Economic Impacts of a Possible South Korea-Malaysia FTA on Trade

Kim, Yoomi*

[*Abstract*]

Trade between South Korea and Malaysia has been steadily increasing since the conclusion of the multilateral Free Trade Agreement (FTA) between the Association of Southeast Asian Nations (ASEAN) and South Korea. Bilateral FTAs such as Singapore-South Korea, Vietnam-South Korea, and Indonesia-South Korea came into effect to enhance the economic cooperation between South Korea and major ASEAN countries. However, the bilateral FTA between South Korea and Malaysia, known as Republic of Korea-Malaysia FTA, is still under negotiation. Therefore, this study aims to analyze the economic impact of a possible FTA between these two countries. To examine the economic effects of bilateral FTAs, this study analyzes the trade structure and change in the value of trade between Malaysia and South Korea using panel data analysis. Two significant findings were identified by the analysis. First, the Republic of Korea-Malaysia FTA is expected to promote trade and have a positive effect on the Gross Domestic Product (GDP) of South Korea. Second, the result of the calculated price elasticity based on substituting figures such as tariff, demand

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* Lecturer, Cyber Hankuk University of Foreign Studies, Republic of Korea, 02ymkim@gmail.com.

elasticity, and export value is that the value of manufacturing exports is expected to considerably get an increase. Therefore, an early FTA between South Korea and Malaysia would be beneficial for both national economies.

Keywords: FTA, Korea, Malaysia, Economic Impact

Ⅰ. Introduction

Malaysia's economy in terms of Gross Domestic Product (GDP) at Purchasing Power Parity (PPP) was estimated at $999.397 billion in 2020, the third largest in the Association of Southeast Asian Nations (ASEAN; World Bank 2021). Malaysia is an upper-middle-income country in ASEAN (World Bank 2021). The country's population was projected to increase from 31.1 million in 2017 to 41.4 million by 2050, a 32.9% increase (Department of Statistics Malaysia 2020). In 2021, its share of exports in total GDP was the second highest (37.4%) and the manufacturing sector's contribution to the economy, that is, the GDP stood at 14.9% (Ministry of Finance Malaysia 2021). With 15.9%, Malaysia shows a high proportion of the total trade volume of member countries (ASEAN Stats Data Portal 2022). Considering Malaysia's economic position in the ASEAN, an FTA with Malaysia can serve as an important cooperation mechanism that can enhance relations with southern countries. Malaysia not only has multiple advantages such as consumer markets and manufacturing bases, but also has a high value as a base country for advancing to southern countries as a key country that leads various economic integrations in Southeast Asia. In other words, it is important to understand what an FTA with Malaysia means. However, the larger function and role is the connection that enables the expansion of the ASEAN and neighboring countries, resulting in their economic integration into the Southeast Asian market.

The Republic of Korea (ROK) and Malaysia have made efforts to strengthen economic relations since the two countries established diplomatic relations in 1960. The two countries have agreed to cooperate in a variety of sectors, including green industries such as biofuels and nuclear energy, IT, communication, transportation, and

energy, including the joint development of oil and gas exploration and production (MOFA Korea 2020). After the ASEAN-Korea FTA (AKFTA) was concluded in 2007, the trade volume between Malaysia and South Korea has increased. Malaysia has consistently maintained its position among South Korea's top 10 trading partners. As of 2019, bilateral trade reached USD 18.1 billion, and Malaysia is South Korea's 10th largest trading partner (exports $8.8 billion, imports $9.3 billion) (Korea Customs Service 2021). This shows that South Korea's trade dependence on Malaysia has increased (Shin, Jung, Lee, & Shin 2019). While South Korea has signed bilateral FTAs with major ASEAN countries such as Singapore (2006), Vietnam (2015), and Indonesia (2020), no bilateral FTA has yet been concluded between South Korea and Malaysia. The South Korean and Malaysian governments have been in a situation where bilateral FTA negotiations have been suspended since 2019, despite the growing economic interdependence between them.

This study discusses the economic impact of a possible FTA on the trade between South Korea and Malaysia. The hypothesis of this study is that a bilateral FTA between South Korea and Malaysia would have a significant impact on both economies. This is based on the fact that increased trade between the two countries has assisted in the GDP growth of both economies. Section II is a brief review of relevant literature, followed by a description of the Methodology used in Section III, an Analysis of the model in Section IV and a Conclusion in Section V. A study on the possibility of FTAs between Malaysia and ROK, which are non-FTA countries, has many significant implications, one of which is a further suggestion of the points to be noted as policy implications when developing an FTA between the two countries. Both the Korean and Malaysian governments need to review the high-level bilateral FTA that can reflect the economic characteristics and interests of the two countries in order to develop the trade and investment relationship between the two countries.

Ⅱ. Literature Review

Whether a country's economic development progresses faster as the degree of trade openness increases is still a matter of debate. However, literature has proven that the degree of trade openness in the long run affects economic growth through various channels. The World Bank (1993) categorized the growth factors of Asian countries as macroeconomic stability; promotion of export promotion policies; and the establishment of an institutional foundation for growth, efficient resource allocation, and productivity increase. A FTA is one of the export promotion policies and institutional foundations for growth. Therefore, it is necessary to examine the economic effects of bilateral FTAs to examine the economic implications for Malaysia and the ROK.

Many existing theories on FTAs indicate that trade volumes are expected to rise when two countries break down trade barriers by signing an FTA, leading to improvements in their bilateral transactions and trade productivity. (Scollay 2001; Schott & Goodrich 2001). FTAs have been discussed since the early 2000s. More than 370 FTAs have been signed worldwide, which contribute to 50% of all trade. Over the last ten years, the ROK and Malaysia have concluded several bilateral and multilateral FTAs. Successful FTA networks have been established over a short period of time through the promotion of FTAs. However, the share of preferential trade is still small compared to that of trade between major FTA partners such as the European Union, Japan, and the United States. (Kim 2014). To ensure sustainable economic growth, an FTA between the ROK and Malaysia is necessary.

Many economists have studied cases involving FTA using a gravity model (Anderson 1979; Anderson & Wincoop 2003). However, when applying the gravity model, the FTA dummy variable is analyzed by adding it to the equation to measure the FTA effect. Baier and Bergstrand (2007) raised the question of bias in the gravity model when considering exogenous FTA dummy variables. The researchers found that the existing estimates of FTA effects through gravity models were underestimated by 75–85%. To overcome the limitations of existing research, this study analyzed the

economic impact of the increase in exports by the ROK and Malaysia using a panel data analysis.

Kim and Kim (2012) analyzed South Korea's exports to 98 partner countries from 2000 to 2011 using panel data to estimate the impact of the country's FTAs on total export growth. They showed that the AKFTA increased both the intensive and extensive margins of exports in South Korea and suggested a research method. Sohn and Kim (2013) studied the trade effect of the AKFTA by conducting a panel data analysis. This trade effect analysis of the AKFTA has implications for focusing on ASEAN and suggests the aggressive attitude of the government in South Korea. Cho, Jang, and Kim (2013) analyzed the export performance of the AKFTA using product-level trade data at Harmonized System (HS) 10 digits. This empirical analysis (2013) found that the AKFTA has a positive impact on both the total export value and profit of export firms. Although numerous analyses have been conducted on the economic effects of the formation of regional economic blocs on regional countries [regardless of the Computable General Equilibrium (CGE) or gravity model], no study has analyzed the economic effects of the FTA on the ROK and Malaysia. Therefore, in this study, the effect of tariff reduction, focusing on trade goods between the ROK and Malaysia, is analyzed using panel data analysis.

Ⅲ. Methodology

3.1. Research model

Panel data analysis was used to examine the economic effects of bilateral FTAs to understand the economic implications for Malaysia and the ROK. This study evaluated the statistical properties of the estimated price and income elasticity of commodities. The equation was derived from the analysis of Senhadji and Montenegro (1999) and applied to the economic strength of the FTA between the ROK and Malaysia. This analysis is cited as a time-series technique of export demand elasticity in developing and industrial countries (Senhadji and Montenegro 1999). FTA negotiations are expected to precede the assurance of economic benefits. Hence, in this study,

assuming a scenario in which the ROK and Malaysia sign an FTA, the value of trade was expected to increase in both countries. Economic growth was developed based on this growth model. It analyzed the export effects of the ROK and Malaysia when the tariff barriers between the two countries are completely removed according to the methodology used by Aitken (1973).

This study used a partial equilibrium analysis to analyze the effects of the elimination of tariffs on the price elasticity of export and import demand. A partial equilibrium analysis is used to calculate the extent to which imports and exports of specific industries and items increase when the country's tariff rate is lowered. The value of export growth in South Korea can be calculated using the price elasticity of imported goods derived from Malaysia's import function by each item and Malaysia's tariff barrier data. The effect of increasing exports in Malaysia can also be estimated using South Korea's tariff barrier data and price elasticity for imported goods derived from South Korea's import function to Malaysia by item. In order to analyze the effect of increasing exports by item upon the conclusion of the Korea-Malaysia FTA, it is first necessary to define the import function and estimate price elasticity. According to Senhadji and Montenegro(1999) and Senhadji(1998), the import function is assumed to be a function of relative import prices and real national income.

South Korea's import function from Malaysia is defined as in Equation 1. The relative import price was defined as the value obtained by the import price of goods *i* from Malaysia by the price level in Korea, and real national income was set as Korea's real GDP.

The import function is as follows (equation 1):

$$ln(Mi,t) = \alpha + \gamma_i ln(P^m_{i,t}/P_{KR,\ t}) + \delta_i ln(Y_{KR,t}) + e_{i,t} \tag{1}$$
$$e_{i,t} = \delta_i + \pi_t + \varepsilon_{i,t}, \ where \ \varepsilon_{i,t} \sim i.i.d$$

where M_i is the value of income for country *i*, t stands for year, P_{KR} is the price level (GDP deflator), P_i^m is the import price index of *i*, and Y_{KR} is real income; γ indicates price elasticity with

respect to import demand, and is negative (-) because it increases import demand when the price of imported goods decline (economic theory); and δ indicates income elasticity with respect to import demand, and has a positive value because the increase in income increases import demand. The empirical analysis estimates a one-way error component model assuming no time-series effect.

Malaysia's import function to Korea is also defined as shown in Equation 3, assuming that the relative import price and real national supply are a function. The estimated value of the import function for Korea in Malaysia is marked with a star (*) in order to distinguish it from the estimated value for Korea's import function in Malaysia.

The import function is as follows (equation. 2):

$$ln(M^*_{i,t}) = \alpha^* + \gamma^*_i ln P^{*m}_{i,t}/P_{my, t}) + \delta^*_i ln(Y_{my,t}) + e^*_{i,t} \qquad (2)$$
$$e^*_{i,t} = \delta^*_i + \pi^*_t + \varepsilon^*_{i,t}, \; where \; \varepsilon^*_{i,t} \sim i.i.d$$

where M^*i is the value of income for country i, t stands for year, P_{my} is the price level (GDP deflator), P_i^{*m} is the import price index of i, and Y_{my} is real income; γ^* indicates price elasticity with respect to import demand, and is negative (-) because it increases import demand when the price of imported goods decline (economic theory); and δ^* indicates income elasticity with respect to import demand, and has a positive value because the increase in income increases import demand. The empirical analysis estimates a one-way error component model assuming no time-series effect.

If the price elasticity of import demand is large, the effect of the FTA will be greater than that in the case where the price elasticity of import demand is small. Further, the larger the tariff rate reduction, the greater the FTA impact, causing a ripple effect. The analysis of the price elasticity of import demand and the effect of tariff elimination or reduction on export growth is expressed in equation 2.

$$\Delta M_i = \gamma'^*(t_1-t_0)/(1+t_0)^*M_i \qquad (2)$$

where $\varDelta M_i$ is the expected change in the elasticity of import demand and the expected change in the quantity of goods reflecting the reduction and limitation of the tariff. Further, γ' is the price elasticity of the import demand of both countries and is calculated by the import function, M represents the current size of imports for i goods, and t_0 and t_1 refer to the current tariff rate of each country and the new tariff rate estimated when the FTA is concluded, respectively.

3.2. Data collection

The export and import data of the ROK with respect to Malaysia from 2009 to 2019 were sourced from the Korea International Trade Association (KITA) trade statistics. The data before COVID-19 and after the conclusion of the AKFTA were employed to estimate the economic impact of FTA and to exclude the impact of the economic downturn due to COVID-19. The import and export price index and GDP deflator were obtained from the World Bank. For real income in the ROK and Malaysia, International Monetary Fund (IMF) International Finance Statistics data were used. The data range was selected to estimate recent trade trends after the conclusion of the AKFTA and includes cross-sectional data from the HS-code provided by the IMF.

Ⅳ. Analysis

4.1. Trade between South Korea-Malaysia

The trade trend between South Korea and Malaysia shows an increasing slope (Figure 1). After South Korea concluded a multilateral FTA with ASEAN in 2007, its trade with Malaysia has consistently surged, except during the 2009 global economic downturn caused by the US financial crisis in 2008. Trade declined between 2015 and 2017 due to a drop in international raw material prices including oil, but the trade volume significantly increased to $18.1 billion in 2019 compared to $8.3 billion in 2000 (Korea International Trade Association 2020).

<Figure 1> Trade between South Korea and Malaysia (US$ million)
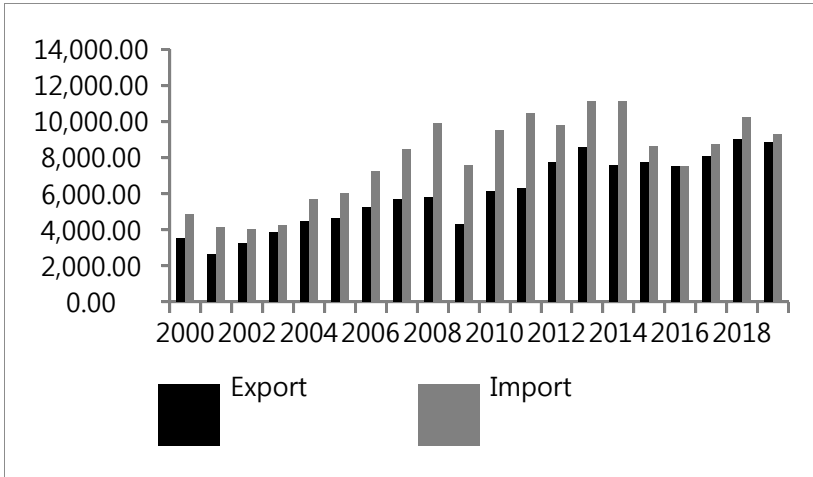
Source: Korea International Trade Association (2020)

South Korea's top 10 export products to Malaysia (about 80% of total exports) are all industrial products (Table 1), and the majority of the top 10 import products from Malaysia (about 50% of total imports) are primary mining products (Table 1). Both the export and import proportions of intermediate goods between South Korea and Malaysia have been overwhelmingly high. However, manufactured import items from Malaysia are not included as value-added sectors, in contrast to South Korean export items such as ships and inorganic chemicals. It is evident that the two countries have complementary economic structures, and trade is likely to increase based on deeper bilateral cooperation.

Table 1. Trade between South Korea and Malaysia by sector in 2019

No	Export			Import		
	Commodity	Value (US$ million)	Share (%)	Commodity	Value (US$ million)	Share (%)
1	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television	1,986.7	22.5	Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral waxes	2,875.1	31.0

No	Export			Import		
	Commodity	Value (US$ million)	Share (%)	Commodity	Value (US$ million)	Share (%)
	image and sound recorders and reproducers, and parts and accessories of such articles					
2	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	1,791.0	20.3	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	2,612.8	28.2
3	Nuclear reactors, boilers, machinery and mechanical appliances, and parts thereof.	791.3	9.0	Nuclear reactors, boilers, machinery and mechanical appliances, and parts thereof	628.4	6.8
4	Iron and steel	712.7	8.1	Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus; and parts and accessories thereof	401.5	4.3
5	Rubber and articles thereof	591.2	6.7	Aluminum and articles thereof	326.8	3.5
6	Plastics and articles thereof	432.5	4.9	Iron and steel	281.5	3.0
7	Copper and articles thereof	394.3	4.5	Plastics and articles thereof	242.8	2.6
8	Ships, boats, and floating structures	279.1	3.2	Miscellaneous chemical products	219.6	2.4
9	Inorganic chemicals	271.1	3.1	Wood and articles of wood; wood charcoal	202.7	2.2
10	Organic chemicals	196.9	2.2	Organic chemicals	200.4	2.2
	Others	1,393.2	15.8	Others	1,288.2	13.9
	Total	8,839.9	100.0	Total	9,279.9	100.0

Source: Korea International Trade Association (2020)

In terms of the nature of trade, ROK-Malaysia trade follows a typical pattern of South-North trade therefore, the mutually complementary effect of the FTA can be expected. Although the FTA with Malaysia would not generate very high economic benefits in the short term, its greater significance would be to expand the South east Asian market based on the Malaysian market.

4.2. Analysis on trade tariff in South Korea and Malaysia

Malaysia's overall average tariff rate is 5%, which is lower than that of the ROK (Table 2). Additionally, Malaysia's tariff rate is higher than that of developed countries, but lower than that of developing countries and Mexico, Uruguay, Thailand, and Turkey. This implies that Malaysia is more open than other developing countries. The overall tariff rate of the ROK is higher than that of Malaysia because the average tax rate of agricultural products is high in the ROK. The simple average tax rate of agricultural products in the ROK is 49.3%, which is 46.7 percentage points higher than that in Malaysia (2.6%). However, the simple average tariff rate of industrial products is 6.6%, which is close to Malaysia's 5.4%. Based on the duty-free TL (Tariff Limits), Malaysia's tariff-free portion is 66.1%, which is higher than that of the ROK (15.2%).

Table 2. Comparison of tariff rates in the ROK and Malaysia

MFN	Products	ROK	Malaysia
Average of Assessable Value (AV) Duties	All	12.7	5.0
	AG	49.3	2.6
	NAMA	6.6	5.4
Duty Free TL (%)	All	15.2	66.1
	AG	5.4	73.9
	NAMA	16.9	64.7
Maximum AV Duty	All	16.8	6.4
	AG	75.1	4.1
	NAMA	6.9	6.8

Source: Calculated by the authors based on data from the WTO, IDB, and IMF (n.d.)

The table above shows the tariff rate of goods in each country with a high market share. The average tariff rate of industrial products is similar for both countries, but the Malaysian government imposes relatively high tariffs on plastic products, rubber products, aluminum products, and automobile by-products. Trade between the ROK and Malaysia follows the typical North-South trade pattern, which can be complemented by the conclusion of an FTA. In other words, while Malaysia is a typical commodity-exporting country, the ROK exports raw materials and finished goods. These two countries have mutually complementary economic structures.

Malaysia's non-tariff barriers are primarily related to import licensing. Approximately 17% of all tariff items can be imported only after obtaining an import license. Goods that are prohibited or permitted to be imported into Malaysia are subject to the Customs Act 1967 and the Customs Act 1998. It is listed in Customs Order

Table 3. Comparison of tariff rates on major goods traded between the ROK and Malaysia

No	HS-Code	Commodity	ROK	Malaysia
1	15	Animal or vegetable fats	6.3	2.8
2	27	Mineral fuels	4.1	0.7
3	28	Inorganic chemicals	5.1	2.0
4	29	Organic chemicals	5.3	0.1
5	31	Fertilizers	5.9	0.1
6	38	Miscellaneous chemical products	6.3	1.1
7	39	Plastics and articles thereof	6.5	10.6
8	40	Rubber and articles thereof	7.0	18.8
9	44	Wood and articles of wood	5.2	11.4
10	72	Iron and steel	0.4	5.8
11	73	Articles of iron or steel	4.6	9.4
12	74	Copper and articles thereof	6.3	2.3
13	76	Aluminum and articles thereof	7.4	19.8
14	80	Tin and articles thereof	4.2	1.6
15	84	Nuclear reactors, boilers, and machinery	5.9	3.0
16	85	Electrical and electronic equipment	5.8	3.7
17	87	Vehicles other than railway	7.6	17.6
18	89	Ships	3.4	1.2
19	90	Optical, photographic	5.2	0.5

Source: Korea International Trade Association, WTO, IDB, and IMF (n.d.)

1988, which prohibits imports due to religious or environmental reasons (First Schedule). This includes products that are prohibited for import due to security or environmental reasons, but are permitted to be imported with an import license from the relevant authorities. It is classified into products that are temporarily restricted for industrial protection (Third Schedule) and products that can be imported only after obtaining approval or inspection according to the import guidelines set by the relevant agency for public hygiene and safety (Fourth Schedule).

4.3. Result of analysis

In the case of relatively small item-wise exports and imports and wild fluctuations in each year, such as in the case of ROK-Malaysia trade, the inefficiency of the coefficient estimation may be higher due to the increase in dispersion by item. When analyzing the hetero-elasticity of each item, the regression analysis of each item may be limited. In contrast, panel data analysis is expected to analyze the estimated effects better than simple regression analysis because it considers the variance-covariance matrix of the error term.

The ROK's export growth effect can be estimated using the price elasticity of imported goods derived from the function indicating Malaysia's imports from the ROK and the tariff barrier data (Table 3). Export growth in Malaysia can also be estimated using data on the price elasticity of imported goods derived from the ROK's import function and tariff barriers. In general, the import function is a function of relative import prices and real gross national income. The relative import price for the ROK is defined as the price of items imported from Malaysia divided by the GDP deflator in the ROK, while real GDP is sourced from the real GDP data of the ROK. Malaysia's relative import price is the price of goods imported from the ROK divided by the GDP deflator of Malaysia; real GDP is sourced from the central bank in Malaysia. This analysis is based on Senhadji and Montenegro (1999).

To understand the possible economic effect of the FTA between the ROK and Malaysia, an analysis of correlation relations

is preemptive. Table 4 presents the results of the panel data regression.

Table 4. Results of the panel data regression

Classification		Coefficient	Standard Error	t-statistic
Control variables	GDP deflator	163.4209	53.37757	3.06
	Import price	31.62261	23.96657	1.32
Independent variable	Export	.0005103	.0017868	0.29
Cons		3566.322	6857.431	0.52
R2		0.0102		
F		3.19**		
Number of observations		941		
Number of groups		95		

Note: Dependent variable: GDP per person in the ROK
*p<.05, **p<.01, ***p<.001

The results of the panel regression analysis (Table 4) on the import function show significance, and that correlation exists between exports from the ROK to Malaysia and the total value of the ROK's imports. It also indicates that increased exports from the ROK to Malaysia leads to an increase in the ROK's income from trade. Therefore, the ROK-Malaysia FTA is expected to promote trade and have a positive effect on the ROK's GDP.

Table 5. The result of the panel data from Import function (equation 2)

Classification		Coefficient	Standard Error	t-statistic
Control variables	GDP deflator	132.5753	24.48734	5.41
	Import price	11.54268	14.03984	0.82
Independent variable	Export	0.0004396	0.0001858	2,37
Cons		-8121.363	2213.328	-3.67
R2		0.9141		
F		36.46**		
N of observations		941		
N of groups		95		

Note: Dependent variable: GDP per person in the Malaysia
*p<.05, **p<.01, ***p<.001

The result of panel regression analysis (Table 5) on import function shows significance and that correlation exists between exports from Malaysia to Korea. It also indicates that an increased export from Malaysia to Korea leads to an increase in the income from trade in Malaysia. Therefore, it is considered that the ROK-Malaysia FTA promotes trade and is expected to have a positive effect on Malaysia's GDP per capita.

The panel data analysis confirms that an economic effect will be achieved if the two countries conclude an FTA. The change in price elasticity among actual export items is needed to measure this effect. Price elasticity is calculated based on substituting figures such as tariffs, elasticity of demand, and value of exports (see Figure 1). Table 6 and Table 7 show the expected change in price elasticity in the ROK and Malaysia, respectively, after concluding a feasible FTA between the two countries.

Table 6. Expected South Korean exports after concluding the ROK-Malaysia FTA

HS-code	Δmi	Product name
04	12.6	Dairy produce; birds' eggs; natural honey
06	1,237.9	Live trees and other plants
08	137,470.6	Edible fruit and nuts
09	831.1	Coffee and tea
10	48.9	Cereals
11	94,271.0	Products of the milling industry
13	2,484.2	Lac
17	1,746.5	Sugars and sugar confectionery
20	1,452.2	Preparations of vegetables and fruits
21	96.5	Miscellaneous edible preparations
23	22,069.9	Residues and waste from the food industries
24	9,089.8	Tobacco
29	99,994.1	Organic chemicals
30	8,928.5	Pharmaceutical products
31	80.0	Fertilizers
64	13.1	Footwear
65	102.0	Headgear
66	80.5	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, and whips

HS-code	Δmi	Product name
71	710,248.1	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof
73	46,372.8	Articles of iron or steel
74	1,409.8	Copper and articles thereof
79	227.4	Zinc and articles thereof
83	1,238,046.7	Miscellaneous articles of base metal
86	42,786.1	Railway or tramway locomotives, rolling stock, and parts thereof
87	1,796.1	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
88	1,565,429.8	Aircraft, spacecraft, and parts thereof
91	36.2	Clocks and watches, and parts thereof
92	1,799,364.0	Musical instruments; parts and accessories of such articles
95	52,727.8	Toys, games, and sports requisites; parts and accessories
96	1,714.7	Miscellaneous manufactured articles

Assuming that the FTA between the two countries enters into effect, the change in price elasticity among the ROK's exports is expected to diversify. It is also significant in that most of the items are protected domestic products in each country, or the items are not easy to export due to high tariffs or non-tariff barriers. Considering that there is no change in the negative direction, the abolition of tariffs between the two countries is expected to provide considerable economic benefits to the ROK.

Table 7. Expected exports in Malaysia after concluding the ROK-Malaysia FTA

HS-code	Product name	Δmi
25～27	Mineral products	48,313
41～43, 50～67	Textile/clothes/leather	9,206
87	Vehicles and accessories	2,983
44～49, 68～70, 92～97	Other manufacturing products	-40,845
85	Electronics and telecommunications	25,163
84	Machinery	51,881

If the ROK and Malaysia sign the FTA, it is expected that, among Malaysian exports, mineral products will show the largest increase, while the other manufacturing industries will show a rather decreasing trend, showing a typical cooperation system between the developed and developing countries. However, the export of Malaysia's home appliances, communication equipment, and machinery are also expected to increase, resulting in a complementary trade relationship. The results show that increases in the exports of both the ROK and Malaysia will differ depending on the items when eliminating the tariff rate.

This section assumes a scenario in which the ROK and Malaysia enter into an FTA, and examines the effects of the ROK's and Malaysia's export increase, focusing on trade goods. The analysis of the extent to which the trade between the two countries will be affected if they conclude an FTA is meaningful as a preliminary study for the feasibility analysis of the FTA between the two countries. The elasticity of the import function for each item was analyzed, and the export increase was estimated using the elasticity and tariff rate. Table 8 present the elasticity of each item and the effects of increasing exports. To estimate the economic effect of the FTA in detail, the most widely used analysis scenario is the complete elimination of tariffs in all fields. Therefore, the effects of the FTA between the two countries were estimated by item to presume specific export values. The effect of the ROK's export increase was estimated using the price elasticity of imported goods derived from Malaysia's import function and tariff barrier data. The effect of Malaysia's increase in exports was also estimated using the price elasticity of imported goods derived from the Malaysian import function for each item in the ROK. This scenario is based on the expected economic effects of the FTA. The results of the presumed model are as follows:

Table 7. ROK-Malaysia FTA effect by sectors (unit: US-$ million)

Sectors	ROK	Malaysia
Agriculture	49.88	97.53
Forestry	-0.03	0.18
Fisheries	0.24	-1.04

Sectors	ROK	Malaysia
Energy	-22.01	68.08
Processed food	13.84	22.27
Fabrics	72.23	2.46
Clothing	24.33	-4.77
Wooden furniture	1.13	68.08
Chemical industry	25.74	56.09
Metal, Steel	17.72	0.72
Automobiles	139.69	-36.13
Transport equipment	-22.63	7.11
Electrical and electronics	-45.05	18.24
Machinery	-6.41	0.009
Others	7.34	7.08
Services	-1.73	0.061

Table 7 presents the expected impact of the ROK's industrial sector after the ROK and Malaysia sign the FTA. This is a recalculation of the effect of the FTA on the economic efficiency of the economy as a whole, not the effect on production by industry, and is often analyzed using a technique called efficiency composition analysis. In the ROK's case, the manufacturing industry generally showed positive results. It was analyzed that if the tariff rate was completely eliminated, the effect of increasing Korea-Malaysia exports would occur in both countries. Relatively, Korea has a large export increase effect in the manufacturing sector, and Malaysia has a large effect in the primary industry sector. When the Korea-Malaysia FTA is signed, Korea can expect an export increase effect of more than US$ 200 million in the manufacturing sector, and Malaysia can expect an export increase effect of more than USD 100 million in the primary industry sector. In addition, Korea can expect an export increase of 28 million dollars in the primary industry, and Malaysia can expect an export increase of 141 million dollars in the manufacturing sector.

Ⅴ. Conclusion

To confirm the economic impact of the ROK-Malaysia FTA requires a panel data analysis using the import function and scenario for the

presumed value of price elasticity. This is because the FTA has not yet been concluded. The results indicate that the value of manufacturing exports is expected to increase considerably. In particular, the ROK is expected to benefit from the increased volume of exports in various sectors after the conclusion of the FTA. In particular, the exports of fabrics and clothing, chemicals, and automobiles are expected to grow positively.

Although the results of the panel data analysis on the import function show that bilateral trade has accelerated, the total value of trade income and the expected value of exports in both countries differ by sector and scenario. In this model, the economic impact of the FTA on the agriculture, forestry, energy, transport, electronics, machinery, and service sectors is negative when only trade liberalization is taken into account. In contrast, fisheries, processed food, fabrics, clothing, wooden products, chemical industry, metals, automobiles, and other commodities are expected to show a positive economic impact if the ROK-Malaysia FTA is concluded. Furthermore, in terms of trade liberalization and capital accumulation, the results show chances of a more positive economic impact on the ROK's income from trade after concluding the FTA. A few sectors, such as forestry, energy, transport, electronics, and machinery, have a negative economic impact on the value of trade. These results indicate that the exports of both countries will increase overall, even if a few industries reflect negative economic effects. The negative economic impact in a few industries can be minimized through measures such as indirect technological transfer through investments and negotiations, including the gradual abolition of tariffs between the ROK and Malaysia. Due to the negative economic impact, the study hypothesis is partly confirmed.

In recent years, East Asian countries have undergone significant changes in the market environment due to rapid economic growth, advancement of industrial structures, and integration of regional markets through ASEAN Free trade Area (AFTA). Therefore, a study on the possibility of FTAs and the interrelationships by industry between Malaysia and the ROK, which are non-FTA countries, has significant implications, one of which is a further suggestion of the points to be noted as policy implications

when developing an FTA between the two countries. Both the ROK and Malaysian governments need to review the high-level bilateral FTA that can reflect the economic characteristics and interests of the two countries to develop a trade and investment relationship.

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