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Impact of EVFTA on Trade Flows of Fruits between Vietnam and the EU

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Abstract

The European Union Vietnam Free Trade Agreement (EVFTA) took effect on August 1 paving the way for increased trade between the EU and Vietnam; this marked a huge turning point for the Vietnamese economy. Agriculture products, especially fruits, must be listed when it comes to Vietnam export industries that profit the most from EVFTA. After a period of study, with the desire to contribute to the improvement in the efficiency of Vietnam's agricultural products to the EU, the researchers want to assess the impact of the EVFTA on the flows of Vietnamese fruits to the EU market. The study uses a quantitative analysis method via the WITS-SMART model with data on export turnover and tariff reductions in parallel with the analysis of changes in factors affecting the trade flows of fruits between the two markets when the EVFTA takes effect. As a result, Vietnam's fruit importing from the EU is expected to escalate by 29.18% in 2021, while the flow of export will only inch up by 0.955%, which is rather low compare to the increase in import value. Hence, effective policies must be introduced in Vietnam to innovate production methods and increase product quality, so that the EVFTA can be used to boost Vietnam's fruit exports to the EU.

Keywords: EVFTA, Trade Flows, SMART, Vietnam, Fruits

JEL Classification Code: F10, F17, F19

1. Introduction

Empirical and practitioner findings relating to change management indicated an unfavorable trend in successful

change management for the last decade. A 70 percent failure rate is frequently attributed to organizational-change initiatives. The change failure rate was revealed to be at 70% in 2004; the figure remained constant in 2008 (Hughes, 2011). A study targeting 1,500 change agents in 2009 found out that only 41% of change efforts were considered a success. Till recently, the statistics did not show any improvement, and still at there is a 70% chance for the change effort to fail (Shepherd et al., 2011).

Lean transformation is the process of introducing changes in an organization to maximize the flow of value produced for the customer. As a result of this process, wasteful activities are identified, removed, or optimized. This comes contrary to the popular belief that Lean is all about eliminating waste. When considering in a specific context of Lean transformation, the change failure rate was reported to be even lower in various contexts. Less than 10% of organizations succeeded in implementing Lean tools. Recent studies reported that 70% of lean transformation cases failed in overcoming barriers and returned to the previous ways of performing work. However, in the case of UK organizations, the success rates in Lean transformation remained to be at 10% throughout the years.

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Extant research constantly cited resistance to change (RTC) from employees as one of the key problems for change failure. The RTC was designed to assess individuals' tendencies to resist or avoid making changes, to devalue change generally, and to find change aversive across diverse contexts and types of change. Managing resistance is critical, determining whether the change implemented will be successful or not, since resistance has the power to slow and prevent change from happening. Therefore, RTC should be given sufficient attention by management, especially in the rapidly changing business environment when the needs to change are raised constantly. This paper aims to investigate antecedents of RTC (contextual factors, to be specific), to assist management to make an informed decision when dealing with RTC.

Considering the extant gap in the literature relating to both contexts of Vietnam and quantitative research on Lean transformation, this study chose to investigate a single-case study in Lean transformation, in a manufacturing plant adopting one of the Lean tools – Total Productive Maintenance, in the food processing industry. Reviewing the literature on lean and RTC, four key employee factors are considered when implementing Lean transformation: trust in management, training, information exchange, and participation – are chosen as four contextual factors to analyze their relationships with RTC. The study also aims to fulfill the knowledge gap in studying the mediation effect of the perceived impact of change on the relationships of contextual factors and RTC.

In the following sections, the paper presents a literature review and the hypothesis development of the study, followed by the research methodology and then the research findings and discussions.

2. Literature Review

A free trade agreement (FTA) or treaty is a bilateral or multilateral agreement according to international law to form a free-trade area between the cooperating states. Studies on the impact of FTAs on trade flows commonly use 3 main models including the (1) gravity model, (2) computable general equilibrium (CGE) model, (3) partial equilibrium model to assess the post-production impact of the FTAs between 5–10 years after the effect. Countries involved in an FTA are often countries that have a large amount of bilateral trade. Not taking into account the other factors that a country participating in the FTA have will also affect the accuracy of the model results (Baier & Bergstrand, 2007).

According to Tinbergen (1962), these studies show that the effects of FTAs on international trade flows are not statistically significant. Meanwhile, the results of Aitken (1973), Abrams (1980), and Brada and Mendez (1985) showed that FTAs help promote trade between their members. Quantitative studies using gravity models often

use different control variables except for fixed independent variables such as GDP and geographic distance, as well as different data processing methods, for example, the ordinary least squares (OLS), Tobit model, Poisson Pseudo Maximum Likelihood (PPML).

On the other hand, other studies discussed the effects of FTAs on international trade lines. These studies researched the costs and benefits of FTAs, seeing that new-generation FTAs are very common. These studies often use simulation tools such as SMART or GTAP and are based on theories such as general equilibrium or partial equilibrium to evaluate the effects. It can happen to a specific economy or industry when a country participates in a free trade agreement. Studies using CGE to assess the impact of FTAs on economies are quite common. For example, Li (2014) analyzed RCEP's impact assessment for foreign direct investment (FDI); Lee and Itakura (2014) used CGE to assess the impact of TPP and RCEP for Japanese agriculture; Li et al. (2017) showed the impact assessment of the Comprehensive Partnership Agreement and Trans-Pacific Progress (CPTPP) on foreign direct investment (FDI); Lu (2018) assessed the impact of CPTPP and EVFTA for export of garments in Vietnam; Khan et al. (2018) illustrate the impact of CPTPP for Pakistani economy; Lee and Itakura (2014) assessed the impact of CPTPP and RCEP of member states for the same global supply chain. The specific assessment of a specific industry uses the partial equilibrium model is more limited in the number and diversity of the market used for analysis, such as Kumar and Ahmed (2014) used SMART to assess the impact of South Asia's freedom trade agreement (SAFTA) on some sensitive product lines. Othieno and Shinyekwa (2011) used SMART to assess the impact of the East African Tariff Alliance for Uganda. Llano et al. (2019) expanded the scope of research and assess the impact of US tariffs on the steel industry for different economic industries. In addition to international studies, the number of studies using SMART simulation in Vietnam is limited. Vu (2016) had used SMART to quantify the potential impact of EVFTA for importing drugs by Vietnam from the EU and the potential impact of the RCEP Agreement for automobile imports of Vietnam.

Through research on the impact of previous FTAs that have been in force on international trade lines, particularly CPTPP and EVFTA for Vietnamese trade lines, the researchers realized that there are only a few studies on the impact assessment of EVFTA in a specific segment, especially ones that evaluate impacts of the EVFTA on trade flows of fruits. Therefore, in the research model, the research will use SMART simulation to assess the impact of EVFTA on the fruit imports and exports segment of Vietnam's agricultural products to review and determine the potential of imports and exports of fruit and fruit-related products.

3. The Effects of the EU-Vietnam Free Trade Agreements on the Trade Flows of Fruits

3.1. Current Situation of EU-Vietnam Trade Flows

According to the annual export and import report of Vietnam, fruit is one of the main agricultural products that is exported to the EU market. Before the EVFTA took effect, the value of Vietnamese fruit exported to the EU market increased rapidly in the period from 2014 to 2017. In 2014, the value of fruit exported to the EU was about 510 million USD. By 2017, the value of fruit exported to the EU reached approximately 1.06 billion USD, up nearly 32% compared to the time of 2016, 2.1 times higher than in 2014 and more than 12 times higher than that in 2004. In 2018, the export of fruit to the EU reached more than 970 million USD with a slight decrease of nearly 0.1% compared to 2017. In 2019, fruit exports to the EU market continued to decline, but the decrease was insignificant, at about 0.03% compared to 2018.

On 1/8/2020, the EU-Vietnam Free Trade Agreement (EVFTA) officially took effect. The EU-Vietnam agreement is the most comprehensive trade agreement the EU has concluded with a developing country. It takes fully into account Vietnam's development needs by giving Vietnam a longer, 10-year period to eliminate its duties on EU imports. According to statistics of Vietnam's Ministry of Industry and Trade (2020) and Nguyen and Le (2020), the EU is currently the third export market of Vietnam's fruit.

Vietnam is not a large importer of fruits; it can be seen that the value of Vietnam's fruit imports from the EU is only about 1–2% of the export value of Vietnam to the EU. Before the EVFTA took effect, the value of Vietnamese fruits imported from the EU market had two strong fluctuations, from 2007 to 2009 and from 2016 to 2019. The value of fruit imports increased from 340.000 USD in 2006 to 2.377.000 USD in 2007 and reached the highest point in 2009 with the import value of fruits of 3.854.000 USD. From 2015 to 2019, the import value increased gradually from 1.083.000 USD in 2015 and reached a peak of 17.599.000 USD in 2019. In 2019, the value of fruit imported from the EU increased by more than 86% compared to 2018 and increased by nearly 16.25 times compared to 2015 and 57 times more than in 2011 - the year with the smallest import value of the whole period (Huyen et al, 2020).

3.2. Analyze the Terms of the Agreement

Though it is less than half a year since the EVFTA took effect, the agreement has affected many aspects of the economy and society in Vietnam. The implementation of the EVFTA created new opportunities for the EU-Vietnam Bilateral Trade; however, it is not easy to grasp these

opportunities. The international door has opened, but to be able to proceed, Vietnamese agricultural products still have to overcome a number of strict barriers such as EU Technical Barriers to Trade on product origin and quality or the Intellectual Property Rights issues. And the fruit export-import industry faces the same situation.

For the export of Vietnamese fruits, it is necessary to pay attention to the following terms: (1) Tariff barriers; (2) Rules of Origin; (3) Sanitary and phytosanitary (SPS) measures. According to Chapter 2 in EVFTA - National Treatment and Market Access for Goods, the EU will eliminate tariffs immediately after the agreement takes effect (94% of the total 547 tariff lines), of which mainly products are currently subject to the 10% MFN rate and some with 20%; the rest will be gradually reduced to 0% after 7–10 years.

For fruit products, the EU commits to eliminate tariffs after EVFTA takes effect. Since then, EVFTA creates help fruit products gain a price competitive advantage. Meanwhile, the COVID-19 pandemic leads to difficulty in reducing demand and increasing competitiveness in supply, therefore, at the moment, exports to markets in general and the EU, in particular, are still falling in the short term.

One of the other significant changes brought about by the EVFTA Agreement for Vietnam's agriculture sector is the attraction of investment projects. It paves the way for technology transfer and production organization, helping Vietnamese fruits to not only improve output and export quality but also meet the stringent EU industry standards.

Regarding import duties of Vietnam, Vietnam commits to abolish most of the taxes on goods imported from the EU. Reducing Vietnam's tariff revenue will result in a larger and better supply of fruit products imported from the EU, which will meet Vietnamese's demand for quality and diversity in the products. Besides, the reduction of many import and export tariff lines has also helped Vietnam increase the attraction of foreign direct investment (FDI) from the EU.

Before the EVFTA, in the EU, Vietnamese fruit had a high price compared to its competitors, but thanks to tariff reduction since the Agreement came into effect, importers would prefer to buy Vietnamese products. The tax incentives from the Vietnam - EU Free Trade Agreement (EVFTA) are creating a great price advantage for Vietnamese fruits and vegetables in the import competition into the EU, especially against ones from other countries that have not had an FTA with the EU such as Thailand, China, Malaysia, Indonesia, etc.

The EVFTA Agreement has expanded opportunities for Vietnamese fruit to enter the EU market. However, as mentioned above, this fastidious market also requires businesses to overcome technical barriers, quality regulations, food safety, traceability. All types of vegetables and fruits must ensure low or nil residue levels. If violated, goods will be returned by the EU, which will affect enterprises and even Vietnam's import and export industry.

For importers of fresh fruits and vegetables, traceability is mandatory, so the EU will require proof of origin for all fruits. Therefore, improving the quality of vegetables and fruits in Vietnam after the Agreement has been receiving more and more attention.

After the implementation of EVFTA, the agriculture sector in general, and the vegetables and fruit sector in particular, has concentrated on issues such as quality standards and packaging design to deal with not only EVFTA but also other FTAs. It is because no standardization only leads to unsustainable integration. Besides, both the Vietnamese and EU governments have set out many policies to encourage businesses to export fruit, as well as policies on the protection of vegetables and fruits to ensure the market share of domestic businesses. It is clear that not only businesses in particular but also Vietnam and the EU, in general, must pay attention to the importance and impacts of the EVFTA Agreement.

4. Research Methodology

4.1. Selecting Research Model

As mentioned by Kehoe and Kehoe (1994), Karingi et al. (2005), and Philip et al. (2011), the impact assessment of an FTA can be measured by various methods. There are three methods: Trade indicators; Partial equilibrium via SMART-WITS Simulation; and Computable general equilibrium (CGE) via Global Trade Analysis Project (GTAP).

The research chose to use the SMART model because it allows the evaluation of the impact assessment of an FTA at the multidimensional disaggregated product level (Ahmed, 2010). SMART allows quantifying the impact of changing tariff policies in a market on trade flows, tariff revenue, trade regeneration effects, trade diversion effects, and social well-being of a country calculated in detail for 6-digit HS products (Cheong, 2010; Ahmed, 2010; Othieno & Shinyekwa, 2011; Biswajit & Chandrima, 2011). Besides, SMART also overcomes the disadvantages of some other methods such as the inability to quantify the forecast of trade indicators and complicated data requirements of the overall equilibrium model.

However, the SMART model also has its own limitations in that it does not take into account the different tariff variations from other FTAs and the economic impact between different regions of the economy. It also ignores the resource constraints and the interdisciplinary movement of resources in an economy (Karingi et al., 2005); therefore, all calculations are based on valid assumptions recognized from previous research.

4.2. Model Overview

SMART is a partial equilibrium simulation tool developed by the World Bank and the United Nations

Conference on Trade and Development (UNCTAD) used to estimate the impacts of policy modifications in trading between nations, including tariff and non-tariff changes (Laird & Yeats, 1986). SMART is suitable for simulating the impact of changes in trade policy, such as tariff reductions, to forecast trade trends between two research markets (Duc et al., 2020).

The data used in SMART is obtained directly from integrated sources at International Trade Solutions (WITS), including COMTRADE, TRAINs, IDB, and CTs. WITS gives access to international trade and protection related data and offers built-in analytical tools allowing users to assess the impact of tariff changes. WITS is software that includes several databases provided by partner international organizations and other sources. This combination of various data sources within unique software makes data retrieval and analysis easy and more comprehensive.

4.3. Model Content

SMART requires data that can be acquired from WITS or imported from alternative information sources to simulate an FTA, which includes:

- (i) Import value of each foreign partner
- (ii) Tariffs faced by each foreign partner
- (iii) Elasticity of import demand
- (iv) Elasticity of export supply
- (v) Elasticity of substitution

Note that SMART accepts only one elasticity of import demand for goods, which is not the same value for each country. Meanwhile, the elasticity of export supply should be the same for all foreign exporters. And to remain objective and relative, SMART also expects that the elasticity of substitution is the same for any commodity pair.

Elasticities are based on three assumptions: (1) The assumption of import demand proposed by Armington (1969) (2) The two-stage consumer optimization process (3) Elasticity of the export supply is limitless.

4.4. The Formula of the Model

Under specific circumstances and objectives, the SMART model can be used to calculate the effect of the FTA on the importing or exporting side. While trade creation and trade diversion can be used to determine the influence of both parties, other indicators such as revenue, welfare, export effects, and import effects are only used for assessing the impact on the importer side. Therefore, the research team uses the SMART model to assess the impact of the EVFTA agreement on the Vietnamese and EU markets through trade creation and trade diversion indicators.

Trade creation

The trade creation index is used to predict the direct value-added that comes from the import of goods, in this case, is the increase in EU imports of fruits from Vietnam. The formula for the trade creation index is outlined in a research paper by Laird and Yeats (1986) and summarized by Vo et al. (2018) as follows:

$$TC_{ijk} = M_{ijk} \times E_x \times \frac{dt_{ijk}}{(1+t_{ijk}) \left(1 + \frac{E_m}{E_x}\right)}$$

Trade diversion

The trade diversion index is the prediction of an increase in imports coming to a country that has a free trade agreement instead of imports from other foreign nations. According to Vo et al. (2018), the formula for the trade redirect metric could be rewritten from the one of Laird and Yeats (1986) as follows:

$$TD_{ijk} = \frac{M_{ijk}}{\sum M_{ijk}} \times \frac{\sum M_{ijk} \times \sum M_{ijk} \times E_s \times \frac{d\left(\frac{P_{ijk}}{P_{ijk}}\right)}{\frac{P_{ijk}}{P_{ijk}}}}{\sum M_{ijk} + \sum M_{ijk} + \sum M_{ijk} \times E_s \times \frac{d\left(\frac{P_{ijk}}{P_{ijk}}\right)}{\frac{P_{ijk}}{P_{ijk}}}}$$

Notation:

- M: Imports
- P: Price
- TC: Trade creation
- TD: Trade diversion
- Em: Elasticity of import demand with respect to domestic price
- Ex: Elasticity of export supply with respect to export price
- Es: Elasticity of substitution with respect to relative prices of the same product from different sources of supply
- I: Subscript denoting commodity
- j: Subscript denoting domestic country data
- k: Subscript denoting partner country data
- K: Subscript denoting an alternative foreign country

5. Results and Discussion

5.1. Sensitivity Analysis and the Practicality of the Model

After evaluating the impact of EVFTA on the Vietnam trade using the SMART model, it is crucial to analyze the

sensitivity and to check the accuracy and reliability of the simulation results in making effective policies (Baker, 2014).

To conduct sensitivity and accuracy analysis based on past research by Zgovu and Kweka (2008), the simulation should be repeated with the same calculation method but different elasticity coefficients. This research is essential and critical for determining the model’s practicality and authenticity in the above-mentioned baseline scenario. In sensitivity analysis, the selected elasticity of substitution (which is in the base case equal 2) is either halved or multiplied by an appropriate scale factor, while elasticities of export supply are always kept at 99 (according to the third assumption of limitless elasticity of substitution).

5.2. The Impact of EVFTA on Vietnam’s Fruit Imports from the EU

The model results show that Vietnam’s fruit imports from the EU increase regardless of elasticities of substitution. Subsequently, the research will focus on and do an in-depth analysis of the results from the baseline model, in which the elasticity of substitution is 2.

Overall, if the upcoming tariff line is cut to 0% right after when the EVFTA comes into effect (August 2020), the value of fruit imports from the EU will increase significantly by 29.19% compared to the first year, reaching 22,687 million USD (see Table 1). Vietnamese fruit import value increased by 5.126 million USD. This staggering increase comes from two main sources: the trade effect accounting for 41.19% (2.111 million USD), and value from trade diversion accounting for 58.81% (3.014 million USD).

It is clear from Table 2 that the total trade effect has increased over time with the extremely strong impact of the EVFTA agreement. However, it is worth noting here that there is a shift in the import structure of fruits of EU countries to Vietnam. Table 5 provides a summary of the results obtained from the SMART model at the 2-digit and 4-digit HS code level, and Table 6 presents the results obtained based on Vietnam’s European importing partner countries.

Table 1: Changes in Vietnam’s Fruit Imports from the EU

| Indicators | Value |
|---|-----------|
| Initial import value in 2019 (thousand USD) | 17561.592 |
| Import value in 2021 (thousand USD) | 22687.92 |
| Total import change (thousand USD) | 5126.328 |
| Trade creation (thousand USD) | 2111.717 |
| Trade diversion (thousand USD) | 3014.614 |
| Total import increases (%) | 29.19 |
| Trade diversion / Total import changes (%) | 41.19 |

Table 2: Trade Creation and Trade Diversion Effects of Vietnamese Fruit Products Imported from the EU in EVFTA at the 4-Digit Level of HS (Thousand USD)

| HS Code | Import Value in 2019 | Proportion in Import Value (%) | Trade Creation | Trade Diversion | Total Changes Value | Total Changes Rate (%) | Import Value in 2021 | New Proportion in Import Value (%) |
|---------|----------------------|--------------------------------|----------------|-----------------|---------------------|------------------------|----------------------|------------------------------------|
| 08 | 17561.59 | 100 | 2111.713 | 3014.613 | 5125.633 | 29.184 | 22687.23 | 100 |
| 0801 | 77.44 | 0.44 | 828.391 | 31.21357 | 859.6041 | 1110.026 | 937.044 | 4.13 |
| 0802 | 42.37552 | 0.24 | 10.370 | 12.5789 | 22.94893 | 54.156 | 65.324 | 0.29 |
| 0804 | 82.07781 | 0.467 | 15.915 | 36.4124 | 52.32774 | 63.754 | 134.406 | 0.59 |
| 0806 | 465.227 | 2.649 | 38.756 | 86.71109 | 124.7723 | 26.953 | 589.999 | 2.60 |
| 0808 | 14760.85 | 84.053 | 1026.909 | 2446.218 | 3473.128 | 23.529 | 1833.98 | 80.37 |
| 0810 | 1705.644 | 9.712 | 101.417 | 215.2215 | 316.6386 | 18.564 | 2022.282 | 8.91 |
| 0811 | 268.0428 | 1.527 | 46.424 | 118.298 | 164.7218 | 61.453 | 432.765 | 1.91 |
| 0812 | 1.84735 | 0.011 | 0.329 | 0 | 0.328994 | 17.809 | 2.176 | 0.01 |
| 0813 | 146.3068 | 0.833 | 42.273 | 66.20326 | 108.4766 | 74.143 | 254.783 | 1.12 |
| 0814 | 11.78229 | 0.068 | 0.930 | 1.756152 | 2.68573 | 22.795 | 14.468 | 0.06 |

Table 3: Import Value from EU Countries to after EVFTA Comes into Effect (Thousand USD)

| Nation | Total Import Value in 2019 | Market Proportion (%) | Trade Creation | Trade Diversion | Total Changes | Increase Percentage (%) | Import Value in 2021 | New Market Value (%) |
|-------------|----------------------------|-----------------------|----------------|-----------------|---------------|-------------------------|----------------------|----------------------|
| Greece | 0.546 | 0.003 | 0.123 | 0.2839 | 0.407 | 74.54 | 0.953 | 0.004 |
| Denmark | 12.66 | 0.072 | 2.377 | 4.504 | 6.882 | 54.36 | 19.542 | 0.086 |
| Belgium | 91.38 | 0.52 | 5.136 | 17.257 | 22.393 | 24.50 | 113.773 | 0.501 |
| Italy | 108.463 | 0.617 | 28.407 | 44.064 | 72.467 | 66.81 | 180.93 | 0.797 |
| Germany | 138.783 | 0.79 | 32.254 | 61.533 | 93.787 | 67.57 | 232.57 | 1.025 |
| Spain | 463.333 | 2.637 | 38.187 | 85.256 | 123.443 | 26.64 | 586.776 | 2.586 |
| Netherlands | 1068.098 | 6.082 | 897.282 | 197.793 | 1095.075 | 102.62 | 2163.173 | 9.534 |
| Poland | 2641.119 | 15.039 | 202.673 | 488.072 | 690.745 | 26.15 | 3331.864 | 14.686 |
| France | 13037.208 | 74.24 | 905.277 | 2115.850 | 3021.128 | 23.17 | 16058.336 | 70.781 |
| Total | 17561.592 | 100 | 2111.714 | 3014.614 | 5126.323 | 29.190 | 22687.915 | 100 |

In fact, Vietnam only focuses on importing certain fruit products from the EU market such as apple and pear (HS code 0808) which accounts for most of the import value (84.053%), or other product codes like 0810 which accounts for 9.71% of the import market of Vietnam from the EU (product codes from 0801 to 0809 are not included).

After the implementation of the EVFTA, Table 3 shows that all of Vietnam's imports from the EU had a strong increase. Most notably, the export categories of coconut, Brazil nuts, and cashew nuts (export code 0801) and the apple, pear, and quince family (export code 0808) will change in large-amplitude, resulting in a shift in Vietnamese

fruit import structure. Export code 0801 value will increase more than 12 times from 77.000 USD to more than 937.000 USD, ranked second in the total change value (859,600 USD), thereby the import structure of this code commodity will increase nearly 10 times from 0.44% to 4.13%. HS code 0808's import value will increase to 3.473.000.000 USD, occupying the first position in terms of total value; but in terms of market share, there will be a slight decrease from 84.05% to 80.37%. It can be said that these two items' respective import proportions have gone under certain changes that partly point out the importance of assessing the impact of EVFTA on the fruit import market of Vietnam.

Although the EU has 27 members, Vietnam only imports from 9 of these countries, which are Greece, Denmark, Belgium, Italy, Germany, Spain, Netherland, Finland, and France. As shown above, in 2019, the EU fruit export value to Vietnam was dominated by France with nearly three-quarters of the market (74.24%), followed by Finland at 15.039% and Netherland at 6.082%. After the EVFTA Agreement takes effect, the value of fruit imports from EU countries to Vietnam tends to increase. Especially from Netherland, the export value of fruit to Vietnam will be doubled to 2.163 million USD, bringing the proportion fruit

import segment from Vietnam to the Netherlands to 9.53%. In fact, the increase mainly comes from coconut, Brazil nuts, or cashew nuts (HS code 0801) because Netherland is the only country in the EU exporting this commodity to Vietnam. Clearly, EVFTA will lead to a noticeable value of trade effects, thereby will drastically increase the trade value of Vietnam's fruit imports from the EU.

5.3. The Impact of EVFTA on Fruit Exports from Vietnam to the EU

Similar to the fruit import market from the EU, the SMART model shows that the fruit export market from Vietnam to the EU also has a visible increase, contributing to the increase in Vietnam's export revenue. Table 4 will help to assess an overview of Vietnam's fruit and fruit export industry after the EU as soon as the EVFTA comes into effect.

As mentioned above, the EU market accounts for more than 19% of the volume of Vietnamese fruit exports. According to the data processed by the SMART model, the fruit export from Vietnam to the EU will increase by 8,857 million USD in 2024, accounting for 0.945% of the export value from the baseline year of 2019.

From Table 5, it can be seen that coconut, nuts, and cashew nuts (export code 0801) account for more than

Table 4: Changes in Fruit Exports from Vietnam to the EU

| Indicators | Value |
|---|----------|
| Initial export value in 2019 (thousand USD) | 937392.3 |
| Export value in 2021 (thousand USD) | 946249.8 |
| Total export change (thousand USD) | 8857.5 |
| Trade creation (thousand USD) | 3187.658 |
| Trade diversion (thousand USD) | 5770.191 |
| Total export increases (%) | 0.944909 |
| Trade diversion / Total export changes (%) | 35.9882 |

Table 5: Trade-Creating and Trade Diversion Effects of Vietnamese Fruit Exports to the EU in EVFTA at the 4-Digit Level of HS (Thousand USD)

| HS Code | Export Value in 2019 | Proportion in Export Value (%) | Trade Creation | Trade Diversion | Total Changes Value | Total Changes Rate (%) | Import Value in 2021 | New Proportion in Import Value (%) |
|---------|----------------------|--------------------------------|----------------|-----------------|---------------------|------------------------|----------------------|------------------------------------|
| 08 | 937392.3 | | 3187.658 | 5770.191 | 8957.5 | 0.955 | 946350.8 | |
| 0801 | 853828.3 | 91.09 | 0 | 0 | 0 | 0 | 853828.3 | 90.22 |
| 0802 | 13318.46 | 1.42 | 45.022 | 69.690 | 114.324 | 0.858 | 13432.784 | 1.42 |
| 0803 | 68.2662 | 0.007 | 8.217 | 16.00 | 23.721 | 34.748 | 91.987 | 0.009 |
| 0804 | 1844.517 | 0.197 | 5.220 | 11.202 | 16.422 | 0.890 | 1860.939 | 0.196 |
| 0805 | 16484.48 | 1.758 | 918.909 | 1906.493 | 2825.402 | 17.140 | 19309.882 | 2.040 |
| 0806 | 32.297 | 0.003 | 0.189 | 0.383 | 0.573 | 1.775 | 32.870 | 0.003 |
| 0807 | 167.061 | 0.018 | 3.380 | 7.829 | 11.209 | 6.710 | 178.267 | 0.019 |
| 0808 | 5.008 | 0.001 | 0.131 | 0.480 | 0.611 | 12.204 | 5.619 | 0.001 |
| 0809 | 0.852 | 0.000 | 0.123 | 0.215 | 0.339 | 39.735 | 1.191 | 0 |
| 0810 | 35054.55 | 3.740 | 1398.153 | 2040.982 | 3436.925 | 9.805 | 38491.475 | 4.067 |
| 0811 | 15427.22 | 1,646 | 779.104 | 1667.59 | 2350.184 | 15.234 | 17777.404 | 1.878 |
| 0812 | 43.598 | 0.005 | 1.530 | 4.445 | 5.974 | 13.703 | 49.572 | 0.005 |
| 0813 | 1054.213 | 0.112 | 27.682 | 44.880 | 71.815 | 6.812 | 1126.028 | 0.119 |
| 0814 | 63.471 | 0.007 | 0 | 0 | 0 | 0 | 63.471 | 0.007 |

Table 6: Sensitivity and Durability Test using Different Commercial Elasticities of Import and Export Flow (ES: Elasticity of Substitution)

| | Lower Bound ES = 1 | Base Case ES = 2 | Upper Bound ES = 3 | Best Case ES = 4 |
|---|-----------------------|---------------------|-----------------------|---------------------|
| Import value of the base year (2019) (thousand USD) | 17599.416 | 17599.416 | 17599.416 | 17599.416 |
| Trade creation of import value (thousand USD) | 2114.744 | 2114.744 | 2114.744 | 2114.744 |
| Trade diversion of import value (thousand USD) | 1507.587 | 3021.493 | 4542.505 | 6072.968 |
| Total changes of import value (thousand USD) | 3622.331 | 5136.237 | 6657.250 | 8187.712 |
| Import value in 2021 (thousand USD) | 21221.749 | 22735.653 | 24256.666 | 25787.128 |
| Increases (%) | 20.582 | 29.184 | 37.827 | 46.523 |
| Export value of the base year (2019) (thousand USD) | 937392.32 | 937392.32 | 937392.32 | 937392.32 |
| Trade creation of export value (thousand USD) | 3187.66 | 3187.66 | 3187.66 | 3187.66 |
| Trade diversion of export value (thousand USD) | 2889.81 | 5770.19 | 8668.64 | 11557.07 |
| Total changes of export value (thousand USD) | 6077.47 | 8957.85 | 11856 | 14744.73 |
| Export value in 2021 (thousand USD) | 943469.89 | 946350.27 | 949248.38 | 952137.05 |
| Increases (%) | 0.648 | 0.955 | 1.265 | 1.573 |

90% of the fruit export market share from Vietnam to the EU. The reason is that this export code is one of the few agricultural products that have a tariff rate of 0% by the EU before the EVFTA. Although other fruit products all have a certain increase in export value, in the whole EU market, the above-mentioned increase does not account for too much of a proportion. Among the remaining items, 3 items, which are citrus products (code HS 0805), other fruits (code 0810), fruit and nuts, whether or not containing other sweeteners (code 0811) will have a significant increase with the added export value of 2.825 million USD, 3.436 million USD and 2.35 million USD, respectively.

5.4. Durability Test of the Results

After estimating the impact of FTAs on trade using the SMART model, sensitivity analysis and certainty testing should be performed to ensure that the simulation results are accurate and useful in guiding policy-making processes.

As mentioned above, different scenarios are repeated according to the SMART model to test the practicality of the results. The elasticity of substitution values ranging from 1 to 4 creates no change in trade creation. Therefore, for Vietnam's total imports after EVFTA, the values are predicted to vary from 2,122 (lower limit) to 2.578 million USD under the best-case scenario; and for Vietnam's total exports, after EVFTA, the values are also predicted to vary from 0.943 billion to 0.952 billion USD.

Relatively speaking, the added value of trade creation is kept constant in all cases both for export or import, so it can be certain that the resulting value from the base case is appropriate and can be used to propose compatible solutions. Besides, it can be seen that the trade diversion completely depends on the exchangeability of each product item in Vietnam compared to other countries which account for more than half of the added value in terms of both Vietnam's exports and imports. From here, we can see the urgency and importance of enhancing the competitive advantage of each fruit product in Vietnam.

6. Conclusion

It can be seen that the value of bilateral trade between Vietnam and the EU accounts for a high proportion of Vietnam's import and export turnover. The study has met the set objectives: to determine the effect of EVFTA on the bilateral fruit import and export situation. Thereby building a standard assessment framework of the impact of the FTA agreements based on the theory related to FTA and the reality of the Vietnamese economic market. In the study, the research uses the WITS-SMART model to evaluate the impact of tariff elimination after the EVFTA agreement was signed on August 1, 2020, on the trade flow of fruit between Vietnam and the EU.

The research findings suggest that eliminating tariffs makes Vietnam's export value rise faster than its imports, however, imports have grown several times faster as well. EVFTA is also a push to gradually change the import-export

structure between Vietnam and the EU. In terms of exports, the items of citrus fruits or fruits containing sweeteners are the ones with strong growth, while in imports, they are apple, pear or coconut, and cashew.

However, the study also acknowledges the limitations of the research paper, especially the limitation of the research model. Although the SMART model is a highly regarded tool that is very useful for assessing the impact of the FTA agreements on bilateral trade between countries or economic alliances, it fails to take into account the adverse effects of other economic agreements, nor does it focus on highly specific economic events in the market or the reactions of other countries in the international market. Therefore, the research hope in the future, the SMART tool will be further refined and integrated with many other features to be able to provide a more comprehensive view of the FTA agreements.

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