Hue University Journal of Science: Economics and Development
pISSN 2588-1205;eISSN 2615-9716
Vol. 132, No. 5B, 2023, pp. 67–82, DOI: 10.26459/hueunijed.v132i5B.7167

TRADE AND INVESTMENT EFFECTS OF THE EU-VIETNAM FREE TRADE AGREEMENT

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(*Submitted: April 3, 2023, Accepted: July 12, 2023*)

Abstract. We implement simulations for two policy scenarios to explore how Vietnamese trade and investment change following the EU-Vietnam free trade agreement (EVFTA), based on a computable general equilibrium model. Simulation results indicate that the bilateral trade between Vietnam and the EU grows substantially, and by a much greater amount than the growth of total exports and total imports for the two regions. Aggregating the sectors modelled into six aggregate sectors including agricultural, processed food, extraction, labour-intensive manufacturing, other manufacturing, and services sectors, we find that the processed food and labour-intensive manufacturing sectors in Vietnam experience significant export growth, whereas the remaining four sectors witness declines in exports. In terms of the investment effect of the EVFTA, we find that the EVFTA leads to positive changes in Vietnam's short-run current rates of return, which is due to the change in the short-run rental price of capital. The findings suggest that Vietnam would receive significant capital gains in the long-run. We further find that all the policy components contribute to the capital growth in Vietnam in the long-run. However, capital gains resulting from tariff elimination are much larger than those from other policy components.

Keywords: exports, imports, investment, computable general equilibrium, Vietnam

1 Introduction

The suspension of the Doha Development Round negotiations has encouraged countries to reap economic gains through regional trade agreements (RTAs) [1]. Likewise, Vietnam has been actively involved in a variety of RTAs, among which the EU-Vietnam free trade agreement (EVFTA) is the most ambitious and comprehensive FTA ever concluded between the EU and a developing country. This FTA was first negotiated in October 2012 and signed on 30 June, 2019. The agreement entered into force in August, 2020. This is the EU's second FTA with an ASEAN member after Singapore, making further contributions towards the goal of a potential EU-ASEAN FTA.

The EU plays a critical role in Vietnam's trade. For instance, in 2021, the EU was Vietnam's third-largest export destination and the fifth-largest import partner, with trade between Vietnam

and the EU accounting for 8.5% of Vietnam's total trade. [1] The magnitude of trade complementarity between the two regions is relatively high [2]. Vietnam tends to export relatively labour-intensive products to the EU, whereas the EU's main exports to Vietnam are more likely to be high-tech products. Thus, the agreement is expected to benefit trade between the two sides.

The EU is the second important investor in ASEAN after the USA in 2021, accounting for 14.8% of total foreign direct investment (FDI) flows to ASEAN, but the EU investment varies significantly among ASEAN member states.[2] The EU investment in Vietnam is still small in comparison with some ASEAN members such as Singapore, Malaysia and Indonesia. Liberalisation under the EVFTA is expected to attract more FDI from the EU to Vietnam. Therefore, there is still great potential for enhanced FDI inflows to Vietnam from the EU and trade development between the two regions. Thus, it is of interest to examine changes in both Vietnamese trade and investment following the EVFTA.

Existing studies have not analysed how investment in Vietnam changes as a result of this agreement [3–5]. Furthermore, the EVFTA is expected to have a considerable impact on the Vietnamese economy as it is a deep and comprehensive agreement. Thus, the current study evaluates both trade and investment effects of the EVFTA, using a computable general equilibrium (CGE) modelling framework. Liberalisation under this agreement is modelled through reductions in tariffs, non-tariff measures (NTMs) to both goods and services trade and improved trade facilitation.

The remaining paper is organised as follows. Section 2 briefly summarises the existing literature. Section 3 presents the research method. Our simulated results are presented in Section 4, with Section 5 noting our conclusions.

2 Literature review

The EU has concluded a variety of bilateral FTAs with both developed and developing countries. Many of them are based on tariff elimination and have been found to stimulate trade between the EU and EU' developing FTA partners such as the EU-Chile FTA [6, 7], the EU-Ukraine FTA [8], and the EU-Mexico FTA [9].

With regard to deep and comprehensive FTAs, the EU-Korea FTA, which came into effect in 2011, is the first agreement ever concluded between the EU and a partner [10]. To assess the economic impact of this FTA, Decreux et al. use a CGE model called MIRAGE (Modelling International Relationships in Applied General Equilibrium) in which tariffs, goods, and services

[1] Authors' calculations based on the ASEAN FDI database, accessed at https://data.aseanstats.org/

[2] Authors' calculations based on the ASEAN FDI database, accessed at https://data.aseanstats.org/

NTMs are modelled [11]. They find that relative to the baseline assuming no conclusion to the Doha Round, Korea's GDP goes up by 0.84%, compared with 0.07% for the EU. In addition, EU's exports to Korea grow by 82.6%, whereas exports from Korea to the EU rise by 38.39%. Based on a dynamic general equilibrium model, Kutlina-Dimitrova et al. examine the economic impacts of the EU-Singapore FTA which was concluded in December 2012 [1]. Their simulation results indicate that as a result of reductions in tariffs and NTMs, Singapore's GDP increases by 0.94% (€ 2.7 billion), while EU's GDP grows marginally (0.00%), with a gain of € 550 million. Furthermore, EU's exports to Singapore and Singapore's exports to the EU are expected to increase by € 1.4 billion and € 3.5 billion, respectively.

Like the EU-South Korea and EU-Singapore FTAs, the EVFTA is a new generation FTA. However, studies on this agreement are still limited. In particular, before the EVFTA was concluded, Philip et al. [12] and Baker et al. [2] focus on analysing the potential impacts of tariff reductions under this agreement using CGE models. Philip et al. find that in the case of rapid tariff dismantling, the FTA would increase Vietnam's annual GDP and aggregate imports by around 2.7% and 1.8%, respectively [12]. In addition, they indicate that the impacts of the EVFTA on Vietnam's investment vary significantly depending on the scenarios, with the largest increase up to 3.4% by 2020. The simulation results by Baker et al. indicate that Vietnam's GDP would increase by 7-8% relative to the 2025 baseline following this FTA [2]. In addition, Vietnam's exports to the EU increase by around 50%, while its imports from the EU go up by 43% relative to the 2020 baseline.

There are some studies on the EVFTA [13, 14, 5, 4, 3]. In particular, based on a gravity model and panel data covering Vietnam and 27 EU member states over the 1997–2013 period, Duong reports that tariff cuts under the EVFTA lead to an expansion in the bilateral trade between Vietnam and the EU [13]. With a partial equilibrium model, namely SMART (Software for Market Analysis and Restrictions on Trade) model, Vu examines the ex-ante impact of the EVFTA on Vietnamese imports of pharmaceutical products from the EU [14]. She finds that as a result of tariff elimination, Vietnam's pharmaceutical imports from the EU would not experience a significant increase (around 3%). Employing a static global CGE model, Kikuchi et al. compare economic impacts of different mega-RTAs on Vietnam [5]. Policy scenarios include tariff removals, reductions in goods and services NTMs, and spill-over to non-member countries for goods. They find that the EVFTA would expand Vietnam's GDP by 8.1%, which is larger than the CPTPP (6.5%), but smaller than RCEP (9.2%) and TPP (13.2%). In addition, at the sectoral level, they find that exports of a variety of Vietnamese agricultural sectors decline following these FTAs. The European Commission uses a dynamic GTAP model to explore the economic impacts of the EVFTA. In addition to tariffs, trade facilitation, goods and services NTMs are modelled [4]. The economic impacts on trade, public procurement, and global value chain integration are analysed. For instance, by 2035, exports from the EU to Vietnam and Vietnam to the EU grow by 29% and 18%, respectively. Baker et al. use a recursive dynamic CGE model to explore the impact of the

EVFTA on the United Kingdom (UK) economy [3]. They model reductions in tariffs and NTMs following this agreement and find that real GDP and real wages in the UK grow slightly by 0.01% and 0.03%, respectively, while those of Vietnam rise by 1.20% and 3–4% by 2030. In addition, UK's exports to Vietnam rise by 60% and its imports from Vietnam (Vietnam's exports to the UK) rise by 33% by 2030. In contrast, UK's total exports and imports increase slightly by 0.09% and 0.01%, respectively, compared with 2.14% and 1.59% in Vietnam. Among the sectors modelled, they show that exports from both UK and EU27 to Vietnam rise significantly in services sectors. With respect to sectoral output, output of the leather and wearing apparel sectors in the UK and EU declines, but expands in Vietnam.

With the exception of Philip et al., none of the existing studies on the EVFTA analyses changes in investment following this agreement [12]. Although Philip et al. provide some estimates on Vietnam's investment as a result of the EVFTA, they only analyse the impacts of tariff elimination [12]. The current study aims at analysing the impact of the EVFTA through tariff cuts, reductions in NTMs and improved trade facilitation, focusing on Vietnamese trade and investment.

3 Research method

Model and Database

The current paper uses the global trade analysis project (GTAP) model to analyse the impact of the EVFTA on Vietnam, with a focus on trade and investment [15]. This type of model is ideal for analysing FTAs as changes in a policy component may result in both domestical and global economic impacts. In order to examine the change in capital stock, we use a long-run closure [16, 17]. A rise in income leads to increases in both savings and investment, with the rise in savings being proportionate to additional income [18].

In this study, we use the GTAP version 10 database, which contains 141 countries/regions and 65 sectors, with a base year of 2014 [19]. In addition to modelling Vietnam's key trading partners, we model 17 regions within the EU so that the bilateral trade flows between Vietnam and its important trading partners in the EU are accounted for. Thus, for the purpose of our analysis, the regions have been aggregated into 26 regions, including Vietnam, RestASEAN (Other ASEAN countries), China, Japan, South Korea, Hong Kong, Taiwan, US (The United States), Austria, Belgium, Czech (Czech Republic), Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, UK (United Kingdom), RestEU (Rest of the EU), and ROW (Rest of World).

In terms of sectoral aggregation, in order to be able to focus on key trade products between Vietnam and the EU, we aggregate the 65 GTAP sectors into 22 sectors. The 22 sectors are then aggregated into six sectors for reporting, as shown in Table 1.

Table 1. Sectoral Aggregation

No.	Sectors modelled	Description	GTAP sectors	Aggregated sectors for reporting
1	Rice	Paddy rice, Processed rice	PDR, PCR	Agriculture
2	Fishing	Fishing	FSH	Agriculture
3	OthAgri	Wheat, Other grains nec, Oil seeds,	WHT, GRO, OSD	Agriculture
		Vegetables, fruit and nuts, Sugar cane and sugar beet,	V_F, C_B	
		Plant-based fibers, Crops nec, Forestry	PFB, OCR, FRS	
4	Livestock	Bovine cattle and sheep, Other animal products nec,	CTL, OAP,	Agriculture
		Raw milk, Wool, silk-worm cocoons	RMK, WOL,	
5	MeatProds	Bovine cattle and sheep products, Other meat products	CMT, OMT,	Processed food
6	Wood	Wood products	LUM	Other manufactures
7	Extraction	Coal, Oil, Gas, Minerals nec,	COA, OIL, GAS, OXT	Extraction
		Petroleum and coal products, Mineral products nec	P_C, NMM	
8	FoodBever	Vegetable oils and fats, Dairy products, Sugar,	VOL, MIL, SGR,	Processed food
		Food products nec, Beverages and tobacco products	OFD, B_T	
9	Textiles	Textiles	TEX	Labor-intensive manufac
10	AppaLeath	Wearing apparel, Leather products	WAP, LEA	Labor-intensive manufac
11	Chemicals	Chemicals, Pharmaceutical products, Rubber & plastic	CHM, BPH, RPP	Other manufacture
12	Metals	Ferrous metals, Metals nec, Metal products,	I_S, NFM, FMP	Other manufacture
13	ElecEquip	Electronic equipment	ELE	Other manufacture
14	Machinery	Electrical equipment, Machinery and equipment nec	EEQ, OME	Other manufacture
15	TransEquip	Motor vehicles and parts, Transport equipment nec	MVH, OTN	Other manufacture
16	OthManufac	Paper products and publishing, Manufactures nec	PPP, OMF	Other manufacture

No.	Sectors modelled	Description	GTAP sectors	Aggregated sectors for reporting
17	Construction	Construction	CNS	Services
18	FinBusTra	Insurance, Finance, Other business services, Trade	INS, OFI, OBS, TRD	Services
19	Transport	Transport nec, Water transport, Air transport	OTP, WTP, ATP	Services
20	Communication	Communication	CMN	Services
21	GovSvs	Government services	OSG	Services
22	OthSvs	Electricity, Gas manufacture and distribution,	ELY, GDT,	Services
		Water, Recreational and other services,	WTR, ROS,	
		Accommodation, food and service activities	AFS	
		Warehousing and support activities	WHS	
		Real estate activities, Education	RSA, EDU	
		Human health and social work activities, Dwellings	HHT, DWE	

Source: Authors' aggregation based on 65 sectors of GTAP 10 Data Base

Scenarios

Trade in goods and services and trade facilitation are included in the text of the EVFTA. Therefore, we take into account these factors in our policy scenarios. The EVFTA aims to eliminate 99% of tariffs, with the exception of a few minor products retaining partial liberalisation through tariff rate quotas (TRQs) [20]. Reductions in NTMs for goods following FTAs are difficult to assess precisely, so assumptions range from 20% to 50% in much of the current literature. For the EVFTA, from a conservative perspective, we assume symmetric reductions in goods NTMs of 20% for the ambitious scenario and 10% for the conservative scenario following the EVFTA. Data on ad valorem equivalents (AVEs) of good NTMs at the GTAP sectoral level are sourced from the World Bank [21], which is based on the estimation method of Kee et al. [22] developed from their previous work Kee et al. [23]. For services, previous studies including Kutlina-Dimitrova et al. [1] and Decreux et al. [11] make conservative assumptions, with a 3% reduction in services NTMs for the EU-Singapore FTA and a 10% cut for Korea in the EU-Korea FTA, respectively. Following Kutlina-Dimitrova et al., in this paper, we assume the EU reduces services NTMs by 3% in all service sectors [1]. As Vietnam has committed to large reductions in finance, business, communication, and transport, we start with a 10% cut by Vietnam in these four service sectors in the conservative scenario (Scenario 1) and 20% in the ambitious scenario (Scenario 2). For other service sectors, we assume that Vietnam reduces services NTMs by 3% in both scenarios. We use

Table 2. Policy Scenarios

Policy components	Scenario 1	Scenario 2
Tariff cuts	99% cut on all goods by Vietnam and the EU	99% cut on all goods by Vietnam and the EU
Goods NTMs	A symmetric reduction (for Vietnam and the EU) of 10%	A symmetric reduction (for Vietnam and the EU) of 20%
Services NTMs	Vietnam: – Business, finance, communication, and transport: 10% cut – Other services: 3% cut EU: 3% cut in all services	Vietnam: – Business, finance, communication, and transport: 20% cut – Other services: 3% cut EU: 3% cut in all services
Trade facilitation (only Vietnam)	7.5% cut in time to import by Vietnam	15% cut in time to import by Vietnam

the latest available estimates of AVEs of services NTMs by Fontagné et al. [24]. Following Walmsley et al., trade facilitation, which aims to simplify and modernise export and import processes, is estimated through a 7.5% and a 15% cut in time to import for Vietnam in Scenario 1 and Scenario 2, respectively [25]. Trading across borders data from the World Bank Doing Business is used to estimate the tariff equivalents of waiting time for imports.

Table 2 briefly summarises two scenarios simulated in the current study. Each scenario includes four components, with Scenario 2 assuming a greater liberalisation in NTMs and trade facilitation.

4 Simulated Results of the EVFTA

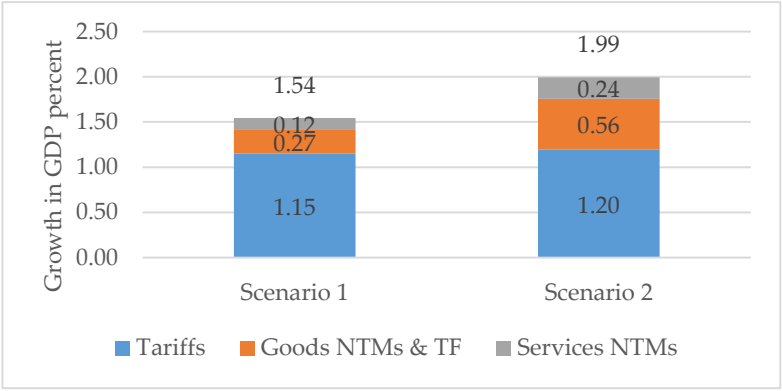
This section begins with a representation of macroeconomic gains following the EVFTA in terms of real GDP, investment, and aggregate exports and imports. Then, the sectoral effects of this agreement are depicted.

Macroeconomic Impacts

Real GDP

The simulation results indicate that in percentage terms, there are almost no changes in the EU's real GDP, whereas Vietnam's real GDP increases by 1.55% in Scenario 1 and 2.0% in Scenario 2. Figure 1 decomposes the changes in Vietnam's real GDP by policy components. The GDP gains in Scenario 1 are largely attributable to tariff elimination, which results in an increase of 1.15%, followed by good NTMs and trade facilitation (0.27%)[3], and services NTMs (0.12%). In Scenario

[3] Goods NTMs contribute 0.23%.



Source: Authors' model results

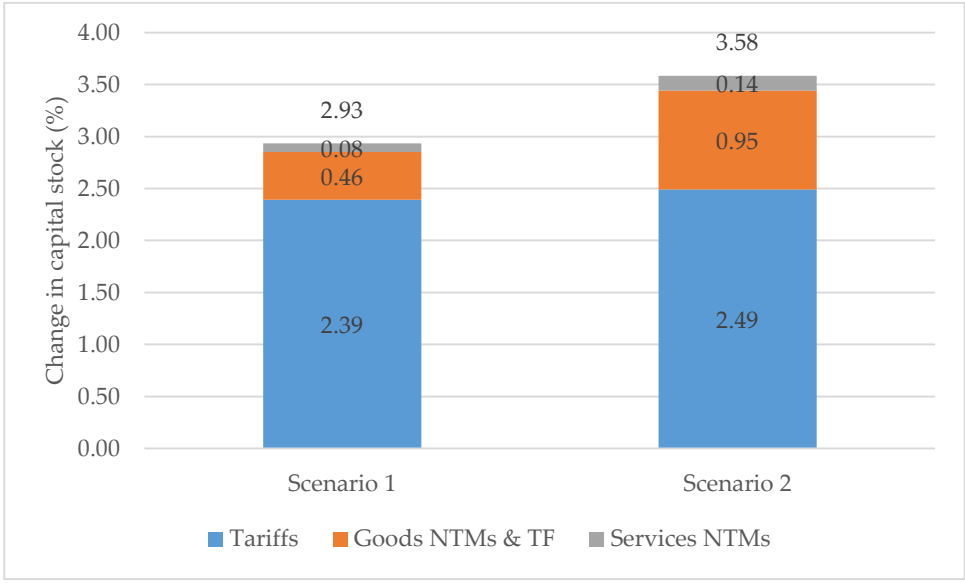
Figure 1. Changes in Vietnam's Real GDP Due to Liberalising Components of the EVFTA (%)

2, cuts to goods and services NTMs, and trade facilitation are greater, but tariff elimination continues to dominate the results.

Investment Effects

This section begins with an analysis of the change in Vietnam's long-run capital stock. This is followed by the change in the current rate of return, rental price of capital, and price of capital goods in both the short- and long-run. Following the EVFTA, Vietnam receives considerable gains in the long-run capital stock, whereas the capital changes for the EU member states are close to 0%. In particular, Vietnam's long-run capital stock rises by 2.95% in Scenario 1 and 3.61% in Scenario 2. Figure 2 presents changes in Vietnam's long-run capital stock by liberalising components as a result of this agreement. All the policy components have positive impacts on Vietnam's capital growth, but the magnitude of their contributions varies significantly. Most of these gains are from tariff elimination, which increases Vietnam's long-run capital stock by 2.39% in Scenario 1, followed by goods NTMs and trade facilitation (0.46%)[4], and services NTMs (0.08%). With larger cuts to goods NTMs & trade facilitation and services NTMs in Scenario 2, their contributions to Vietnam's capital growth increase to 0.95%[5] and 0.14%, respectively. However, tariff removal continues to dominate the results (2.49%).

[4] Goods NTMs contribute 0.40%
[5] Goods NTMs contribute 0.84%



Source: Authors' model results

Figure 2. Changes in Vietnam's Capital Stock due to Liberalising Components of the EVFTA (%)

The significant increases in Vietnam's long-run capital stock relate to the short-run current rate of return, which is specified as follows (Hertel [15]):

$$\mathrm{rorc(r)} = \mathrm{GRNETRATIO(r)} \times [\mathrm{rental(r)} - \mathrm{pcgds(r)}] \quad (1)$$

In which r is a particular region, GRNETRATIO is the ratio of GROSS/NET rates of return on capital, rorc is the current rate of return, pcgds is the price of capital goods, rental is the rental price of capital.

Equation (1) indicates that the change in the current rate of return positively depends on the change in the rental price of capital and negatively relates to the change in the price of capital goods. Table 3 provides changes in Vietnam's current rates of return, rental prices of capital, and prices of capital goods in the short-run for both Scenarios 1 and 2. It is notable that as a result of the EVFTA, Vietnam's prices of capital goods rise by 0.39% in Scenario 1 and 0.48% in Scenario 2. Changes in the price of capital goods depend on two factors moving in the opposite direction. In particular, reductions in tariffs and NTMs are likely to reduce the price of imported capital goods, whereas the increase in the demand for these products leads to the enhanced price [17]. Therefore, the positive change in the price of capital goods suggests that the impact of the latter dominates the results.

As the price of capital goods rises as a result of the EVFTA, the increase in the current rate of return in Vietnam is due to the change in the rental price of capital which grows by 2.55% in Scenario 1 and 3.12% in Scenario 2. The rise in the rental price of capital in Vietnam is due to the

Table 3. Changes in the Short-run Current Rate of Return, Rental Price of Capital and Price of Capital Goods in Vietnam (%)

Variables	Scenario 1	Scenario 2
Current rate of return on capital	3.50	4.28
Rental price of capital	2.55	3.12
Price of capital goods	0.39	0.48

Source: Authors' model resullts

increased demand for the services of capital stock following the EVFTA, given the available capital stock. The significant increases in Vietnam's short-run current rates of return (3.50% in Scenario 1 and 4.28% in Scenario 2) can explain the expansion in Vietnam's capital stock in the long-run when the capital stock is no longer fixed, and the supply of capital will rise to meet the increased demand for capital.

Table 4 indicates the long-run current rate of return, rental price of capital, and price of capital goods of Vietnam, which are relatively small compared with those in the short-run. Changes in the current and expected rates of return are equated for all regions in the long-run, at minimal rates of 0.01% in Scenario 1 and 0.02% in Scenario 2 following the EVFTA. Therefore, changes in the rental price of capital are mainly determined by changes in the price of capital goods.[6] In Vietnam, changes in long-run rental prices of capital and prices of capital goods are almost the same, around 0.1% in both scenarios.

Aggregate Exports and Imports

Table 5 describes changes in total exports, total imports, and bilateral trade between Vietnam and the EU. This agreement substantially benefits both Vietnam and the EU in terms of bilateral trade. In Scenario 1, Vietnam's exports to the EU increase by 24.8% (almost 8.2 billion

Table 4. Changes in the Long-run Current Rate of Return, Rental Price of Capital and Price of Capital Goods in Vietnam (%)

Variables	Scenario 1	Scenario 2
Current rate of return on capital	0.01	0.02
Rental price of capital	0.10	0.12
Price of capital goods	0.09	0.11

Source: Authors' model results

[6] $\text{rental(r)} = \left[\frac{1}{\text{GRNETRATIO(r)}}\right] \times \text{rorc(r)} + \text{pcgds(r)}$

US$) and EU's exports to Vietnam exhibit a 37.3% increase (5.1 billion US$). In Scenario 2, they increase to 30.1% (9.9 billion US$) and 44.5% (6.1 billion US$), respectively. The significant expansion in bilateral trade is not surprising as the EU has been Vietnam's key trading partner. In addition, the EU benefits from increased access to the Vietnamese market as Vietnam imposed much higher import tariffs on EU products than the tariffs imposed by the EU against Vietnamese exports prior to the agreement. Although the export growth of the EU is greater than that of Vietnam, the absolute values imply Vietnam's trade surplus with the EU. Among the EU member states, Vietnam would trade more with Italy, France, Spain, Germany, and the UK.

While the bilateral trade between Vietnam and the EU grows substantially, total trade of both Vietnam and the EU experiences much smaller growth. In particular, both EU's total real exports and total imports grow marginally (0.01%–0.02%) in both scenarios. Likewise, the percentage increases in Vietnam's total exports and imports range between 3.04% and 4.05% in the two scenarios. The results indicate that although the EVFTA creates more trade for both Vietnam and the EU, there is strong evidence of trade diversion effects as well. The EU and Vietnam dramatically increase their bilateral trade and trade less with the rest of the world. In particular, the expansion in Vietnam's exports to the EU is much greater than in Vietnam's total exports, and the increase in Vietnam's total imports are largely attributable to the rise in Vietnam's imports from the EU.[7] In addition, for the EU, the rise in the EU's exports to Vietnam is much larger than in the EU's total exports. Similarly, the increase in the EU's imports from Vietnam exceeds the expansion in the EU's total imports.[8]

Table 5. Changes in Total Real Exports, Imports, and Bilateral Trade (% and million US$)

	Scenario 1		**Scenario 2**	
	%	**MIL. US$**	**%**	**MIL. US$**
Total exports				
Vietnam	3.04	5,087	3.70	6,186
EU	0.01	1,018	0.02	1,041
Total imports				
Vietnam	3.33	6,518	4.05	7,928
EU	0.01	975	0.01	998
Bilateral trade				
Vietnam exports to the EU	24.84	8,181	30.08	9,907
EU exports to Vietnam	37.25	5,083	44.53	6,077

Source: Authors' model results

[7] Vietnam's imports from the EU are similar to EU's exports to Vietnam

[8] EU's imports from Vietnam are similar to Vietnam's exports to the EU

When the increase in Vietnam's total exports is decomposed by policy components, we find that tariff elimination contributes the most to the export growth rate of Vietnam, with 83.1% in Scenario 1 and 71.2% in Scenario 2. This is followed by the contributions of goods NTMs and trade facilitation, and services NTMs.

Sectoral Impacts

Table 6 presents changes in Vietnam's real sectoral exports and imports. The six aggregated sectors from the 22 sectors modelled reveal that the agricultural, extraction, and other manufacturing sectors exhibit export contraction. One of the main reasons is that these sectors do not benefit from tariff reductions under the EVFTA as the EU imposed minimal import tariffs against these Vietnamese products (<1%) prior to the creation of this FTA. Export contraction also occurs in the services sector.

In contrast, the processed food and labour-intensive manufacturing sectors are beneficiaries in terms of exports following this agreement. These sectors gain more access to the EU market thanks to tariff reductions as they used to have relatively high tariffs imposed by the EU before the creation of the FTA. Exports of the processed food sector on average rise by around 3.0% in both scenarios. Exports of the labour-intensive manufacturing sector expand mainly due to apparel & leather products, whose exports grow by 19.6% (6.8 billion US$) in Scenario 1 and to 23.5% (8.1 billion US$) in Scenario 2 due to larger cuts to NTMs and time to trade. In dollar terms, among the 22 sectors modelled, apparel & leather products experience the greatest expansion in exports, followed by food & beverages, textiles, transport equipment, livestock, and meat products. The export expansion in these six sectors compensates for the declines in exports of the remaining sectors. Regarding the changes in sectoral imports, all the aggregated sectors experience import growth, as shown in Table 7. Within these sectors, textiles, apparel and leather products exhibit rapid expansion in imports, partly due to the need for large exports in these sectors, followed by chemicals, food and beverages.

Table 6. Changes in Vietnam's Real Exports and Imports by Sector (% and million US$)

	Export				Import			
	Scenario 1		Scenario 2		Scenario 1		Scenario 2	
	%	MIL. US$	%	MIL. US$	%	MIL. US$	%	MIL. US$
Agriculture	-2.4	-257	-2.9	-304	2.6	298	3.2	369
Processed food	3.2	316	3.0	295	3.7	602	4.4	708
Extraction	-2.9	-323	-3.2	-359	2.1	245	2.5	294
Labor-intensive	17.2	6,911	20.7	8,277	12.8	3,840	15.4	4,608
Other manufac	-1.6	-1,382	-1.7	-1,508	1.3	1,587	1.7	2,029
Services	-2.0	-171	-2.3	-203	5.1	603	7.8	926

Note: Aggregate sector compositions are defined in Table 1

Source: Authors' model results

Table 7. Changes in Vietnam's Sectoral Output (% and million US$)

	Scenario 1		Scenario 2	
	%	**MIL. US$**	**%**	**MIL. US$**
Agriculture	0.1	85	0.2	108
Processed food	0.7	221	0.6	216
Extraction	-0.4	-134	-0.4	-121
Labour-intensive manufactures	15.8	8,480		18.9
Other manufactures	-1.2	-1,553	-1.3	-1,649
Services	1.6	2,153	1.9	2,571

Note: Aggregate sector compositions are defined in Table 1

Source: Authors' model results

The changes in real exports and imports by sector suggest that following the EVFTA, the domestic agricultural, extraction, other manufacturing, and services sectors may face difficulty due to both export contraction and import expansion. Table 7 depicts changes in Vietnam's sectoral output. Output declines in extraction and other manufactures, but slightly expands in agriculture and processed food. Notably, the output of labour-intensive manufactures rises substantially by 15.8% (8.5 billion US$) in Scenario 1 and 18.9% (10.2 billion US$) in Scenario 2, mainly due to the large expansion in exports of these sectors.

5 Conclusion

This study implements simulations for two policy scenarios to explore the impacts of the EVFTA on Vietnamese trade and investment, using a global CGE model. The four components in each scenario are tariff elimination, reductions in goods and services NTMs, and improvement in trade facilitation associated with reductions in time to import. The second scenario models a greater magnitude of liberalisation for all components except tariffs.

Simulation results reveal that the bilateral trade between Vietnam and the EU grows substantially, and by a much greater amount than the growth of total exports and total imports for the two regions. These findings suggest that trade diversion occurs as a result of the EVFTA. Regarding the investment effect of the EVFTA, we find that the EVFTA leads to positive changes in Vietnam's short-run current rates of return, which is due to the change in the short-run rental price of capital. These findings suggest that Vietnam would receive significant capital gains in the long-run. We further find that all the policy components contribute to the capital growth in Vietnam in the long-run. However, capital gains resulting from tariff elimination are much larger than those from other policy components.

Theoretically, this study contributes to the current literature by examining not only the trade effect but also the investment effect of the EVFTA. Practically, declines in exports of

agricultural, extraction, other manufacturing, and services sectors suggest that the Vietnamese government may need to consider policies aiming to mitigate the adverse impacts of the EVFTA in these sectors. Policies for human resource development in these sectors are also important. Furthermore, it is essential to increase the competitive capacity and quality of products in these sectors. Products, especially agricultural products, must conform to International Standards.

The results show that the processed food and labour-intensive manufacturing sectors in Vietnam experience significant export growth. However, to take advantage of lower tariffs following the EVFTA, it is important that products from Vietnam have to comply with the rules of origin in this agreement. Simulation results in this study also suggest that Vietnam should involve in other deep and comprehensive FTAs to promote Vietnam's trade and investment.

The EVFTA was signed in June 2019, but the United Kingdom left the EU on 31 January 2020. Thus, we model the EU with 28 members. Future research can assess the impact of the EVFTA (27 EU members) and the Vietnam-United Kingdom (came into force in January 2021) on Vietnamese trade and investment and make a comparison.

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