

# *Taking Advantage From The Increased Construction Liberalization Under Akfta To Indonesia's Economic Growth*

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**Abstract**—The purpose of this study is to measure the impact of the increased liberalization level of construction services under AKFTA on the Indonesian economy and on the performance of the construction service sector. The method used in this research is CGE with processing data through GTAP simulation. The GTAP simulation is divided into two parts: Simulation I, measures the impact of services sector liberalization in AKFTA and Simulation II, measures the impact of increased levels of liberalization specifically for the construction services sector in AKFTA. The Simulation I shows that welfare, GDP and the performance of construction services of Indonesia are increasing. Subsequently, Simulation II also shows the impact higher than Simulation I. Thus, it can be concluded that the increased liberalization of the construction services sector under AKFTA has a positive impact in Indonesia's Economy.

**Keywords**—Construction Liberalization; GTAP Simulation; AKFTA

## I. INTRODUCTION

Indonesia's has liberalized its service sector since the signing of the General Agreement on Trade in Services (GATS) in 1994. This GATS liberalization commitment began to be implemented a year later (1995). In negotiation, There was no a meaning progress of trade in services commitment in WTO. The level of service sector liberalization has not changed significantly since the beginning of the WTO entry to

date. This reason encourages WTO member countries, including Indonesia to establish a Free Trade Area (FTA). One of the important FTA cooperation in Indonesia is the ASEAN-Korea Free Trade Agreement (AKFTA).

International trade cooperation under AKFTA was signed in 2007 in Singapore. This cooperation is one of the important cooperation for Indonesia and South Korea. This is because Indonesia has no a bilateral trade agreements with South Korea so that the highest level of trade liberalization between the two countries is in this cooperation. The AKFTA service sector will be an opportunity for Indonesia to export its services to Korea. In contrast, AKFTA cooperation will lead to the entry of Korean service providers to Indonesia. The entry of South Korean service providers can have a positive and negative impact on the Indonesian economy.

The economic impact of the AKFTA agreement in general has been measured by Al Ahmad (2014). Al Ahmad's research in 2014 used Computable General Equilibrium (CGE) with a focus on trading in the goods sector. The result of Al Ahmad's research show that AKFTA cooperation has a negative impact on the welfare of ASEAN countries with the largest decrease in welfare occurring in the Indonesian economy, which decreased by USD 304.92 million while South Korea gained welfare of USD 393.3 million. For the service sector, Al Ahmad (2014) shows that the sector will experience a 0.77 percent decline in the trade balance and a 0.22 percent decline in output[1].

Other related research, Tongzon and Cheong (2016) examined the economic impact of AKFTA on the service sector called ASEAN-Korea Trade in Services (AKTIS). Based on Tongzon and Cheong (2016) research, Indonesia gained the greatest export value of AKTIS cooperation while Malaysia gained the biggest import value from South Korea. According to Tongzon and Cheong (2016), AKFTA cooperation in the service sector has encouraged the entry of Korean service providers to Indonesia, especially construction service providers. The number of South Korean construction service providers has increased significantly since the implementation of AKTIS cooperation as part of this AKFTA cooperation[2]. Subsequently, Lee and Kim (2012) examined trilateral FTA involves ASEAN, China and Korea cooperation using GTAP 7. The results of Lee and Kim (2012) show that Korea gets the highest benefit from the cooperation scheme[3].

However, through interviews conducted by Tongzon and Cheong (2016), they got the information about the problem faced by South Korean investors in Indonesia. It was related to the maximum limit of foreign equity participation (FEP): 55 percent. This FEP, according to South Korean investors should to be improved. The Tongzon and Cheong (2016) recommended for further research related to AKTIS to conduct sector-based case studies. The request of the Korean's construction service provider should be considered and it will be the one of the Korean's requests in the further negotiation of AKFTA. To anticipate this issue, the impact of the increased liberalization of the economy and sectoral performance, particularly the construction services sector should to be measured and analyzed[2].

## II. METHODOLOGY

### A. Method

The method used in this research is CGE with a data simulation using Global Trade Analysis Project (GTAP) tool. The GTAP model is built on the assumption that the market is a perfectly competitive where the price (P) equals the marginal cost (MC) (Ahmad, 2014). Ahmad further explained that taxes and government subsidies may affect the price of sales and purchases. To that end, in the context of international trade in the service sector, the influx of foreign service providers (imports) and their expansions of domestic (export) service providers may occur. However, exports and imports in trade in services are still affected by non-tariff barriers were converted into an equivalent tariff [1].

GTAP is a CGE model consisting of various countries as well as various sectors with the assumption of perfect competition and constant returns to scale (CRS) (Widyastutik, Puspitawati, and Fawaiq, 2014). It is further explained that the structure of the GTAP model consists of simultaneous equations grouped into two parts, namely: (1) equations that describe the relationship between revenue and expenditure by each economic agent in a region (accounting relations), and (2) equations explains an economic agent behavior (behavioral equation). An area is presented by one regional household that earns revenue from sales of endowment, the value of output at agents prices (VOA), tax revenue, and industry (TAXES).

Taxes are also received from other regions (rest of the world) in the form of export tax (XTAX) and import tax (MTAX)[4].

GTAP model is technically a unity between database and data processing automatically. The data base in GTAP has been compiled based on the Input-Output Table (IOT) data. The data in GTAP are always be update in terms of number of countries. The GTAP versionis ranging from GTAP 1 launched to IOT 1990, GTAP 2 (1994), GTAP 5 (2001), GTAP 6 (2005), GTAP 7 (2008), GTAP 8 (2012) and the latest is GTAP 9 (2015). In this study, the version used is GTAP version 9 (latest). This latest version of GTAP is based on reference data for 2004, 2007 and 2009 which contained more countries:140 and covered 57 sectors (Aguiar, Narayanan, McDougall, 2016). Furthermore, Aguiar, Narayanan, McDougall explained that GTAP version 9 has been more complete, especially on trade data services. This is the result of the hard work of GTAP data contributors, namely Nico Van Learn and Arjan Lejeour from CPB. Previously, trade data on services was estimated based on Unilateral data from the International Monetary Fund (IMF). To process the database, RunGTAP software can be used. In RunGTAP, there are automatically available between variables and equations so that researchers do not have to calculate because the data will have been estimated automatically[5].

The variables in the GTAP model consist of endogenous and exogenous variables (Ahmad, 2014). Furthermore, Ahmad explained that endogenous variables consist of income, investment, trade quantity, excess supply, Walraslack, product differentiation and price while exogenous variables are independent variables used as shocks[1]. Researchers include exogenous variables in the GTAP Closure. In this study, the changed of equivalent tariff is incorporated into the closure as a shock. The valid clauses in GTAP are if the number of variables is equal to the number of equations and should have a mathematical and economic sense (Oktaviani and Puspitawati, 2008). Once the shock is inserted into the closure, the simulation can be processed and it can produce macroeconomic variables and sectoral performance. The variables analyzed in this research are welfare (EV), GDP growth (qgdp), and sectoral performance variable: market price (pm), industrial output (qo), export change (qxw) and import change (qiw)[6].

Therefore, the GTAP model simulation in this study is based on the potential impact of the increased of Indonesia's FEP from 55 percent to 70 percent. To measure the impact of liberalization, the paper will undertake two simulations, namely:

- The First Simulation (SIM 1): to measure the impact of barrier reduction from WTO to AKFTA;
- The Second Simulation (SIM 2): to measure the impact of barrier reduction only on the construction services sector at AKFTA.

### B. Exogenous Variables

Exogenous variable in this research is a tariff barrier. In the GTAP simulation,tariffs are used as shocks. Therefore, in the basic data of GTAP,has not accommodated the data of

barrier in service sector, so it should be undertaken “alter tax” based on the level of services’ sector liberalization. In the service trade, the trade barrier is not a tariff, then the level of liberalization should to be converted into equivalent tariff. The index of liberalization in the service sector is measured using the Hoekman Index (HI). The determination of the tariff equivalent for non-tariff barriers in the service sector with HI is also used by Widyastutik, Eka, and Fawaiq (2014)[4].

HI in principle is the level of openness of each service sector where the highest level is 1, open with restrictions given: 0.5 and no liberalization given: 0. HI of each ASEAN countries and other ASEAN partners has been calculated by Ishido (2012) and equipped by Fukunaga (2012)[7]. The level of liberalization of countries involved in AKFTA cooperation in GATS and in AKFTA is presented in Table I as follows.

**TABLE I. LEVEL LIBERALIZATION OF SERVICES SECTOR OF ASEAN AND SOUTH KOREA AT GATS UNDER AKFTA**

	Opened Index to All Countries		Opened Index to AKFTA Participant	
	Construction Services	Other Services	Construction Services	Other Services
Indonesia	0.22	0.07	0.5	0.19
ASEAN	0.21	0.13	0.41	0.21
South Korea	0.35	0.26	0.36	0.34

Source: edited from Ishido and Fukunaga (2012)

However, HI should be converted to the equivalent tariff because HI indicates the degree of liberalization. Thus, the equivalent tariff barriers can be calculated by the following formula.

$$\text{Equivalent Tariff} = 1 \text{ or the maximum index of liberalization} - \text{Calculated HI}$$

After HI converted to equivalent tariff, the first step is doing alter tax for basic tariff in the WTO that apply to all WTO members. The equivalent tariffs which are used to be shocked in altertax as follows.

- The equivalent tariffs of Indonesia in GATS that are applied to all countries in the world is 78 percent for the construction service sector and 93% for the other services sectors.
- The equivalent tariffs of other ASEAN countries and ROW at GATS is 79 percent for the construction services sector and 86 percent for other services sectors.

After the equivalent tariffs in GATS are entered in the GTAP model through the Altertax simulation, then the analysis is continued to SIM 1: The impact of AKFTA, with the external variable included in the GTAP simulation is as follows.

- Indonesia's tariff equivalent fell to 46 percent for the construction services sector and 81 percent for other service sectors.
- South Korea's equivalent tariff for the construction services sector fell to 64 percent and for other services to 66 percent.
- The tariffs equivalent of other ASEAN countries fell into 59 percent for the construction services sector and 79% for other service sectors.

The second simulation (SIM 2) is to measure the impact of increased commitment of each country, including Indonesia only on construction services into to 30 percent.

**C. Regional and Sectoral Aggregation Data**

This study is only focused on Indonesia and South Korea. The other ASEAN countries are aggregated into one region. This is because Indonesia and Other ASEAN countries had have an ASEAN Framework Agreement on Services (AFAS) that more liberal than AKFTA. Subsequently, other parties in AKFTA are aggregated into the rest of the world (ROW). The aggregation of countries / regions in this study are presented in Table II as follows.

**TABLE II. REGIONAL DATA AGGREGATION**

No	Country Aggregation	Description	Explanation
1.	Indonesia	ASEAN	Indonesia
2.	South Korea		
3.	Rest of ASEAN		Malaysia, Thailand, Philippines, Singapore, Viet Nam, Brunei Darussalam, Kamboja, Rest of Southeast Asia.
4.	ROW	In all other regions	Australia, New Zealand, Rest of Oceania, China, Hong Kong, Japan, Malaysia, Mongolia, Taiwan, Rest of East Asia, Cambodia, Lao People's Democratic Republ, Rest of Southeast Asia, Bangladesh, India, Nepal, Pakistan, Sri Lanka, Rest of South Asia, Canada, United States of America, Mexico, Rest of North America, Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela, Rest of South America, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, El Salvador, Rest of Central America, Caribbean, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Switzerland, Norway, Rest of EFTA, Albania, Bulgaria, Belarus, Croatia, Romania, Russian Federation, Ukraine, Rest of Eastern Europe, Rest of Europe, Kazakhstan, Kyrgyztan, Rest of Former Soviet Union, Armenia, Azerbaijan, Georgia, Bahrain, Iran Islamic Republic, Israel, Kuwait, Oman, Qatar, Saudi Arabia, Turkey, United Arab Emirates, Rest of Western Asia, Egypt, Morocco, Tunisia, Rest of North Africa, Cameroon, Cote d'Ivoire, Ghana, Nigeria, Senegal, Rest of Western Africa, Central Africa, South Central Africa, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe, Rest of Eastern Africa, Botswana, Namibia, South Africa, Rest of South African Customs, Rest of the World.

Source: GTAP 9

The problem of this research is the increased of liberalization especially in construction service sector. In the GTAP database, the construction services sector has been

separated on its own so it will be easier to analyze. The other services sector will be aggregated. Aggregation of data by sector in this study is presented in Table III as follows.

**TABLE III. SECTORAL DATA AGGREGATION**

No	Code	Description	Explanation
1.	Construction	Construction	Construction
2	Industry	Industry	Meat: cattle, sheep, goats, horse; Meat products nec; Vegetable oils and fats; Dairy products; Processed rice; Sugar; Food products nec; Beverages and tobacco products; Textiles; Wearing apparel; Leather products; Wood products; Paper products, publishing; Petroleum, coal products; Chemical,rubber,plastic prods; Mineral products nec; Ferrous metals; Metals nec; Metal products; Motor vehicles and parts; Transport equipment nec; Electronic equipment; Machinery and equipment nec; Manufactures nec
3.	Agric	Agricultural	Paddy rice; Wheat; Cereal grains nec; Vegetables, fruit, nuts; Oil seeds; Sugar cane, sugar beet; Plant-based fibers; Crops nec; Cattle,sheep,goats,horses; Animal products nec; Raw milk; Wool, silk-worm cocoons; Forestry; Fishing
4.	Other Services	Other Services	Recreation and other services; Transport nec; Sea transport; Air transport; Financial services nec; Insurance; Trade; Business services nec; and Communication
5.	Others	Other sectors	Coal; Oil; Gas; Minerals nec; Dwellings; Electricity; Gas manufacture, distribution; Water; PubAdmin/Defence/Health/ Education.

Source: GTAP 9

### III. RESULTS AND DISCUSSION

#### A. SIM 1: The Impact of Service Sector Liberalization at AKFTA

The low level of liberalization in the WTO will be difficult to be utilized by its member countries. The AKFTA partnership should benefit the participating countries. The expected benefits of this cooperation for Indonesia are on macroeconomic and sectoral performance. The macro impact is mainly on improving welfare and increasing economic growth. The impact of service sector liberalization in AKFTA on macroeconomy is presented in Table IV as follows.

**TABLE IV. IMPACT OF INCREASED LIBERALIZATION OF SERVICES SECTOR UNDER AKFTA ON MACRO ECONOMICS (SIM 1)**

Region	Welfare Improvement (US\$ million)	Changes in GDP (%)
South Korea	141.92	0.0117
Indonesia	45.16	0.0060
Other ASEAN Countries	167.59	0.0057
ROW	-94.29	0.0000

Source: GTAP Simulation

Based on the results of Simulation 1 shown in Table IV, the welfare of the participating countries of AKFTA is increased while the welfare of the rest of the world is decreased. The country with the largest increasing welfare is South Korea. The increase in South Korean welfare as an impact of AKFTA reaches US \$ 141.92 million or 40% of the total increase of other participating countries. Indonesia obtained a welfare increase of US \$ 45.16 million. Other ASEAN countries obtained a welfare increase of US \$ 167.6 million. ROW countries experienced a total welfare reduction of US \$ 94.3 million. This is because in the assumption of GTAP simulation, other parties can not enjoy the liberalization or the decrease of trade barriers in AKFTA.

The Table IV also shows the impact of AKFTA on economic growth (GDP). It show that South Korea also gained the highest economic growth as a result of the decrease in service trade barriers in AKFTA. South Korea's GDP growth is 0.01 percent. The growth of the Indonesian economy driven by service sector liberalization in AKFTA is equal to 0.006 percent. In addition, other ASEAN countries to aggregate gain an increase in GDP by 0.057 percent.

One of the important sectors of Indonesia in AKFTA is the construction services sector. Indonesia gives the highest commitment in this sector compared to other sectors. Reduction of trade barriers to this sector will have an impact on changes in market prices, industrial output and changes in exports and imports of the participating countries of AKFTA. Changes in market prices for construction services vary across countries / regions. Indonesia experienced a decline in market prices of construction services sector by 0.005 percent. The market price of the construction services sector increased by 0.0019 percent in South Korea and increased 0.0155 percent in the construction services sector of other ASEAN countries.

AKFTA cooperation encourages the rise of the construction services industry output by 0.0714 percent in South Korea and 0.0023 percent in other ASEAN countries. Indonesia's service sectors output declined by 0.0002 percent due to AKFTA. The decline in trade barriers will increase trade activity in this case, namely export and import. Indonesia is the country with the highest import growth due to AKFTA. The increase in imports of Indonesian construction services increased by 5.39 percent, while Indonesian exports increased by 1.97 percent. The combined ASEAN countries also experienced a similar situation where changes in imports were greater than changes in exports. Imports of other ASEAN countries increased by 2.28 percent, while exports increased by 0.67 percent. For South Korea, the AKFTA has an impact on increasing exports of its construction services sector, which is greater than its import increase. The AKFTA impact simulation results on the performance of Indonesia's construction services sector are presented in Table V as follows.

**TABLE V. THE IMPACT OF SERVICE SECTOR LIBERALIZATION IN AKFTA ON THE PERFORMANCE OF CONSTRUCTION SECTOR (SIM1)**

Region	Changes in Market Prices (pm)	Changes in Industrial Output (qo)	Aggregate Import Change (qiw)	Aggregate Export Change (qxw)
South Korea	0.0019	00714	0.0309	2.6862
Indonesia	-0.0050	-0.0002	5.390	1.9694
Other ASEAN Countries	0.0155	0.0023	2.2869	0.6669
ROW	-0.0006	-0.0016	-0.0028	-0.1435

Source: GTAP Simulation

### B. SIM 2: Impact of increased liberalization of Construction Services Sector in AKFTA

There is a request from South Korean construction service providers that Indonesia should to increase the limit of foreign capital ownership for the construction service sector to 70 percent then it is assumed that the trade barriers (tariff equivalent) to 30 percent. The results of Simulation II are presented in Table VI.

**TABLE VI. IMPACT OF INCREASED LIBERALIZATION OF SERVICES SECTOR UNDER AKFTA ON MACRO ECONOMICS (SIM 2)**

Region	Welfare Improvement (US\$ million)	Changes in GDP (%)
South Korea	202.45	0.0131
Indonesia	50.19	0.0068
Other ASEAN Countries	247.44	0.0098
ROW	-176.73	0.0000

Source: GTAP Simulation

The increased liberalization of the construction services at AKFTA encourages welfare improvements for participating countries. However, South Korea is still ranked first in terms of improving welfare as a result of increased liberalization of the construction services. South Korea's welfare increase increased to US \$ 202.45 million. The countries participating in AKFTA cooperation reduced their equivalent tariff barriers to 30 percent. This barriers' decline also has an impact on improving Indonesian welfare. The increase of Indonesian welfare is amounted to US \$ 50.2 million. The welfare increase of other ASEAN countries in aggregate is amounted to US \$ 247.44 million. Changes in GDP as a result of decreasing the tariff barriers equivalent to the construction services sector are also greater than the AKFTA. South Korea's GDP increase in Simulation II is larger than Simulation I. It also happens to GDP of Indonesia and other ASEAN countries.

The decline of equivalent tariff in the construction services also affects the performance of the sector. The performance of construction services sector as indicated by the results of Simulation II shows the difference with the results of Simulation I. In Simulation II, the construction service sector barriers in the decrease from 50 percent to 30 percent. The results of Simulation II are shown in Table VII as follows.

**TABLE VII. THE IMPACT OF LIBERALIZATION OF CONSTRUCTION SERVICES SECTOR IN AKFTA ON ITS PERFORMANCE (SIM2)**

Region	Changes in Market Prices (pm)	Changes in Industrial Output (qo)	Aggregate Import Change (qiw)	Aggregate Export Change (qxw)
South Korea	0.0137	0.1839	2.0735	9.1972
Indonesia	-0.0051	-0.0011	12.1826	12.4611
Other ASEAN Countries	0.0179	0.0143	10.9579	11.742
ROW	-0.0011	-0.0044	-0.0064	-0.6555

Source: GTAP Simulation

SIM 2 shows that the market price of South Korea's construction sector increased to 0.0137 percent. This is also experienced by other ASEAN countries which their market price increased from 0.0155 percent to 0.0179 percent. In Indonesia, the market price of construction services sector from Simulation I to Simulation II shows the negative value with the larger change at Simulation I. This indicates that the liberalization of the construction services sector led to the rise in construction market prices in South Korea and other ASEAN countries and increase the declining market prices of the construction services sector in Indonesia.

In the term of changes in industrial output of the construction services, Simulation II also showed a larger change from SIM 1. The change in output of South Korea's construction services and other ASEAN countries showed a higher value in SIM 2 than SIM 1. As for Indonesia, the change in construction service output showed a larger decline in Simulation II. This means that the reduction of the tariff equivalent in the construction services sector in AKFTA has an effect on increasing the output of this sector in South Korea and other ASEAN countries. Meanwhile, for Indonesia the equivalent tariff reduction causes the decreasing of output.

The other variables, export and import's value of the construction services sector, are also changed in SIM 2. The value of import and the value of export are increased in SIM 2. The changes of import in South Korea is from 0.0309 percent in Simulation I to 2.0735 in Simulation II. For other ASEAN countries, the change in import value are from 2.2869 to 10.9579 percent in Simulation II. This also happened in Indonesia import value of construction service, which the change is from 5.39 percent to 12,18 percent. In the term of export, The change of export value of Other ASEAN countries is also increased from 0.6669 to 12.4611 percent in SIM 2. The change in construction's export value of South Korea is from 2.69 percent in Simulation I to 9,19 percent in Simulation II. Changes in the value of exports and imports in Simulation II larger than Simulation I show that the reduction of the equivalent tariffs are affected the increase of construction's trade volume. In addition, for Indonesia, in SIM 1, the change in import value is greater than the export value while in SIM 2, the change of Indonesia's construction export value has more than the change in the value of imports. This indicates that the increased liberalization of the construction services encouraged the improvement of the trading country especially in the construction services sector.

SIM 1 and SIM 2 show that trade liberalization of services and increased sectoral liberalization under AKFTA have a

positive effect on macroeconomic of Indonesia. It is characterized by increasing welfare and GDP. The increase of macro variables in trade liberalization through GTAP simulations not always having a positive impact on welfare and GDP. Kim, Rahman, and Ara (2014) which examines the economic impact of trade liberalization under Bangladesh-India FTA uses GTAP found that the welfare of Bangladesh is decreased while the welfare of India is increased[8].

#### IV. CONCLUSION

Simulation 1 shows that the decreased in equivalent tariff from WTO to AKFTA has an impact on increasing the welfare of participating countries. Other study, Soo and Kyophilavong (2013) also found that the AKFTA has an impact on increasing GDP and welfare in Laos despite the slight increase[9]. In addition, AKFTA also has an impact on the improvement of construction service sector performance of participating countries. This is indicated by the increase in export and import values, the change in market prices and the change in the output of the construction services industry.

The results from Simulation II shows that the increased liberalization of the construction services increases the welfare and GDP of all parties in AKFTA. In addition, the performance of the construction services sector is also increasing due to the increase of the liberalization level in the sector especially with the increase of export and import value. In the second simulation (SIM 2), the change of construction export value is higher than the increase of import where the biggest change occurred in Indonesia. This is a good indication for the future of Indonesia's trade balance, especially in the construction services sector.

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