

**Determinants of ASEAN-China Free Trade  
Agreement (ACFTA) Utilization for Indonesia's  
Imports**

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## **List of Acronyms**

ASEAN	The Association of Southeast Asian Nations
ACFTA	ASEAN-China Free Trade Agreement
FTA	Free Trade Agreement
KII	Key Informant Interviews
MFN	Most-Favoured Nation
MSME	Micro, Small, Medium Enterprise
ROO	Rules of Origin

## Abstract

Indonesia has implemented ASEAN-China Free Trade Agreement (ACFTA) since 2004. Even though ACFTA has a tariff elimination of more than 90%, its utilization in Indonesia remains low. Therefore, this study examined the determinants for low utilization of ACFTA, using monthly firm-level import data from Indonesia Customs and Excise at eight-digit trade classification level from 2017 to 2022. This study used mixed-method, combining quantitative methods - regression analysis with fractional logit model – and qualitative methods - key informant interviews (KII).

I found that tariff margin and import value had significant and positive contribution to ACFTA utilization. I also found inconsistent result for the rules of origin (ROO), which might indicated that the ACFTA ROO is determined in a product-specific manner. In addition, the study revealed that the firm size mattered in determining utilization. Furthermore, as expected, this study found that the ACFTA Upgrading Protocol had a significant impact on ACFTA utilization. Among all the identified independent variables, I found that the import value (scale effect) had the greatest impact on utilization. My results suggested some policy recommendations for the import side that aim to reduce the cost of compliance for FTA utilization; thus, in the future, it is expected that FTA utilization in Indonesia can be optimized.

## Relevance to Development Studies

Existing studies have confirmed that utilization of Free Trade Agreements (FTAs) in Indonesia is relatively low, which in particular is accounted for less than one-third. This study is intended to investigate the factors that lead to the low utilization of FTA in Indonesia. This is important for both academia and policy making. From an academic perspective, there are very limited robust evidence behind the determinants of FTA usage. From policy perspective, understanding the determinants of FTA utilization can be used as an indicator of trade liberalization and effectiveness of FTA implementation in Indonesia, such as to inform appropriate policy making. Furthermore, by evaluating the utilization of ASEAN-China (AC) FTA, which is one of the most influential FTAs on Indonesia's exports and imports, results of this study can be used as an input and reference for policymakers on expanding existing FTAs or introducing new ones.

## Keywords

ASEAN, China, Free Trade Agreement, Preferential Tariff

# Chapter 1 Introduction

## 1.1 Research Problem Statement

The World Trade Organization (2022) reported an increasing trend since 1958 in the number of Regional Trade Agreements (RTAs) worldwide. As of 1 March 2022, there were 354 RTAs in force. Indonesia began to join the free trade scheme in 1993 by signing the ASEAN (The Association of Southeast Asian Nations) Free Trade Area (AFTA), which later became the ASEAN Trade in Goods Agreement (ATIGA) in 2010. To date, Indonesia has implemented 8 regional (multilateral) Free Trade Agreements (FTAs): the ASEAN Trade in Goods Agreement (ATIGA), ASEAN-China FTA (ACFTA), ASEAN-Korea FTA (AKFTA), ASEAN-India FTA (AIFTA), ASEAN-Australia-New Zealand FTA (AANZFTA), ASEAN-Japan (AJCEP), ASEAN-Hong Kong FTA (AHKFTA), and the Regional Comprehensive Economic Partnership (RCEP) and 6 bilateral FTAs: Indonesia-Japan (IJEPA), Indonesia-Pakistan (IP-PTA), MoU Indonesia-Palestine, Indonesia-Chile (IC-CEPA), Indonesia-Australia (IA-CEPA), and Indonesia-EFTA CEPA.

FTAs are set up for the purpose of trade liberalization between two or more countries by reducing or eliminating tariffs and non-tariff barriers. However, a mere signing of agreement does not automatically translate into the full utilization of FTAs by member countries. Sitepu et al. (2015) conducted a study on FTA utilization in Indonesia, which was measured based on import value under FTA scheme, and it was indicated a low utilization: 30.43% for ATIGA; 35.98% for ACFTA; and 33.61% for AKFTA, even though the elimination rate for these FTAs were already high at around on average 90%; more specifically, for ATIGA is 98%, ACFTA is 92.3%, and 91.2% for AKFTA (Fukunaga and Isono, 2013).

Utilization rate is a key indicator of FTA's effective implementation and a direct measure of FTA's effect trade flows. The utilization rate can provide a strong basis to suggest that an FTA is promoting trade, especially if it is accompanied by an increase in intra-FTA shares over time. A low utilization rate means that the tariff elimination under the FTA has failed or may fail to bring out an expected economic benefit (Hayakawa et al., 2014).

While FTA utilization carries a definite meaning, its calculation varies in different literary works. Several studies have defined the level of FTA utilization as the share of trade value under FTA preferential scheme out of total eligible trade value (trade value of products with a positive tariff margin). Another definition of the FTA utilization rate is based on the comparison between the number of firms claiming preferential tariffs and total firms (Hayakawa et al., 2013).

The use of FTA can widely vary between different firms. The main benefit under FTA is the reduction or elimination of import duty. Thus, several previous studies used tariff margin as a determinant that affected FTA utilization. The tariff margin is the difference between the Most-Favoured Nation (MFN) and FTA tariffs. It is assumed that with a higher tariff margin, a company is more likely to take advantage of FTA.

Another determinant for measuring FTA utilization is the transaction value (Hayakawa et al., 2014; Keck and Lendle, 2012). Scholars have noted that greater the transaction value, the more likely it is for firms to use FTA, as they would have larger savings on tariff payments even though their margin rates are small.

Rules of Origin (ROO) is also considered a factor affecting the FTA utilization. ROO are eligibility rules for seeking preferential tariff treatment. The cost of ROO is upon firms, who are required to fulfil the origin criteria or meet certain specific conditions. In addition, firms are also required to comply with administrative requirements, such as submitting documents to issuing authorities and customs authorities. Thus, the more difficult or restrictive the ROO, the less likely that firms will claim preferential tariff. Due to the complex nature of ROO, researchers such as Estevadeordal (2000) used index to calculate the restrictiveness of ROO.

However, other studies, for example, Thangavelu et al. (2021) used dummy method as an alternative to measure ROO restrictiveness.

This study will examine the utilization of ACFTA - one of the major FTAs implemented by both Indonesia and ASEAN. On 1 September 2019, ACFTA implemented its Upgrading Protocol which aimed to further improve its original framework (of ACFTA) as well as its Trade in Goods, Trade in Services, and Investment Agreement. The amendments through Upgrading Protocol to the Trade in Goods Agreement were a simplification of the Rules of Origin (ROO) provision, including a revision in the product specific rules (PSR) and regulations related to de-minimis rules. I argue that this upgrading protocol is an appropriate point to measure ACFTA utilization, as it would help to analyse the effect of ROO simplification on the goods under the ACFTA.

Indonesia's participation with several FTAs is not to be associated with the high level of trade liberalization in the country. The effectiveness of FTA implementation should be evaluated by analysing the determinants for low FTA utilization rate. Until recently, there has been no rigorous study that investigates the determinants of FTA utilization and their relative importance in Indonesia. Moreover, findings from existing studies on cases of other countries are in disagreement with causal factors behind FTA's utilization. For instance, Hayakawa et al. (2014) examined ASEAN-Korea Free Trade Agreement (AKFTA) utilization in South Korean importation and found a positive correlation between tariff margin and AKFTA utilization. However, Lukaszuk and Legge (2019), in a different case study on Switzerland's importation, found a negative correlation between preferential tariff margin and the FTA utilization. Other studies by Hayakawa et al. (2014) and Keck and Lendle (2012) found that the import value had a positive correlation with FTA utilization. While the study of Gulczyński and Nilsson (2019) on EU-Korea FTA revealed a high preference utilization on a low trade value. In addition, most studies, such as Hayakawa et al. (2014), Kim and Cho (2010), and Thangavelu et al. (2021) concluded that ROO reduced FTA utilization. However, the study of Chang and Hayakawa (2014) on FTA utilization between Taiwan and China showed that there was inconsistency in ROO effect on FTA utilization.

Studies about Indonesia's FTA utilization from exporting side had been conducted by Wignaraja (2014) by using survey data of Indonesia's exporters. He found that ACFTA utilization was only at 22%, while it could rise to 35% in the future. This study revealed that the lack of information on how to use FTA was one of the main reasons for firms to not use preferential schemes. From the importation side, using Indonesia's import value, Sitepu et al. (2015) found that the ACFTA utilization was only 36%. However, the reasons for its low utilization on the importation side remain understudied. Therefore, through this study, I attempt to investigate the determinants of low utilization of ACFTA, which is one of the most influential FTAs in Indonesia.

## 1.2 Research question and sub-questions

### 1.2.1 The main research question

My main research question is: "What are the key determinants that affect the utilization of the ASEAN-China FTA for Indonesia's imports and how do these determinants influence utilizations of ACFTA rate?"

### 1.2.2 Sub-questions

- a. What are the key determinants of ACFTA utilization?
- b. How does the scale effect, margin effect and ROO restrictiveness (ROO effect) influence ACFTA utilization?
- c. Does firm size matter for effective ACFTA utilization?
- d. How does the amended ROO in the Upgrading Protocol influence the ACFTA utilization?

### **1.3 Methodology and Data Selection**

In conducting this study, I used mixed-method, which is a combine of quantitative and qualitative methods. These two methods were carried out sequentially - first, quantitative data was collected and analysed; second, further working on quantitative analysis, qualitative data was collected and analysed. The reason for using mixed-method is to triangulate and validate as well as to complement the results of quantitative analysis, so that the determinants and any other aspect affecting ACFTA utilization can be better identified and analysed from the perspective of policymakers and policy implementers.

In the first part of quantitative method, a descriptive analysis is carried out to describe the general overview of ACFTA utilization. Following that, a regression analysis is employed using the fractional logit model. This regression model is suitable for the identified dependent variable that is in the form of a fraction. In addition, OLS and PPML models are also used for analysis to compare the results. The data for this analysis is monthly firm level import data from Indonesia Customs and Excise for the period 2017 – 2022.

Furthermore, for the qualitative method, key informant interviews (KII) were conducted with policymaker and policy implementers from two Ministries. The first interview was with an officer in the Directorate General International Trade Negotiation (Ministry of Trade) as a policymaker; and the second, third, and fourth interviews were with the officers in Indonesia Customs and Excise (Ministry of Finance) as policy implementers who were in charge of dealing with ACFTA. In Indonesia, the Ministry of Trade acts as a policy maker and negotiator for international cooperation and negotiations, while Indonesia Customs and Excise (in terms of international cooperation) acts as the implementer of international provisions.

Interviews with the policymaker and policy implementers can be used to further understand the implementation of ACFTA in Indonesia, especially for the period before and after the Upgrading Protocol. In addition, I would like to further explore Indonesia's policy regarding the utilization of ACFTA because the establishment of ACFTA was not merely for economic purpose, but also for political reasons.

I conducted structured interviews via online video conferencing because of the distance between the interviewees and the researcher. The interview questions were made in two ways based on the different roles of interviewees in the Ministry of Trade and Ministry of Finance.

### **1.4 Original Contribution**

Although Indonesia has participated in many FTAs, the level of utilizations for these FTAs (besides ACFTA) is low. Based on my extensive reading, there is no literature that investigates the determinants of low level of FTA utilization in Indonesia, especially from the import side. Therefore, my study tries to fill this gap by examining the determinants of ACFTA utilization - one of the most influential FTAs in Indonesia. In similar studies that were conducted in different countries (other than Indonesia) researchers have used either (mainly) quantitative or qualitative methods, but not both. Unlike these studies, my paper attempts to use both methods to comprehensively capture the determinants.

### **1.5 Scope and Limitation**

A potential limitation of this research is the short time span of data i.e., between 2017-2022. A longer time study might be needed to identify more in-depth effect of ROO on ACFTA utilization rate, especially after the ACFTA Upgrading Protocol. One of the main reasons for this is because it is likely that firms need more time to find out information about changes in ROO and accordingly adapt to these changes. Regardless, the data used for this research, i.e, a five-year data, can still provide enough insight about the research questions.

## **1.6 Organization of the Research**

This research paper consists of six chapters. The first chapter contains the introduction which includes problem statement, research questions, methodology and data selection, contribution, and scope and limitations of the study. The second chapter provides an explanation about ACFTA and the ACFTA Upgrading Protocol. The third chapter discusses the conceptual framework and literature review. Chapter four provides the data and research methodology, followed by the fifth chapter that discusses the empirical analysis and results. The last chapter presents the conclusion of this research paper and some recommendations.

# **Chapter 2 Overview of ASEAN-China Free Trade Agreement and Upgrading Protocol**

## **2.1 Introduction**

China is the most important trading partner both for ASEAN and Indonesia. This chapter discusses ACFTA and its relations with ASEAN and Indonesia. It also explains about the ACFTA Upgrading Protocol, which gives flexibility and simplification to the ROO, followed by an explanation of the ROO used in ACFTA.

## **2.2 ASEAN-China Free Trade Agreement**

ASEAN and China signed the framework agreement in 2002, followed by their signing of Agreement on Trade in Goods in 2004. In 2007 and 2009, the two signed Agreement on Trade in Services and Agreement on Investment, respectively. ACFTA was established to provide a free trade area that would improve market access by removing trade barriers. It also aimed at increasing investment and trade in services, which in turn would improve the welfare of its member states.

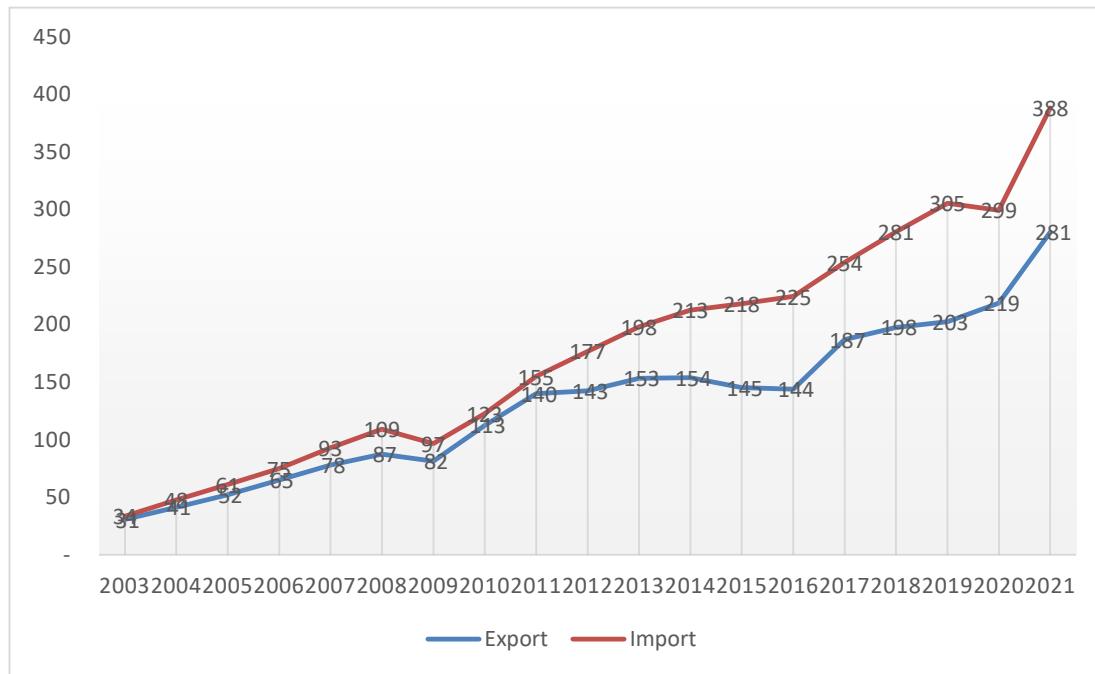
Regarding Trade in Goods Agreements, these are in relation to tariff reduction schedules to be implemented by member states; these are commonly referred to as tariff modalities. There are three categories of tariff modalities, namely (1) The Early Harvest Program (EHP), which was implemented from January 2004 to December 2006 by ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand) for the purpose of tariff elimination of selected agricultural products (the deadline for Cambodia, Lao PDR, Myanmar and Vietnam (CLMV) to reduce their tariffs was extended until 2010); (2) Normal Track, which requires that all tariff lines must be eliminated by China and ASEAN-6 by 1 January 2012 (for CLMV, the tariff elimination was to be implemented by 1 January 2015); (3) Sensitive Track, which is further categorized into two types – Sensitive List and Highly Sensitive List – which indicates that member states can protect some of their tariff lines (however, the number of tariff lines in the Sensitive Track must not exceed 400 or 10% of the total import value based on 2001 trade statistics between ASEAN-6 and China, and must not exceed 500 tariff lines for CLMV countries (ASEAN-CHINA FTA, 2004).

To date, the ACFTA tariff elimination has reached more than 91.9% of tariff lines for the ASEAN-6 and China, while for the remaining member states (CLMV), the tariff elimination is in accordance with the time lines provided in the agreement (ASEAN Secretariat, 2020).

Over the past two decades, since the implementation of Agreement on Trade in Goods in 2005, trade between ASEAN and China has seen a sharp upward trend. The total trade between the two increased from USD 113 billion in 2005 to over USD 600 billion in 2021. The exports from ASEAN to China increased by 12.7% annually from 2005 to 2021. However, at the same time, ASEAN's import rose by 13.7% per year for the same concerning period. This condition led to trade deficit for ASEAN, and the amount of deficit kept increasing since ACFTA was implemented until 2021.

For ASEAN and Indonesia, China is the most important trading partner. Between 2012 to 2021, China ranked top in the list of trading partners, followed by the United States and the European Union.

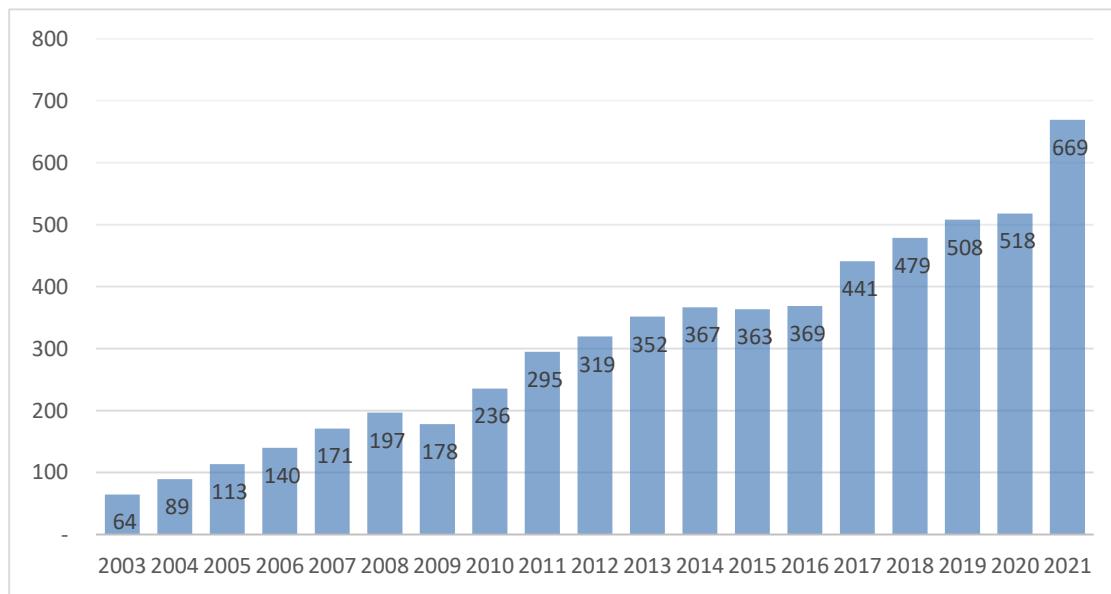
**Figure 2. 1: ASEAN's Import and Export with China (billion USD) between 2003 - 2021**



Source: ASEAN Trade Statistics Database, July 2022

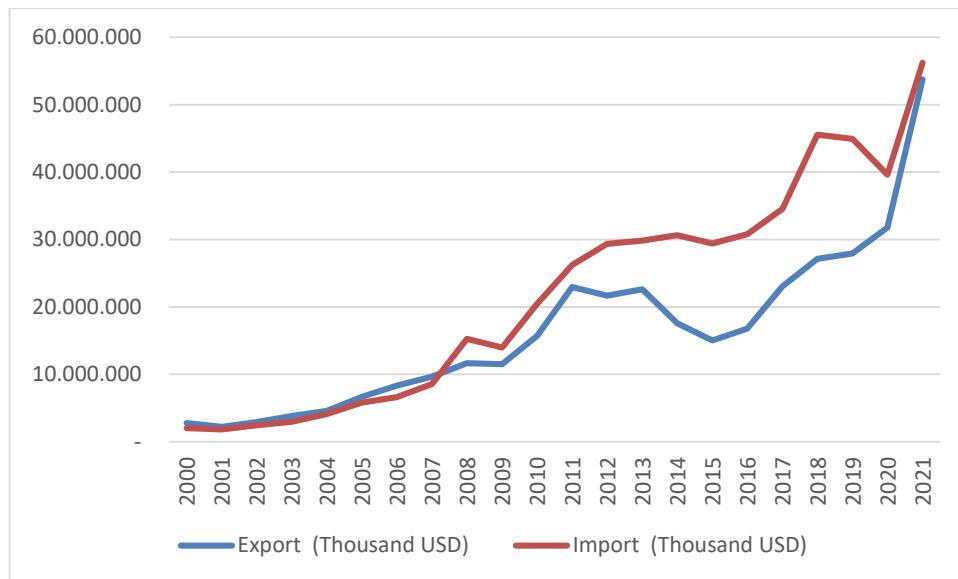
Among the top products exported from ASEAN to China were electrical machinery, mineral fuels, nuclear reactors, and iron and steel. ASEAN mostly imported the same products that were exported (such as electrical machinery, nuclear reactors, mineral fuels, iron, and steel, vehicles, plastics, and organic chemicals).

**Figure 2. 2: ASEAN – China Trade (billion USD), from 2003 – 2021**



Source: ASEAN Trade Statistics Database, July 2022

**Figure 2. 3: Indonesia Export and Import with China (thousand USD), from 2000 - 2021**



Source: [wits.worldbank.org](https://wits.worldbank.org), August 2022

Concurrent to ASEAN's trade trajectory, Indonesia's trade with China also increased. Indonesia's export to China significantly increased between 2000 and 2021, from USD 2.7 million to USD 53.7 million. Indonesia's export to China between 2000-2021 increased by an average of 17% annually. As per the Ministry of Trade reports, between 2017-2021, China was Indonesia's biggest non-oil and gas exporter, followed by US and Japan. At the same time, between 2000 and 2021, Indonesia's import from China sharply increased. In 2000, Indonesia's imports value from China amounted to USD 2 million and reached USD 56.2 million in 2021. Indonesia's imports from China increased by an average of 19% annually between 2000-2021. In the last five years, China has become the primary source of Indonesia's imported goods. Since 2008, Indonesia suffered a trade deficit with China, wherein the deficit amount kept increasing until 2019. However, the deficit amount declined during the Covid-19 pandemic in 2020 and 2021. Following trade statistics, China stands firmly in an advantageous position in its trade with ASEAN and Indonesia.

## 2.3 Upgrading Protocol

The Protocol to amend the Framework Agreement on Comprehensive Economic Cooperation and Certain Agreements was signed in November 2015 and was implemented by all member states on 1 September 2019. The purpose of this Upgrading Protocol was to accelerate the economic cooperation between ASEAN and China. This upgrading protocol amended the text and chapters of Trade in Goods Agreements, Trade in Services Agreement, and the Investment Agreement. One of the most crucial amendments from Upgrading Protocol was to the text of Rules of Origin (ROO) on Agreement in Trade in Goods. ROO in ACFTA consists of origin criteria, consignment criteria, and procedural provisions. The upgrading of ROO provided for more flexibility in terms of the fulfilling ROO requirements (origin criteria and procedural provisions) of goods, thus more products were expected to meet the ROO requirements.

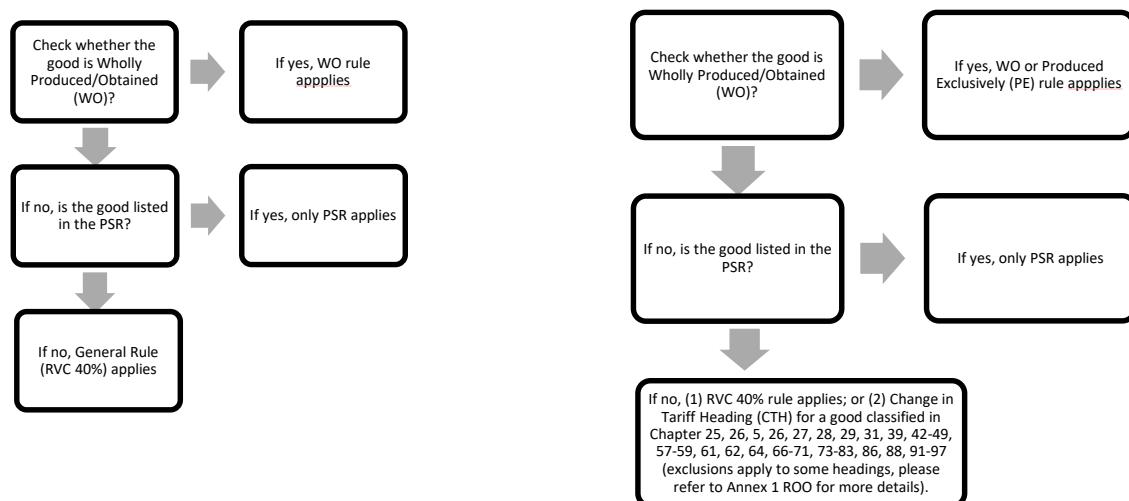
The ROO upgraded text on origin criteria brought forth the following changes:

1. The upgraded text has a new ROO criterion, namely Produced Exclusively;
2. In the ROO text before the Upgrading Protocol, if the products were not covered through the Product Specific Rule (PSR) list to get preferential treatment, those products were to fulfil the origin criteria of Regional Value Content (RVC) 40%. In the upgraded ROO text, if the products are not on the PSR list, such products can choose either of the origin criteria: (1) RVC 40%, or (2) Change in Tariff Heading (CTH) for a good classified in Chapter 25, 26 28, 29, 31, 39, 42-49, 57-59, 61, 62, 64, 66-71, 73-83, 86, 88, 91-97 (exclusions apply to some headings, refer to Annex 1 ROO for more details) (Protocol to Amend the Framework Agreement of ACFTA, 2015, Annex 1).

The following is a graphic summary of the origin criteria differences in the text ROO before and after the Upgrading Protocol:

**Figure 2. 4: Difference on Origin Criteria in the ROO Before and After Upgrading Protocol**

**ROO before Upgrading Protocol**      **ROO after Upgrading Protocol**



Source: Protocol to Amend the Framework Agreement of ACFTA, 2015

### 2.3.1 Interpretation of Rules of Origin (ROO) – origin criteria

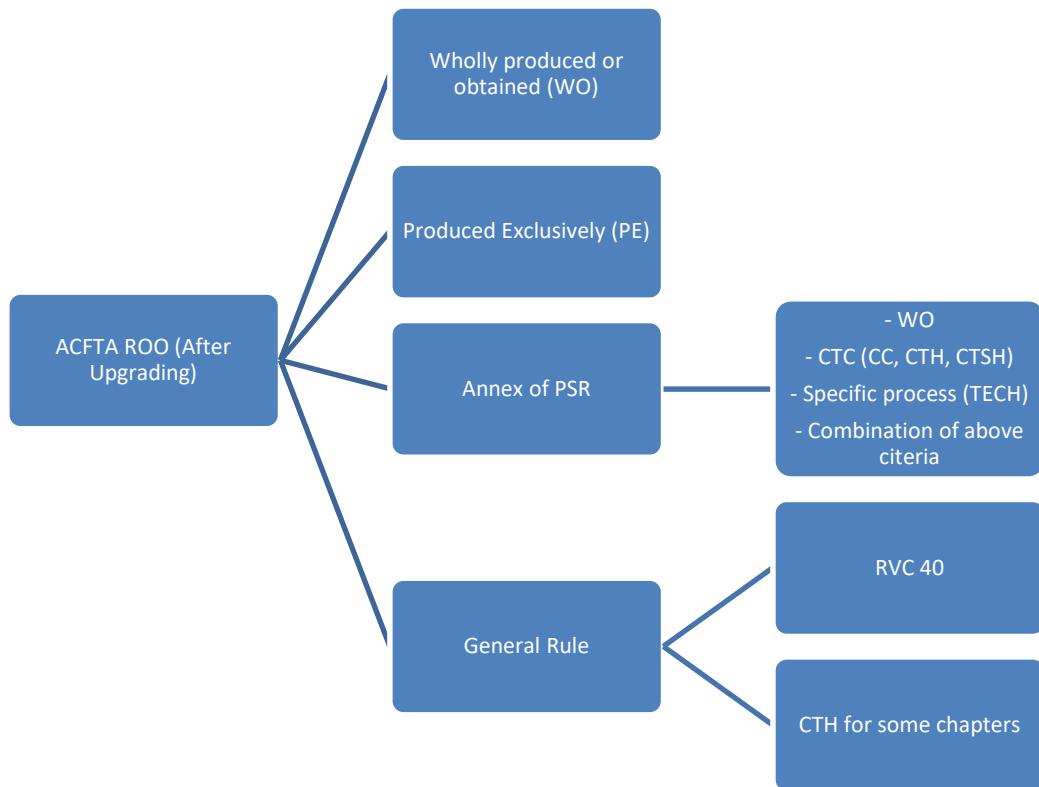
Based on Article 2 – Originating Goods in the text of Trade in Goods Agreement:

A good shall be treated as an originating good and eligible for preferential tariff treatment if it is either:

1. wholly produced or obtained (WO) in a Party;
2. produced in a Party exclusively from originating materials from one or more of the Parties;
3. produced from non-originating materials in a Party, provided that the good has satisfied the requirements of Article 4 of this Annex and meets all other applicable requirements of this Annex.

(Protocol to Amend the Framework Agreement of ACFTA, 2015, Annex 1).

**Figure 2. 5: ACFTA ROO – origin criteria (after upgrading)**



Source: Protocol to Amend the Framework Agreement of ACFTA, 2015

Details of each origin criteria in ROO:

1. Wholly produced or obtained (WO)

Goods wholly produced or obtained (WO) refer to goods that are exclusively produced or obtained from one Party or one member state. Goods that meet this ROO are usually natural products, as stated in Article 3, Annex 1, Upgrading Protocol (Protocol to Amend the Framework Agreement of ACFTA, 2015). WO is the most restrictive ROO because all parts of the good, from raw materials to the production process of the goods, should have come from one party. For the industrial sector, it is very difficult to fulfil this ROO criterion. To address this situation, the Upgrading Protocol added a new ROO provision, namely Produced Exclusively from originating materials (PE).

2. Produced exclusively from originating materials from one or more of the Parties (PE)

The PE criterion is laxer than WO. To comply with PE requirements, goods should be produced exclusively from originating materials of one or more Parties. Goods can be considered as originating if all raw materials and production processes of goods meet the ROO criteria based on ACFTA provisions. Thus, goods under

PE provisions do not need to be traced back to their natural materials, such as animals, plants, or mineral products. This PE criterion is expected to be more facilitative for the industrial sectors in fulfilling the ROO.

### 3. Produced from non-originating materials in a Party

Goods that are produced from non-originating materials in a Party are referred to as goods not wholly produced or obtained (not WO). Based on Article 4, a good shall be treated as originating good if it meets the criteria in Product Specific Rules (PSR). However, if a good is not included in the PSR list, it can then choose one of the following criteria: (1) regional value content of not less than 40% per cent of Free on Board (FOB) value; or (2) Change in Tariff Heading (CTH) for a good classified in Chapter 25, 26 28, 29, 31, 39, 42-49, 57-59, 61, 62, 64, 66-71, 73-83, 86, 88, 91-97 (exclusions apply to some headings, please refer to Annex 1 ROO for more details) (Protocol to Amend the Framework Agreement of ACFTA, 2015, Annex 1).

Goods that are processed from non-originating materials can be considered as originating goods if the non-originating goods have undergone a substantial transformation in a Party. According to ROO provisions in Upgrading Protocol, there are three methods to determine whether goods have undergone substantial transformation:

#### a. Regional Value Content (RVC)

RVC is a value-added criterion which measures the amount of input product originating from member states and compares it to the final product. This resultantly determines whether an item is an originating good. For ACFTA, the amount of RVC is 40%, which means that the amount of material input of an item is at least 40% from the member countries. Based on Article 5, RVC is calculated using this formula:

$$\text{RVC} = (\text{FOB-VNM})/\text{FOB} \times 100\%$$
, where RVC is the percentage of the regional value content; VNM is the value of the non-originating materials; FOB is the free-on-board value of the good, inclusive of the costs of transport to the port or site of final shipment abroad (Protocol to Amend the Framework Agreement of ACFTA, 2015, Annex 1).

#### b. Change of Tariff Classification (CTC)

Goods can fulfil the CTC criteria when the non-originating materials undergo substantial transformation during the production process, through changes of the Harmonized Commodity Description and Coding System (HS) classification. Non-originating goods are those originating in non-member states. There are 3 categories of CTC, namely:

- Change in Chapter (CC): in the production process, the non-originating materials undergo a change in the classification of goods at the chapter level or two-digit level of the HS. CC is the strictest criterion among the three types of CTC.
- Change in Tariff Heading (CTH): in the production process, the non-originating materials undergo a change in the classification of goods at the heading level or four-digit level of the HS. CTH has a moderate level of restrictiveness in comparison to other types of CTC.
- Change in Tariff Subheading (CTSH): in the production process, the non-originating materials undergo a change in the classification of goods at the sub-heading level or six-digit level of the HS. CTS is the least strict criterion among the types of CTC.

#### c. Manufacturing or production or technical process (TECH)

Based on the provisions of PSR, if goods have undergone certain manufacturing or production process, they can be considered as substantially transformed. In the ACFTA, the certain manufacturing or production process mostly used by textile and apparel products.

#### 4. Product Specific Rules (PSR)

Upgrading Protocol also adds to the list of goods included in PSR list. Previously, the list had 17 chapters, or more than 500 six-digit coded goods. This has changed to 57 chapters, or more than 2,000 six-digit coded goods. Through this addition, the determination of origin criteria for goods will gain more clarity. Before the upgrade, the ROO types in PSR list were: WO, CC, CTH, CTH with exception, and Tech. The Upgrading Protocol has more varied options for firms to fulfil the ROO requirements for their goods. The ROO types in the PSR of Upgrading Protocol consists of: WO, CC, RVC 40, CTH, Tech, RVC 40 or CTH, RVC 40 or CC, RVC 40 or Tech, CC with exception, CTH with exception or RVC, CTSH with exception or RVC 40, and RVC 40 or CTH or Tech.

## 2.4 Conclusion

Since the signing of ACFTA, there has been an increase in trade in ASEAN countries (including Indonesia) with China. However, more than two decades after its implementation, the utilization of FTA was not optimal yet. This gave way for the Upgrading Protocol, which provided more trade flexibility, with the expectation that ACFTA utilization could be optimized by its member countries. The Upgrading Protocol provided flexibility to the ROO, both in terms of procedural provisions and origin criteria for the goods.

# Chapter 3 Conceptual Framework and Literature Review

## 3. 1 Introduction

This chapter explains the background of ACFTA establishment. After that, it discusses the Demidova and Krishna's (2008) theory about self-selection mechanism in FTA. The next section, it provides review of prior studies about the FTA utilization and its determinants.

## 3. 2 Political Economy of the ACFTA Establishment

The relational dynamics between ASEAN and China motivated the establishment of ACFTA. During Cold War, ASEAN perceived China as a threat to political stability and security in the Southeast Asian region. At that time, ASEAN was an arena contested by the United States and China (Ba, 2003). However, since 1980s, towards the end of Cold War, relationship between ASEAN and China gradually improved. This was marked by the commencement of diplomatic relations between China and individual ASEAN countries, which eventually led to former's relationship with ASEAN as a whole. In July 1991, China was invited to the 24th ASEAN Ministerial Conference, where the then Chinese Foreign Minister expressed his desire to establish cooperative relations with ASEAN. Thus, since 1996, China became ASEAN's dialogue partner in regional cooperation (Swee-Hock et al., 2005, pp. 1-2).

In 2000, China offered ASEAN its cooperation through ACFTA as it wanted to maintain regional political stability in the Southeast Asian region (Nakagawa and Liang, 2011, p. 20). In responding to China's offer, deliberating upon doubts about Chinese cooperation, ASEAN took two years to sign the Framework Agreement on Economic Cooperation in November 2002. Ba (2003) argued that ASEAN's doubts were primarily because of the concerns and unpreparedness of ASEAN Member states to economically compete with China after the 1997 economic crisis. Moreover, China's entry as a member of the World Trade Organization (WTO) made ASEAN afraid of losing trade, investment and job opportunities as ASEAN and China competed for the same export market, namely the US, EU, and Japan. In addition, ASEAN had concerns regarding ACFTA's impact on its newer members - Cambodia, Lao PDR, Myanmar, and Vietnam, who were less developed (Ba, 2003, pp. 638-639).

In responding to such doubts, China accommodated ASEAN's concerns by providing an Early Harvest Program (EHP) scheme, amongst others, that allowed ASEAN Countries to export their products to China without being subject to import duty rates between 2004 to 2009. Further, China gave special preferential tariff treatment for less developed ASEAN states, namely Cambodia, Lao PDR, and Myanmar; and also provided MFN tariff treatment for three non-WTO ASEAN Members, namely Vietnam, Lao PDR, and Cambodia (Nakagawa and Liang, 2011, p. 20).

Nakagawa and Liang (2011) noted the political goals of China in reading the flexible nature of ACFTA agreement, which showcased China's accommodation of ASEAN's requests to reduce political tensions in some of the ASEAN countries. For example, the negotiations on the Trade in Goods Agreements, signed in 2004, did not concur along with the signing of Trade in Service Agreements in 2007. China further showed its flexibility in imposing several essential products into sensitive tracks, including automobiles, appliances, chemical products, iron and steel, textiles, and farm goods (such as rice and palm oil) (Nakagawa and Liang, 2011, p. 20).

For China, ACFTA's establishment furthers its efforts to increase its influence and leadership in Asia, as well as providing a strategic counterbalance to the US influence in the region. As for ASEAN, economically,

China was a partner that could provide new market share and reduce the vulnerability of globalization for its members (Ba, 2003, p. 646). However, in regard to ASEAN's political and security concerns, it implemented a hedging strategy; these strategies are commonly used by relatively weaker countries to protect their interests vis-à-vis stronger countries in the face of uncertain political changes. ASEAN carried out this strategy by building cooperation with China in order to maintain political stability, security and prosperity. On the other hand, ASEAN also continued to maintain good relations with the US by presenting US in various fora in regional cooperation within ASEAN (Yuan, 2006, pp. 22-23).

As mentioned above, ACFTA remains a trading challenge for Indonesia and other ASEAN countries. Since 2008, Indonesia has experienced trade deficit vis-à-vis China, with an abundance of Chinese imported products. In 2009, several labour-intensive industries, such as the textile, handicraft, footwear, and iron industries protested to delay the implementation of ACFTA, as they were not able to compete with China. However, on the other hand, ACFTA was important for Indonesia's political agenda in creating regional stability (Ismanto and Khrisnamurti, 2014, p. 25). Hastiadi (2016) argued that for ASEAN, China could be an opportunity or threat, depending on the ASEAN member states in taking advantage of opportunities and overcoming threats.

Linn (2011, p. 246) pointed at six reasons for East Asia to be integrated - sustainable economic growth, positive spillovers and better ability to address global challenges, long-term stability and prosperity, providing opportunities for underdeveloped countries to participate in global value chain to optimize their economic growth, serving as a hub for international relations, and finally to have a share and influence in the global economic agenda.

Despite its many benefits, regionalism has its own share of problems, including challenges in providing welfare to its member countries. To further understand this, it is important to recognize the existence of trade creation and trade diversion within an FTA. Trade creation provides welfare to member states as they can take advantage of a more efficient production process using preferential rates among member states. In contrast, trade diversion occurs when there is a shift in the production process from a formerly lower-cost non-member state to a higher-cost member state (Todaro and Smith, 2011, p. 619). In addition, another problem with regionalism is the difficulty of determining the origin of products in order to determine preferential tariffs because of the many FTAs (with different provisions) followed by member states. Bhagwati (1995) termed this phenomenon as "spaghetti bowl" or "noodle bowl" that occurs in East Asia.

Baldwin (2006) remarked on the need to understand the basic framework behind trade liberalization to overcome the occurrence of the "spaghetti bowl" (pp. 1 -2). I argue that the establishment of ACFTA was because of the domino effect, which explains the background of trading blocs formation or regionalism (Baldwin, 2006). This theory talked about two parties, first, pro-membership, which consists of export-competing firms; and second, anti-membership, which consists of import-competing firms. The pro-membership parties benefit when a country becomes member of the FTA as the parties would get greater market access using preferential tariffs. But if the country decides not to join the FTA, these parties will experience losses. On the other hand, the anti-membership side suffers losses when a country decides to join the FTA as the joining countries would win the domestic market.

Baldwin (2006) noted that the pro-membership parties had greater output than the anti-membership. Therefore, if a country so decided not to join the FTA, their negative impact would be greater, thus, forcing the country to join the FTA (p. 11). He argued that with further development of FTA, both pro-membership and anti-membership parties will benefit, and this cycle would repeat itself until a new political equilibrium membership in an FTA is met (Baldwin, 2006, pp. 11 - 13). In addition to affecting a country's domestics, the domino effect also makes other countries join an FTA if a country, especially a larger one, has signed an FTA agreement. Baldwin (2006, p.26) argued that China created a domino effect in East Asia since it became a member of the WTO. As a WTO member, China carried out economic transformations towards becoming

an economic and investment centre in Asia. China's proposal to establish ACFTA eased ASEAN's fears through its tariff elimination target in 2010, and further created a domino effect among ASEAN countries.

In making an assessment of the domino effects – political domino effect and economic domino effect - on the formation of regionalism in East Asia, including ACFTA, two main arguments are put forth. One of the proponents of political domino effect, Ravenhill (2010) claimed that economic factor was not its (regionalism's) main goal but only served as a means to achieve political goals (p. 179). He argued that the economic benefits of FTAs are minimal, as indicated by the low level of FTA utilization by member countries (p. 197), and that there was no positive correlation between investment flows and FTAs (p. 199).

On the other hand, Yuzhu (2011) argued that economic regionalism in East Asia was the main driver for cooperation between China and ASEAN. He argued that China's target in establishing FTAs is its GDP. China's relations with other member countries were meant as economic cooperation; establishing economic interdependence is a powerful way to overcome political and security problems (2011, p. 199).

### 3.3 FTA Utilization

Towards achieving welfare through FTA establishment, it is important to know whether the FTA is optimally used by member states. In the existing studies, FTA utilization has been variably defined. Keck and Lendle (2012) and Hayakawa (2014) defined FTA utilization as a comparison between the imports value (using a certain FTA) and the total eligible import value. The total eligible import value is the import value of goods that have a non-zero MFN tariff, where the MFN tariff is greater than the preferential tariff, or in other words, these goods have a positive tariff margin. Takahashi and Urata (2010) calculated FTA utilization through the number of firms.

In this research, I define FTA utilization as the ratio between the import value using the FTA scheme compared to the total eligible import value.

### 3.4 Demidova and Krishna's Theory

In this section, I discuss my conceptual framework towards considering the determinants of ACFTA utilization. The ACFTA tariff elimination for ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand) and China has been implemented for over 91.9% of the total tariff lines. For the remaining member states, implementation of tariff elimination is based on the schedule as provided in the agreement (ACFTA Secretariat, 2021).

The high ACFTA elimination rate could be used for market access, enhancing competition, and ultimately promoting economic growth of member states. However, firms in Indonesia have failed to take ACFTA's full advantage, given that it is the largest FTA for both Indonesia and ASEAN. Sitepu et al. (2015) research showed that Indonesia only utilized ACFTA for about 36%. FTA utilization measures the effectiveness of FTA implementation and the effective utilization of FTA is when it is fully utilized (100%) by member states. However, low FTA utilization does not necessarily mean that tariff elimination failed to provide expected benefit; instead, this could indicate other reasons, for instance, tariff lines which have low or zero MFN rates, or owing to other agreement schemes for firms. Several studies have talked about factors causing low utilization of FTA, such as tariff margin, ROO, imports/exports values, administrative costs, firms' characteristics, and administrative costs. For this study, it is imperative to recognize factors that are actually associated with low FTA utilization (in regard to ACFTA). This can provide explanations if the FTA implementation is not effective or because there are other factors that cause hindrances.

In deciding whether to use FTA, firms have a self-selection mechanism. Melitz (2003) was the first to investigate the theory of self-selection mechanism, where he argued that exporters have higher productivity than non-exporters. He further noted that only high-productivity firms could enter the export market, as they could generate profits and cover export market costs. In this case, high productivity is associated with large firm size in terms of number of employees, trade turnover, and output.

In the FTA context, Demidova and Krishna (2008) tested the self-selection mechanism. In essence, this theory was similar to Melitz's proposal, noting that productive firms were more likely to use FTA schemes in exporting. In this self-selection mechanism, exporters could choose between implementing MFN or preferential tariff rates when they exported their goods to member states. If they decided to use FTA scheme, they would get a preferential tariff which was lower than the MFN tariff. However, they needed to fulfil the ROO requirements, leading to more costs for procurements and administrative requirements. In this case, the productive firms were associated with large size firms, who had large export values and were able to benefit from the tariff margins.

Based on the theoretical model of Demidova and Krishna (2008), this study extends the firm's self-selection to the importing side and contends that it will not only be the exporters incurring benefits and costs when using FTA scheme, but the effects will also carry to the importers. The importers are required to pay the price of goods including their duty, either at preferential tariff or MFN rate. In addition, importers also need to find an exporter who could supply their goods, while meeting the ROO criteria and submitting the Certificate of Origin (COO)<sup>1</sup> to the customs authority. According to Demidova and Krishna's (2008) theory, productive importers associated with large firms are more likely to use FTA schemes. However, Hayakawa (2012) argued that the firms' size do not play a significant role in the use of FTA scheme as the fixed cost for import is seemingly trivial; the firms only need to submit the COO prepared by exporters. In this regard, my study will attempt to prove the significance of firm size in importing FTA scheme.

Further, Demidova and Krishna (2008) found that with larger margin between preferential tariff and MFN rates, the firms are set to gain more profit. However, even if the margins are not significantly high, firms will still benefit based on their trade values.

### 3.5 Empirical Studies on the Determinants of FTA Utilization

This section will discuss the empirical studies related to the determinants of FTA utilization.

Hayakawa (2012) examined the effects of firm size in the use of FTA schemes for exporting and importing, by conducting a survey among Japanese affiliates operating in Asia using data between 2009 – 2011. This study concluded that the firm size matters only when using FTA scheme for exporting, and not for importing. One of the reasons could be that importers do not incur significant costs when importing using the FTA scheme. However, Wignaraja's (2014) research on the use of tariff preferences through FTAs, and their benefits and costs, using survey data (between 2011 – 2012) and a combination of descriptive and econometric analysis, revealed that the firm size does not have any correlation with the use of FTAs. He argued that the key reasons for firms not utilizing FTAs were - lack of information about FTA provisions and the unavailability of main trade partners.

Using the fractional logit model, Hayakawa et al. (2014) found a positive correlation between tariff margin and ASEAN-Korea Free Trade Agreement (AKFTA) utilization. This result was in accordance with the study

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<sup>1</sup> Certificate of Origin (COO) is the certificate issued by the exporting country that shows the origin of the imported goods and it contains information regarding the fulfillment of ROO. This COO should be declared by importer to the Customs authority in the importing country to get the preferential tariff.

of Keck and Lendle (2012), who tested the determinants of preference utilization rates, using both OLS and fractional logit model, in Australia, Canada, the EU, and the US. These results have been further upheld in the recent research by Thangavelu et al. (2021), which concludes that preferential tariff margins had positive impacts on ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) utilization. These studies suggested that utilization increased with the increase in size of preferential margin.

However, Keck and Lendle (2012) found higher volumes of export even with smaller preferential margins, which suggested that preferential tariffs might have given other benefits in addition to reduced duty. Lukaszuk and Legge (2019) obtained different results when examining the variation of utilization across products and countries of origin. They found a negative correlation between preference margin and FTA utilization, which could have been the result of high restrictiveness of ROO.

Hayakawa et al. (2014) and Keck and Lendle (2012), found a positive corelation between trade value and FTA utilization. However, Gulczyński and Nilsson (2019), upon examining the determinants of EU-Korea FTA utilization, employing the probit and OLS model, found a significant use of preference scheme even when the trade values and duty savings were low.

Several studies (Hayakawa et al. (2014); Kim and Cho (2010); Thangavelu et al. 2021) concluded that restrictive ROO reduced FTA utilization. They all concurred that with a more restrictive ROO, FTA utilization were to be lower. However, the findings of Chang and Hayakawa (2014) revealed that the ROO impact on the utilization of China – Taiwan FTA was not as expected. They employed OLS and PPML methods and found an inconsistency impact of ROO restrictiveness on FTA utilization.

Regarding the effect of ROO on FTA utilization, Hayakawa et al. (2014) and Thangavelu et al., (2021) conducted a study on the learning effect of ROO. The learning effect of ROO is defined as the reduction in the effect of ROO restrictiveness as the exporters are experienced in fulfilling ROO requirements for their exported goods; this would possibly deem ROO restrictiveness insignificant in the future (Hayakawa et al., 2014). With the learning effect of ROO, one can identify if there is a structural break-even point or threshold level of ROO. In this regard, ACFTA Upgrading Protocol, which amended the ROO provisions, could be an analyzing point to study the impact of ROO on ACFTA utilization.

Based on Demidova and Krishna's (2008) theory, several factors affected the firm's self-selection mechanism in deciding the use of FTA from the import side, which in turn affected the FTA utilization. In my study, I have considered ROO restrictiveness, firm size, margin of preference, imports values, and Upgrading Protocol as determinants for ACFTA utilization. The import data from ASEAN and China for the period 2017 – 2022 is used, employing fractional logit model. Further, to better understand ACFTA policies in Indonesia, I go beyond quantitative method to conduct qualitative method enquiry by interviewing policymakers in Indonesia.

### 3.6 Conclusion

Several studies have argued that ACFTA establishment was based on China's political drive to ASEAN, but there are also researches that have argued for the role of economic factor in this establishment. By examining the current ways in which ACFTA has been running, the member countries need to seize the opportunities from this agreement, in terms of trade, investment, and politics. In terms of trade, the use of preferential tariffs needs to be optimized (for optimal benefits) by finding out the determinants of this FTA utilization. According to Demidova and Krishna (2008), the use of FTA is a self-selection mechanism for firms as they would take into account the costs and benefits they would obtain when using FTA. Existing studies have investigated the determinants of FTA usage, including the amount of trade value, tariff margin, ROO restric-

tiveness, and firm size with different results and methods. Based on these studies, my research paper investigates the determinants of ACFTA utilization in Indonesia, with an aim to provide input for policy makers to optimize benefits of FTA implementation in Indonesia.

# Chapter 4 Data and Research Methodology

## 4.1 Introduction

This chapter explains the source of quantitative and qualitative data for this study. Next, it provides a basic descriptive statistic of the quantitative data and some pre-estimation tests. Finally, it explains the research methodology for answering the research questions. The research methodology is designed to first analyse the quantitative data and then to compare and complement them with the results of qualitative enquiry.

## 4.2 Quantitative Data

This section first provides a description and source of data used in quantitative method. It explains the description analysis of independent variables and conducts a correlation test of variables used in the regression analysis.

### 4.2.1 Data Description and Sources

This research paper utilizes import data from nine ASEAN members states and China, between March 2017 and March 2022. I use monthly firm-level importers data, i.e., firm-level transaction data. This data was obtained from Indonesia Customs and Excise that is sourced from the import declaration system in Indonesia. The import declaration system in Indonesia adheres to a self-assessment system,<sup>2</sup> which means that the importers fill in their own import data. The import data includes: HS codes of the products, import value, MFN tariff, preferential tariff, facility code (ACFTA facility code: 54), amount of import duty paid, and country of origin.

Imported products are on 8-digit HS code based on the ASEAN Harmonized Tariff Nomenclature (AHTN) 2017. The import data used is for products that have MFN tariff with value other than zero and greater than preferential tariff. This import data is referred to as the eligible import. In addition, to make better comparability, the import data used in this study is for the products which have ad-valorem tariff (percentage tariff), and not specific tariffs.

ACFTA scheme includes a provision on reciprocal tariff. This provision allows member countries not to give preferential tariffs on certain products that are not provided preferential tariffs by partner countries, based on ACFTA. Indonesia has several lists of goods that have reciprocal tariffs with China, thus, these products are excluded from the calculation of ACFTA utilization as they are not eligible to get the ACFTA preferential tariffs.

The details of the data are as follows:

- a. The data before the Upgrading Protocol is from 1 March 2017 – 31 August 2019, while the data after the Upgrading Protocol is from 1 September 2019 – 31 March 2022.

The selection of this data period considers the implementation of the ASEAN Harmonised Tariff Nomenclature (AHTN) 2017 in Indonesia regarding the use of the HS code 2017 version which consists of 8 HS digits. Using the same HS code version will make the data analysis easier.

- b. ROO data will be compiled from the legal text of ACFTA.

The source of ROO data consists of two categories:

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<sup>2</sup> Self-assessment by the importer is carried out through: <https://portal.beacukai.go.id/>

- ROO before Upgrading Protocol using the legal text of Trade in Goods Agreement Annex and the Product Specific Rules (PSR) 2012.
- ROO after the Upgrading Protocol using the legal text of Protocol to Amend the Framework Agreement in Trade in Goods Agreement Annex 1 and the Product Specific Rules (PSR) 2017.

#### 4.2.2 Descriptive Analysis

This section explains the descriptive analysis, such as the mean, standard deviation, minimum, and maximum value of the variables used in this study. The analysis also includes a general description of ACFTA utilization and its determinants.

##### ***Mean, Standard Deviation, Minimum, Maximum***

Table in Appendix 1 provides description of variables used in this study. Appendix 2 shows the mean, standard deviation, minimum, and maximum of the following variables: utilization, the value of eligible imports, tariff margin, ROO restrictiveness, firm sizes, and Upgrading Protocol. In this study, the ACFTA utilization is derived from import value under the ACFTA scheme divided by the total eligible imports with value ranges from 0 to 1, with a mean of 0,5.

The logarithmic form of total eligible imports value ranges from 5 to 34 with a mean of 25. The variable of mean tariff margin has a minimum value of 0.5 with a maximum value of 45 and a mean value of 8.4.

The dummy variables consist of ROO restrictiveness, Upgrading Protocol, and firm sizes; all these have a minimal value of 0 and a maximum value of 1. Among all variables, the mean margin has the highest standard deviation with a big difference between its minimum and maximum value. While the dependent variable- the utilization- has a relatively low standard deviation which indicates that the values are spread close to their mean values.

##### ***Correlation Test***

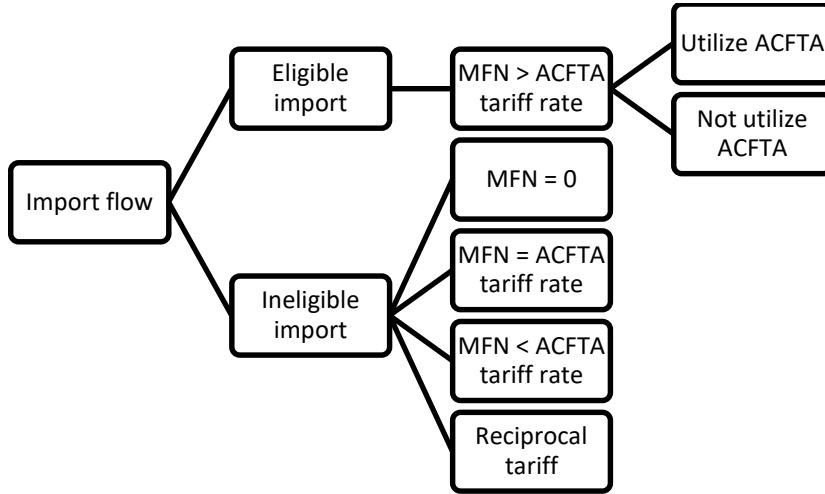
This correlation test is conducted to detect whether there is a “perfect” multicollinearity among some or all explanatory variables in a regression model (Gujarati, 2003, p. 342). The existence of multicollinearity may cause an inaccurate regression estimation. One of the methods to detect multicollinearity is by employing a pair-wise correlation test.

Gujarati suggested that the rule of thumb for high multicollinearity is when the score of pair-wise correlation test is more than 0.8 (2003, p. 359). The result of pair-wise correlation of variables used in this study is provided in Appendix 3. Based on this result, multicollinearity is not a concern for this study.

##### ***The Overall share of imports***

In this study, the import from ACFTA member states is divided into two groups: eligible import and ineligible import. Eligible import refers to import that has a positive tariff margin, where the difference between MFN and ACFTA tariff is positive. The eligible import consists of importation that utilizes the ACFTA and does not utilize the ACFTA preferential tariff. While ineligible import consists of the import of products that have: zero MFN tariff rates; MFN tariff rate that is same as the ACFTA tariff rate; MFN tariff rate that is lower than the ACFTA tariff rate; and products that are not covered in ACFTA because they have reciprocal tariff rates. The utilization of ACFTA in this research is defined through imports, out of the total eligible importation, that utilize ACFTA. The division of these import flows is shown below in Figure 4.1.

Figure 4. 1: ACFTA Import Flow



Source: Import Data from Indonesia Customs and Excise

#### ***Preference utilization by import value***

Table 4.1 reflects the utilization based on the different ranges of eligible import value. The utilization rates, as expected, increase with the eligible imports value. The import value is the yearly importation which consist of import transactions of many products.

Table 4. 1: Utilization based on the eligible import value

Eligible imports (yearly in million rupiah)	Utilization
0 < elig ≤ 10	0.03
10 < elig ≤ 100	0.06
100 < elig ≤ 1.000	0.13
1.000 < elig ≤ 10.000	0.29
10.000 < elig ≤ 100.000	0.49
100.000 < elig ≤ 1.000.000	0.65
1.000.000 < elig ≤ 10.000.000	0.67
10.000.000 < elig ≤ 100.000.000	0.76
elig > 100.000.000	0.94

Source: Author's calculation based on data from Indonesia Customs and Excise

#### ***Preference utilization by tariff margin***

Table 4.2 shows ACFTA utilization rates for different ranges of preferential tariff margin. As expected, the utilization increased with the higher tariff margin. However, the tariff margin above 20% has a lower utilization rate than the smaller tariff margin. This might be because the goods under this margin have a high ROO restrictiveness.

**Table 4. 2: Utilization based on the preferential margin**

Preferential margin (m)	Utilization
All imports	0.53
0 - 1%	0.10
1% - 2,5%	0.28
2,5% - 5%	0.48
5% - 7,5%	0.51
7,5% - 10%	0.59
10% - 20%	0.61
> 20%	0.52

Source: Author's calculation based on data from Indonesia Customs and Excise

#### *Utilization by exporting country and industry*

**Table 4. 3: Utilization average by exporting country and industry in 2017 – 2022**

Industry	Exporting country									
	BRUNEI	CAMBODIA	CHINA	LAO PDR	MALAYSIA	MYANMAR	PHILIPPINES	SINGAPORE	THAILAND	VIET NAM
Live animals, animal products	0.0%		84.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%	1.2%
Vegetable products	0.0%	0.0%	89.5%	.	0.3%	0.8%	1.2%	0.1%	2.9%	0.2%
Animal or vegetable oils			70.9%		0.1%		0.0%	0.1%	0.2%	0.0%
Products of food industry	0.0%	0.0%	89.5%	0.0%	0.3%	0.0%	0.2%	0.1%	1.0%	0.8%
Mineral products	.	0.0%	79.1%	0.0%	0.9%	0.0%	0.0%	0.4%	0.2%	2.7%
Chemical products	0.0%	0.0%	81.1%	0.0%	0.5%	0.0%	0.1%	0.4%	0.4%	0.5%
Plastics and rubber	0.0%	0.0%	73.7%	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	0.3%
Leather products	.	0.1%	65.1%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.1%
Wood products			80.7%		0.9%	0.0%	0.0%	0.7%	0.4%	0.5%
Paper products	0.0%	0.0%	87.2%	.	0.5%	0.0%	0.0%	0.1%	0.0%	0.1%
Textile products	0.0%	0.0%	68.1%	0.0%	0.2%	0.0%	0.0%	0.9%	0.4%	0.3%
Footwear products			0.5%	76.5%	0.0%	0.5%	0.4%	0.0%	0.5%	1.9%
Stone, ceramics, glass products	0.0%	0.0%	80.6%		0.8%	0.0%	0.1%	0.6%	0.1%	0.3%
Pearls, precious metal and stones			46.6%		1.3%	0.0%	0.0%	0.0%	0.0%	0.2%
Base metals	0.0%	2.5%	78.6%	0.0%	0.6%	0.0%	0.7%	0.4%	0.2%	0.3%
Machinery and mechanical appliances	2.8%	0.6%	66.7%	0.0%	0.4%	0.0%	0.1%	0.4%	0.2%	0.6%
Vehicles	0.0%	0.0%	68.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Optical instruments	0.0%	0.0%	53.9%	0.0%	0.1%	0.0%	0.0%	0.1%	0.5%	0.5%
Arms and ammunition	.							.	.	.
Miscellaneous manufactured articles	0.0%	0.0%	78.9%		1.2%	0.0%	0.0%	0.3%	0.4%	0.3%
Works of art	.	0.0%	59.0%		0.0%		0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>0.2%</b>	<b>0.2%</b>	<b>73.9%</b>	<b>0.0%</b>	<b>0.5%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.3%</b>	<b>0.4%</b>	<b>0.5%</b>

Source: Author's calculation based on data from Indonesia Customs and Excise

Table 4.3 reflects the ACFTA utilization rates by exporting country and industry at 2-digit HS. It can be seen that the majority of imports using the ACFTA scheme are from China rather than the ASEAN countries. The utilization from ASEAN member states is less than 1%. It can be inferred that the most important partner for Indonesia in ACFTA is China. The ASEAN Member States prefer to use the ATIGA scheme when they trade within ASEAN as reflected in Table 4.4 below. If we look at other ASEAN Member States, for example the Philippines, it has a similar pattern in its ACFTA importation where China is its most significant trade partner (Quimba et al., 2020, p. 21).

Table 4.4 also reveals that almost half of the importation (49%) between 2017 – 2022 from ACFTA member states did not utilize the FTA preference scheme. Based on data from ASEAN Secretariat (2021) between 2019-2021, the top ten commodities imported by ASEAN from China include iron and steel articles, fabrics,

knitted or crocheted. While the top ten products traded within intra-ASEAN are natural and cultured pearls, animal or vegetable fats and oils. Other commodities that traded both intra-ASEAN and with China included electrical machinery, mineral fuels, nuclear reactors, vehicles, plastics, organic chemicals, iron and steel.

**Table 4. 4: Indonesia Imports by FTA Scheme and Exporting Country  
(% of importers)**

FTA Code	Exporting Country										Total
	Brunei	Cambodia	China	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	
Without FTA	72.4	76.7	43.7	73.0	54.6	70.3	61.6	88.7	53.7	55.0	49.2
ATIGA	26.8	23.2	-	27.0	44.8	29.3	38.1	11.0	45.8	44.5	9.2
ACFTA	0.8	0.1	56.2	-	0.4	0.5	0.1	-	0.2	0.4	41.5
AKFTA	-	-	-	-	0.1	-	-	-	0.0	0.0	0.0
IJEPA	-	-	-	-	0.0	-	0.2	-	0.1	0.0	0.0
AIFTA	-	-	-	-	0.0	-	-	-	0.0	0.0	0.0
AANZFTA	-	-	-	-	0.0	-	-	-	0.0	0.0	0.0
IPPTA	-	-	-	-	-	-	-	-	0.0	-	0.0
AJCEP	-	-	-	-	0.0	-	-	-	0.0	0.0	0.0
IC-CEPA	-	-	-	-	-	-	-	-	-	0.0	0.0
AHKFTA	-	-	-	-	-	-	-	-	0.0	0.0	0.0
IA-CEPA	-	-	-	-	-	-	-	-	0.0	-	0.0

Source: Author's calculation based on data from Indonesia Customs and Excise

#### *Distribution of ROO Index before ACFTA Upgrading Protocol*

**Table 4. 5: Distribution of ROO Index by Industry in 2018  
(Before Upgrading Protocol - the number of HS codes)**

Industry	ROO Index				
	4	4.5	6	7	Total
Live animals, animal products	75				75
Vegetable products	221				221
Animal or vegetable oils	65		7		72
Products of food industry	233		12		245
Mineral products	84				84
Chemical products	759				759
Plastics and rubber	440				440
Leather products	48				48
Wood products	64				64
Paper products	114				114
Textile products	817				817
Footwear products	45	32			77
Stone, ceramics, glass products	203				203
Pearls, precious metal and stones	45				45
Base metals	748				748
Machinery and mechanical appliances	1,570				1,570
Vehicles	237				237
Optical instruments	282				282
Miscellaneous manufactured articles	246				246
Works of art	4				4
<b>Total</b>	<b>6,300</b>	<b>32</b>	<b>12</b>	<b>7</b>	<b>6,351</b>

Source: Author's calculation based on data from Indonesia Customs and Excise

Table 4.5 presents the distribution of ROO index before Upgrading Protocol. It shows that before the upgrading protocol, ROO consisted of four indexes. The distribution of ROO index is dominated by the ROOs which have an index of 4 with medium restrictiveness: Regional Value Content 40% (RVC 40), Change in Tariff Heading (CTH), and technical process (TECH).

For the Upgrading Protocol in Table 4.6, there are more types of ROO, resulting in diverse indexes. There are nine indexes of ROO after the Upgrading Protocol, from 3 – 7. The majority of imported products have a medium restrictiveness index of 4, which consists of RVC 40, CTH, TECH, and index 3.5, which consists of RVC 40 or CTH, RVC 40 or TECH. The details of the ROO interpretation can be seen in Chapter 2. The increasing of ROO types in the Upgrading Protocol is because the protocol facilitates more alternatives and flexibility for goods to fulfil their criteria, with the expectation that more firms will utilize the ACFTA scheme.

#### ***Distribution of ROO Index after ACFTA Upgrading Protocol***

**Table 4. 6: Distribution of ROO Index by industry in 2021- after Upgrading Protocol  
(the number of HS codes)**

Industry	ROO Index									
	3	3.25	3.5	3.75	4	4.5	6	6.5	7	Total
Live animals, animal products					4		52	16	72	
Vegetable products				2		84	10	64	7	219
Animal or vegetable oils			22			24	5	2	11	3
Products of food industry	8		36	1	59	142	6		1	253
Mineral products			20		59			2		81
Chemical products	2	1	156	33	556	6				754
Plastics and rubber			71	3	350				12	436
Leather products					42	4				46
Wood products					62					62
Paper products					100					100
Textile products	276		190	2	280	37			1	786
Footwear products			4		71	1				76
Stone, ceramics, glass products					201					201
Pearls, precious metal and stones					39					39
Base metals			29	54	638					721
Machinery and mechanical appliances	215		576		723	26				1,540
Vehicles			4		226	5				235
Optical instruments	15		85		166	12				278
Miscellaneous manufactured articles	16		4		229					249
Works of art					5					5
<b>Total</b>	<b>532</b>	<b>1</b>	<b>1,199</b>	<b>93</b>	<b>3,918</b>	<b>248</b>	<b>126</b>	<b>18</b>	<b>85</b>	<b>6,220</b>

Source: Author's calculation based on data from Indonesia Customs and Excise

#### ***Number and the Average Utilization of Firm Sizes***

Table 4.7 shows the total number of importing firms based on four size categories. The micro firm has the least percentage, while the small and medium firms have almost the same proportion. The large firm has the highest percentage. However, if we look at the average of ACFTA utilization, large firms do not have the highest utilization. Further discussion regarding firm size utilization will be provided in Chapter 5.

Table 4. 7: Number and the Average Utilization of Firm Sizes

Firm Size	Number (%)	Utilization
1 - Micro	8.11	0.50
2 - Small	19.51	0.54
3 - Medium	19.93	0.56
4 - Large	52.45	0.51

Source: Author's calculation based on data from Indonesia Customs and Excise

## 4.3 Qualitative Data

Qualitative data was obtained through Key Informant Interviews (KII) method, conducting interviews with policymakers and policy implementer officers in the Directorate General of International Agreement Negotiations (Ministry of Trade) and Indonesian Customs and Excise (Ministry of Finance), whose working experiences covered the period of before and after the Upgrading Protocol. The details of the interviewees are as follows:

1. Associate Trade Negotiator, the Directorate of ASEAN Negotiations, Ministry of Trade.
2. Head of Section of Free Trade Cooperation Section III, the Directorate General of Customs and Excise of Indonesia.
3. Document examinator officers, Customs and Excise Major Servicing Office Type A Tanjung Priok (two persons).

The interviews were conducted online via video conferencing due to the distance between the interviewees and the researcher. The interviews took place in a structured manner as presented in Appendix 14. These interviews were conducted to compare and enrich the results of quantitative analysis that had already been done, such as to develop a deeper and broader understanding of the process.

## 4.4 Research Methodology

This section explains the methodology used to answer research questions. This study uses quantitative methods, employing regression analysis through fractional logit model, to identify the determinants of ACFTA utilization. Papke and Wooldridge (2008) developed the fractional logit regression for models, where the dependent variable was a proportion. This technique was employed to address the inadequacies of Ordinary Least Square (OLS) linear regression in providing predicted probabilities within the bounds of 0 and 1 (Kieschnick and McCullough, 2016). For the purpose of comparison, this study will also estimate the results using OLS and Pseudo-Poisson maximum likelihood (PPML) estimations. To gain comprehensive results, the results from quantitative methods are triangulated using qualitative analysis by interviewing policymaker and policy implementer officers in Indonesia.

#### 4.4.1 Regression Analysis

I empirically investigate the determinants of ACFTA using the following base model:

$U_{ipt}$  denotes utilization rate that will be calculated as the share of import value under ACFTA scheme out of total eligible import value at the HS 8-digit level. It is computed using:

$$U_{ipt} = \frac{\text{ACFTA Import Value } ipt}{\text{Total Eligible Import Value } ipt} \quad \dots \dots \dots \quad (2)$$

In this study, the framework of regression is designed to investigate the above key determinants (scale, margin, and ROO effects) and to evaluate how these determinants influence the use of ACFTA. For instance, I will evaluate if ACFTA utilization is higher when the imports value (scale effect) and tariff margins (margin effect) are larger, but lower for the importation of the products that have more restrictive ROO (ROO effect).

In addition to this, I shall further extend this analysis by incorporating the size of firms, if they actually do matter by employing equation (3). This is important as the existing studies argue that firm size do not seem to play any role in importing FTA scheme, as the fixed cost for importers appeared negligible and that the importing firms needed to submit the COO prepared by exporters (Hayakawa, 2012). In conducting my analysis, I shall consider the firm size as a factor from the importer's side by using transaction-level data, so that it reflects the actual data of firm size utilizing the ACFTA.

To answer the sub-research question of whether the Upgrading Protocol increased the ACFTA utilization, I use dummy year upgrading with a value of 1 for the period after the Upgrading Protocol, and a value of 0 for the period before the Upgrading Protocol. The equation for this regression analysis is as follows:

In the last regression analysis, I shall extend equation (4) with the size of importing firms for a complete assessment that includes all the identified independent variables, as provided in equation (5):

$$U_{ipt} = \beta_1 \cdot \text{Tariff Margin}_{ipt} + \beta_2 \cdot \ln \text{Import}_{ipt} + \beta_3 \cdot \text{Dummy Restrictiveness Index}_{ip} + \beta_5 \cdot \text{Dummy Firm Size}_{ip} + \beta_4 \cdot \text{Dummy Year Upgrading}_{ip} + u_i + u_t + u_s + \varepsilon_{ipt} \quad (5)$$

Where:

- i : exporting countries which consists of ASEAN countries and China
- p : product as defined by 8-digit HS code
- t : year
- $U_{ipt}$  : utilization rate of ACFTA when importing product p from country i in year t
- Tariff Margin<sub>ipt</sub> : preference margin, defined as the difference between the FTA and MFN tariff rates on product p from country i in year t. This is represented as the tariff margin effect.

Import <sub>ipt</sub>	: total imports of product p from country i in year t. This is presented as the scale effect.
Dummy Restrictiveness Index <sub>ip</sub>	: dummy of restrictiveness of ROO in ACFTA with country i on product p. We represent this as the ROO effect.
Dummy Year Upgrading	: dummy of the upgrading protocol.
Dummy Firm Size	: dummy firm size based on yearly import turnover
Fixed effects	: exporting country dummy ( $u_i$ ), year dummy ( $u_t$ ) and industry dummy ( $u_s$ ).

The fixed effects are included to address various econometric concerns. For instance, the year fixed effects dummy ( $u_t$ ) is used to capture the shocks affecting ACFTA utilization in a particular year. It also helps to control for any other macroeconomics factors, such as global economic recession or boom. The fixed effect of exporting country dummy ( $u_i$ ) controls the characteristics of exporting country that do not vary over the period of study and that may affect ACFTA utilization. Finally, the fixed effect of industry dummy ( $u_s$ ) controls for the variations of ROO across industries or products.

### **Variables**

Based on the above equations, the variables used in this research are:

a. Dependent variable:  $U_{ipt}$

The utilization rate of ACFTA is a comparison between the value of imports based on 8-digit HS of products originating from China and nine ASEAN member countries (Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam - who use the ACFTA scheme), and the total eligible imports from these countries (with or without using the ACFTA scheme). The eligible imports are those products covered within the ACFTA agreement scheme based on tariff schedule; thus, the MFN tariff rates for these products are other than zero. Consequently, goods with zero MFN tariffs are not included in the utilization calculation, and the preferential tariffs are smaller than the MFN rate. The result of this utilization rate is in the form of fraction.

b. Independent variable: Tariff margin

Margin is the difference between the MFN rate and the ACFTA tariff rate. The MFN tariff used in my calculation has a greater tariff rate than the ACFTA tariff rate. The average of the tariff margin is used to aggregate the tariff margin.

c. Independent variable: Import

Import value is the amount of dutiable imports per the HS code of goods from China and nine ASEAN countries. This variable is in the form of a value (Rupiah) and will be converted into logarithmic form.

d. Independent variable: Dummy Restrictiveness index

The restrictiveness index reflects the restrictiveness of ROO in terms of the origin criteria of the goods. This restrictiveness index is based on the 6-digit HS of goods because ACFTA ROO negotiations are at 6-digit HS level. This restrictiveness index refers to the study conducted by Estevadeordal (2000), which has an index of 1 – 7; higher the index, the more restrictive ROO is.

Following Kunimoto and Sawchuk (2005) and Kim and Cho (2010), I shall employ the dummy of restrictiveness index that has a value of 1 if the restrictiveness index  $\geq 6$ , and has a value of 0 if otherwise. In addition, the ROO restrictiveness is also observed with a restrictiveness index  $\geq 4$ , and also at the disaggregated of ROO based on their index.

e. Independent variable: Dummy Firm Size

The firm size is measured based on import turnover for one year, which in turn is calculated based on the average import per month. The firm size will be divided into four categories based on Government Regulation No. 7/2021 on Ease of Protection and Empowerment of Cooperatives and Micro, Small, and Medium Enterprises, namely:

- category 1 refers to micro firm: if import values for a given year is at most Rp. 2 billion (monthly average Rp. 167 million)
- category 2 refers to small firm: if import values for a given year is between Rp. 2 billion – Rp. 15 billion (monthly average Rp. 167 million – Rp. 1.25 billion)
- category 3 refers to medium firm: if import values for a given year is between Rp. 15 billion – Rp. 50 billion (monthly average Rp. 1.25 billion – Rp. 4.2 billion)
- category 4 refers to large firm: if import values for a given year is more than Rp. 50 billion (monthly average more than Rp. 4.2 billion).

Few existing studies employed firm-level analysis using the number of workers to categorize the size of firms, following the World Bank's regional enterprise survey classification, for instance, see Demena (2017). In my case, the available data did not contain information regarding the number of workers in the importing firms.

f. Independent variable: Dummy Year Upgrading

Dummy Year Upgrading shows the effect of the Upgrading Protocol. It has a value of 1 for the period after Upgrading Protocol, and a value of 0 for the period before Upgrading Protocol. It is expected that the Upgrading Protocol has a positive impact on ACFTA utilization.

To measure the restrictiveness of ROO, I use the method proposed by Estevadeordal (2000), wherein the index that has a range of 1-7. Index 1 refers to the least restrictive ROO, while index 7 refers to the most restrictive ROO. There are several kinds of ROO combinations in ACFTA, namely: (1) single ROO, with only one kind of ROO for a product; (2) alternative ROO, with two or more ROOs, where it is allowed to comply with either one of them (marked with the word "or"); (3) combination ROO, with two or more ROOs, where all should be complied, (marked with "+" sign); and (4) alternative and a combination of ROO, which are marked with "or" as well as "+".

In adopting Estevadeordal's index, several modifications were made:

- a. For alternative ROOs, the index is measured based on the average of ROO indexes, with a reduction in the index of 0.5 as firms have other option to comply with the ROO.
- b. If there are exceptions (ECTC) related to one or more tariff headings or tariff chapters, an index of 0.5 is added to indicate the additional restrictiveness.

**Table 4. 8: Estevadeordal's ROO Restrictiveness Index**

Restrictiveness Index (y*)	Requisites
7	<ul style="list-style-type: none"> <li>▪ <math>CC &lt; y^* \leq CC \&amp; TECH</math></li> <li>▪ WO</li> </ul>
6	<ul style="list-style-type: none"> <li>▪ <math>CH \&amp; RVC &lt; y^* \leq CC</math></li> </ul>
5	<ul style="list-style-type: none"> <li>▪ <math>CH &lt; y^* \leq CH \&amp; RVC</math></li> <li>▪ When RVC is a single standard RVC (<math>&gt;50\%</math>)</li> </ul>
4	<ul style="list-style-type: none"> <li>▪ <math>CTSH \&amp; RVC &lt; y^* &lt; CH</math></li> <li>▪ When RVC is a single standard RVC (below 50%)</li> </ul>
3	$CTSH < y^* \leq CTSH \& RVC$
2	$CI < y^* \leq CTSH$
1	$y^* \leq CI$

Source: Estevadeordal (2000)

Where CI is change of tariff classification at the level tariff item (8-10 digit); CTSH is change at the level of sub-heading (6-digit HS); CTH is change at the level of heading (4-digit HS), CC is change at the level of chapter (2-digit HS), RVC is regional value content criterion, WO is wholly obtained/produced criterion, and TECH is a technical requirement.

The following is the ACFTA ROO along with its index:

**Table 4. 9: ACFTA ROO Restrictiveness Index**

PSR	Index
WO	7
CC+ECTC	6,5
CC	6
RVC 40 or CC	4,5
CTH + ECTC	4,5
CTH	4
RVC 40	4
TECH	4
CTH + ECTC or RVC 40	3,75
RVC 40 or CTH	3,5
RVC 40 or TECH	3,5
CTSH + ECTH or RVC 40	3,25
RVC 40 or CTH or TECH	3
RVC 40 or CTSH	3

Source: Author's calculation based on data from ACFTA agreement

## 4.5 Conclusion

This chapter presented the use of quantitative and qualitative methods to answer the research questions. The quantitative method used in this study is regression analysis, using the fractional logit model. It also used the OLS and PPML methods for comparison and robustness checks of the results. The dependent and independent variables were applied based on the literature review. The first regression analysis was to investigate the

effect of the key determinants (scale effects, margin effects, and ROO effects) on ACFTA utilization. Following that, I incorporated firm sizes and Upgrading Protocol to examine their effects on the utilization. The results of the quantitative method are triangulated with qualitative data from Key Informant Interviews (KII).

# Chapter 5 Empirical Findings and Analysis

## 5.1 Introduction

This chapter provides the findings of regression analysis and qualitative results. First, it provides findings for the main research question on the key determinants of ACFTA utilization for Indonesian imports. This is followed by evaluating the extent of these key determinants in influencing the utilization rate of ACFTA. Next, the analysis investigates whether the firm size matters in the ACFTA utilization and if the impact of firm size varies across firms (with differing sizes) that are involved in importing products using ACFTA. Finally, my analysis examines whether the Upgrading Protocol increased ACFTA utilization. If indeed the Upgrading Protocol increased the ACFTA utilization, it means that the ROO simplification, in terms of origin criteria as well as procedural provisions impacted the ACFTA utilization. Along with quantitative findings, my study incorporates the qualitative findings of KII.

## 5.2 Scale Effect, Margin Effect, ROO Effect on Utilization

This section answers the question of key determinants: scale effect, margin effect, and ROO effect using the fractional logit model. The results of regression are reflected in Table 5.1, which is divided into three sets of regression based on ROO index dummy. The first set of regression uses a dummy ROO restrictive index  $\geq 6$ , with a value of 1 if the ROO restrictive index  $\geq 6$ , and the second set uses a dummy ROO restrictive index  $\geq 4$  with a value of 1 if the ROO index  $\geq 4$ , and the last set of regression using the disaggregated level of ROO index. The ROO lists are provided in Table 4.9.

In all sets of regression, the results showed that eligible imports value and tariff margin, i.e., scale and margin effect, respectively, were positively related to ACFTA utilization, and were statistically significant at 1%. These results confirmed the findings of Keck and Lendle (2012) and Thangavelu et al. (2021) that utilization increased with higher import value and tariff margin. On the other hand, KII also confirmed that import value and tariff margin significantly contributed to the ACFTA utilization as firms wanted to maximize their profit by utilizing the preferential scheme.

The ROO restrictiveness index of 6 or more expectedly gave a negative sign, suggesting that stronger ROO restrictiveness reduced the ACFTA utilization. These results were similar to Kim and Cho's (2010) and Kunimoto and Sawchuk's (2005) findings.

In contrast, the ROO restrictiveness index of 4 or more in the second regression captured the positive effect of less restrictive ROO on ACFTA utilization. Moreover, much of the ROO under ACFTA were concentrated in the index of 4. This result was similar to Kunimoto and Sawchuk's (2005) findings, although their results were not statistically significant because of the level of data aggregation. They argued that the significance of the restrictiveness index was more likely to be captured with a greater degree of disaggregation data, for example the data at the import transaction level, the item level, or at the subheading level (2005, p. 30).

In the third regression, to investigate the effects of each ROO index on utilization, the ROO index is broken down, with the ROO index of 3 as a reference. Unexpectedly, higher ROO indexes (index 6 and 7) had positive signs; however, the coefficients were not statistically significant. The ROO index 3.75, 4 and 4.5 had positive signs and the coefficients were statistically significant. These results did not conform to Estevadeordal's findings, where more restrictive ROO (3.75, 4 and 4.5) should have negatively affected the utilization (compared to the less restrictive ROO (3.25 and 3.5)). These inconsistent results were also found in Chang and Hayakawa's (2014) study on China-Taiwan FTA utilization. They argued that the inconsistencies

might be a result of ROOs being determined in a product-specific manner. Another reason might be that most imported products were under ROO indexes of 3.75, 4 and 4.5, which had positive coefficients.

Estevadeordal (2000, p. 8) noted that ROO could have an impact on trade by generating production costs and administrative costs. The production costs were to be borne by the exporter while the administrative costs were borne by both the exporters and importers. In one of my KII, the participant argued that the ROO effect (in terms of origin criteria) was largely influenced by China as the main exporting country under ACFTA. Exporters were to fulfil the origin criteria for goods, including their material and making process. In this regard, China strongly encourages and facilitates its exporters to utilize ACFTA. This results in overcoming the obstacle, i.e., to fulfil the origin criteria, when utilizing this scheme; although, the ROO is considered restrictive.

For the importers' side, my key informants remarked that in regard to ROO, the procedural provisions were considered as administrative costs. This remained an influencing factor for importers in deciding to use FTA scheme because if the procedural provisions were not fulfilled, they (importers) would bear the risk. The procedural provisions included the conformity and accuracy of the information in the Certificate of Origin, as well as the completeness of documents when claiming the preferential tariff. Moreover, most import examinations (around 97%) by customs officers were categorized in the green lane, which meant that customs officers only checked the documents, without looking at the imported goods physically. In this light, my key informants argued that ROO in terms of origin criteria was not an obstacle for the importer. As Hayakawa's (2014) stated that in the long run, the impact of ROO restrictiveness might be insignificant because of the decrease in its compliance cost. In addition, it could be argued that low utilization of FTA in Asia was a result of the costs of proving conformity with rules of origin. Thus, reducing the compliance cost could stimulate the FTA utilization (Brenton, 2003, p. 12)

ROO is used as one of the commercial policy instruments, which impacts the FTA implementation. The main function of ROO is to prevent trade deflection, so that only those goods which meet ROO would enjoy preferential tariff treatment. Moreover, ROO can affect the sourcing and investment decisions of firms, and their ability to integrate into the global production networks (Brenton, 2003). Thus, a simple, consistent and predictable ROO with low compliance cost is needed, without ruling out its main functions.

**Table 5. 1: Scale Effect, Margin Effect, and ROO effect on Utilization using Fractional Logit  
(average marginal effects)**

Variables	Fractional Logit (I) utilization	Fractional Logit (II) utilization	Fractional Logit (III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.027 *** (0.023)		
roo_dummy4plus		0.039 *** (0.002)	
roo_index== 3.2500			-2.364 *** (0.494)
roo_index== 3.5000			-0.004 *** (0.004)
roo_index== 3.7500			0.054 *** (0.013)
roo_index== 4.0000			0.038 *** (0.003)
roo_index== 4.5000			0.024 *** (0.007)
roo_index== 6.0000			0.000 (0.028)
roo_index== 6.5000			-0.040 * (0.160)
roo_index== 7.0000			0.002 (0.032)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-8.195 *** (1.023)	-8.594 *** (1.024)	-8.555 *** (1.024)
Number of observations	3,894,817	3,894,817	3,894,817

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Data source: STATA output

### 5.3 The Effect of Firm Size on Utilization

To answer sub-question 3, this section examines if the firm size mattered in ACFTA utilization by employing fractional logit model. The regression analysis used equation (3) which incorporated four types of firms: micro (as reference), small, medium, and large firm.

As seen in Table 5.2, the main variable of interest in this regression was the firm size. It could also be seen that all firm categories had positive signs and significant impacts on utilization. The results were in contrast with Hayakawa's finding (2012) that firm size did not matter in importing as the FTA costs were borne by the exporter.

This study hypothesized that utilization increased with larger firm size. However, in all regression sets, the results indicated that large firms did not have the highest impact on utilization.

As informed in my interviews, majority of Indonesian imports came from China with the use of FTA under ACFTA. My respondents stated that majority of importing firms are large-sized, which was in line with the data in Table 4.7. They also talked about the possible reasons for firms to not use the FTA scheme: they might not know about the FTA application; their imported goods might already have a zero MFN tariff; they might not want to bother with preferential tariff claims as a mere claim does not guarantee that firms will get it; if they do get the preferential tariff, they might not want, in the future, to be audited by the customs officers; or because their imported goods might be for the purpose of being re-exported, and not for domestic consumption.

Based on these reasons, I suspect the likely possibility of low ACFTA utilization by large firms was because their imported goods might be for the purpose of being re-exported. According to Melitz (2003), large firms associated with higher productivity entered the export market more often. In Indonesia, imported goods, that are to be re-exported, are being processed and stored in bonded zones. These imported goods would get trade facilities, such as deferred or exemption of import duty; thus, importers did not need to apply for the FTA scheme.

The impacts of scale effects, margin effects, and ROO effects in this regression were still similar to the main findings reported in Table 5.1.

**Table 5. 2: The Effect of Firm Size using Fractional Logit  
(average marginal effects)**

Variables	Fractional Logit (I)	Fractional Logit (II)	Fractional Logit (III)
	utilization	utilization	utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.028 *** (0.023)		
roo_dummy4plus		0.038 *** (0.002)	
roo_index== 3.2500			-2.361 *** (0.503)
roo_index== 3.5000			-0.004 *** (0.004)
roo_index== 3.7500			0.053 *** (0.013)
roo_index== 4.0000			0.037 *** (0.003)
roo_index== 4.5000			0.024 *** (0.007)
roo_index== 6.0000			0.000 (0.028)
roo_index== 6.5000			-0.040 * (0.161)
roo_index== 7.0000			0.001 (0.032)
size_allrev			
2	0.015 *** (0.003)	0.013 *** (0.003)	0.013 *** (0.003)
3	0.019 *** (0.003)	0.018 *** (0.003)	0.018 *** (0.003)
4	0.016 *** (0.003)	0.014 *** (0.003)	0.014 *** (0.003)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-8.291 *** (1.023)	-8.680 *** (1.024)	-8.641 *** (1.024)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Data source: STATA output

## 5.4 The effect of the Upgrading Protocol on Utilization

This section answers sub-question 4 on whether the Upgrading Protocol increased ACFTA utilization. It is expected that Upgrading Protocol had a positive impact on ACFTA utilization. By employing fractional logit model, the regression analysis used equation (4), which included dummy Upgrading Protocol variable that had a value of 1 for the period after Upgrading Protocol and had a value of 0 for the period before Upgrading Protocol.

As shown in Table 5.3, the main variable of interest for this regression analysis is the dummy Upgrading Protocol. In the first regression, results were as expected - the scale effect and margin effect had positive impacts on ACFTA utilization, while the ROO index of  $\geq 6$  decreased the utilization. However, contrary to the expectation, Upgrading Protocol had a negative sign, despite it is not being statistically significant.

In the second and the third regression set, the impact of Upgrading Protocol was positive on ACFTA utilization, and it was statistically significant. This indicated that the ROO simplification in Upgrading Protocol significantly increased ACFTA utilization. Similar to the results in Table 5.1, the coefficient of ROO index  $\geq 4$  in the second regression had a positive sign, while in the third regression the ROO indexes 3.75, 4, and 4.5 had positive impacts and they were statistically significant on ACFTA utilization.

To investigate the effect of Upgrading Protocol on utilization, I use third regression as it captures the effect of each ROO index on utilization, thus influencing the significance of Upgrading Protocol to utilization.

Moreover, my KII confirmed that the Upgrading Protocol greatly affected the ACFTA utilization because of the ROO amendments, which included procedural provisions. They noted that China facilitated and strongly supported its exporters to apply for the ACFTA scheme, making it easier for them to fulfil the ROO. Besides, with the implementation of Upgrading Protocol, Indonesian importers did not face problems anymore with certificate of origin claim (because of the ROO simplification, in terms of procedural provisions). My key informants remarked that before the Upgrading Protocol, there were many rejections and retroactive checks<sup>3</sup> of certificates of origin because of procedural matters. This forced the importers to pay MFN tariff. However, if the importers wanted to get preferential tariff treatment, they could file an objection and/or appeal, which took at least 3 – 6 months. This caused reluctance on the part of importers to use ACFTA (before the Upgrading Protocol). Thus, it can be inferred that Upgrading Protocol could encourage and attract both importers and exporters to use ACFTA.

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<sup>3</sup> Retroactive check refers to a request for information by the Customs in importing country to the issuing authority in the exporting country regarding the validity and the fulfilment of Rules of Origin to ensure that the imported goods are eligible for preferential tariff.

**Table 5. 3: The Effect of Upgrading Protocol using Fractional Logit Model  
(average marginal effects)**

Variables	Fractional Logit	Fractional Logit	Fractional Logit
	(I) utilization	(II) utilization	(III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.027 *** (0.023)		
roo_dummy4plus		0.041 *** (0.002)	
year_upgrading	-0.0002 (0.003)	0.016 *** (0.003)	0.017 *** (0.003)
roo_index== 3.2500			-2.363 *** (0.492)
roo_index== 3.5000			-0.003 *** (0.004)
roo_index== 3.7500			0.054 *** (0.013)
roo_index== 4.0000			0.041 *** (0.003)
roo_index== 4.5000			0.025 *** (0.007)
roo_index== 6.0000			0.000 (0.028)
roo_index== 6.5000			-0.040 * (0.161)
roo_index== 7.0000			0.002 (0.032)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-8.195 *** (1.023)	-8.626 *** (1.024)	-8.590 *** (1.024)
Number of observations	3,894,817	3,894,817	3,894,817

\*\*\* p<.01, \*\* p<.05, \* p<.1

Data source: STATA output

## 5.5 The Impact of Scale Effect, Margin Effect, ROO Effect, Upgrading Protocol and Firm size on Utilization

This section analyses the regression results by using equation (5), which includes all independent variables. It examines how scale effect, margin effect, ROO effect, Upgrading Protocol and firm size impact ACFTA utilization.

I employed fractional logit model by including all variables, as shown in Table 5.4. The results of scale effect, margin effect, and ROO effect were consistent with the regression results in Table 5.1.

**Table 5. 4: The Effect of All Independent Variables using Fractional Logit  
(average marginal effects)**

Variables	Fractional Logit (I) utilization	Fractional Logit (II) utilization	Fractional Logit (III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.028 *** (0.023)		
roo_dummy4plus		0.041 *** (0.002)	
roo_index== 3.2500			-2.360 *** (0.501)
roo_index== 3.5000			-0.003 *** (0.004)
roo_index== 3.7500			0.054 *** (0.013)
roo_index== 4.0000			0.040 *** (0.003)
roo_index== 4.5000			0.025 *** (0.007)
roo_index== 6.0000			0.000 (0.028)
roo_index== 6.5000			-0.040 * (0.162)
roo_index== 7.0000			0.001 (0.032)
size_allrev			
2	0.015 *** (0.003)	0.014 *** (0.003)	0.014 *** (0.003)
3	0.019 *** (0.003)	0.018 *** (0.003)	0.018 *** (0.003)
4	0.016 *** (0.003)	0.015 *** (0.003)	0.015 *** (0.003)
year_upgrading	0.001 * (0.003)	0.017 *** (0.003)	0.017 *** (0.003)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-8.291 *** (1.023)	-8.680 *** (1.024)	-8.641 *** (1.024)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Data source: STATA output

The results of the scale effect and margin effect in all regression sets were as expected, in that they had positive and significant impacts on utilization. The coefficient of ROO index  $\geq 6$  expectedly had a negative impact on utilization because of its high restrictiveness. In contrast, ROO index  $\geq 4$  had a positive impact on utilization because it had lesser restrictiveness. Moreover, most products were concentrated in the index of 4. When I disaggregated the ROO index, as shown in regression set III, I found that the sign of index coefficients was not in line with their level of restrictiveness. For example, the higher indexes (3.75, 4, and 4.5) had a positive sign while the lower indexes (3.25, 3.5) have negative impacts on utilization.

The impacts of the Upgrading Protocol in all sets of regression were positive to utilization, but with different levels of significance. Regression (I) had a lower significance level of 10% compared to regression (II) and (III) which had significance levels of 1%.

Moreover, all firm sizes had positive and significant impacts on utilization. However, large firms, not as expected, did not have the highest impact on utilization when compared to other firm sizes.

## 5.6 The Relative Contribution of the Determinants

The tables from section 5.2 to 5.5 reflect the impact of each determinant on ACFTA utilization. However, these results do not reveal the determinant that has the highest impact on ACFTA utilization. To identify this determinant with highest impact, I used a standardized coefficient or beta coefficient as shown in Appendix 4. By using the results of fractional logit model in Table 5.4 with disaggregated ROO index, I computed beta coefficient by dividing the standard deviation of independent variable with the standard deviation of dependent variable and multiplied it with the coefficient of independent variable (Bring, 1994). With this beta coefficient, I measured the effect of independent variable on dependent variable in standard deviation units. The beta coefficients revealed that eligible imports value (scale effect) had the largest impact on ACFTA utilization.

For the robustness check, as shown in Appendix 5, the relative contribution of determinants could be measured by multiplying the regression coefficient with the sample means of corresponding coefficients (Hayakawa et al., 2014). The results showed that eligible import value had the largest contribution over other determinants on ACFTA utilization, similar to the beta coefficient results.

Regarding the relative contribution of determinants on ACFTA utilization, my KII deemed tariff margin as the main factor affecting the utilization. In addition, my respondents also took into account the competitive market as a determinant for the importers to use FTA scheme. My respondents' view regarding tariff margin as the main factor for utilization did not come as a surprise, as this conformed to the popular (general) opinion on tariff margin as the most appealing factor in using FTA. In this regard, I rely on the quantitative evidence, which showed that import value had the highest contribution on ACFTA utilization.

## 5.7 Robustness Checks

For the robustness checks of fractional logit results, I employed regression using the OLS model. As shown in Appendix 6, the results were similar to fractional logit model, except for the highest index at the disaggregated level of ROO, which had a positive and significant value. This result was contrary to the expected outcome. In Appendix 7, I found that the effects of firm size were consistent with fractional logit model, that all firm size coefficients were positive and had a significant value. I also found that large firm coefficients were not the highest coefficients when compared to other firm sizes. In addition, I investigated the effect of Upgrading Protocol by using OLS in Appendix 8. I found that its effect in the first regression was positive but not statistically significant. While in the second and the third regression set, the results were similar to the fractional logit model, in that the effect of Upgrading Protocol was positive and statistically significant. When

I included all independent variables using OLS in Appendix 9, I found that all results were similar to fractional logit model, except for the index of 7 which had a positive and significant value and the level of significance for the index of 6.5.

Following this, I also checked the results by employing the PPML model. This model can take the zero-valued dependent model; I used this model as my dependent variables ranged from 0 to 1. However, the fractional logit model is considered more natural and appropriate for independent value in fraction form, which ranges from 0 to 1, as suggested by Papke and Wooldridge (2008; 1996). The regression results in Appendix 10 showed similar results with the fractional logit in Table 5.1, except for the index of 7 which had a positive and significant value, for index of 6 which had negative and significant value, and for index of 6.5 which had different level of significance. The effect of firm size, as reflected in Appendix 11, revealed similar results with the fractional logit model in Table 5.2. While the effect of Upgrading Protocol in Appendix 12 showed that its effect was positive in the first regression, but it was not statistically significant. While in the second and the third regression, it could be seen that the coefficient of Upgrading Protocol was positive and statistically significant to ACFTA utilization. When I incorporated all independent variables as shown in Appendix 13 and compared it to the fractional logit model in Table 5.4, most coefficients had similar signs and level of significance, except for the significance of Upgrading Protocol in the first regression (significance at 10% and 5% for fractional logit and PPML, respectively) and the sign and significance level of ROO index, particularly for the index of 6, 6.5, and 7.

## 5.8 Conclusion

For my empirical findings, I used both quantitative and qualitative methods. The results showed that the scale effect and margin effect had positive and significant impacts on ACFTA utilization. However, the ROO effect at the disaggregated index level had inconsistent results, wherein, higher restrictive indexes had positive impact while lesser restrictive indexes had negative effect on utilization. The analysis also revealed that firm size mattered in ACFTA utilization. All firm sizes had positive and significant impact on utilization, although large firms did not have the highest impact on utilization. In addition, I also found that the Upgrading Protocol gave a positive and significant impact on utilization. Conclusively, I found that among all the independent variables used in the regression, scale effect made the highest contribution to utilization.

# Chapter 6 Conclusion and Recommendation

## 6.1 Conclusion

This study aimed to investigate the determinants of ACFTA's low utilization in Indonesia. I employed quantitative method through regression analysis with fractional logit model, using monthly firm-level import data from Indonesia Customs and Excise for the period 2017 – 2022. To triangulate and complement the results of quantitative analysis, I also used qualitative methods through KII with policymaker and policy implementers from the Ministry of Trade and the Ministry of Finance, Indonesia. In this study, I used the self-selection mechanism theory, which was first proposed by Melitz (2003) and later developed by Demidova and Krishna (2008), for FTA implementation. The results of this study could be used as a reference for policymakers in evaluating the effectiveness of FTA implementation in Indonesia, thereby, helping them to make appropriate policies.

My findings indicated that tariff margin (margin effect), import value (scale effect), ROO restrictiveness (ROO effect), firm size, and the Upgrading Protocol were key determinants for ACFTA utilization in Indonesia's imports. As expected, my analysis confirmed that ACFTA utilization increased with the size of tariff margin and import value. These results were in parallel with the findings of Keck and Lendle (2012) and Thangavelu et al. (2021). I also investigated the effect of ROO restrictiveness on utilization by using a dummy of ROO with index  $\geq 6$ ,  $\geq 4$ , and at the disaggregated level of restrictiveness index. The effect of ROO index of  $\geq 6$ , as expected, was negative and significant to the utilization, which suggested that a more restrictive ROO reduced FTA utilization; this result conformed to the study of Kim and Cho (2010). In contrast, the effect of ROO index of  $\geq 4$  was positive on ACFTA utilization. This implied that a less restrictive ROO had a positive impact on FTA utilization; moreover, most products were covered in the index of 4. This result confirmed the findings of Kunimoto and Sawchuk (2005), although their results were not statistically significant because of the level of data aggregation. At the disaggregated level of ROO index, I found an inconsistent ROO effect on utilization that was not in accordance with Estevadeordal's index (2000), wherein the higher indexes had a greater positive impact on utilization in comparison to lower indexes. A similar inconsistency was also recorded in Chang and Hayakawa's study (2014). It could be reasoned that ROOs are determined in a product-specific manner. Another reason might be that most imported products were under the higher ROO indexes, hence, they had positive coefficients. It was also confirmed in this study that the ROO effect in terms of origin criteria was influenced to a greater extent by China as the main exporting country under ACFTA. While for the importing country, the ROO effect was more influenced by the procedural provisions that were to be fulfilled by the importer when they claimed preferential tariff.

I also investigated the effect of firm size on utilization. By using importer's turnover for one year, I found that all firm sizes (micro, small, medium, and large) had positive and significant impact on utilization. However, it was interesting to note that large firms did not have the highest utilization rate compared to other firm sizes. I also found that large firm's coefficient was lower than the medium firm. Based on my interviews, I reasoned this with the argument that large firms enjoyed facilities, such as deferred or exemption of import duty within the bonded zones for the imported goods that are to be re-exported. This reasoning was also supported by Melitz (2003), who claimed that large firms associated with higher productivity were entering the export market.

However, this reason could be further worked upon as possible future research, as it requires longer time period data about trade facilities, other than FTA, that are used by importers. Regarding the firm size and their utilization of trading facilities, policymakers should note that Micro, Small, Medium Enterprises

(MSMEs) are more vulnerable and have limited resources compared to large firms; thus, they require policy-maker's assistance for a friendly business climate.

This study also examined the effect of Upgrading Protocol on utilization and found that it had a positive and significant impact on ACFTA utilization. This result suggested that the ROO simplification, particularly in the procedural provisions, contributed to increasing of utilization; based on my interviews, the simplification in procedural provisions reduced the chance of already submitted COOs being rejected or being retroactively checked by customs officers. This finding suggested that to further optimize FTA utilization it was important to reduce FTA compliance cost and simplify the ROO, particularly in terms of procedural provisions from the import side.

Indonesia's role in ACFTA is geared towards meeting its political and economic goals. Through optimal utilization of ACFTA, Indonesia, on the one hand, maintains good relations with member countries, while also promoting its economic growth. This utilization will further drive an increase in market access, increased competition, and investment that would eventually deliver sustainable development goals.

## 6.2 Implication and Recommendation

### 6.2.1 Implication

This study may provide new empirical evidence about the low utilization of ACFTA through quantitative and qualitative enquiry. The existing studies have used either quantitative or qualitative methods to investigate the determinants of FTA utilization. The use of qualitative methods in this paper provides insight that cannot be captured through quantitative methods alone; thus, it is hoped that the results of this study might be able to serve as an input and reference to the policymakers in Indonesia on the existing and upcoming FTAs, with the expectation that Indonesia can optimize the benefits of FTAs.

### 6.2.2 Recommendation for Future Policy

The analysis results showed that the scale effect is a determinant that has more influence on utilization compared to other determinants. Although additional data and deeper research are much needed, I argued that large firms were better placed to take advantage of the scale effect, and that government's assistance is needed for MSMEs so that they are not hindered by administrative costs of ROO compliance. Moreover, based on KII's confirmation, importers are reluctant to use FTA scheme as they would bear the risk of any inaccuracy in the COO.

Based on this reading, I propose the following recommendations for policymakers that can reduce administrative costs for importers, so that the FTA utilization in Indonesia can be optimized:

1. Encourage importers to apply for an advance ruling<sup>4</sup> on origin. This is a new trade facility that Indonesia has begun to implement this year. With the advance ruling on ROO, the business sectors will get more certainty and predictability.
2. Raise awareness among importers regarding the FTA implementation, by holding workshops, massive information dissemination, and providing FTA consultations.
3. Establish a unit that is dedicated to dealing with FTA issues.

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<sup>4</sup> Advance ruling on origin: A written decision on the origin of the goods based on the ROO of the FTA scheme, issued by Customs to the applicant prior to importation.

4. In future, adopt a post-importation claim<sup>5</sup> system which provides flexibility for importers in fulfilling the ROO.

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<sup>5</sup> Post-importation claim in the preferential tariff allows the importers to claim the preferential tariff within a certain period (generally one year) from the date of importation thus the importers will have time to prepare the ROO supporting document.

# Appendices

## Appendix 1: Description and Measurement of Variables

Variables	Description	Measurement
utilization	Utilization based on importation under ACFTA scheme out of total eligible imports value	Fraction number
ln_sum_elig	Total eligible import value in logarithm form	Number
mean_margin	Average of difference between MFN and ACFTA tariff	Number
year_upgrading	Upgrading protocol	Dummy: after upgrading =1; otherwise = 0
roo_dummy4plus	ROO which has index 4 and more than 4	Dummy: index of $\geq 4 = 1$ ; otherwise = 0
roo_dummy6plus	ROO which has index 6 and more than 6	Dummy: index of $\geq 6 = 1$ ; otherwise = 0
roo_indexdummy1	ROO index of 3	Dummy: index of 3 = 1; otherwise = 0
roo_indexdummy2	ROO index of 3.25	Dummy: index of 3.25 = 1; otherwise = 0
roo_indexdummy3	ROO index of 3.5	Dummy: index of 3.5 = 1; otherwise = 0
roo_indexdummy4	ROO index of 3.75	Dummy: index of 3.75 = 1; otherwise = 0
roo_indexdummy5	ROO index of 4	Dummy: index of 4 = 1; otherwise = 0
roo_indexdummy6	ROO index of 4.5	Dummy: index of 4.5 = 1; otherwise = 0
roo_indexdummy7	ROO index of 6	Dummy: index of 6 = 1; otherwise = 0
roo_indexdummy8	ROO index of 6.5	Dummy: index of 6.5 = 1; otherwise = 0
roo_indexdummy9	ROO index of 7	Dummy: index of 7 = 1; otherwise = 0
size_allrev:	Firm size	
1	Micro	Dummy: micro = 1; otherwise = 0
2	Small	Dummy: small = 1; otherwise = 0
3	Medium	Dummy: medium = 1; otherwise = 0
4	Large	Dummy: large = 1; otherwise = 0

## Appendix 2: Mean, Standard Deviation, Minimum, Maximum

Variable	Mean	Std. dev.	Min	Max
utilization	0.53	0.38	0	1
ln_sum_elig	25.03	2.41	5	34
mean_margin	8.41	5.01	0.5	45
year_upgrading	0.54	0.5	0	1
roo_dummy4plus	0.8	0.4	0	1
roo_dummy6plus	0	0.07	0	1
roo_indexdummy1	0.05	0.22	0	1
roo_indexdummy2	0	0	0	1
roo_indexdummy3	0.14	0.35	0	1
roo_indexdummy4	0	0.06	0	1
roo_indexdummy5	0.78	0.42	0	1
roo_indexdummy6	0.02	0.14	0	1
roo_indexdummy7	0	0.05	0	1
roo_indexdummy8	0	0.02	0	1
roo_indexdummy9	0	0.04	0	1
size_allrev				
1	0.08	0.27	0	1
2	0.2	0.4	0	1
3	0.2	0.4	0	1
4	0.52	0.5	0	1

Data source: STATA output

### Appendix 3: Correlation Test

Variables	utilization	ln_sum_elig	mean_margin	year_upgrading	roo_dummy4plus	roo_dummy6plus	roo_indexdummy1	roo_indexdummy2	roo_indexdummy3	roo_indexdummy4	roo_indexdummy5	roo_indexdummy6	roo_indexdummy7	roo_indexdummy8	roo_indexdummy9
utilization	1														
ln_sum_elig	0.4106	1													
mean_margin	0.0998	0	1												
year_upgrading	0.0499	0.0219	0	1											
roo_dummy4plus	0.0602	-0.0099	-0.0001	0	1										
roo_dummy6plus	0.0037	0.0465	-0.0369	0.0541	0	1									
roo_indexdummy1	-0.0088	-0.0066	0.1774	0.2143	-0.4704	-0.0159	1								
roo_indexdummy2	-0.0046	-0.0059	-0.0023	0.0031	-0.0068	-0.0002	-0.0008	1							
roo_indexdummy3	-0.0653	0.0104	-0.1138	0.3736	-0.8201	-0.0277	-0.0956	-0.0014	1						
roo_indexdummy4	0.0128	0.0288	0.0078	0.0562	-0.1232	-0.0042	-0.0144	-0.0002	-0.0251	1					
roo_indexdummy5	0.0656	-0.0198	-0.0027	-0.47	0.9303	-0.1268	-0.4376	-0.0063	-0.7629	-0.1146	1				
roo_indexdummy6	-0.0255	0.0085	0.0257	0.0731	0.0701	-0.0096	-0.033	-0.0005	-0.0575	-0.0086	-0.263	1			
roo_indexdummy7	0.0098	0.0551	-0.0247	0.0428	0.0266	0.7882	-0.0125	-0.0002	-0.0218	-0.0033	-0.0999	-0.0075	1		
roo_indexdummy8	-0.026	-0.0028	-0.0129	0.0178	0.0097	0.2864	-0.0046	-0.0001	-0.0079	-0.0012	-0.0363	-0.0027	-0.001	1	
roo_indexdummy9	0.0063	0.007	-0.0251	0.0279	0.0183	0.5425	-0.0086	-0.0001	-0.015	-0.0023	-0.0688	-0.0052	-0.002	-0.0007	1

Data source: STATA output

#### Appendix 4: Beta Coefficient

Variable	Std. dev.	Coefficient	Beta Coefficient
utilization	0.38		
ln_sum_elig	2.41	0.018	0.11
mean_margin	5.01	0.005	0.06
year_upgrading	0.5	0.017	0.02
roo_indexdummy2	0	-2.36	-0.02
roo_indexdummy3	0.35	-0.003	0
roo_indexdummy4	0.06	0.054	0.01
roo_indexdummy5	0.42	0.04	0.04
roo_indexdummy6	0.14	0.025	0.01
roo_indexdummy7	0.05	0	0
roo_indexdummy8	0.02	-0.04	0
roo_indexdummy9	0.04	0.001	0
size_allrev			
2	0.4	0.014	0.01
3	0.4	0.018	0.02
4	0.5	0.015	0.02

Source: Author's own computation

#### Appendix 5: The Relative Contribution based on Mean

Variable	Mean	Coefficient	Mean x Coefficient
utilization	0.53		
ln_sum_elig	25.03	0.018	0.45
mean_margin	8.41	0.005	0.04
year_upgrading	0.54	0.017	0.01
roo_indexdummy2	0	-2.36	0
roo_indexdummy3	0.14	-0.003	0
roo_indexdummy4	0	0.054	0
roo_indexdummy5	0.78	0.04	0.03
roo_indexdummy6	0.02	0.025	0
roo_indexdummy7	0	0	0
roo_indexdummy8	0	-0.04	0
roo_indexdummy9	0	0.001	0
size_allrev			
2	0.2	0.014	0
3	0.2	0.018	0
4	0.52	0.015	0.01

Source: Author's own computation

**Appendix 6: Scale Effect, Margin Effect, and ROO effect on Utilization using OLS Model**

Variables	OLS (I) utilization	OLS (II) utilization	OLS (III) utilization
ln_sum_elig	0.014 *** (0.000)	0.015 *** (0.000)	0.015 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.014 *** (0.002)		
roo_dummy4plus		0.039 *** (0.000)	
roo_index== 3.2500			-0.092 ** (0.036)
roo_index== 3.5000			-0.005 *** (0.001)
roo_index== 3.7500			0.037 *** (0.001)
roo_index== 4.0000			0.037 *** (0.001)
roo_index== 4.5000			0.022 *** (0.001)
roo_index== 6.0000			0.002 (0.002)
roo_index== 6.5000			-0.015 *** (0.003)
roo_index== 7.0000			0.043 *** (0.002)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-0.357 *** (0.014)	-0.411 *** (0.014)	-0.398 *** (0.014)
Number of observations	3894817	3894817	3894817

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: STATA output

### Appendix 7: The Effect of Firm Size using OLS Model

Variables	OLS	OLS	OLS
	(I) utilization	(II) utilization	(III) utilization
ln_sum_elig	0.014 *** (0.000)	0.015 *** (0.000)	0.015 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.014 *** (0.002)		
roo_dummy4plus		0.039 *** (0.000)	
roo_index== 3.2500			-0.092 ** (0.036)
roo_index== 3.5000			-0.006 *** (0.001)
roo_index== 3.7500			0.037 *** (0.001)
roo_index== 4.0000			0.037 *** (0.001)
roo_index== 4.5000			0.022 *** (0.001)
roo_index== 6.0000			0.002 (0.002)
roo_index== 6.5000			-0.015 *** (0.003)
roo_index== 7.0000			0.042 *** (0.002)
size_allrev			
2	0.014 *** (0.000)	0.013 *** (0.000)	0.013 *** (0.000)
3	0.018 *** (0.000)	0.017 *** (0.000)	0.017 *** (0.000)
4	0.014 *** (0.000)	0.013 *** (0.000)	0.013 *** (0.000)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-0.368 *** (0.014)	-0.421 *** (0.014)	-0.408 *** (0.014)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Source: STATA output

## Appendix 8: The Effect of Upgrading Protocol using OLS Model

Variables	OLS (I) utilization	OLS (II) utilization	OLS (III) utilization
ln_sum_elig	0.014 *** (0.000)	0.015 *** (0.000)	0.015 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.014 *** (0.002)		
roo_dummy4plus		0.042 *** (0.000)	
year_upgrading	0.001 (0.000)	0.016 *** (0.000)	0.017 *** (0.000)
roo_index== 3.2500			-0.092 ** (0.036)
roo_index== 3.5000			-0.005 *** (0.001)
roo_index== 3.7500			0.038 *** (0.001)
roo_index== 4.0000			0.040 *** (0.001)
roo_index== 4.5000			0.023 *** (0.001)
roo_index== 6.0000			0.002 (0.002)
roo_index== 6.5000			-0.015 *** (0.003)
roo_index== 7.0000			0.043 *** (0.002)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-0.357 *** (0.014)	-0.414 *** (0.014)	-0.401 *** (0.014)
Number of observations	3,894,817	3,894,817	3,894,817

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: STATA output

### Appendix 9: The Effect of All Independent Variables using OLS Model

Variables	OLS (I) utilization	OLS (II) utilization	OLS (III) utilization
ln_sum_elig	0.014 *** (0.000)	0.015 *** (0.000)	0.015 *** (0.000)
mean_margin	0.004 *** (0.000)	0.005 *** (0.000)	0.005 *** (0.000)
roo_dummy6plus	-0.014 *** (0.002)		
roo_dummy4plus		0.041 *** (0.000)	
roo_index== 3.2500			-0.091 ** (0.036)
roo_index== 3.5000			-0.005 *** (0.001)
roo_index== 3.7500			0.037 *** (0.001)
roo_index== 4.0000			0.040 *** (0.001)
roo_index== 4.5000			0.023 *** (0.001)
roo_index== 6.0000			0.002 (0.002)
roo_index== 6.5000			-0.015 *** (0.003)
roo_index== 7.0000			0.043 *** (0.002)
size_allrev			
2	0.014 *** (0.000)	0.013 *** (0.000)	0.013 *** (0.000)
3	0.018 *** (0.000)	0.017 *** (0.000)	0.017 *** (0.000)
4	0.014 *** (0.000)	0.014 *** (0.000)	0.014 *** (0.000)
year_upgrading	0.002 *** (0.000)	0.017 *** (0.000)	0.018 *** (0.000)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-0.368 *** (0.014)	-0.425 *** (0.014)	-0.412 *** (0.014)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Source: STATA output

**Appendix 10: Scale Effect, Margin Effect, and ROO effect on Utilization using PPML Model (average marginal effects)**

Variables	PPML (I) utilization	PPML (III) utilization	PPML (III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.004 *** (0.000)	0.004 *** (0.000)
roo_dummy6plus	-0.038 *** (0.003)		
roo_dummy4plus		0.039 *** (0.001)	
roo_index== 3.2500			-7.993 *** (0.307)
roo_index== 3.5000			-0.007 *** (0.001)
roo_index== 3.7500			0.028 *** (0.002)
roo_index== 4.0000			0.036 *** (0.001)
roo_index== 4.5000			0.021 *** (0.002)
roo_index== 6.0000			-0.019 *** (0.003)
roo_index== 6.5000			-0.014 (0.072)
roo_index== 7.0000			0.005 ** (0.004)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-5.632 *** (0.999)	-5.725 *** (0.999)	-5.716 *** (0.999)
Number of observations	3,894,817	3,894,817	3,894,817

\*\*\* p<.01, \*\* p<.05, \* p<.1

Source: STATA output

**Appendix 11: The Effect of Firm Size using PPML Model  
(average marginal effects)**

Variables	PPML (I) utilization	PPML (II) utilization	PPML (III) utilization
In_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.004 *** (0.000)	0.004 *** (0.000)
roo_dummy6plus	-0.039 *** (0.003)		
roo_dummy4plus		0.038 *** (0.001)	
roo_index== 3.2500			-7.989 *** (0.307)
roo_index== 3.5000			-0.007 *** (0.001)
roo_index== 3.7500			0.028 *** (0.002)
roo_index== 4.0000			0.035 *** (0.001)
roo_index== 4.5000			0.021 *** (0.002)
roo_index== 6.0000			-0.020 *** (0.003)
roo_index== 6.5000			-0.015 (0.072)
roo_index== 7.0000			0.005 ** (0.004)
size_allrev			
2	0.015 *** (0.001)	0.014 *** (0.001)	0.014 *** (0.001)
3	0.019 *** (0.001)	0.018 *** (0.001)	0.018 *** (0.001)
4	0.016 *** (0.001)	0.014 *** (0.001)	0.014 *** (0.001)
Year Fixed Effect	Yes		
Exporting Country Fixed Effect	Yes		
Industry (2-digit HS) Fixed Effect	Yes		
Intercept	-5.658 *** (0.999)	-5.748 *** (0.999)	-5.739 *** (0.999)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Source: STATA output

**Appendix 12: The Effect of Upgrading Protocol using PPML Model  
(average marginal effects)**

Variables	PPML (I) utilization	PPML (II) utilization	PPML (III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.004 *** (0.000)	0.004 *** (0.000)
roo_dummy6plus	-0.038 *** (0.003)		
roo_dummy4plus		0.041 *** (0.001)	
year_upgrading	0.000 (0.001)	0.013 *** (0.001)	0.014 *** (0.001)
roo_index== 3.2500			-7.993 *** (0.307)
roo_index== 3.5000			-0.007 *** (0.001)
roo_index== 3.7500			0.028 *** (0.002)
roo_index== 4.0000			0.038 *** (0.001)
roo_index== 4.5000			0.023 *** (0.002)
roo_index== 6.0000			-0.020 *** (0.003)
roo_index== 6.5000			-0.014 (0.072)
roo_index== 7.0000			0.005 ** (0.004)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-5.632 *** (0.999)	-5.730 *** (0.999)	-5.723 *** (0.999)
Number of observations	3,894,817	3,894,817	3,894,817

Source: STATA output

**Appendix 13: The Effect of All Independent Variables using PPML Model  
(average marginal effects)**

Variables	PPML (I) utilization	PPML (II) utilization	PPML (III) utilization
ln_sum_elig	0.018 *** (0.000)	0.018 *** (0.000)	0.018 *** (0.000)
mean_margin	0.004 *** (0.000)	0.004 *** (0.000)	0.004 *** (0.000)
roo_dummy6plus	-0.039 *** (0.003)		
roo_dummy4plus		0.041 *** (0.001)	
roo_index== 3.2500			-7.989 *** (0.307)
roo_index== 3.5000			-0.007 *** (0.001)
roo_index== 3.7500			0.028 *** (0.002)
roo_index== 4.0000			0.038 *** (0.001)
roo_index== 4.5000			0.023 *** (0.002)
roo_index== 6.0000			-0.021 *** (0.003)
roo_index== 6.5000			-0.015 (0.072)
roo_index== 7.0000			0.004 ** (0.004)
year_upgrading	0.001 ** (0.001)	0.014 *** (0.001)	0.015 *** (0.001)
size_allrev			
2	0.015 *** (0.001)	0.014 *** (0.001)	0.014 *** (0.001)
3	0.019 *** (0.001)	0.019 *** (0.001)	0.019 *** (0.001)
4	0.016 *** (0.001)	0.015 *** (0.001)	0.015 *** (0.001)
Year Fixed Effect	Yes	Yes	Yes
Exporting Country Fixed Effect	Yes	Yes	Yes
Industry (2-digit HS) Fixed Effect	Yes	Yes	Yes
Intercept	-5.658 *** (0.999)	-5.755 *** (0.999)	-5.747 (0.999)
Number of observations	3,894,817	3,894,817	3,894,817
Robust standard error in parentheses			

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: STATA output

## Appendix 14: Questions for Key Informant Interview (KII)

### A. Question for the Ministry of Trade Officer

1. In your opinion, for Indonesia imports, how is the utilization rate of FTA in general and ACFTA in particular?
2. Why?
3. In your opinion, what are the factors that influence the ACFTA utilization?
4. How is the effect of the ROO restrictiveness on the ACFTA utilization?
5. In your opinion, how much does the flexibility of ROO in the ACFTA Upgrading Protocol affect the ACFTA utilization?
6. How is the effect of tariff margin (the difference between MFN and ACFTA preferential tariff) on the ACFTA utilization?
7. How is the effect of import value on the ACFTA utilization?
8. In your opinion, what are the other factors that affect the ACFTA utilization?
9. Do you think the size of importing firms matter for effective utilization of the FTAs?
10. In your opinion, how do you rank the factors that affects the ACFTA utilization?
11. What are the efforts of the Ministry of Trade in increasing the FTA (ACFTA) utilization in Indonesia as well as considering the factors that mediate the utilization rate that you mentioned?
12. Most argue that the background of the establishment of ACFTA is more for political reasons, not merely economic reason. Is this true? In this case, is there a target that Indonesia wants to achieve in the ACFTA?
13. What are the challenges for the negotiators in fighting for Indonesia's interests in the ACFTA agreement?

### B. Question for the Ministry of Finance Officers, Indonesia Customs and Excise

1. In your opinion, for Indonesia imports, how is the utilization rate of FTA in general and ACFTA in particular?
2. Why?
3. In your opinion, what are the factors that influence the ACFTA utilization?
4. How is the effect of the ROO restrictiveness on the ACFTA utilization?
5. In your opinion, how much does the flexibility of ROO in the ACFTA Upgrading Protocol affect the ACFTA utilization?
6. How is the effect of tariff margin (the difference between MFN and ACFTA preferential tariff) on the ACFTA utilization?
7. How is the effect of import value on the ACFTA utilization?
8. In your opinion, what are the other factors that affect the ACFTA utilization?
9. Do you think the size of importing firms matter for effective utilization of the FTAs?
10. Which category of importers that often use ACFTA (small, medium, or large importers)?
11. In your opinion, how do you rank the factors that affects the ACFTA utilization?
12. What are the challenges faced by Customs and Excise officers in granting ACFTA preferential tariffs?
13. What are the efforts of Customs and Excise in increasing the FTA (ACFTA) utilization in Indonesia?

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