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TÁC ĐỘNG CỦA HIỆP ĐỊNH EVFTA LÊN XUẤT KHẨU CÀ PHÊ CỦA VIỆT NAM TỚI THỊ TRƯỜNG LIÊN MINH CHÂU ÂU (EU): CÁCH TIẾP CẬN TỪ CÁC CHỈ SỐ THƯƠNG MẠI

Văn Thu Trang[1], Vũ Minh An, Trần Phương Dung, Vũ Phương Duyên

Sinh viên K61 CLC Kinh tế – Viện Kinh tế &Kinh doanh quốc tế

Trường Đại học Ngoại Thương, Hà Nội, Việt Nam

Vũ Huyền Phương

Giảng viên Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại Thương, Hà Nội, Việt Nam

Tóm tắt

Liên minh Châu Âu (EU) là thị trường xuất khẩu cà phê lớn nhất của Việt Nam, và việc thực hiện Hiệp định Thương mại Tự do EU-Việt Nam (EVFTA) vào năm 2020 đã tạo ra những cơ hội mới cho ngành cà phê của Việt Nam. Nghiên cứu này nhằm đánh giá tác động của EVFTA đối với xuất khẩu cà phê của Việt Nam sang thị trường EU. Phân tích định lượng dựa trên ba chỉ số chính: Lợi thế so sánh biểu lộ (RCA), Chỉ số cường độ thương mại (TII) và Chỉ số bổ sung thương mại (TCI) từ năm 2017 đến năm 2023. Kết quả nghiên cứu cho thấy vai trò quan trọng của EVFTA trong việc duy trì và củng cố cường độ thương mại cũng như cấu trúc tương thích thương mại giữa Việt Nam và EU. Đồng thời, EVFTA cũng giúp phục hồi và nâng cao lợi thế cạnh tranh của các sản phẩm cà phê thô và sản phẩm thay thế cà phê của Việt Nam; tuy nhiên, cà phê đã qua chế biến lại chưa tận dụng tốt các cơ hội từ hiệp định này. Từ đó, bài viết đưa ra một số khuyến nghị cho các bên liên quan để ngành cà phê Việt Nam tận dụng triệt để các lợi thế mà EVFTA mang lại.

Từ khóa: EVFTA, Việt Nam, cà phê, xuất khẩu, chỉ số thương mại

[1] Tác giả liên hệ, Email: k61.2212150171@ftu.edu.vn

IMPACTS OF EVFTA ON VIETNAM'S COFFEE EXPORTS TO THE EUROPEAN UNION MARKET: A TRADE INDICATORS APPROACH

Abstract

The European Union (EU) is Vietnam's largest coffee export market, and the implementation of the EU-Vietnam Free Trade Agreement (EVFTA) in 2020 has created new opportunities for Vietnam's coffee industry. This study aims to appraise the impacts of the EVFTA on Vietnam's coffee exports to the EU market. Quantitative analysis was based on the calculations of three key indices: Revealed Comparative Advantage (RCA), Trade Intensity Index (TII), and Trade Complementarity Index (TCI) from 2017 to 2023. Research results reveal the important role of EVFTA in sustaining and strengthening coffee trade intensity and trade compatibility structure between Vietnam and the EU. At the same time, EVFTA also help recover and enhance the competitive edge of Vietnam's raw coffee and coffee substitutes products; however, processed coffee received limited impacts from the agreement. From then, the paper provides some recommendations for several stakeholders to make the coffee industry in Vietnam fully harness the benefits coming from the EVFTA.

Keywords: EVFTA, Vietnam, coffee, exportation, trade indicators

1. Introduction

International trade liberalization has not only accelerated economic growth worldwide in a substantial manner but also reshaped the competitive dynamics of nations and industries (Võ et al., 2018). In the case of Vietnam, as one of the country's leading agricultural exports, the coffee industry plays a pivotal role in the national economy. Vietnam prides itself on being the second-largest coffee producer globally after Brazil. The 2022-2023 crop year witnessed the highest coffee export prices in the last 30 years where coffee export turnover reached $4.08 billion, a year-on-year increase of 3.4%, and represented over 10% of the country's total agricultural export value (Việt Nam News, 2023).

With around 40% of the overall export value, the European Union (EU) is currently the largest and most lucrative market for Vietnamese coffee, according to Vietnam Coffee-Cocoa Association (Vicofa). There is a wide distribution in the structure of Vietnam's coffee exports to EU countries, with notable buyers coming from Germany, Italy, Belgium, and Spain (Le et al., 2024). Specifically, the implementation of the EU-Vietnam Free Trade Agreement (EVFTA) in August 2020 marked a significant milestone in the trade relations between Vietnam and the EU. The agreement includes several provisions targeted at enhancing market access and reducing trade barriers for Vietnamese agricultural products, including coffee being considered as a field that is eligible to enjoy the largest tariff preferences. This tariff elimination is expected to enhance the competitiveness of Vietnamese coffee in the EU market and give a big boost to exporters (Thiên Lý, 2020).

Numerous theoretical and empirical studies have explored the effects of free trade agreements (FTAs) on overall exports and specific product categories both within Vietnam and internationally.

However, research focusing specifically on EVFTA and its impact on Vietnam's coffee export activities remains relatively limited, particularly in terms of quantitative analysis. Recognizing this gap, the present study aims to provide quantitative insights into the effects of the EVFTA on Vietnam's coffee exports to the EU. The primary objectives of this research are threefold: (1) to evaluate the changes in Vietnam's coffee export performance to the EU before and after the implementation of the EVFTA; (2) to assess the extent to which the agreement has influenced trade dynamics between Vietnam and the EU; and (3) to provide policy implications and recommendations for state agencies, industry associations, and coffee exporters to capitalize on the opportunities presented by the EVFTA and further enhance Vietnam's coffee exports to the EU in the long run. Through these objectives, the study seeks to contribute to the broader understanding of how trade agreements impact sector-specific exports in developing economies.

2. Literature review

2.1. Previous studies on the impacts of EVFTA on Vietnam's coffee export

Vu (2018) combined the SMART model, gravity model, impact diagnosis framework, and qualitative analysis to assess the static and dynamic effects of the EVFTA on overall trade, 18 specific industries and 2 commodity groups between Vietnam and the EU. The study finds that the EVFTA will boost bilateral trade, with Vietnam's tariff reductions having a greater impact than the EU's. Furthermore, in the initial stage, Vietnam's exports to the EU are expected to rise more than its imports from the EU.

In another study conducted by Nguyen & Trinh (2021), outputs from the SMART model reveal that EVFTA positively affects the export of agricultural products from Vietnam to the EU market, with trade creation dominating trade diversion effects in the coffee product group. Compared to the EU's Member States, Vietnam has comparative advantages in coffee exports; therefore, it is necessary to concentrate on such advantageous goods to create more increases in national export. Similar notion is shared by Trang et al. (2023), Nui & Hoang (2024) and Vu et al. (2024).

However, according to Vo et al. (2024), non-tariff barriers such as TBT, SPS, as well as exchange rate variables are obstacles that could potentially limit Vietnam's ability to enjoy preferential tariffs and fully capitalize on the given opportunities. Particularly, when the number of non-tariff barriers increases, Vietnam's coffee exports decline as businesses are discouraged by the additional costs, risks, and complexity of complying with the regulations. Similarly, when the real effective exchange rate rises, Vietnam's coffee exports also fall because the price competitiveness of Vietnamese coffee diminishes in international markets.

2.2. Trade indicators

2.2.1. Revealed Comparative Advantage (RCA)

Classical economist David Ricardo initially introduced the concept of comparative advantage in 1817 based on Adam Smith's 1776 principle of absolute advantage (Ishchukova & Smutka,

2013). According to this theory, when a country has a comparative advantage in producing a particular good compared to another country, its opportunity costs are relatively lower; and it is beneficial to all nations if each of them exports goods for which it has a comparative advantage while importing what they don't (Nguyen, 2023). Later on, Balassa (1965) suggested that it may not be necessary to consider all factors influencing a country's comparative advantage and that comparative advantage is "revealed" through observed trade patterns, a concept known as "revealed" comparative advantage (RCA). The Balassa index, which identifies whether a country has a "revealed" comparative advantage, is widely used in empirical studies to analyze trade data, which focuses more on observed trade patterns than on identifying the underlying sources of comparative advantage.

A study conducted by Hoang et al. (2017) employed various CAs indices, including RCA, to assess the comparative advantage of agricultural commodities in Vietnam. The finding revealed that in both 2-digit analysis and 3-digit analysis, coffee, and coffee substitutes are among the most powerful revealed comparative advantage divisions. Pre-EVFTA, Nguyen (2016) examined the competitiveness of Vietnam's coffee exports to the EU using RCA and found that it lags behind countries like Brazil, Columbia, and Honduras despite benefiting from certain advantages, such as being the second-largest coffee exporter to the EU, favorable natural conditions, and low labor costs. Besides pointing out factors like low export quality, limited processing, and lack of product diversity that hindered its competitiveness, Nguyen (2016) also emphasized the need for a bilateral trade agreement between the two parties, which can reduce tariff barriers, non-tariff and smoothen the export and distribution of coffee to this market. The RCA indicators in a study performed by Chuong et al. (2021), in an attempt to identify agricultural products with competitive advantages and the composition of Vietnam's agricultural exports in relation to global trade integration, showed that while Vietnamese coffee remains in an advantageous position, there is a gradual decrease in the sector's competitive growth rate in the period of 2000 to 2018. From then, the study confirmed the potential of Vietnam to take advantage of trade agreements, particularly the EVFTA, to increase its export capacity.

2.2.2. Trade Intensity Index (TII)

The concept of the trade intensity index was developed and popularized by Kojima (1964). Kojima's trade intensity index emphasizes the impact of varying resistance levels on bilateral trade flows (Bano, 2014). This index suggests that when the resistance between countries is lower, trade between them is likely to be more intense compared to trade with the rest of the world. The trade intensity index provides a method to evaluate these relationships, independent of the size differences between trading partners (Bano, 2014). Furthermore, in assessing the robustness of trade relationships, it is common to consider the share of global trade accounted for by a country's trading partners (Bhattacharyay & Mukhopadhyay, 2015). The trade intensity index (TII) is one of the key metrics used for this purpose. It can be calculated from either an export or import perspective to measure the intensity of bilateral trade between two countries. The TII is essentially

the ratio of two export shares: the percentage of the study region's exports directed to the target destination, and the percentage of total world exports to that same destination (Hossain et al., 2021).

In the context of Vietnam, TII has been applied to assess its trade ties with several key partners. In the case of Vietnam-Korea trade, Hoàn (2016) observed that export and import intensity indices indicate a strong export relationship for Korea with Vietnam, whereas Vietnam's export intensity has hovered around unity, suggesting that its export growth to Korea has been in line with global trends. CIEM (2016) used TII and other indices to report on Vietnam–China trade and found Vietnam to be highly open with strong trade intensity, especially in food processing, and concentrated exports in fuel and minerals. While Vietnam's export dependency on China was lower than the ASEAN average, its import dependency was the highest.

2.2.3. Trade Complementarity Index (TCI)

Drysdale (1969) introduced the Trade Complementarity Index (TCI) to evaluate how well the export patterns of one country align with the import patterns of its trading partner, relative to global trade patterns. This index helps measure the extent of trade complementarity between countries, with higher values indicating a closer match in trade patterns, leading to potentially larger trade flows. Various scholars have refined this concept, including Vaillant & Ons (2002) and Andreosso-O'Callaghan (2009). When analyzing trade relations between nations, it is important to differentiate between trade complementarities and trade intensity. Drysdale & Garnaut (1982) explain that the trade intensity index quantifies how much more two countries trade with each other compared to their trade with other partners. In contrast, the trade complementarities index assesses how well the export pattern of one country aligns with the import needs of its trading partner (Chow, 2012).

When investigating the agricultural trade complementarity of ASEAN countries in the global agricultural market from 1997 to 2015, the TCI results from Hoang (2018)'s paper demonstrated that Vietnam, together with Thailand, is the most strongly complementary to the agricultural import patterns of other nations in ASEAN, specifically to the demand of Brunei, Indonesia and Philippines. Meanwhile, Tian et al. (2024) utilized TCI with a view to examine trade complementary of twenty major agricultural products between China and Vietnam over a period of 10 years. The finding showed how China's exports to Vietnam were highly complementary to Vietnam's imports in category 0 (Food and Live Animals) while Vietnam's exports to China exhibited strong complementarity with China's imports in category 2 (Crude Materials inedible, except fuel), which drew attention to more efficient agricultural cooperation between two parties to fully utilize their resources.

3. About EU - Vietnam Free Trade Agreement and Vietnam's coffee export performance in recent years

3.1. The EU - VIETNAM FREE TRADE AGREEMENT (EVFTA)

3.1.1. Overview

The EU-Vietnam Free Trade Agreement (EVFTA) is a new generation FTA between Vietnam and the 27 European Union member states. Coming into effect on August 1, 2020, EVFTA is one of two FTAs with the widest scope of commitments and the highest level of commitment of Vietnam so far. The Agreement consists of 17 chapters, 2 Protocols and some understandings. The EVFTA seeks to promote economic growth between Vietnam and the EU by enhancing the investment environment and offering more stability for both European and Vietnamese investors. To fulfill these goals, the agreement sets forth a roadmap to eliminate customs duties, reduce bureaucratic barriers, and remove other business obstacles; facilitate trade in major industries like electronics, food, and pharmaceuticals; and expand market access for EU services in Vietnam and vice versa.

3.1.2. Basic requirements of EVFTA related to coffee export

3.1.2.1. Tariff Elimination

One of the most important aspects of the EVFTA for coffee exporters is the elimination of tariffs. Before the agreement, the EU maintained the MFN and GSP tax rates for Vietnamese coffee beans at 4.15% and 2.4%, respectively. With the commitment to eliminate tariffs under the EVFTA, 93% of tariff lines on coffee exports to the EU will be reduced to 0% as soon as the agreement comes into effect. This presents a great opportunity for Vietnamese coffee, as the EU is the largest coffee consumer market in the world, with annual imports from non-EU countries amounting to approximately 10 billion USD, accounting for 66% of global imports and about 30% of global consumption.

3.1.2.2. Geographical Indications (GIs) Protection

The EVFTA includes protections for Geographical Indications (GIs), which safeguard products that have a specific origin and possess qualities or a reputation due to that origin. Vietnamese coffee from Buôn Ma Thuột is protected under the agreement. This gives Vietnamese coffee a unique selling point in the EU market and helps maintain premium pricing for high-quality, region-specific coffee.

3.1.2.3. Food Safety and Hygiene Regulations

In the EU, the primary focus of legislation on food products, including coffee, is food safety and hygiene. Businesses need to identify risks in their supply chain, outline prevention or mitigation strategies, monitor those risks, and define actions in case of an issue. A Hazard Analysis and Critical Control Points (HACCP) plan can be developed with expert consultants

specializing in food management principles. Another approach is to comply with Good Agricultural Practices (GAP), with major standards provided by GLOBALG.A.P.

3.1.2.4. Phytosanitary Regulations for Coffee Products

Vietnamese coffee exporters must comply with the EU's stringent phytosanitary regulations to access the European market. This includes meeting maximum residue limits (MRLs) for pesticides, ensuring low levels of contaminants such as Ochratoxin A, Polycyclic Aromatic Hydrocarbons, decaffeination solvents (i.e. methyl acetate, dichloromethane, ethyl methyl ketone), etc, and passing phytosanitary inspections to confirm the absence of quarantine pests. A Phytosanitary Certificate is required for each shipment, and full traceability of the coffee's origin is necessary.

3.1.2.5. Buyer's Quality Standards

According to the International Trade Centre, quality grading often depends on:

- Altitude and/or region, plant variety, processing method, bean size, defect count, roasting form, and cup quality (flavor, characteristics, cleanliness), as well as coffee density.
- Specialty coffee is classified by its tasting profile, including factors like aroma, flavor, aftertaste, balance, acidity, sweetness, uniformity, and cleanliness.
- A comprehensive rating on a 50 to 100 scale determines quality; the higher the score, the better the quality.

3.1.2.6. Rules of Origin

To qualify for preferential tariffs under the EVFTA, coffee must be of pure origin, meaning it must be grown in Vietnam. For coffee-based products, they must not be re-manufactured from non-originating products within the same product group; additionally, the weight of sugar used in the product must not exceed 40% of the product's weight. Coffee exporters must provide appropriate origin certification based on the shipment's value:

- For shipments under 6,000 EUR, exporters can self-certify the origin without a paper-based certification, provided they are registered with the REX (Registered Exporter System).
- For shipments exceeding 6,000 EUR, businesses must obtain a C/O form EUR.1 as proof of origin.

In addition to certification, coffee businesses must comply with Protected Designation of Origin (PDO) regulations and geographical indications.

3.1.2.7. Packaging and labeling requirements

Raw coffee beans must include clear labeling in English with information such as the product name, International Coffee Organization (ICO) identification code, country of origin, grade, and

net weight. For certified coffee, details about the certifying body and the certificate number must also be included.

For extracted coffee, instant coffee, or ready-to-drink coffee (excluding *torrefacto* instant coffee, which is coffee roasted with a process that includes adding a certain amount of sugar during roasting), specific labeling requirements apply. Labels should include terms such as "coffee extract," "instant coffee extract," "instant coffee," or "ready-to-drink coffee." The term "concentrated" can only appear on the label if the coffee dry matter content exceeds 25% by weight. Additionally, the term "decaffeinated" must appear if the caffeine content is no more than 0.3% by weight of the coffee dry matter. This information must be included in the same section as the sales description.

For coffee extracts in solid or paste form: To be considered "coffee," the dry matter content must be no less than 95% by weight of the dry coffee if in solid form, and between 70% and 85% by weight if in paste form. The coffee must not contain any substances other than those derived from the coffee extraction process. Labels must clearly indicate the minimum coffee dry matter content, expressed as a percentage by weight of the product.

For liquid coffee extracts: The dry matter content must be between 15% and 55% by weight of the coffee solution. If roasted or unroasted sugars are included, their amount must not exceed 12% by weight. The label must include terms such as "with," "preserved with," "with added," or "roasted with," followed by the name of the sugar used.

3.2. Vietnam's coffee export performance in recent years (2021-2023)

According to the General Department of Customs, Vietnam has exported nearly 1.8 million tons of coffee to the world market in 2022 with a turnover of more than 4 billion USD, up 13.8% in volume and increased by 32% value compared to 2021. This is the highest export volume of the coffee industry in the past 4 years and the highest turnover value so far. This success is due to the push in exports, as coffee prices in the market reached their highest level since 2011, combined with the U.S. Federal Reserve (Fed) raising interest rates seven consecutive times, causing the USD/VND exchange rate to surge significantly. Furthermore, in the past year, coffee exports demonstrated robust growth due to a resurgence in demand following the COVID-19 pandemic and elevated coffee prices resulting from a constrained global supply. This supply shortage was largely due to adverse harvest conditions and supply chain disruptions in major coffee-producing countries such as Brazil and Colombia. In addition, the increase in exports was facilitated by an improvement in container and shipping availability, which alleviated some logistical challenges in the global coffee trade.

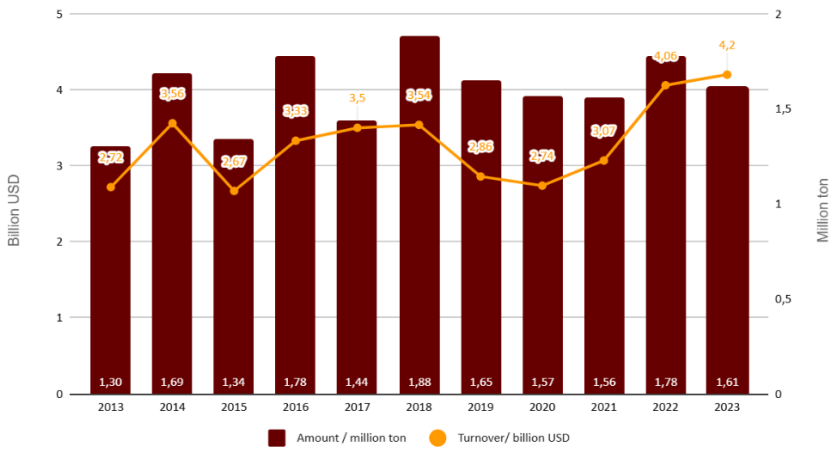

Figure 1. Vietnam's coffee export from 2013 - 2023

Source: General Department of Customs

At the end of 2023, coffee exports reached over 1.6 million tons (approximately 27 million bags), marking an 8.7% decrease compared to 2022. However, the export value surged by 4.6% to the highest level ever at over 4.24 billion USD. Supply shortages, especially limited availability within Vietnam, have been a major factor driving up prices. In 2022, Vietnam hit record coffee export levels, but harvest yields dropped by 10-15% compared to the previous season, leaving less coffee available for export in 2023. At the same time, demand for Robusta spiked as consumers tightened their budgets due to rising interest rates and economic uncertainty, further pushing prices higher.

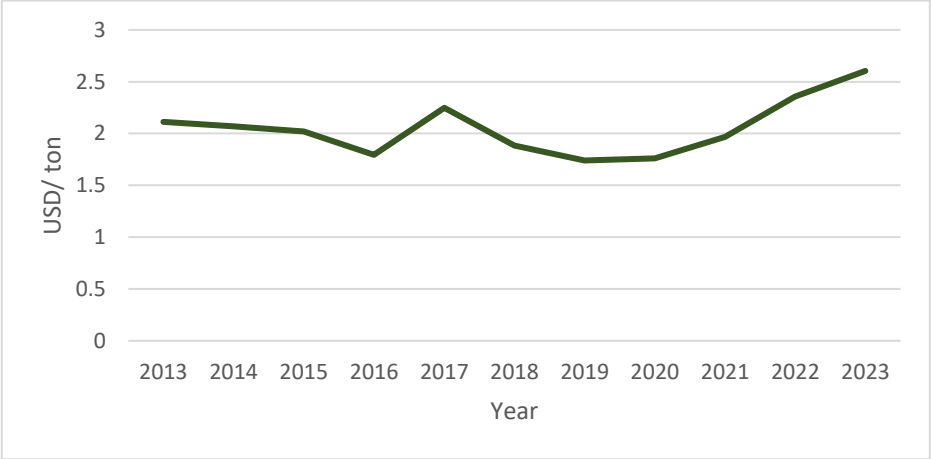

Figure 2. Vietnam's coffee export price from 2013 - 2023

Source: General Department of Customs

Considering each type of coffee exported, Robusta coffee held the largest share, with 1.49 million tons exported, generating $3.25 billion in revenue. In contrast, Arabica coffee exports amounted to only 41,500 tons, with a turnover of $169 million, while decaffeinated green coffee reached 36,000 tons, generating $136 million. Additionally, roasted and instant coffee exports

totaled around 90,000 tons (unconverted to green coffee equivalent), with a revenue of approximately $510 million. This category accounted for roughly 5.4% of the export volume and 12.5% of the total export value for all coffee types in the 2022-2023 coffee season. Compared to the previous season, Robusta coffee exports increased by approximately 0.7% in volume and 10.8% in revenue. Meanwhile, Arabica coffee exports saw a decline of about 30.7% in volume and 34.9% in revenue. Vietnam, the world's largest exporter of Robusta coffee, is expected to continue benefiting from the trend of shifting demand from higher-priced Arabica coffee to more affordable Robusta due to rising inflation.

Vietnam's top coffee export markets in 2023 remained the EU, Japan, the US, and Russia. Among them, the EU continued to be the largest export market, with a volume of 600,548 tons and a value of nearly 1.5 billion USD, accounting for 37% of Vietnam's total coffee export volume and 35% of its value. However, compared to 2022, coffee exports to this market decreased by 12.8% in volume and 0.7% in value. Within the EU, coffee exports to Germany reached 196,090 tons, down 12.7%; Italy reached 142,191 tons, up 2.1%; while Spain and Belgium decreased by 20% and 50.5%, respectively.

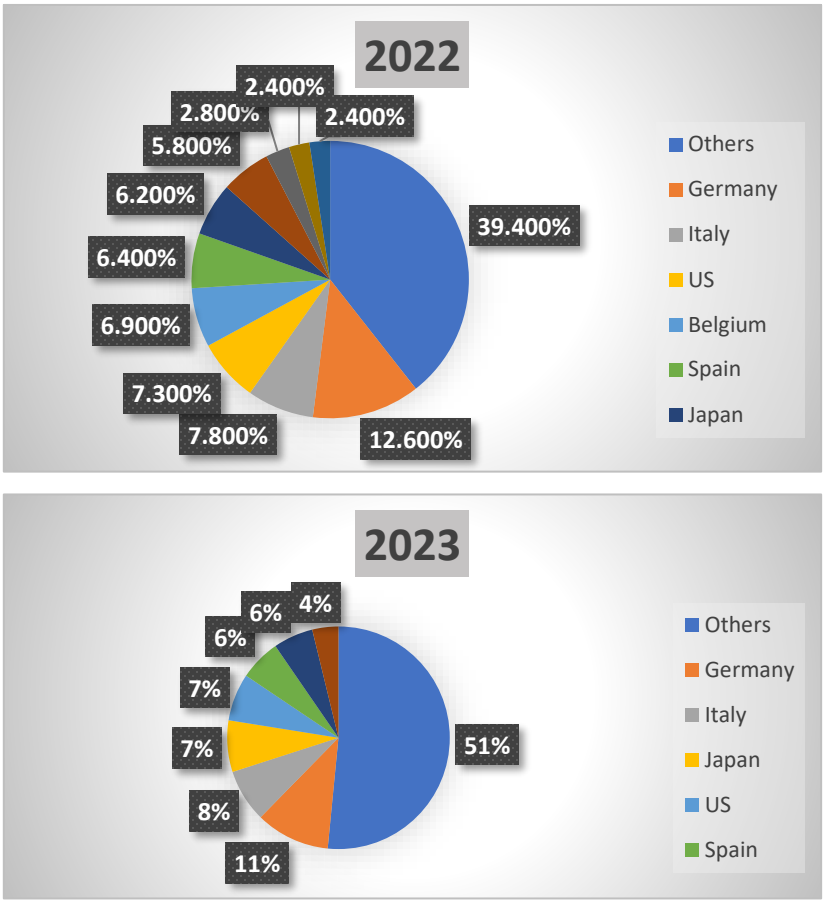

Figure 3. Comparison of export market structure of Vietnamese coffee in 2022 & 2023

Source: General Department of Customs

4. Methodology

4.1. Data collection

Trade and export data at HS 4-digit and 6-digit level will be collected primarily from the Commodity Trade (UN COMTRADE) database, managed by the United Nations Statistical Division (UNSD), and the Trade Map database provided by the International Trade Centre (ITC). To analyze changes in Vietnamese coffee export values before and after the implementation of the EVFTA, the data will cover the period from 2017 to 2023 since August 2020 was the start of the agreement. The authors will utilize three key indices in the research: Trade Intensity Index (TII), Trade Complementarity Index (TCI), and Revealed Comparative Advantage (RCA) index.

4.2. Overview of Revealed Comparative Advantage

The Revealed Comparative Advantage (RCA) is a trade analysis tool used to measure and assess the competitive advantage of products intended for export. RCA helps identify whether a country's product has potential in extending its trade reach or gaining a competitive advantage. It is calculated by dividing a country's sectoral export share by the world sectoral export share, with values indicating the country's competitiveness relative to the global market. RCA is also useful in assessing a country's export potential.

Country A has a revealed comparative advantage in a specific product when the ratio of its exports of that product to its total exports exceeds the same ratio for the world as a whole. The formula is as follows:

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

Where:

- X_{ij} = Exports of good j by country i.
- X_{it} = Total exports of country i.
- X_{wj} = World exports of good j.
- X_{wt} = Total world exports

When a country's RCA for a product exceeds 1, it indicates that the country is a competitive producer and exporter of that product relative to others. The higher the RCA value, the greater the country's export strength in that product.

For empirical analyses, RCA indexes should follow two principles. First, bilateral trade data should be used instead of aggregated data across importers, as it allows for isolating the effects of comparative advantage. Second, the RCA index must be based on trade flows relative to a consistent reference point, ensuring comparability across products and countries (French, 2017).

4.3. Overview of Trade Intensity Index

The Trade Intensity Index (TII) is used to assess the optimal market for a specific product. It accounts for not only market trends but also trade relations and geopolitical factors, which could impact the competitive position of an exporting country. The TII measures the intensity of the trading relationship between two countries, with higher values indicating better export possibilities. Exporters are encouraged to target markets with high TII values.

The TII is defined as the share of one country's exports going to a partner divided by the share of world exports going to that same partner. The formula is given by:

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

Where:

- X_{ij} = Value of country i's exports to country j.
- X_{it} = Total exports of country i.
- X_{wj} = World exports to country j.
- X_{wt} = Total world exports

A T_{ij} index greater than 1 suggests that the positive influence on bilateral trade flow is significant, the larger value, the stronger the positive effect. Conversely, a T_{ij} value below 1 implies that the positive impact on bilateral trade flow is minimal, and a lower value reflects a weaker trade relationship. In this method, the total value of global imports of product A is equal to the total value of global exports of product A.

4.4. Overview of Trade Complementarity Index

The Trade Complementarity Index (TCI) provides insights into the compatibility of two countries' trade structures. It compares the export and import profiles to evaluate the potential for intraregional trade and the benefits of forming regional trade agreements. The index can be used to compare countries considering such agreements with those that have already formed them.

The TCI between countries k and j is calculated as:

$$TC_{ij} = 100(1 - \frac{sum(|m_{ik} - x_{ij}|)}{2})$$

Where:

- X_{ij} = share of good i in global exports of country j.
- m_{ik} = share of good i in global imports of country k.

The index is zero when no goods are exported by one country or imported by the other and 100 when the export and import shares exactly match. A higher TCI suggests that two countries would benefit from increased trade and signals an incentive for trade liberalization or forming trade agreements. In contrast, a low TCI indicates less potential for trade expansion.

5. Result analysis

5.1. Results of Revealed Comparative Advantage (RCA)

5.1.1. Analysis of RCA results at HS 4-digit

The RCA measurement of coffee trade between Vietnam and the EU was calculated to provide a comprehensive picture of Vietnamese coffee's competitiveness and comparative advantage when exported to the EU. The RCA Index values of the coffee exports from Vietnam between 2017 and 2023 are presented in Table 1 below.

Table 1. RCA index of Vietnamese coffee from 2017 to 2023 at HS 4-digit

HS Code: 0901		
Year	**RCA**	**Mean**
2017	7.75	
2018	8.33	
2019	7.42	7.17
2020	6.22	
2021	5.81	
2022	7.03	
2023	7.65	

Source: Authors' calculation

Table 1 shows that Vietnam has steadily maintained a high RCA index for coffee exports between 2017 and 2023, with an average RCA value of 7.17 over the observed period. This means overall Vietnam has a strong comparative advantage in exporting coffee products to the EU market. However, the results also suggest that Vietnam has faced a decrease in the level of RCA during

2020-2021 due to the complex progression of the COVID-19 pandemic combined with difficulties in logistics operations. The Ministry of Agricultural and Rural Development anticipated that Vietnam's coffee exports to the EU would experience renewed growth in 2022 and expected the EVFTA to enhance the competitiveness of Vietnam's coffee industry within the EU market thanks to the benefit of export tax rates and the growing availability of premium coffee. This positive outlook became a reality, as reflected by the recovery in the RCA index in subsequent years.

5.1.2. Analysis of RCA results at HS 6-digit

Table 2. RCA index of Vietnamese coffee from 2017 to 2023 at HS 6-digit

HS Code	Year	RCA	Mean
090111	2017	9.15	8.55
	2018	10.19	
	2019	8.99	
	2020	7.86	
	2021	7.07	
	2022	7.91	
	2023	8.66	
090112	2017	37.85	38.15
	2018	36.61	
	2019	34.03	
	2020	33.34	
	2021	42.14	
	2022	40.53	
	2023	42.57	
090121	2017	0.02	0.03
	2018	0.02	
	2019	0.02	
	2020	0.02	
	2021	0.04	

HS Code	Year	RCA	Mean
	2022	0.03	
	2023	0.04	
090122	2017	0.04	0.01
	2018	0.00	
	2019	0.00	
	2020	0.00	
	2021	0.00	
	2022	0.00	
	2023	0.05	
090190	2017	2.48	2.59
	2018	1.84	
	2019	2.05	
	2020	1.25	
	2021	1.74	
	2022	3.21	
	2023	5.55	

Source: Authors' calculation

In assessing the impact of the EVFTA on Vietnam's coffee exports to the EU, the RCA index at the 6-digit HS code level offers a more granular understanding of Vietnam's competitiveness in specific coffee products. In general, Vietnamese coffee under HS classifications 090111, 090112, and 090190 hold a comparative advantage when exporting to the EU during the chosen timeframe; meanwhile, Vietnamese coffee products under HS classifications 090121 and 090122 have a comparative disadvantage in exporting to the EU.

With the structure of Vietnam's coffee exports to the EU that mainly focuses on unroasted and non-decaffeinated coffee, the country consistently shows a strong comparative advantage in exporting coffee under HS Code 090111. The RCA values have remained high, with a mean RCA of 8.55 from 2017 to 2023, indicating that Vietnam has a significant competitive edge in this segment. However, a slight dip is observed during 2020-2021, which coincides with the global supply chain disruptions caused by the COVID-19 pandemic. Despite this, the RCA has rebounded

since 2022, demonstrating the contribution of the EVFTA to the recovery and sustained competitiveness by providing tariff advantages and easing market access for Vietnamese coffee exports.

In addition, Vietnam has an exceptionally high RCA in exporting decaffeinated, unroasted coffee (090112), with a mean RCA of 38.15. This indicates that Vietnam has a dominant position in this niche market. The RCA values have some slight alterations but remain above 30 throughout the period, with a peak at 42.57 in 2023. The EVFTA has played a significant role in maintaining and enhancing Vietnam's competitive position in this category, as tariff reductions and favorable trade conditions have enabled Vietnam to capitalize on the growing demand for decaffeinated coffee in the EU.

Vietnam's comparative advantage in the coffee husks and skins, coffee substitutes in any proportion (090190) category has a potential increase in recent years. After maintaining relatively weak to moderate RCA values between 2017 and 2021, the RCA surged to a high comparative advantage level of 5.55 in 2023. This suggests that the EVFTA has helped Vietnam diversify its coffee product offerings and compete more in this segment.

Nevertheless, Vietnam shows little to no comparative advantage in exporting roasted coffee (HS Codes 090121 and 090122), with RCA values remaining close to 0 throughout the period. As Vietnam's coffee industry is primarily focused on unroasted coffee, the country has not yet developed a strong position in the roasted coffee segment. The lack of competitiveness in this area implies the minimal impact of EVFTA on roasted coffee exports, as Vietnam's coffee processing and roasting capabilities may still be underdeveloped relative to other coffee-exporting nations.

5.1.3. Analysis of factors limiting Vietnamese processed coffee's gains from EVFTA

Under the EU-Vietnam Free Trade Agreement (EVFTA), Vietnamese processed coffee products receive a preferential tariff reduction from 7.5-11.5% to 0%. However, the majority of Vietnam's coffee exports to the EU are unprocessed, with only 12% are value-added, deeply processed coffee. This structural composition inhibits Vietnamese enterprises from leveraging the full spectrum of benefits provided by EVFTA.

Another impediment is the EU's rigorous standards regarding quality and food safety. To qualify for export, Vietnamese firms must adhere to meticulous processing requirements that demand advanced techniques and stringent traceability. Under the EVFTA, only comprehensively processed products are eligible for tariff advantages, whereas rudimentary steps like peeling are deemed insufficient. Furthermore, the EU's SPS standards mandate an exceptionally low pesticide residue threshold of no more than 0.1 mg/kg. This exerts considerable pressure on Vietnamese farmers to modify longstanding cultivation practices to meet these new export standards, yet the reliance on chemical fertilizers remains prevalent.

Furthermore, EU consumer preferences present another difficulty. Arabica coffee dominates the EU market, with approximately 80% of consumers favoring it, while only around 20% prefer

Robusta. However, according to the Vietnam Coffee-Cocoa Association (Vicofa), Vietnam's coffee production heavily favors Robusta, which accounts for over 94% of the country's coffee cultivation and yield. Thus, in addition to complying with EU regulatory standards, Vietnamese coffee producers face the strategic challenge of restructuring their coffee varieties to better align with consumer preferences and the demanding quality standards of the EU market.

Finally, while Vietnam ranks among the world's top coffee exporters by volume, its brand recognition in the EU market remains limited. Vietnamese coffee producers in the processing sector encounter significant challenges in establishing brands and achieving direct market access in the EU. Notably, the internationally recognized branded coffee in global markets tends to come from foreign enterprises operating facilities within Vietnam, or from foreign companies that import raw Vietnamese coffee beans, blending and processing them into high-quality, specialty products to satisfy local tastes and export demands.

5.2. Results of Trade Intensity Index (TII)

Table 3. Index of Trade Intensity

Year	TII
2017	1.62
2018	1.69
2019	1.93
2020	1.97
2021	1.78
2022	1.88
2023	1.80

Source: Authors' calculation

Table 3 demonstrates that all the intensity index values are greater than one for Vietnam with the EU. This means that bilateral trade relations are strong and Vietnam's coffee exports to the EU are more intense than the global average. The highest intensity is observed at 1.97 in 2020 – the year when the EVFTA was officially implemented. While the general trend is upward, there are some fluctuations in the TII from year to year after 2020.

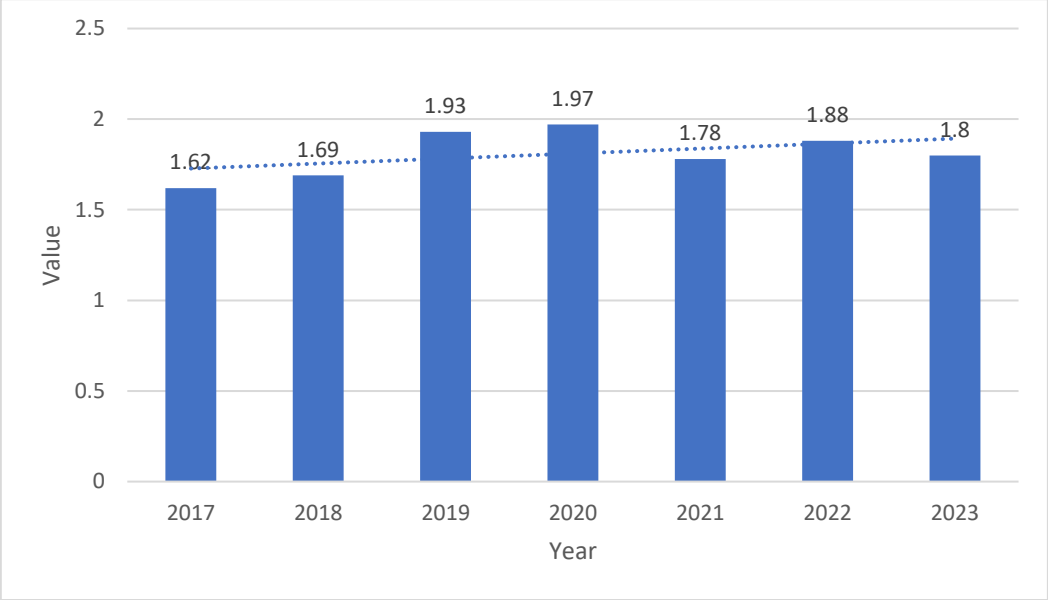

Figure 4. Trade Intensity Index based on Vietnam's coffee export to the EU

Source: Authors' elaboration

5.3. Results of Trade Complementarity Index

Table 4 presents the index of trade complementarity between Vietnam and the EU. From 2017 to 2023, the results displayed that Vietnam's exports of coffee products and the EU's imports of coffee products are strongly complementary and highly compatible, as shown in the TCI values remain above 99%. The TCI value tends to slightly increase over time, which reflects a growing trade compatibility structure between the two partners and highlights the importance of coffee in Vietnam's trade relationship with the EU.

Table 4. Index of Trade Complementarity

Year	TCI
2017	99.51
2018	99.60
2019	99.77
2020	99.86
2021	99.87
2022	99.81
2023	99.83

Source: Authors' calculation

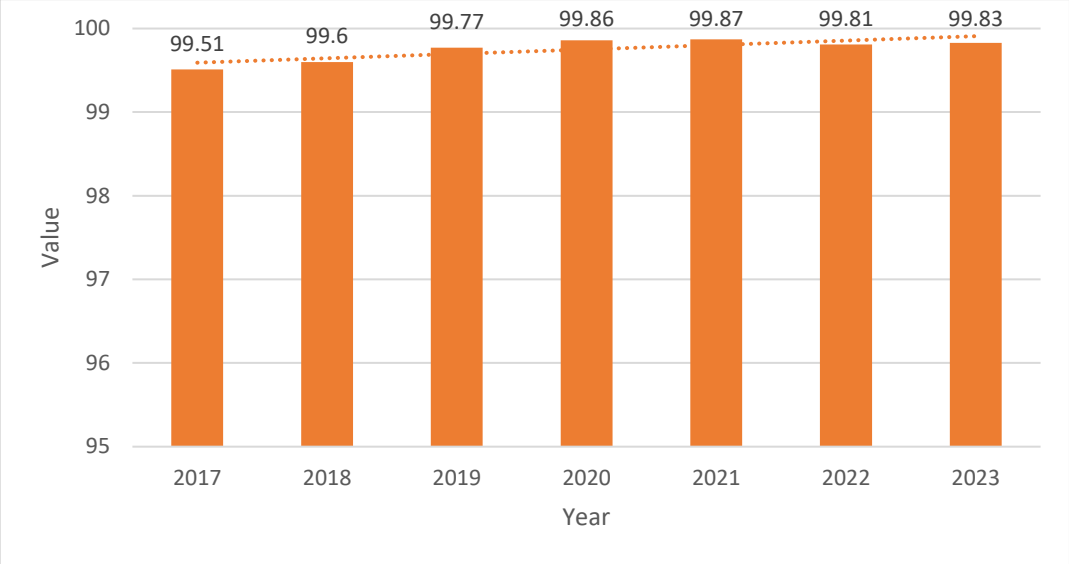

Figure 5. Trade Complementarity Index of Vietnam's coffee export to the EU

Source: Authors' elaboration

6. Conclusion and recommendations

6.1. Conclusion

This paper provides an in-depth analysis of the impact of the EU-Vietnam Free Trade Agreement (EVFTA) on Vietnam's coffee export performance through the calculation of trade indicators, including the Revealed Comparative Advantage (RCA), Trade Intensity Index (TII), and Trade Complementarity Index (TCI). The main findings can be summarized as follows.

The RCA results indicate that the EVFTA has played a crucial role in recovering and enhancing the competitiveness of Vietnam's coffee exports, particularly in the unroasted and non-decaffeinated, unroasted and decaffeinated, and coffee substitutes segments. The agreement has allowed Vietnam to regain its competitive edge in these categories from the COVID-19 pandemic. However, the impact of the EVFTA on the processed, roasted coffee has been much less pronounced. Despite the agreement's provisions, the country has yet to capitalize on opportunities to enhance its processing and value-added coffee products.

The TII results show that Vietnam's coffee exports to the EU have consistently experienced strong trade intensity, with the highest levels seen in the year of EVFTA's implementation. Meanwhile, the TCI results reveal that Vietnam's coffee export structure is highly complementary to the EU's import demand, underscoring the strong trade potential between the two partners. The EVFTA, by reducing trade barriers and offering tariff advantages, has strengthened this relationship.

Despite these positive developments, it is important to acknowledge that the full impact of the EVFTA has not yet been fully realized. The agreement was implemented only recently, and its effects have been somewhat overshadowed by the challenges posed by the COVID-19 pandemic. In the case of Vietnam's coffee industry, the EVFTA's potential is clear, but it may take several more years to witness the full extent of its impact, until which Vietnam can further capitalize on the opportunities it presents.

6.2. Recommendations

6.2.1. Recommendations for coffee producers and coffee enterprises in Vietnam

Focus on enhancing coffee quality and added value. Coffee producers and exporters should invest in improving product quality and value to boost competitiveness in the EU market. Special emphasis should be placed on deep processing to increase the added value of exported products. Simultaneously, companies should continue investing in raw material regions to ensure a supply of clean raw materials that meet food safety, environmental, and management standards set by the EU. Accelerating the adoption of scientific and technical advancements in coffee cultivation, care, harvesting, and processing, as well as upgrading coffee varieties, is crucial to improving product quality.

Ensure compliance with rules of origin for EU exports. Businesses must fully understand the rules of origin and proactively adjust production processes and raw material sourcing to meet the requirements of the EVFTA. They should consider shifting imports to domestic materials or sourcing from EVFTA member countries. Developing concentrated production regions and organizing farming in specialized zones will help meet the EU's standards for domestic inputs.

Develop and promote coffee brands in the EU market. Alongside improving product quality and increasing the share of processed coffee, coffee export businesses should focus on building strong brands for their coffee products to facilitate smoother export processes and boost the presence of Vietnamese coffee in the EU market.

6.2.2. Recommendations for state agencies

Launch programs to assist coffee farmers in meeting EU quality standards and origin regulations. The government should enforce the traceability of agricultural products as a compulsory and standardized requirement. Local authorities and relevant ministries, such as the Ministry of Industry and Trade, Ministry of Agriculture and Rural Development, and Ministry of Science and Technology, should work on implementing programs to help coffee farmers produce certified coffee, as required by European buyers, with clear and transparent traceability.

Encourage coffee producers to comply with EU standards for quality, food safety, hygiene, and environmental protection. Initially, government agencies should create and finalize standards for sustainable and certified coffee to match the technical demands of the EU market. In parallel, the government should push for further restructuring of the coffee industry, establishing centralized, specialized farming areas linked to industrial processing, and strengthening the integration between

raw material regions and processing facilities to ensure a consistent supply of high-quality products. Additionally, solutions should be provided to overcome challenges, support farmers, and promote the adoption of scientific and technological advancements in coffee production and processing to meet EU export standards. Providing market information about the EU to coffee exporters is also necessary.

Boost trade promotion and build the Vietnamese coffee brand. Relevant ministries should collaborate to promote Vietnamese coffee products in the EU market through media campaigns, promotional materials, export guides, trade promotion programs, and product showcases. The Ministry of Industry and Trade should also provide training to improve businesses' capacity for trade promotion, with medium- to long-term strategies for the coffee industry. Trade promotion efforts in the EU market should focus on increasing the export volume of processed coffee, gradually building a strong foundation for Vietnamese processed coffee brands in Europe.

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