Dynamics of Service Trade in Association of Southeast Asian Nations: Process Towards Integration

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ABSTRACT

Over the past few decades, Association of Southeast Asian Nations (ASEAN's) economic structure has continued to change. Overall, ASEAN's economic structure has shifted towards the service sector in line with the growing importance of this sector in the economy. This structural shift is very rapid along with the growing importance of the role of the service sector in supporting the agricultural sector and the manufacturing sector. Therefore, it is important to conduct further researches in the dynamics of service trade in ASEAN in achieving integration. This study focuses on the openness of ASEAN countries to trade. Openness as a basic component in the integration process is analyzed through a set of trade policies made as well as the complexity and depth of commitment in service trade agreements. The database used covers all ASEAN countries during the 2005-2014 timeframe. This study employs a descriptive analysis as the main approach, supported by fixed effect model to see the factors which contribute to the openness of ASEAN countries. The results of this study indicate that the openness of service trade in ASEAN is influenced by a set of limiting and facilitating policies. In addition, the complexity and depth of commitment play a role in influencing the openness of service trade. In the interim, variables of trade volume, population, real effective exchange rate, service trade facilities, and human capital contribute significantly to the openness of service trade in ASEAN. It can therefore be construed that the openness of service trade is determined by the policy instruments and commitments in the service trade agreements made.

Keywords: Association of Southeast Asian Nations, Integration, Openness, Trading Services, Service Sector
JEL Classifications: F10, F14, F15

1. INTRODUCTION

Regionalization has become a significant issue in international trade cooperation over the last decade. The regionalization implies geographical density with reference to the pattern of trade among countries in a region[1]. Regional trade cooperation is regarded as an appropriate alternative to overcome the problems and failures of multinational trade cooperation agreements. The development of regional trade cooperation has led to various dynamics, especially with regard to the impact of welfare generated. One form of regional trade cooperation which plays an important role in the world is cooperation among countries in the Southeast Asian region known as the Association of Southeast Asian Nations (ASEAN, 2012). ASEAN trade cooperation was established in 1992 under the agreement of the ASEAN Free Trade Agreement with the aim of

enhancing ASEAN's competitive advantage as a production base for the global market. Trade integration was later agreed in the ASEAN Framework Agreement on Services (AFAS) 3 years later. One of the objectives of AFAS is to improve service cooperation in order to improve efficiency and competitiveness as well as to diversify production capacity, supply, and distribution of services.

Over the past few decades, ASEAN's economic structure has continued to change. Largely, ASEAN's economic structure has shifted in line with the growing importance of the service sector. This is indicated by the percentage of average share of service sector to real gross domestic product (GDP) during the last 7 years which has continually increased. The increase is in line with the declining percentage of share in the agriculture and industry (manufacturing) sectors. In addition, the share of the service sector accounts for half of the total real GDP. In 2014, the contribution of the service sector in the economy continued to climb to 50.2% as the contribution of industrial and agricultural sectors shrank

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1 Ceglowski, J. (2006). Does gravity matter in a service economy? Review of World Economics, 307-329.

by 38% and 11% respectively. This indicates the increasingly important role of the service sector in the economy.

Yet, there are several issues in services in ASEAN. In general, service trade undertaken by ASEAN countries keeps counting on traditional service sectors such as transportation and tourism services. Most ASEAN countries still hinge on transportation and travel services. ASEAN countries remain unable to take advantage of new service trading opportunities such as information technology and services related to business support. This is evidenced by the low volume of trade in the telecommunications services sector, computers, and information. Coulibaly (2009), Chen and Novy (2011), characterized integration using openness in trading. This problem is apparent in service trade in ASEAN which has not reached its maximum potential. The low intensity and volume of trade are indicators of the problem. Besides, access to service markets in ASEAN countries is covered by uncertainty and unpredictability due to the discretionary licensing regime in ASEAN countries. Even though the offering of services is still allowed in practice, the absence of definite rules still makes service trades difficult to identify and define in compliance with the regulations.

For that reason, this study will look at the extent of trade policies and complexity and depth of service trades agreements and how they affect the openness of service trades. The study also identifies the factors which determine the integration of service trade in ASEAN. The analysis is done by looking at the dynamics of trading services to date through econometric and descriptive approaches. Furthermore, the determinants of integration of service trade are analyzed through the trade openness of each country as a basic component in the integration of service trade.

2. LITERATURE REVIEW

2.1. Definition of Service Trade

According to the General Agreement on Service trade (GATS), the definition of service trade comprises four types depending on the supplier and the consumer at the time of the transaction. Article I paragraph 2 mentions four modes of supply.

- Mode 1 (cross-border-supply) is a service provided directly by overseas service providers to domestic users; for instance, legal considerations given by overseas lawyers through telecommunications devices.
- Mode 2 (consumption abroad) is a service provided by an overseas service provider to domestic customers after the customers move physically to the service provider country; for example, Indonesian students studying in Malaysia or Indonesian patients going to a hospital in Singapore.
- Mode 3 (commercial presence) is a service provided with the presence of a service provider from abroad to customers in the customers' country; for instance, the establishment of an international school belonging to a Filipino citizen in Indonesia.
- Mode 4 (movement of natural persons [MNP]) is provision of direct services in the form of foreign workers who have specific expertise to consumers in the consumers' countries;

for example, medical doctors from Malaysia practicing in Indonesia.

2.2. Concept of Economic Integration

Jovanovic (1998), in his book entitled International Economic Integration: Limits and Prospects, distinguishes economic integration into several types: Free trade area, namely an international agreement by eliminating all tariffs and quantitative barriers to common trade. Each country in this area maintains tariffs and other regulations with a third country. The basis of this agreement is the rules of origin. Customs Union, in addition to eliminating all tariffs and other quantitative restrictions, also introduces general external tariffs to the third countries. The participating countries take part in negotiations about trade and tariffs as a unity. Common Market, in similarity with custom union, has freedom of movement for production factors. General rules on the movement of production factors with the third countries are also introduced. In Economic Union, each participating country assumes the prevailing rules which not only identical to the common market, but also concur with the harmonization of fiscal, monetary, industrial, transport, and other regulations. As for Total Economic Union, each participating state assumes unity with a single economic rule and a supranational government.

2.3. Theory of Static Economic Integration

The theory of static economic integration was put forward by Balassa (1973) in his book the Theory of Economic Integration. Static economics integration is characterized by the absence of various forms of discrimination in trading. One of the most basic forms of integration is Customs Union. The main requirement of integration is a substantial elimination of various tariffs and various forms of trade barriers between member countries as well as an enforcement of similar tariffs and other regulations in trading with non-member countries. The outcomes of the elimination of these discriminations are the creation of welfare as a result of efficiency in the allocation of resources and distribution of income among countries.

2.4. AFAS

The development of service sector has made the sector become important in the economy. Recognizing this, ASEAN member states seek to realize a free trade flow of services in the region through the AFAS. The service sector cooperation agreement was signed on December 15th, 1995 by a ministerial meeting forum during the 5th ASEAN Summit in Bangkok, Thailand. In general, AFAS aims to eliminate restrictions on service trade among ASEAN Member Countries to substantially improve the efficiency and competitiveness of service providers in ASEAN. AFAS provides a broad guidance for ASEAN member countries to improve market access and to ensure equal national treatment for service providers in ASEAN. All AFAS regulations are consistent with international regulations of service trade arranged in GATS. The liberalization of service trade under AFAS is directed towards achieving commitments beyond the commitments of member states under GATS, otherwise known as the GATS-Plus principle.

Following the signing of AFAS, ASEAN Member States began the negotiations in order to achieve the goal of AFAS: To create more

free trade in the region. This was carried out through several rounds of negotiations, each round resulting in a package of commitments in each sector or agreed services subsector and bidding modes. Currently, ASEAN has agreed upon nine commitment packages under AFAS, signed by AEM, through five rounds of negotiations since January 1st, 1996. These packages provide details of the commitments of each ASEAN member country in numerous sectors and services subsectors. Separately, ASEAN signed the ASEAN Agreement on MNP in November 2012 in Phnom Penh, Cambodia. The commitment schedule registered under the MNP agreement replaces the Mode 4 commitments in the previous AFAS package.

2.5. Previous Studies
Based on previous theoretical and empirical studies, integration is characterized by openness in trading. Openness is characterized by the elimination of countless trade barriers. As Hastiadi (2011) points out, openness can be a proxy of integration. An equation can then be made to look at factors which contribute to integration with some variables. According to Jovanovic (1998), the macroeconomic effects of integration depend on several variables, such as trade volume and human capital. Nho et al. (2014) include real effective exchange rate variable to see the trade competitiveness of a country. The next is the service trade facilitation index (STFI) variable which describes the service trade facilities of a country. De (2013) establishes an index of service trade facilities to see how much a country's facilities will affect the flow of service trade. On the perspective or regionalization, Gilbert *et al*. (2001) find that distance and economic size have contributed to the increased trade flows among the sample of 38 countries. This finding is also supported by the most recent research on economic integration such as Grünfeld and Moxnes (2003), Mirza and Nicoletti (2004), Kimura and Lee (2006), Matoo (2012) and Hastiadi (2016).

3. RESEARCH METHODOLOGY

3.1. Trade Policy
3.1.1. Services trade restriction index (STRI)
In service trade, minimizing trade restrictions on services will affect the opening of a country to trade transactions. One way to measure trade barriers is to create a single representative counting method. The index is built as a representation of barriers from the effects of service trade policies implemented by a country.

To date, STRI has just been published by two international institutions, namely OECD and the World Bank. The study adopts the service trade barrier index published by the World Bank. There are at least five service sectors which are the components of this index, they are: (i) Financial services (banking and insurance), (ii) retail distribution, (iii) telecommunications, (iv) transportation, and (v) professional services. The selection of these five sectors is based primarily on the assessment of economic interests from development perspective and by taking into account the restrictions on service trade and the feasibility of relevant policy data collection. The score of this index ranges from the scale of 0-1; the closer it is to 0 (zero), the lesser the trade barrier in the country and vice versa.

3.2. STFI
International trade is faced with innumerable barriers in transactions. The abolition of trade barriers is often the main focus in order to boost trade capacity. On the other hand, it is necessary to see how trade can be encouraged through the improvement of trade facilities. Thus, De (2013) builds an index which seeks to capture some of the key elements of service trade facilities.

$$STFI_{it} = \sum W_{jt}X_{jit} \tag{1}$$

$STFI_{it}$ is the index of trade facilities of country-i at time t, W_{jt} is the weighting of aspect-j of the service trade facilities indicator at time-t, and X_{jit} is the value of the aspect-j of the service trade facilities indicator for country-i in time-t. The index is built using Major Component Analysis (PCA) statistical techniques to capture variants or information on each variable which describes different aspects of infrastructure. The main component analysis finds a linear combination of the original variable to construct the main component with a variance greater than the other native variables. The indicators of trade facilities index consist of five indicators, namely: (i) Internet users, (ii) fixed broadband subscribers, (iii) power consumption per capita, (iv) aircraft passengers, (V) users of telecommunication equipment. Each of these indicators is normalized to the economic capacity of each country, so it is not affected by economies of scale. The weight of each indicator is calculated by dividing the rotated factor loadings of each indicator by the total number of rotated factor loadings. The assessment of this index spans from the lowest (zero) to the maximum value based on the sum of each indicator. The greater the value of STFI, the better the service trade facilities of the country.

3.3. Trade Agreement
3.3.1. Hoekman index
Along with the entry of service trade cooperation agreement in the GATS, Hoekman (1995) proposes an indexation method to measure the level of commitment of the countries covered by the agreement. In the table of commitments under the GATS, there are eight cells containing four modes of supply (Modes 1-4) and are divided into two aspects of liberalization, i.e., market access and national treatment. The eight cells contain sentences describing the indication of restrictions. Further, this method gives a value to each of these eight cells with the details as follows: (i) "None" (for no restriction case) with the score = 1, (ii) "unbound" (in case there is no legally binding commitment) with the score = 0, or (iii) the limitation description is given the score 0.5. Subsequently, the average of each sector is calculated from the most detailed, viz. 155 sub-sectors aggregated into 55 sub-sectors, and the average will then be recalculated into 11 sectors.

3.4. Determinant of Service Trade Openness
3.4.1. Research model
The research model was prepared using the panel data from 2005 to 2014. The model specification used is a simple linear equation. This model is used to see the change of a variable to another variable. The model utilized in this study is adopted from the model in the study conducted by Hastiadi (2011):

$$Open_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + \ldots + \gamma_N W_N + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + \ldots + \delta_t Z_{iT} + e_{it} \tag{2}$$

Where:

$Open_{it}$ = Regionalism of country i in time t

X_{it} = Independent variable (railroads, taxation, democracy, government, industry, the primary school enrollment rate, inflation and population) of ASEAN-4 + CJK countries in time t

W_{it} = Country dummy variable

Z_{it} = Time dummy variable.

Likewise, this research builds a linear equation as follows:

$$Openess_{it} = \alpha + \beta_1 Trade_{it} + \beta_2 POP_{it} + \beta_3 REER_{it} + \beta_4 STFI_{it} + \beta_5 HDI_{it} + \delta_t + e_{it} \qquad (3)$$

Where:

$Openess_{it}$ = Openness of service trade of country i in time t

$Trade_{it}$ = Volume of service trade (export and import) of country i in time t

POP_{it} = Log of population of country i in time t

$REER_{it}$ = Log of real foreign currency exchange rate of country i against international currency (USD) in time t

$STFI_{it}$ = Index of service trade facilities of country i in time t

HDI_{it} = Index of country i in time t

α = Constant

δ_t = Time dummy.

The dependent variable (openness) is calculated by dividing the net export value with the country's real gross domestic product. The export and import data represent the total service trade of a country within a certain time, while the real gross domestic product data come from the World Bank. Openness is the trade openness calculated through net exports per GDP in the service sector. On the word of Hastiadi (2011), trade openness is the proxy of an economic integration where integration brings openness to various economic sectors. The openness variable is the dependent variable influenced by various independent variables.

Some independent variables take in trade which describes the trade volume of a country and HDI that describes the human capital. According to Jovanovic (1998), the macroeconomic effects of integration rest on several variables, such as trade volume and human capital. Trade and HDI variables are expected to have a positive impact on integration. In the interim, REER variable describes the real exchange rate of a country against other countries in trading activities. Nho et al. (2014) incorporate REER variables to see the export or import competitiveness of a country. REER variable is estimated to have a negative or inverse

effect on integration. Increased REER will lead to decreased competitiveness of a country's trade so as to reduce the level of openness and vice versa. Next, we will discuss STFI variable which describes the service trade facilities of a country. De (2013) establishes an index of service trade facilities to observe how much a country's facilities affect the flow of its service trade. STFI variable is estimated to have a positive impact on integration as the higher level of trade facilities will further encourage integration.

3.5. Data and Data Source
The data used in this study is secondary data or data deriving from third party publications. The data employed comes from various sources of data and publications of international institutions. Below is the summary of the data used (Table 1).

4. RESULT AND DISCUSSION

4.1. Trade Policy
Service trade policies affect integration directly and indirectly. It is also important to look at trade policies from two sides, they are limiting policies and facilitating policies. Trade policies do not only describe the trade openness of a country, but also the readiness of a country in service trade.

4.2. STRI
Figure 1 depicts the service trade restriction index for six ASEAN countries in 2008 and 2012. As per the chart, it can be seen that on average, the overall value of service trade restrictions in ASEAN is still above 0.4. This indicates that the restriction to service trade is somewhat high, around 40% of the service trade performed. However, the policy restrictions applied vary widely across countries and income levels. In this regard, only Cambodia and Vietnam that have the limitation score below the average of ASEAN as a whole during that period, while the Philippines, Malaysia, Thailand, and Indonesia have the limitation score above the average. In some cases, these restrictions reflect the readiness of service trade regulations in these countries, not the openness of the services market.

During the 2008 and 2012 periods, it could be seen that trade restrictions on services in ASEAN countries both individually and aggregately indicated policy changes towards more prepared and open direction. By and large, the score of service trade

Figure 1: Services trade restriction index Association of Southeast Asian Nations 2008 and 2009
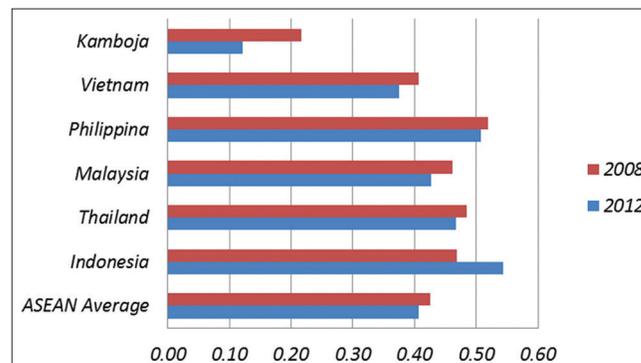
Table 1: Description of variables and data sources

Variables	Definition	Data source	Unit
Trade	Total service trade of a country	UNCTAD	USD
Population	Population of a country	World Bank	People
REER	Real effective exchange rate - explains the value of a country's currency relative to several currencies of other countries which have been adjusted to inflation rate and certain CPI	World Bank	Index
STFI	Services trade facilitation index - measures the level of service trade facilities through 5 indicators: (i) Internet users, (ii) fixed broadband subscribers, (iii) per capita power consumption, (iv) aircraft passengers, (v) users of telecommunication equipment	World Bank	Index
HDI	Human development index - measures the quality of human resources through 3 aspects: (i) Health, (ii) education, (iii) per capita standard of living	UNDP	Index

STFI: Service trade facilitation index

restrictions of ASEAN countries fell by 0.02-0.10 from 2008 to 2012. Consequently, during the period of 4 years, there has been no significant change. However, for Indonesia, there was an increase in the score of service trade restrictions by 0.70 from 2008 to 2012 due to restrictions in some sub-sectors, although the scores of other sub-sector plummeted. Thus, it is also important to see the score of service trade restriction index of each sector which is the result of the aggregation of the mean value of each sub-sector restriction.

4.3. STFI

STFI is the comparison of the level of service trade facilities among countries in ASEAN in 2008 and 2012 (Appendix 1 for the weighting and Appendix 2 for the ASEAN average). The further the score from zero, the better the service trade facilities of the country. Singapore is the country with the highest index value of trade service facilities among other ASEAN member countries. For the meantime, the country with the lowest score of service trade facilities index is Myanmar with a close-to-zero score. This signposts that the infrastructure of service trade in Myanmar is still inadequate, as opposed to that of Singapore. Yet, during the 4-years timeframe (2008-2012), all ASEAN countries demonstrated increase in their service trade index scores. This illustrates that infrastructure development exists to facilitate service trade activities (Figure 2).

In the opinion of De (2013), service trade facilities are directly proportional to the income level of a country. The higher the income level of a country, the higher the trade facilities index. This opinion is correct and can be proven within the scope of ASEAN member countries. In Table 2, it can be seen that Singapore is the country with the highest service trade facilities index compared to other countries, with Brunei and Malaysia trailing behind. Further, as stated by De (2013), service trade facilities have a positive influence on the export of services of a country. The greater the volume of service exports of a country, the higher the service trade facilities index. This is shown by the volume of service exports of Singapore, Malaysia, and Thailand. Accordingly, it can be concluded that service trade facilities have a positive influence on a country's income, service exports, or both.

4.4. Trade Agreement

4.4.1. Hoekman index

The 9th AFAS Package is the final and top commitment package agreed in order to liberalize the services sector. This commitment

Figure 2: Service trade facilitation index Association of Southeast Asian Nations 2008 and 2009

Figure 3: Hoekman index Association of Southeast Asian Nations Framework Agreement on Services 9th package
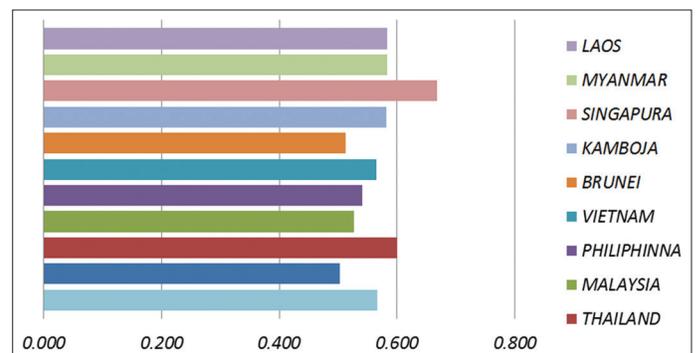
package was agreed on November 27th, 2015 in Makati City, Philippines. The difference of the 9th AFAS Package from the previous commitments packages lies in the introduction of Modes 4 into the package of commitment, market access, and national treatment aspects. This is due to the separately agreed agreement of MNP which took place in 2012 in Cambodia (Figure 3).

Based on the overall 9th AFAS Package (Appendix 3), the average Hoekman Index value for ASEAN member countries is 0.56. Singapore is the country with the highest Hoekman Index of 0.67 followed by Thailand at 0.60 and Myanmar and Laos at 0.58. The Hoekman Indexes of these four countries are above the average of ASEAN. Meanwhile, the countries with the lowest Hoekman Index are Indonesia at 0.50 and Brunei Darussalam at 0.51. In general, however, ASEAN member states have agreed to liberalize or reduce restrictions on service trade sector cooperation by more than 50% in 11 sectors and 55 sub-sectors of services available.

Table 2: Comparison values of percapita GDP, export, and STFI

| Country	PCGDP	Export	STFI
Indonesia	3427	23660	1.24
Thailand	5488	49643	1.52
Malaysia	9759	40581	2.11
Philippines	2299	20439	1.32
Vietnam	1460	9620	1.76
Brunei	35389	483	2.01
Cambodia	870	3192	1.35
Singapore	49001	127764	2.57
Laos	1285	577	1.00
Myanmar	1069	1231	0.09

Source: World Bank and UNCTAD (reprocessed). GDP: Gross domestic product, STFI: Service trade facilitation index

Table 3: Result of fixed effect regression

Depending variable	Openess	
Variable	Koef	t-Statistic
Trade	0.14200	10.06***
logPOP	0.90800	3.15***
logREER	−0.14200	−1.92*
STFI	−0.01640	−1.72*
HDI	0.94900	2.6**
Constant	−0.68400	−3.41***
N	R^2	
100	0.8710	

Source: Authors' calculation. Statistical Significance * (10%), ** (5%), *** (1%)

Figure 4: Hoekman index by sectors and packages of commitment
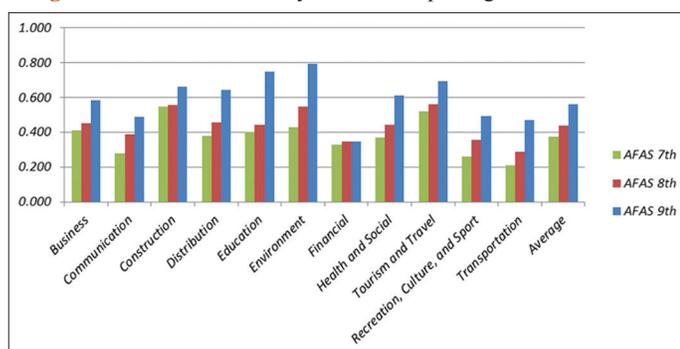
Source: Ishido (2011), Hamanaka (2013), and authors' calculation

Meanwhile, when compared to the previous AFAS commitment packages (Appendix 4), the 9th AFAS Package has a Hoekman index score of 0.12, higher than the 8th AFAS Package and 0.19 higher than the 7th AFAS Package (Figure 4). This suggests that the objective of reducing restrictions on service trade carried out through various rounds of negotiations to produce a package of commitments is appropriate and achievable. Nevertheless, the development of the AFAS commitment package deal is experiencing a slowdown from the plan, even for the sectors defined as the priority sectors. This is signposted by the delay of the signing of the 9th AFAS Package which was previously scheduled in 2012-2015.

From the 11 service sectors (Appendix 5), it can be analyzed that environmental service sector and education service sector have the highest Hoekman Index scores at 0.80 and 0.75 respectively. This is in line with the greater liberalization granted to the

services of waste treatment, garbage disposal, and sanitation in the environmental service sector. In the education service sector, liberalization of education is carried out at elementary, secondary, and tertiary level of education.

4.5. Data Panel Analysis

This research applies data panel analysis to capture the determinant of openness of ASEAN countries. The fixed effect estimation method is employed because it is proven to be the best based on regression model testing. Openness as the proxy of integration (Hastiadi, 2011) is influenced by such variables as population, real effective exchange rate, service trade facility, and human capital (Table 3).

Based on the regression results, it can be seen that the independent variables utilized in the model have a significant influence on the integration of service trade. Each independent variable affects integration at different levels of significance. Trade variables, population, and human capital have positive coefficient values which can mean greater trade volume, population growth, and human development indicators, which will result in a greater degree of integration. Meanwhile, real effective exchange rate and service trade facilities variables have negative coefficient values which indicate that the link between real effective exchange rate and service trade facilities to integration is inversely proportional. Any increase in the real effective exchange rate and service trade facilities will reduce the level of openness to service trade.

Trade variable has a positive influence on integration with the coefficient of 0.14. This signifies that any increase in the trade volume of a country by one point will increase the integration by 0.14 points. This result is in accordance with the opinion of Jovanovic (1998), who suggests that the macroeconomic effects of integration depend on several variables, including the trade volume of a country.

Moreover, population variable has a positive influence on integration at 0.90. This insinuates that any population growth by 1% will increase integration by 0.90 points. This is consistent with the statement of Tamura (1995) in Hastiadi (2011) which suggests that large population is the catalyst for integration due to the economic agglomeration. The greater the population, the greater the spread of economic activity in a region.

Nevertheless, real effective exchange rate variable has a negative effect with the coefficient value of 0.14. This denotes that any real effective exchange rate appreciation of 1% will decrease the integration rate by 0.14 point because the appreciation of the exchange rate will result in a more expensive export value than import value, thereby illustrating the reduced trade competitiveness.

For the meantime, service trade facilities index variable also has a negative coefficient score, meaning that service trade facilities have an inversely proportional relation to integration. Every increase in the service trade facilities index by one point will lower the integration rate by 0.016 points, while this is not expected in the original hypothesis. This can be explained by the

research conducted by De (2013). In that study, it is explained that the difference in quality and cost of infrastructure in facilities is identical with differences in policies, procedures, and institutions. As a result, there are differences in quality and performance of service trade between developed and developing countries. According to the statement, it can be inferred that trade facilities are in line with the policies, procedures, and institutions of trade service available. Differences in service trade facilities will require different policies depending on the economic classification of a country. This does not fit the concept of integration which is indicated by, among others, harmonization of service trade policies.

The next is human development index variable which is the proxy of human capital. This variable has the greatest coefficient value and positive influence on service trade integration. Any increase in human capital by one point will increase the integration of service trade by 0.94. This designates that investing in human capital will generate more skilled labor which will contribute directly to the service sector. One of the indicators in an overall economic integration is the existence of free flow of skilled workforce and free flow in the service sector. The influence of human capital on integration is supported by the research conducted by Ireland and Merzoni (1999), stating that there is a positive relation between specific skills in each sector and economic integration.

5. CONCLUSION

The integration of service trade in ASEAN is inseparable from the various dynamics in it. Over the past two decades, the process towards establishing service trade integration in ASEAN is indivisible from the framework of the AFAS. Service trade policies affect integration both directly and indirectly. It is also important to look at trade policies from two sides, namely limiting policies and facilitating policies. First, limiting policies is illustrated through the service trade restriction index. In ASEAN, the policy restrictions applied diverge widely between countries and income levels. Generally, restrictions on service trade are quite high. Nonetheless, in recent time, service trade restrictions in ASEAN countries both individually and aggregately point to policies change towards more prepared and open direction. Second, facilitating policies is illustrated through the service trade facilities index built by De (2013). In ASEAN, in general, service trade facilities can continue to increase. Singapore is a country with the highest level of service trade facilities and Myanmar has the lowest level of service trade facilities. This is in agreement with the results of research De (2013) suggesting that service trade facilities are directly proportional to the level of income and export value of a country.

Integration can also be analyzed through the depth and complexity of cooperation agreements among countries. Following the entry into force of the service trade cooperation agreement in GATS, Hoekman (1995) proposes an indexing method to measure the level of commitment of countries in the agreement. Henceforth, Hoekman Index is widely used as a reference in measuring the depth and complexity of cooperation agreements between countries. Based on the overall 9th AFAS Package, Hoekman

Index calculation indicates that ASEAN member countries have liberalized more than half of the service sectors in their countries. In the meantime, to compare the depth and complexity between the commitment packages made, the 9th AFAS Package has higher Hoekman Index than the 8th AFAS Package and the 7th AFAS Package. This suggests that the objective of reducing restrictions on service trade carried out through rounds of negotiations to produce a package of commitments is appropriate and achievable.

In proportion to the data panel analysis, it is found that the volume of service trade, population, real effective exchange rate, service trade facility, and human capital have a significant influence on the integration of service trade in ASEAN. Human capital and trade volume have the greatest influence in determining the integration of service trade in ASEAN. Human capital is an important determinant because the service sector counts heavily on skilled human resources. Meanwhile, trade volume describes the capacity and trade structure of a country. Identifying the determinants of integration of service trade is important in order to know the factors which have a significant influence on integration. Based on these arguments, appropriate policies should be made with regard to these factors to encourage integration.

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APPENDIX

Appendix 1: Weights in STFI

Year	Indicators	FL	W
2005	int_usr	0.9563	0.2363569
	int_fb	0.8257	0.2040781
	pce	0.8894	0.2198220
	air_p	0.3885	0.0960208
	tel	0.9861	0.2437222
Total		4.0460	1
Eigen value (Comp-1)		3.67	
Proportion		0.734	
2006	int_usr	0.9320	0.2323726
	int_fb	0.8163	0.2035255
	pce	0.9140	0.2278847
	air_p	0.3647	0.0909295
	tel	0.9838	0.2452877
Total		4.0108	1
Eigen value (Comp-1)		3.64	
Proportion		0.728	
2007	int_usr	0.9508	0.2347422
	int_fb	0.8344	0.2060043
	pce	0.8965	0.2213362
	air_p	0.4015	0.099126
	tel	0.9672	0.2387912
Total		4.0504	1
Eigen value (Comp-1)		3.68	
Proportion		0.736	
2008	int_usr	0.9520	0.2912651
	int_fb	0.8447	0.2584366
	pce	0.8733	0.2671868
	air_p	0.4497	0.137586
	tel	0.1488	0.0455255
Total		3.2685	1
Eigen value (Comp-1)		3.6591	
Proportion		0.7319	
2009	int_usr	0.9661	0.2423733
	int_fb	0.8327	0.2089062
	pce	0.8673	0.2175866
	air_p	0.4148	0.1040642
	tel	0.9051	0.2270697
Total		3.986	1
Eigen value (Comp-1)		3.5778	
Proportion		0.7156	

Appendix 1: (*Continued*)

Year	Indicators	FL	W
2010	int_usr	0.9675	0.2524133
	int_fb	0.844	0.2201931
	pce	0.8769	0.2287764
	air_p	0.2543	0.0663449
	tel	0.8903	0.2322724
Total		3.833	1
Eigen value (Comp-1)		3.465	
Proportion		0.6931	
2011	int_usr	0.9468	0.2564603
	int_fb	0.8533	0.2311339
	pce	0.8737	0.2366596
	air_p	0.2052	0.0555826
	tel	0.8128	0.2201636
Total		3.6918	1
Eigen value (Comp-1)		3.3268	
Proportion		0.6654	
2012	int_usr	0.9270	0.2585846
	int_fb	0.8327	0.2322798
	pce	0.8507	0.2373009
	air_p	0.2073	0.0578259
	tel	0.7672	0.2140088
Total		3.5849	1.0000
Eigen value (Comp-1)		3.1957	
Proportion		0.6392	
2013	int_usr	0.9429	0.2578907
	int_fb	0.8692	0.2377332
	pce	0.8426	0.2304579
	air_p	0.2431	0.0664898
	tel	0.7584	0.2074285
Total		3.6562	1
Eigen value (Comp-1)		3.2368	
Proportion		0.6474	
2014	int_usr	0.9327	0.2549754
	int_fb	0.8835	0.2415254
	pce	0.8347	0.2281848
	air_p	0.2431	0.0664571
	tel	0.764	0.2088573
Total		3.658	1
Eigen value (Comp-1)		3.2105	
Proportion		0.6421	

Appendix 2: STFI ASEAN 2005-2014

				STFI				
int_usr	int_fb	pce_adj	air_p_adj	tel	Total	Rank	Year	Average ASEAN
0.03	0.00	0.00	0.07	0.24	0.35	6	2005	0.76
0.13	0.01	0.02	0.07	0.53	0.76	4		
0.44	0.01	0.02	0.03	0.87	1.38	2		
0.05	0.00	0.00	0.02	0.42	0.50	5		
0.12	0.00	0.01	0.00	0.11	0.24	8		
0.37	0.02	0.08	0.00	0.90	1.37	3		
0.00	0.00	0.00	0.07	0.09	0.17	9		
0.56	0.12	0.07	0.01	1.31	2.06	1		
0.00	0.00	0.00	0.00	0.01	0.02	10		
0.01	0.00	0.00	0.13	0.14	0.28	7		
0.04	0.00	0.00	0.07	0.31	0.43	7	2006	0.86
0.15	0.01	0.02	0.06	0.67	0.91	4		
0.46	0.02	0.03	0.03	0.85	1.39	3		
0.05	0.00	0.01	0.02	0.51	0.58	5		
0.16	0.00	0.01	0.00	0.31	0.49	6		
0.42	0.02	0.08	0.00	1.07	1.59	2		
0.01	0.00	0.00	0.08	0.14	0.22	9		
0.53	0.13	0.08	0.01	1.36	2.11	1		
0.00	0.00	0.00	0.00	0.02	0.02	10		
0.01	0.00	0.00	0.12	0.20	0.34	8		
0.05	0.00	0.00	0.08	0.43	0.56	7	2007	1.02
0.18	0.02	0.02	0.08	0.82	1.11	4		
0.50	0.03	0.03	0.03	0.94	1.53	3		
0.05	0.00	0.00	0.03	0.64	0.73	6		
0.19	0.01	0.01	0.00	0.61	0.83	5		
0.45	0.03	0.08	0.00	1.19	1.75	2		
0.01	0.00	0.00	0.09	0.20	0.29	9		
0.63	0.15	0.07	0.01	1.51	2.37	1		
0.00	0.00	0.00	0.00	0.01	0.02	10		
0.02	0.00	0.00	0.13	0.28	0.43	8		
0.08	0.00	0.01	0.10	0.12	0.32	6	2008	0.57
0.20	0.03	0.02	0.12	0.18	0.55	4		
0.62	0.05	0.03	0.05	0.20	0.96	3		
0.07	0.01	0.01	0.05	0.14	0.28	8		
0.27	0.02	0.01	0.01	0.18	0.50	5		
0.57	0.05	0.10	0.00	0.24	0.96	2		
0.01	0.00	0.00	0.13	0.06	0.19	9		
0.77	0.22	0.09	0.01	0.30	1.38	1		
0.00	0.00	0.00	0.00	0.00	0.01	10		
0.05	0.00	0.00	0.17	0.07	0.29	7		
0.06	0.01	0.00	0.07	0.70	0.84	8	2009	1.23
0.18	0.03	0.02	0.09	0.95	1.27	5		
0.52	0.04	0.03	0.04	1.08	1.72	3		
0.08	0.02	0.00	0.04	0.76	0.91	7		
0.25	0.03	0.01	0.00	1.17	1.47	4		
0.51	0.05	0.08	0.00	1.22	1.86	3		
0.01	0.00	0.00	0.08	0.44	0.53	9		
0.64	0.20	0.07	0.01	1.55	2.46	1		
0.00	0.00	0.00	0.00	0.02	0.02	10		
0.06	0.00	0.00	0.27	0.53	0.87	8		
0.10	0.01	0.01	0.07	0.89	1.07	7	2010	1.38
0.21	0.04	0.02	0.09	1.03	1.39	5		
0.54	0.06	0.04	0.06	1.20	1.90	3		
0.24	0.02	0.01	0.04	0.83	1.13	6		
0.30	0.04	0.01	0.00	1.29	1.64	4		
0.57	0.05	0.09	0.00	1.28	1.99	2		
0.01	0.00	0.00	0.07	0.59	0.68	9		
0.68	0.22	0.08	0.00	1.64	2.62	1		
0.00	0.00	0.00	0.00	0.02	0.03	10		
0.08	0.00	0.00	0.21	0.66	0.95	8		
0.12	0.01	0.01	0.06	0.95	1.15	7	2011	1.46
0.23	0.05	0.02	0.08	1.05	1.43	5		
0.59	0.08	0.04	0.06	1.20	1.96	3		

(Contd...)

Appendix 2: (*Continued*)

				STFI				
int_usr	int_fb	pce_adj	air_p_adj	tel	Total	Rank	Year	Average ASEAN
0.29	0.02	0.01	0.04	0.87	1.21	6		
0.35	0.04	0.01	0.00	1.32	1.72	4		
0.61	0.06	0.09	0.00	1.21	1.97	2		
0.03	0.00	0.00	0.06	0.93	1.03	9		
0.69	0.24	0.08	0.00	1.59	2.60	1		
0.01	0.00	0.00	0.00	0.03	0.04	10		
0.10	0.00	0.00	0.19	0.83	1.13	8		
0.14	0.01	0.01	0.08	1.01	1.24	8	2012	1.55
0.26	0.06	0.02	0.09	1.10	1.52	5		
0.65	0.09	0.04	0.06	1.27	2.11	2		
0.36	0.02	0.01	0.04	0.89	1.32	7		
0.40	0.05	0.01	0.00	1.30	1.76	4		
0.67	0.05	0.09	0.00	1.20	2.01	3		
0.05	0.00	0.00	0.07	1.22	1.35	6		
0.71	0.24	0.08	0.00	1.54	2.57	1		
0.01	0.00	0.00	0.00	0.07	0.09	10		
0.12	0.00	0.00	0.21	0.67	1.00	9		
0.14	0.01	0.01	0.10	1.04	1.30	8	2013	1.56
0.28	0.07	0.02	0.12	1.16	1.65	5		
0.56	0.09	0.04	0.06	1.26	2.01	2		
0.36	0.02	0.01	0.05	0.85	1.30	7		
0.44	0.05	0.01	0.00	1.15	1.66	4		
0.71	0.07	0.10	0.00	1.12	1.99	3		
0.08	0.00	0.00	0.09	1.21	1.38	6		
0.79	0.25	0.08	0.00	1.51	2.64	1		
0.02	0.00	0.00	0.00	0.12	0.14	10		
0.14	0.00	0.00	0.25	0.71	1.11	9		
0.16	0.01	0.01	0.11	1.05	1.34	8	2014	1.66
0.33	0.07	0.02	0.12	1.20	1.75	5		
0.61	0.09	0.04	0.07	1.29	2.11	2		
0.39	0.03	0.01	0.06	0.91	1.39	7		
0.48	0.06	0.01	0.00	1.24	1.80	4		
0.75	0.07	0.10	0.00	1.06	1.99	3		
0.15	0.00	0.00	0.09	1.20	1.46	6		
0.76	0.24	0.08	0.00	1.45	2.54	1		
0.12	0.00	0.00	0.00	0.46	0.59	10		
0.16	0.00	0.00	0.00	0.73	0.89	9		

Appendix 3: Hoekman index AFAS 9th package

Countries	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E
Indonesia	0.45	0.92	0.44	0.00	0.27	0.50	0.00	0.00	0.92	0.00	0.00
Thailand	0.43	0.92	0.61	0.92	0.65	0.58	0.00	0.00	0.72	0.65	0.00
Malaysia	0.64	1.00	0.31	0.42	0.74	0.71	0.00	0.92	0.49	0.42	0.00
Philippines	0.49	0.92	0.92	0.58	0.48	0.44	0.75	0.92	0.75	0.61	0.00
Vietnam	0.61	0.92	0.89	0.50	0.17	0.48	0.00	1.00	0.83	0.22	0.00
Brunei	0.52	0.98	0.92	0.00	0.37	0.64	0.00	0.92	0.95	0.00	0.00
Cambodia	0.62	1.00	0.00	0.00	0.17	0.52	0.00	1.00	0.96	0.00	0.00
Singapore	0.64	1.00	1.00	0.92	0.78	0.72	0.00	1.00	0.92	1.00	0.00
Myanmar	0.37	0.83	0.22	1.00	0.17	0.45	1.00	0.83	0.78	0.86	0.00
Laos	0.59	1.00	1.00	0.00	0.40	0.48	1.00	1.00	1.00	0.39	0.00
Average	0.54	0.95	0.63	0.43	0.42	0.55	0.28	0.76	0.83	0.42	0.00
	03A	03B	03C	03D	03E	04A	04B	04C	04D	04E	05A
Indonesia	0.50	0.50	0.50	0.50	0.50	0.83	0.83	0.00	0.00	0.00	0.00
Thailand	0.58	0.58	0.58	0.58	0.58	0.92	0.92	0.92	0.92	0.58	0.83
Malaysia	0.58	0.58	0.58	0.58	0.58	0.92	0.75	0.75	0.92	0.00	0.58
Philippines	0.42	0.42	0.42	0.42	0.67	0.92	0.92	0.58	0.92	0.50	0.00
Vietnam	0.58	0.58	0.58	0.58	0.58	0.83	0.83	0.83	0.92	0.00	0.58
Brunei	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.83	0.00	0.83
Cambodia	0.67	0.67	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	0.00
Singapore	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Myanmar	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.00	0.00	1.00

(Contd...)

Appendix 3: (*Continued*)

Countries	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E
Laos	1.00	1.00	1.00	1.00	1.00	0.83	0.75	0.00	0.83	0.00	0.92
Average	0.66	0.66	0.66	0.66	0.68	0.81	0.78	0.59	0.73	0.31	0.58

	05B	05C	05D	05E	06A	06B	06C	06D	07A	07B	07C
Indonesia	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.00	0.00	0.00
Thailand	0.92	0.83	0.92	0.83	0.58	0.58	0.58	0.58	0.00	0.00	0.00
Malaysia	0.58	0.25	0.25	0.58	0.92	0.92	0.00	0.92	0.00	0.00	0.00
Philippines	0.00	0.58	0.58	0.58	0.58	0.92	0.58	0.92	0.00	0.00	0.00
Vietnam	0.33	0.92	0.92	0.92	0.75	0.75	1.00	0.75	0.00	0.00	0.00
Brunei	0.83	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.00	0.00	0.00
Cambodia	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Singapore	1.00	1.00	1.00	1.00	0.00	0.58	0.67	0.67	0.00	0.00	0.00
Myanmar	1.00	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	0.00	0.00
Laos	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Average	0.65	0.83	0.83	0.86	0.74	0.83	0.74	0.86	0.00	0.00	0.00

	08A	08B	08C	08D	09A	09B	09C	09D	10A	10B	10C
Indonesia	0.83	0.83	0.83	0.00	0.83	0.83	0.67	0.79	0.67	0.00	0.50
Thailand	0.83	0.92	0.92	0.92	0.92	0.58	0.00	0.92	0.58	0.92	0.92
Malaysia	0.83	0.92	0.92	0.00	0.92	0.92	0.67	0.00	0.58	0.00	0.92
Philippines	0.58	0.92	0.58	0.58	1.00	0.92	0.00	0.92	0.92	0.92	0.58
Vietnam	1.00	0.83	0.75	0.00	1.00	0.83	0.00	0.75	0.58	0.00	0.00
Brunei	0.67	1.00	0.92	0.00	0.92	0.92	0.00	0.92	0.00	0.92	0.58
Cambodia	1.00	1.00	0.00	0.00	0.83	0.92	1.00	0.00	1.00	0.00	0.00
Singapore	1.00	0.67	0.33	0.00	0.94	1.00	1.00	1.00	1.00	0.00	1.00
Myanmar	0.92	0.92	1.00	0.00	0.92	1.00	0.00	0.00	0.00	0.67	0.83
Laos	1.00	0.00	0.00	0.00	1.00	0.92	0.00	1.00	0.00	0.00	0.00
Average	0.87	0,80	0.63	0.15	0.93	0.88	0.33	0.63	0.53	0.34	0.53

	10D	10E	11A	11B	11C	11D	11E	11F	11G	11H	11I
Indonesia	0.83	0.83	0.69	0.69	0.00	0.00	0.83	0.83	0.42	0.54	0.83
Thailand	0.58	0.58	0.83	0.00	0.00	0.58	0.33	0.60	0.00	0.83	0.92
Malaysia	0.92	0.92	0.72	0.00	0.00	0.00	0.73	0.55	0.00	0.69	0.92
Philippines	0.58	0.00	0.63	0.00	0.00	0.00	0.48	0.59	0.29	0.77	0.67
Vietnam	0.00	0.58	0.69	0.46	0.00	0.00	0.90	0.45	0.00	2.34	1.00
Brunei	0.58	0.92	0.74	0.74	0.00	0.92	0.73	0.00	0.00	0.69	0.00
Cambodia	0.83	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.83	0.00
Singapore	0.67	0.00	0.92	0.00	0.00	0.00	0.20	0.90	0.00	0.50	0.67
Myanmar	1.00	0.67	0.82	0.00	0.00	0.00	0.00	0.20	0.50	0.98	0.00
Laos	0.00	0.00	1.00	0.67	0.00	0.00	1.00	0.75	0.00	0.83	0.75
Average	0.60	0.45	0.80	0.36	0.00	0.15	0.62	0.59	0.22	0.90	0.58

Negara	Average
Indonesia	0.59
Thailand	0.48
Malaysia	0.49
Philippines	0.36
Vietnam	0.58
Brunei	0.48
Cambodia	0.61
Singapore	0.35
Myanmar	0.38
Laos	0.45
Average	0.48

Appendix 4: Hoekman index by sectors and commitment packages

Packages of commitment	Business	Communication	Construction	Distribution
AFAS 9th	0.59	0.49	0.66	0.65
AFAS 8th	0.45	0.39	0.56	0.46
AFAS 7th	0.41	0.28	0.55	0.38
Packages of commitment	Education	Environment	Financial	Health and social
AFAS 9th	0.75	0.79	0.35	0.61
AFAS 8th	0.44	0.55	0.35	0.44
AFAS 7th	0.40	0.43	0.33	0.37
Packages of commitment	Tourism and travel	Recreation, culture, and sport		Transportation
AFAS 9th	0.69	0.49		0.47
AFAS 8th	0.56	0.36		0.29
AFAS 7th	0.52	0.26		0.21
Packages of commitment	Average			
AFAS 9th	0.56			
AFAS 8th	0.44			
AFAS 7th	0.38			

Appendix 5: Lists of sectors and sub-sectors of services based on GATS

01. Business services
   01.A. Professional services
   01.B. Computer and related services
   01.C. Research and development services
   01.D. Real estate services
   01.E. Rental/leasing services without operators
   01.F. Other business services
02. Communication services
   02.A. Postal services
   02.B. Courier services
   02.C. Telecommunication services
   02.D. Audiovisual services
   02.E. Other
03. Construction and related engineering services
   03.A. General construction work for building
   03.B. General construction work for civil engineering
   03.C. Installation and assembly work
   03.D. Building completion and finishing work
   03.E. Other
04. Distribution services
   04.A. Commission agents' services
   04.B. Wholesale trade services
   04.C. Retailing services
   04.D. Franchising
   04.E. Other
05. Educational services
   05.A. Primary education services
   05.B. Secondary education services
   05.C. Higher education services
   05.D. Adult education
   05.E. Other education services
06. Environmental services

Appendix 5: (Continued)

   06.A. Sewage services
   06.B. Refuse disposal services
   06.C. Sanitation and similar services
   06.D. Other
07. Financial services
   07.A. All insurance and insurance-related services
   07.B. Banking and other financial services
   07.C. Other
08. Health related and social services
   08.A. Hospital services
   08.B. Other human health services
   08.C. Social services
   08.D. Other
09. Tourism and travel related services
   09.A. Hotels and restaurants
   09.B. Travel agencies and tour operators services
   09.C. Tourist guides services
   09.D. Other
10. Recreational, cultural and sporting services
   10.A. Entertainment services
   10.B. News agency services
   10.C. Libraries, archives, museums and other cultural services
   10.D. Sporting and other recreational services
   10.E. Other
11. Transport services
   11.A. Maritime transport services
   11.B. Internal waterways transport
   11.C. Air transport services
   11.D. Space transport
   11.E. Rail transport services
   11.F. Road transport services
   11.G. Pipeline transport
   11.H. Services auxiliary to all modes of transport
   11.I. Other transport services