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The economic impact of CPTPP on Vietnam's fisheries exports to CPTPP region

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Abstract

The study evaluates the overall situation of Vietnam's fisheries exports and uses the Global Simulation Analysis of Industry-Level Trade Policy model (the GSIM model) to predict the impact of the CPTPP agreement on Vietnam's fisheries exports to the CPTPP members. It is forecasted that the CPTPP has positive effects on Vietnam's fisheries exports. One of those is that it is promising for Vietnamese producers/exporters to access Mexico, which is a large market in the southern portion of North America. In addition, Vietnam has the advantage to continue increasing export earnings to the Japanese market after the CPTPP takes effect. By sub-sector, all sub-sectors have a positive impact on consumers/importers as well as producers/exporters. In terms of export value, all sub-sectors have increased export value, especially the Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved (HS1605) export to Japan and the fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen (HS0304) has significant export rise to Mexico. Nevertheless, the reduction of import tax revenues reduces the welfare of the fisheries sector.

Keywords: CPTPP, GSIM, Vietnam, Trade, Export, Import

1. Introduction

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) came into effect in Vietnam on January 14, 2019, creating many chances for the fisheries export sector of Vietnam as the turnover of fisheries export to the member countries of

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this agreement accounts for 21.2 percent of the total revenue of Vietnam's fishery products export. On the one hand, commitments on tariff reduction and trade facilitation will open up opportunities for Vietnamese businesses to expand their export markets, particularly new markets to them, such as Canada, Peru, and Mexico. For instance, it may bring an increase in GDP of Vietnam by about 1.7 billion USD and in export by more than 4 billion USD, and these figures may increase by 1.32% and 4.04% respectively by 2035. Following are the opportunities for Vietnam to attract Foreign Direct Investment (FDI) in the fisheries industry and improve domestic businesses' competitiveness. On the other hand, this agreement is challenging not only in terms of technical standards and competitions from other member countries but also in environmental and labor issues. Therefore, the studies of the economic impact of CPTPP on the fisheries export industry take on an extremely important role in the strategy of developing the fisheries sector in particular and the economic development of Vietnam in general.Studies on the impact of CPTPP on Vietnam's fisheries sector indicate that the fisheries sector of Vietnam will enjoy the benefits from the Agreement. Hoang *et al.* (2014) show that the fisheries industry will benefit from TPP as about 70.1 percent of Vietnamese fishery enterprises are expected to have opportunities to increase exports after the TPP Agreement comes into effect. Hoang *et al.* (2014) believe that the fisheries sector may increase exports in the short term, but the advantages from TPP may be nullified from non-tariff barriers, such as SPS, TBT and ROO (Nguyen, 2019) overviews opportunities and challenges for Vietnam exports when Vietnam joins CPTPP. Research shows that Vietnam will be one of the countries that gain many benefits when participating in CPTPP, and fishery products will also be one of the sectors that receive such benefits through the removal of tariff and customs barriers from the member states.

Vietnam ranks fourth in the world (after Norway, China, and Russia), and first in Southeast Asia in fisheries exporter. This is a great step forward for Vietnamese fisheries exports in recent years. From an average fisheries exports turnover of only 2.401 million USD in 2004, the export of fishery products of Vietnam has grown quickly with an average growth rate of 15.6% per year and reached a fourfold increase to an export turnover of 8.802 million USD in 2018.

Vietnam has some key export products such as shrimp, Sutchi catfish, Yellowtail catfish, tuna, molluscs, crabs, and crustaceans. In 2018, shrimp was Vietnam's main export item, accounting for 41.1 percent of total fisheries export turnover. Sutchi fish export ranked second, accounting for 25.2 percent of Vietnam's fisheries export turnover in 2018 (VASEP, 2019a). Vietnam's sutchi catfish products have a competitive advantage due to taste and low labor costs, which make the price equal to or lower than that of sutchi catfish products from rival countries such as India, Bangladesh, and Malaysia (VASEP, 2019b).

Vietnam's fishery products exported to 167 countries and territories until 2018. The four largest markets for Vietnam's fishery products were the United States, Japan, China, and South Korea, accounting for 15.7%, 15.2%, 12%, and 10%, respectively. According to statistics of the General Department of Vietnam Customs, Vietnam's total fishery products

export turnover in 2018 was 8,8 billion USD, an increase of more than 5% compared to 2017, of which fisheries export turnover to CPTPP members countries was more than 1.8 billion USD, accounting for 21.2% the fishery products export turnover of Vietnam (VASEP, 2019a). At that time, the total export turnover of Vietnamese fishery products to the market of CPTPP member countries was still quite modest. Among CPTPP regions, Japan had the highest import value of Vietnamese fishery products. The import value of Vietnamese fishery products of Japan in 2018 reached 1.02 billion USD. In addition, countries like Peru, Chile, and New Zealand had a relatively low value of fishery products imported from Vietnam, at 12.2 million USD, 19.09 million USD and 20.84 million USD, respectively.

In general, previous studies have shown the impact of CPTPP on the overall export of Vietnam's fishery products but they have not specifically analyzed the effect of this agreement on small sub-sectors in order to obtain an overview of the impact of Agreement. This research focuses on analyzing the impact of CPTPP on each sub-sector of the fisheries sector to provide a more detailed picture of the impact of CPTPP on the aquatic products export turnover of Vietnam in particular and Vietnam fisheries sector in general, thereby proposing an improved way to promote the export of Vietnamese fishery products to CPTPP countries. This study includes five parts, organised as the following: beginning with the current introduction, the following section is the methodology, which will provide a brief overview of the GSIM model; next, the study results point out the economic impact of CPTPP on Vietnam's fisheries exports to the CPTPP region based on the GSM model's outcome and suggestion; in the final section we present the conclusion.

2. Methodology

This study uses the GSIM model to measure the impact of CPTPP on Vietnam's fisheries exports, in detail to ten 4-digit HS code sub-sectors from 0301 to 0308, 1604, and 1605.

The Global Simulation Analysis of Industry-level Trade Policy GSIM model was mentioned by Joseph and Keith (2003). This model was also introduced in the book "A practical guide to Trade and Policy Analysis" as one of the methods countries could use to analyze trade policy impacts. In the GSIM model, trade policy is reflected directly through the change of tariffs on imports between countries. A change in tariff would lead to a change in the quantity of goods imported to the destination country. Consequently, there is a change in exports from other countries to a country that changes import tariffs.

The GSIM approach was developed as a partial equilibrium, being industry-focused but global in scope. By definition, partial equilibrium (PE) models do not take into account many of the factors emphasized in general equilibrium trade theory. This implies practical limitations to the approach developed here. It also implies some useful advantages. Because PE focuses on a very limited set of factors, the approach PE followed allows for a relatively rapid and transparent analysis of a wide range of commercial policy issues with a minimum of data and computational requirements. It includes interaction of multiple market access concessions across various trading partners, exporter gains,

consumer surplus (importer) gains, and changes in tariff revenue. (Francois and Hall, 2003). Therefore, PE analyses are superior to GE models (General Equilibrium) when analyzing problems at the micro-level.

Bilateral trade data of CPTPP countries in this study was collected from ITC (2019a) \ employing the 4-digit HS code.

GSIM also requires the value of goods produced for the domestic market of all countries on the diagonal of the bilateral trade matrix. This data was collected by subtracting the country's fisheries exports from total fisheries production.

Tariff data is used as initial customs value before CPTPP takes effect.

$$X_I = \frac{\sum x_i . y_i}{\sum y_i}$$

X_I: Tariff weighted average HS code -4 digits

(I:{0301,0302,0303,0304,0305,0306,0307,0308,1604,1605})

X_i: Tariff weighted average HS code -6 digits

Y_i: The import value of HS code 6 digits

Tariff value after CPTPP takes into effect was developed upon the scenario of the member countries committed to reducing taxes to zero in all fisheries sub-sectors.

GSIM, developed by Francois and Hall in 2003 is assumed to have an elasticity of substitution between products of different countries equal to 5. It also uses the elasticity of import demand and export supply, respectively -1.25 and 1.5 for all countries. In this study, the author uses the values of the elasticity coefficient according to the default value of the model.

There are several assumptions used to run the GSIM model to simulate the economic impact of CPTPP on Vietnam's fisheries exports. Firstly, the production assumption for the domestic market, which was calculated by the total output minus the export in the fisheries sector, is zero. It is because data of the goods used in the domestic market for the fisheries sub-sectors of CPTPP countries is incomplete. Secondly, price is the only factor that determines buyers' behavior. The next assumption is that the countries under consideration have a perfectly competitive market. Furthermore, the market will automatically balance after the change of new trade policy and an imperfect substitution between goods of different origins. Finally, this study does not take into account the non-tariff barriers.

This study only takes into consideration the impact through tariff reduction and bypassing the non-tariff barriers, which are difficult to quantify. The scenario used is that immediately after the CPTPP Agreement comes into effect, all member countries will completely eliminate tariffs on other member countries of the Agreement.

3. Results

After the CPTPP takes effect, trade flows tend to shift from countries with low tariff reductions to countries with larger reductions. Vietnam's highest tax rate for CPTPP countries was 35%, while Mexico was 20% and Japan was 15%. Meanwhile, Australia, Brunei, New Zealand, and Singapore have had tariffs on products from CPTPP countries of 0% or approximately 0%. Therefore, Japan, Vietnam and Mexico are the three countries with the most substantial increase in fisheries import turnover, with an increase of 71.29 million USD, 43.46 million USD, and 17.86 million USD, respectively. The increase in the fisheries import turnover in Mexico corresponds to 6.30 percent of the total import value of this country. In contrast, some countries with slightly lower import turnover than before CPTPP came into effect, such as Australia has a decrease of 1.29 million USD and Singapore decreased by 0.87 million USD.

Table 1. Changes in CPTPP member countries' import value

(Unit: million USD)

Country	Change	Total import value
Australia	-1.29	470.51
Brunei	0.01	33.62
Canada	-0.65	423.65
Chile	-0.11	19.37
Japan	71.29	2975.15
Malaysia	-0.60	191.67
Mexico	17.86	283.53
New Zealand	-0.01	41.74
Peru	-0.22	59.98
Singapore	-0.87	372.89
Vietnam	46.43	1073.80

Source: Author's calculation via GSIM

Countries such as Brunei, Japan, Mexico, and Vietnam will import more from other countries such as Peru and Chile. Nevertheless, for countries like Peru or Chile, instead of just exporting fishery products to some fixed markets, the CPTPP creates an opportunity for them to export to other potential markets thanks to strong tariff reduction such as Japan, Mexico, and Vietnam. The import of Japanese fishery products increases mainly due to imports from Chile with an increase of 38.96 million USD. The increase in fishery products imported from Mexico mainly comes from Vietnam with an increase of 42.38 million USD. The importation of Vietnam's fishery products also increases mainly from Mexico and Canada with an increase of 19.98 million USD and 17.72 million USD, respectively.

Table 2. Changes in CPTPP member countries' import value

(Unit: million USD)

Country	Change	Total import value
Australia	-5.71	582.73
Brunei	0.01	3.07
Canada	27.37	434.68
Chile	30.38	1.558.50
Japan	12.69	272.97
Malaysia	-3.14	400.29
Mexico	16.00	216.87
New Zealand	13.28	370.36
Peru	4.27	137.83
Singapore	-4.74	92.71
Vietnam	41.44	1.875.89

Source: Author's calculation via GSIM

3.1 Import

Vietnam mainly imports fishery products from Australia, Canada, Japan, Malaysia, and Mexico. In addition, Vietnam's import value could increase by 4.33% after the CPTPP removed all tariff barriers. This increase mainly comes from Canada, Mexico, Japan, and Chile with a value of 17.72 million USD, 19.98 million USD, 15.36 million USD, 13.34 million USD, respectively. Changes in Vietnam's imports from these countries mainly come from two sub-sectors of HS0303 and HS0306.

Table 3. Changes in Vietnam's import value from CPTPP member countries

(Unit: million USD)

Country	Change	Total import value
Australia	-10.52	378.11
Brunei	-0.01	0.04
Canada	17.72	127.78
Chile	13.34	82.91
Japan	15.36	166.27
Malaysia	-9.46	113.05
Mexico	19.98	113.20
New Zealand	0.20	5.55
Peru	5.99	24.12
Singapore	-6.17	62.76
Total	10.43	1.073.8

Source: Author's calculation via GSIM

Table 4. Changes in Vietnam's import value from CPTPP member countries by sub-sectors

(Unit: million USD)

Exporter	HS code										Total
	HS0301	HS0302	HS0303	HS0304	HS0305	HS0306	HS0307	HS0308	HS1604	HS1605	
Australia	-0,07	-0,16	-1,06	0,40	-0,01	-11,19	-0,05	0,00	0,00	1,63	-10,52
Brunei	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,01
Canada	0,00	0,25	7,69	1,26	0,14	6,78	0,48	0,09	0,00	1,03	17,72
Chile	0,00	0,00	12,30	0,28	0,00	-0,02	0,51	0,00	0,00	0,26	13,34
Japan	0,22	0,05	11,57	-0,05	0,00	0,07	2,28	0,14	1,04	0,04	15,36
Malaysia	-0,02	-0,02	-3,75	-0,56	-0,21	-2,15	-1,88	-0,25	-0,44	-0,18	-9,46
Mexico	0,00	0,03	0,48	0,00	0,02	17,05	0,81	1,01	0,00	0,57	19,98
New Zealand	0,00	0,00	0,15	0,05	0,00	0,00	0,01	0,00	0,00	0,00	0,20
Peru	0,00	0,00	0,33	0,07	0,36	4,02	0,37	0,00	0,00	0,84	5,99
Singapore	-0,01	0,00	-3,64	-0,16	-0,13	-0,22	-0,31	-0,07	-0,11	-1,52	-6,17
Total	0,13	0,15	24,06	1,29	0,16	14,35	2,21	0,94	0,49	2,67	0,00

Source: Author's calculation via GSIM

3.2 Export

The simulation results show that Vietnam mainly exports fishery products to Japan and some other countries such as Australia, Mexico, Canada, and Singapore.

Table 5. Changes in Vietnam's export value to CPTPP member countries

(Unit: million USD)

Country	Change	Total export value
Australia	-1.22	180.48
Brunei	-0.08	1.31
Canada	-2.49	212.50
Chile	-0.15	14.45
Japan	5.25	1050.63
Malaysia	-0.41	108.15
Mexico	42.38	168.75
New Zealand	-0.17	17.79
Peru	-0.27	7.55
Singapore	-1.40	114.28
Total	41.44	1803.89

Source: Author's calculation via GSIM

Table 6 indicates Vietnam's fisheries exports to CPTPP member countries by sub-sector prior to the signing of the Agreement. It can be seen that HS0306 and HS1605 sub-sectors bring the largest export value with the value of 613.63 million USD and 442.1 million USD, respectively,

with the main import market being Japan. Nevertheless, the export value of these two sub-sectors to the markets of Mexico, Chile, and Brunei only fluctuates between 0-1 million USD.

Table 6. Vietnam's fisheries exports to CPTPP region by sub-sector in 2017

(Unit: million USD)

Importer	HS code										Total
	HS0301	HS0302	HS0303	HS0304	HS0305	HS0306	HS0307	HS0308	HS1604	HS1605	
Australia	0.00	0.01	1.59	52.74	0.53	53.26	4.63	0.00	5.71	63.23	181.70
Brunei	0.00	0.11	0.43	0.68	0.02	0.11	0.01	0.00	0.04	0.00	1.39
Canada	0.45	0.09	16.86	43.66	1.15	89.09	2.22	0.25	1.84	59.39	215.00
Chile	0.00	0.00	0.00	11.03	0.00	0.03	0.03	0.00	3.40	0.12	14.60
Japan	0.36	0.16	7.34	92.58	1.79	433.57	94.31	0.15	123.41	291.71	1,045.38
Malaysia	2.76	1.25	34.82	34.63	12.22	6.82	9.71	0.01	3.00	3.35	108.57
Mexico	0.00	0.00	4.30	118.14	0.00	0.00	0.23	0.00	3.56	0.15	126.37
New Zealand	0.01	0.00	0.02	1.56	0.07	8.61	0.43	0.00	1.64	5.61	17.96
Peru	0.00	0.07	0.33	6.02	0.00	0.00	0.00	0.00	1.29	0.11	7.81
Singapore	6.00	3.01	2.01	37.25	8.30	22.14	4.65	0.00	13.89	18.44	115.68
Total	9.57	4.70	67.70	398.29	24.08	613.63	116.22	0.40	157.78	442.10	

Source: ITC (2019b)

Table 7. Changes in Vietnam's export value to CPTPP member countries by sub-sectors

(Unit: million USD)

Exporter	HS code										Total
	HS0301	HS0302	HS0303	HS0304	HS0305	HS0306	HS0307	HS0308	HS1604	HS1605	
Australia	0.00	0.00	0.02	-1.27	-0.01	0.20	-0.06	0.00	-0.08	-0.02	-1.22
Brunei	0.00	0.00	-0.04	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	-0.08
Canada	0.00	0.00	0.34	-3.37	0.02	0.79	-0.03	0.00	-0.21	-0.04	-2.49
Chile	0.00	0.00	0.00	-0.13	0.00	0.00	0.00	0.00	-0.02	0.00	-0.15
Japan	-0.01	0.01	0.46	-7.86	0.23	0.29	4.37	0.00	2.43	5.32	5.25
Malaysia	0.03	0.01	0.47	-0.66	-0.03	-0.13	-0.11	0.00	-0.02	0.02	-0.41
Mexico	0.00	0.00	0.26	40.90	0.00	0.00	0.15	0.00	0.99	0.08	42.38
New Zealand	0.00	0.00	0.00	-0.01	0.00	-0.08	-0.01	0.00	-0.04	-0.03	-0.17
Peru	0.00	0.00	0.00	-0.27	0.00	0.00	0.00	0.00	-0.01	0.00	-0.27
Singapore	0.00	0.00	-0.02	-1.49	-0.07	0.11	-0.14	0.00	-0.14	0.35	-1.40
Total	0.02	0.02	1.48	25.80	0.15	1.19	4.18	0.00	2.90	5.69	

Source: Author's calculation via GSIM

The total value of Vietnam's fisheries exports may increase by 2.3% after the CPTPP removes all tariff barriers. This increase mainly comes from the markets of Mexico and Japan with export value increased by 42.38 million USD and 5.25 million USD, respectively. Before the CPTPP

was signed, the Mexican tariffs on sub-sector HS0304 from Vietnam were 15%. Therefore, when the tariff is reduced to 0%, the value of imported Mexican goods from Vietnam will increase dramatically.

Japan is the second-largest importer of fishery products from Vietnam in the world with 15.2 percent of Vietnam's total export turnover, only after the United States. Nonetheless, before the CPTPP took effect, the tax rate of the world's third-largest economy imposed on Vietnam's fishery products still fluctuated from 0% to 5.18%. When the CPTPP helps to completely remove the tariff barriers, Vietnam will have more opportunities to export fishery products to Japan.

The simulation results from the model also show the shift of export flows of Vietnamese fishery products in this case. With the category of processed fish, e.g., caviar (Code HS1604), instead of solely focusing on exporting in the main markets in the bloc such as Japan, Australia, and Singapore, Vietnam has increased exports to the Mexico market. The total import turnover of this sub-sector increased to 2.9 million USD. With the sub-sector of Crustaceans, molluscs and processed aquatic animals (Code HS1605), Vietnam has also increased exports to Singapore and Mexico markets in contrast to the previous major markets of Japan, Canada, and Australia. On the contrary, the remaining countries have the results of simulating import values of Vietnam's fishery products slightly decreased. Australia and New Zealand might see a decrease in imports of fishery products from Vietnam of 1.22 million USD and 0.17 million USD, respectively. Singapore, Malaysia, and Brunei also record a slight decrease of 1.4 million USD from Vietnam, 0.41 million USD and 0.08 million USD.

3.3 Welfare

Table 8. Changes in welfare

(Unit: million USD)

	Producer surplus	**Consumer surplus**	**Tax**	**Total welfare**
	A	B	C	E= A + B + C
Australia	-2.27	-4.54	0.00	-6.81
Brunei	0.00	0.09	0.00	0.10
Canada	11.00	-2.58	-0.25	8.16
Chile	12.18	-0.39	0.00	11.79
Japan	5.09	36.37	-64.16	-22.70
Malaysia	-1.25	-2.15	-0.04	-3.44
Mexico	6.44	16.07	-19.03	3.49
New Zealand	5.33	-0.11	-0.03	5.19
Peru	1.71	-0.79	0.00	0.93
Singapore	-1.89	-2.64	0.00	-4.53
Vietnam	16.62	36.19	-41.90	10.91

Source: Author's calculation via GSIM

Table 9. Change in Vietnam welfare by sub-sector

No.	Sub-sector	HS code	Producer surplus A	Consumer surplus B	Tax C	Total welfare E = A+B+C
1	Live fish	0301	0.0093	0.1085	-0.1167	0.0011
2	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading HS 0304.	0302	0.0075	0.1262	-0.1472	-0.0135
3	Fish, frozen, excluding fish fillets and other fish meat of heading HS 0304.	0303	0.5937	18.4208	-21.4893	-2.4748
4	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.	0304	10.3582	0.9850	-1.2486	10.0946
5	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.	0305	0.0593	0.1971	-0.2009	0.0555
6	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked crustaceans, whether in shell or not, whether or not cooked before or during the smoking process; crustaceans, in shell, cooked by steaming or by boiling.	0306	0.4770	10.7881	-12.6793	-1.4142
7	Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process; flours, meals and pellets of molluscs, fit for human consumption	0307	1.6744	1.5102	-1.9599	1.2248
8	Aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; smoked aquatic invertebrates other than crustaceans and molluscs, whether or not cooked before or during the smoking process; flours, meals	0308	0.0014	0.6926	-0.8268	-0.1329
9	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs	1604	1.1626	0.4885	-0.5021	1.1491
10	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved	1605	2.2786	2.8690	-2.7251	2.4225

Source: Author's calculation via GSIM

The simulation results show that CPTPP has a positive impact on Vietnam's fisheries sector. The total welfare of the fisheries sector would increase by 10.91 million USD after the agreement came into effect. Most sub-sectors have a surplus in total welfare. In

particular, HS0304 has a gross benefit surplus of 10.09 million USD. HS0307 and HS1605 also see increases in overall welfare, respectively 1.22 million USD and 2.42 million USD. Nonetheless, some fisheries sub-sectors have welfare losses. In particular, HS0303 suffers the most with a deficit of 2.47 million USD.

3.4 The results of the GSIM model

The CPTPP has a clear influence on Vietnam's fisheries exports to member countries. The simulation results illustrate that although the CPTPP eliminates tariff barriers for all member countries (not only for Vietnam but also for Vietnam's competitors who are other members in CPTPP), export turnover for Vietnam's fishery products to member countries will still increase after signing the CPTPP. Nevertheless, the reduction of import tax revenue will reduce the welfare of the fisheries industry after the CPTPP takes effect.

Trade liberalization is assumed to help eliminate tariff barriers and partial non-tariff barriers, leading to changes in trade flows between countries (Nguyen and Nguyen, 2015). The simulation study of the impact of CPTPP through tariff reduction shows that trade flows tend to move from countries with less tariff reduction to countries with more significant reductions. Countries with large tariff reductions because of commitments in CPTPP, such as Japan and Mexico, are potential markets for Vietnam to export. Meanwhile, Australia, New Zealand, Singapore, Malaysia, Brunei, and Chile, due to the bilateral or multilateral free trade agreement with Vietnam before the CPTPP, reducing the tax after the agreement in fishery products is not too significant.

By sub-sector, all sub-sectors have a positive impact on consumers/importers as well as producers/exporters. Nonetheless, due to the reduction of import tax, some sub-sectors have a decrease in total welfare, such as HS0302, HS0303, HS0306, and HS0308. In terms of export value, all sub-sectors have increased export value, especially HS0305, with the main import markets being Japan and HS0304 with significant export growth to the Mexican market.

Compared to the study of author Tran (2016) who used the same GSIM model but to evaluate the impact of TPP on Vietnam's fisheries industry, the results of this study have some differences. First, when the United States is a party to the agreement, the sub-sector with the greatest losses from the TPP of the previous study is indicated as HS0307; while in this study, the CPTPP with the most welfare benefit was HS0302. Secondly, in the TPP sub-sector most benefiting from exports is the sub-sector HS0304, with the main import market being the United States. Thirdly, in the study of TPP, the main import market of Vietnam's fishery products is the United States, but in the study of CPTPP, the United States is no longer the largest market to export Vietnam fishery products. Nevertheless, both studies indicate that Vietnam will benefit from both export surplus and import surplus in all sub-sectors.

The actual economic effect of CPTPP could be different from this study's findings because of several reasons. The first reason is that one of the key assumptions of this study is all countries reduce tariffs to 0% right after the CPTPP takes effect but in fact, commitments on elimination and reduction of import duties are divided into three main groups: (1) The group

eliminated all import duties as soon as the Agreement came into effect (Import tariffs will be brought to 0%); (2) The group eliminates import duties according to the schedule. The import tariffs will be brought to 0% after a certain period of time, from 3 - 7 years, but in some cases, it can be longer than this time period up to 10 or 20 years; (3) The quota group means that the preferential import duties will only be abolished and reduced with a given volume of goods; if they exceed this volume, they will not get the preferential treatment. In addition, the fisheries subsidies of each nation may also affect their competitive advantage. Therefore, studies that take into account the non-tariff factors might yield more accurate results.

4. Concluding remarks

4.1 Recommendations

According to the Vietnamese government's strategic objectives and development orientations by 2020, the fisheries sector will develop into a commodity production industry with prestigious brands and high competitiveness in the international market on the basis of promoting the advantages of production and exploitation of renewable resources and advantages of tropical fisheries (Vietnamese Ministry of Agriculture and Rural Development, 2013). Different recommendations for Vietnam to take advantage of opportunities and overcome challenges when participating in CPTPP are as follows:

4.1.1 Macro-level solutions

The first macro-level solution would be overcoming barriers of trade remedies, rules of origin, and conducting trade promotion activities to support export businesses. CPTPP member countries tend to increase non-tariff protection barriers to protect domestic industries. In order to overcome this challenge, the government should support research and training for businesses to overcome the technical standards of partner countries in order to improve export turnover while applying technical standards and technology to protect the domestic manufacturing industry. In time, relevant ministries and agencies should actively negotiate to open export markets, stabilize traditional markets, find and expand potential customers and minimize the dependence on certain ones. It could be introducing products and branding for products, especially for key products exported to major markets such as Japan and Mexico. Moreover, the free movement of labor between countries will present challenges for Vietnamese workers. Therefore, investing in education, focusing on high-quality human resources training is extremely important. One of the ways to improve the quality of labor is to use the right people for the right jobs and specialization.

The simulation results from the study show that although Vietnam's fisheries exports will benefit from joining the CPTPP, the producers/exporters surplus or consumers/importers surplus will increase but the government will lose a relatively large import tax after removing the tariff barriers. Therefore, in order to balance the state budget in time, the government needs to consider making up the deficit from import tax collection by increasing other taxes or spending cuts. The CPTPP regulations require transparency of government information as

well as elements of market liberalization. Therefore, the implementation of administrative reform to reduce the procedures for businesses is one of the urgent tasks.

Logistics costs for Vietnam's fishery products are among the highest in the world (VASEP, 2019a). Therefore, in order to cut costs and reduce the price, thereby improving the competitive advantage of the country's fishery products, a fisheries logistics development program is extremely necessary. One of the factors that make Vietnam's logistics costs high is the transportation routes that are not convenient for manufacturers and exporters (Trinh, 2018). Furthermore, the lack of transparency in the supply chain is also a contributing factor to high logistics costs (Banomyong, Trinh and Pham, 2017). To overcome this situation, the State should consider the proposal of the Association of Seafood Exporters and Producers to build fisheries logistics centers for key production and processing areas to promptly meet the demand for raw materials, domestic goods circulation as well as export.

4.1.2 Micro-level solutions

For the micro-level solutions, it is necessary for Vietnamese businesses to attend trade promotion programs and find out information about potential markets. It is not only an opportunity for fisheries processing and exporting enterprises to introduce their products but also a good way to find new partners and learn the technology that has been applied by the countries attending the event. Attending the international trade fairs in CPTPP member countries to research partner markets is also vital for businesses to export their fishery products. Moreover, trade promotion programs with markets forecasted as potential are extremely necessary. It will be an advantage if businesses capture which products have potential in a particular market. Furthermore, The CPTPP opens up opportunities to receive FDI from the member countries for Vietnam. Along with receiving FDI is an opportunity to receive technology transfer from developed countries such as Japan and Canada. Therefore, Vietnamese enterprises can actively seek investors from these countries through attending international investment forums or investment attraction activities supported by the government.

Basically, logistics costs come from two main components: transportation costs and goods preservation costs (Phan, 2019). Understanding the cost structure is going to be the key factor to help businesses find a reasonable and effective cost reduction method. To illustrate this point, for transport costs, businesses can calculate the appropriate and optimal road route, training drivers on how to drive safely and save fuel. Currently, many businesses have applied software and equipment to save costs. Nevertheless, most small and medium-sized enterprises do not have large resources and production scale enough to see that effectiveness. Therefore, establishing an alliance for shipping cooperation can be a solution for businesses. For example, regarding goods preservation, Smartlog is also a potential startup with products that provide warehouse management technology. In addition to applying science and technology to save costs, updating modern production lines to increase product value is also a direction for businesses.

Improving labor quality will directly affect the productivity of the company. In order to do that, enterprises can take two measures: The first is to improve workers' professional skills through training necessary skills. The second is to increase the welfare of workers by supporting their spiritual life. As a result, they will feel assured and work more effectively. Today brands play a crucial role in boosting the value of a product. Therefore, enterprises should pay attention to branding besides solely improving the quality of fishery products, which will help their businesses develop sustainably and have an additional competitive advantage compared with businesses in other nations. In addition, businesses need to have a thorough understanding of the provisions of the CPTPP to take advantage of the incentives and to meet the stringent requirements. Besides the solutions to reduce costs and improve the product value, businesses also need to concern social responsibilities, environmental protection measures, waste treatment, and legal fishing.

4.2 Conclusion

The study assessed the overall situation of Vietnam's fisheries exports and used the global simulation model to analyze GSIM-level trade policy to predict the impact of entering into CPTPP on the turnover of fisheries exports. The forecast results show that CPTPP has a positive effect on Vietnam's fisheries exports. Overall, Vietnam's fisheries industry will have the opportunity to approach cheaper products to gain benefits; in addition, Vietnamese producers also benefit from the opportunity to approach potential markets like Mexico, Japan.

In order for Vietnam's fisheries industry to take advantage of opportunities and overcome difficulties when joining the CPTPP, the Vietnamese government should reform administrative procedures, and improve the legal environment. The government should plan to implement trade promotion activities to support fisheries processing and export enterprises and focus on developing and training high-quality human resources and support businesses to develop the logistics industry. Businesses also need to actively attend trade promotion activities, call for investment, and proactively apply high technology to reduce costs and increase the product value, as well as improving competitiveness.

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