An analysis of factors influencing Vietnam's rice export to the ASEAN+3 countries

The Youth Team_GRA496_G1

Supervisor: Mrs. Cung Thi Anh Ngoc
THE THESIS OUTLINE

- INTRODUCTION
- LITERATURE REVIEW
- METHODOLOGY
- ANALYSIS & FINDINGS
- CONCLUSION & RECOMMENDATIONS
CHAPTER 1
INTRODUCTION

1.1. Background
1.2. Research objectives
1.3. Research questions
1.4. Research scope & methods
1.1. BACKGROUND

Favorable natural conditions and abundant labor resources

150 countries 30 years (2019)

Second-largest rice exporter (2020)

13% 7 months in 2020
1.1. BACKGROUND

ASEAN+3 is one of the biggest markets of Vietnam

- Vietnam exported 2.8 million tons of rice ~ 44% of total export output to ASEAN
- Japan, China, and South Korea are also the potential markets of Vietnam

Rice export is a vital industry in Vietnam’s agricultural exports in the ASEAN+3 market
1.1. BACKGROUND

PROBLEMS

No previous research focused on ASEAN+3 nations

Countries imported rice more due to the COVID-19 pandemic

Topic: “An analysis of factors influencing Vietnam's rice export to the ASEAN+3 countries”
1.2. RESEARCH OBJECTIVES

01 Analyze the situation of Vietnam's rice exports to the ASEAN+3 market from 2005 to 2019

02 Identify factors affecting Vietnam’s rice exports to the ASEAN+3 market

03 Analyze the impact of these factors on Vietnam’s rice exports to the ASEAN+3 market

04 Develop a system of solutions to boost Vietnam's rice exports to the ASEAN+3 market in the term of 2021-2030
1.3. RESEARCH QUESTIONS

- What is the situation of rice production and export of Vietnam to the ASEAN+3 countries from 2005 to 2019?

- What are the main factors affecting Vietnam's rice exports to the ASEAN+3 countries?

- How are these factors correlated with Vietnam’s rice exports?

- How to boost Vietnam's rice export to the ASEAN+3 countries in 2021-2030?
1.4. RESEARCH SCOPE & METHODS

TIME
15 years: 2005-2019

MARKET
11 Countries

COMMODITY
HS Code: 1006
1.4. RESEARCH SCOPE & METHODS

QUANTITATIVE + QUALITATIVE

SECONDARY DATA
CHAPTER 2
LITERATURE REVIEW

2.1. Overview of rice export
2.2. General theories
2.3. Frameworks
2.4. Key recent studies
2.5. Proposed research model and hypothesis
2.1. OVERVIEW OF RICE EXPORT

The importance of rice export

- Meeting the physiological needs of humans
- Creating jobs for farmers workers, stabilizing social life
- Contributing to economic development

Characteristics of rice export

- Seasonality in trade
- Low elasticity of demand
- Dependence on natural conditions
2.2. GENERAL THEORIES

<table>
<thead>
<tr>
<th>Mercantilism</th>
<th>Adam Smith's Theory</th>
<th>David Ricardo's Discovery</th>
<th>Haberler's Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heckscher-Ohlin Model</td>
<td>Absolute Advantage</td>
<td>Comparative Advantage</td>
<td>Opportunity Cost</td>
</tr>
</tbody>
</table>
2.3. FRAMEWORKS

THE GRAVITY MODEL

Formula:

\[ EX_{ABt} = K \cdot GDP_{At}^{\beta_1} \cdot GDP_{Bt}^{\beta_2} \cdot DIS_{AB}^{\beta_3} \cdot \epsilon \]

- Be the comprehensive investigation of factors affecting trade and international trade movement
- Have the flexibly forms of variables: quantitative & qualitative
2.3. FRAMEWORKS

Figure 2.1. Factors affecting international trade (Tinbergen, 1962)
### 2.4. SOME KEY RECENT STUDIES

<table>
<thead>
<tr>
<th>No.</th>
<th>References</th>
<th>Thesis title</th>
<th>Methods and Data</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tho (2013)</td>
<td>Determinants of Vietnam’s exports: A gravity model approach</td>
<td>Gravity model, Pooled OLS, FEM, REM, Panel data between 2004 to 2008 on Vietnam’s 61 importing countries</td>
<td>GDP of Vietnam (+), FDI of Vietnam (-), GDP per capita of importing country (-), Geographical distance (-), Real bilateral exchange rate (+), Free Trade Agreements (0)</td>
</tr>
<tr>
<td>2</td>
<td>Yang and Martinez (2014)</td>
<td>A panel data analysis of trade creation and trade diversion effects: The case of ASEAN–China Free Trade Area</td>
<td>Gravity model, Pooled OLS, FEM, REM, Panel data between 1995 to 2010</td>
<td>Geographical Distance (-), Population of both countries (0), GDP of Vietnam (+), GDP of importing countries (-)</td>
</tr>
<tr>
<td>4</td>
<td>Bui and Chen (2017)</td>
<td>An analysis of factors influencing rice export in Vietnam based on gravity model</td>
<td>Gravity model, Pooled OLS, FEM, REM, Panel data between 2004 -2013</td>
<td>GDP of Vietnam (0), GDP of importing countries (+), Geographical Distance (0), Exchange rate (-), The populations of importing countries price (+)</td>
</tr>
<tr>
<td>5</td>
<td>Yen and Thao (2017)</td>
<td>Factors affecting Vietnam's rice export to ASEAN market; results of analysis by gravity model</td>
<td>Gravity model, Pooled OLS, FEM, REM, Panel data between 2000-2015</td>
<td>GDP of Vietnam (+), Geographical Distance (+), Inflation rate of Vietnam (-), Harvesting area of Rice in Vietnam (+), Economic gap (-)</td>
</tr>
</tbody>
</table>

*Table 2.1. Summary of key studies related to the thesis (Authors, 2020)*

(+) (0), (-) indicate positive, no and negative correlation, respectively
2.4. SOME KEY RECENT STUDIES

LITERATURE GAP

Outdated data

Ignored the ASEAN+3 market
2.5. PROPOSED RESEARCH MODEL

\[ \text{EXP}_{ijt} = A \cdot \text{GDPVN}_{it}^{\beta_1} \cdot \text{LANDVN}_{it}^{\beta_2} \cdot \text{INFVN}_{it}^{\beta_3} \cdot \text{GDIS}_{ij}^{\beta_4} \cdot \text{GDPIM}_{jt}^{\beta_5} \cdot \text{POPIM}_{jt}^{\beta_6} \cdot \text{ERIM}_{jt}^{\beta_7} \cdot \text{WTO}^{\beta_8} \cdot u_{ijt} \]

\[ \ln \text{EXP}_{ijt} = A + \beta_1 \ln \text{GDPVN}_{it} + \beta_2 \ln \text{LANDVN}_{it} + \beta_3 \ln \text{INFVN}_{it} + \beta_4 \ln \text{GDIS}_{ij} + \beta_5 \ln \text{GDPIM}_{jt} + \beta_6 \ln \text{POPIM}_{jt} + \beta_7 \ln \text{ERIM}_{jt} + \beta_8 \ln \text{WTO} + u_{ijt} \]

In detail:

- **A** is a constant
- **u_{ijt}** is the standard random error
- **i**: Vietnam
- **j**: importing countries
- **t**: year analysis

‘The INFVN would not be transformed into ln to lesson the relative logarithm error’
2.5. PROPOSED RESEARCH MODEL

Figure 2.2. Factors affecting Vietnam’s rice export turnover (Authors, 2020)
## 2.5. PROPOSED RESEARCH MODEL

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measurement Method</th>
<th>Expected signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPVN</td>
<td>Vietnam’s GDP (USD)</td>
<td>(+)</td>
</tr>
<tr>
<td>LANDVN</td>
<td>Total harvesting area of rice in Vietnam (thousand hectare)</td>
<td>(+)</td>
</tr>
<tr>
<td>INFVN</td>
<td>Measure the change of the consumer price index of a fixed basket of goods and services over time (%)</td>
<td>(-)</td>
</tr>
<tr>
<td>GDIS</td>
<td>The difference of distance between the capital of the rice importing country and Hanoi (km)</td>
<td>(-)</td>
</tr>
<tr>
<td>GDPIM</td>
<td>Importing country’s GDP (USD)</td>
<td>(-)</td>
</tr>
<tr>
<td>POPIM</td>
<td>The population of importing country (people)</td>
<td>(+)</td>
</tr>
<tr>
<td>ERIM</td>
<td>The real exchange rate of foreign currency (USD) against the local currency (local currency unit - LCU/USD)</td>
<td>(-)</td>
</tr>
<tr>
<td>WTO</td>
<td>The dummy variable indicates whether or not the importing countries have joined the WTO in that year (Participating countries: 1, non-participating countries: 0)</td>
<td>(+)</td>
</tr>
</tbody>
</table>

*Table 2.2. Summary of variables and expected signs (Authors, 2020)*

(+) and (-) indicate positive and negative correlation, respectively.
CHAPTER 3  
METHODOLOGY

3.1. Introduction
3.2. Data collection methods
3.3. Data analysis method
3.4. Detections for the regression model
3.1. INTRODUCTION

Research Philosophy

- **01** Positivism
- **02** Interpretivism
- **03** Pragmatism
- **04** Realism

Research Approach

- **Deductive approach**
  - Theory
  - Hypothesis
  - Test

- Common with natural sciences
- A highly-structured approach
- Select samples of sufficient size to generalize the conclusion
3.2. DATA COLLECTION METHODS

Gathering secondary data with 3 force features:

❖ Reliability
❖ Suitability
❖ Adequacy

<table>
<thead>
<tr>
<th>Variables</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td>UN Comtrade</td>
</tr>
<tr>
<td>GDPVN</td>
<td>World Bank</td>
</tr>
<tr>
<td>LANDVN</td>
<td>General Statistics Office of Vietnam</td>
</tr>
<tr>
<td>INFVN</td>
<td>World Bank</td>
</tr>
<tr>
<td>GDIS</td>
<td>Website: <a href="https://www.timeanddate.com">https://www.timeanddate.com</a></td>
</tr>
<tr>
<td>GDPIM</td>
<td>World Bank</td>
</tr>
<tr>
<td>POPIM</td>
<td>World Bank</td>
</tr>
<tr>
<td>ERIM</td>
<td>World Bank</td>
</tr>
<tr>
<td>WTO</td>
<td>Website: <a href="https://www.wto.org">https://www.wto.org</a></td>
</tr>
<tr>
<td>Qualitative Variables</td>
<td>The World Bank (WB), General Statistics Office, USDA, UN Comtrade, IMF, FAO, several reputable journals,…</td>
</tr>
</tbody>
</table>

Table 3.1. Variable’s data source details (Authors, 2020)
3.3. DATA ANALYSIS METHODS

1. Descriptive statistic

2. Pearson’s correlation coefficient

3. Multiple regression model
   - Pooled Ordinary Least Square (Pooled OLS)
   - Random Effect Model (REM)
   - Fixed Effect Model (FEM)

4. Breusch-Pagan Lagrange Test
   - Pooled OLS or REM
     - Choose REM if P-value < 0.05

5. Hausman Test
   - FEM or REM
     - Choose FEM if P-value < 0.05
3.4. DETECTIONS FOR THE REGRESSION MODEL

1. Detection for Multicollinearity
   - VIF Test

2. Detection for Autocorrelation
   - Wooldridge Test

3. Detection for Heteroskedasticity
   - The Breusch - Pagan Lagrange Multiplier Test

Feasible Generalized Least Square (FGLS) is the best method when $T>N$ (Hoechle, 2007)
CHAPTER 4
ANALYSIS & FINDINGS

4.1. Overview of ASEAN+3 countries
4.2. An analysis of factors influencing rice export
   4.2.1. Quantitative
   4.2.2. Qualitative
In 2000, ASEAN+3 was officially launched.
4.1. OVERVIEW OF ASEAN+3 COUNTRIES

POSITIVE SIGNALS

6.8%  
Increased in 2018

$B 869.1  
Merchandise trade in 2018
4.1. OVERVIEW OF ASEAN+3 COUNTRIES

Vietnam’s rice export turnover to the ASEAN+3 countries

Chart 4.1. Vietnam’s rice export turnover to the ASEAN+3 countries from 2005 to 2019 (Unit: million USD) (UN Comtrade, 2020)

Top rice importing countries of Vietnam

- Indonesia: 35.9%
- China: 28.1%
- Philippines: 14.6%
- Malaysia: 13.8%
4.2. ANALYSIS OF FACTORS INFLUENCING RICE EXPORT

4.2.1. Quantitative

4.2.2. Qualitative
4.2.1. Quantitative

ESTIMATION MODEL

\[
\ln \text{EXP}_{ijt} = A + \beta_1 \ln \text{GDPVN}_{it} + \beta_2 \ln \text{LANDVN}_{it} + \beta_3 \ln \text{INFVN}_{it} + \\
\beta_4 \ln \text{GDIS}_{ij} + \beta_5 \ln \text{GDPIM}_{jt} + \beta_6 \ln \text{POPIM}_{jt} + \beta_7 \ln \text{ERIM}_{jt} + \beta_8 \text{WTO} + u_{ijt}
\]
## 4.2.1. Quantitative

### DESCRIPTIVE STATISTICS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnEXP</td>
<td>161</td>
<td>15.95</td>
<td>3.43</td>
<td>6.497</td>
<td>20.89</td>
</tr>
<tr>
<td>lnGDPVN</td>
<td>165</td>
<td>25.66</td>
<td>0.47</td>
<td>24.78</td>
<td>26.29</td>
</tr>
<tr>
<td>lnLANDVN</td>
<td>165</td>
<td>8.93</td>
<td>0.03</td>
<td>8.87</td>
<td>8.97</td>
</tr>
<tr>
<td>INFVN</td>
<td>165</td>
<td>7.65</td>
<td>5.86</td>
<td>0.63</td>
<td>23.12</td>
</tr>
<tr>
<td>lnGDIS</td>
<td>165</td>
<td>7.48</td>
<td>0.56</td>
<td>6.18</td>
<td>8.21</td>
</tr>
<tr>
<td>lnGDPIM</td>
<td>165</td>
<td>26.27</td>
<td>2.22</td>
<td>21.73</td>
<td>30.29</td>
</tr>
<tr>
<td>lnPOPIM</td>
<td>165</td>
<td>17.35</td>
<td>2.09</td>
<td>12.81</td>
<td>21.05</td>
</tr>
<tr>
<td>lnERIM</td>
<td>165</td>
<td>4.5</td>
<td>3.28</td>
<td>0.22</td>
<td>9.56</td>
</tr>
<tr>
<td>WTO</td>
<td>165</td>
<td>0.95</td>
<td>0.22</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Table 4.1. Descriptive statistics (Stata 14.0 results, 2020)*
### 4.2.1. Quantitative

**Figure 4.1. Pearson’s correlation coefficient (Stata 14.0 results, 2020)**  

![Table depicting Pearson's correlation coefficient](image)

<table>
<thead>
<tr>
<th></th>
<th>GDPVN</th>
<th>LANDVN</th>
<th>INFVN</th>
<th>GDIS</th>
<th>POPIM</th>
<th>ERIM</th>
<th>GDPIM</th>
<th>WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPVN</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LANDVN</td>
<td>0.7166</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFVN</td>
<td>-0.4678</td>
<td>-0.3134</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDIS</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POPIM</td>
<td>0.0229</td>
<td>0.0155</td>
<td>-0.0121</td>
<td>0.3352</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERIM</td>
<td>-0.0027</td>
<td>-0.0083</td>
<td>-0.0079</td>
<td>-0.3084</td>
<td>0.2130</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDPIM</td>
<td>0.1445</td>
<td>0.1089</td>
<td>-0.0561</td>
<td>0.7051</td>
<td>0.7937</td>
<td>-0.1748</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>WTO</td>
<td>0.1762</td>
<td>0.1366</td>
<td>-0.1433</td>
<td>0.5254</td>
<td>0.1873</td>
<td>-0.3169</td>
<td>0.3923</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
4.2.1. Quantitative

BREUSCH AND PAGAN LAGRANGIAN MULTIPLIER TEST

Breusch and Pagan Lagrangian multiplier test for random effects

\[ \text{EXP(COUNTRY, t)} = Xb + u(COUNTRY) + e(COUNTRY, t) \]

Estimated results:

\[
\begin{array}{ccc}
\text{Var} & \text{sd = sqrt(Var)} \\
\hline
\text{EXP} & 11.77944 & 3.432119 \\
\text{e} & 3.096903 & 1.759802 \\
\text{u} & 0.255373 & 0.505344 \\
\end{array}
\]

Test: \( \text{Var}(u) = 0 \)

\[
\text{chibar2(01)} = 178.73 \\
\text{Prob > chibar2} = 0.0000
\]

Figure 4.2. Multiple regression analysis (Stata 14.0 results, 2020)
### 4.2.1. Quantitative

#### Hausman Test

**Figure 4.3. Hausman Test (Stata 14.0 results, 2020)**

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>(b)</th>
<th>(B)</th>
<th>(b-B)</th>
<th>sqrt(diag(V_b-V_B))</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>B</td>
<td>Difference</td>
<td>S.E.</td>
<td></td>
</tr>
<tr>
<td>GDPVN</td>
<td>-.0666345</td>
<td>1.571382</td>
<td>-1.638017</td>
<td>.5199608</td>
</tr>
<tr>
<td>INFVN</td>
<td>-.0109567</td>
<td>.010626</td>
<td>-.0215827</td>
<td>.</td>
</tr>
<tr>
<td>POPIM</td>
<td>-7.822295</td>
<td>1.413742</td>
<td>-9.236036</td>
<td>5.243503</td>
</tr>
<tr>
<td>ERIN</td>
<td>.7843703</td>
<td>-.5643023</td>
<td>1.348673</td>
<td>1.71692</td>
</tr>
<tr>
<td>GDPM</td>
<td>2.463557</td>
<td>-1.306317</td>
<td>3.769874</td>
<td>.8121106</td>
</tr>
<tr>
<td>WTO</td>
<td>-2.912415</td>
<td>-2.937295</td>
<td>.0248801</td>
<td>.</td>
</tr>
</tbody>
</table>

- **b** = consistent under Ho and Ha; obtained from xtreg
- **B** = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

\[
\chi^2(7) = (b-B)'[(V_b-V_B)^{-1}] (b-B) = 10.17
\]

Prob \( \chi^2 \) = 0.1793

\( V_b-V_B \) is not positive definite
4.2.1. Quantitative

Random-effects GLS regression
Group variable: COUNTRY

Number of obs = 161
Number of groups = 11

R-sq:
within = 0.0729
between = 0.6321
overall = 0.4645

corr(u_i, X) = 0 (assumed)

| EXP     | Coef.  | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|---------|--------|-----------|-------|-------|---------------------|
| GDPVNI  | 1.571382 | .6164949  | 2.55  | 0.011 | .3630744 - 2.77969 |
| LANVNI  | 14.42744 | 9.174967  | 1.57  | 0.116 | -3.555165 - 32.41004 |
| INFVNI  | .010626  | .0339942  | 0.31  | 0.755 | -0.056013 - .0772533 |
| GDIS    | 4.039121 | .7956038  | 5.08  | 0.000 | 2.479766 - 5.598476 |
| POPIM   | 1.413742 | .2923436  | 4.84  | 0.000 | .8407587 - 1.986724 |
| ERIM    | -.5643023 | .1004399  | -5.62 | 0.000 | -.7611609 - .3674437 |
| GDPIM   | -1.306317 | .3460066  | -3.78 | 0.000 | -1.984477 - .6281562 |
| WTO     | -2.937295 | 1.084941  | -2.71 | 0.007 | -5.06374 - .8108503 |
| _cons   | -168.4748 | 73.4661   | -2.29 | 0.022 | -312.4657 - 24.48391 |

sigma_u  | .5053444 |
sigma_e  | 1.759802  |
rho      | .07617898 | {fraction of variance due to u_i}

46.45% explanatory of the independent variables over the dependent variable

Figure 4.4. REM Analysis
(Stata 14.0 results, 2020)
4.2.1. Quantitative

Detection for Multicollinearity

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPIM</td>
<td>9.42</td>
<td>0.106135</td>
</tr>
<tr>
<td>POPIM</td>
<td>5.79</td>
<td>0.172821</td>
</tr>
<tr>
<td>GDIS</td>
<td>3.46</td>
<td>0.288881</td>
</tr>
<tr>
<td>GDPVN</td>
<td>2.54</td>
<td>0.393900</td>
</tr>
<tr>
<td>LANDVN</td>
<td>2.04</td>
<td>0.491227</td>
</tr>
<tr>
<td>ERIM</td>
<td>1.70</td>
<td>0.587157</td>
</tr>
<tr>
<td>WTO</td>
<td>1.56</td>
<td>0.640019</td>
</tr>
<tr>
<td>INFVN</td>
<td>1.31</td>
<td>0.765723</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>3.48</td>
<td></td>
</tr>
</tbody>
</table>

Detection for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation

F( 1, 10) = 4.131
Prob > F = 0.0695

Figure 4.5. Detection for REM - Multicollinearity
(Stata 14.0 results, 2020)

Figure 4.6. Detection for REM – Autocorrelation
(Stata 14.0 results, 2020)
4.2.1. Quantitative

Detection for Heteroskedasticity

Breusch and Pagan Lagrangian multiplier test for random effects

\[ \text{EXP}[\text{COUNTRY},t] = Xb + u[\text{COUNTRY}] + e[\text{COUNTRY},t] \]

Estimated results:

<table>
<thead>
<tr>
<th></th>
<th>Var</th>
<th>sd = \text{sqrt}(\text{Var})</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td>11.77944</td>
<td>3.432119</td>
</tr>
<tr>
<td>e</td>
<td>3.096903</td>
<td>1.759802</td>
</tr>
<tr>
<td>u</td>
<td>0.255373</td>
<td>0.5053444</td>
</tr>
</tbody>
</table>

Test: \[ \text{Var}(u) = 0 \]

\[ \text{chibar2(01)} = 178.73 \]

\[ \text{Prob} > \text{chibar2} = 0.0000 \]

Figure 4.7. Detection for REM – Heteroskedasticity

(Stata 14.0 results, 2020)
4.2.1. Quantitative

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances = 11  Number of obs = 161
Estimated autocorrelations = 0  Number of groups = 11
Estimated coefficients = 9  Obs per group:

    min = 13
    avg = 14.63636
    max = 15

Wald chi2(8) = 191.63
Prob > chi2 = 0.0000

| EXP  | Coef.  | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|------|--------|-----------|-------|-------|----------------------|
| GDPVN| 1.746459 | 0.5630554 | 3.10  | 0.002 | 0.6428909 - 2.850027 |
| LANDV| 16.24153 | 8.574869  | 1.89  | 0.068 | -5.6491 - 33.04796  |
| INFV| .0077231 | 0.0315482 | 0.24  | 0.807 | -0.0541102 - 0.0695565 |
| CDIS | 5.429039 | 0.598493  | 9.07  | 0.000 | 4.256013 - 6.602065  |
| POPDM| 1.727149 | 0.2082355 | 8.29  | 0.000 | 1.319015 - 2.135283  |
| KRIIM| -0.6013675 | 0.0636877 | -9.06 | 0.000 | -0.731485 - 0.4712501 |
| GDPTM| -1.655405 | 0.2601564 | -6.36 | 0.000 | -2.165302 -1.145508  |
| WTO | -4.862535 | 1.27322 | -3.82 | 0.000 | -7.358 - 2.36707  |
| _cons| -193.5071 | 68.50625 | -2.82 | 0.006 | -327.7769 - 59.23732   |
4.2.1. Quantitative

THE FINAL MODEL

\[ \text{InEXP}_{ijt} = -193.51 + 1.746^* \text{lnGDPVN}_{it} + 16.241^* \text{lnLANDVN}_{it} + 5.429^* \text{lnGDIS}_{ij} \\
- 1.655^* \text{lnGDPIM}_{jt} + 1.727^* \text{lnPOPIM}_{jt} - 0.601^* \text{lnERIM}_{jt} - 4.863^* \text{WTO} \]

The final results above are relatively consistent with theory and practice in Vietnam during the given period.
4.2.2. Qualitative

- Government policies
- Quality and price of exported rice
- Quality of labor resources
- Technology
- Infrastructure
- Tariff and non-tariff factors from importing countries
4.2.2.1. Government policies

Policy on conditions for rice exporting enterprise

PURPOSE:
Enhancing the competitiveness of Vietnamese rice exporter

RESULT:
Many enterprises missed opportunity

Policy on rice export quota & export tariff

PURPOSE:
Ensure the national food security

RESULT:
- Farmer had to sell a lower price
- The Government did not earn much revenue
4.2.2.1. Government policies

Policy on develop paddy land and credit supporting

PURPOSE:
- Enhancing the productions of business
- Supporting for poverty households

RESULT:
- Harvested $\sim 20.2$ million tons
- Mekong Delta: $\sim 10.8$ million tons

LIMITATIONS:
Vietnam’s rice cultivation area has still been decreasing due to industrialization, urbanization, and population growth
During the Covid-19 pandemic

4.2.2.1. Government policies

Decision No. 1106/QD-BCT

Adopting a temporary rice export quota of **400,000 tons** (removal in May, 2020)
4.2.2.2. Quality and price

- Low-quality rice varieties compared to Thailand and India
- Poor supply chain management
- Climate change

*Figure 4.9. Purchasing – Exporting model – Vietnam’s Rice Export Supply Chain (Hung et al., 2019)*
4.2.2.2. Quality and price

Improve gradually following international standards such as: GlobalGAP, SRP,…

The characteristics of ST25 rice

- Has a disease prevention and salt resistance
- Can be grown from two to three crops a year

ST25 rice was the winner in “The best rice in the world” competition 2019
4.2.2.2. Quality and price

The reason for a low export rice

- Have the low-quality of Vietnam’s rice
- Have not created a good branding strategy

- In 2020, Vietnam’s rice price raise 15-20 USD/ton, higher than Thai rice

Chart 4.2. Vietnam’s rice export prices, 2005-2019
(Unit: USD/tons) (USDA, 2020)

Figure 4.10. Vietnam rice logo
(Ministry of Agriculture and Rural Development, 2018)
Vietnam’s labor productivity is **LOW** compared to other countries.

To improve farmer practice:

- The Vietnam Sustainable Agriculture Transformation Project (VnSAT): 5S (sort, set, shine, standardize and sustain)

- The Japan International Cooperation Agency (JICA): Kaizen
4.2.2.4. Technology

**Agricultural mechanization**

**ACHIEVEMENTS:**
- Laser field leveling in Can Tho
- 600 thousand tractors to serve farmers’ demands

**LIMITATIONS:**
- Rice cultivation mechanization has not changed severely
- Vietnam has a fragile competitiveness

**Changes in biotechnology**

- The application of biotechnology in fertilizers and pesticides
- The innovation of genetically modified rice (ST25)

Figure 4.11. The application of the CRISPR/Cas system on the stem cells of the mother plant and passed onto offspring (Le et al., 2019)
Vietnam had built 904 irrigation systems serving irrigation and drainage of 200 ha

ACHIEVEMENTS:
Various traffic works, transport stations, warehouses, wharves were built and completed

LIMITATION:
Lack of connection between important seaport and railways or highways
4.2.2.6. Tariff and non-tariff factors

Import tariff incentives

ASEAN
ACFTA
VKFTA
VJEPA

Key threats

Japan and Korea put the export quota
Fierce competition
Thailand, Cambodia,…
Vietnam has not been listed much in preferential lists of importers
4.2.2.6. Tariff and non-tariff factors

Key non-tariff barriers

- Quantitative restrictions
- Technical measures
- Temporary trade protection measure

The returned contracts from Korean and the recent restriction of China on packaging

Vietnam rice packing vs Thailand rice packing
4.2.2.6. Tariff and non-tariff factors

Key non-tariff barriers

- A new food safety management system in 2019
- The compulsory use of Indonesia companies’ ocean shipping and insurance service
- Ensure the regulations such as sterilization time
- Require the test sample under the Chinese base for testing
- Have a list of 22 enterprises permitting to export rice to China
- Technical Barriers in Trade (TBT)
- Sanitary and Phytosanitary (SPS)
- Japanese Agricultural Standard (JAS)
CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

5.1. Summary of findings
5.2. Vietnam’s rice export target to 2030
5.3. Recommendations
5.4. Limitations and conclusion
5.1. SUMMARY OF FINDINGS

Question 1: What is the situation of rice production and export of Vietnam to ASEAN+3 countries in the period of 2005 - 2019?

Vietnam’s rice export turnover to the ASEAN+3 market generally increased but fluctuated sharply from 2005 to 2019. The detailed analysis is in Chapter 4.
Question 2: What are the main factors affecting Vietnam’s rice exports to ASEAN+3 countries?

- Quantitative determinants
- Qualitative determinants
### 5.1. SUMMARY OF FINDINGS

**Question 3: How are these factors correlated with Vietnam’s rice export to ASEAN+3 countries?**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
<th>P-value</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: GDP of Vietnam has a positive correlation with Vietnam’s rice exports (+)</td>
<td>Accepted</td>
<td>0.002</td>
<td>+1.746</td>
</tr>
<tr>
<td>H2: Harvesting area of rice in Vietnam is positively associated with Vietnam’s rice exports (+)</td>
<td>Accepted</td>
<td>0.058</td>
<td>+16.241</td>
</tr>
<tr>
<td>H3: Inflation negatively correlates with Vietnam’s rice exports (-)</td>
<td>Rejected</td>
<td>0.807</td>
<td></td>
</tr>
<tr>
<td>H4: The geographical distance is negatively correlated with Vietnam’s rice exports (-)</td>
<td>Rejected</td>
<td>0.000</td>
<td>+5.429</td>
</tr>
</tbody>
</table>
### 5.1. SUMMARY OF FINDINGS

**Question 3: How are these factors correlated with Vietnam’s rice export to ASEAN+3 countries? (cont.)**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
<th>P-value</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>H5: GDP of importing country is negatively correlated with Vietnam’s rice exports (-)</td>
<td>Accepted</td>
<td>0.000</td>
<td>-1.655</td>
</tr>
<tr>
<td>H6: Importing country’s population has a positive association with Vietnam’s rice exports (+)</td>
<td>Accepted</td>
<td>0.000</td>
<td>+1.727</td>
</tr>
<tr>
<td>H7: Exchange rate of importing country is negatively correlated with Vietnam’s rice exports (-)</td>
<td>Accepted</td>
<td>0.000</td>
<td>-0.601</td>
</tr>
<tr>
<td>H8: WTO is positively correlated with Vietnam’s rice exports (+)</td>
<td>Rejected</td>
<td>0.005</td>
<td>-4.863</td>
</tr>
</tbody>
</table>
5.1. SUMMARY OF FINDINGS

Question 3: How are these factors correlated with Vietnam’s rice export to ASEAN+3 countries? (cont.)

Qualitative factors

- Government policies
- Infrastructure
- Technology
- Quality and price of exported rice
- Quality of labor source
- Tariff and non-tariff factors
5.1. SUMMARY OF FINDINGS

Question 4: How to boost Vietnam’s rice export to ASEAN+3 countries in the term of 2021-2030?

The answer will be presented in the following part.
5.2. VIETNAM’S RICE EXPORT TARGET TO 2030

Overall objectives

❖ Improving the quality
❖ Increasing the value
❖ Restructuring products to meet the needs of the global market

Particular objectives

❖ Reaching 4 million tons of annual export by 2030
❖ Rising to 2.3 – 2.5 billion USD of export value per year
5.3. RECOMMENDATIONS

5.3.1. Improving the GDP
5.3.2. Exploiting rice land efficiency
5.3.3. Promoting smart strategies
5.3.4. Limiting the risks of importers’ exchange rate
5.3.5. Boosting the quality and strengthening the brand

5.3.6. Promulgating suitable policies
5.3.7. Building high quality human resources
5.3.8. Enhancing the application of technology
5.3.9. Upgrading the infrastructure system
5.3.10. Optimizing FTAs and overcoming barriers
5.3.1. Improving the GDP and Vietnamese’s living standard

Vietnam can raise GDP by

- Stabilizing macroeconomic growth
- Maintaining stable politics
- Expelling obstacles for enterprises
5.3.2. Exploiting the rice land utilization efficiency

- Hardening the area of rice-growing land and annual food production
- Zoning rice harvesting areas into specialized rice areas
- Centralized rice cultivation
- Inter-regional rice cultivation
- Doing thorough studies on the soil
- Having intensive measures and suitable crop conversion policies
- Doing research on the soil
- Having intensive measures
5.3.3. Promoting smart strategies in some special markets

Nations with unfavorable natural conditions

- Building credibility in international trade with customers
- Producing rice according to orders from partners

Rikolto rice market development program

Nations with large populations

- Enhancing the role of collecting data and information related to rice markets in these nations
- Conducting updated studies
- Providing reliable information
- Being more proactive

- Establishing a network of relationships with Vietnamese businesses in these populous importing countries
5.3.4. Limiting the risks of importers' exchange rate

Focusing on exchange rate forecasting

Paying attention to the world's political and economic situations

Selecting other foreign currencies to use in rice export contracts

Increasing the national foreign exchange reserves fund

Actively coordinating with commercial banks
5.3.5. Boosting the quality and strengthening the sustainable brand

Developing a national standard system for exported rice products and processes

Focusing on traceability, hygiene, and food safety

Registering trademark protection for kinds of high-quality rice

Developing and implementing a joint cooperation plan between trade promotion agencies and enterprises
5.3.6. Promulgating policies to ensure benefits for farmers and enterprises

- Policy on controlling the volume of rice export
- Policy on enhancing the supply chain and value chain of rice export
- Policy on credit support for rice producers
- Policy on supporting export enterprises to enter the new market
5.3.7. Building high quality human resources

- Organizing training programs on knowledge
- Adding the system of agricultural officials to support farmers
- Strengthening the connection between labor force training and enterprise
- Building periodic training, inspection of the labor force and technical staff quality
5.3.8. Enhancing the application of technology

- Researching advanced models of crop cultivation and new disease-resistant rice varieties
- Exploring new markets through e-commerce sites
- Making use of rice production waste
5.3.9. Upgrading the infrastructure system

Developing the system of transport and logistics effectively

Having specific strategies in the maintenance of infrastructure
5.3.10. Optimizing FTAs and efficiently overcoming non-tariff barriers

Optimizing FTAs

Promoting relationships with partners in the ASEAN+3

Overcoming non-tariff barriers

- Updating intensive information related to FTAs
- Helping farmers have a better understanding of non-tariff barriers issues

→ Strengthening the relationship among Government, associations, entrepreneurs, farmers
5.4. LIMITATIONS AND CONCLUSION

Limitations

- Time constraint only 4 months
- Inaccessible data and observations size

This study

- Examining the factors affecting the situation of Vietnam’s rice export in the ASEAN+3 market from 2005 to 2019
- Providing recommendations for sustainable development
- Being a reference document for future research

Conclusion
THANK YOU FOR LISTENING!