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**Liberalization of Trade in Services under ASEAN+n:
A Mapping Exercise**Hikari Ishido[†]*Faculty of Law and Economics, Chiba University, Japan*

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Abstract: This study maps out the degree of liberalization of trade in services under four ASEAN+n frameworks. After constructing a database showing the existence of limitations on market access and/or national treatment by each service sector, the study finds that the commitment level differs greatly between sensitive and less sensitive sectors, and that the commitment level under the ASEAN Framework Agreement (AFAS) is the highest among the four FTAs studied. It also finds that there are cross-country and sector-wide similarities in the pattern of service sector commitment under and across each of the FTAs; this implies that the shared domestic sensitivities can be overcome by a shared economic cooperation scheme for enhancing competitiveness (through FTA provisions). The study further highlights that, overall, Mode 4 (movement of people) gains least commitment, whereas Mode 2 (consumption abroad) gains most commitment under all the four FTAs studied. Turning to policy implications, there are two possibilities on the sequence of further streamlining the four FTAs: (1) Start within the same “clusters” among similarly committed countries under a particular FTA; then harmonize the level of commitments across all the signatory countries to the FTA; or (2) Start with harmonizing rather dissimilar countries from different “clusters” of commitments under a particular FTA, which provides small-scale “social experimenting”; then scale up this line of effort at an acceptably later stage to the level of the whole FTA, then eventually attempt to harmonize across all the FTAs centering on ASEAN. Further study along these lines is needed.

Keywords: Trade in services; ASEAN+n; liberalization

JEL Classification: F13; F15

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1. Introduction

While there has been a delay in the WTO-based liberalization of trade in services¹, East Asian countries are in the process of establishing preferential pluri-lateral free trade agreements (FTAs) with a wide coverage fit for regional community building.² They have the potential of merging into a consolidated region-wide free trade framework. This study undertakes a mapping exercise of the ASEAN+n type FTAs (where “n” can be zero, one or two countries) in terms of trade in services, which is an important and growing mode of international economic transaction. The study focuses on the four ASEAN-related free trade agreements covering the service sector, namely (1) the ASEAN Framework Agreement on Services (AFAS), (2) the ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA), (3) the ASEAN-China Free Trade Agreement (ACFTA), and (4) the ASEAN-Korea Free Trade Agreement (AKFTA). The structure of this paper is as follows. The next section makes an overview of GATS commitment tables. Section 3 addresses the method of indexing service trade liberalization from the database constructed. Section 4 presents correlation among the participating countries. Section 5 makes a cluster analysis of the commitment pattern. Section 6 is dedicated to indexation of commitments by country, by mode and by aspect. Section 7 concludes the paper with some policy implications.

2. An Overview of WTO/GATS Commitment Tables

Whereas WTO’s General Agreement on Trade in Services (GATS) is still ongoing under the current Doha Development Agenda for further multilateral liberalization, its basic framework of negotiation is fully taken into consideration and implemented under the four FTAs in the Asia Pacific region. It is therefore necessary first to give an overview of the framework of GATS. The most recent updated version of the GATS Commitment Tables available on-line is dated January 2003. In the case of “Revised

¹ Hoekman, Martin and Mattoo (2009) address this issue in detail.

² Fink and Molinuevo (2008), and Gootiiz and Mattoo (2009) are recent examples of study into preferential agreements covering trade in services.

Offer 2006”, only a limited number of countries have submitted their revised offers.³ Therefore the former tables are used in this study.

In a commitment table under GATS, four Modes⁴ i.e., Mode 1 up to Mode 4, and two aspects of liberalization, i.e., market access (MA) and national treatment (NT), are listed in tabular formats. In each service sector (see APPENDIX I for the GATS-based classification of service sectors), the four modes and two aspects of liberalization make eight “cells”, for each of which the existence of limitations is indicated in text. Such indication is created by filling in one of the following three indications: (1) “none” (in the case of no limitation), or (2) “unbound” (in the case where there is no legally binding commitment made), or (3) description of the limitation.

For the sake of analytical tractability, this study adopts the level of 55 sub-sectors. The further disaggregated 155 sectors have been considered at the database construction stage.⁵ Also, this study considers specific-commitments only. “Horizontal commitments”, or commitments applied to all the GATS service sectors are not considered in this study. This is because the way horizontal commitments are described is oftentimes rather complicated, making a clear-cut and consistent database construction extremely difficult.

The following three-fold symbolic classification is used for constructing a database for the commitment by each sub-sector, by mode and by aspect of liberalization, in each FTA.

N: No limitation (and bound);

L: Limited (or restricted) but bound;

U: Unbound.

³ GATS Commitment Tables submitted in 2003 are downloadable at: <http://tsdb.wto.org/default.aspx> (accessed on 1 March 2011).

⁴ Mode 1 refers to cross-border service provision; Mode 2, consumption abroad; Mode 3, service provision through establishing commercial presence; and Mode 4, service provision through movement of people (as suppliers).

⁵ At the stage of reporting the Hoekman Index (mentioned in the next section), aggregation up to the 55 sectors is used. While each of the 155 sub-sectors has further sub-divisions, the way each commitment table is described is not comparable with others due to idiosyncrasy in actual offer documents at the most detailed level (e.g., branching out with incomplete indications, incomplete listings, partial merging of different sub-divisions and the like).

Since there are sub-categories with slightly different patterns of commitments in each of the most disaggregated 155 service categories, one "conservative" (i.e., most restrictive) pattern is listed in the database⁶ constructed. In the case where the word "Unbound", or "None" is followed by such phrases as "except...", the label "U" or "N", respectively, is simply applied. The situation of no description exists is considered as "U". This simplified categorization allows for a "bird's-eye view" analysis of an otherwise analytically intractable style of reporting observed in the original GATS commitment tables. The database has been constructed for the four East Asian free trade agreements, i.e., (1) the ASEAN Framework Agreement on Services (AFAS), (2) the ASEAN-Australia-New Zealand FTA, (3) the ASEAN-China FTA, and (4) the ASEAN-Korea FTA.

3. Indexation of Service Trade Liberalization from the Database

Hoekman (1995) proposes an indexation method for measuring the GATS-style degree of commitment in the service sector. This method assigns values to each of 8 cells (4 modes and 2 aspects--market access (MA) or National Treatment (NT)--), as follows: N=1, L=0.5, U=0; then calculates the average value by service sector and by country. Using the database constructed, the "Hoekman Index" has been calculated for each 155 sub-sectors. Then the simple average at the level of the 55 sectors is calculated. Tables 1- 4 report the results by FTA.

⁶ The data will be published as part of ERIA FTA database at ERIA's website (www.eria.org).

Table 1. Hoekman Index for the ASEAN Framework Agreement on Services (AFAS) by Country and by Sector

	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E	03A	03B	03C	03D	03E	04A	04B
Brunei	0.4	0.69	0.56	0	0.31	0.34	0	0	0.52	0	0	0.31	0.31	0.31	0.31	0.31	0	0
Cambodia	0.53	0.75	0	0	0.1	0.35	0	0.75	0.75	0	0	0.5	0.5	0.5	0.5	0.5	0.75	0.75
Indonesia	0.39	0.41	0.23	0	0.25	0.3	0	0	0.79	0	0	0.5	0.5	0.5	0.5	0.5	0	0.56
Laos	0.3	0.7	0.56	0	0.3	0.2	0	0.88	0.3	0.28	0	0.75	0.75	0.75	0.75	0.69	0.56	0.56
Malaysia	0.43	0.75	0.69	0	0.41	0.32	0	0	0.78	0.17	0	0.5	0.5	0.5	0.5	0.5	0.69	0.38
Myanmar	0.28	0.75	0	0	0.15	0.2	0	0.75	0.43	0.5	0	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Philippines	0.34	0.86	0.5	0.25	0.16	0.23	0.69	0.94	0.73	0.25	0	0.31	0.31	0.31	0.31	0.31	0.88	0
Singapore	0.38	0.6	0.75	0.38	0.4	0.49	0	0.5	0.63	0.75	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Thailand	0.35	0.88	0.83	0.75	0.55	0.5	0	0	0.44	0.46	0	0.63	0.63	0.63	0.63	0.63	0.75	0.75
Vietnam	0.49	0.15	0.25	0	0.1	0.37	0	0.75	0.75	0.15	0	0.56	0.56	0.56	0.56	0.56	0.5	0
<i>ASEAN Average</i>	<i>0.39</i>	<i>0.65</i>	<i>0.44</i>	<i>0.14</i>	<i>0.27</i>	<i>0.33</i>	<i>0.07</i>	<i>0.46</i>	<i>0.61</i>	<i>0.26</i>	<i>0</i>	<i>0.54</i>	<i>0.54</i>	<i>0.54</i>	<i>0.54</i>	<i>0.54</i>	<i>0.55</i>	<i>0.44</i>

Table 1. (Continued)

	04C	04D	04E	05A	05B	05C	05D	05E	06A	06B	06C	06D	07A	07B	07C	08A	08B	08C
Brunei	0	0	0	0.56	0.56	0	0.56	0.56	0	0	0	0	0	0	0	0.5	0	0
Cambodia	0.75	0.75	0.75	0	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0	0	0	0	0	0
Indonesia	0.5	0	0	0	0.63	0.63	0.56	0.56	0.5	0.69	0	0.5	0	0	0	0.63	0.75	0.63
Laos	0	0.56	0	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0	0	0	0.56	0	0
Malaysia	0.38	0.69	0	0.44	0.44	0.19	0.44	0.44	0.69	0	0	0.69	0	0	0	0.63	0	0.69
Myanmar	0.63	0	0	0	0	0.63	0.63	0.63	0.63	0.63	0.63	0	0	0	0	0.63	0.63	0.75
Philippines	0.25	0	0.25	0	0	0	0	0	0.56	0	0	0.5	0	0	0	0.25	0	0
Singapore	0.75	0.75	0	0	0	0	0.75	0	0	0	0.5	0.5	0	0	0	0.25	0.25	0.5
Thailand	0	0.75	0.75	0.63	0.81	0.63	0.63	0	0.88	0.63	0.63	0.63	0	0	0	0.75	0.63	0
Vietnam	0	0.75	0	0	0.25	0.5	0.5	0.5	0.63	0.63	0	0.63	0	0	0	0.69	0.69	0.56
<i>ASEAN Average</i>	<i>0.33</i>	<i>0.43</i>	<i>0.18</i>	<i>0.22</i>	<i>0.33</i>	<i>0.39</i>	<i>0.54</i>	<i>0.4</i>	<i>0.52</i>	<i>0.39</i>	<i>0.31</i>	<i>0.48</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0.49</i>	<i>0.29</i>	<i>0.31</i>

Table 1. (Continued)

	08D	09A	09B	09C	09D	10A	10B	10C	10D	10E	11A	11B	11C	11D	11E	11F	11G	11H	11I	Average
Brunei	0	0.56	0	0	0	0.56	0	0	0	0	0.28	0	0	0.56	0.45	0	0	0.42	0	0.18
Cambodia	0	0.56	0.75	0.75	0	0.75	0	0	0.63	0	0.09	0	0	0	0	0.75	0.63	0.09	0	0.36
Indonesia	0.63	0.63	0.69	0.5	0.56	0	0	0	0.69	0.5	0.6	0.63	0	0	0.75	0.56	0	0.45	0	0.35
Laos	0.56	0.56	0.56	0	0.56	0	0	0	0	0	0.63	0.31	0	0	0	0.13	0	0.31	0	0.33
Malaysia	0.56	0.69	0.75	0	0	0.44	0	0	0.69	0	0.49	0	0	0	0	0.14	0	0.52	0	0.31
Myanmar	0.56	0.75	0.63	0	0.63	0.63	0	0.63	0	0	0.11	0	0	0	0	0	0	0.56	0	0.33
Philippines	0	0.88	0.88	0	0	0.5	0.5	0.25	0.25	0	0.79	0	0	0	0.56	0.61	0.56	0.73	0	0.29
Singapore	0.5	0.5	0.63	0.75	0.63	0.75	0	0.75	0	0	0.38	0	0	0	0	0.38	0	0.19	0	0.36
Thailand	0	0.88	0.56	0	0.88	0.63	0.75	0.75	0.63	0.63	0.48	0	0	0	0.34	0.53	0	0.58	0	0.46
Vietnam	0.69	0.75	0.75	0	0.56	0.38	0	0	0.44	0	0.54	0.15	0	0	0.2	0.2	0	0.45	0.44	0.33
<i>ASEAN Average</i>	<i>0.35</i>	<i>0.68</i>	<i>0.62</i>	<i>0.2</i>	<i>0.38</i>	<i>0.46</i>	<i>0.13</i>	<i>0.24</i>	<i>0.33</i>	<i>0.11</i>	<i>0.44</i>	<i>0.11</i>	<i>0</i>	<i>0.06</i>	<i>0.23</i>	<i>0.33</i>	<i>0.12</i>	<i>0.43</i>	<i>0.04</i>	<i>0.33</i>

Source: Calculated from the database constructed.

Table 2. Hoekman Index for the ASEAN-Australia-New Zealand Free Trade Agreement by Country and by Sector

	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E	03A	03B	03C	03D	03E	04A	04B
Brunei	0.15	0.75	0	0	0.09	0	0	0	0.24	0	0	0.31	0.31	0.31	0.31	0	0	0
Cambodia	0.51	1	0	0	0.15	0.38	0	0.75	0.75	0	0	0.5	0.5	0.5	0.5	0.5	0.75	0.75
Indonesia	0.27	0.35	0.21	0	0	0.13	0	0	0.32	0	0	0.5	0.5	0.5	0.5	0.5	0	0
Laos	0.14	0.8	0	0	0	0	0	0	0.18	0	0	0.75	0	0	0	0.63	0	0
Malaysia	0.49	0.8	0.23	0	0.14	0.27	0	0	0.65	0.04	0	0.44	0.44	0.44	0.44	0.44	0	0
Myanmar	0.24	0.88	0	0	0	0.1	0	0	0	0.09	0	0.5	0.5	0.5	0.5	0.5	0	0
Philippines	0.17	0	0	0	0.14	0.04	0	0.69	0.36	0.17	0	0	0.38	0	0	0	0	0
Singapore	0.45	1	0.75	0.38	0.3	0.33	0	0.5	0.63	0.25	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Thailand	0.23	1	0	0	0.1	0.31	0	0	0.27	0.33	0	0.5	0.5	0.5	0	0	0.5	0
Vietnam	0.53	0.2	0.25	0	0.2	0.36	0	0.75	0.75	0.15	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<i>ASEAN Average</i>	<i>0.32</i>	<i>0.68</i>	<i>0.14</i>	<i>0.04</i>	<i>0.11</i>	<i>0.19</i>	<i>0</i>	<i>0.27</i>	<i>0.42</i>	<i>0.10</i>	<i>0.00</i>	<i>0.48</i>	<i>0.44</i>	<i>0.40</i>	<i>0.35</i>	<i>0.38</i>	<i>0.25</i>	<i>0.20</i>
Australia	0.61	0.6	0.25	0.63	0.6	0.54	0	0	0.7	0	0	0.5	0.5	0.5	0.5	0.5	0.75	0.75
New Zealand	0.55	1	0	0.75	0.6	0.32	0	0	0.72	0.29	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
<i>Total Average</i>	<i>0.36</i>	<i>0.7</i>	<i>0.14</i>	<i>0.15</i>	<i>0.19</i>	<i>0.23</i>	<i>0</i>	<i>0.22</i>	<i>0.46</i>	<i>0.11</i>	<i>0</i>	<i>0.5</i>	<i>0.47</i>	<i>0.44</i>	<i>0.4</i>	<i>0.42</i>	<i>0.33</i>	<i>0.29</i>

Table 2. (Continued)

	04C	04D	04E	05A	05B	05C	05D	05E	06A	06B	06C	06D	07A	07B	07C	08A	08B	08C
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0.39	0.01	0	0	0	0
Cambodia	0.75	0.75	0.75	0	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.72	0.56	0	0.75	0	0
Indonesia	0	0	0	0	0.56	0.56	0.56	0.56	0	0	0	0	0.28	0.18	0	0.63	0	0
Laos	0	0	0	0	0.63	0.13	0.13	0.13	0.63	0.63	0.63	0	0	0.31	0	0	0	0
Malaysia	0	0	0	0.44	0.44	0.19	0	0.44	0	0	0	0	0.36	0.43	0	0	0	0
Myanmar	0	0	0	0	0.5	0.5	0	0.5	0	0	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0.25	0	0	0.44	0	0	0	0.42	0.47	0	0	0	0
Singapore	0	0	0	0	0	0	0.75	0	0	0	0.5	0.5	0.47	0.53	0	0	0.5	0.5
Thailand	0	0	0	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.03	0	0	0	0
Vietnam	0.5	0.75	0	0	0.25	0.38	0.38	0.38	0.5	0.38	0	0.5	0.75	0.47	0.44	0.69	0.69	0
<i>ASEAN Average</i>	<i>0.13</i>	<i>0.15</i>	<i>0.08</i>	<i>0.09</i>	<i>0.29</i>	<i>0.30</i>	<i>0.31</i>	<i>0.33</i>	<i>0.28</i>	<i>0.23</i>	<i>0.24</i>	<i>0.23</i>	<i>0.37</i>	<i>0.30</i>	<i>0.04</i>	<i>0.21</i>	<i>0.12</i>	<i>0.05</i>
Australia	0.63	0.75	0	0	0.63	0.63	0	0.63	0.75	0.75	0.75	0.75	0.13	0.25	0	0	0.5	0
New Zealand	0.75	0	0	0.75	0.75	0.75	0	0.75	0.75	0.75	0.75	0.75	0.2	0.25	0	0	0	0
<i>Total Average</i>	<i>0.22</i>	<i>0.19</i>	<i>0.06</i>	<i>0.14</i>	<i>0.35</i>	<i>0.36</i>	<i>0.26</i>	<i>0.39</i>	<i>0.36</i>	<i>0.31</i>	<i>0.32</i>	<i>0.31</i>	<i>0.33</i>	<i>0.29</i>	<i>0.04</i>	<i>0.17</i>	<i>0.14</i>	<i>0.04</i>

Table 2. (Continued)

	08D	09A	09B	09C	09D	10A	10B	10C	10D	10E	11A	11B	11C	11D	11E	11F	11G	11H	11I	Average	
Brunei	0	0.44	0	0	0	0	0	0	0	0	0.19	0	0.1	0	0	0	0	0	0	0	0.07
Cambodia	0	0.31	0.75	0.75	0	0.75	0	0	0	0	0	0	0.15	0	0	0.75	0.63	0	0	0	0.38
Indonesia	0	0.63	0.56	0	0	0	0	0	0	0	0.19	0	0.41	0	0	0	0	0	0	0	0.16
Laos	0	0.63	0.56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12
Malaysia	0	0.63	0.63	0	0	0.44	0	0	0	0	0.23	0	0	0	0	0	0	0	0	0	0.16
Myanmar	0	0	0	0	0	0	0	0	0	0	0.14	0	0.25	0	0	0	0	0	0.38	0	0.11
Philippines	0	0.38	0.75	0	0	0	0	0	0	0	0.45	0	0	0	0.3	0.28	0.22	0.38	0	0	0.11
Singapore	0	0.63	0.75	0.75	0	0.63	0	0.75	0	0	0.38	0	0	0	0	0	0	0	0	0	0.32
Thailand	0	0.5	0.44	0	0.5	0	0	0	0.5	0	0.34	0	0.24	0	0.2	0.18	0	0.13	0	0	0.22
Vietnam	0	0.75	0.75	0	0	0.38	0	0	0.44	0	0.15	0.15	0.43	0	0.1	0.2	0	0.47	0	0	0.32
<i>ASEAN Average</i>	<i>0.00</i>	<i>0.49</i>	<i>0.52</i>	<i>0.15</i>	<i>0.05</i>	<i>0.22</i>	<i>0.00</i>	<i>0.08</i>	<i>0.09</i>	<i>0.00</i>	<i>0.21</i>	<i>0.02</i>	<i>0.16</i>	<i>0.00</i>	<i>0.06</i>	<i>0.14</i>	<i>0.09</i>	<i>0.14</i>	<i>0.00</i>	<i>0.00</i>	<i>0.20</i>
Australia	0	0.5	0.63	0.75	0	0	0.75	0	0.75	0	0.17	0	0.1	0	0.41	0.4	0.75	0.63	0	0	0.38
New Zealand	0	0.75	0.75	0.75	0	0	0	0	0	0	0.17	0	0.08	0	0.75	0.75	0.38	0.31	0	0	0.39
<i>Total Average</i>	<i>0</i>	<i>0.51</i>	<i>0.55</i>	<i>0.25</i>	<i>0.04</i>	<i>0.18</i>	<i>0.06</i>	<i>0.06</i>	<i>0.14</i>	<i>0</i>	<i>0.2</i>	<i>0.01</i>	<i>0.15</i>	<i>0</i>	<i>0.15</i>	<i>0.21</i>	<i>0.16</i>	<i>0.19</i>	<i>0</i>	<i>0</i>	<i>0.23</i>

Source: Calculated from the database constructed.

Table 3. Hoekman Index for the ASEAN-China Free Trade Agreement by Country and by Sector

	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E	03A	03B	03C	03D	03E	04A	04B
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0.51	0.75	0	0	0.15	0.34	0	0.75	0.63	0	0	0.5	0.5	0.5	0.5	0.5	0.75	0.75
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0.5	0.38	0.38	0	0.38	0	0
Laos	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0.19	0.6	0	0	0	0	0	0	0.69	0	0	0	0	0	0	0	0	0
Myanmar	0	0	0	0	0	0.03	0	0	0	0.44	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0.15	0	0	0.04	0	0	0	0	0	0	0	0	0
Singapore	0.2	0.15	0	0.38	0.45	0.29	0	0	0.04	0	0	0	0	0	0	0	0.5	0.5
Thailand	0.22	0	0	0	0	0	0	0	0.17	0	0	0	0	0	0	0	0	0
Vietnam	0.53	0.75	0.25	0	0.2	0.36	0	0.75	0.65	0.15	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<i>ASEAN Average</i>	<i>0.17</i>	<i>0.26</i>	<i>0.03</i>	<i>0.04</i>	<i>0.08</i>	<i>0.12</i>	<i>0.00</i>	<i>0.15</i>	<i>0.22</i>	<i>0.06</i>	<i>0.00</i>	<i>0.15</i>	<i>0.14</i>	<i>0.14</i>	<i>0.10</i>	<i>0.14</i>	<i>0.18</i>	<i>0.18</i>
China	0	0.46	0	0.69	0	0.15	0	0	0	0	0	0.44	0.44	0.44	0.44	0.44	0	0
<i>Total Average</i>	<i>0.15</i>	<i>0.27</i>	<i>0.02</i>	<i>0.1</i>	<i>0.07</i>	<i>0.12</i>	<i>0</i>	<i>0.14</i>	<i>0.2</i>	<i>0.05</i>	<i>0</i>	<i>0.18</i>	<i>0.16</i>	<i>0.16</i>	<i>0.13</i>	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>

Table 3. (Continued)

	04C	04D	04E	05A	05B	05C	05D	05E	06A	06B	06C	06D	07A	07B	07C	08A	08B	08C
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0.75	0.75	0.75	0	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.73	0.52	0	0.75	0	0
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.19	0	0	0	0
Malaysia	0	0	0	0	0	0.06	0	0	0	0	0	0	0.19	0.69	0	0.63	0	0
Myanmar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0	0	0	0.44	0	0	0	0	0	0	0	0	0
Singapore	0.5	0.75	0	0	0	0	0.75	0.75	0	0	0.5	0.5	0.48	0.51	0	0	0.5	0.5
Thailand	0	0	0	0	0.56	0.31	0	0.31	0	0	0	0	0	0	0	0	0	0
Vietnam	0.5	0.75	0	0	0.25	0.44	0.44	0.44	0.5	0.63	0	0.5	0.75	0.46	0.44	0.69	0.69	0
<i>ASEAN Average</i>	<i>0.18</i>	<i>0.23</i>	<i>0.08</i>	<i>0.00</i>	<i>0.08</i>	<i>0.16</i>	<i>0.19</i>	<i>0.23</i>	<i>0.17</i>	<i>0.14</i>	<i>0.13</i>	<i>0.18</i>	<i>0.27</i>	<i>0.24</i>	<i>0.04</i>	<i>0.21</i>	<i>0.12</i>	<i>0.05</i>
China	0	0	0	0	0	0	0	0	0.56	0.56	0.56	0.56	0	0	0	0	0	0
<i>Total Average</i>	<i>0.16</i>	<i>0.2</i>	<i>0.07</i>	<i>0</i>	<i>0.07</i>	<i>0.14</i>	<i>0.18</i>	<i>0.2</i>	<i>0.2</i>	<i>0.18</i>	<i>0.16</i>	<i>0.21</i>	<i>0.24</i>	<i>0.21</i>	<i>0.04</i>	<i>0.19</i>	<i>0.11</i>	<i>0.05</i>

Table 3. (Continued)

	08D	09A	09B	09C	09D	10A	10B	10C	10D	10E	11A	11B	11C	11D	11E	11F	11G	11H	11I	Average
Brunei	0	0.06	0	0	0	0	0	0	0	0	0.25	0	0.15	0	0	0.75	0	0	0	0.02
Cambodia	0	0.31	0.75	0.75	0	0.75	0	0	0	0	0	0	0.15	0	0	0	0.63	0	0	0.36
Indonesia	0	0.63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Laos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02
Malaysia	0	0	0	0	0.19	0	0	0	0	0	0.11	0	0.1	0	0	0	0	0	0	0.06
Myanmar	0	0	0	0	0	0	0	0	0	0	0.15	0	0.21	0	0	0	0	0.13	0	0.02
Philippines	0	0.63	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Singapore	0	0	0.75	0.75	0	0.75	0	0.75	0.5	0	0	0	0	0.5	0	0.5	0	0	0	0.23
Thailand	0	0.56	0.5	0	0.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06
Vietnam	0	0.75	0.75	0	0	0.38	0	0	0.44	0	0.15	0.15	0.41	0	0.1	0.2	0	0.47	0	0.33
<i>ASEAN Average</i>	<i>0.00</i>	<i>0.29</i>	<i>0.38</i>	<i>0.15</i>	<i>0.10</i>	<i>0.19</i>	<i>0.00</i>	<i>0.08</i>	<i>0.09</i>	<i>0.00</i>	<i>0.07</i>	<i>0.02</i>	<i>0.10</i>	<i>0.05</i>	<i>0.01</i>	<i>0.15</i>	<i>0.06</i>	<i>0.06</i>	<i>0.00</i>	<i>0.12</i>
China	0	0	0	0	0	0	0	0	0.06	0	0	0	0.08	0	0	0.69	0	0.44	0	0.13
<i>Total Average</i>	<i>0</i>	<i>0.27</i>	<i>0.34</i>	<i>0.14</i>	<i>0.09</i>	<i>0.17</i>	<i>0</i>	<i>0.07</i>	<i>0.09</i>	<i>0</i>	<i>0.06</i>	<i>0.01</i>	<i>0.1</i>	<i>0.05</i>	<i>0.01</i>	<i>0.19</i>	<i>0.06</i>	<i>0.09</i>	<i>0</i>	<i>0.12</i>

Source: Calculated from the database constructed.

Table 4. Hoekman Index for the ASEAN-Korea Free Trade Agreement by Country and by Sector

	01A	01B	01C	01D	01E	01F	02A	02B	02C	02D	02E	03A	03B	03C	03D	03E	04A	04B
Brunei	0.1	0.55	0	0	0.09	0	0	0	0.28	0	0	0.31	0.31	0.31	0.31	0.31	0	0
Cambodia	0.51	0.75	0	0	0.15	0.19	0	0.75	0.5	0	0	0.5	0.5	0.5	0.5	0.5	0.75	0.75
Indonesia	0.32	0.41	0.23	0	0	0.14	0	0	0.65	0	0	0.5	0.5	0.5	0.5	0.5	0	0
Laos	0.08	0	0	0	0	0.02	0	0	0	0	0	0.31	0.56	0.56	0.31	0.31	0	0.19
Malaysia	0.49	0.6	0.23	0	0.41	0.28	0	0	0.55	0.14	0	0.44	0.44	0.44	0.44	0.44	0	0.38
Myanmar	0.11	0	0	0	0	0.08	0	0	0.1	0.11	0	0	0.63	0	0	0	0	0
Philippines	0.15	0	0.75	0	0	0.03	0.69	0.69	0.26	0	0	0	0.56	0	0	0	0	0
Singapore	0.45	0.6	0.25	0.38	0.45	0.5	0	0.5	0.46	0.63	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Thailand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vietnam	0.53	0.75	0	0	0.2	0.36	0	0.75	0.75	0.15	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<i>ASEAN Average (excl. Thailand)</i>	<i>0.30</i>	<i>0.41</i>	<i>0.16</i>	<i>0.04</i>	<i>0.14</i>	<i>0.18</i>	<i>0.08</i>	<i>0.30</i>	<i>0.39</i>	<i>0.11</i>	<i>0.00</i>	<i>0.37</i>	<i>0.53</i>	<i>0.40</i>	<i>0.37</i>	<i>0.37</i>	<i>0.22</i>	<i>0.29</i>
Korea	0.45	0.75	0.58	0.25	0.68	0.62	0	0.5	0.68	0.25	0	0.5	0	0	0	0	0.63	0
<i>Total Average (excl. Thailand)</i>	<i>0.32</i>	<i>0.44</i>	<i>0.2</i>	<i>0.06</i>	<i>0.2</i>	<i>0.22</i>	<i>0.07</i>	<i>0.32</i>	<i>0.42</i>	<i>0.13</i>	<i>0</i>	<i>0.38</i>	<i>0.48</i>	<i>0.36</i>	<i>0.33</i>	<i>0.33</i>	<i>0.26</i>	<i>0.26</i>

Table 4. (Continued)

	04C	04D	04E	05A	05B	05C	05D	05E	06A	06B	06C	06D	07A	07B	07C	08A	08B	08C
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0.39	0	0	0.75	0	0
Cambodia	0.75	0.75	0.75	0	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.73	0.56	0	0	0	0
Indonesia	0	0	0	0	0.63	0.56	0.56	0.56	0	0	0	0	0.19	0.32	0	0.63	0	0
Laos	0	0	0	0	0.56	0.44	0	0	0.06	0.06	0.06	0.06	0	0.03	0	0.5	0	0
Malaysia	0.5	0	0	0	0	0.19	0	0	0	0	0	0	0.33	0.05	0	0	0.63	0
Myanmar	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0
Philippines	0	0	0	0	0	0	0	0	0.44	0	0	0	0.42	0.58	0	0	0	0
Singapore	0	0.75	0	0	0	0	0.75	0	0	0	0.5	0.5	0.47	0.52	0	0	0.5	0.5
Thailand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vietnam	0.5	0.75	0	0	0.25	0.25	0.25	0.25	0.5	0.63	0	0.5	0.75	0.29	0.44	0.69	0.69	0
<i>ASEAN Average (excl. Thailand)</i>	<i>0.19</i>	<i>0.25</i>	<i>0.08</i>	<i>0.00</i>	<i>0.16</i>	<i>0.24</i>	<i>0.26</i>	<i>0.17</i>	<i>0.19</i>	<i>0.16</i>	<i>0.15</i>	<i>0.20</i>	<i>0.36</i>	<i>0.26</i>	<i>0.05</i>	<i>0.29</i>	<i>0.20</i>	<i>0.06</i>
Korea	0.56	0.75	0	0	0	0.31	0.31	0	0.63	0.63	0	0.63	0.31	0.17	0	0	0	0
<i>Total Average (excl. Thailand)</i>	<i>0.23</i>	<i>0.3</i>	<i>0.08</i>	<i>0</i>	<i>0.14</i>	<i>0.25</i>	<i>0.26</i>	<i>0.16</i>	<i>0.24</i>	<i>0.21</i>	<i>0.13</i>	<i>0.24</i>	<i>0.36</i>	<i>0.25</i>	<i>0.04</i>	<i>0.26</i>	<i>0.18</i>	<i>0.05</i>

Table 4. (Continued)

	08D	09A	09B	09C	09D	10A	10B	10C	10D	10E	11A	11B	11C	11D	11E	11F	11G	11H	11I	Average		
Brunei	0	0.44	0	0	0	0	0	0	0	0	0.25	0	0.25	0	0	0	0	0	0	0	0.08	
Cambodia	0	0.31	0.75	0.75	0	0.75	0	0	0	0	0	0	0.15	0	0	0.75	0.63	0	0	0	0.36	
Indonesia	0	0.69	0.63	0.63	0	0	0	0	0	0	0.23	0	0.14	0	0	0	0	0.13	0	0	0.18	
Laos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.07
Malaysia	0	0.69	0.63	0	0.69	0.44	0	0	0.44	0	0.53	0	0.1	0	0	0	0	0.17	0	0	0.19	
Myanmar	0	0	0	0	0	0	0	0	0	0	0.19	0	0.21	0	0	0	0	0.25	0	0	0.03	
Philippines	0	0.63	1	0	0	0	0	0	0	0	0.57	0	0.53	0	0.45	0.43	0.28	0.63	0	0	0.16	
Singapore	0	0.63	0.5	0.75	0	0.75	0	0	0	0	0.38	0	0	0	0	0	0	0	0	0	0.31	
Thailand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	
Vietnam	0	0.75	0.75	0	0	0.38	0	0	0.44	0	0.15	0.13	0.43	0	0.1	0.2	0	0.19	0	0	0.31	
<i>ASEAN Average (excl. Thailand)</i>	<i>0.00</i>	<i>0.46</i>	<i>0.47</i>	<i>0.24</i>	<i>0.08</i>	<i>0.26</i>	<i>0.00</i>	<i>0.00</i>	<i>0.10</i>	<i>0.00</i>	<i>0.26</i>	<i>0.01</i>	<i>0.20</i>	<i>0.00</i>	<i>0.06</i>	<i>0.15</i>	<i>0.10</i>	<i>0.15</i>	<i>0.00</i>	<i>0.00</i>	<i>0.19</i>	
Korea	0	0.5	0.75	0.75	0	0.38	0	0	0	0	0.52	0	0.5	0	0.05	0.38	0.25	0.59	0.5	0	0.28	
<i>Total Average (excl. Thailand)</i>	<i>0</i>	<i>0.46</i>	<i>0.5</i>	<i>0.29</i>	<i>0.07</i>	<i>0.27</i>	<i>0</i>	<i>0</i>	<i>0.09</i>	<i>0</i>	<i>0.28</i>	<i>0.01</i>	<i>0.23</i>	<i>0</i>	<i>0.06</i>	<i>0.18</i>	<i>0.12</i>	<i>0.2</i>	<i>0.05</i>	<i>0.05</i>	<i>0.2</i>	

Source: Calculated from the database constructed.

Some observations can be made for each of the four FTAs, as follows.

- **The ASEAN Framework Agreement on Services (AFAS) by Country and by Sector**

AFAS has the highest level of commitment among the ASEAN+n FTAs: Its average level of commitment by all the ASEAN member countries is 0.33. The sector 09A (Hotels and Restaurants) has the highest average commitment by participating countries, at 0.68. Following are the observations by country.

Brunei: 01B (Computer and Related Services) has the largest degree of commitment of 0.69. The average level of commitment at 0.18.

Cambodia: 01B (Computer and Related Services), 02B (Courier Services), 02C (Telecommunication Services), 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04C (Retailing Services), 04D (Franchising), 05C (Higher Education Services), 05D (Adult Education), 05E (Other Education Services), 06A (Sewage Services), 06B (Refuse Disposal Services), 06C (Sanitation and Similar Services), 06D (Other Environmental Services), 09B (Travel Agencies and Tour Operators Services), 09C (Tourist Guides Services), and 11F (Road Transport Services), all have the largest degree of commitment at 0.75. The average level of commitment is 0.36.

Indonesia: 02C (Telecommunication Services) has the largest degree of commitment at 0.79. The average level of commitment is 0.35.

Laos: 02B (Courier Services) has the largest degree of commitment at 0.88. The average level of commitment is 0.33.

Malaysia: 01B (Computer and Related Services) and 09B (Travel Agencies and Tour Operators Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.31.

Myanmar: 01B (Computer and Related Services), 02B (Courier Services), 08C (Social Services) and 09A (Hotels and Restaurants) have the largest degree of commitment at 0.75. The average level of commitment is 0.33.

Philippines: 02B (Courier Services) has the largest degree of commitment at 0.94. The

average level of commitment is 0.29.

Singapore: 01C (Research and Development Services), 2D (Audiovisual Services), 03A (General Construction Work for Building), 03B (General Construction work for Civil Engineering), 03C (Installation and Assembly Work), 03D (Building Completion and Finishing Work), 03E (Other), 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04C (Retailing Services), 04D (Franchising), 05D (Adult Education), 09C (Tourist Guides Services), 10A (Entertainment Services), 10C (Libraries, archives, museums and other cultural services), all have the largest degree of commitment at 0.75. The average level of commitment is 0.36.

Thailand: 01B (Computer and Related Services), 06A (Sewage Services), 09A (Hotels and Restaurants) and 09D (Other Health Related and Social Services) have the largest degree of commitment at 0.88. The average level of commitment is 0.46.

Vietnam: 02B (Courier Services), 02C (Telecommunication Services), 04D (Franchising), 09A (Hotels and Restaurants) and 09B (Travel Agencies and Tour Operators Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.33.

- **The ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) by Country and by Sector**

The sector 01B (Computer and Related Services) has the highest average commitment by participating countries, at 0.70. The ASEAN average is 0.20. The total average of commitment by country under AANZFTA is 0.23. Following are the observations by country.

Australia: 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04D (Franchising), 06A (Sewage Services), 06B (Refuse Disposal Services), 06C (Sanitation and Similar Services), 06D (Other Environmental Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.38.

Brunei: 01B (Computer and Related Services) has the largest degree of commitment at 0.75. The average level of commitment is 0.07.

Cambodia: 01B (Computer and Related Services) has the largest degree of commitment at 1.0 (full score). The average level of commitment is 0.38.

Indonesia: 08A (Hospital Services) and 09A (Hotels and Restaurants) have the largest degree of commitment at 0.63. The average level of commitment is 0.16.

Laos: 01B (Computer and Related Services) has the largest degree of commitment at 0.80. The average level of commitment is 0.12.

Malaysia: 01B (Computer and Related Services) has the largest degree of commitment at 0.80. The average level of commitment is 0.16.

Myanmar: 01B (Computer and Related Services) has the largest degree of commitment at 0.88. The average level of commitment is 0.11.

New Zealand: 01B (Computer and Related Services) has the largest degree of commitment at 1.0 (full score). The average level of commitment is 0.39.

Philippines: 09B (Travel Agencies and Tour Operators Services) has the largest degree of commitment at 0.75. The average level of commitment is 0.11.

Singapore: 01B (Computer and Related Services) has the largest degree of commitment at 1.0 (full score). The average level of commitment is 0.32.

Thailand: 01B (Computer and Related Services) has the largest degree of commitment at 1.0 (full score). The average level of commitment is 0.22.

Vietnam: 02B (Courier Services), 02C (Telecommunication Services), 04D (Franchising), 07A (All Insurance and Insurance-related Services), 09A (Hotels and Restaurants), 09B (Travel Agencies and Tour Operators Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.32.

- **ASEAN-China Free Trade Agreement (ACFTA) by Country and by Sector**

The sector 09B (Travel Agencies and Tour Operators Services) has the highest average commitment by participating countries, at 0.34. The ASEAN average is 0.12. The total average of commitment by country under ACFTA is 0.12. Following are the observations by country.

Brunei: 11F (Road Transport Services) has the largest degree of commitment at 0.75.
The average level of commitment is 0.02.

Cambodia: 01B (Computer and Related Services), 02B (Courier Services), 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04C (Retailing Services), 04D (Franchising), 04E (Other Distribution Services), 05C (Higher Education Services), 05D (Adult Education), 05E (Other Education Services), 06A (Sewage Services), 06B (Refuse Disposal Services), 06C (Sanitation and Similar Services), 06D (Other Environmental Services), 08A (Hospital Services), 09B (Travel Agencies and Tour Operators Services), 09C (Tourist Guides Services), 10A (Entertainment Services), all have the largest degree of commitment at 0.75. The average level of commitment is 0.36.

Indonesia: 09A (Hotels and Restaurants) has the largest degree of commitment at 0.63.
The average level of commitment is 0.04.

Laos: 07A (All Insurance and Insurance-related Services) has the largest degree of commitment at 0.50. The average level of commitment is 0.02.

Malaysia: 02C (Telecommunication Services) and 07B (Banking and Other Financial Services) have the largest degree of commitment at 0.69. The average level of commitment is 0.06.

Myanmar: 02D (Audiovisual Services) has the largest degree of commitment at 0.44.
The average level of commitment is 0.02.

Philippines: 09B (Travel Agencies and Tour Operators Services) has the largest degree of commitment at 1.0. The average level of commitment is 0.04.

China: 01D (Real Estate Services) and 11F (Road Transport Services) have the largest degree of commitment at 0.69. The average level of commitment is 0.13.

Singapore: 04D (Franchising), 05D (Adult Education), 05E (Other Education Services), 09B (Travel Agencies and Tour Operators Services), 09C (Tourist Guides Services), 10A (Entertainment Services) and 10C (Libraries, archives, museums and other cultural services) have the largest degree of commitment at 0.75. The average level of commitment is 0.23.

Thailand: 09D (Tourist Guides Services) has the largest degree of commitment at 0.81.

The average level of commitment is 0.06.

Vietnam: 01B (Computer and Related Services), 02B (Courier Services), 04D (Franchising), 07A (All Insurance and Insurance-related Services), 09A (Hotels and Restaurants), 09B (Travel Agencies and Tour Operators Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.33.

- **ASEAN-Korea Free Trade Agreement (AKFTA) by Country and by Sector**

The sector 09B (Travel Agencies and Tour Operators Services) has the highest average commitment by participating countries, at 0.50. The ASEAN average is 0.19. The total average of commitment by country under AKFTA is 0.20. Following are the observations by country.

Brunei: 08A (Hospital Services) has the largest degree of commitment at 0.75. The average level of commitment is 0.08.

Cambodia: 01B (Computer and Related Services), 02B (Courier Services), 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04C (Retailing Services), 04D (Franchising), 04E (Other Distribution Services), 05C (Higher Education Services), 05D (Adult Education), 05E (Other Education Services), 06A (Sewage Services), 06B (Refuse Disposal Services), 06C (Sanitation and Similar Services), 06D (Other Environmental Services), 09B (Travel Agencies and Tour Operators Services), 09C (Tourist Guides Services), 10A (Entertainment Services), 11F (Road Transport Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.36.

Indonesia: 09A (Hotels and Restaurants) has the largest degree of commitment at 0.69. The average level of commitment is 0.18.

Korea: 01B (Computer and Related Services), 04D (Franchising), 09B (Travel Agencies and Tour Operators Services), and 09C (Tourist Guides Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.28.

Laos: 03B (General Construction work for Civil Engineering), 03C (Installation and Assembly Work), and 05B (Secondary Education Services) have the largest degree of commitment at 0.56. The average level of commitment is 0.07.

Malaysia: 09A (Hotels and Restaurants) and 09D (Other Tourism and Travel Related Services) have the largest degree of commitment at 0.69. The average level of commitment is 0.19.

Myanmar: 03B (General Construction work for Civil Engineering) has the largest degree of commitment at 0.63. The average level of commitment is 0.03.

Philippines: 09B (Travel Agencies and Tour Operators Services) has the largest degree of commitment at 1.0. The average level of commitment is 0.16.

Singapore: 03A (General Construction Work for Building), 03B (General Construction work for Civil Engineering), 03C (Installation and Assembly Work), 03D (Building Completion and Finishing Work), 03E (Other Construction and Related Engineering Services), 04A (Commission Agents' Services), 04B (Wholesale Trade Services), 04D (Franchising) 05D (Adult Education), 09C (Tourist Guides Services), 10A (Entertainment Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.31.

Thailand: NA

Vietnam: 01B (Computer and Related Services), 02B (Courier Services), 02C (Telecommunication Services), 04D (Franchising), 07A (All Insurance and Insurance-related Services), 09A (Hotels and Restaurants), 09B (Travel Agencies and Tour Operators Services) have the largest degree of commitment at 0.75. The average level of commitment is 0.31.

4. Correlation among the Participating Countries

After calculating the Hoekman Index, similarities among participating countries have been measured in the form of correlation coefficients. This has been done by comparing the calculated Hoekman Indices by country and by sector (as in Tables 1-4). The results are presented in Table 5-8.

Under AFAS (as shown in Table 5), high correlations can be observed between (1) Malaysia and Vietnam (correlation coefficient=0.609); (2) Laos and Vietnam (correlation coefficient=0.608). There is no negative correlation observed among the ten ASEAN countries, indicating that they all have concern for common sensitive sectors as well as less-sensitive ones. Malaysia has the strongest positive correlation with the ASEAN average (correlation coefficient of 0.791). The simple average of all of the coefficients between different countries listed in the Table is calculated as 0.341 (not shown in the Table). This is the second highest among the four FTAs under coverage in this study, as seen below.

Under the ASEAN-Australia-New Zealand FTA (results are shown in Table 6), there is no correlation coefficient higher than 0.700, showing that under this FTA, each country has its own individual sensitivities. All the correlation coefficients are positive (with the highest one being 0.688 between Australia and New Zealand), with just one exception (between Myanmar and the Philippines, yet the coefficient, -0.053 is low in magnitude). Malaysia has the strongest positive correlation with the ASEAN average (correlation coefficient of 0.805). The simple average of all of the coefficients between different countries listed in the Table is calculated as 0.349 (not shown in the Table). This average is the highest, and a little higher than that for AFAS (i.e., 0.341), indicating that, relatively speaking, the member countries are similar in their service sector commitments.

Under the ASEAN-China FTA (results are shown in Table 7), there is no correlation coefficient higher than 0.700, just as in the case of the ASEAN-Australia-New Zealand FTA. The highest coefficient is 0.588 (between Vietnam and Cambodia). Vietnam has the strongest positive correlation with the ASEAN average (correlation coefficient

of 0.789). The simple average of all of the coefficients between different countries listed in the Table is calculated as 0.059 (not shown in the Table). This is the lowest among the four FTAs investigated in this study. This seems to signify that the participation by China as a big supplier and market for trade in services, is rather “sensitive” and therefore the commitments by individual countries are diverse, reflecting intensified sensitivities.

Under the ASEAN-Korea FTA (results are shown in Table 8), there is no correlation coefficient higher than 0.700, as in the ASEAN-Australia-New Zealand FTA and the ASEAN-China FTA. The highest coefficient is 0.572 (between Brunei and Indonesia). Vietnam has the strongest positive correlation with the ASEAN average (correlation coefficient of 0.780). The simple average of all of the coefficients between different countries listed in the Table is calculated as 0.241 (not shown in the Table). This is the second lowest correlation among the four FTAs at issue in this study.

Table 5. Correlation Coefficients for the ASEAN Framework Agreement on Services (AFAS)

	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	<i>ASEAN Average</i>
Brunei	1										
Cambodia	0.027	1									
Indonesia	0.221	0.222	1								
Laos	0.336	0.391	0.346	1							
Malaysia	0.458	0.371	0.433	0.554	1						
Myanmar	0.173	0.403	0.375	0.556	0.402	1					
Philippines	0.213	0.313	0.063	0.242	0.395	0.213	1				
Singapore	0.151	0.38	0.144	0.443	0.468	0.542	0.245	1			
Thailand	0.264	0.237	0.228	0.446	0.417	0.298	0.248	0.339	1		
Vietnam	0.188	0.339	0.554	0.608	0.609	0.56	0.295	0.338	0.28	1	
<i>ASEAN Average</i>	0.443	0.602	0.551	0.769	0.791	0.717	0.51	0.649	0.595	0.743	1

Source: Calculated from Table 1.

Table 6. Correlation Coefficients for the ASEAN-Australia-New Zealand FTA

	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	<i>ASEAN-Ave.</i>	Australia	New Zealand	<i>Total-Ave.</i>
Brunei	1													
Cambodia	0.249	1												
Indonesia	0.479	0.305	1											
Laos	0.371	0.334	0.423	1										
Malaysia	0.68	0.287	0.664	0.505	1									
Myanmar	0.574	0.186	0.622	0.397	0.576	1								
Philippines	0.161	0.218	0.177	0.163	0.291	-0.053	1							
Singapore	0.499	0.365	0.355	0.279	0.519	0.277	0.13	1						
Thailand	0.502	0.295	0.39	0.552	0.466	0.442	0.121	0.24	1					
Vietnam	0.287	0.498	0.482	0.219	0.39	0.159	0.424	0.333	0.188	1				
<i>ASEAN-Ave.</i>	0.701	0.638	0.739	0.651	0.805	0.61	0.388	0.652	0.631	0.635	1			
Australia	0.134	0.43	0.121	0.362	0.194	0.254	0.091	0.194	0.329	0.33	0.4	1		
New Zealand	0.366	0.479	0.342	0.514	0.483	0.462	0.166	0.336	0.53	0.221	0.61	0.688	1	
<i>Total-Ave.</i>	0.644	0.66	0.668	0.666	0.757	0.608	0.353	0.609	0.648	0.596	0.967	0.597	0.772	1

Source: Calculated from Table 2.

Table 7. Correlation Coefficients for the ASEAN-China FTA

	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	ASEAN-Ave.	China	Total-Ave.
Brunei	1												
Cambodia	-0.202	1											
Indonesia	-0.014	0.077	1										
Laos	-0.046	0.222	-0.069	1									
Malaysia	-0.032	0.239	-0.112	0.449	1								
Myanmar	0.118	-0.239	-0.077	-0.056	-0.033	1							
Philippines	-0.011	0.173	0.246	-0.055	-0.072	-0.056	1						
Singapore	0.056	0.312	-0.25	0.121	-0.076	-0.198	0.105	1					
Thailand	-0.041	-0.005	0.169	-0.082	0.069	-0.092	0.462	-0.052	1				
Vietnam	-0.071	0.583	0.273	0.302	0.326	-0.076	0.316	0.12	0.113	1			
ASEAN-Ave.	0.028	0.752	0.233	0.36	0.39	-0.142	0.502	0.454	0.326	0.789	1		
China	0.286	0.157	0.262	0.013	-0.073	-0.055	-0.009	-0.09	-0.211	0.145	0.092	1	
Total-Ave.	0.098	0.75	0.285	0.344	0.351	-0.148	0.473	0.408	0.257	0.783	0.969	0.334	1

Source: Calculated from Table 3.

Table 8. Correlation Coefficients for the ASEAN-Korea FTA

	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Vietnam	ASEAN-Ave.	Korea	Total-Ave.
Brunei	1											
Cambodia	0.06	1										
Indonesia	0.572	0.262	1									
Laos	0.455	0.089	0.554	1								
Malaysia	0.431	0.105	0.369	0.14	1							
Myanmar	0.217	-0.074	0.165	0.274	0.204	1						
Philippines	0.087	0.048	0.166	-0.127	0.165	0.345	1					
Singapore	0.289	0.447	0.366	0.192	0.422	0.138	-0.008	1				
Vietnam	0.523	0.483	0.391	0.243	0.499	0.09	0.181	0.459	1			
ASEAN-Ave.	0.623	0.581	0.711	0.444	0.631	0.322	0.352	0.694	0.78	1		
Korea	0.065	0.422	0.144	-0.274	0.212	0.052	0.304	0.293	0.406	0.386	1	
Total-Ave.	0.577	0.611	0.671	0.345	0.613	0.301	0.38	0.686	0.788	0.982	0.553	1

Source: Calculated from Table 4.

Correlation among the ASEAN+n FTAs has also been measured, using the sector-average value of Hoekman Index in Tables 1-4. The result is shown in Table 9. The highest positive correlation of 0.870 is observed between the ASEAN-Australia-New Zealand FTA and the ASEAN-Korea FTA. The lowest correlation of 0.615 is observed between the ASEAN Framework Agreement on Services and the ASEAN-China FTA. This, though, is also a positive value. There is no negative correlation observed among the four FTAs. Since country-difference is not considered in this analysis (due to differing membership across different FTAs), sector-specific factors are relevant here: Sectors with open orientation and those with domestic sensitivities are more or less shared across all the four FTAs.

Overall, strong correlations (coefficients of over 0.8) are observed among the following three FTAs, i.e., among (1) the ASEAN-Australia-New Zealand FTA, (2) the ASEAN-China FTA, and (3) the ASEAN-Korea FTA. In other words, the ASEAN Framework Agreement on Services has an unusual commitment pattern, reflecting some degree of a unified ASEAN membership.

Table 9. Correlation Coefficients among the Four FTAs

	ASEAN Framework Agreement on Services	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA (Data for Thailand missing)
ASEAN Framework Agreement on Services	1			
ASEAN-Australia-New Zealand FTA	0.718	1		
ASEAN-China FTA	0.615	0.826	1	
ASEAN-Korea FTA (Data for Thailand missing)	0.704	0.870	0.830	1

Source: Calculated from Tables 1-4.

Next, correlation of commitments by the same country under different FTAs is calculated, as in Table 10-19. These Tables reveal that there is no “convergence” of country-level commitments under different FTAs observed as they currently stand, and that the degree of similarity differs greatly across different countries and also across different pairs of FTAs. Overall, however, most correlation coefficients are positive, revealing that each country generally expresses similar domestic concerns under the different FTAs.

Table 10. Correlation of Commitments by Brunei under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.401	1		
ASEAN-China FTA	-0.084	0.011	1	
ASEAN-Korea FTA	0.43	0.742	0.026	1

Source: Calculated from Tables 1-4.

Table 11. Correlation of Commitments by Cambodia under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.852	1		
ASEAN-China FTA	0.807	0.952	1	
ASEAN-Korea FTA	0.886	0.947	0.907	1

Source: Calculated from Tables 1-4.

Table 12. Correlation of Commitments by Indonesia under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.383	1		
ASEAN-China FTA	0.203	0.505	1	
ASEAN-Korea FTA	0.457	0.905	0.459	1

Source: Calculated from Tables 1-4.

Table 13. Correlation of Commitments by Laos under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.431	1		
ASEAN-China FTA	-0.09	0.164	1	
ASEAN-Korea FTA	0.493	0.216	-0.095	1

Source: Calculated from Tables 1-4.

Table 14. Correlation of Commitments by Malaysia under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.484	1		
ASEAN-China FTA	0.171	0.397	1	
ASEAN-Korea FTA	0.396	0.599	0.211	1

Source: Calculated from Tables 1-4.

Table 15. Correlation of Commitments by Myanmar under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.336	1		
ASEAN-China FTA	-0.004	0.075	1	
ASEAN-Korea FTA	0.085	0.308	0.345	1

Source: Calculated from Tables 1-4.

Table 16. Correlation of Commitments by the Philippines under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.529	1		
ASEAN-China FTA	0.394	0.538	1	
ASEAN-Korea FTA	0.576	0.778	0.5	1

Source: Calculated from Tables 1-4.

Table 17. Correlation of Commitments by Singapore under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.739	1		
ASEAN-China FTA	0.31	0.303	1	
ASEAN-Korea FTA	0.746	0.837	0.333	1

Source: Calculated from Tables 1-4.

Table 18. Correlation of Commitments by Thailand under the Three Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA
AFAS	1		
ASEAN-Australia-New Zealand FTA	0.408	1	
ASEAN-China FTA	0.237	0.345	1

Note: Thailand's commitment table under ASEAN-Korea is not available.

Source: Calculated from Tables 1-4.

Table 19. Correlation of Commitments by Vietnam under the Four Different FTAs

	AFAS	ASEAN-Australia-New Zealand FTA	ASEAN-China FTA	ASEAN-Korea FTA
AFAS	1			
ASEAN-Australia-New Zealand FTA	0.59	1		
ASEAN-China FTA	0.567	0.951	1	
ASEAN-Korea FTA	0.554	0.925	0.967	1

Source: Calculated from Tables 1-4.

5. Cluster Analysis

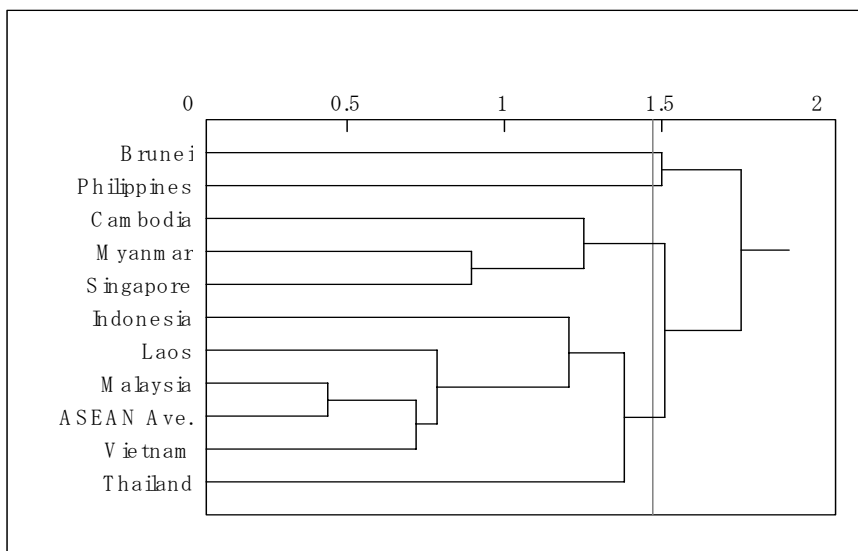
The next attempt is to highlight similarities in commitments among individual participating members by FTA. The standard pair-wise clustering method⁷ has been applied to the calculated Hoekman Indices (as in Tables 1-4). Figures 1-4 show the results of pair-wise clustering. Figure 1 shows the clustering of countries under AFAS in the form of a “dendrogram” (tree-shaped categorization). As shown, Malaysia is closest to the simple-average of commitments by all the signatory countries (labeled as “ASEAN Ave.” in the Figure). The commitment patterns do not seem to be categorized perfectly according to the level of economic development (in terms of per-capita GDP). Also, Cambodia, Laos, Myanmar and Vietnam (so-called “CLMV” countries as latecomer members of ASEAN) are not clustered close to one another, reflecting individual commitment patterns for each of them. Judging from the “distance” (measured by the horizontal axis in the Figure), the distances between ASEAN countries are closest under AFAS among the four FTAs studied, since all the ASEAN countries are clustered together within the distance of 2, whereas in the other Figures, the final clustering is done beyond the distance of 2. Figure 2 reveals that Australia and New Zealand are closest to the “Average”, which indicates that their

⁷ Cluster analysis is a method of grouping observations into subgroups (called clusters) so that observations in the same cluster are similar in terms of "distance", which is Euclidean distance. The concrete method of clustering is illustrated in APPENDIX II.

commitment patterns are, interestingly, “typical” of ASEAN members. Figure 3 for the ASEAN-China FTA shows that China is clustered rather away from the “Average” commitment pattern. Vietnam is closest to the “Average” just as in the case of Figure 1 (for the AFAS). Figure 4 for the ASEAN-Korea FTA shows that Korea is categorized rather close to the “Average” commitment pattern (although Vietnam is closest to the “Average”).

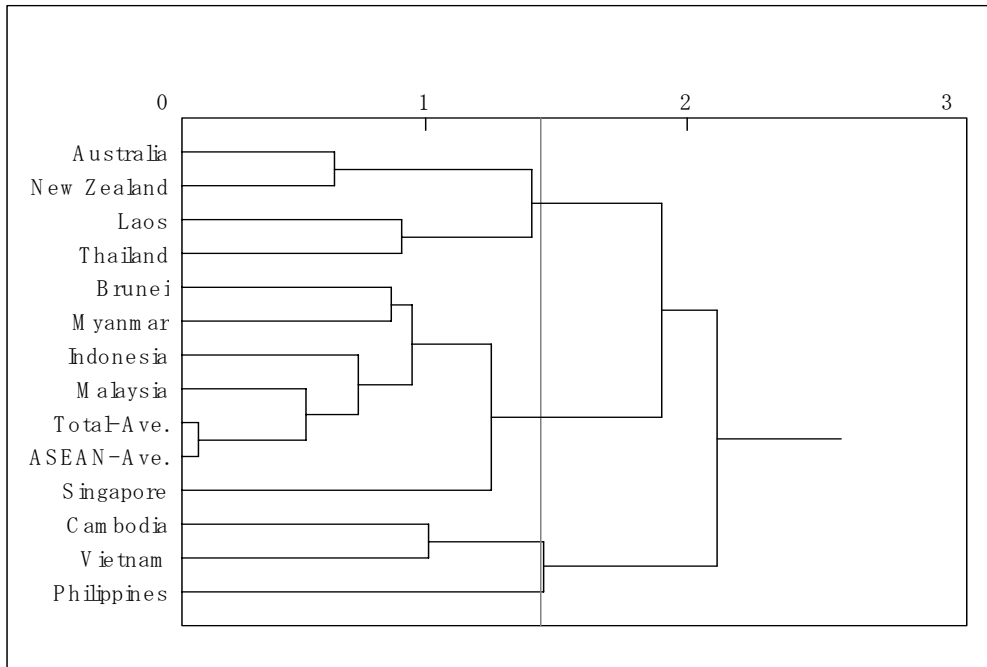
Clustering by sector of the country-average commitment under each FTA is shown in Figures 5-8. The upper part of the Figures show a group (or “cluster”) of rather highly committed sectors, while the bottom part groups those sectors less committed. Overall, idiosyncratic clustering of the neatly categorized 55 service sectors is observed, indicating that sensitivities differ even among similar service sectors. Since the more left-hand side of the Figures indicate shorter “distance” among the clustered pairs), so-called “cluster meeting” as seen in the GATS-based negotiations at the WTO, could also take place under these FTAs with a view to achieving cross-sector convergence in the future.

Figure 1. Clustering of Countries under AFAS (in the Form of a Dendrogram)



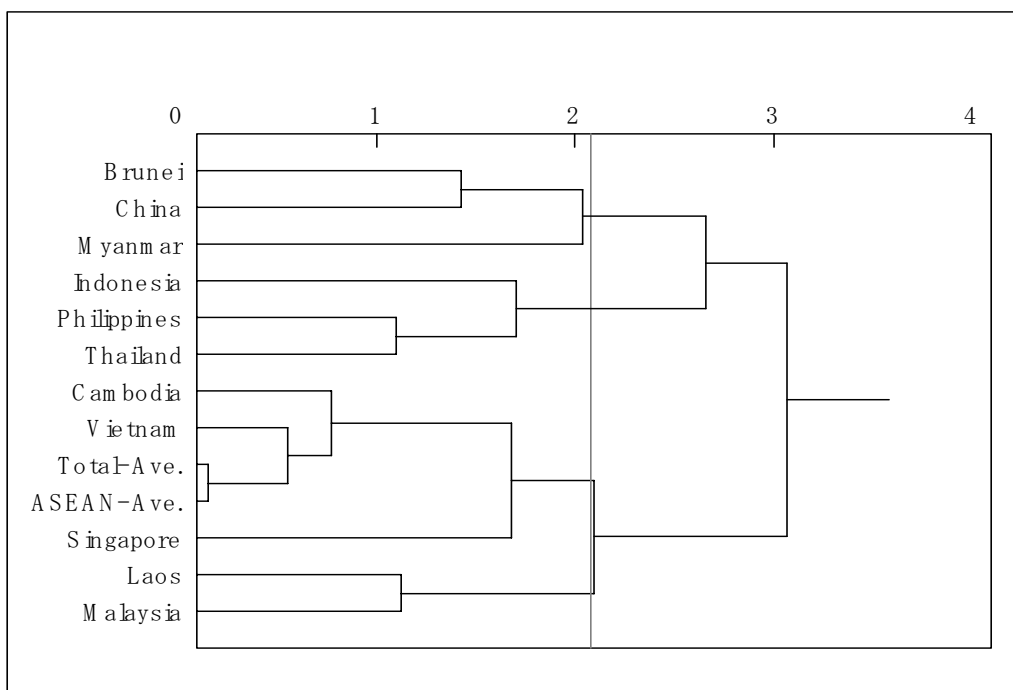
Source: Made from Table 1.

Figure 2. Clustering of Countries under ASEAN-Australia-New Zealand FTA (in the Form of a Dendrogram)



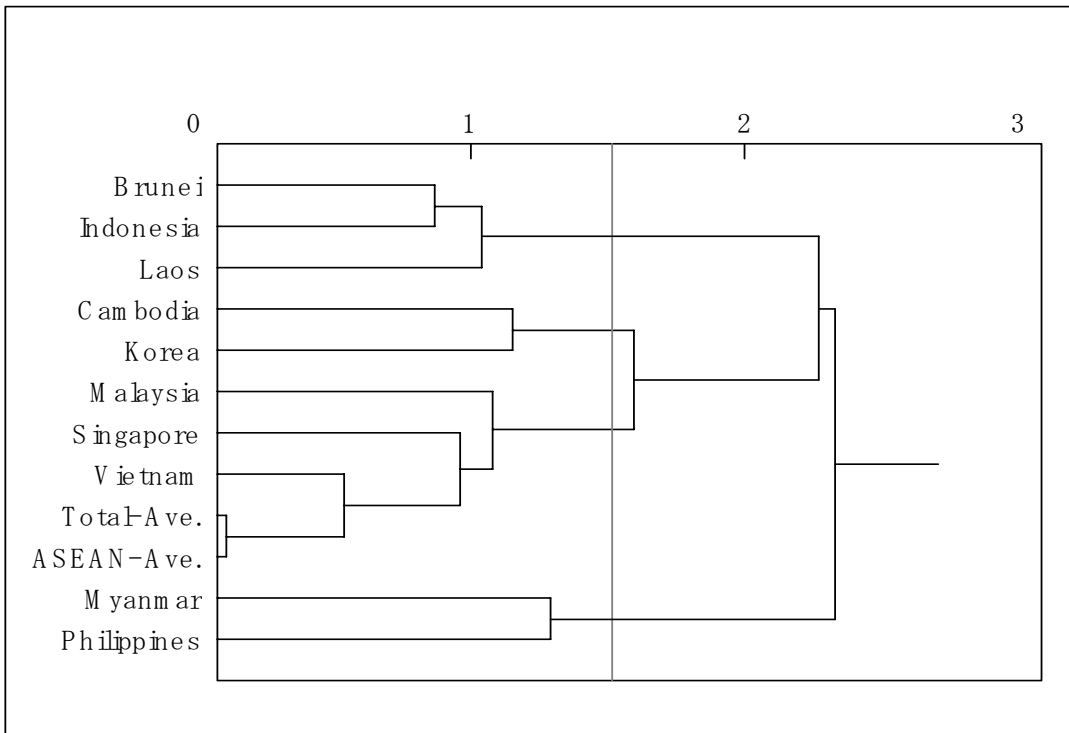
Source: Made from Table 2.

Figure 3. Clustering of Countries under ASEAN-China FTA (in the Form of a Dendrogram)



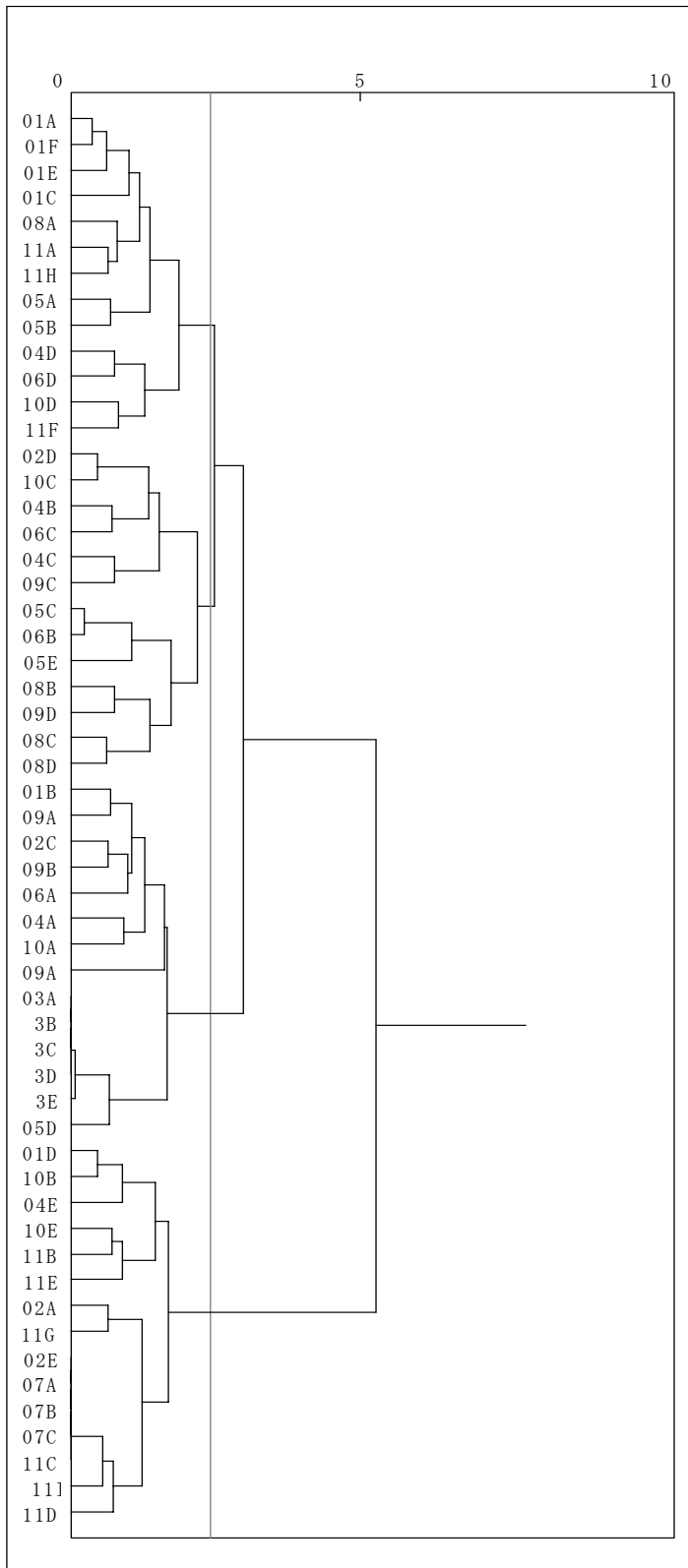
Source: Made from Table 3.

Figure 4. Clustering of Countries under ASEAN-Korea FTA (in the Form of a Dendrogram)



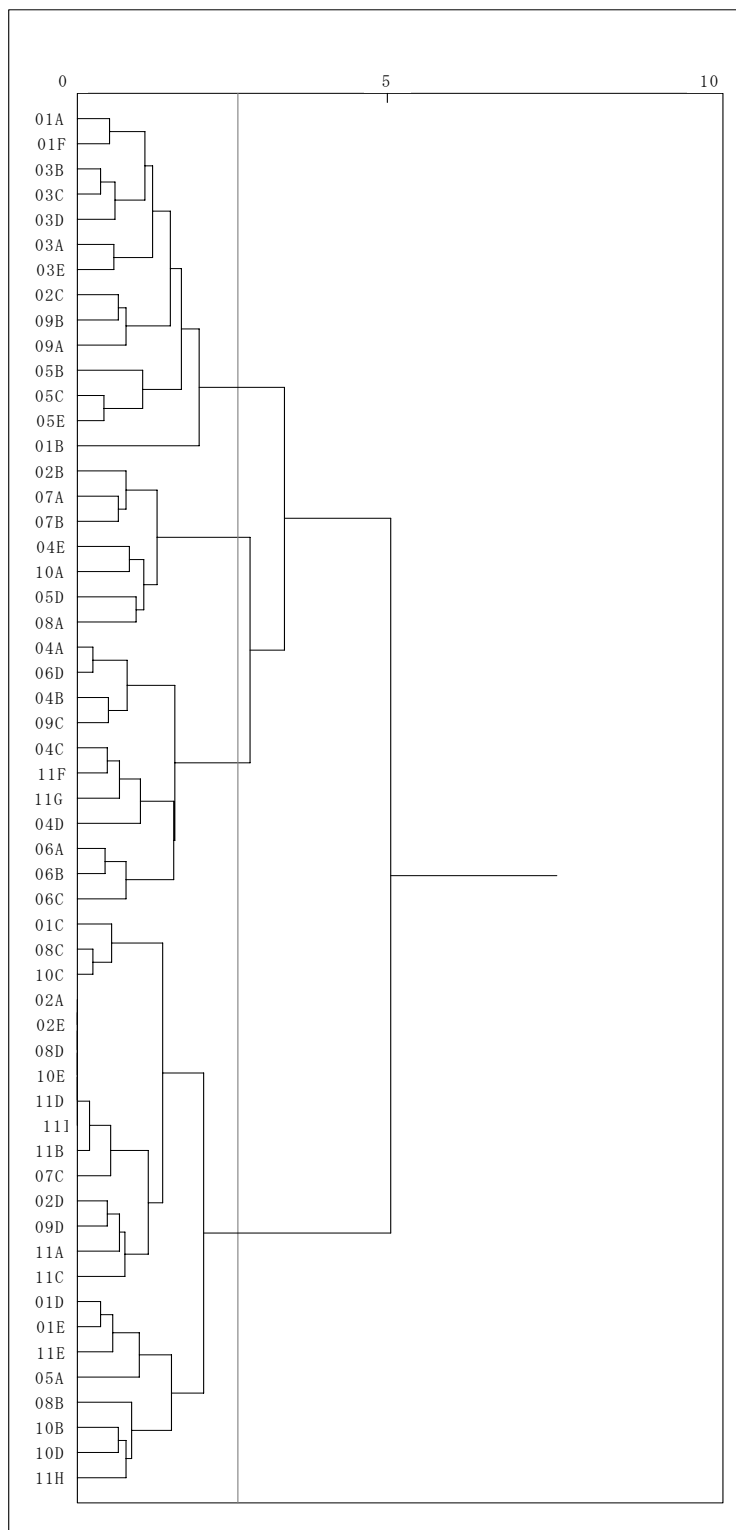
Source: Made from Table 4.

Figure 5. Clustering of Sectors under AFAS (in the Form of a Dendrogram)



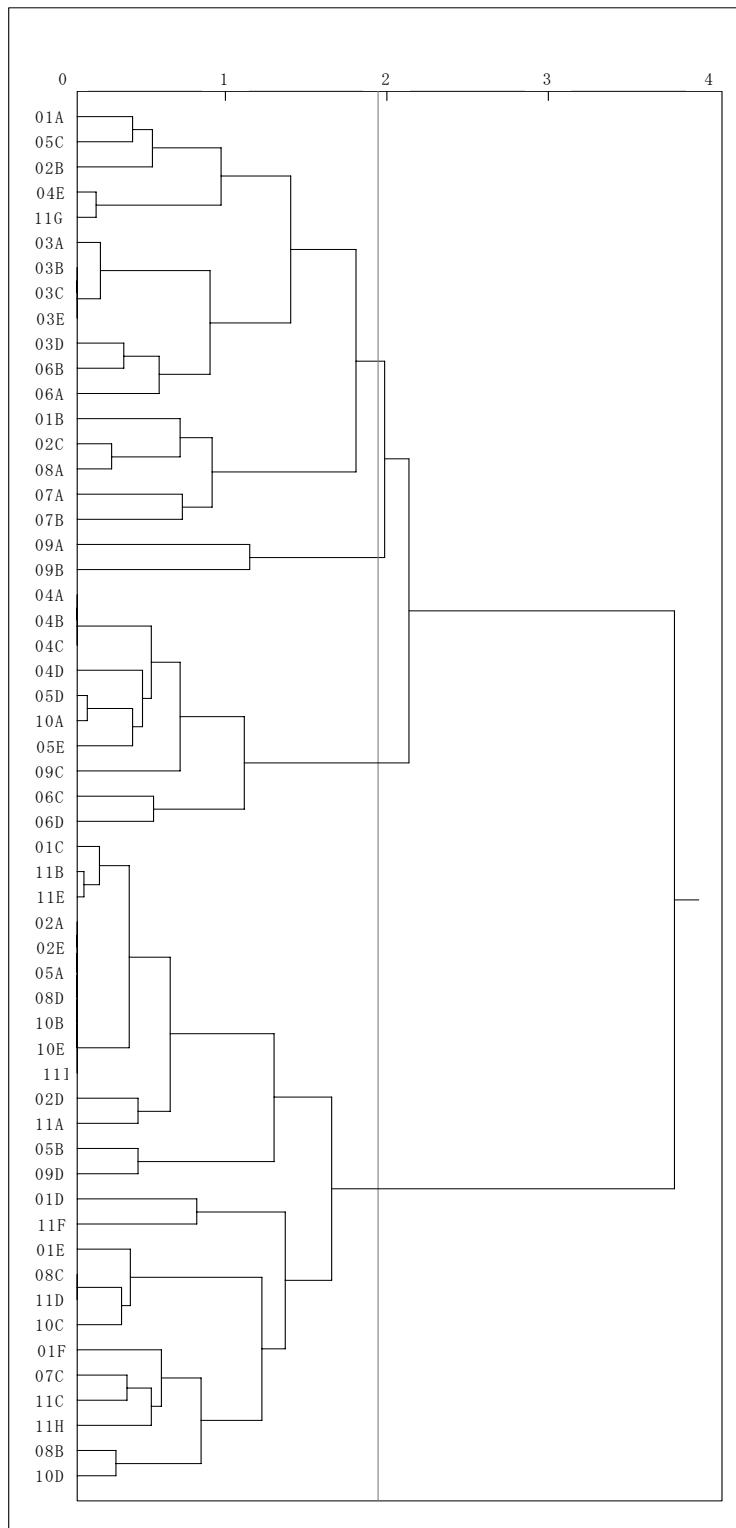
Source: Made by the author from the database constructed.

Figure 6. Clustering of Sectors under ASEAN-Australia-New Zealand FTA (in the Form of a Dendrogram)



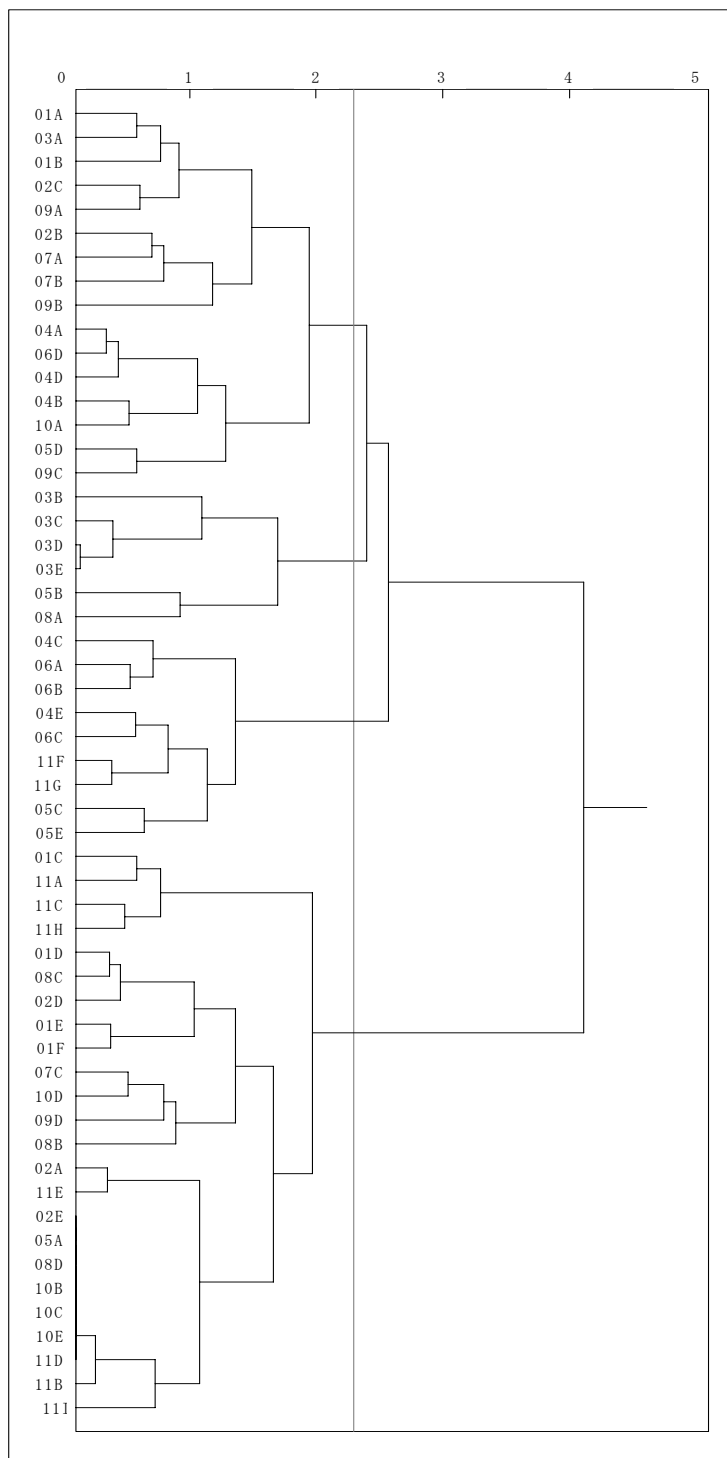
Source: Made by the author from the database constructed.

Figure 7. Clustering of Sectors under ASEAN-China FTA (in the Form of a Dendrogram)



Source: Made by the author from the database constructed.

Figure 8. Clustering of Sectors under ASEAN-Korea FTA (in the Form of a Dendrogram)



Source: Made by the author from the database constructed.

6. Hoekman Index by Country, by Mode and by Aspect

The Hoekman Index has also been calculated by country, by Mode and by aspect. Results are shown in Tables 20-23. A cross-cutting observation on the level of commitment by Mode is that while Mode 1 through Mode 3 have various country- and sector-specific commitment patterns, Mode 4 shows least commitments among the four Modes (except for the case of the ASEAN-Korea FTA, under which Mode 3 is least committed). Mode 2 shows most commitment overall. And there is not much difference between MA and NT for all the countries. While this study focuses on the mapping aspect, a detailed analysis of the determinants of service liberalization by mode would be desirable as a future research agenda.⁸

⁸ In the context of mode-by-mode determinants of trade in services, Urata *et al.* (2011) indicate that endowment-based trade models (of Heckscher-Ohlin type) could explain Mode 1-based trade in services; Mode 2 tend to be determined by supply-side considerations as featured in the Ricardo model; Modes 3 and 4, being flow of factors of production, might be explained by the theory of foreign direct investment.

Table 20. Hoekman Index for the ASEAN Framework Agreement on Services (AFAS) by Country, by Mode and by Aspect

	Aspect, i.e., Market Access (MA) or National Treatment (NT)	Mode 1	Mode 2	Mode 3	Mode 4	Mode average
Indonesia	MA	0.24	0.36	0.19	0.01	0.2
	NT	0.25	0.36	0.05	0.01	0.17
Malaysia	MA	0.41	0.53	0.51	0	0.36
	NT	0.42	0.53	0.48	0	0.36
Philippines	MA	0.48	0.57	0.24	0.11	0.35
	NT	0.48	0.57	0.19	0.15	0.35
Singapore	MA	0.54	0.54	0.28	0.06	0.35
	NT	0.54	0.53	0.1	0.07	0.31
Thailand	MA	0.3	0.54	0.32	0.04	0.3
	NT	0.3	0.52	0.43	0.03	0.32
Brunei	MA	0.4	0.51	0.3	0.13	0.34
	NT	0.5	0.51	0.22	0.11	0.33
Cambodia	MA	0.22	0.54	0.19	0.16	0.27
	NT	0.24	0.54	0.21	0.19	0.3
Laos	MA	0.39	0.56	0.43	0	0.34
	NT	0.46	0.56	0.5	0	0.38
Vietnam	MA	0.41	0.66	0.58	0.2	0.46
	NT	0.4	0.66	0.59	0.19	0.46
Myanmar	MA	0.24	0.56	0.43	0.05	0.32
	NT	0.3	0.56	0.5	0	0.34
Country average	MA	0.36	0.54	0.35	0.08	0.33
	NT	0.39	0.53	0.33	0.07	0.33

Source: Calculated from the database constructed.

Table 21. Hoekman Index for the ASEAN-Australia-New Zealand FTA by Country, by Mode and by Aspect

	Aspect, i.e., Market Access (MA) or National Treatment (NT)	Mode 1	Mode 2	Mode 3	Mode 4	Mode average
Brunei	MA	0.03	0.12	0.06	0.02	0.06
	NT	0.05	0.12	0.02	0.01	0.05
Cambodia	MA	0.41	0.54	0.51	0.02	0.37
	NT	0.43	0.54	0.52	0.02	0.38
Indonesia	MA	0.17	0.27	0.13	0.01	0.14
	NT	0.26	0.27	0.09	0.01	0.16
Laos	MA	0.17	0.17	0.22	0.01	0.14
	NT	0.17	0.17	0.04	0.02	0.1
Malaysia	MA	0.1	0.28	0.15	0.01	0.13
	NT	0.1	0.26	0.24	0.01	0.15
Myanmar	MA	0.1	0.2	0.07	0.02	0.1
	NT	0.2	0.2	0.07	0.02	0.12
Philippines	MA	0.05	0.19	0.12	0	0.09
	NT	0.07	0.19	0.15	0	0.1
Singapore	MA	0.3	0.43	0.38	0.02	0.28
	NT	0.35	0.43	0.42	0.02	0.3
Thailand	MA	0.04	0.41	0.36	0.02	0.21
	NT	0.03	0.4	0.38	0.02	0.21
Vietnam	MA	0.16	0.58	0.44	0	0.3
	NT	0.19	0.56	0.49	0	0.31
<i>ASEAN average</i>	MA	0.15	0.32	0.24	0.01	0.18
	NT	0.19	0.31	0.24	0.01	0.19
Australia	MA	0.39	0.55	0.57	0.01	0.38
	NT	0.42	0.56	0.52	0.01	0.38
New Zealand	MA	0.49	0.5	0.51	0.02	0.38
	NT	0.49	0.5	0.51	0.02	0.38
<i>Total average</i>	MA	0.2	0.35	0.29	0.01	0.21
	NT	0.23	0.35	0.29	0.01	0.22

Source: Calculated from the database constructed.

Table 22. Hoekman Index for the ASEAN-China FTA by Country, by Mode and by Aspect

Country	Aspect, i.e., Market Access (MA) or National Treatment (NT)	Mode 1	Mode 2	Mode 3	Mode 4	Mode average
Brunei	MA	0.03	0.03	0.03	0.01	0.02
	NT	0.03	0.03	0.02	0.01	0.02
Cambodia	MA	0.4	0.54	0.5	0	0.36
	NT	0.42	0.54	0.51	0	0.37
Indonesia	MA	0.02	0.09	0.05	0.04	0.05
	NT	0.02	0.04	0.05	0.04	0.03
Laos	MA	0.01	0.03	0.03	0	0.02
	NT	0.01	0.03	0.03	0	0.02
Malaysia	MA	0.07	0.07	0.07	0.01	0.06
	NT	0.08	0.08	0.1	0.01	0.07
Myanmar	MA	0.01	0.04	0.01	0.01	0.02
	NT	0.01	0.04	0	0.01	0.02
Philippines	MA	0.02	0.06	0.04	0.04	0.04
	NT	0.02	0.06	0.05	0.04	0.04
Singapore	MA	0.19	0.38	0.35	0	0.23
	NT	0.2	0.38	0.36	0	0.23
Thailand	MA	0.03	0.12	0.07	0.06	0.07
	NT	0.02	0.12	0.08	0	0.06
Vietnam	MA	0.2	0.6	0.5	0	0.33
	NT	0.22	0.6	0.55	0	0.34
ASEAN average	MA	0.10	0.20	0.17	0.02	0.12
	NT	0.10	0.19	0.18	0.01	0.12
China	MA	0.05	0.24	0.13	0	0.1
	NT	0.12	0.24	0.23	0.01	0.15
<i>Total average</i>	MA	0.09	0.2	0.16	0.01	0.12
	NT	0.1	0.2	0.18	0.01	0.12

Source: Calculated from the database constructed.

Table 23. Hoekman Index for the ASEAN-Korea FTA by Country, by Mode and by Aspect

Country	Aspect, i.e., Market Access (MA) or National Treatment (NT)	Mode 1	Mode 2	Mode 3	Mode 4	Mode average
Brunei	MA	0.18	0.09	0.01	0.06	0.08
	NT	0.19	0.05	0.01	0.08	0.08
Cambodia	MA	0.53	0.49	0	0.38	0.35
	NT	0.53	0.51	0	0.4	0.36
Indonesia	MA	0.3	0.15	0.06	0.2	0.18
	NT	0.3	0.12	0.12	0.2	0.19
Laos	MA	0.15	0.1	0	0.09	0.09
	NT	0.17	0.01	0	0.07	0.06
Malaysia	MA	0.34	0.2	0.01	0.19	0.19
	NT	0.32	0.3	0	0.16	0.2
Myanmar	MA	0.05	0.02	0.02	0.02	0.03
	NT	0.05	0.02	0.02	0.03	0.03
Philippines	MA	0.22	0.17	0.12	0.09	0.15
	NT	0.22	0.22	0.14	0.14	0.18
Singapore	MA	0.46	0.42	0	0.31	0.3
	NT	0.47	0.44	0	0.34	0.31
Vietnam	MA	0.01	0.01	0	0	0.01
	NT	0.01	0.01	0	0	0.01
<i>ASEAN average</i>	MA	0.25	0.18	0.02	0.15	0.15
	NT	0.25	0.19	0.03	0.16	0.16
Korea	MA	0.46	0.41	0	0.17	0.26
	NT	0.48	0.42	0	0.28	0.29
<i>Total average</i>	MA	0.27	0.21	0.02	0.15	0.16
	NT	0.27	0.21	0.03	0.17	0.17

Source: Calculated from the database constructed.

7. Conclusions and policy implications

This study focuses on mapping the degree of liberalization of trade in services under four ASEAN+n FTAs. There remains much need to investigate causal links between restrictions on trade in services and the actual performances of service trade.⁹

There are several caveats to be made in interpreting the mapped data. Most notably, there should be a distinction drawn between actual policy provisions and the noted commitments: the former might be well above the latter, indicating that in the actual business setting, a particular country's openness is more than the way the country makes its commitment under certain FTAs. This point leads to the need for both actual policy data and GATS-based commitment data. A comparison of actual policy data and the FTA-based bound commitments would reveal how lenient (or stringent) actual policy provisions are; and a comparison of GATS-based commitments and the FTA-based commitments would reveal whether so-called "WTO-plus" features exist or not.

Additionally, "enforcement" of the bound commitments is quite another issue: however deeply committed one country may be at the level of an FTA, such commitment might not be actually realized (enforced). Further, this study exclusively focuses on the "outline description", in the sense that the "Limitation" of individual service sectors is not quantified but simply denoted (in the database) as "L". Measuring the contents of limitations out of the commitment tables (characterized by "positive lists" rather than negative ones) requires an overall picture of each sector's legal framework. In this study, these aspects have not been considered, posing a limitation and at the same time providing an agenda for further study.

The mapping exercise in this study has overall revealed that:

- (1) The commitment level differs greatly between "sensitive" sectors and "less sensitive" sectors; this means that there is much scope for further enhancing international division of labor in terms of trade in services, through utilizing FTAs;

⁹ OECD (2003, 2009), for example, make systemic analyses of causal and/or correlation linkages between the restrictiveness and actual performance of trade in services.

- (2) The commitment level under the ASEAN Framework Agreement (AFAS) is the highest among the four FTAs studied; this means that the ASEAN member countries are rather highly consolidated among themselves, leading up to the formation of an ASEAN Economic Community (AEC);
- (3) There are cross-country similarities in the pattern of service sector commitment under each of the FTAs; this implies that the shared domestic sensitivities can be overcome by a shared economic cooperation scheme for enhancing competitiveness (through FTA provisions);
- (4) There are sector-specific similarities (high correlations) among the three FTAs, i.e., the ASEAN-Australia-New Zealand FTA, the ASEAN-China FTA and the ASEAN-Korea FTA; this signifies that in the face of extra-ASEAN market opening, the ASEAN members become more consolidated in terms of the pattern of service commitment;
- (5) Overall, Mode 4 (movement of people) is least committed, whereas Mode 2 (consumption abroad) is most committed under all the four FTAs studied.

There are two possibilities on the sequence of further streamlining the four FTAs:

- (1) Start within the same “clusters” among similarly committed countries under a particular FTA; then harmonize the level of commitments across all the signatory countries to the FTA; or
- (2) Start with harmonizing rather dissimilar countries from different “clusters” of commitments under a particular FTA, which provides small-scale “social experimenting”; then scale up this line of effort at an acceptably later stage to the level of the whole FTA, then eventually attempt to harmonize across all the FTAs centering on ASEAN, if the region covered by ASEAN+n FTAs is to become a more seamless market in terms of trade in services.

Either avenue would generate some degree of domestic concern. Overall, though, the absolute degree of commitment in service sectors remains rather low, even under the FTAs with a preferential nature. Given that there are more benefits than costs arising from deepening trade in services, further harmonization of the service chapters under

the four FTAs studied is economically valid for bringing about more benefit to the ASEAN members, as well as all the other participating countries in the Asia Pacific region. As for the near-future research agenda, mapping of other FTAs involving some ASEAN member countries should be done as a sequel research effort, with a view to elucidating similarities and differences among existing FTAs in the Asia Pacific region.¹⁰

¹⁰ Detailed sector-wise analysis with more elaborated and multi-dimensional quantification attempts (e.g., Ochiai *et al.*, 2007, and Dee, 2009) could also be an important future research agenda alongside the outline-mapping efforts made in this study. In the context of Ochiai *et al.*, (2007), for example, the criteria for sorting out the extent of liberalization in service trade under each of some 80 FTAs studied are quite wide-ranging, as below: Scope, MFN, MFN Exemption, National Treatment, Market Access, Local Presence, Domestic Regulations, Transparency, Recognition, Monopolies, Business Practices, Transfer and Payments, Denial of Benefits, Safeguard, Subsidies, Government Procurement, Ratchet Mechanism, Telecommunication, Financial Services (in terms of form of FTAs); and Excluded Modes, Excluded Form, Sectoral Exclusions, Regional Measures, Land Acquisitions, Minority Affairs, and Number of Domestic Employees (in terms of contents of FTAs). Although appropriate selection of criteria and their scores for weighting is always a contentious issue, this sort of analytical effort with a more focus on recently forged FTAs involving ASEAN and East Asia should be a useful next step.

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APPENDIX I. List of 11 Sectors and 55 Sub-sectors of Service Trade Administered by 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

- 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

APPENDIX II. Method of Cluster Analysis

The concrete method of clustering (or “hierarchical clustering” more formally) is as follows. First, the distances are calculated among individual countries’ commitment “vectors” (rows of average Hoekman commitment indices at the bottom of the Tables are used as the vectors); then closest pairs have been merged together and considered as one cluster; then afterwards similarly, merge the closest pairs and redo the calculation of ordinary distance and repeat the process.

A numerical example is as follows: suppose there are 5 vectors of type (x, y) –or two dimensional--, A, B, C, D, E, as in Table AII-1. (In the present study, each country has a vector of dimension 55.)

Table AII-1. Numerical Example

Data vector	Value of x	Value of y
A	2	5
B	4	1
C	1	1
D	5	3
E	0	2

Then the Euclidian (standard) distance among the five vectors can be calculated as in Table AII-2.

Table AII-2. Euclidian Distance among the Five Vectors

	A	B	C	D	E
A	-				
B	4.472	-			
C	4.123	3.000	-		
D	3.606	2.236	4.472	-	
E	3.606	4.123	1.414	5.099	-

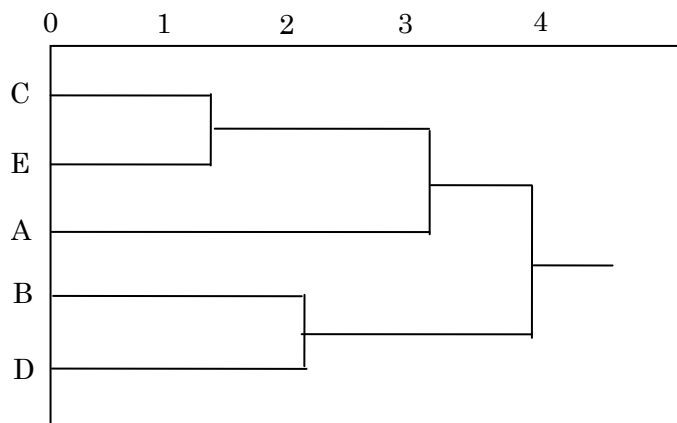
Since the distance between C and E (1.414) is the shortest, C and E should be merged together to form one combined cluster [C, E]. Then again, distances among these can be calculated as in Table AII-3. Note here that in the calculation of the distance between a vector and a combined cluster, the simple average of the vectors in the combined cluster (called centroid) is used.

Table AII-3. Euclidian Distance among the Three Vectors and One Combined Cluster

	A	B	D	[C, E]
A(C)	-			
B(D)	4.472	-		
D(E)	3.606	2.236	-	
[C, E] (A, B)	3.808	3.536	4.743	-

Since the distance between B and D (2.236) is the shortest, these two should be merged together to form one combined cluster [B, D]. Likewise, this merging process is repeated until all the vectors are merged into one combined cluster. Then the vectors A, B, C, D and E can be located in the dendrogram (tree figure) as in Figure 1A, with its horizontal axis measuring the distance at which each pair of vectors and/or clusters are merged.

Figure AII-1



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