

INTRODUCTION

1. Background

Theoretical and empirical studies have shown that there are many different factors influencing exports in general and exports of agricultural products in particular. Debates on this problem exist because factors and their correlated impacts on export activities are not fully analyzed. For that reason, it's essential to do more research on this problem.

Vietnam has achieved great success in exporting agricultural products. By the end of 2014, Vietnam's turnover of agricultural exports was 30.8 billion USD, achieving the average growth of 14.54% in the period 1997-2014. Some key agricultural commodities have created a stable position in the world market such as rice, coffee, pepper, etc. In fact, the export turnover of Vietnam's agricultural products has changed dramatically especially in recent years. In 2009, agricultural export turnover reached \$13.4 billion, decreasing 12.31% compared with 2008. In 2013, Vietnam's agricultural export turnover was \$22.3 billion, accounting for 1.43% of the world's agricultural export turnover. This amount increased by 66.42% compared with 2009, but was 0.05% lower than that in 2012. According to the economists, there are many different factors, both objective and subjective, that may affect these volatilities. What are the factors? What are their trends and impacts? ... These (extremely) important questions - have great practical significance for policy makers and organizations as well as individuals working in the field of agricultural exports.

Hence, the theme: "*A study on factors affecting Vietnam's agricultural product exports*" has been chosen to clarify the factors that influence that activities, and propose the appropriate solutions to promote export of agricultural products of Vietnam until 2020.

2. Objectives of the Study

- To systemize and develop related theories and empirical studies on the factors affecting the exports of agricultural products;

- To analyse the current situation and the factors affecting Vietnam's agricultural exports in order to identify achievements, difficulties and constraints in exports of agricultural products in Vietnam during the period 1997-2013;

- To propose some solutions to promote factors that support exports of agricultural products as well as constrain unfavorable factors affecting exports of agricultural products in Vietnam up to 2020.

3. Subject and scope of study

3.1. *The subject of study:* The dissertation focuses on identifying the factors affecting exports of some agricultural products of Vietnam.

3.2. *Scope of the dissertation*

Scope of content: The dissertation is conducted to research, evaluate and quantify the effects of these factors on Vietnam's exports of agricultural products in general and some specific agricultural products in particular (rice and coffee) through various indicators, indexes, and specific analysis models.

Scope of time: Secondary data sources are used to do research in the period 1997- 2013. Due to the latency of the data provided by the countries so the most fully data updated in 2013. However, some parts of the dissertation, data in the period of 2014-2015 can be used.

Scope of space: The dissertation is conducted to research activities of merchandise trade in general and exports of agricultural products of Vietnam in particular as well as some countries and regions.

4. Significance of the dissertation

Firstly, the dissertation contributes to codify and supplement the factors affecting exports of agricultural products of Vietnam by developing an analytical framework.

Secondly, the dissertation is one of the first studies to use a gravity model to evaluate the factors affecting exports of agricultural products of Vietnam.

Thirdly, the dissertation uses the agricultural land area as a new variable explaining exports of agricultural exports in the augmented gravity model.

Fourthly, the dissertation points out the positive and negative impacts of factors in exports of agricultural products of Vietnam in recent years. Based on the analysis of current situations of exports of agricultural products as well as estimation results from augmented gravity model, the dissertation proposes a number of solutions to promote Vietnam's exports agricultural products up to 2020.

5. Structure of the dissertation

Beside the introduction, conclusion and references, the dissertation includes 5 chapters as the following:

Chapter 1: Literature review; Chapter 2: Theories related to factors affecting agricultural product exports; Chapter 3: Research Methodology; Chapter 4: Analysis of factors affecting agricultural product exports of Vietnam; Chapter 5: Solutions to promote the effects of positive factors and limit the effects of negative factors in order to strengthen agricultural product exports of Vietnam till 2020.

CHAPTER 1. LITERATURE REVIEW

Determinants of agricultural product exports have been analyzed comprehensively in various previous studies worldwide. The gravity model has been widely applied in a number of quantitative studies such as Gbetnkom and Khan (2002), Erdem and Nazlioglu (2008), Folawewo and Olakojo (2010), Hatab et al. (2010), Idsardi et al. (2010), Wei et al. (2012) and Martínez-Zarzoso (2014). In general, each study did not use the same variables in the gravity model, rather they tried to analyze determinants of agricultural product exports by a specific set of independent variables. However, the main independent variables included GDP, population, distance, exchange rate, trade openness, border, FTA etc. It is argued that agricultural land area may

affect the agricultural product exports. However, to the best of the author's knowledge, previous studies did not include this variable in gravity model.

In Vietnam, previous studies on agricultural product exports generally focused on evaluating export situations and providing solutions such as studies of Ngo Thi Tuyet Mai (2007), Luong Xuan Quy (2008), Nguyen Minh Son (2010) etc. Regarding the methodology, the majority of previous studies used the qualitative analysis, only some studies used the quantitative studies. Moreover, it is noted that gravity model had not been used in determining factors affecting Vietnam's agricultural product exports.

From the literature review, it is shown that studies on exports of agricultural products have been conducted widely, however the application of gravity model to analyse the factor affecting Vietnam's agricultural product exports is quite pioneered. Based on the relationship between agricultural land area and agricultural products, the agricultural land area variable will be added to the augmented gravity model in the study.

CHAPTER 2: THEORIES RELATED TO FACTORS AFFECTING AGRICULTURAL PRODUCT EXPORTS

In this chapter, the dissertation systematizes and develops theories on agricultural products (the concept, characteristics of agricultural products), exports of agricultural products (the concept, forms and the roles of agricultural products). Moreover, the dissertation focuses on building a theoretical framework of factors affecting exports of agricultural products as a background for the case study of Vietnam.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Research questions

✓ What are the unique traits of agricultural product exports of Vietnam during 1997 - 2013 period?

✓ What are factors affecting exports of agricultural products of Vietnam? How did it affect exports of agricultural products of Vietnam in recent years?

✓ What are the solutions in order to promote Vietnam's exports of agricultural products?

3.2. Approach and analytical framework

Approach: The approaches used in this dissertation include systematic approach, sector-specific approach, as well as using existing database published in various international organisation for the analysis.

Analytical framework: Based on augmented gravity models combined with the other factors affecting exports of agricultural products, the dissertation builds an analytical framework for the study.

3.3. Methods of data collection

Data Classification: The dissertation uses two types of data: qualitative data and quantitative data.

Data sources: Due to the characteristics of the study, data used in this dissertation is the secondary data.

Collection methods: The dissertation collects data from prestigious organizations in the world as well as in Vietnam.

3.4. Data processing and data analysis

Data processing: Data are processed as follows: (i) data testing, (ii) data arrangement, (iii) data grouping, (iv) data presentation.

Data Analysis:

- Qualitative analysis method
- Methods for quantitative analysis
- + Comparison method
- + Descriptive statistics
- + Analysis of constant market share (CMS)

$$V'_{..} - V_{..} = rV_{..} + \sum_i (r_i - r)V_i + \sum_i (V'_i - V_i - r_i V_i)$$

Where:

$V_{..}$; $V'_{..}$: Total exports of Vietnam in the period I and the period II

r : rising percentage in total exports of the world from the period I to period II

r_i : rising percentage in total exports of the world in i product from the period I to period II

V_i ; V'_i : i product exports of Vietnam in the period I and the period II

+ Regression analysis method

Augmented Gravity model is used to analyze the factors affecting the agricultural product exports of Vietnam. Independent variables are GDP, population, agricultural land area, inflation, exchange rates, geographic distance, the gap in the level of economic development, trade openness, and the dummy variables of the WTO and the APEC. The gravity model for agricultural product exports takes the following forms:

$$EXPORT_{ijt} = A \times GDP_{it}^{\beta_1} \times GDP_{jt}^{\beta_2} \times (POP_{it} * POP_{jt})^{\beta_3} \times (LAN_{it} * LAN_{jt})^{\beta_4} \\ \times INF_{it}^{\beta_5} \times DIS_{ij}^{\beta_6} \times EDIS_{ijt}^{\beta_7} \times ER_{it}^{\beta_8} \times OPEN_{it}^{\beta_9} \times e^{WTO_{jt}^{\beta_{10}} * APEC_{jt}^{\beta_{11}} * u_{ijt}}$$

Where:

$EXPORT_{ijt}$: Exports of agricultural products of Vietnam to the country j in year t

A : Attractive coefficient, trade obstruction between Vietnam and the country j .

GDP_{it} ; POP_{it} ; LAN_{it} ; $OPEN_{it}$: GDP, population, agricultural land area and the trade openness of Vietnam in the year t .

GDP_{jt} ; POP_{jt} ; LAN_{jt} : GDP, population and agricultural land area of country j in year t .

INF_{it} : Vietnam's inflation rate in year t .

DIS_{ij} : Geographic distance between Vietnam and countries j .

$EDIS_{ijt}$: Economic gap between Vietnam and the country j in the year t (as measured by the difference in GDP per capita between the two countries - using absolute value).

ER_{it} : the actual average exchange rate (VND/USD) in the year t .

WTO_{it} : is a dummy variable. It takes value of 0 if Vietnam was not a member of the WTO in year t ; It takes value of unity if Vietnam is a member of the WTO in year t .

$APEC_{ijt}$: is a dummy variable. It takes value of 0 if Vietnam and the importing country was not a member of the APEC in year t ; It takes value of unity if Vietnam and the importing country are both the members of the APEC in year t .

β_i : is the coefficient of independent variables

u_{ijt} : random error

This model uses Vietnam's total agricultural product exports and exports of particular agricultural products as dependent variables. For each model, independent variables will be changed to find out the factors affecting exports of particular agricultural products.

For econometric methods, the dissertation employed several estimation methods such as Pooled OLS, fixed-effects model (FEM) and random effects model (REM). Then, the dissertation conducted several tests to choose the suitable estimation method for the study.

Description of variables and hypothesis regarding the impact direction of variables in the model

Table 3.1. Summarize hypothesis about the impact trend of variables in the gravity model

<i>Variable name</i>	<i>Impact direction of independent variables</i>
GDP_{it}	+
GDP_{jt}	+
$(POP_{it} * POP_{jt})$	+
$(LAN_{it} * LAN_{jt})$	+
INF_{it}	+

<i>Variable name</i>	<i>Impact direction of independent variables</i>
DIS_{ij}	-
$EDIS_{ij}$	+
ER_{it}	+
$OPEN_{it}$	+
WTO _{jt} (dummy) WTO = 1: member WTO = 0: not member	- If the importer is a member of WTO, then Vietnam's export potential of agricultural products increases. - If the importer is not a member of WTO, then Vietnam's export potential of agricultural products decreases.
APEC _{ij} (dummy) APEC = 1: Both Vietnam and Country j are members of APEC in year t APEC = 0: Both Vietnam and Country j are not members of APEC in year t	- If both Vietnam and country j are members of APEC, then Vietnam's export potential of agricultural products increases. - If both Vietnam and country j are not members of APEC, then Vietnam's export potential of agricultural products decreases.

Note: (+): Positive effects; (-): Negative effects

Source: Author's summary from previous studies

3.5. Research indicators

3.5.1. Indicators indicating the export quantity and export value.

3.5.2. Indicators indicating the market share of exports and imports

3.5.3. Indicators indicating the unique traits of exports

❖ Revealed Comparative Advantage (RCA)

$$RCA_{ij} = \frac{x_{ij} / X_{it}}{x_{wj} / X_{wt}}$$

Where: x_{ij} và x_{wj} are exports of product j of the country i and the world, respectively; X_{it} and X_{wt} are total exports of country i and the world, respectively. So that, the RCA index ranges from 1 to $+\infty$. For more detail:

- $RCA \leq 1$: Comparative Disadvantage
- $1 < RCA \leq 2,5$: Exist Comparative Advantage
- $RCA > 2,5$: High Comparative Advantage

❖ *Intra Industry Trade (IIT)*

$$IIT_i = 1 - \frac{|X_i - M_i|}{X_i + M_i}$$

Where: X_i is exports of Vietnam to country j for product i ; M_i is imports of Vietnam from country j for product i . It is valued from 0 to 1. More detail:

- $IIT = 0$: inter-industry trade completely
- $IIT = 1$: intra-industry trade completely

❖ *Trade Intensity Index (TII)*

$$TII_{ij} = \frac{T_{ij}/T_{iw}}{T_{jw}/T_{ww}}$$

Where:

T_{ij} is exports of country i to country j ; T_{iw} is total exports of country i ; T_{jw} is total exports of country j ; T_{ww} is total exports of the world. This indicator shows whether the total trade between two countries are corresponding to the trade potential of two countries. So:

- $TII > 1$: exports from country i to country j is more than average exports of the world
- $TII \leq 1$: exports from country i to country j is less than average exports of the world

❖ *Regional Orientation Index (ROI)*

$$ROI_k = (x_{kij} / X_{ij}) / (x_{kiw} / X_{iw})$$

Where:

x_{kij} and x_{kiw} : exports of product k from country i to country j and to the world, respectively; X_{ij} and X_{iw} : total exports from country i to country j and to the world, respectively. Then:

$0 < ROI < 1$: Internal exports is lower than External exports

$ROI = 1$: Internal exports is equal to External exports

$ROI > 1$: Internal exports is higher than External exports

CHAPTER 4. ANALYSIS OF FACTORS AFFECTING AGRICULTURAL PRODUCT EXPORTS OF VIETNAM

4.1. Exports of agricultural products of Vietnam from 1997- 2013

4.1.1. Current situations of imports and exports of Vietnam

➤ Total trade of Vietnam

Since Vietnam become a member of the WTO, Vietnam's economy that focused on export-oriented strategy showed an increasing ratio of exports to GDP. Average growth rate of exports was about 18% and that of imports was 16.4% during the 1997-2013 period. It is important to note that the difference between exports and imports are being smaller, which reflected Vietnam's success in foreign trade.

➤ Import and export markets of Vietnam

Export and import markets of Vietnam in recent years has been increasingly expanded and diversified. The number of export markets has risen nearly 40% after 16 years, from 167 to over 230 markets.

➤ Trade strategies in some main trade markets of Vietnam

- ✓ EU
- ✓ ASEAN
- ✓ America

4.1.2. Overall of agricultural product exports of Vietnam

➤ Total agricultural product exports of Vietnam

Average growth rate of exports of agricultural products of Vietnam in the 1997-2013 period was 13.51% per annum. Some agricultural products (such as rice and coffee) has held leading positions in agricultural product exports in the world, agricultural product markets are being expanded and developed. However, total agricultural product exports of Vietnam are much influenced by the fluctuation of the world economy.

➤ *Market share of agricultural product exports of Vietnam*

The market share of Vietnam's agricultural product exports in the world was increasing in the period 1997-2013. In 1997, agricultural product exports of Vietnam accounted for 0.54% of the world's total agricultural product exports (3.063 billion US dollars); this ratio has increased to 0.94% and 1.3% in 2005 and 2010, respectively, and reached 1.43% in 2013, corresponding to 23.288 billion US dollars.

➤ *Analysis of Revealed Comparative Advantage in Agricultural Product Exports of Vietnam*

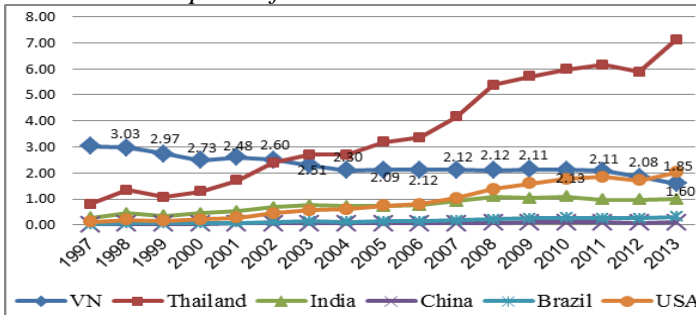


Figure 4.3. RCA Index for Agricultural Product Exports of Vietnam and Selected Countries

Source: UN Comtrade, Worldbank and the Author's Calculation, 2015

According to the Figure 4.3, comparative advantage for exports of agricultural products of Vietnam is much higher than that of other countries such as India and Brazil. However, this index tended to decline in recent years.

4.1.3. Some agricultural product exports of Vietnam

➤ *Rice*

✓ In terms of volume of rice exports: In 1997, Vietnam provided to the world with 3.575 thousand tons of rice, after 10 years the rice export volume was 4.580 thousand tons, an increase of 1.005 thousand tons (28.11%). In 2013, rice export volume has decreased as compared to 2012, but it still increased by 44.5% in comparison to that of 2007 and increased by 85.12% in comparison to that of

1997. Considering the whole period from 1997 to 2013, annual average growth of rice export volume of Vietnam was 3.92%.

✓ Total export value: In general, Vietnam's total rice export value has increased over the period 1997-2013. However, when compared with the export volume, it showed a complicated fluctuation.

✓ Export market share: Compared to Vietnam's main competitor (Thailand), rice export market share of Vietnam was much smaller. Beside, Thailand and India are asserting to the world regarding the ability of rice exports. Currently, rice export markets of Vietnam are quite diverse. Vietnamese rice is presented in all continents, of which the main market is Asia (over 50% of total exports) and penetrating gradually in difficult markets in other continents such as the UK, Switzerland, USA,...

✓ Export prices: Rice export price of Vietnam has been closing to rice export price of Thailand, but the gap is still quite large. This shows that the quality of Vietnam's rice exports is still low and not able to compete with Thai rice.

✓ Analysis of rice exports through trade index

○ Intra-industry trade (IIT) index: Comparing IIT index among Vietnam, ASEAN and other countries in Asia such as India, Japan and South Korea showed that Vietnam has a high intra-industry trade with China in the period 1997-2010. In the following years, however, IIT index was very small as Vietnam still exported rice to China, but Vietnam did not imports much rice from this country.

○ The regional orientation index (ROI): In EU, the highest value of ROI index was 1.08 (1998) and the lowest value was 0.016 (2004). Meanwhile, in ASEAN market, the highest ROI value was 3.98 (2007) and the lowest value was 0.23 (1998). So, at the end of the 1990s, ROI index showed a downward trend in the EU market and an upward trend in ASEAN market. As a result, the ROI of rice exports of Vietnam has mainly concentrated in ASEAN market since 2000.

➤ *Current situation of coffee exports*

✓ In terms of export quantity: In 1997, out of 437 thousands ton of coffee production in Vietnam, up to 89.25% (equivalent to 390 thousand tons) are exported; in 2006 the quantity of coffee exports was more than 1.1 million tons (accounted for 95% of the country's total coffee production) and in 2013, the quantity of coffee exports was more than 1.6 million tons. During the 1997-2012 period, the percentage of coffee exports in total coffee production was approximately 82% (except for 2013 when the percentage decreased to around 66% due to the negative impacts of the world economy as well as the severe competition among coffee exporters).

✓ In terms of value of exports: Export value of coffee had fluctuated during 1997-2013 period due to the impacts of world economy situation. In general, when the world economy is stable, coffee exports will increase and vice versa. In addition, quality and variety of products also have significant impacts on Vietnam's coffee exports.

✓ In terms of export markets: Currently, Vietnam's coffee export markets focus on 2 regions: Asia and Europe, which accounted for 60% of total coffee exports of Vietnam.

✓ In terms of export price: Vietnam's coffee export price has followed the world price but it was lower than the world market price. In comparison with coffee export prices of Brazil and Indonesia, Vietnam's coffee export price was much lower.

✓ Analysis of coffee exports using ROI index: Vietnam's coffee export markets are diversified, including Asia, Europe and America. It is shown that Vietnam's coffee is exported mainly into EU market (ROI index is greater than 2), especially Germany. In Asia, Japanese market has been the major coffee market of Vietnam. However, quantity of Vietnam's coffee exports into the Japanese market was still limited (ROI < 1).

4.2. Analysis of factors affecting exports agricultural products of Vietnam

4.2.1. Qualitative analysis

➤ Quality of agricultural product exports

Quality of Vietnam's agricultural product exports are changing positively in direction of reducing the proportion of raw agricultural products and increasing the proportion of deep processed agricultural products. However, in comparison with the world market, the share of Vietnam's deep processed agricultural product exports currently only accounted for 25-30 % of the total exports of agricultural products. In fact, the quality of agricultural products for exports is not really cared from the planting, tending, harvesting and processing. As a result, exports of agricultural products were in the forms of semi-processed or crude products, hence their market prices were not very high and they were not able to compete with products of competitors. This is the main reason of the situation "exporting much but earning less" of agricultural products in Vietnam in recent years.

➤ Quality of labor resources

In the globalization era, the quality of labor resources is an important factor determining the development of a country in general and exports in particular. According to data from the General Statistics Office in 2011, the labor force of Vietnam accounted for nearly 60% of the total population, of which approximately 70% of the total labor was rural labor. Despite of the large quantity of labor, the quality of the labor is very limited. That caused a certain influence on the exports in general and exports of agricultural products in particular in Viet Nam.

➤ The development of infrastructure elements

In recent years, with the aim of promoting the country's industrialization and modernization, a number of transportation works, shipping stations, warehouses, yards, etc were built and completed.

However, the investment was spread, the quality of the traffic works in Vietnam today is not ensured. This causes certain effects on the competitiveness of Vietnam's agricultural product exports in the world market.

➤ *The development of science and technology*

Over the past decades, Vietnam's government always paid special attention and made large investment in the application of science and technology in agricultural production as well as creating new varieties with high yield, high quality and application of clean technologies in manufacturing,... However, compared with developed countries, the application of technology in production and processing in Vietnam was still limited and not systematic.

➤ *Comparative advantages*

Vietnam is a country with many advantages in the production and exports of agricultural products such as labor abundance, preferential natural resources etc. These are all natural comparative advantages and in terms of the global value chain (GVC), it is also known as low-level comparative advantages. Thus, even increasing exports based on these comparative advantages, the gain from these exports will not very high.

➤ *Trade barriers*

Along with the process of globalization, the trade barriers in general and technical barriers in particular are increasingly sophisticated. In the future, therefore, in order to increase Vietnam's agricultural product exports, the government and exporting companies should pay special attention to partners' trade barriers.

4.2.2. Quantitative Analysis

➤ *Constant market share analysis (CMS)*

Constant market share analysis was employed in order to evaluate changes in Vietnam's agricultural product exports in the

world market. In this analysis, there are 3 main factors that affect Vietnam's agricultural product exports, including: (1) the growth of import markets of the agricultural products (demand effect); (2) the growth of total agricultural import value of a given market (structural effect), and (3) the changes in competitiveness of that agricultural product (competitiveness effect). Results of CMS analysis for Vietnam's agricultural product exports in ASEAN and in the World were given in Table 4.10.

Table 4.10. Effects of Vietnam's agricultural exports in ASEAN and the World (Unit: Million USD)

Time	Effects	ASEAN			WORLD		
		Rice	Coffee	Total agricultural products	Rice	Coffee	Total agricultural products
	<i>Increase (decrease) in export value</i>	211.0	-64.3	-163.9	-396.2	-199.3	1248.7
1998	-Demand effect	23.9	2.2	48.7	59.7	37.8	413.4
2001	Structural effect	-587.2	-1.3	12.1	-300.0	-326.6	-373.2
	Competitiveness effect	774.4	-65.2	-224.7	-156.0	89.5	1208.5
	<i>Increase (decrease) in export value</i>	321.2	10.3	368.5	682.1	421.0	2948.0
2002	-Demand effect	59.1	3.1	92.6	134.9	71.8	725.8
2005	Structural effect	-21.6	11.1	173.8	282.9	255.6	1517.1
	Competitiveness effect	283.7	-3.8	102.1	264.3	93.6	705.0
	<i>Increase (decrease) in export value</i>	632.6	51.3	1012.8	1390.2	533.0	4102.5
2006	-Demand effect	128.0	9.9	206.4	255.3	168.8	1284.0
2009	Structural effect	465.8	21.3	416.9	832.2	276.4	1067.1
	Competitiveness effect	38.7	20.2	389.5	302.7	87.8	1751.3
	<i>Increase (decrease) in export value</i>	-989.9	87.9	180.3	-323.2	983.9	6457.6
2010	-Demand effect	68.9	21.7	291.2	280.3	276.1	2230.8
2013	Structural effect	-894.6	82.4	455.4	-457.1	186.9	1784.2
	Competitiveness effect	-164.3	-16.3	-566.4	-146.4	520.8	2442.6

Source: World Bank and the author's calculation, 2015

The results of CMS analysis of 2 main agricultural product exports (rice and coffee) and total agricultural product exports in ASEAN and the world markets in different periods showed that demand effect increased over the time and had positive impacts. There was gradual improvement in structural effect (indicating the match with consumers' taste). Competitiveness was playing an important role in export activities of the country during economic integration process. Thus, CMS analysis showed that Vietnam's agricultural product exports were facing difficulties in competition and satisfying consumers' tastes in their traditional market (namely ASEAN). However, their position in global market had been confirmed gradually.

➤ *Gravity model*

There was a serial correlation in OLS model which made biased estimates and Wald test has $P\text{-value} = 0.000 < 0.05$, inducing different results of explanatory variables. Thus, FEM or REM model should be used instead of OLS. Hausman test had $P\text{-value} = 0.9913 > 0.05$, indicating that REM was more appropriate estimator. Because of heteroskedasticity, Robust Standard Error was employed. Results of REM with Robust Standard Error for agricultural product exports, rice and coffee were given in Table 4.15.

Results in Table 4.15 show that 55% of changes in Vietnam's total agricultural product exports were explained by the model. The results for rice and coffee were 18% and 49%, respectively.

In the case of total agricultural product exports, Vietnam's GDP, partner's GDP, Population of the country in pairs, economic gap, exchange rate, Vietnam's trade openness, membership of the WTO, and membership of the APEC generated positive effects. The remaining variables such as total agricultural land area of the country in pairs, inflation and geographical distance generated negative effects.

In the case of rice and coffee, the effects were more or less different. Specifically, in the case of rice, Vietnam's GDP, population of the country in pairs, inflation, exchange rates, Vietnam's trade openness, membership of the APEC generated positive effects on rice exports. The remaining factors such as partner's GDP, total agricultural area of the country in pairs, Vietnam's trade openness had negative effects.

The effects on coffee are the same as to the case of total agricultural products.

Table 4.15. REM model with Robust Standard Error of determinants of Vietnam's rice, coffee and total agricultural products

Dependent variable	Total agricultural products	Rice	Coffee
Explanatory Variable			
Constant	-8.91*** (-4.15)	-24.028*** (-4.42)	-7.71* (-1.77)
LnGDPit	0.537** (2.39)	1.303** (1.97)	-1.21*** (-2.87)
LnGDPjt	0.270** (2.46)	-0.411* (-2.44)	0.857*** (3.91)
Ln(POPit*POPjt)	0.586*** (3.4)	0.860*** (3.02)	0.154 (0.48)
Ln(LANit*LANjt)	-0.204** (-2.02)	-0.259 (-1.37)	-0.391** (-2.08)
LnINFit	-0.019 (-0.57)	0.217* (1.70)	-0.371*** (-3.12)
LnDISij	-0.756*** (-3.9)	-0.012 (-0.03)	-0.188 (-0.50)
LnEDISijt	0.170* (1.65)	0.127 (0.58)	0.170 (0.92)
LnERit	1.209* (1.81)	3.263** (2.15)	2.89*** (2.81)

Dependent variable Explanatory Variable	Total agricultural products	Rice	Coffee
LnOPENit	2.560*** (5.13)	-2.867* (-1.71)	5.961*** (5.66)
WTOjt	0.226* (1.82)	0.06 (0.23)	0.392* (1.91)
APECijt	0.276* (1.70)	0.516* (1.66)	0.183 (0.58)
<i>Observations</i>	<i>1552</i>	<i>1139</i>	<i>1445</i>
<i>Adjusted R²</i>	<i>0.55</i>	<i>0.18</i>	<i>0.49</i>
<i>Wald test (11)</i>	601.49	170.30	349.31

Note: *, **, ***: Significant at 10%, 5%, 1% level, respectively

Numbers in parathesis are z statistics

Source: The author's calculation with Stata

4.3. General assessment of Vietnam's exports of agricultural products

4.3.1. The achievements of Vietnam's exports of agricultural products

Scale of agricultural exports fluctuated but in general showed a positive trend in the unstable context of world economy (output and export turnovers of some major agricultural products increased during the period of 1997-2013).

Export markets of agricultural products in general and some major agricultural products in particular have been expanding, thanks to the Vietnamese government's policies to actively integrate into the world economy over the past two decades. The expansion of export markets to more than 130 markets in 2013 showed the success and the correct direction of Vietnam's production and exports of agricultural products.

The exports of agricultural products of Vietnam has been taking full advantages of production of agricultural products as well as a number of positive factors that were pointed out from the gravity model.

4.3.2. The limitations of Vietnam's exports of agricultural products

Overall, the achievements of agricultural product exports of Vietnam in recent years were still not in accordance with the potential of the country. The quantities of agricultural product exports were large but the value added was not really high.

Export strategy is not linked to the exploitation of advantages in agricultural production. Vietnam is facing with the risk of losing its advantages as a tropical agricultural country in the global competition.

Although the quality of agricultural products has improved but it was still much lower than that of competitors.

The export market is expanding but not really stable.

Trade barriers that currently being applied by importing countries has and will cause great influence on the exports of agricultural products of Vietnam, which cause an uncertain export prospects.

The ability to seize opportunities and information regarding foreign markets is slow that makes the competitiveness of Vietnam's agricultural products in the world market is lower than that of the opponents.

The exchange rate policy has very important effects on the export policy, but until now this policy is unclear between encouraging export targets and the goal of macroeconomic stability, exchange rate stability and VND worth keeping.

Although the government implemented the export-oriented economic policies, but the state's investments in infrastructures, trade promotion activities, and market promotion have been limited; these activities are not regarded as a "national program" in order to invest necessary resources, thus investment efficiency was not high.

Chapter 5. SOLUTIONS TO PROMOTE THE EFFECTS OF POSITIVE FACTORS AND LIMIT THE EFFECTS OF NEGATIVE FACTORS IN ORDER TO STRENGTHEN THE EXPORTS OF AGRICULTURAL PRODUCTS OF VIET NAM TILL 2020

5.1. World economic situations and problems of exports of Vietnam's agricultural products

5.2. Viewpoints and goals of promote exports of agricultural products of Vietnam till 2020

First, the policies and measures should aim to improve the quality of agricultural product exports and imports. This is the core issue needed to concerns by related government bodies in the near future. Of which, exports need to be invested synchronously to enhance quality of agricultural products from production to consumption. For imports, only importing agricultural products that qualify under the signed contracts should be implemented.

Second, strengthen agricultural product exports based on exploiting full comparative advantages of each region. Towards the production and exports of high value added agricultural products and suitable with the tastes of consumers.

Third, applying science and new technologies in the process of production and processing of agricultural products and strengthening the promotion of agricultural products by building brand name for Vietnam's agricultural products in international markets.

Fourth, policies and solutions for exports and imports of agricultural products must be consistent with the commitments under the APEC, WTO, and other bilateral, regional and multilateral trade agreements of which Vietnam is a member.

Fifth, it's essential to exploit and make full uses of bilateral, regional and multilateral trade agreements, of which Vietnam is a member.

5.3. Solutions to strengthen exports of agricultural products of Vietnam till 2020

5.3.1. The foundation to propose the solutions

The solutions were proposed based on (i) current socio-economic conditions, (ii) the policies of the government and (iii) the results of the study.

5.3.2. The solutions

To promote Vietnam's agricultural product exports till 2020, the following solutions are proposed: Solutions based on GDP factors; Solutions based on demographic factors; Solutions based on agricultural land area factors; solutions based on geographical factors; solutions based on the level of economic development; solutions to strengthen economic cooperation internationally; solutions to enhance the quality of agricultural products; solutions to overcome trade barriers...

CONCLUSION

The dissertation focuses on solving some basic problems:

1. The dissertation reviews more than 20 previous studies in the world related to factors affecting exports of agricultural products in terms of research methodology and findings. Thereby, the dissertation has pointed out various factors affecting exports of agricultural products. At the same time, the dissertation also shows research gaps to continue for research.

2. The dissertation has systematized and developed theoretical framework of agricultural products and exports of agricultural products. By clarifying the reasons for selection of the factors affecting exports of agricultural products, the dissertation has built an augmented gravity model to find out factors affecting Vietnam's exports of agricultural products.

3. The dissertation uses different approaches combined with analyzing related theories to design analytical framework of the factors affecting exports of Vietnam's agricultural products. Both quantitative and qualitative methods are used including constant market share analysis and augmented gravity model. In addition, the dissertation also uses a number of indicators to analyse the major characteristics of Vietnam's agricultural product exports.

4. Results from analysis of trade indicators show that export turnover of agricultural products in general, export turnover of rice and coffee in particular in Vietnam tends to increase during the period of 1997-2013. The quantity of some major exported agricultural products was large, but the value was not high. Quality of Vietnam's agricultural product exports has been gradually improving but still was much lower than that of competitors. Therefore, Vietnam's agricultural product exports were often in trouble with trade barriers of importing markets. Gravity model indicates 11 factors affecting exports of agricultural products in general, rice and coffee in particular of Vietnam including: (i) the GDP of Vietnam, (ii) GDP of importers, (iii) combined population of the two countries, (iv) agricultural land area of countries in pairs, (v) inflation of Vietnam, (vi) the geographical distance between two countries, (vii) the gap in the level of economic development between two countries, (viii) the exchange rate of Vietnam, (ix) Vietnam's trade openness, (x) member of the WTO, (xi) member of the APEC. The model has shown positive factors and negative factors under study. And the directions of impacts are basically in line with the given hypothesis.

5. Based on the analysis of the situations of the world economy, the real conditions of Vietnam's economy in conjunction with guidelines and policies of the government and the findings of the study, the dissertation proposes 11 solutions to promote exports of agricultural products of Vietnam till 2020.

However, the dissertation still has a number of limitations such as it was not able to include several factors in the augmented gravity model such as quality of agricultural products, quality of human resource, infrastructure, trade barriers etc; the dissertation did not analyze the interaction of factors in the model. The author hopes these limitations will be solved in future studies./.