in import prices caused by market opening would benefit the local economy, if increased real household income and a decrease in the price of intermediate inputs is translated into increased local production, productivity and demand for locally produced goods.

The first-order market impact of market opening on households on the consumption side theoretically depends on whether the household is a net producer or consumer of the imported good. While 97% of goods and services consumed by Kinh households originate from markets, the share for rural Thai and rural Hmong is only 33% and 22% respectively (Table 5).⁶ The high share of home produce and a low share of imported goods in the consumption basket of households among ethnic minorities should therefore limit the direct impacts of price changes of traded commodities. On average, urban households spend more than double the amount of money compared to their rural counterparts on consumption (Table 4). The expenditure share for food and foodstuffs amounted to only 27% among urban Kinh, 46% among rural Kinh, 57% among Thais and 69% among Hmong in 2002 of total household expenditure. Accordingly, expenditure shares for other goods and services are much lower for ethnic minority groups than for Kinh (Table 4). Regarding income, urban households have considerably higher incomes than their rural counterparts. Among rural households, Kinh had about 50% higher incomes than Thai and Hmong households (Table 15).

The contributions of labour types towards total value-added are 55% for agricultural labour, 23% for employed labour and 11% for self-employed labour and capital respectively. 93% of the Hmong earn their income from agricultural labour (Table 6). Their share of income from employed labour accounts to 3% and exclusively stems from unskilled and part-time employment (GSO, 2004). Thais earn 81% of their income from agricultural activities and 7% from wages. Both majority and minority households in urban areas earn about half of their income from employed labour, whereas the share of income from self-employed labour is highest among the majority households. The unemployment rate within Son La's workforce is 8%, amounting to 30% among the urban and 5% among the rural population, respectively (GSO, 2004). However, 27% of the rural workers are underemployed with a mean shortfall of about ten hours per worker and week. The underemployment rate in rural areas amounts to 31% at a mean shortfall of 15.45 hours per person and week.⁷

Education levels among the province inhabitants are generally very low. 76% of the total population aged between 16 and 60 years have no or only primary education. This education level is much more alarming in rural areas, where 85% of the population have received no or only a very low level of education (GSO, 2004). Even more alarming is the situation among ethnic minorities. The rate of uneducated or only poorly educated people stands at 87% among rural Thai people of whom 62% have received no education at all and more than half can neither read nor write. The rate of uneducated or only poorly educated people among Hmong people stood at 99% of the sample. 88% had no school qualifications and the illiteracy rate among them is 69% (GSO, 2004).

Agricultural and self-employed labour is characterised by low skills and low level of mechanisation, leading to low labour productivity in Son La province. Self-employed labour includes mainly small trading and manufacturing activities (GSO, 2004). These two sources dominate income of rural households. Average per capita income in the study area is quite uniform and ranges from VND 0.59 million to VND 0.68 million per capita/month in most sectors. Only persons working in education, energy and the real estate business earn considerably more (Table 7). The share of ethnic minorities' employees in these sectors is low, for Hmong it is close to zero (GSO, 2004).⁸

5. Simulations and Results

Simulations

Table 8 gives an overview of the scenarios. Market opening is assumed to lead to a general import price decrease of 5% for all imported goods in scenario PWMDECR and a general export price increase of 5% for all exported goods in scenario PWMINCR as a way to explore the impacts of improved physical, marketing and institutional infrastructure. The global 5% assumption can be justified by the emphasis of this study that is on relative distributional impacts of import and export prices and the role of labour specificity rather than on absolute impacts.⁹ Sensitivity analyses show that the magnitude of impacts substantially increases with decreasing import prices and increasing export prices. Direction and relative distribution of benefits, however, remain robust to the results. Both shocks are analysed under two different labour market assumptions: The first (1) addresses the distinct segmentation and sectoral immobility of labour markets and employs a closure of activity-specific agricultural labour, implying that demand for agricultural labour and its economy-wide wage is fixed, while supply is flexible. Therefore, agricultural labour income can only change through changes in activity output and prices and reflects quality differences that exist regarding education and location. Rules for employed and self-employed labour are similar to those in labour-market setting 2.

Due to widespread un- and underemployment in the study area, the second labour market setting (2) allows for unemployment in all labour categories. Each activity can employ any desired quantity at its fixed and activity specific wage. It assumes labour mobility among activities and serves as an indication of the impact of a more flexible labour market. The elasticity of substitution between factors and the elasticity of substitution between aggregate factor and intermediate inputs are set at 0.6 in both simulations to assure comparability. This value reflects a low substitutability and sensitivity analyses show that higher elasticities have strong effects for in the case of flexible labour markets, direction and relative distribution of benefits, however, remain robust to the results. Capital is assumed to be fully employed and activity-specific in all scenarios.

Model Results

Results from the model show substantially different distributional impacts for import and export price changes and underline the important role of labour markets in the determination

of impacts on economic growth and household income. Tables 8 to 15 report the impacts of market opening in Son La province. Macro-economic indicators are presented in table 9 and the impacts on relative domestic prices are reported in table 10. Changes in domestic production, imports and exports are reported in tables 11, 12 and 13. Table 14 reports changes in total value-added and table 15 relative and absolute changes in household income of the six different household groups.

In scenario PWMDECR, lower import prices lead to higher relative incomes, increased local production and employment under both labour market settings. In PWMDECR1, however, local GDP at market prices grows modestly by 2.1% and only few sectors such as construction, transportation and hotels & restaurants can significantly benefit from market opening. The agricultural sector stagnates, because its most important labour factor is activity-specific, reflecting an extreme situation of labour market segmentation. Private consumption increases by 5.7% due to the lower prices for imported goods. Total imports of goods and services increase by 10.6%, where livestock, fishery, processed food and intermediate goods for production constitute major import products. Investment picks up by 16.1%. Total income from self-employed labour increases by 11.3% and income from employed labour by 3.7%. Real household income increases for all household groups. Urban households belonging to the ethnic Vietnamese gain 5% additional income and urban ethnic groups can increase their household income by 5.4%. Rural households largely depend on income from agriculture and can thus not benefit to the same extent. Rural ethnic households can slightly increase their income, with only 2.9% additional income for rural Thai and 2.4% for rural Hmong households.

PWMDECR2 leads to much stronger impacts of market opening. Reduced import prices combined with the mobility of agricultural labour lead to a GDP growth of 7.9%. It boosts local production, primary sectors grow between 5% and 13%, the food processing sector by 7.5%. Again construction, trade, transportation and hotels & restaurants increase their production output, between 11% and 19%. Imports in most sectors increase sharply, exports increase especially in food processing, forestry products and textiles. The trade deficit with the rest of Vietnam increases by 1.1%. Total private consumption increases by 11.7%, household income changes among all household groups are positive. Again, income from self-employed labour grows most with an increase of 15.6%. Agricultural labour income increases by 8.6% followed by 6.3% of employed labour. Under these conditions, rural ethnic

minority households benefit more than the majority households regarding the percentage increase of income, with between 8.8% and 9.1% household income growth. However, if measured in absolute terms, Kinh households gain substantially more.

Like in PWMDECR1, in PWEINCR1 the immobility of agricultural labour largely inhibits gains from increased export prices. Local GDP is slightly decreasing. However, exports do rise by about 5% carried by modest increases in livestock and forestry products. Due to their low absolute shares, the relatively high increases in textiles and construction materials cannot substantially drive export growth. Domestic production output stagnates; especially the construction sector suffers from low investments and the export-orientation of relevant intermediate input-producing domestic sectors. Mainly due to decreasing factor income from employed and self-employed labour, urban household income declines by about 1.5%. Rural households can slightly increase their income; rural Thai households by 3.4% and rural Hmong households by 4.7%.

PWEINCR2 is the most favourable scenario for rural ethnic household incomes. Thais and Hmong can substantially benefit from increased export prices. The outcome per se is not surprising; since rural household incomes directly increase with increases in export earnings under the assumption that trade margins remain constant. Rural Hmong can substantially increase their income by 34% and rural Thai by 28%. Factor income for agricultural labour grows by 35%. Urban households do not benefit to the same extent, since their income increases only between 5% and 12%. This rather weak performance is largely due to the fact that the bulk of exports are agricultural products. Supply chains are short in this sector and limited to the processing of tea and coffee. Indirect benefits, however, occur through increased consumption of locally produced goods leading to income increases of self-employed and employed labour by 4%, respectively. GDP at factor cost increases by 20% and is mainly driven by a 50% increase in total export value. Domestic production strongly grows in export sectors such as agriculture, forestry and food processing.

Results are sensitive to substitutability between labour categories in labour setting 2 and between capital and labour in both scenarios. Assuming higher substitution elasticities in setting 1 between labour factors leads naturally to low impacts due to the sector-specificity of agricultural labour. In setting 2, however, a higher substitutability has strong positive impacts. Direction and distribution of impacts, however, remain robust to the presented results

6. Conclusions

The central question of this study was, whether and to which extent a local economy in a disadvantaged region of Vietnam is affected by market opening. The high share of ethnic minorities in the region further raised the point of impacts on ethnic groups.

Results show that market opening has generally positive effects on local GDP growth and aggregate household income. However, the size of impacts and the distribution of benefits vary substantially between the scenarios. By differentiating between price changes in import and export markets, the study shows that market opening in export markets has a considerably higher short-term potential to drive regional economic growth. Agricultural producers are the main direct beneficiaries of a general increase in export prices. The underlying assumption, however, that trade margins remain constant, i.e. that traders pass reduced transaction costs on to producers in the form of higher prices is unlikely to materialise in rural mountainous Vietnam. Access to information and market power of agricultural producers is weak and competition among traders is imperfect. The general problem of such export-led growth in agricultural products is its low value added in the provincial supply chain and the dependency on highly volatile markets. Particularly food processing industries have the potential to contribute to regional growth. With respect to volatile markets, the trade-off between economic benefits of specialisation and the implicit danger of such a strategy should be taken seriously.

A price decrease for imported goods clearly benefits those production activities that use imported goods intensively. Construction, trade, transport and forestry are main winners, while agriculture does not benefit to the same extent. While results clearly support the fact that cheaper access to imported investment goods and intermediates increases production and productivity of several local production sectors, it could also lead to crowding out effects of locally produced goods and substitution effects between capital and labour.

The main channels captured by the general equilibrium model through which households are affected by market opening are commodity price changes and factor income changes. Lower prices for imported goods lead to higher real incomes of households and lower production costs for local activities. This stimulates demand for locally produced goods and services and alters their comparative advantage. These effects take advantage of largely urban households,

while ethnic minority households cannot benefit from these effects to the same extent. On the consumption side this is due to the fact that rural minority households rely to a large extent on home-produced food and that their consumption basket includes few imported items. On the income side, ethnic minority production activities are extensive and thus use few imported intermediate inputs. Without structural changes towards market-orientation and intensification these groups are likely to be left behind in the market opening process.

Furthermore, it was shown in this study that the size of positive effects in both market opening scenarios strongly depends on labour market conditions. Sector-specificity of labour caused by the geographic remoteness of households, weak labour market information systems and very low education levels in the study area, clearly restricts economic development potentials. Inter-sector mobility of agricultural labour causes differences of 5.6% in the import scenario and 20.7% in the export scenario in local value-added GDP growth. It benefits all households and increases real household incomes between 6% and 34%, whereas a setting of activity-specific agricultural labour leads to 2% - 5% income increases for households.

Policy implications of this study are: positive economy-wide impacts of market opening emphasise the importance of connecting disadvantaged regions and groups to national and international markets through physical and institutional infrastructure. Benefits from reduced transaction costs are not necessarily passed on to producers. Functioning markets and competition are especially important in agricultural export supply chains, where traders directly deal with producers at farm gates. Information systems, market power, and the legal framework have to be strengthened. Results of the study underline the importance of the labour market in the market opening process. The substantial influence of the labour market should encourage measures that reduce sector-specificity of labour. For the study area, these measures include improved education for ethnic minority groups and the provision labour market information systems. Finally, results of this study clearly show that the opening of markets can increase household incomes. However, if measured in absolute terms, increases are modest. Market access is therefore a necessary, but not a sufficient policy for the development of disadvantaged regions. Without additional growth incentives and support for disadvantaged groups, intraregional disparities can be expected to increase in Vietnam.

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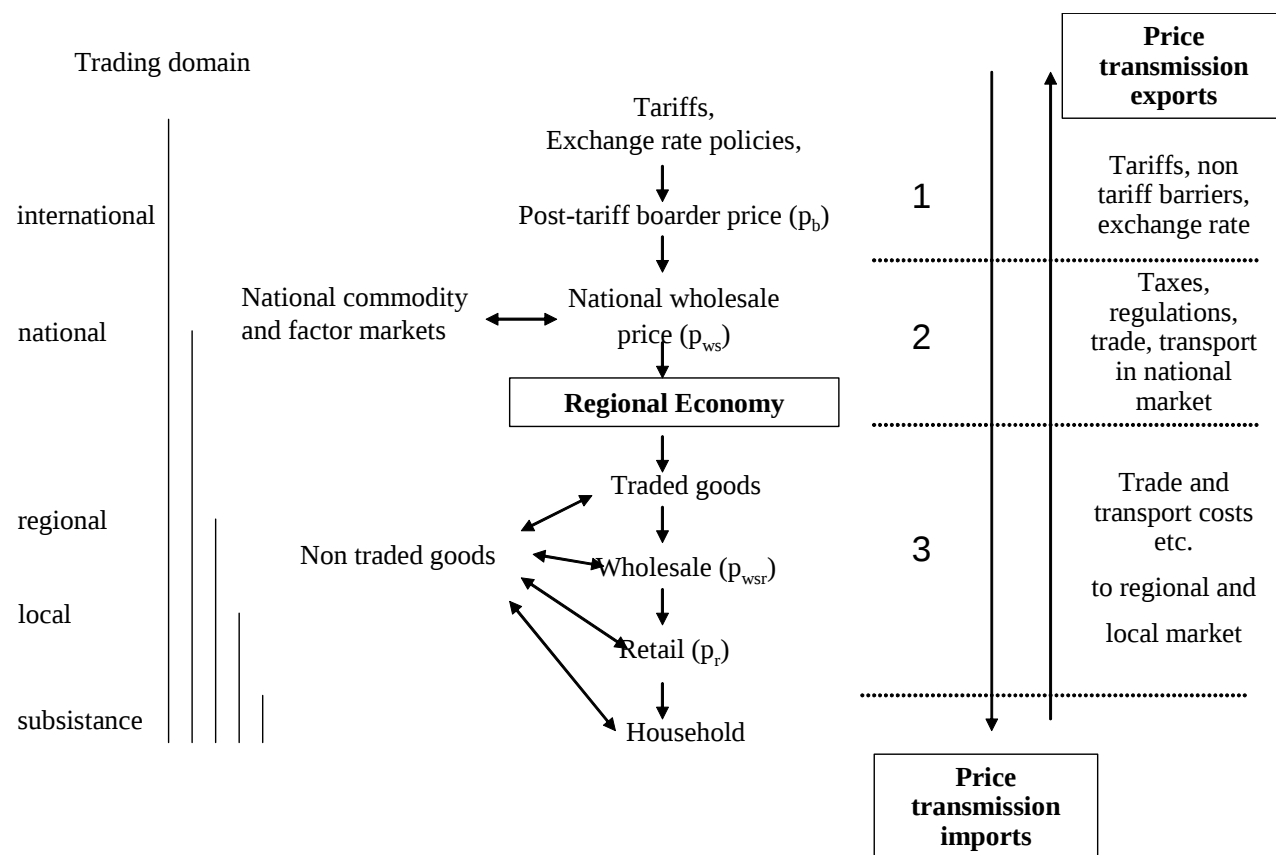
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Tables and Figures

Figure 1. Price transmission mechanism to remote areas



Source: based on own research, adapted from McCulloch et al. 2001

Table 1. Son La 2002 SAM Disaggregation

Activities/ commodities	Financial Services
Rice	Science and Technology
Coffee	State Management
Tea	Education and Training
Other Crops	Health
Livestock	Other Services
Forestry	Factors/Value Added
Fishery	Agricultural Labour
Mining	Self-employed Labour
Food Processing	Employed Labour
Textiles, Garment, Leather	Capital
Forestry Products	Households
Publishing and Printing	Urban Kinh Household
Other Goods	Urban Ethnic Minority Household
Cement	Rural Kinh Household
Other Construction Material	Rural Thai Household
Metal	Rural Hmong Household
Chemicals	Other Rural Household
Machinery	Enterprises
Electricity, Gas, Water	State owned Enterprise
Fuel and Lubricants	Private Enterprise
Agricultural Services	Taxes
Construction	Value Added Tax
Trade and Repair	Direct Taxes
Restaurant and Hotel	Local Government
Transport	Savings and Investments
Post and Communication	Rest of the World

Breisinger and Ecker, 2005

Table 2. Trade structure by sector in Son La province, 2002

	Ei/Yi	Mi/Yi	Mi/M	Ei/E
Rice	0.02	0.61	0.09	0.01
Other Crops	0.65	0.00	0.00	0.58
Livestock	0.20	0.06	0.01	0.05
Forestry	0.36	0.00	0.00	0.12
Fishery	0.00	0.41	0.01	0.00
Food Processing	0.03	2.96	0.14	0.00
Textiles, Garment, Leather	0.00	8.79	0.07	0.00
Cement	0.19	1.40	0.02	0.01
Other Construction Material	0.01	0.57	0.01	0.00
Chemicals	0.00	0.00	0.10	0.00
Machinery	0.00	0.00	0.11	0.00
Fuel and Lubricants	0.00	0.00	0.06	0.00

Source: own calculation based on Son La 2002 SAM

Ei/Yi: share of exports in total value of output in sector i

Mi/Yi: share of imports in total value of output in sector i

Mi/M: ratio of imports to total value of imports

Ei/E: ratio of exports to total value of exports

Table 3. Urban/ rural location of major ethnic group in Son La, 2002

	Total	Unit: %	
		Urban	Rural
Son La	100	11	89
Kinh	100	50	50
Thai	100	3	97
Muong	100	8	92
Hmong	100	0	100
Others	100	6	94
	100	100	100
Kinh	15	70	9
Thai	57	16	62
Muong	14	10	14
Hmong	8	0	8
Others	6	3	7

Source: GSO, 2004

Table 4. Expenditure Shares for Selected Goods among Household Groups

Household group						
Consumption items	Urban Kinh	Other Urban	Rural Kinh	Rural Thai	Rural Hmong	Other Rural
Food	0.27	0.32	0.46	0.57	0.69	0.57
Textiles	0.07	0.06	0.06	0.08	0.09	0.11
Education	0.06	0.03	0.07	0.03	0.01	0.03
Other Services	0.20	0.27	0.21	0.15	0.15	0.16
Other Goods	0.39	0.32	0.20	0.17	0.06	0.13
Total (in Mio. VND) per household	16.7	15.0	9.2	8.3	8.0	8.3

Source: own calculation based on expenditure section Son La 2002 SAM

Table 5. Market Shares of Total Private Consumption among Household Groups

Household group						
	Urban Kinh	Urban Ethnic	Rural Kinh	Rural Thai	Rural Hmong	Other Rural
Total Consumption	283987	99906	149967	531238	137637	298855
Home Consumption	9759	14346	43526	354204	107002	152767
Market Share of Total Private Consumption	0.97	0.86	0.71	0.33	0.22	0.49

Source: own calculation based on expenditure section Son La 2002 SAM

Table 6. Labour Market Segmentation among Household Groups for Son La Province

	Labour Employed	Labour Self- employed	Labour Agriculture	Capital
Urban Kinh	0.47	0.44	0.09	0.00
Urban Ethnic Minority	0.58	0.20	0.15	0.08
Rural Kinh	0.18	0.20	0.62	0.00
Rural Thai	0.11	0.07	0.81	0.01
Rural Hmong	0.03	0.03	0.93	0.01
Other Rural Household	0.04	0.02	0.94	0.00

Source: own calculation based on 2002 Son La SAM

Table 7. Average Incomes per Sector in Son La Province

	Average income/person/mo nth (in 1000 VND)	% of persons working in sector
Agriculture	591	0.88
Manufacturing	659	0.02
Trade	588	0.02
Construction	711	0.01
Hotel, restaurant	574	0.00
Education	998	0.04
Health	708	0.01
Government	679	0.01
Energy, real estate	2266	0.00
Other	7009	0.02

Source: GSO, 2003

Table 8. Simulations

Scenario 1: 5% decrease import prices	Scenario 2: 5% increase export prices
PWMDECR1	PWEINCR1
factor demand and economy-wide wage is fixed for agricultural labour	factor demand and economy-wide wage is fixed for agricultural labour
self-employed and employed labour have fixed wages and flexible supply variables	self-employed and employed labour have fixed wages and flexible supply variables
PWMDECR2	PWEINCR2
unemployment for all labour factors wage fixed, supply variable flexible	unemployment for all labour factors wage fixed, supply variable flexible

Source: own simulations

Simulation Results

Table 9. Macro-economic Indicators

Real GDP and National Accounts					
	in million				
	VND	% changes			
	BASE	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
Absorption*	3725.5	8.3	12.6	-3.1	8.3
Private consumption	2016.7	5.7	11.7	1.1	22.7
Investment	1219.5	16.1	19.2	-11.3	-12.3
Exports	1010.8	-2.7	7.6	5.2	49.1
Imports	-2173.8	10.6	15.8	-1.9	13.5
GDP at market prices	2562.4	2.1	7.9	-0.8	19.9
Net income tax	46.0	5.9	9.5	-1.6	6.3
GDP at factor cost	2516.4	2.1	7.9	-0.8	20.4

In the BASE column, aggregate real indicators are measured at base-year values.

Exchange rates and price indices are set at 100.

Items with GDP in name are expressed as % of nominal GDP.

*Total absorption is measured as the total value of domestic final demands, which equals GDP at market prices plus imports minus exports.

Table 10. Price Changes

	% change of output price activity a				% price change of composite good c			
	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
Rice	0.98	-0.37	3.62	1.65	0.95	0.95	1.00	1.00
Coffee	32.27	-0.07	-7.49	2.46	1.32	1.00	0.93	1.02
Tea	2.35	-0.26	18.75	2.01	1.02	1.00	1.19	1.02
OtherCrops	0.50	0.37	4.69	3.84	1.02	1.01	1.04	1.00
Livestock	1.12	-0.22	3.62	1.21	1.01	0.99	1.03	0.99
Forestry	2.04	-0.04	3.79	0.64	1.04	1.00	1.02	0.94
Fishery	0.84	-0.83	2.25	0.91	0.96	0.96	1.00	1.00
Minining	-2.28	-2.05	-0.33	0.11	0.96	0.96	1.00	1.00
FoodProcessing	-0.32	-0.40	4.43	4.39	0.95	0.95	1.00	1.00
Textiles	-2.15	-1.68	1.73	3.39	0.95	0.95	1.00	1.00
ForestryProduts	-2.57	-2.14	-0.02	1.97	0.95	0.95	1.00	1.00
PublishingPrinting	-1.25	-0.04	-0.32	3.14	0.98	0.99	1.00	1.03
OtherGoods	-2.06	-1.51	-1.99	-1.71	0.95	0.95	1.00	1.00
Cement	-1.38	-1.02	-0.26	0.00	0.96	0.96	0.99	0.99
ConstructionMaterial	-2.55	-2.20	-0.80	-0.28	0.97	0.97	0.99	0.99
Metal	-1.70	-1.27	-0.29	0.60	0.95	0.95	1.00	1.00
Chemicals	-2.45	-1.74	-0.19	2.41	0.95	0.95	1.00	1.00
Machinery	-1.49	-1.15	-1.14	-1.01	0.95	0.95	1.00	1.00
ElectricityGasWater	0.20	0.77	-0.26	1.27	0.96	0.96	1.00	1.00
FuelLubricants	-1.22	-0.93	1.01	2.00	0.95	0.95	1.00	1.00
Agric.Service	1.75	2.78	-2.60	-1.83	0.96	0.96	1.00	1.01
Construction	0.47	2.41	4.27	12.28	0.98	0.99	0.99	0.99
TradeRepair	-0.64	0.57	-0.46	2.36	1.00	1.01	0.98	1.00
Gastronomy	-1.11	-0.70	-0.34	0.89	0.97	0.98	0.96	0.98
Transportation	-0.66	-0.42	-0.09	0.50	1.01	1.02	0.98	0.98
PostCommunication	-0.28	-0.16	-0.10	0.25	1.01	1.06	1.03	1.21
FinancialService	-1.06	-0.62	-0.12	1.35	0.99	1.00	1.00	1.02
ScienceTechnology	0.06	3.07	0.08	10.64	0.96	0.96	1.00	1.00
StateManagement	0.00	0.00	0.00	0.00	0.99	0.99	0.98	0.99
Education	0.00	0.00	0.00	0.00	0.98	0.98	1.00	1.00
Health	0.00	0.00	0.00	0.00	0.96	0.96	1.00	1.00
OtherService	0.00	0.00	0.00	0.00	0.98	0.99	1.00	1.05

Table 11. Change in Local Production

	% change of domestic production				
	BASE	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
Rice	306.03	0.00	5.12	0.00	18.20
Coffee	6.71	0.56	9.07	-0.17	23.30
Tea	24.46	0.04	8.73	0.20	24.49
OtherCrops	904.41	0.01	6.97	0.04	36.02
Livestock	278.75	0.03	9.83	0.05	30.74
Forestry	332.17	0.06	13.60	0.10	40.33
Fishery	45.16	0.06	5.11	0.06	16.96
Minining	7.95	-4.95	-3.26	-1.42	1.75
FoodProcessing	107.30	-1.81	7.53	1.53	28.73
Textiles	17.91	4.16	5.94	8.78	15.45
ForestryProducts	17.21	-5.68	-2.46	-1.35	6.00
PublishingPrinting	9.80	2.59	5.05	-0.39	6.53
Cement	38.78	0.90	1.34	-2.07	-2.28
ConstructionMaterial	51.74	5.80	7.10	0.07	0.10
Metal	18.02	-0.26	0.96	-3.29	-2.40
ElectricityGasWater	40.96	-2.98	-2.15	-0.30	0.59
Agric.Service	9.81	-4.15	0.43	0.33	18.78
Construction	560.03	15.72	18.88	-11.04	-11.55
TradeRepair	209.12	6.87	11.20	0.08	11.81
Gastronomy	89.59	12.10	16.50	11.70	25.62
Transportation	144.30	10.13	12.79	-7.45	-5.65
PostCommunication	55.72	0.53	1.22	1.60	4.22
FinancialService	43.75	0.15	0.71	-0.20	1.08
ScienceTechnology	5.50	-4.18	-3.42	1.25	3.00
StateManagement	185.48	3.47	4.60	2.42	4.63
Education	243.33	-0.13	1.22	-1.64	1.44
Health	57.51	-0.18	3.33	0.06	12.39
OtherService	88.32	0.19	1.22	0.08	3.50

Table 12. Sectoral Change of Imports

	% change of imports				
	BASE	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
CRice	188.19	6.44	8.26	-0.22	5.50
CLifes	17.30	51.53	47.93	14.98	18.54
CFishe	18.31	12.58	16.22	3.42	18.68
CMinin	23.83	12.58	16.21	-3.37	2.41
CFoPro	314.53	10.90	19.60	2.49	32.70
CTexGa	144.72	8.52	15.69	1.18	26.13
CForPr	91.05	9.73	16.57	-1.47	19.19
CPuPri	1.24	29.42	42.54	-2.27	28.27
COthGo	59.90	6.88	13.23	0.56	21.63
CCemen	53.23	21.18	25.86	-13.22	-11.88
COtCoM	29.24	28.75	34.18	-12.88	-10.78
CMetal	75.68	15.44	19.54	-9.32	-5.41
CChemi	214.03	5.44	11.21	-2.38	17.57
CMachi	236.42	9.57	14.76	-2.22	12.08
CElGaW	143.38	16.81	21.60	-8.35	-1.17
CFueLu	124.73	7.15	11.68	-3.52	7.52
CAGSer	21.20	1.07	7.45	-0.06	24.59
CConst	11.89	24.43	28.71	-13.06	-13.32
CTrans	25.13	26.34	32.04	-12.19	-9.06
CFiSer	6.39	9.55	12.87	-1.11	5.90
CScTec	32.31	3.83	5.52	0.56	4.84
CEduTr	151.06	10.04	11.80	-1.84	1.95
CHealt	113.86	8.28	13.09	-0.19	15.45
COtSer	76.22	11.14	19.15	0.23	26.69

Table 13. Sectoral Change of Exports

	%change of exports				
	BASE	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
CRice	6.51	-33.97	-15.06	-5.48	44.36
COtCro	588.39	-3.29	4.67	1.74	48.42
CLifes	55.01	-7.54	12.97	8.02	72.18
CFores	120.29	-12.19	17.14	6.96	94.65
CFoPro	55.07	-2.18	10.57	5.33	39.72
CTexGa	3.44	19.77	16.41	38.20	25.33
COtCoM	7.14	14.98	13.92	36.19	34.11
CMetal	0.34	16.46	15.35	35.97	32.99
CElGaW	3.30	7.54	5.62	35.96	30.07
CTraRe	45.55	6.43	9.51	10.90	20.20
CGastr	49.36	14.89	18.70	20.70	33.11
CPosCo	32.99	-0.42	-3.49	3.02	-8.86
CStMan	43.40	4.85	5.48	13.12	14.21

Table 14. Changes in Value-added

	in million				
	VND	% changes			
	BASE	PWMDECR1	PWMDECR2	PWEINCR1	PWEINCR2
Employed Labour	575.54	3.69	6.33	-1.65	4.13
Selfemployed Labour	287.82	11.33	15.58	-3.21	4.46
Agricultural Labour	1384.70	1.91	8.63	5.26	35.18
Capital	268.30	6.51	13.99	0.01	27.22

Table 15. Changes in Composition of Household Income

	Total Income change in million VND				
	BASE	PWMDEC1	PWMDEC2	PWEINC1	PWEINC2
Urban Kinh	354.31	372.01	383.10	348.78	374.46
Urban Ethnic Minority	219.45	231.40	241.43	216.84	245.25
Rural Kinh	318.01	328.71	343.94	323.28	380.03
Rural Thai	740.70	762.31	806.24	766.09	947.31
Rural Hmong	193.23	197.94	210.84	202.33	258.26
Other Rural Household	477.12	487.97	519.31	499.70	636.02

	Change per single HH in million VND				
	BASE	PWMDEC1	PWMDEC2	PWEINC1	PWEINC2
Urban Kinh	24.69	25.92	26.70	24.31	26.09
Urban Ethnic Minority	20.93	22.07	23.02	20.68	23.39
Rural Kinh	16.34	16.89	17.68	16.61	19.53
Rural Thai	10.27	10.57	11.18	10.62	13.13
Rural Hmong	11.63	11.92	12.69	12.18	15.55
Other Rural Household	13.06	13.35	14.21	13.67	17.40

	%change of household income				
	BASE	PWMDEC1	PWMDEC2	PWEINC1	PWEINC2
Urban Kinh	280.01	5.00	8.13	-1.56	5.69
Urban Ethnic Minority	196.93	5.45	10.02	-1.18	11.76
Rural Kinh	235.36	3.37	8.16	1.67	19.51
Rural Thai	740.02	2.92	8.85	3.43	27.90
Rural Hmong	166.67	2.44	9.12	4.72	33.66
Other Rural Household	397.68	2.28	8.85	4.74	33.31

Notes

¹ Thai form the largest ethnic group in Son La (57%). The Hmong make up 8% of the rural inhabitants (see also Table 3).

² Even if this would be possible, challenges remain for the analyst. Non-tariff barriers are extremely hard to quantify. On top of that there might be little relationship between official and collected taxes. Discriminatory exchange rate policies that offer exporters a more appreciated exchange rate than importers can further add to trade distortions (Berg and Krueger, 2003).

³ Even if government programs are targeted at ethnic minority areas, the ethnic majority in Vietnam living in those areas tended to collect most of the benefits targeted to “ethnic minority areas” (ADB 2002 , Bautista 2000).

⁴ The complexity of micro simulations varies significantly. Contrary to the mostly completely disconnected approaches to macro-micro synthesis, Bourguignon et al (2004) present an approach that incorporates consistency between the macro- and micro model.

⁵ The following elasticities are used for agricultural products: rice: 0.100 for rural and 0.344 for urban households, coffee and tea: 1.185 for urban and 1.167 for rural households, other crops are set at unity for all households, livestock: 1.096 for urban and 1.302 for rural households, fishery: 0.699 for urban and 0.931 for rural households, processed food: 1.123 for urban and 1.370 for rural households.

⁶ Figures in this chapter are calculated from the VHLSS 2002 for Son La households (GSO, 2004)

⁷ In rural areas of Vietnam, overcapacity of the labour force is measured according to the underemployment rate, which is defined as the percentage of employable population working less than 40 hours per week (GSO, 2004).

⁸ Labour market statistics and sector-specific information of employment shares of ethnic minorities are not available for Son La province according to information from the GSOs Hanoi and Son La. Thus the study relies on information derived from the VHLSS 2002 for Son La (GSO, 2004).

⁹ However, barrier costs can be expected to affect different goods differently (relative transportation costs of e.g. fertilizer and food should be higher than for machinery).