



Determinants of processed food exports from Vietnam to the European Union

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Abstract

Vietnam possesses significant strengths in the export of agricultural products and food, and the EU is one of Vietnam's largest import markets. This study examines the status quo and the factors affecting the export of processed food from Vietnam to the EU during the period of 2012-2023. The research combines qualitative and quantitative analyses. It investigates the key determinants influencing Vietnam's processed food exports to the EU using a gravity model. Based on the evaluation of the current export situation and the analysis of influencing factors, the study proposes solutions to enhance the export of processed food from Vietnam to the EU in the coming years.

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1. Introduction

Exporting processed food products is a crucial component of international trade. According to data from the International Trade Centre (ITC), the global import value of processed food in 2023 exceeds \$1.1 trillion USD, with the EU being the largest import market (over \$390 billion USD), followed by the USA (over \$130 billion USD) and China (over \$73 billion USD).

Processed food can be understood as food that has undergone post-harvest activities that enhance the value of agricultural products before they reach the market. In addition to the primary processing of food raw materials, it includes the production of final food products and the processing and packaging of fresh products, primarily fruits, vegetables, and fish [1]. More specifically, processed food refers to items that have undergone various processing techniques to extend their shelf life, alter their texture, or enhance their flavor (Reddy & Patel, 2023). Processing techniques such as cooking, canning, adding preservatives, drying, or freezing prepare food for consumption or require only a few simple steps prior to eating.

Processed food can be classified into four groups according to the NOVA classification system established by the United Nations [2]: (Group 1) Unprocessed or minimally processed foods; (Group 2) Processed culinary ingredients; (Group 3) Processed foods; and (Group 4) Ultra-processed food and drink products. Specifically, Group 1 comprises unprocessed foods, which are minimally altered edible parts of plants (seeds, fruits, leaves, stems, roots) or animals (organs, eggs, milk) after being separated from nature. Group 2 includes culinary ingredients derived from Group 1, used for cooking or seasoning, such as sugar, salt, cooking oil, spices, and vinegar, often combined with Group 1 foods to create freshly prepared drinks, dishes, and meals. Group 3 consists of processed foods that combine unprocessed or minimally processed foods with salt, oil, sugar, and additives to produce products like canned vegetables, canned fish, syrup-soaked fruits, cheese, and fresh bread. Group 4 is ultra-processed food, created through multiple processing chains to combine various commonly available ingredients into final food products like beverages, packaged sweet or savory snacks, reprocessed meat products, and prepared frozen meals.

The EU market is one of the world's leading importers of agricultural and food products, particularly processed foods, but it also demands high quality with strict food safety regulations [3]. Previous studies have explored the export of processed food to the EU and the factors influencing these exports. DeMaria et al. [4] noted that developing countries like Thailand and Vietnam benefit from the Generalized System of Preferences (GSP) when exporting food to the EU. Okello, et al. [5] emphasized the importance of institutional innovations in complying with international food safety standards for smallholder farmers in Kenya, Ethiopia, and Zambia, enabling them to access high-value European markets.

For Vietnam, the EU is the third-largest agricultural import market [6]. In 2023, according to Trademap data, Vietnam's exports to the EU amounted to around \$40 billion (accounting for over 12% of total export turnover), with processed food making up a small fraction of this total (approximately \$1.2 billion). Therefore, there remains significant potential for the export of processed food from Vietnam to the EU. The EU-Vietnam Free Trade Agreement (EVFTA), signed between Vietnam and the 27 EU member states, opens new opportunities to boost the export of agricultural products in general and processed foods specifically. Under the EVFTA, the EU commits to significant market openings for Vietnamese agricultural and food products, including the immediate elimination of 50% of tariff lines for seafood, with the remaining 50% subject to a phased reduction over 4-7 years. For plant products, 520 out of 556 tariff lines for fruits and vegetables are reduced to 0% immediately upon the agreement's entry into force, while 85.6% for processed fruits and vegetables and 93% for coffee and pepper are similarly reduced. To promote processed food exports, the Vietnam Prime Minister has issued Decision No. 493/QD-TTg approving the strategy for merchandise exports and imports by 2030, which aims to increase the proportion of high-value-added processed products and enhance compliance with quality regulations and standards.

These data highlight the theoretical and practical need to investigate the current status and factors influencing the export of processed food from Vietnam to the EU, leading to recommendations aimed at boosting the export of processed food items.

2. Materials and Methods

To comprehensively assess the current status of processed food exports originating from Vietnam, this study builds upon and expands the findings of several key researchers, specifically Kohpaiboon [7], Jongwanich [8] and Renjini et al. [9]. According to these studies, processed food is meticulously divided into twelve distinct categories: (1) Fish products, (2) Meat products, (3) Residues and animal feed, (4) Sugar preparations and honey, (5) Coffee, tea, and cocoa products, (6) Animal and vegetable oils, (7) Cereal preparations, (8) Processed vegetables, (9) Processed fruits, (10) Dairy and poultry products, (11) Beverages, and (12) Other edible products.

Furthermore, the study employs a gravity model to rigorously analyze the impact of various economic factors on Vietnam's processed food exports specifically to European Union (EU) countries. The gravity model was chosen due to its demonstrated feasibility and high level of accuracy in predicting trade flows between nations. Initially introduced into the realm of international trade research by Tinbergen [10], the gravity model has since undergone extensive study and refinement by a number of prominent scholars. Notably, Anderson and van Wincoop [11] augmented the model by integrating hidden costs such as non-tariff barriers and transaction costs. Additionally, Baier and Bergstrand [12] utilized the gravity model to estimate the impacts of free trade agreements, while Melitz and Rubinstein [13] expanded the framework to explore the influence of firm productivity and various trade barriers on trade flows. To this day, the gravity model remains a widely utilized analytical tool among researchers engaged in contemporary international trade studies, highlighting its enduring relevance and applicability.

Building on prior research, the proposed model evaluates the factors influencing Vietnam's processed food exports to the EU from 2012 to 2023 and is expressed as follows:

 $LnExport = \beta_0 + \beta_1 lnGDP_{it} + \beta_2 lnGDP_{jt} + \beta_3 lnPOP_{it} + \beta_4 lnPOP_{jt} + \beta_5 lnDGDPPC_{ijt} + \beta_6 lnER_{ijt} + \beta_7 lnDIST + \beta_8 EVFTA + \mu_{ijt}$

Where:

- Export: The value of processed food exports from Vietnam to country jjj, a member of the EU, in year ttt.
- GDPit and POPit: The GDP and population of Vietnam in year t, respectively.
- GDPjt and POPjt: The GDP and population of country j, a member of the EU, in year t, respectively.
- DGDPPCijt: Represents the difference in economic development levels between country iii and Vietnam, measured by the difference in GDP per capita between Vietnam and country j in year t.
- ER_{ijt}Represents the relative price between country j and Vietnam, indicated by the cross-exchange rate between the partner country's currency and the Vietnamese Dong (VND) in year t.

- DIST: The geographical distance between Vietnam and country j.
- μ_{ijt} The error term of the equation.

The data used in this study consist of 312 observations collected from 26 out of 27 EU member countries. The study does not consider Luxembourg as an EU member since there were no recorded exports of processed food from Vietnam to Luxembourg during the research period from 2012 to 2023. The value of processed food exports from Vietnam to the EU was gathered from Trademap, categorized under processed food and agro-based products, including 441 HS 6-digit codes, which were then classified into the 12 groups as established by Kohpaiboon [7], Jongwanich [8] and Renjini et al. [9].

Data on GDP, population, and GDP per capita were sourced from the World Bank database. The variable DGDPPC indicates the economic development gap, calculated as the absolute difference between the GDP per capita of the partner country and Vietnam. The variable ER refers to the bilateral exchange rate between the partner country and Vietnam, collected from World Bank data and converted to a cross-exchange rate. The variable DIST represents the bilateral distance between Vietnam and the partner country, sourced from CEPII data. The variable EVFTA takes a value of 0 from 2012 to 2019 and a value of 1 from 2020 when the EVFTA agreement came into effect. The table below provides an overview of the variables' data, where GDPj, DGDPPC, and ER exhibit a high degree of variability.

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Overview of variables used

Variable	Obs.	Mean	Std. dev.	Min	Max
LnExport	312	3.896431	.8621569	1.431364	5.644152
LnGDPi	312	11.44357	.0887973	11.29903	11.57676
LnGDPj	312	11.3013	.6472599	9.956312	12.56846
LnPOPi	312	7.979035	.0160272	7.951873	8.001527
LnPOPj	312	6.911592	.552854	5.623278	7.923234
LnDGDPPC	312	4.329453	.2883181	3.639827	4.982604
LnER	312	4.096212	.594336	1.795581	4.597063
LnDIST	312	3.920449	.0401181	3.853791	4.023211
EVFTA	312	.3333333	.4721618	0	1

In this study, the Poisson Pseudo-Maximum Likelihood (PPML) estimation method has been deliberately selected as the analytical framework to investigate the various factors that influence the export of processed food products from Vietnam to the European Union. The PPML method was first introduced by Santos Silva and Tenreyro in their influential research Silva and Tenreyro [14]. One of the most significant advantages of utilizing the PPML approach is its remarkable capability to effectively handle datasets that contain zero values. This characteristic is particularly critical in the context of international trade and exports, where it is common for transactions not to occur consistently between countries. Furthermore, the PPML method offers consistent and efficient estimates for models that adhere to a Poisson distribution form. This property enhances the overall reliability and robustness of the research findings, thereby contributing to a more accurate understanding of the dynamics at play in the export of processed food from Vietnam to the EU.

3. Results

3.1. Export Results of Processed food from Vietnam to the EU

The trade relationship between Vietnam and the European Union (EU) has significantly developed, particularly after the implementation of the EU-Vietnam Free Trade Agreement (EVFTA). This agreement facilitates the export of goods, especially Vietnam's agricultural products, to the EU market. Data from Table 2 indicate that the export of processed food products from Vietnam to the EU has experienced robust growth from 2012 to 2023, especially after the EVFTA came into effect in 2020.

Trend in Vietnam's processed food export to the EU. Unit: Value in Billion USD, Share in %.								
Year	2012	2019	2020	2021	2022	2023		
Vietnam export to the EU	0.60	0.99	1.03	1.23	1.62	1.25		
EU imports from world	269.84	292.14	299.94	349.25	373.87	393.87		
Share	0.2%	0.3%	0.3%	0.4%	0.4%	0.3%		

Table 2.

The export value of processed food from Vietnam to the EU has seen significant growth since 2012, when it reached only 0.60 billion USD, to 1.03 billion USD in 2020, coinciding with the signing of the EVFTA. The introduction of this agreement has provided a strong impetus for processed food exports, driving the value up to 1.23 billion USD in 2021 and reaching 1.62 billion USD in 2022. Although it slightly decreased to 1.25 billion USD in 2023, Vietnam's market share in the total value of processed food imports by the EU remains stable, reflecting the potential for future growth.

Examining the import of processed food by individual EU member states (Table 2), it is evident that the largest import markets from Vietnam include the Netherlands, Germany, Belgium, France, and Italy. The Netherlands leads, with import values increasing from 81.79 million USD in 2012 to 336.76 million USD in 2023. Germany also shows significant growth, reaching 255.90 million USD in 2023. Belgium, France, and Italy have recorded stable growth, with import values of 119.61 million USD, 105.62 million USD, and 99.52 million USD, respectively, in 2023. Among the EU markets importing fewer

processed food products from Vietnam, Slovenia, Estonia, and Malta, despite lower import volumes, still demonstrate an increasing trend over the 2012–2023 period. For example, Slovenia's imports rose from 0.05 million USD in 2012 to 2.86 million USD in 2023, an increase of more than 50 times. Malta's corresponding figures for 2012 and 2023 are 0.41 million USD and 1 million USD, indicating a doubling of imports. In contrast, Slovakia and Austria have recorded declines during this period. Notably, Luxembourg has not imported any processed food from Vietnam, despite the country importing 2.5 billion USD worth of processed food in 2023.

Table 5.						
Processed food products export from Vietnan	n to EU by country. Un	nit: Value in mil	lion USD.			
Year	2012	2019	2020	2021	2022	2023
European Union (EU 27)	604.14	993.26	1,034.84	1,225.40	1,621.97	1,246.16
EU member states that import the r	nost processed fo	od from Vietn	nam			
Netherlands	81.79	245.11	264.17	275.69	440.71	336.76
Germany	133.81	198.64	207.98	263.86	333.50	255.90
Belgium	70.06	106.79	120.25	141.17	179.16	119.61
France	84.58	123.67	106.04	117.70	145.52	105.62
Italy	89.37	76.98	75.11	114.89	174.14	99.52
EU member states that import the l	east processed fo	od from Vietn	nam			
Slovenia	0.05	1.86	2.79	1.81	3.79	2.86
Estonia	0.46	0.93	0.71	0.96	1.09	1.40
Malta	0.41	0.35	0.12	0.52	0.43	1.00
Slovakia	1.42	1.40	1.36	1.42	1.06	0.64
Austria	2.79	1.60	2.05	2.13	0.74	0.58
Luxembourg	0.00	0.00	0.00	0.00	0.00	0.00

Regarding the market share of processed food exporters in the EU (Table 4), it can be observed that among the top 10 positions, there are 8 EU member countries, with Germany and the Netherlands leading. The eighth-ranked country, the UK, is also a former EU member. This indicates that EU member states have a well-developed processed food industry and significant intra-EU trade. The only non-EU exporter in the top ten is Brazil, ranked tenth, holding only 2.11% of the market share in 2023. The exporters ranked 11th to 14th are all EU member countries. Other countries strong in food exports, such as Indonesia, Switzerland, the USA, and China, rank 15th, 16th, 17th, and 19th, respectively, with each holding just over 1% market share. Despite the increasing value of processed food exports from Vietnam to the EU over the years, it maintains a market share of approximately 0.3% in the EU.

Table 4.

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Leading exporters of processed food to the EU market. Unit: Value in Million USD, Share in %

	Year	2	020	2021		2022		2023	
		Value	Share	Value	Share	Value	Share	Value	Share
	EU*	299.94	100.00%	349.25	100.00%	373.87	100.00%	393.87	100.00%
Rank**	Exporter								
1	Germany	41.56	13.86%	47.68	13.65%	49.28	13.18%	53.90	13.69%
2	Netherlands	31.28	10.43%	37.27	10.67%	41.54	11.11%	43.95	11.16%
3	France	23.13	7.71%	26.96	7.72%	27.47	7.35%	30.12	7.65%
4	Belgium	19.89	6.63%	22.78	6.52%	24.71	6.61%	28.45	7.22%
5	Italy	20.37	6.79%	24.21	6.93%	24.10	6.45%	26.66	6.77%
6	Poland	17.50	5.84%	19.96	5.72%	22.00	5.88%	25.40	6.45%
7	Spain	16.01	5.34%	18.88	5.40%	17.99	4.81%	20.41	5.18%
8	UK	13.10	4.37%	12.06	3.45%	13.12	3.51%	13.74	3.49%
9	Austria	7.83	2.61%	9.04	2.59%	9.53	2.55%	10.48	2.66%
10	Brazil	5.33	1.78%	6.02	1.72%	7.14	1.91%	8.31	2.11%
15	Indonesia	4.48	1.49%	5.89	1.69%	6.28	1.68%	5.41	1.37%
16	Switzerland	4.84	1.61%	5.16	1.48%	4.96	1.33%	5.35	1.36%
17	USA	4.47	1.49%	4.83	1.38%	5.15	1.38%	5.13	1.30%
18	China	3.44	1.15%	4.54	1.30%	6.19	1.66%	4.71	1.20%
39	Viet Nam	1.03	0.35%	1.23	0.35%	1.62	0.43%	1.25	0.32%

Note: * Value of processed food imported by the EU

** Ranking of processed food exporters to the EU in 2023 by export value.

Data on the export results of processed food from Vietnam to the EU by product group (Table 5) from 2012 to 2023 reveals diverse growth among the product categories. Many groups recorded strong growth during the 2012-2020 period but have recently encountered significant fluctuations, particularly in fish products and vegetable oils.

Several product groups have demonstrated stable growth, including Residues and Animal Feed, Sugar Preparations & Honey, and Processed Vegetables. Residues and Animal Feed increased from 2.16 million USD to 11.62 million USD; Sugar Preparations & Honey rose from 2.91 million USD to 23.24 million USD; and Processed Vegetables saw an impressive increase from 18.67 million USD to 183.65 million USD. These products exhibit substantial potential for market expansion. The category of Processed Vegetables has become the third-largest segment (14.74%) in Vietnam's food exports to the EU in 2023, compared to just 3.09% in 2012.

Conversely, meat products and processed fruits have not achieved strong growth. Meat products saw an increase in export value (from 271.98 million USD in 2012 to 301.99 million USD in 2023), but its share of total processed food exports to the EU decreased from 45.02% to 24.23%, while processed fruits only increased slightly from 3.82 million USD to 21.11 million USD. Additionally, the dairy and poultry products and other edible products categories exhibited volatility, with dairy and poultry products decreasing from 8.26 million USD in 2023.

Table 5.

Product category	Yea	r 2012	Year	2020*	Year 2023	
	Value	Share	Value	Share	Value	Share
Fish products	271.98	45.02%	356.48	34.45%	301.99	24.23%
Meat products	0.01	0.00%	0.03	0.00%	0.00	0.00%
Residues and animal feed	2.16	0.36%	8.48	0.82%	11.62	0.93%
Sugar preparations & honey	2.91	0.48%	4.14	0.40%	23.24	1.87%
Coffee, tea and cocoa products	0.00	0.00%	0.00	0.00%	0.00	0.00%
Animal & Vegetable oils	1.81	0.30%	10.54	1.02%	46.91	3.76%
Cereals preparations	29.70	4.92%	41.63	4.02%	78.43	6.29%
Processed vegetables	18.67	3.09%	69.59	6.72%	183.65	14.74%
Processed fruits	3.82	0.63%	15.73	1.52%	21.11	1.69%
Dairy & poultry products	0.01	0.00%	1.46	0.14%	8.26	0.66%
Beverages	9.25	1.53%	44.95	4.34%	66.75	5.36%
Other edible products	263.84	43.67%	481.82	46.56%	504.20	40.46%
Total	604.14	100.00%	1,034.84	100.00%	1,246.16	100.00%

Processed food products export from Vietnam to EU by product group. Unit: Value in Million USD Share in %

Note: * The EVFTA Agreement came into effect in 2020

Source: Author's computation using data from Trademap database.

Despite the positive signals regarding processed food exports from Vietnam to the EU over the past decade, this does not mean that Vietnamese exporters can afford to overlook the stringent regulations and penalties imposed by the EU. In reality, processed food products exported to the EU must comply with a series of strict Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) regulations aimed at protecting consumer health and ensuring food quality in the market.

When a shipment of processed food from Vietnam is found to violate food safety standards, the Rapid Alert System for Food and Feed (RASFF) promptly notifies all EU member states. Consequently, these countries will implement necessary measures to address the situation, such as destroying the violating shipment, removing the product from the EU market, or suspending imports from the offending supplier or country. Such measures not only affect the specific shipment but can also have a detrimental impact on the reputation and competitiveness of Vietnamese processed food products in the eyes of European consumers.

Table 6 presents the number of processed food shipments from Vietnam that were rejected for import into the EU from 2012 to 2022. Each year, dozens of incidents regarding these rejections can be recorded. This poses significant challenges for Vietnam's processed food industry, especially as companies seek to expand their export markets in this region. The main reasons leading to shipment rejections are typically related to food safety issues. For instance, bacterial contamination accounts for the highest percentage at 18.98%, followed by pesticide residues at 15.43%, and heavy metals and veterinary drug residues, each constituting approximately 14.31%. These figures not only reflect the current state of the processed food industry but also serve as a wake-up call for producers.

Aggregate rejection rate of Vietnamese agricultural and food products						
Year	2012	2014	2016	2018	2020	2022
Aggregate rejection rate from USA	215	236	217	169	126	214
Aggregate rejection rate from EU	67	120	63	55	43	65
Aggregate rejection rate from Japan	122	55	59	54	65	92
Aggregate rejection rate from all countries	490	557	437	420	542	422

 Table 6.

 Aggregate rejection rate of Vietnamese agricultural and food products

3.2. Analysis of factors influencing processed food exports from Vietnam to the EU

Based on the collected data regarding the export results of processed food from Vietnam to EU member states from 2012 to 2023, as well as data on influencing factors, the study utilized the Poisson Pseudo-Maximum Likelihood (PPML) estimation method to analyze the factors affecting processed food exports from Vietnam to the EU. The results are presented in Table 7.

LnExport	Coefficient	Robust std. err.	Z	P>z	[95% conf.	interval]
LnGDPi	0.1278297	1.208262	0.11	0.916	-2.240321	2.495981
LnGDPj	-1.019535	0.1427014	-7.14	0.000	-1.299225	-0.7398455
LnPOPi	1.361202	6.936045	0.20	0.844	-12.2332	14.9556
LnPOPj	1.301161	0.1481488	8.78	0.000	1.010795	1.591527
LnDGDPPC	1.060572	0.1076655	9.85	0.000	0.8495514	1.271593
LnER	-0.0062239	0.012065	-0.52	0.606	-0.0298709	0.0174231
LnDIST	0.66783	0.1997188	3.34	0.001	0.2763883	1.059272
EVFTA	0.0101102	0.0239294	0.42	0.673	-0.0367905	.0570109
_cons	-15.63907	41.7497	-0.37	0.708	-97.46698	66.18884

Results of anal	vsis of factors	affecting pro-	cessed food exp	orts from Vietn	am to the EU

The results from the PPML model indicate a distinct differentiation in the effects of various variables on the export value of processed agricultural products from Vietnam. Among the analyzed variables, GDPj, POPj, and DGDPPC exhibit positive and significant impacts, while GDPi, POPi, ER, and EVFTA do not show clear influences.

Regarding positive and statistically significant factors

Variable GDPj: This variable has a coefficient of -1.0195 and is statistically significant (P > |z| = 0.000). This suggests that as the GDP of EU countries increases, the export value of processed agricultural products from Vietnam decreases.

Variable POPj: The coefficient of 1.3012 with P > |z| = 0.000 indicates a positive and significant effect. The increase in population in EU countries may lead to higher demand for processed agricultural products from Vietnam, which aligns with theoretical expectations and previous studies.

Variable DGDPPC: The coefficient is 1.0606 and is statistically significant (P > |z| = 0.000). This indicates that the economic development gap, measured by the difference in GDP per capita, positively affects export value. This result is consistent with the theory that countries with higher GDPs typically have greater consumption needs.

Variable LnDIST: The coefficient of 0.6678 with P > |z| = 0.001 shows that geographical distance positively impacts export value. This reflects that geographical distance can affect transportation costs but still underscores the importance of maintaining trade relationships.

Regarding non-significant factors

Variable GDPi: The coefficient for this variable is 0.1278 but is not statistically significant (P > |z| = 0.916). This indicates that Vietnam's GDP does not significantly impact the export value of processed agricultural products. This finding may align with some previous studies but is surprising, as it is generally expected that the GDP of the exporting country influences production and exports.

Variable LnPOPi: The coefficient of 1.3612 is also not statistically significant (P > |z| = 0.844). This suggests that the population of Vietnam does not significantly affect export value. This result does not entirely align with previous studies, where the population is often seen as a driving factor for production and consumption.

Variable ER: The coefficient of -0.0062 is not statistically significant (P > |z| = 0.606). This indicates that the exchange rate does not have a clear impact on the export value of processed agricultural products. This finding may diverge from earlier studies that consider exchange rates a decisive factor in international trade.

Variable EVFTA: The coefficient is 0.0101 with P>|z| = 0.673, indicating no statistical significance. This suggests that the EVFTA agreement does not have a pronounced effect on the export value of processed agricultural products, which may reflect that the provisions of the agreement have not been effectively implemented or have yet to yield clear benefits for exports.

4. Discussion

Table 7.

The export value of processed food from Vietnam to the EU has increased from 2012 to 2023, reflecting a growing demand for Vietnamese processed food products. However, processed food from Vietnam still occupies a small share of the total value of processed food imported by the EU. Thus, there remains significant potential for the development of Vietnamese processed food in the EU market.

In terms of export results by market, the primary importers of processed food from Vietnam continue to be traditional markets such as the Netherlands, Germany, Belgium, France, and Italy. Countries that import less processed food from Vietnam, such as Slovenia and Estonia, have shown an upward trend over the period from 2012 to 2023. Markets that have seen declines (such as Slovakia and Austria) or have never imported Vietnamese products (like Luxembourg) need to be reviewed and approached strategically.

The export results for product groups indicate substantial growth, particularly since 2020, with categories such as processed vegetables and sugar preparations & honey benefiting from the EVFTA agreement, which eliminated tariffs on

85.6% of processed fruit lines immediately upon the agreement's implementation in 2020. Additionally, the EU has granted Vietnam a quota of 20,400 tons for sugar and high-sugar products.

The quantitative analysis reveals a clear differentiation in the impact of various factors on the export value of processed agricultural products from Vietnam. Positive and significant determinants include the population of partner countries, indicating that population growth in EU countries leads to higher demand for processed agricultural products from Vietnam. Furthermore, the economic development gap positively influences export value, reflecting that countries with higher GDPs tend to have greater consumption needs. However, factors such as Vietnam's GDP and population do not show significant impacts on exports, which may be surprising since it is generally expected that the GDP and population of the exporting country would affect production and exports. This result emphasizes that external factors, particularly demand from the EU market, play a more critical role in driving processed food exports from Vietnam.

Based on the analysis of the current situation and the examination of factors influencing processed food exports from Vietnam to the EU, the study proposes several recommendations to enhance these exports.

4.1. Recommendations for the Government

To increase the volume of processed food exports, the government should improve the legal framework, simplify administrative procedures, and reform the credit system to attract more enterprises to engage in the production and export of processed food.

To enhance the quality of processed food exports, the government should implement policies encouraging the import of modern processing machinery and technology. Additionally, it should incentivize enterprises to invest in agriculture with modern technologies to ensure a stable quality of raw material sources. Furthermore, support for market information and brand building in the EU market is essential.

4.2. Recommendations for Enterprises

To increase the volume of processed food exports, enterprises should strengthen cooperation among producers, suppliers, and industry peers to create a stable and quality supply chain. They should also invest in market research to meet existing market demands and develop new markets within the EU.

To improve the quality of processed food exports, enterprises need to invest in R&D and apply modern processing technologies. They must ensure compliance with food safety requirements and overcome stringent EU market barriers regarding quality and technical standards for processed foods.

5. Conclusions

The research on processed food exports from Vietnam to the EU during the period 2012-2023 reveals a positive trend, with export values increasing due to rising demand for these products. However, Vietnamese processed food still represents a small share of the total value of processed food imported by the EU, indicating ample potential for development in this market. The notable growth of categories such as processed vegetables and sugar products since 2020 can be attributed to the positive impact of the EVFTA agreement, which has reduced many tariffs to zero. Quantitative analysis shows that the populations of partner countries and the economic development gap are positive factors influencing the EU's import demand. Based on these findings, the study offers recommendations for both the government and enterprises to enhance processed food exports. These measures will not only improve export volumes and quality but also help Vietnam assert its position in the global processed food market.

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