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**Working Paper**

## Does Similarity in Philippine FTAs Matter in Trade?

PIDS Discussion Paper Series, No. 2022-52

**Provided in Cooperation with:**

Philippine Institute for Development Studies (PIDS), Philippines

*Suggested Citation:* Quimba, Francis Mark A.; Barral, Mark Anthony A. (2022) : Does Similarity in Philippine FTAs Matter in Trade?, PIDS Discussion Paper Series, No. 2022-52, Philippine Institute for Development Studies (PIDS), Quezon City

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# Does Similarity in Philippine FTAs Matter in Trade?

*Francis Mark A. Quimba and Mark Anthony A. Barral*



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# Does Similarity in Philippine FTAs Matter in Trade?

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December 2022

## **Abstract**

To understand the design of JPEPA and EFTA, notably the similarities with other FTAs of Japan and EFTA-member countries, respectively, and how these similarities affect Philippine trade, the study proposes the use of text-of-trade-analysis, that is, text analysis employing text-as-data. The paper demonstrates the application of text analysis to complement the conventional methods of assessing the impacts of trade agreements. The results reveal that similarity across trade agreements, both at document and chapter or topic-specific provisions (such as trade in goods and rules of origin or strong references to sustainable development) may influence and encourage trade.

**Keywords:** EFTA-PH FTA, Cosine LSA, Export, Jaccard, Free Trade Agreements, JPEPA, Non-Tariff Measures, Rules of Origin, Sustainable Development, Text Analysis, Similarity, Trade in Goods

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# Does Similarity in Philippine FTAs Matter to Trade?

*Francis Mark A. Quimba and Mark Anthony Barral*

## 1. Introduction

### 1.1 Background

Policymakers, researchers, and investigators have long been interested in analyzing how the contents and design of trade agreements impact trade. This would include the provisions and priorities of each party to the agreement, the level of restrictiveness, or simply to compare or contrast. How trade agreements are related to or influence other agreements is also a topic of interest. Arguably, the texts of trade agreements are usually modeled from already existing treaties. For instance, examining the text of the 1994 North American Free Trade Agreement (NAFTA) revealed that significant elements are also included in several agreements signed by American and East Asian countries, and that large countries, such as the United States and European Union, tend to develop trade agreement networks by entering into highly similar agreements, making them the “rule-makers”. Smaller countries, on the other hand, become “rule-takers” (Seiermann 2018). This role may indicate the influence of a party to the actual direction or intensity of trade and access to market.

The proliferation of Preferential Trade Agreements (PTAs) has resulted in numerous documents which are usually very lengthy and are becoming more complex. The complex and lengthy PTA documents have burdened stakeholders who intend to examine the contents of PTAs to assess their impact, evolution, or influence, as the traditional way of analyzing PTAs require tedious hand-coding (e.g., marking 1 or 0 based on the absence or presence of an FTA or of an FTA component). Although hand-coding has several advantages, including being able to capture nuanced differences and meaningful variations that are difficult for laymen or computers to do, hand-coding is proven to be inefficient and limited in scale. Recognizing this limitation led to the development of semi- or fully automated ways of analyzing the contents of PTAs using trade-as-data, which is made possible with the advances in computer science to process textual data (Alschner et al. 2017a).

Text-as-data is favorable over hand-coding as it makes easier the analysis of lengthy documents in a relatively shorter time as machine-readable texts become available, making it more scalable and efficient. Its versatility makes it possible to be used across projects or disciplines as it can be extended or adjusted. Since text-as-data measures are not limited by any conceptual framework, it can complement other theoretical lenses (Alschner et al. 2017a).

In addition, information in texts complements those that can be taken from more structured traditional data. For instance, information from news articles, social media platforms, advertisements, speeches, or other sources can be used to predict the movement of prices, determine causal relationships, or assess the effectiveness or impact of policies. Text data, however, are high dimensional, in contrast to typical economic data, which makes it suitable for statistical methods or algorithms that are used to process high-dimensional information, such as machine learning (Gentzkow et al. 2019).

Taking these into account, this paper intends to contribute to empirical research works that utilize text as data with particular applications for the Philippines.

## 1.2 Objectives

### 1.2.1 General Objectives

The study aims to compare Philippine FTAs with the FTAs of its trade partners to determine the similarities of the trade agreements and how these similarities would influence Philippine trade.

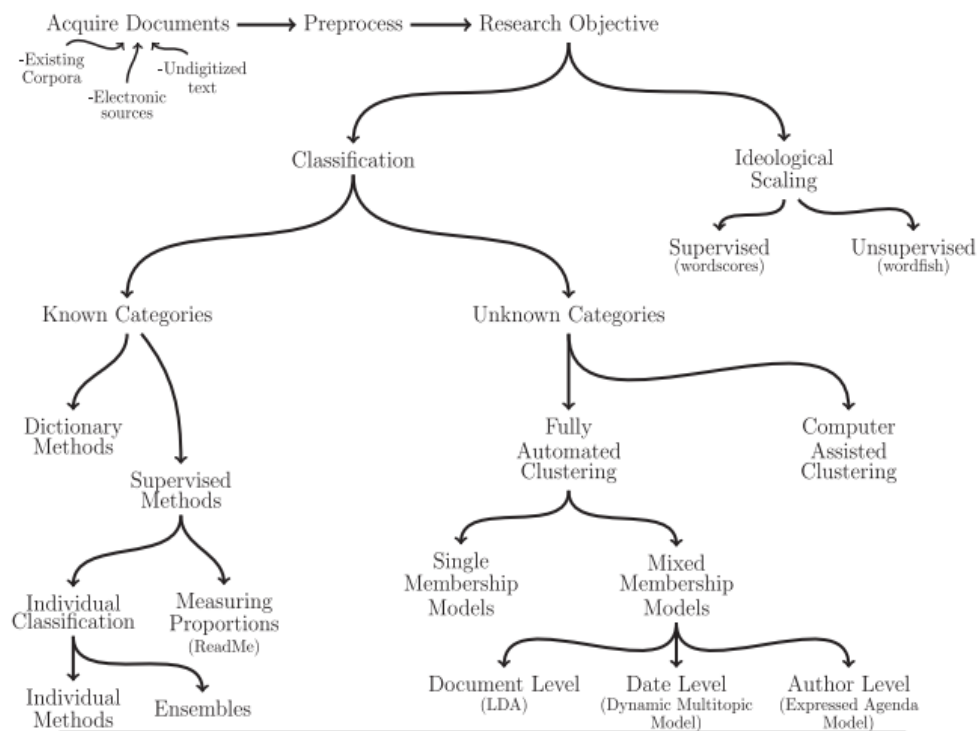
### 1.2.2 Specific Objectives

- i. To measure the similarity of PJEPA and EFTA-PH FTAs with other FTAs of Japan and EFTA-member economies.
- ii. To determine the applicability of similarity as a measure of regulatory distance.
- iii. To analyze how the level of similarities affect trade outcomes.

## 2. Content Analysis and Text-of-Trade-Analysis (ToTA)

The volume of texts that contain information about several topics across disciplines makes it difficult to make inferences as manual reading requires a great amount of time and funding. This led to the development of methods that can expedite the processing of large text collections. Grimmer and Stewart (2013) provides an overview of automated content analysis methods, from collection to application of statistical methods (Figure 1).

**Figure 1. Evolution of PTAs per type and increase in length**



Source: Taken from Grimmer and Stewart (2013, p. 2)

The two main objectives of doing automated content analysis are classification and scaling. *Classification* organizes texts into known or unknown categories. For categories that are known beforehand, the frequency of words can be used to determine the document's class in dictionary methods. Supervised methods improve dictionary methods by using hand coded documents into predetermined categories and then using that to classify the remaining documents (training). For unknown categories, categories of texts can be determined using Fully Automated Clustering (FAC) which classifies the documents into simultaneously estimated categories. The reliability of the categories, however, cannot be guaranteed but FAC can be improved by specifying problem-specific structures to assist the estimation procedure. Similarly, Computer Assisted Clustering (CAC) explores thousands of potential clusters.

In *scaling*, automated content analysis can determine the location of actors in policy space. *Word scores* make use of reference texts, while *word fish* considers the interaction of ideology and word usage (Grimmer and Stewart 2013).

Text-as-data analysis can be used to examine the design of PTAs. Dictionary methods, for instance, can be used to classify texts according to the tone or sentiments of the texts based on predetermined categories of positive or negative words. It can also be used to determine how binding the text of trade agreements. Supervised machine learning can be used to detect and code treaty features while unsupervised machine learning can be used to cluster treaties based on similarity (Alschner et al. 2017a).

To map the landscape of trade agreements, Aschner et al. (2017a) developed a text corpus from 447 PTAs in the WTO RTA repository that were signed between 1948 and 2015. The Transpacific Partnership Agreement (TPP) was also added to account for the recent trends in PTA-making. The text corpus was based on the main body of texts and excluded annexes and schedules. Preliminary characterization reveals six types of PTA, and classifies them according to the scope, content, and design. Of the PTAs in the list, 93 percent are in English, while the rest are in Spanish and French. Partial Scope Agreements, on average, are the shortest while Goods and Services FTAs are the longest. The preliminary results also revealed that all of the PTAs have a chapter on Services (Table 1).

**Table 1. PTA types, counts, length and share of texts with chapter structure**

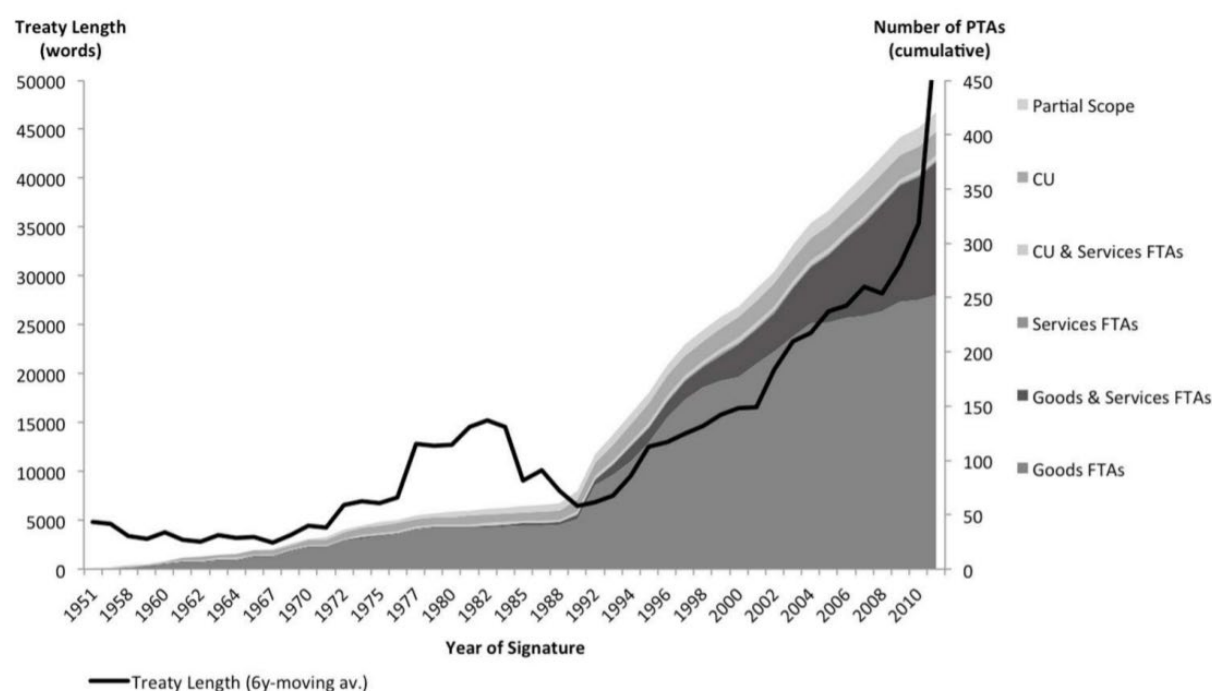
Type of PTA	Number of PTAs (en, sp, fr)	Mean PTA length (words)	% of PTAs with Chapters
Partial Scope Arrangements	18 (15, 3, 0)	2545	33%
Customs Unions	22 (19, 2, 1)	5672	83%
Customs Unions and Services FTAs	7 (7, 0, 0)	10095	71%
Goods FTAs	256 (255, 1, 0)	5063	59%
Services FTAs	2 (2, 0, 0)	1509	100%
Goods and Services FTAs	142 (116, 16, 0)	36360	96%

Source: Alschner, Seiermann and Skougarevskiy (2017a, p. 7)



The length of the treaties also reveal how the PTAs have evolved in the past 60 years. During the 1950s, treaties have an average of 5,000 words and this has increased to 50,000 words in 2010s, which can be attributed to the conclusion of Goods and Services FTAs since the early 2000s (Figure 2).

**Figure 2. Evolution of PTAs per type and increase in length**



Source: Alschner, Seiermann and Skougarevskiy (2017a, p. 8)

Using the texts of trade agreements (ToTA) as data can also help determine how a country dominates a treaty by comparing the texts to the previous treaties concluded by that country. The relative power, which measures the difference between the exporter and importer's influence on the treaty, can be introduced into a gravity model to measure the impact of such power on the flow of exports. Its impact will turn positive when a country dominates, that is when the agreement resembles its previous agreements, and can be expected to benefit from a more-than-proportional increase in exports. The rule-maker can realize an increase in exports higher than the increase in rule-taker's export, suggesting the importers' influence to restrict access to their markets is weaker. Further, it was also revealed that recycling of trade agreements<sup>1</sup> has real economic effects, suggesting the need for a thorough evaluation of the proposals and agreements (Seiermann 2018)

Moreover, text-as-data data can be used to investigate the impact of an agreement to the trade of member countries. Alschner et al. (2017b) investigated the impact of TPP on trade by comparing existing PTAs to the TPP using a text similarity indicator. This indicator was then incorporated into a gravity model to estimate the impact of PTA on trade flows between

<sup>1</sup> A party to a trade agreement has the tendency to impose conditions, provisions, or trade agreement design, similar to a trade agreement it earlier entered into with other economy, which means that trade agreements could be patterned from earlier trade agreements This also suggests common priorities of a dominant party across the PTA's it entered into.

members. Two scenarios were projected - TPP with and without the US, and the results were compared using PTA incidence or depth indicators. The results suggest that with the US joining the CPTPP, total trade between TPP partners is higher in absolute terms than without the US. Without the US, however, the percentage increase of trade among the rest of the members can be higher.

To be able to compare texts or trade agreements, similarity measures are employed, which is basically finding common elements that appear in two sets of texts. A Similarity measure can be used to analyze treaty-pair-level, exporter-importer-year-level, country-treaty, or exporter-importer-treaty level, among others, whichever is of the researcher's interest (Seiermann 2018). Tversky (1977) proposed a ratio model that provides a general form of similarity measures (in Seiermann 2018):

$$s_{trim}(A, B) = \frac{|A \cap B|}{|A \cap B| + \alpha(A \setminus B) + \beta(B \setminus A)} \quad (1)$$

where  $\alpha, \beta \geq 0$ . A and B represent text data sources, i.e., text of trade agreement documents. The Jaccard similarity  $[s_{trim}(A, B)]$  is 1 if two documents are identical and 0 if there are no common words in between two documents.

The use of sentiment analysis, and text analysis in general, in policy analysis is extensively explored. Text-as-data has been used to detect events and monitor conflicts or the possibility of such occurring. From key word matching to encode events of attacks to syntax parsing, lexical databasing, to classification of political texts using machine learning techniques have been well documented (Gilardi and Wuest 2018).

Although using text as data is considered an unconventional technique, it has already been used in many applications for years. For instance, it is used to develop a measurement system to classify political activities into topics that can be compared through time and across domains or systems (Baumgartner and Jones 2018, in Gilardi and Wuest 2018). Text analysis is also used to define and understand what the problems are, both domestic and international issues, such as global and domestic political issues, trade and market access, terrorism, among others, and, more importantly, how to address them (problem definition); understand how policies interact or how policies in an area affect the policies in another (policy diffusion); identify the frames used by interest groups (lobbying); and in gathering feedbacks to understand the effects of policies (policy effects) (Gilardi and Wuest 2018).

Text-as-data can also be used to analyze texts published on the internet and through social media platforms. In recent years, social media platforms have become an important tool for political communication, propaganda, and mobilization, which sometimes even surpass mainstream channels. Politicians and policy makers do not only appear online but have become increasingly interested in monitoring and responding to online perceptions and attitudes (Hatipoglu et al. 2019). With the help of computer coding techniques, policy positions of parties or entities can be drawn from political texts, by reducing a large and complex text from social media and other publications in to a smaller and simpler set of data and then processing them into variables that can be used to model this policy information (Laver and Garry 2000).

In international relations, understanding foreign policies can be crucial in deciding the position of a country on a certain issue. Information derived from different sources, including print or digital media, both textual or graphical, is one of most important instruments of national power

(diplomacy, information, military, and economic). Foreign policy pronouncements and official texts are the means for countries to present their image and transmit their position to influence the rest of the world; so, monitoring this information is crucial for national security and foreign policy (Fisher, Klein, and Codjo 2022).

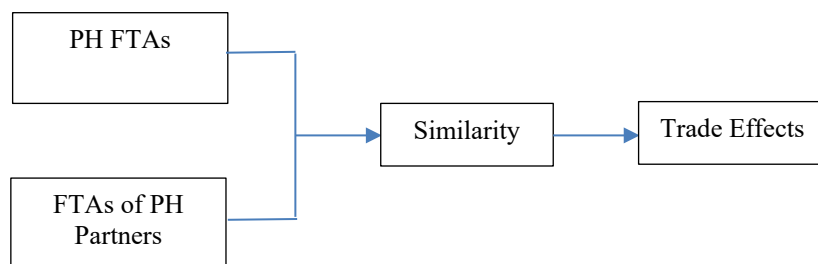
In terms of trade, text-of-trade-agreements can also be used to understand the relevance of trade as a tool in achieving Sustainable Development Goals. For instance, one can examine whether a trade agreement has provisions related to achieving the sustainable development goals, such as in areas of health (SDG 3.b, access to affordable essential medicines and vaccines), labor (SDG 8.5, full employment, and decent work with equal pay), and MSMEs (SDG 8.3, job creation and growing enterprises), and whether the provisions contain binding or non-binding commitments. Using text-of-trade-agreement analysis can also be used in comparing provisions and commitments across different trade agreements, which may help determine if, for instance, the creation of an agreement influences another (Baker 2018).

### 3. Methodology

#### 3.1 Measuring Text Similarity

To analyze the influence of text similarities of FTA between Philippines and its partners to Philippine trade, similarity scores will be measured. The task, therefore, is to compare Philippine's FTAs with Japan (PJEPA) and EFTA (EFTA-PH) with the rest of Japan's FTAs and the rest of EFTA-member countries' FTAs. The comparison of FTAs will be done at the document level and at chapter level. At the chapter level, however, only the chapters on Trade in Goods and Rules of Origin, in the case of PJEPA, will be compared to other FTAs of Japan. For EFTA-PH, however, since it has no dedicated chapter on Trade in Goods and ROO, chapters that make references to these topics, particularly the chapters on General Provisions, Trade in Agricultural Products, Trade in Non-Agricultural Products, and Technical Barriers to Trade, will be compared to the chapters of other EFTA FTAs.

**Figure 3. Comparing the trade agreements and measuring trade effects**



Source: Author's construct

How similar or different trade agreements can be determined using similarity index measures. For instance, the Jaccard coefficient  $s_{ij}$  can be used to capture the share of overlap between two sets of text data (Alschner et al. 2017b). It is given by:

$$s_{ij} = \frac{|A_i \cap A_j|}{|A_i \cup A_j|} \quad (2)$$

Another measure considered in this paper is the Cosine similarity with Latent Semantic Analysis (Cosine LSA). Cosine similarity “measures the cosine of the angle between two vectors projected in a multi-dimensional plane.” (Sitikhu et al. 2019, p. 2). It is represented by the formula:

$$\cos(\theta) = \frac{A \cdot B}{|A||B|} \quad (3)$$

In cosine similarity, the similarity is one if the angle is zero, which means that larger angle indicates weak similarity (Zahrotun 2016). Since in cosine similarity orientation matters over magnitude, it is independent of vector length, which can have different lengths, allows it be commonly used in high dimensional spaces (Sitikhu et al. 2019 and Zahrotun 2016). In addition, cosine similarity may indicate the semantic relationship between words, including both antonyms and synonyms. Words with negative or low cosine similarity can be unrelated or opposite words, while those that have positive or high cosine similarity can be synonyms. (Yih et al. 2012).

### 3.2 Estimating a Gravity Equation

The index will then be incorporated into the gravity model. The Anderson and van Wincoop (2003, in Cho et al. 2020) gravity model, expressed with the importer- or exporter-time and pair dimensions by Cho et al. (2020), is presented as

$$T_{ijt} = \exp(\beta'x_{it} + \gamma_{it} + \delta_{jt} + \pi_{jt}) + \epsilon_{ijt} \quad (3)$$

where  $T_{ijt}$  is the trade flow from exporter  $i$  to importer  $j$  at time  $t$ ;  $x_{it}$  is a vector of covariates;  $\gamma_{it}$ ,  $\delta_{jt}$ , and  $\pi_{jt}$  are the exporter-time, importer-time, and exporter-importer fixed effects, respectively, while  $\epsilon_{ijt}$  is the error term. The similarity index  $s_{ij}$  can be incorporated in (3) as one of the covariates, as follows:

$$T_{ijt} = \exp(\beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Pop_{it} + \beta_4 \ln Pop_{jt} + \beta_5 \ln Dist_{ijt} + \beta_6 \ln tariff_{it} + \beta_7 s_{ijt} + \beta_8 C_{ijt} + \gamma_{it} + \delta_{jt} + \pi_{jt}) + \epsilon_{ijt} \quad (4)$$

where GDP represents the exporter and importer's productive and consumption capacity,  $Pop$  indicates the population,  $Dist$  represents the geographical distance between two countries, tariff indicates the logarithmic tariff rates imposed on imports of the importer  $i$  from exporter  $j$ , and  $C_{ijt}$  captures country-pair characteristics of classical gravity variables and factor endowments representing trade costs, including language, border, colony, among others.

The estimation procedure to be used will be the Poisson Pseudo Maximum Likelihood (PPML). PPML addresses issues encountered in OLS, such as failing to consider zero trade. As there will be no transformation of dependent variable required and because PPML can also tolerate heteroscedasticity in the residuals, it is much preferred over log-linearized OLS generally suffers from inconsistent estimates. (Cho et al. 2020 and Dolabella 2020).

## 4. Composition of PH, JP, and EFTA FTAs

The Philippines is a signatory to two bilateral FTAs, the Philippines-Japan Economic Partnership Agreement (PJEPA) and the Philippines-European FTA (PH-EFTA) FTA<sup>2</sup>. Being a member of the Association of Southeast Asian Nations (ASEAN), it is also a party to the ASEAN FTA (AFTA) and ASEAN Plus FTAs, which are the ASEAN-China Free Trade Area (ACFTA), ASEAN-Korea Free Trade Area (AKFTA), ASEAN-Hong Kong, China Free Trade Agreement (AHKFTA), ASEAN-India Free Trade Area (AIFTA), ASEAN-Japan Comprehensive Economic Partnership (AJCEP), and ASEAN-Australia-New Zealand Free Trade Area (ANZFTA). The negotiations for the Philippines-South Korea FTA and the Regional Comprehensive Economic Partnership (RCEP) Agreement have been concluded, while negotiation for Philippines-EU FTA has been launched. Moreover, proposals are currently under development for an East Asia FTA (ASEAN +3), ASEAN-EU FTA, Comprehensive Economic Partnership for East Asia (CEPEA/ASEAN +6), ASEAN-Pakistan FTA, ASEAN-Eurasian Economic Union FTA, and Free Trade Area of the Asia Pacific (FTAAP). These are on top of the bilateral trade negotiations with some of the country's trade partners, including Australia, Chile, India, Mexico, Pakistan, Taipei, and the United States. In total, the Philippines has ten (10) agreements in effect (ARIC n.d.).

Meanwhile, Japan has 20 trade agreements in effect, with 12 either launched or still being proposed, while EFTA-member countries (ARIC n.d). EFTA, on the other hand, have 30 FTAs in place with 40 partners and six Joint Declarations on Cooperation (JDC) (EFTA 2021).<sup>3</sup>

Comparing the contents of PJEPA and PH-EFTA, PJEPA consists of 16 chapters, covering trade in goods, trade in services, investments, movement of natural persons (MNP), intellectual property (IP), government procurement (GP), competition, and improvement of business environment (IBE), and 8 annexes that tackle tariff reduction schedules, product specific rules, minimum data requirement for certificate of origin, electrical products, financial services, services commitments, reservations for existing and future measures, and movement of natural persons (DTI n.d.).<sup>4</sup> PH-EFTA, on the other hand, has 14 chapters and 18 annexes, covering trade remedies, trade in services, investment/establishment, protection of Intellectual property, government procurement, competition, trade and sustainable development, institutional provisions, and dispute settlement (EFTA n.d.) (Table 2).<sup>5</sup>

**Table 2. Chapters in PJEPA and PH-EFTA FTA**

PJEPA	PH-EFTA FTA
<i>Chapters</i>	
Chapter 1 General Provisions	Chapter 1 General Provisions
Chapter 2 Trade in Goods	Chapter 2 Trade in Non-Agricultural Products
Chapter 3 Rules of Origin	Chapter 3 Trade in Agricultural Products
Chapter 4 Customs Procedures	Chapter 4 Sanitary and Phytosanitary Measures
Chapter 5 Paperless Trading	Chapter 5 Technical Barriers to Trade
Chapter 6 Mutual Recognition	Chapter 6 Trade in Services

<sup>2</sup> EFTA is composed of Iceland, Liechtenstein, Norway, and Switzerland.

<sup>3</sup> [https://www.efta.int/sites/default/files/publications/Annual%20Reports/EFTA\\_Annual\\_Report\\_2021.pdf](https://www.efta.int/sites/default/files/publications/Annual%20Reports/EFTA_Annual_Report_2021.pdf) September 29, 2022.

<sup>4</sup> <https://www.dti.gov.ph/philippines-japan-economic-partnership-agreement-pjepa/> September 29, 2022.

<sup>5</sup> <https://www.efta.int/free-trade/Free-Trade-Agreement/Philippines> September 29, 2022.

Chapter 7 Trade in Services	Chapter 7 Investment
Chapter 8 Investment	Chapter 8 Intellectual Property
Chapter 9 Movement of Natural Persons	Chapter 9 Government Procurement
Chapter 10 Intellectual Property	Chapter 10 Competition
Chapter 11 Government Procurement	Chapter 11 Trade and Sustainable Development
Chapter 12 Competition	Chapter 12 Institutional Provisions
Chapter 13 Improvement of the Business Environment	Chapter 13 Dispute Settlement
Chapter 14 Cooperation	Chapter 14 Final Provisions
Chapter 15 Dispute Avoidance and Settlement	
Chapter 16 Final Provisions	
<hr/>	
<i>Annex</i>	
Annex 1 Tariff Reduction Schedules	Annex 1 Rules of Origin
Annex 2 Product Specific Rules	Annex 2 Product Coverage of Non-Agricultural Products
Annex 3 Minimum Data Requirement for Certificate of Origin	Annex 3 Philippines Schedule of Tariff Commitments on Non-Agricultural Products
Annex 4 Sectoral Annex on Electrical Products	Annex 4 Export Duties
Annex 5 Financial Services	Annex 5 Trade in Fish and Other Marine Products
Annex 6 Schedule of Services Commitments	Annex 6 Trade Facilitation
Annex 7 Reservations for Existing and Future Measures	Annex 7 Mandate Sub-Committee
Annex 8 Specific Commitments for the Movement of Natural Persons	Annex 8 Tariff Concessions Agriculture Philippines – Iceland
	Annex 9 Tariff Concessions Agriculture Philippines – Norway
	Annex 10 Tariff Concessions Agriculture Philippines – Switzerland
	Annex 11 Schedules of Specific Commitments
	Annex 12 List of MFN Exemptions
	Annex 13 Financial Services
	Annex 14 Telecommunications Services
	Annex 15 Movement of Natural Persons Supplying Services
	Annex 16 Maritime Transport and Related Services
	Annex 17 Energy Related Services
	Annex 18 Intellectual Property Rights
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<i>Total Number of Pages</i>	
120	59
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Note: PJEP – Philippines-Japan Economic Partnership Agreement, PH-EFTA FTA – Philippines-European Free Trade Association Free Trade Agreement

Source: Compiled based on actual texts of the FTAs

PJEPA and PH-EFTA have different structures and contents. While the main text of PJEPA contains most of the topics, discussions about specific topics are discussed in the annexes of PH-EFTA document.

Most of the FTAs of Japan have topics on market access of goods, NTMs and quantitative restrictions, trade facilitation, export measures, ROO, services, investment, government procurement, dispute settlement, labor standards, and institutional mechanism. While some have dedicated topics on environmental policy and trade remedies, very few include competition, intellectual property, e-commerce, and technical cooperation (Table 3). (See Annex 1 for more comprehensive details of topics of Japan FTAs).

**Table 3. Topic in Japan FTAs<sup>6</sup>**

	Philippines	Australia	Brunei Darussalam	Chile	India	Indonesia	Malaysia
<i>Date Signed</i>	2006	2014	2007	2007	2011	2007	2005
<i>Entered into Force</i>	2008	2015	2008	2007	2011	2008	2006
General Provision	✓	✓	✓	✓	✓	✓	✓
Market access of goods	✓	✓	✓	✓	✓	✓	✓
Non-Tariff Measures / Quantitative Restrictions	✓	✓	✓	✓		✓	✓
Trade facilitation	✓	✓	✓	✓	✓	✓	✓
Export measures	✓	✓	✓	✓		✓	✓
Rules of origin	✓	✓	✓	✓		✓	✓
Trade remedies	✓	✓		✓	✓	✓	
Services	✓	✓	✓	✓	✓	✓	✓
Investment	✓	✓	✓	✓	✓	✓	✓
Government procurement	✓	✓	✓	✓	✓		
Competition policy	✓	✓		✓			
Intellectual property	✓	✓	✓		✓		
E-commerce		✓					
Dispute settlement	✓	✓	✓	✓	✓	✓	✓
Labor standards			✓	✓	✓	✓	✓
Environmental policy			✓	✓	✓	✓	✓
Technical cooperation	✓	✓					
Institutional Mechanism	✓		✓		✓	✓	✓
Other measures			✓				

*continued...*

<sup>6</sup> Based on chapter name or title. For FTAs that do not have chapter (or chapters), the list is based on the articles (or article names). While the list show that some FTAs do not have dedicated chapters on some topics, this does not imply that these FTAs do not include in the agreement the discussion of such topics. Some topics are also discussed in the annexes of the agreements.

continuation...

	Mexico	Mongolia	Peru	Singapore	Switzerland	Thailand	Viet Nam
<i>Date Signed</i>	2004	2015	2011	2002	2009	2007	2008
<i>Entered into Force</i>	2005	2016	2012	2002	2009	2007	2009
General Provision	✓	✓	✓	✓	✓	✓	✓
Market access of goods	✓	✓	✓	✓	✓	✓	✓
Non-Tariff Measures / Quantitative Restrictions			✓	✓		✓	✓
Trade facilitation	✓	✓	✓		✓	✓	✓
Export measures	✓	✓	✓	✓	✓		✓
Rules of origin		✓	✓	✓	✓	✓	✓
Trade remedies		✓					
Services	✓	✓	✓	✓	✓	✓	✓
Investment	✓	✓		✓	✓	✓	
Government procurement	✓			✓		✓	✓
Competition policy	✓			✓		✓	
Intellectual property							
E-commerce							
Dispute settlement	✓	✓	✓	✓	✓	✓	✓
Labor standards	✓		✓		✓	✓	
Environmental policy	✓				✓	✓	
Technical cooperation			✓				
Institutional Mechanism	✓	✓	✓	✓	✓	✓	

Source: Author's compilation

It can also be noted that, based on this list, Philippines and Australia have the greatest number of topics, while Viet Nam has the least.

When it comes to ASEAN Plus FTAs, ASEAN-Japan FTA is quite similar to ASEAN-Australia, as they cover similar topics. ASEAN-China FTA cover more topics among ASEAN Plus FTAs. It is also only in ASEAN-China FTA that government procurement, competition policy, intellectual property, and technical cooperation are tackled (Table 4).

**Table 4. Topics in ASEAN-Japan FTA and other ASEAN FTAs**

	ASEAN-Japan	ASEAN-Australia	ASEAN-India	ASEAN-China	ASEAN-Korea
<i>Date Signed</i>	2008	2009	2009	2004	2006
<i>Entered into Force</i>	2008	2010	2010	2005	2010
General Provision	✓	✓	✓	✓	✓
Market access of goods	✓	✓	✓	✓	✓



Non-Tariff Measures / Quantitative Restrictions	✓	✓	✓	✓	✓
Trade facilitation	✓	✓	✓	✓	✓
Export measures					
Rules of origin	✓	✓	✓	✓	✓
Trade remedies				✓	
Services	✓	✓		✓	
Investment	✓	✓		✓	
Government procurement				✓	
Competition policy					
Intellectual property				✓	
E-commerce				✓	✓
Dispute settlement	✓	✓	✓	✓	✓
Labor standards				✓	
Environmental policy				✓	
Technical cooperation				✓	
Institutional Mechanism	✓	✓	✓	✓	✓

Note: ASEAN – Association of Southeast Asian Nations

Source: Author's compilation

For EFTA FTAs, the most prominent topics are trade in goods, services and trade in services, intellectual property, government procurement, and investment, followed by institutional and procedural provisions, competition, and dispute settlement. SPS and TBT, on the other hand, are less likely to be given dedicated discussions among the EFTA FTAs (see Annex 2).

## 5. Trade and Sustainable Development

In the 2030 Agenda, its accompanying SDGs, as well as in the Addis Ababa Agenda, “trade is recognized as an engine for inclusive economic growth and poverty reduction that contributes to the promotion of sustainable development” (WTO 2018, p. 6). International trade is considered to improve financial access to both private and public sectors, which can help improve the level income of developing countries by improving their income-generating capacity. For instance, an increase in the demand for minerals, ores, and fuels contributed to the income of resource-exporting developing countries, including least developed countries (LDCs). The rapid growth realized in developing countries led to the early achievement of MDG 1, which aimed at halving the proportion of people living at less than one dollar a day, between 1990 and 2015. In 1990, the proportion of people living in extreme poverty was 35 percent but in 2013 this was reduced to only about 11 percent (WTO 2018).

Trade is directly related to SDG 17, which is “Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development”. It is, however, also related to other goals, including 1, 2, 3, 5, 8, 9, 10, and 14, which all encompass the economic, social, and environmental dimensions of trade (Annex 6). Under the 2030 Agenda, trade is expected to contribute to the achievement of these goals by improving private and public financing, capacity-building, and the provision and transfer of environmentally sound technologies (UN 2016).

Table 5 presents some means of achieving the sustainable development through trade by promoting multilateral trading, encouraging the participation and capacitating least developed countries, promotion of free market access, addressing the distortions in agricultural markets, improving the flow of essential goods such as medicines and vaccines, increasing aid, providing special and differential treatment for developing countries and LDCs, eliminating unnecessary and inappropriate subsidies, and capacitate communities to engage in more sustainable livelihood to prevent illegal poaching and trafficking of protected species.

**Table 5. Sample trade-related means of implementation in the SDGs and the AAAA<sup>7</sup>**

<b>Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development</b>	
17.10 Addis Ababa Action Agenda  (AAAA), para. 79	<b>Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization (WTO) including through the conclusion of negotiations within its Doha Development Agenda</b> We will continue to promote a universal, rules-based, open, transparent, predictable, inclusive, non-discriminatory and equitable multilateral trading system under the WTO, as well as meaningful trade liberalization.
17.11  AAAA, para. 82	<b>Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries (LDCs)' share of global exports by 2020</b> We will endeavour to significantly increase world trade in a manner consistent with the sustainable development goals, including exports from developing countries, in particular from LDCs with a view towards doubling their share of global exports by 2020 as stated in the Istanbul Programme of Action.
17.12  AAAA, para. 85	<b>Realise timely implementation of duty-free and quota-free (DFQF) market access on a lasting basis for all LDCs consistent with WTO decisions, including by ensuring that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access</b> We call on developed country WTO members and developing country WTO members declaring themselves in a position to do so to realize timely implementation of DFQF market access on a lasting basis for all products originating from all LDCs consistent with WTO decisions. We call on them to also take steps to facilitate market access for products of LDCs, including by developing simple and transparent rules of origin applicable to imports from LDCs, in accordance with the guidelines adopted by WTO members at the Bali ministerial conference in 2013.
<b>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>	
2.b*  AAAA, para. 83	<b>Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round</b> In accordance with one element of the mandate of the Doha Development Agenda, we call on WTO members to correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and disciplines on all export measures with equivalent effect.

<sup>7</sup> Addis Ababa Action Agenda

<b>Goal 3. Ensure healthy lives and promote well-being for all at all ages</b>	
<b>3.b*</b>  AAAA, para. 86	<b>(...) provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health and, in particular, provides access to medicines for all</b>  We reaffirm the right of WTO members to take advantage of the flexibilities in the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and reaffirm that the TRIPS Agreement does not and should not prevent members from taking measures to protect public health.
<b>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b>	
<b>8.a*</b>  AAAA, para. 90	<b>Increase Aid For Trade support for developing countries, particularly LDCs, including through the Enhanced Integrated Framework for LDCs</b>  We will strive to allocate an increasing proportion of Aid for Trade going to LDCs, provided according to development cooperation effectiveness principles.
<b>Goal 10. Reduce inequality within and among countries</b>	
<b>10.a*</b>  AAAA, para.84	<b>Implement the principle of special and differential treatment (SDT) for developing countries, in particular LDCs, in accordance with WTO agreements</b>  Members of WTO will continue to implement the provision of special and differential treatment for developing countries, in particular LDCs, in accordance with WTO agreements
<b>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development</b>	
<b>14.6</b>  AAAA, para.83	<b>By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation</b>  We call on WTO members to commit to strengthen disciplines on subsidies in the fisheries sector, including through the prohibition of certain forms of subsidies that contribute to overcapacity and overfishing in accordance with the mandate of the Doha Development Agenda and the Hong Kong Ministerial Declaration.
<b>Goal 15. Protect, restore and promote the sustainable use of terrestrial ecosystems [...] and halt biodiversity loss</b>	
<b>15.c*</b>  AAAA, para.92	<b>Enhance global support for efforts to combat the poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities</b>  We resolve to enhance global support for efforts to combat poaching of and trafficking in protected species, trafficking in hazardous waste, and trafficking in minerals, including by strengthening both national regulation and international cooperation and increasing the capacity of local communities to pursue sustainable livelihood opportunities.

\* In the SDGs other than Goal 17, goal-specific means of implementation are listed along with the targets but are distinguished from the targets by being ordered alphabetically.

Source: Lifted in full from UN 2016 (p.3)

Over the years, more trade agreements are increasingly including explicit elements of sustainable development in the main texts of the trade agreements or their side agreements, other than just merely referencing them. This is done by incorporating, for instance, environmental and labor provisions, including labor mechanisms, with reference to ILO declaration, the Montreal Protocol, among others. In addition, various procedural guarantees, enforcement, and dispute settlement mechanisms, among others, are also included (UN 2018). Environmental provisions in FTAs were pioneered by the US as can be observed in the US-Chile FTA (2003) and US-Singapore FTA (2003). Other countries followed, such as Japan, which even exceeded beyond commitments by including environmental cooperation, and Australia. Chile and Colombia also included environmental chapter in their FTAs (2006) (Velut et al. 2022). Eight out of 26 EFTA FTAs have dedicated chapters or sections on trade and sustainable development (Annex 2).

The inclusion of sustainability components in trade agreements varies on the interest, the issues they intend to address, as well as the needs and commitments of the contracting parties. Consistent patterns of social standards, human rights, and environmental sustainability can be found across some agreements (UN 2018). For instance, Table 3 earlier shows how environmental standards are incorporated in Japan FTAs with Brunei Darussalam, Chile, India, among others, while not in its FTAs with Philippines, Australia, Mongolia, among others.

Sustainable development provisions in trade agreements, however, are criticized to be insufficient and unenforceable due to the lack of dispute settlement mechanisms to resolve conflicts that arise in the implementation (or lack thereof) of the provisions or the existence of weak and non-binding dispute settlement mechanisms. Another issue is the lack of an effective way of monitoring the contribution of trade agreements to sustainable development (UN 2018).

The lack of enforcement mechanisms to implement sustainable elements, such as those that involved human rights, environment, and labor, hold these provisions ineffective. This requires provisions to be expressed in a legally binding manner to be more effective and to ensure that parties to the trade agreements have political accountability to implement the commitments stipulated in the agreements (UN 2018). To illustrate, Table 6 presents sample wording in US FTAs pre- and post-2007, which may define different levels of enforceability:

**Table 6. Sample wording that shows different degree of bindingness**

Wording pre-2007	Wording post-2007
“shall strive to ensure [high labour standards] in its domestic law”	“shall adopt and maintain in its statutes and regulations, and practices thereunder”

Source: UN (2018)

“The important difference is that rather than striving to have high standards in the law, the Parties are required to do so” (UN 2018, p. 34).

In Asia-Pacific, most of the agreements contain sustainable development provisions that are considered only best-endeavor, or non-binding commitments, as they are phrased using the words “endeavor, strive, maintain, or combat”, among others. For instance, Article 102 of the Japan-Philippines FTA (2006) states “each Party should not waive or otherwise derogate from such environmental measures as an encouragement for establishment, acquisition or expansion

in its Area of investments by investors of the other Party”. The use of “should” is a weaker statement as compared to “shall” (UN 2018).

In addition, the depth of coverage of sustainable development in trade agreements depends on the proponents’ ability to demand market access by developing countries, including LDCs. The provisions and elements in trade agreements should ensure that partner countries also benefit from the opportunities and are not only burdened by the risks associated with the implementation of the sustainable development obligations, as incorporating sustainable development standards could be costly, especially to developing and least developed countries, who may be prematurely adopting high and “unsustainable” standards, which may in turn only make them less competitive (UN 2018).

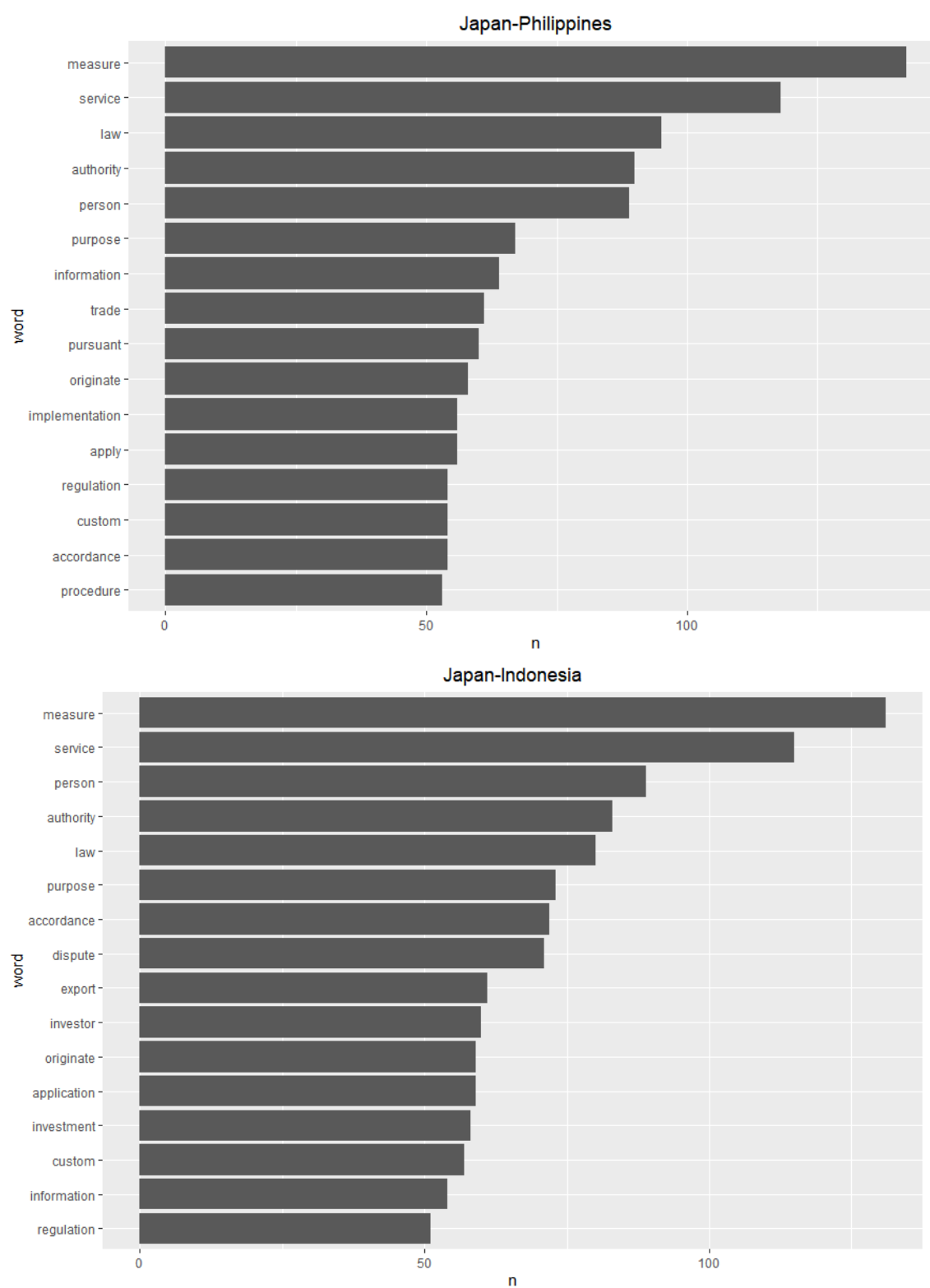
## **6. Results and Discussion**

PJEPA is compared to other FTAs of Japan, both at document and chapter level (focusing on trade in goods and rules of origin), and in terms of referencing to sustainable development. Similar comparisons are made with EFTA-PH FTA as against other EFTA FTAs. In measuring text similarity, the Jaccard similarity and Cosine Similarity with Latent Semantic Analysis (Cosine LSA) are used. Text similarity provides information on how similar trade agreements are in terms of the provisions contained in the actual text agreements, the topics discussed, and the priorities of the parties of the trade agreements, basically in terms of the words or language used.

Intuitively, trade agreements can be compared in terms of word frequency. For instance, Figure 4 shows the most frequently used words in the Japan-Philippines (PJEPA) and Japan-Indonesia trade agreements. It shows the words “measure”, “service”, “authority”, and “law”, among others, are common and frequently used in both agreements.

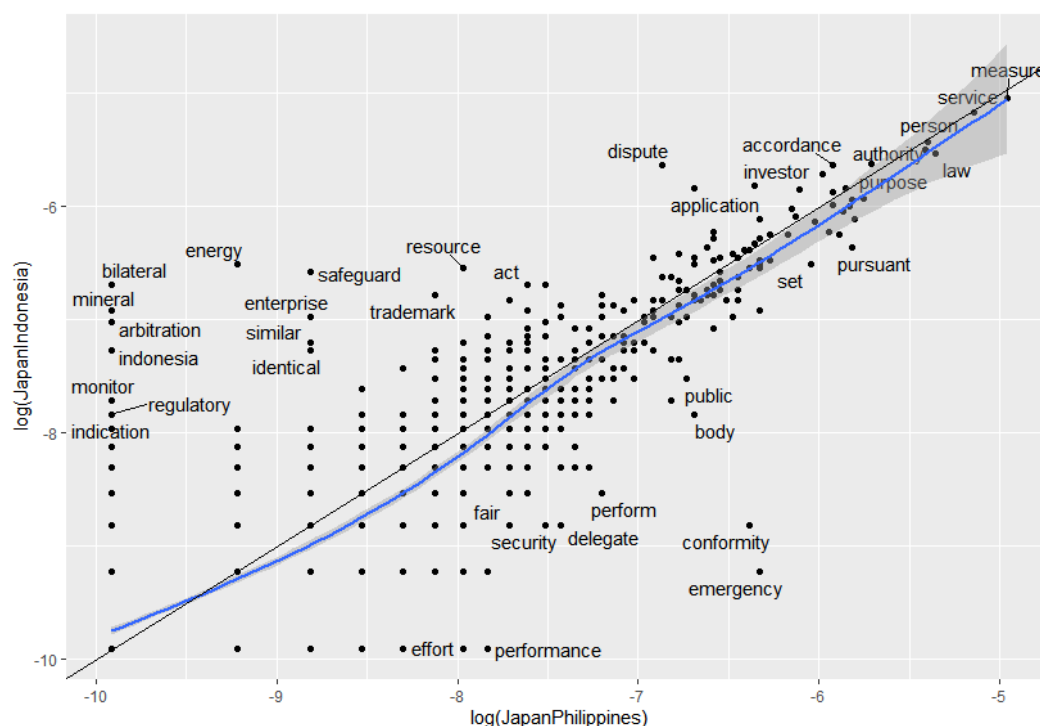
Determining how words are often used and comparing them across trade agreements may indicate the polarity of the trade agreements. For instance, Figure 5 shows that Japan-Indonesia FTA tackles the topics “bilateral”, “mineral”, and “energy” more often, as compared to Japan-Philippines FTA, which tackles “emergency” and “conformity” more often. This implies some degree of importance for mineral and energy industry for the Japan-Indonesia FTA while the Philippines may be more concerned on product conformity and procedures.

**Figure 4. Frequently used words in sample trade agreements**



Source: Author's construct

**Figure 5. Scatter plot of the most frequently used words in sample trade agreements**



Source: Author's construct

Table 7 presents the top 10 economies whose FTA with Japan is relatively similar to JPEPA. Indonesia tops both the similarity scores at document and chapter levels, while Australia tops the score in terms of making reference to SDG.

**Table 7. Top 10 Japan partners with highest similarity with JPEPA**

Document Level		Chapter Level (Trade in Goods and Rules of Origin)		In Reference to Sustainable Development	
Partner	Score	Partner	Score	Partner	Score
Indonesia	48%	Indonesia	75%	Australia	6%
Singapore	39%	Malaysia	51%	Peru	6%
Thailand	35%	Thailand	50%	Chile	5%
Mongolia	34%	Brunei Darussalam	49%	India	5%
Mexico	34%	Mongolia	48%	Mongolia	5%
Malaysia	34%	Chile	41%	Switzerland	5%
Viet Nam	33%	Australia	40%	Thailand	5%
Brunei Darussalam	33%	Peru	39%	Malaysia	5%
India	32%	India	35%	Brunei Darussalam	5%
Chile	32%	Viet Nam	33%	Mexico	5%

Note: Based on Jaccard Similarity

Source: Author's construct

Similarly, Table 8 presents the top 10 economies whose FTA with EFTA is relatively highly similar to the EFTA-PH FTA. Hong Kong tops the list at the document level and with respect to SDG, while Central America is shown to have more resemblance in terms of Trade in Goods and ROO.

**Table 8. Top 10 EFTA partners with highest similarity with EFTA-PH FTA**

Document Level		Chapter Level (Trade in Goods and Rules of Origin)		In Reference to Sustainable Development	
Partner	Score	Partner	Score	Partner	Score
Hong Kong, China	68%	Central America	87%	Hong Kong, China	68%
Central America	67%	Ukraine	79%	Central America	67%
Ukraine	65%	Hong Kong, China	77%	Ukraine	65%
Bosnia and Herzegovina	63%	Montenegro	76%	Bosnia and Herzegovina	63%
Montenegro	62%	Bosnia and Herzegovina	76%	Montenegro	62%
Korea, Rep. of	60%	Singapore	74%	Korea, Rep. of	60%
Albania	56%	Mexico	68%	Albania	56%
Singapore	56%	Servia	67%	Singapore	56%
Servia	55%	Albania	66%	Servia	55%
Chile	55%	GCC	64%	Chile	55%

Note: Based on Jaccard Similarity

Source: Author's construct

In estimating the gravity model, this paper considers the Poisson Pseudo Maximum Likelihood (PPML) as the estimator, as it has been established in the literature as an efficient estimator. The PPML has been recognized as an ideal estimator for several advantages. First, the multiplicative form of PPML addresses heteroscedasticity, which is typical in trade data (Santos Silva and Tenreyro 2006, in Yotov et al. 2016). Second, PPML tolerates the presence of zero trade flows, therefore no information is lost. Third, the additive form of the estimator ensures that the fixed effects are identical in their structural terms (Arvis and Shepherd 2013 and Fally 2015, in Yotov et al. 2016). And, finally, PPML can be used to calculate the general equilibrium effects of trade policies (Anderson et al. 2015 and Larch and Yotov 2016b, in Yotov et al. 2016).

Intranational trade is also used as for reasons that (a) it is consistent with the fact that consumers select among and consume both domestic and foreign goods, (b) it captures the effects of bilateral trade policies (Dai et al. 2014, in Yotov et al. 2016), (c) it captures the effects of non-discriminatory trade policies (Heid et al. 2015, in Yotov 2016), (d) it addresses the “distance puzzle” in trade (Yotov 2012, in Yotov et al. 2016), and (e) it captures the effects of globalization and allows for unbiased estimation of the impacts of RTAs (Bergstrand et al. 2015, in Yotov et al. 2016).

In addition, exporter and importer fixed effects are included to control for unobservable multilateral resistances, as well as other observable and unobservable properties that change over time (Anderson and van Wincoop 2003 in Yotov et al. 2016).



Table 9 provides informative insights on the coefficients of the variables of interest. As illustrated, OLS and PPML estimators are used to estimate the gravity model. In the OLS, the coefficients of GDP are relatively similar to the coefficients in PPML, except for the exporter GDP, which are approaching unity. In PPML, although not so notable, the coefficients are relatively smaller, which are expected and is consistent with the observations of Santos Silva and Tenreyro (2006), that trade-to-GDP ratio decreases as total GDP increase, which may indicate that smaller countries may tend to become more open to international trade.

Moreover, the trade agreements are also compared at chapter level, using selected chapters on trade in goods and rules of origin. The PJEPA has dedicated chapters on these topics, which are used to compare to the other trade agreements of Japan. In the case of EFTA-PH, chapters that referred to these topics, including General Provisions, Trade in Agri Products, Trade in Non-Agri Products, and Technical Barriers to Trade chapters, are used to compare to other trade agreements of EFTA. The estimates are generally consistent across the estimations, which show that the similarity and having these topics in trade agreements tends to influence Philippine trade.

The trade agreements are also compared in terms of referencing sustainable development. It appears that making similar references to sustainability development has influence on trade.

Table 8 shows similar estimations using intranational trade. It can be noted that, unlike the previous estimates (Table 7), the PPML estimates in chapter-level, concerning trade in goods and ROO, fixed effects are considered as it yielded better results. The same can be observed in estimating the PPML model using Jaccard similarity for comparing the similarity of trade agreements in terms of referencing sustainable development. It can also be noted that lesser variables appear to be significant in intranational trade. In addition, similarity of PJEPA with other trade agreements of Japan appears to have more influence than the similarity of EFTA-PH with other trade agreements of EFTA-member countries. In general, intuitively, distance does not seem to greatly influence intranational trade of Philippines, while similarity in terms of trade in goods and ROO, as well as in referencing sustainable development generally influence intranational trade.

**Table 9. Results of Gravity Model Estimation**

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	<i>OLS</i>		<i>OLS</i>		<i>PPML (Jacc)</i>		<i>PPML (Cos LSA)</i>		<i>PPML (Jacc)</i>		<i>PPML (Cos LSA)</i>		<i>PPML (Jacc)</i>		<i>PPML (Cos LSA)</i>	
	Whole Text		Whole Text		Whole Text		Whole Text		Trade in Good and ROO		Trade in Good and ROO		Sustainable Development		Sustainable Development	
log(dist)	-1.593	***	-1.553	***	-1.786	***	-1.781	***	-1.634	***	-1.694	***	-1.694	***	-1.684	***
log(gdp_exp)	0.503		0.521		0.602	***	0.611	***	0.632	***	0.632	***	0.632	***	0.636	***
log(gdp_imp)	0.888	***	1.145	***	0.290	***	0.283	***	0.543	***	0.544	***	0.544	***	0.546	***
comlang_off	1.062	*	1.160		0.466	***	0.419	***	0.262	**	0.270	***	0.270	***	0.248	**
landlocked_exp	-6.364	***	-0.508	*	-1.558	**	-0.415		-0.113		-0.549		-0.549		-0.608	
landlocked_imp	-6.563	***	-3.594		-1.433	**	-0.044		-0.287		-0.260		-0.260		-0.331	
PJEPa_sim	0.202		-0.127		0.165	*	0.083									
EFTAPH_sim	6.800	***	1.157		1.714	***	0.317	***								
PJEPa_tigroo									0.380	***	0.425	***				
EFTAPH_tigroo									0.896	***	0.726	***				
PJEPa_sd													0.425	***	0.081	
EFTAPH_sd													0.726	***	0.621	***
Intranational Trade	No				No		No		No		No		No		No	
With Fixed Effects	No				No		No		No		No		No		No	
R-squared:	0.880		0.813													
Adjusted R-squared:	0.877		0.809													

Note: OLS = Ordinary Least Squares; PPML = Poisson Pseudo Maximum Likelihood; Jacc = Jaccard; Cos LSA = Cosine Latent Semantic Analysis; ROO = Rules of Origin

Source: Authors' estimates

**Table 10. Results of Gravity Model Estimation (with Intranational Trade)**

	OLS	OLS	PPML (Jacc)	PPML (Cos LSA)	PPML (Jacc)	PPML (Cos LSA)	PPML (Jacc)	PPML (Cos LSA)
	Whole Text	Whole Text	Whole Text	Whole Text	Trade in Good and ROO	Trade in Good and ROO	Sustainable Development	Sustainable Development
log(dist)	0.018	-0.027	0.023	-0.020	-1.179 ***	-0.447	-0.470	-0.015
comlang_off	0.039	-0.023	0.049	-0.011	1.669 ***	0.798 *	0.843 *	0.067 **
landlocked_exp	-0.202	-0.031	0.099	0.127 **	2.480 ***	1.141 *	0.829	0.180 **
landlocked_imp	0.134	0.181	-0.150	-0.028	2.351 ***	1.017	0.949	0.121 **
PJEPA_sim	1.075 *	0.828 ***	0.727 ***	0.710 ***				
EFTAPH_sim	0.187	0.050	0.134	0.041				
PJEPA_tigroo					1.770 ***	1.673 ***		
EFTAPH_tigroo					1.065 ***	0.814 ***		
PJEPA_sd							2.033 ***	0.768 **
EFTAPH_sd							0.863 ***	0.119 *
Intranational Trade	Yes		Yes	Yes	Yes	Yes	Yes	Yes
With Fixed Effects	No		No	No	Yes	Yes	Yes	No
R-squared:	0.290	0.565						
Adjusted R-squared:	0.279	0.558						

Note: OLS = Ordinary Least Squares; PPML = Poisson Pseudo Maximum Likelihood; Jacc = Jaccard; Cos LSA = Cosine Latent Semantic Analysis; ROO = Rules of Origin

Source: Authors' estimates

## 7. Conclusions and Recommendations

The paper proposes the use of text analysis using text-as-data (or text-of-trade-agreement) in understanding the design of JPEPA and EFTA-PH FTA, particularly their similarity with other FTAs of Japan and EFTA, respectively, and how the similarities may influence Philippine trade. Across the estimation procedures, the results generally suggest that similarity in the contents of trade agreements does encourage trade between trade partners.

Using text as data in analyzing the text of trade agreements and comparing the similarity of trade agreements offers a thorough understanding of the design of trade agreements and how trade agreements potentially influence trade. In addition, comparing the design and contents of trade agreements may be useful in understanding how countries influence the direction of trade. It may also be useful in mapping and harmonizing trade provisions, detecting emerging trade issues, and monitoring different regimes, among others, which may also provide useful information on how countries would position themselves in regional and international trade.

Although a lot more can be done, such as using the traditional way of comparing trade agreements and measuring regulatory distance, estimating their impacts on trade, and comparing the results to the results machine-coded procedure, the paper is able to demonstrate the potential application of text analysis to complement the conventional methods of assessing the impacts of trade agreements. Using text-of-trade-analysis may not be able to completely replace in-depth analysis, it may lessen the burden and complexity of the tasks. In addition, it has been proven to be more efficient, as it can cover more areas or aspects of analysis with minimal time requirement.

Moreover, one potential improvement of the analysis may also be looking at the level of commitment of the parties to the trade agreements by estimating and comparing the level of bindingness of the trade agreements. It is well recognized in the literature that the use of legally binding terms in the agreements ensures the commitments and political will of the parties. Further, one may consider looking at how the level of bindingness and commitment may encourage or restrict trade flows.

Finally, it can be noted that the results show that the FTAs with Japan make weaker reference to sustainable development as compared to the EFTA FTAs. This may intuitively suggest that the wordings in these FTAs are not strongly binding to the Sustainable Development Goals, but this does not necessarily mean that these agreements are not designed to address sustainable development. This may also suggest that these FTAs only greatly vary in the goals that are referred to in the agreements. This provides room for further investigation.

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## Annexes

### Annex 1: Topics in Japan FTAs

Topics	AU	BN	CL	IN	ID	MY	MX	MN	PE	PH	SG	CH	TH	VN	Total
Administration, Implementation and Operation of the Agreement							✓					✓			2
Cooperation		✓		✓	✓	✓	✓	✓	✓	✓			✓	✓	10
Bilateral Safeguard Measures							✓								1
Broadcasting, ICT and Telecommunications Services	✓								✓		✓				3
Rules of Origin/Certificate of Origin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	13
Commission			✓												1
Competition	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	13
Trade in Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
Customs Procedures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
Dispute Avoidance and Settlement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
Electronic Commerce	✓							✓				✓			3
Energy and Mineral Resources	✓	✓			✓										3
Movement of Natural Persons and Entry for Business Purposes	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	12
Exceptions			✓				✓								2
Financial Services	✓		✓				✓				✓				4
Food Supply	✓														1
Government Procurement	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		11
Human Resource Development											✓				1
Improvement of Business Environment		✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	10
Intellectual Property	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	12
Trade and Investment	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		12
Mutual Recognition										✓	✓		✓		3
Paperless Trading										✓	✓		✓		3
Promotion of a Closer Economic Relationship	✓											✓			2



Sanitary and Phytosanitary	✓		✓	✓		✓		✓	✓			✓		✓	8
Science and Technology											✓				1
Small and Medium Enterprises											✓				1
Technical Regulations, Standards and Conformity Assessment	✓		✓	✓		✓		✓	✓			✓		✓	8
Tourism											✓				1
Trade In Goods	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
Total	18	9	16	14	13	12	15	15	14	14	18	14	13	12	197

Note: AU – Australia, BN – Brunei Darussalam, CH – Switzerland, CL – Chile, ID – Indonesia, IN – India, MN – Mongolia, MY – Malaysia, MX – Mexico, PE – Peru, PH – Philippines, SG – Singapore, TH – Thailand, VN – Viet Nam

Source: Author's compilation based on the texts of trade agreements

## Annex 2. Topics in EFTA FTAs<sup>8</sup>

Chapters	PH	AL	BA	CA	CENTAM	CL	CO	EG	GE	GCC
<i>Signed</i>	2016	2009	2013	2008	2013	2003	2008	2007	2016	2009
<i>Entered into force</i>	2018	2010/2011	2015	2009	2014	2004	2011/2014	2007	2017/2018	2014
<i>Expanded Signed</i>										
<i>Expanded Entered into force</i>										
Trade in Goods, inc. Agri and Non-Agri Products	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sanitary and Phytosanitary Measures	✓								✓	
Technical Barriers to Trade	✓									
Services/Trade in Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Investment	✓	✓	✓	✓	✓		✓	✓		
Intellectual Property/Protection of Intellectual Property	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government and Public Procurement	✓	✓	✓		✓	✓	✓		✓	✓
Competition/Competition Law and Policy	✓			✓	✓	✓	✓	✓	✓	✓
Trade and Sustainable Development	✓	✓	✓		✓				✓	
Institutional and Procedural Provisions	✓	✓	✓	✓	✓			✓	✓	✓
Dispute Settlement	✓	✓	✓	✓	✓		✓		✓	✓
Payments and Capital Movements, Transfers		✓	✓							
Final Provisions/Final Clauses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Others</i>				✓	✓	✓	✓	✓	✓	

*continued...*

<sup>8</sup> Based on the chapter names. EFTA FTAs that are not designed or written with chapters or chapters names are not included but it does not necessarily mean that they do not contain these topics.

continued...

HK	IL	JO	KR	LB	MX	ME	MA	PS	PE	RS	SG	SACU	TN	TR	UA	Total
2011	1992	2001	2005	2004	2000	2011	1997	1998	2010	2009	2002	2006	2004	1991	2010	
2012	1993	2002	2006	2007	2001	2012	1999	1999	2011	2010	2003	2008	2005	1992	2012	
	2018													2018		
	2021													2021		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26
																2
																1
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	21
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	25
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	24
✓	✓	✓			✓		✓	✓	✓		✓			✓	✓	18
						✓				✓				✓		8
✓			✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	19
✓		✓	✓		✓	✓			✓	✓	✓			✓	✓	18
		✓		✓		✓	✓	✓		✓			✓			9
✓			✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	22
✓	✓	✓	✓	✓			✓	✓	✓			✓	✓			16

Note: AL – Albania, BA – Bosnia and Herzegovina, CA – Canada, CENTAM – Central America (Costa Rica and Panama), CL – Chile, CO – Colombia, EG – Egypt, GCC – Gulf Cooperation Council, HK – Hong Kong, IS – Israel, JO – Jordan, KR – Korea, Republic of., LB – Lebanon, MA – Morocco, ME – Montenegro, MX – Mexico, PE – Peru, PH – Philippines, RS – Serbia, SACU – Southern African Customs Union, SG – Singapore, TN – Tunisia, TR – Turkey, UA – Ukraine

Source: Author's compilation based on the texts of trade agreements

### Annex 3. Trade and Sustainable Development

SDG	Goal	Description
1	No Poverty	There is increasing evidence that well planned and strategically executed trade policy initiatives can impact positively on sustainable poverty reduction. Trade opening has also generated higher living standards through greater productivity, increased competition, and more choice for consumers and better prices in the marketplace.
2	Zero Hunger	Eliminating subsidies that cause distortions in agriculture markets will lead to fairer more competitive markets helping both farmers and consumers while contributing to food security. The WTO's 2015 decision on export competition eliminated export subsidies in agriculture, thereby delivering on Target 2.B of this goal.
3	Good Health and Well-being	One of the main objectives under SDG 03 is to ensure access to affordable medicines for all. An important amendment to the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement recently entered into force. This measure will make it easier for developing countries to have a secure legal pathway to access affordable medicines in line with Target 3.B of this goal.
5	Gender Equality	Trade can create opportunities for women's employment and economic development. Through trade, job opportunities for women have increased significantly. Jobs in export sectors also tend to have better pay and conditions. Export sectors are an important job provider for women in developing countries.
8	Decent Work and Economic Growth	Trade-led inclusive economic growth enhances a country's income-generating capacity which is one of the essential prerequisites for achieving sustainable development. The WTO's Aid for Trade initiative can make a big difference in supplementing domestic efforts in building trade capacity, and SDG 08 contains a specific target for countries to increase support under this initiative.
9	Industry, Innovation, and Infrastructure	Trade produces dynamic gains in the economy by increasing competition and the transfer of technology, knowledge, and innovation. Open markets have been identified as a key determinant of trade and investment between developing and developed countries allowing for the transfer of technologies which result in industrialization and development, helping to achieve SDG 09.
10	Reduced Inequalities	At the global level, changes in development patterns have been transforming prospects of the world's poorest people, decreasing inequality between countries. WTO rules try to reduce the impact of existing inequalities through the principle of Special and Differential Treatment for Developing Countries. This allows the use of flexibilities by developing and least-developed countries to take into account their capacity constraints.
14	Life Below Water	The WTO plays an important role in supporting global, regional, and local efforts to tackle environmental degradation of our oceans under SDG 14. The Decision on Fisheries Subsidies taken by WTO members in December 2017 is a step forward in multilateral efforts to comply with SDG Target 14.6, committing members to prohibit subsidies that contribute to overcapacity and overfishing, and eliminate subsidies that contribute to illegal, unreported, and unregulated fishing with special and differential treatment for developing and least-developed countries. Members committed to fulfilling this commitment by the 12th Ministerial Conference.
17	Partnerships for the Goals	SDG 17 recognizes trade as a means of implementation for the 2030 Agenda. The targets under this goal call for: countries to promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system; the increase of developing countries' exports and doubling the share of exports of least developed countries (LDCs); and the implementation of duty-free and quota-free market access for LDCs with transparent and simple rules of origin for exported goods. The WTO is the key channel for delivering these goals.

Source: Lifted from WTO (2018)