

Examining Current Asean-Plus-One Fta Trade And The Implications For Intra-Regional Trade With The Regional Comprehensive Economic Partnership (Rcep) In Place.

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ABSTRACT

The study assesses the current state of ASEAN-plus-one FTAs' trade for the period 2001-2021 to give insights into the foundation which these five disparate FTAs have put in place regarding trade intensity and linkages. This is a foundation which the RCEP will utilise to enhance trade integration. Comparative advantage indexes, trade complementarity indexes, revealed trade barrier indexes and bilateral trade intensity indexes were computed. Results show that current trade in ASEAN-plus-one FTAs as well as the trade profiles between the FTA partners is well complementary. Revealed trade barrier indexes show that there is relatively easy access into the ASEAN market by products from the FTA partners, and trade linkages between the FTA countries are moderately strong. The ASEAN-plus-one FTAs as well as current trade between the FTA countries have developed a strong foundation upon which the RCEP can build on for further and deeper trade and economic integration between the member states. With RCEP's tariff reduction and a common rule of origin in place, trade linkages will be strengthened as entry into member countries markets is enhanced and the cost of doing business in the region improves. More opportunities for trade complementarity would emerge, and opportunities for increased participation in value additions will become more available and easily accessible.

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I. INTRODUCTION

The founding fathers of the Association of Southeast Asian Nations (ASEAN) are Indonesia, Malaysia, Philippines, Singapore, and Thailand and established on 8 August 1967 with the signing the ASEAN Declaration (Bangkok Declaration) in Bangkok, Thailand. Gradually, other countries joined ASEAN, with Brunei Darussalam doing so on 7 January 1984, followed by Viet Nam on 28 July 1995, Lao PDR and Myanmar on 23 July 1997, and Cambodia on 30 April 1999. These countries make up the ten member states of ASEAN. Southeast Asia is composed of eleven countries of great diversity in religion, culture and history, viz. Brunei, Burma (Myanmar), Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Of these countries, Timor-Leste, is the only one which is not a member of ASEAN but has an observer status.

To develop and strengthen further its participation in the global supply chain, ASEAN has put in place agreements to establish Free Trade Areas with some of the world's major economies who are also its key trading partners. The ASEAN-plus-one FTAs are: ASEAN-China Free Trade Area (ACFTA)²; ASEAN-Japan Comprehensive Economic Partnership (AJCEP)³; ASEAN-Korea Free Trade Area (AKFTA)⁴; and ASEAN-Australia-New Zealand Free Trade Area (AANZFTA)⁵. To integrate and join these disparate trade agreements into one overarching compact and unified trade agreement, the Regional Comprehensive Economic Partnership (RCEP) was conceived during the 2011 ASEAN Summit. Therefore, the RCEP is a one unified free trade agreement between the ten member states of ASEAN and its five FTA partners (Australia, China, Japan, New Zealand, and Republic of Korea). Graham (2021) and Keynes (2020) note that China previously had no trade deal

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² The Framework Agreement was signed in 2002 leading to the creation of the ACFTA by 1 January 2010.

³ This was signed on 14 April 2008 and entered into force on 1 December 2008.

⁴ The Framework Agreement was signed in 2005, which led to the signing of four more agreements that form the legal instruments for establishing this FTA.

⁵ This was signed on 27 February 2009.

with Japan nor did South Korea, and therefore, the RCEP unites China, Japan, and South Korea in a trade deal for the first time.

On 1 January 2022, the Regional Comprehensive Economic Partnership trade agreement came into effect following the ratification of the agreement by Australia and New Zealand. As a 15-member partnership, it is the world's largest free trade agreement (Graham, 2021).

II. METHODOLOGY

In the period 2001-2009, the various ASEAN-plus-one FTA were negotiated and came into effect, and on 1 January 2022, the RCEP came into effect. Therefore, this research focuses on trade between ASEAN and its FTA partners in the period 2001 – 2021 and the implications this has for intra-regional trade with the RCEP in place.

This article examines current trade in the ASEAN-plus-one FTAs as well as trade between the FTA members. The empirical work involves computing the following indexes, (i) the Revealed comparative advantage indexes to give some insights into common areas of comparative advantages and thus potential areas for joint production and participation in value chains, (ii) Trade complementarity indexes to examine the extent to which current trade between the ASEAN and each FTA partners is compatible, (iii) the Revealed trade barriers indexes to give insights into the extent to which products from the ASEAN FTA partners easily enter the ASEAN market, and (iv) the Revealed trade preference indexes to show extent of intensity of trade between ASEAN and each FTA partner, as well as the extent of intensity of current trade between the five ASEAN FTA partners.

Examining these aspects of trade in the ASEAN-plus-one FTAs and trade between the FTA members themselves is necessary because as noted in various literature⁶, the Natural Trading Hypothesis argues that high initial volume of trade between prospective member states in an FTA is important as an FTA between these members would reinforce the existing trading relations which would enhance intra-FTA trade and reduces welfare losses due to trade diversion. Furthermore, it has also been argued⁷ that apart from strong levels of bilateral trade, the FTA would be more welfare enhancing if the potential FTA members have strong and improving complementary or competitive trade structures. In addition, having diverse comparative advantage structures would boost trade and enable trade which results in efficiency gains from comparative cost differentials which would lead to an optimal economic welfare outcome in the grouping. Results of the assessment based on the indexes computed would be considered as a trade integration foundation upon which the RCEP would build to strengthen the regional bloc further.

Comparative Advantage Index

The traditional measure for comparative advantage is Balassa's (1965) revealed comparative advantage index. Identifying sectors of comparative advantage is important as this has implications for both inter-regional and intra-regional trade. The Balassa (1965) index is given by the equation:

$$RCA_{ik} = \frac{(X_k/X_i)}{(X_k/X)} \dots \dots \dots [1]$$

(X_k/X)

Where:

X_{ik} is country i 's exports of good k . X_i is country i 's total exports.

X_k is world exports of good k . X is total world.

The range of the index is $0 \leq RCA_{ik} < \infty$ with 1 being the comparative advantage-neutral point.

$RCA_{ik} > 1$ indicates that country i has a revealed comparative advantage in that good; and

$RCA_{ik} < 1$ indicates that country i has a revealed comparative disadvantage in that good (WITS, 2018; Paula *et al.*, 2017; Chingarande *et al.*, 2013; UNCTAD and WTO, 2012).

Due to the limitations levelled against the Balassa (1965) index⁸, it is often argued that in theory it can only be used to signify whether a country has comparative advantage in a commodity. The Balassa (1965) index

⁶ Authors that agree with the volume of trade criterion, include Michaely (2004, cited in Shakur and Ness, 2011); Wonnacott and Lutz (1989, cited in Khadan and Hosein, 2013); Parks (1995, cited in Khadan and Hosein 2013); Schiff (2001); Schiff and Wang (2007); Panagariya (1997); Kandogan (2008); Marinov (2014).

⁷ Shakur and Nees (2011); Khadan and Hosein (2013); Schiff (2001); Wonnacott and Lutz (1989, cited in Shakur and Nees, 2011); Kandogan (2008); Feaver and Wilson (2005, cited in Khadan and Hosein, 2013).

⁸ The asymmetric property as it has a fixed lower bound of 0 for those sectors with a comparative disadvantage while its upper bound is unbounded for sectors with a revealed comparative advantage. Thus, the mean value of a country or commodity's RCA score in general is not the same (it is unstable), and thus the same magnitude of RCA might signify different levels of comparative advantage for different countries or commodities. The

thus suits the focus of this research as the aim is to simply identify areas of comparative advantage in the ASEAN and the five FTA countries.

Trade Complementarity Index

Trade Complementarity Indexes (TCI) give insights into prospects for intra-regional trade by showing how well the structure of country *j*'s exports match or complement the import requirements of country *i*. Thus, TCI approximate the adequacy of country *j*'s export supply to country *i*'s import demand by calculating the extent to which country *i*'s total imports match country *j*'s total exports. The trade complementarity index is given by:

$$TC_{ij} = 100 [1 - (\sum |Y_{ki} - X_{kj}|) / 2] \dots \dots \dots [2]$$

Where:

Y_{ki} is the share of good *k* in all imports of country *i*.

X_{kj} is the share of good *k* in all exports of country *j*.

$TC_{ij} = 0$ if there is no overlap at all and $TC_{ij} = 100$ if imports and exports match perfectly (WITS, 2018; Vahalik, 2014; UNCTAD and WTO, 2012; Mikic and Gilbert, 2009).

Where countries intend to form an economic integration arrangement, the TCI can be used to determine the extent to which these prospective members are natural trading partners in the sense that one country's imports overlap with another country's exports. Thus, it can be used to determine whether countries are well suited for a prospective bilateral or regional trade agreement with each other. The TCI can be calculated from the perspective of each country to a trade agreement because while country *i*'s import structure may not match country *j*'s export structure, country *j*'s import structure may match country *i*'s export structure, thus indicating trade complementarity from country *j*'s perspective. Analysing TCIs for a period of years helps to determine whether countries' trade profiles were becoming more compatible. Furthermore, TCI can also be used to give insights into whether developing trade relations further would be economically beneficial for both countries, given the extent to which their trade is complementary.

Revealed Trade Barriers Index

Revealed trade barriers (RTB) indexes seek to establish whether imports by country *j* of a particular commodity *k* from country *i* are more or less important compared to country *j*'s total imports of that commodity from all sources. The index is calculated using the formula:

$$RTB_{ik}^j = \frac{M_{ik}^j / \sum M_i^j}{\sum M_k / \sum M} \dots \dots \dots [3]$$

Where:

$M_{ik}^j / \sum M_i^j$ = the share of commodity *k* in country *j* imports from country *i*.

$\sum M_k / \sum M$ = the share of commodity *k* in world imports.

M_{ik}^j = imports of commodity *k* from country *i* by country *j*.

$\sum M_i^j$ = total imports from country *i* by country *j*.

$\sum M_k$ = total world imports of commodity *k*.

$\sum M$ = total world imports.

If $0 < RTB_{ik}^j < 1$, then it may be concluded that country *i* is exporting relatively more of commodity *k* to the rest of the world than to country *j*. Thus, there is possibly discrimination against commodity *k* originating from country *i* going into country *j*. If $RTB_{ik}^j = 1$, there is no discriminatory trade barrier against commodity *k* from country *i* in country *j*. If $RTB_{ik}^j > 1$, then country *j* is importing more from country *i* than expected. There is possibly preferential treatment of commodity *k* originating from country *i* going into country *j* (Mutambara, 2017; Kalaba *et al.*, 2005; Wilcox and van Seventer, 2005).

Bilateral Trade Intensity Index

Instead of trade shares, regional intensity of trade indexes are often used to measure the extent to which countries (or regions) trade with each other than with other countries (or regions). The trade intensity index thus examines the extent to which trade between partners is more oriented towards their respective trading partners

Balassa RCA measure is incomparable across countries, commodities, and for each country across time. It has a bias to signify strong comparative advantage for countries with a small market share in the world export market (i.e. small (X_i/X) , and thus referred to as "small" countries) and commodities which comprise only a small market share of the world export market (i.e. small (X_j/X) , thus referred to as "small" commodities) (Ahmad, Qayum and Iqbal, 2017; Deb and Sengupta, 2017; UNCTAD and WTO, 2012; Bebek, 2011; Yu, Cai and Leung, 2008).

rather than towards the rest of the world. This gives insights into whether the countries (or regions) regard each other as significant trading partners. The indexes also serve as indicators of the relative strength or resistance to bilateral trade flows between trading partners. Thus, one would be able to infer that trade between two countries (or regions) is high not because these countries (or regions) are economically large (or small) but because the trade resistances between them are relatively low.

The bilateral trade intensity index (I_{ij})⁹ which is widely used and well-known (and its variations when it comes to the intra-regional trade index) have some limitations, viz. range variability, range asymmetry, and dynamic ambiguity, as noted by Hamanaka (2015:4-5), Iapadre and Tajoli (2013), Iapadre and Tiron (2009), Iapadre (2006), and Iapadre (2004). Therefore, to obtain results which are more robust and comparable across years and between regions, all the three limitations must be corrected for.

Therefore, to establish (i) inter-regional trade intensity between ASEAN and its five FTA trading partners, and (ii) inter-country trade intensity between ASEAN's five trading partners, the *trade introversion index* (TI_i), as noted by Hamanaka (2015), Iapadre & Luchetti (2010) or the bilateral *revealed trade preference index* (RTP_{ij}), as noted by Iapadre & Tajoli (2013) and Iapadre & Tironi (2009) is used. For the bilateral revealed trade preference index (RTP_{ij}) or the trade introversion index (TI_i), all the limitations are corrected for¹⁰, and is thus deemed robust.

The bilateral revealed trade preference index (RTP_{ij}) thus shows the *relative bilateral trade intensity* between two regions, i and j (i.e. the extent to which region i 's trade is oriented towards region j , and vice versa; or region i 's trade introversion towards region j , and vice versa). The bilateral revealed trade preference index is given by the equation:

$$RTP_{ij} = (HI_{ij} - HE_{ij}) / (HI_{ij} + HE_{ij}) \quad \dots\dots\dots [4]$$

Where: $-1 \leq RTP_{ij} \leq +1$.

HI_{ij} is the *homogeneous bilateral trade intensity index* (HI_{ij}) and HE_{ij} is the homogeneous intensity to the rest of the world excluding the partner country (i.e. the *extra-regional homogeneous trade intensity* between the regions) and is the complementary indicator for HI_{ij} ¹¹. If $RTP_{ij} = -1$, this indicates no bilateral trade. If $RTP_{ij} = 1$, this indicates only bilateral trade (or no extra-regional trade). If $RTP_{ij} = 0$, this indicates geographic neutrality (Hamanaka, 2015; Iapadre & Tajoli, 2013; Iapadre & Luchetti, 2010; Iapadre & Tironi, 2009). The bilateral RTP , unlike all the other trade intensity indices is perfectly symmetric, as $RTP_{ij} = RTP_{ji}$ independently of country size (Iapadre & Tajoli, 2013; Iapadre & Tironi, 2009; Iapadre, 2004).

III. RESULTS AND DISCUSSIONS

The results of the assessment using the various indexes give some insights into the foundation laid for the RCEP by the ASEAN-plus-one FTAs as well as the current trade patterns between ASEAN's five partners. This is a foundation which the RCEP would utilise to facilitate further trade and economic integration.

A brief overview of the ASEAN-plus-one FTAs' trade

⁹ The bilateral trade intensity index is given by: $I_{ij} = (S_{ij}) / (W_j) = (T_{ij} / T_{iw}) / (T_{wj} / T_w)$.

Where: T_{ij} = trade (exports + imports) between reporting country i and partner country j ; T_{iw} = trade between the world and country i ; T_{wj} = world trade with country j ; T_w = total world trade (Hamanaka, 2015:2; Iapadre and Tajoli, 2013:S93; Iapadre and Tiron, 2009:8).

I_{ij} has values ranging from zero to infinity ($0 \leq I_{ij} \leq \infty$), with higher values indicating greater importance of the selected partner or region. $I_{ij} = 1$ means that regions are trading without geographic bias, since the proportion of exports of region i that goes to region j is in exact proportion to region j 's world share of imports. $I_{ij} > 1$ means that regions are trading intensively with each other. $I_{ij} < 1$ means that trade between the two regions is less intensive, thus a small flow of trade between regions i and j relative to region j 's trade with the rest of the world region (Mutambara, 2013:65; Weldemicael, 2010:7, 8; Edmonds and Li, 2010:5; Gilbert, 2010, 18).

¹⁰ See Hamanaka (2015:2, 4-5); Iapadre & Tajoli (2013:S93, 8); Iapadre & Luchetti (2010:4-5); Iapadre & Tiron (2009:7-9); Iapadre (2006:68-71); Iapadre (2004:8-9, 11-12, 14).

¹¹ $(HI_{ij}) = (S_{ij}) / (V_{ij}) = (T_{ij} / T_i) / (T_{oj} / T_{ow})$ and $(HE_{ij}) = (1 - S_{ij}) / (1 - V_{ij}) = [1 - (T_{ij} / T_i)] / [1 - (T_{oj} / T_{ow})]$

Where: $0 \leq (HI_{ij}) \leq \infty$

T = total trade (exports + imports); T_{ij} = exports of region i to region j + exports of region j to region i [i.e. trade between region i and region j]; T_i = total exports of region i to the world + total imports of region i from the world [i.e. trade between region i and the world]; T_{oj} = exports of world excluding region i (rest of the world) to region j + imports of world excluding region i (rest of the world) from region j [i.e. trade of region j with the rest of the world]; T_{ow} = total exports of world excluding region i + total imports of world excluding region i (Hamanaka, 2015; Iapadre & Tajoli, 2013; Iapadre & Tiron, 2009).

A brief overview of the current state and extent of trade in each ASEAN-plus-one FTA can be considered as an indication of the extent of trade integration for each FTA. This has implications for further trade integration with the RCEP in place since the RCEP is a one unified free trade agreement between the ten member states of ASEAN and its five FTA partners, some of whom, i.e. China, Japan, and South Korea, would be in a trade deal for the first time. Insights into each ASEAN-plus-one FTA is given about bilateral trade intensity, trade complementarity, and ease of market access for the period 2001-2021.

Bilateral trade intensity

In the period 2001-2021, intra-ASEAN exports accounted for 21.63% - 25.75% of ASEAN's world exports, while intra-ASEAN imports accounted for 20.55% - 25.72% of ASEAN's world imports (Table A-1, Appendices). Table A-2 (Appendices) shows the level of intra-ASEAN trade intensity (\mathbf{TI}_i) (the extent to which ASEAN's trade is inward oriented), i.e. whether its trade is more oriented towards its respective member countries rather than towards the rest of the world. ASEAN's intra-regional trade index (or trade introversion index) ranges between $\mathbf{TI}_i = 0.58$ and $\mathbf{TI}_i = 0.75$, which depicts a moderately high to high level of trade introversion. Thus, a significant size of ASEAN trade is within the regional group, showing that its members regard each other as significant trading partners.

The extent to which each ASEAN-plus-one FTA trade is inward oriented varies as shown in Table A-3 (Appendices). Since 2010 when the ASEAN-China Free Trade Area (ACFTA) came into force, there has been a steady and progressive improvement in the orientation of ASEAN and China's trade towards each other. This is shown by their trade preference index rising from as low as $\mathbf{RTP}_{ij} = 0.12$ in 2010 when the FTA came into effect to $\mathbf{RTP}_{ij} = 0.29$ by 2021, which is the most significant improvement in trade orientation in the ASEAN-plus-one FTAs. There is also an improvement in the orientation of ASEAN and South Korea's trade towards each other, with their trade preference index rising from $\mathbf{RTP}_{ij} = 0.27$ in 2005 when the ASEAN-Korea Free Trade Area (AKFTA) came into force to $\mathbf{RTP}_{ij} = 0.37$ by 2021. The ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) came into force in 2009. In the build up to the coming into effect of this FTA, the orientation of ASEAN and New Zealand's trade towards each other rose significantly from $\mathbf{RTP}_{ij} = 0.22$ in 2005 to $\mathbf{RTP}_{ij} = 0.40$ in 2008, after which the orientation of this trade has been on a gradual decline from $\mathbf{RTP}_{ij} = 0.32$ in 2009 to $\mathbf{RTP}_{ij} = 0.24$ by 2021. A similar trend is observed in the orientation of the ASEAN and Australia trade, where their trade orientation was quite high before the FTA came into effect (i.e. $0.43 \leq \mathbf{RTP}_{ij} \leq 0.51$), and gradually declining to $\mathbf{RTP}_{ij} = 0.46$ in 2009 when the FTA came into effect to $\mathbf{RTP}_{ij} = 0.31$ by 2021.

Despite the varied levels of trade intensity in the ASEAN-plus-one FTAs, moderately strong trade linkages have been developed between the ASEAN and its FTA partners. With the RCEP in place, such trade linkages are likely to be strengthened due to the RCEP's tariff reductions and the removal of other trade barriers.

Trade complementarity

Table A-4 (Appendices) shows that for the period 2001-2021, trade between ASEAN and its five FTA partners has been very complementary¹², with each FTA partner's export offers highly complementing ASEAN's import demands. Its import needs for both Primary commodities¹³ and Manufactured goods¹⁴ were complemented most by South Korea, with complementarity index $90.72 \leq \mathbf{TCI}_{ij} \leq 93.73$ and $87.65 \leq \mathbf{TCI}_{ij} \leq 93.02$, respectively. Its trade with China ranked second in complementing ASEAN's import demands for Primary commodities with complementarity index $86.74 \leq \mathbf{TCI}_{ij} \leq 95.35$, while Japan ranked second in complementing ASEAN's import needs for Manufactured goods with complementarity index $87.12 \leq \mathbf{TCI}_{ij} \leq 90.97$. The export offers by Australia and New Zealand complemented ASEAN's import demands least, even though there were high indexes for both categories of goods, i.e. $76.24 \leq \mathbf{TCI}_{ij} \leq 79.93$ and $72.98 \leq \mathbf{TCI}_{ij} \leq 76.59$ with Australia for Primary commodities and Manufactured goods, respectively; and New Zealand indexes of $60.31 \leq \mathbf{TCI}_{ij} \leq 80.81$ and $76.14 \leq \mathbf{TCI}_{ij} \leq 83.02$ for Primary commodities and Manufactured goods, respectively.

Ease of market access

Trade barriers in general, and especially high trade barriers reduce the size of exports by one country to the other and thus reduce actual trade between the two countries despite high TCI levels. The ASEAN-plus-one FTAs have helped to mitigate against this as evidenced by the generally moderate level of trade orientation in the ASEAN-plus-one FTAs' trade as well as progressive improvement in the trade orientation of ASEAN with some of its FTA partners' trade, as shown by the \mathbf{RTP}_{ij} in Section 3.1.1.

¹² Trade complementarity indexes were calculated with ASEAN as region i and the FTA partners as region j. Therefore, trade complementarity is from the ASEAN's perspective.

¹³ Primary commodities (SITC 0 + 1 + 3 + 4 + 68).

¹⁴ Manufactured goods (SITC 5 to 8 less 667 and 68).

Furthermore, a significant amount of trade has been liberalised by each ASEAN-plus-one FTA. Table A-5 (Appendices) shows the revealed trade barriers indexes (RTB_{ik}^1) which give insights into the current ease of market access into the ASEAN market by products from its FTA partners. Table A-5a (Appendices) shows that Australia has the widest range of products¹⁵ which currently experience preferential entry into the ASEAN market. From 2009 when the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) came into force, these products contributed 72.16% - 88.87% of ASEAN's total imports from Australia. For China, preferential access into the ASEAN market has been experienced by Non-ferrous metals¹⁶, Machinery and transport equipment¹⁷, and Other manufactured goods¹⁸. From 2010 when the ASEAN-China Free Trade Area (ACFTA) came into force, these products contributed 80.52% - 84.25% of ASEAN's imports from China (Table A-5b, Appendices).

For Japan, preferential access into the ASEAN market has been experienced by Non-ferrous metals, Machinery and transport equipment, and Other manufactured goods. From 2008 when the ASEAN-Japan Comprehensive Economic Partnership (AJCEP) was signed and came into force, these products contributed 78.97% - 81.75% of ASEAN's imports from Japan (Table A-5c, Appendices). For New Zealand, Food, basic¹⁹ and Agricultural raw materials²⁰ had preferential access into the ASEAN market. From 2009 when the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) came into force, these products contributed 70.16% - 79.84% of ASEAN's total imports from New Zealand (Table A-5d, Appendices). For South Korea, Agricultural raw materials, Non-ferrous metals, and Machinery and transport equipment had preferential access into the ASEAN market. From 2005 when the ASEAN-Korea Free Trade Area (AKFTA) came into force, these products contributed 46.03% - 62.57% of ASEAN's imports from South Korea (Table A-5e, Appendices). While India is not yet a member of the RCEP, a wide range of its products²¹ currently experience preferential entry into the ASEAN market. Since 2001, these products contributed 55.16% - 71.81% of ASEAN's total imports from India (Table A-5f, Appendices).

While the results in Table A-5 (Appendices) show that a significant amount of trade is already liberalised through the underlying ASEAN-plus-one FTAs, this does not necessarily imply limited new trade with the RCEP in place. This is because the RCEP facilitates and enhances free trade between its five FTA partners, of which China, Japan, and South Korea, would be in a trade deal for the first time. Thus new trade would be created with the RCEP in place.

Comparative advantages and implications for the RCEP

Table A-6 (Appendices) shows the areas of comparative advantages which the ASEAN and its five partners have. In some cases, the countries have common areas of comparative advantage, which presents opportunities for joint production initiatives. RCEP's tariff reductions and the reciprocal opening of member countries' economies to each other more, is a form of trade policy reforms. Therefore, the RCEP would strongly encourage stronger value chains and production linkages to develop within the region, because as Vičková (2015:9) notes, among other things, value chains are driven by trade policy reforms. For example, production linkages for automobiles in Japan with parts and components from South Korea; electronics from China; and other parts and components like engines or breaks from ASEAN countries. Such production linkages would be possible given that Table A-6 (Appendices) shows that Japan has a comparative advantage in Other machinery and transport equipment; China has a comparative advantage in Electronics as well as Parts and components for electrical and electronic goods; South Korea has a comparative advantage in Parts and components for electrical and electronic goods as well as Other machinery and transport equipment; and ASEAN has a comparative advantage in Electronic as well as Parts and components for electronic and electrical goods.

Value chain participation in the RCEP region would thus be based on existing strength rather than a wish list of desirable industries. As Mutambara (2021) notes, this would therefore encourage production sharing or fragmentation of the production process, with different parts of the production process occurring at different locations. Production is fragmented into separate parts located in countries regarded as the lowest cost locations

¹⁵Food, basic (SITC 0 + 22 + 4), Agricultural raw materials (SITC 2 less 22, 27, 28), Non-ferrous metals (SITC 68), Other ores & metals (SITC 27 + 28), Fuels (SITC3), Pearls, precious stones & non-monetary gold (SITC 667 + 971).

¹⁶ SITC 68.

¹⁷ SITC 7.

¹⁸ SITC 6 + 8 less 667 and 68.

¹⁹ SITC 0 + 22 + 4.

²⁰ SITC 2 less 22, 27 and 28.

²¹Food, basic (SITC 0 + 22 + 4), Agricultural raw materials (SITC 2 less 22, 27, 28), Non-ferrous metals (SITC 68), Fuels (SITC3), Pearls, precious stones and non-monetary gold (SITC 667 + 971), and Chemical products (SITC 5).

where factor prices are well matched to the factor intensities of the particular fragments. Therefore, with production taking place where the strongest and most efficiently made inputs/or products can be bought, the final product will be cheaper. This would make the RCEP a very efficient competitor. With fragmented production, there is intra-product specialisation where what is relevant is the factor intensity of the component rather than the factor intensity of the final product, as noted by Cattaneo (2008:8). Thus, with the RCEP strongly encouraging the regional development of value chains and the growth and success of fragmented production, there would be a significant reduction of the cost of production in specific locations within the region and the RCEP group.

With the RCEP in place, the East Asian value chains, especially with China, Japan, and South Korea as core members, are most likely to be powerful in manufacturing. India is currently not a member of the RCEP and yet it has a comparative advantage in areas where it could ideally have a larger role due to its competitive advantage. For example, India has a comparative advantage in Chemical products (SITC 5) which other countries in the RCEP do not have, except South Korea after 2009 (Table A-6, Appendices). If India were a member, it would be a very efficient competitor within RCEP as its products would have much easier and improved market access into the RCEP market than they currently experience. Furthermore, together with South Korea, India has a comparative advantage in Iron and steel (SITC 67) which would not only make it an efficient competitor in the RCEP but could also motivate for joint production initiatives with South Korea so that they could jointly significantly reduce the cost of production of iron and steel and become more efficient producers/suppliers. Textiles fibres, yarn, fabrics, and clothing (SITC 26 + 65 + 84) is India's area of comparative advantage, and so are ASEAN and China. By not being a member of RCEP, India loses out on the benefits that could accrue from deeper and stronger participation in RCEP value chains in this area. While being in the RCEP would motivate the other RCEP countries to access India's market more easily, India should see this as a driver to strengthen its domestic industries so as to be more competitive, as well as to deepen its involvement in the RCEP regional value chains.

Value chains, whether regional or global, are also driven by technological progress, as noted by Vičková (2015:9). Thus by developing and fostering regional value chains, the RCEP would help deepen industrial development and technological innovation in member states. This would be through the four basic types of upgrading identified by Humphrey and Schmitz (2002 cited in Vičková, 2015:10-11). These are (i) Process upgrading which involves improving the efficiency of production by either reorganising the production process, or by introducing superior technologies; (ii) Product upgrading which involves diversification into more sophisticated and higher-value products; (iii) Functional upgrading which refers to firms acquiring new roles in the chain (and often abandoning existing functions), in order to increase the overall skill content and value added of the activities undertaken; and (vi) Chain, or inter-sectoral, upgrading which denotes moving into different sectors by using the knowledge derived from a particular chain (Humphrey and Schmitz (2002 cited in Vičková, 2015:10-11). Services play an important role in regional value chains, and therefore, as participation in regional value chains accelerates, these would foster further developments and improvements in the RCEP region's services sector.

Trade liberalisation, market access and implications for the RECP

As Section 3.1.3 shows, a significant amount of trade liberalised by RCEP is already covered by the ASEAN-plus-one FTAs. These results are consistent with the observations by Graham (2021) and Keynes (2020) who argue that more than 80% of trade liberalised by RCEP is already covered by an underlying ASEAN-plus-one FTA. While this has implications for how much trade will be newly affected, it should not be misconstrued to mean that limited new trade would emerge. New trade would be created because some of the ASEAN's five FTA members had no existing trade deals with each other, e.g. Graham (2021) and Keynes (2020) note that China had no trade deal with Japan nor did South Korea. Thus, RECP is the first free trade agreement between China, Japan, and South Korea. By creating new trade linkages between these three strong economies in Asia, new trade would be created encouraged by RCEP's tariff reductions, as tariffs would no longer be determined by the most favoured nation treatment standard. For example, Graham (2021) note that by being a member of RCEP, China would eventually reduce tariffs to zero on 86% of Japanese goods which is quite significant, given that only 8% of Japanese imports are currently tariff free. Japan would reciprocate this as its Schedule of Tariff Commitments show that it would eventually cut tariffs to zero on 88% of Chinese goods, which is a rise from current levels of around 60%.

With the RCEP in place, a common rule of origin will be created for the entire bloc, therefore ending the costly practice for companies to comply with different rules of origin for each of the five ASEAN-plus-one FTAs. This would improve market access within the regional bloc resulting in improved costs of doing business in the region for multinational companies with supply chains criss-crossing Asia. This would encourage businesses to establish supply chains across the bloc and value chain participation based on existing strengths

without fear of unnecessary additional transaction costs which often arise from having to comply with different rules of origin.

Trade linkages and implications for the RCEP

Tables A-7 to A-11 (Appendices) show that current trade linkages between ASEANs five FTA partners for the period 2001-2021. Table A-7 (Appendices) shows that Australia and New Zealand trade is highly oriented towards each other with their trade preference indexes at $0.87 \leq \mathbf{RTP}_{ij} \leq 0.94$. Australia's trade orientation with the other ASEAN FTA partners is moderate-to-moderately high, i.e. $0.30 \leq \mathbf{RTP}_{ij} \leq 0.51$ with China and $0.33 \leq \mathbf{RTP}_{ij} \leq 0.59$ with Japan, while it is low-to-moderate with South Korea, as shown by $0.21 \leq \mathbf{RTP}_{ij} \leq 0.44$. Table A-8 (Appendices) shows China's trade orientation with the other ASEAN FTA partners. Its trade orientation is moderate-to-moderately high with Australia and Japan, i.e. $0.30 \leq \mathbf{RTP}_{ij} \leq 0.51$ and $0.35 \leq \mathbf{RTP}_{ij} \leq 0.56$, respectively. Its trade orientation with South Korea is moderately high as shown by $0.45 \leq \mathbf{RTP}_{ij} \leq 0.58$. Its trade orientation with New Zealand has been very weak and negative for most years. Table A-9 (Appendices) shows Japan's trade orientation with the other ASEAN FTA partners. Its trade orientation is moderate-to-moderately high with Australia and China, as shown by $0.33 \leq \mathbf{RTP}_{ij} \leq 0.59$ and $0.35 \leq \mathbf{RTP}_{ij} \leq 0.56$, respectively; and a moderate orientation with South Korea, as shown by $0.34 \leq \mathbf{RTP}_{ij} \leq 0.48$. Its trade orientation with New Zealand is low-to-moderate as shown by $0.08 \leq \mathbf{RTP}_{ij} \leq 0.35$. South Korea's trade orientation with ASEAN FTA partners is moderately high with China, as shown by $0.45 \leq \mathbf{RTP}_{ij} \leq 0.58$; low-to-moderate with Australia, as shown by $0.21 \leq \mathbf{RTP}_{ij} \leq 0.44$; and moderate with Japan, as shown by $0.34 \leq \mathbf{RTP}_{ij} \leq 0.48$.

The results above show that, on average, current trade linkages between ASEAN's five FTA partners are mainly moderate-to-moderately high. These trade linkages would be strengthened by the RCEP's tariff reductions, as well as the common rules of origin that would be put in place, thus enabling the countries to trade more intensively with each other. Therefore, while the RCEP largely harmonises trade flows covered by ASEAN-plus-one FTAs, it enables the creation of new and stronger linkages between member countries. This would enhance and solidify each member country's role as a driver of the region's trade flows and industrial development through trade.

The RCEP unites China, Japan, and South Korea in a trade deal for the first time as it is the first free trade agreement between China, Japan, and South Korea, as noted by Graham (2021) and Keynes (2020). Tables A-8 to A-10 (Appendices) show that despite both China and South Korea not previously having any trade deals with Japan, current trade linkages demonstrate medium-to-moderately high trade orientation between China and Japan (i.e. $0.35 \leq \mathbf{RTP}_{ij} \leq 0.56$), and moderate between South Korea and Japan (i.e. $0.34 \leq \mathbf{RTP}_{ij} \leq 0.48$). With the RECP in place, this would strengthen these existing trade linkages as well as create new trade ones between these three large economies in Asia. This would also solidify their joint role as drivers of the RCEP group's economic development. Ultimately, China, Japan and South Korea may gain far more from this agreement than ASEAN through new trade created by the new linkages encouraged by RCEP.

Trade complementarities and implications for the RCEP

Trade Complementarity Indices (TCI) provide useful information on the prospects for intra-regional trade by showing how well the structure of a country's exports matches or complements the import requirements of another country. This research examined trade complementarity in Japan-China trade and Japan-South Korea trade because the RCEP unites China, Japan, and South Korea in a trade deal for the first time.

Table A-12 (Appendices) shows the extent to which the China-Japan trade is complementary. From both countries' perspectives, their trade is more complementary in Manufactured goods²² than in Primary commodities²³ since the complementary indexes for the former are higher. For Manufactures, China's import structure is very well matched by Japan's export structure as shown by $84.22 \leq \mathbf{TCI}_{ij} \leq 89.07$; while Japan's import structure is also matched by China's export structure, although this is to a lesser extent as shown by $72.00 \leq \mathbf{TCI}_{ij} \leq 75.65$. For Primary commodities, China's import structure is matched a lot more by Japan's export structure as shown by $67.16 \leq \mathbf{TCI}_{ij} \leq 83.47$; compared to the extent to which Japan's import structure is matched by China's export structure as shown by $53.29 \leq \mathbf{TCI}_{ij} \leq 69.67$.

Table A-13 (Appendices) shows the extent to which the South Korea-Japan trade is complementary. Trade complementarity in the South Korea-Japan trade shows a similar pattern to the China-Japan trade, in that from both countries' perspectives, there is a stronger match between their trade profiles in Manufactured goods than in Primary commodities since the complementary indexes for the former are higher. For Manufactures, South Korea's import structure is very well matched by Japan's export structure as shown by $80.37 \leq \mathbf{TCI}_{ij} \leq 89.18$; and Japan's import structure is matched by South Korea's export structure although this is to a lesser

²² Manufactured goods (SITC 5 to 8 less 667 and 68).

²³ Primary commodities (SITC 0 + 1 + 3 + 4 + 68).

extent as shown by indexes $79.01 \leq TCI_{ij} \leq 83.58$. While their trade in Primary commodities is less complementary, it is a lot more complementary than in the China-Japan trade. South Korea's import structure is matched by Japan's export structure as shown by $77.85 \leq TCI_{ij} \leq 86.28$; and Japan's import structure is matched by South Korea's export structure as shown by indexes $79.80 \leq TCI_{ij} \leq 87.05$.

Current China-Japan trade and South Korea-Japan trade show a strong match between their trade profiles. Şimsek et al (2017:18) note that where trade complementarity exists there are high opportunities for trade, and that a high degree of trade complementarity would serve as an indication for two countries to increase trade with each other. While the TCI is a static concept and does not say whether the amount supplied by one country satisfies the import demand of the other country; the results show the state of trade complementarity between Japan and these two strong Asian countries with which it had not had any trade agreement before. The strong match between the trade profiles of these countries show the current and existing opportunities for complementary trade which China and Japan as well as South Korea and Japan could build on given the dynamic changes in trade and trade patterns as well as further reductions in trade barriers which will occur with the RCEP in place. Section 3.4 shows that current China-Japan trade linkages demonstrate medium-to-moderately high trade orientation towards each other, while similar levels of trade orientation are also observed between South Korea and Japan in their current trade linkages. With the RCEP in place, these trade linkages would be strengthened, market access into each other's markets would increase with RCEP's tariff reductions, and with that, more and new complementary trade opportunities would emerge.

IV. CONCLUSIONS

Trade in the ASEAN-plus-one FTAs as well as current trade between the PTA members have developed a sound foundation upon which the RCEP can build for further and deeper trade and economic integration between member states. While a significant amount of the current is already significantly liberalised through the underlying ASEAN-plus-one FTAs, the RCEP's tariff reductions would facilitate further and deeper trade liberalisation, as member countries reciprocate in reducing currently existing tariffs, while the common rule of origin to be put in place would enhance easier market access into member countries markets and reduce the cost of doing business in the region. The RCEP unites China, Japan and South Korea into a trade deal for the first time, and this presents opportunities for new trade and joint production initiatives to emerge among these three strong Asian economies. With common areas of comparative advantages and easier market access, opportunities for joint production and harnessing regional value chains more fully by all the fifteen members would arise. Therefore, the RCEP would achieve more than just integrating and joining the ASEAN-plus-one FTAs which are disparate trade agreements into one overarching compact and unified trade agreement but would also avail and strengthen more the existing trade linkages, motivate harnessing regional value chains and joint production opportunities more as well as help countries develop more trade complementarities.

APPENDICES

Table A-1: Intra-ASEAN trade (%) (2001 – 2021)

(a) Exports (%)

Years																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
22.28	22.71	22.83	23.65	24.23	23.97	24.32	25.04	23.91	24.42	24.67	25.36	25.75	25.23	24.08	23.47	23.08	23.59	22.80	20.86	21.63

(b) Imports (%)

Years																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
23.26	23.29	24.19	24.84	25.53	25.72	25.49	24.68	24.53	24.59	23.79	23.32	22.77	22.91	23.02	22.57	22.27	22.25	21.84	21.08	20.55

Source: Trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Table A-2: Trade introversion index (Intra-regional trade index) for ASEAN (2001 – 2021)

Years and the trade introversion index (TI _i)																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0.65	0.71	0.75	0.74	0.75	0.75	0.75	0.74	0.73	0.71	0.70	0.70	0.70	0.69	0.68	0.66	0.64	0.64	0.63	0.59	0.58

Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: Since in intra-regional trade, region *i* is the same as region *j*, **HI_i** and **HE_i** in Equation 4 in Section 2.4 adjust to

$$(HI_i) = (S_i)/(V_i) = (T_{ii}/T_i)/(T_{oi}/T_{ow}). \quad (HE_i) = (1-S_i)/(1-V_i) = [1 - (T_{ii}/T_i)] / [1 - (T_{oi}/T_{ow})].$$

Where: **T** = total trade (exports + imports); **T_i** = exports of region *i* to the world + imports of region *i* from the world; **T_{ii}** = total exports of region *i* to region *i* + total imports of region *i* from region *i*; **T_{oi}** = exports of world excluding region *i* (rest of the world) to region *i* + imports of world excluding region *i* (rest of the world) from region *i* [i.e. trade of region *i* with the rest of the world]; **T_{ow}** = total exports of world excluding region *i* + total imports of world excluding region *i* (Hamanaka, 2015:2; Iapadre, 2006:68; Iapadre, 2004:8, 9). **TI_i** = $(HI_i - HE_i)/(HI_i + HE_i)$. Where: $-1 \leq TI_i \leq +1$. **TI_i** = -1 indicates no intra-regional trade; **TI_i** = 1 indicates only intra-regional trade (or no extra-regional trade); **TI_i** = 0 indicates geographic neutrality (Hamanaka, 2015:2; Iapadre, 2006:71; Iapadre, 2004:11). A higher trade introversion index shows that the region's trade is relatively more oriented towards its member countries than toward the rest of the world. An increase in the trade introversion index shows evidence of increased inward orientation over the years, thus intra-regional trade is becoming relatively more important than trade flows with the rest of the world.

Table A-3: Revealed Trade Preference index (RTP_{ij}) between ASEAN and its five FTA partners (2001 – 2021)

Years and the RTP _{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASEAN – Australia																				
0.46	0.44	0.43	0.46	0.48	0.51	0.50	0.49	0.46	0.46	0.40	0.38	0.40	0.44	0.39	0.37	0.33	0.33	0.30	0.25	0.21
ASEAN – China																				
0.13	0.16	0.15	0.16	0.17	0.18	0.19	0.16	0.16	0.22	0.23	0.23	0.24	0.25	0.28	0.24	0.24	0.22	0.25	0.25	0.29
ASEAN – India*																				
0.27	0.26	0.28	0.30	0.26	0.28	0.33	0.30	0.21	0.23	0.21	0.18	0.13	0.15	0.16	0.17	0.17	0.16	0.14	0.16	0.11
ASEAN – Japan																				
0.50	0.50	0.50	0.50	0.48	0.45	0.44	0.44	0.46	0.46	0.47	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.39
ASEAN – New Zealand																				
0.17	0.17	0.17	0.19	0.22	0.30	0.33	0.40	0.33	0.33	0.22	0.33	0.33	0.33	0.33	0.22	0.22	0.22	0.30	0.25	0.22
ASEAN – South Korea																				
0.34	0.34	0.30	0.27	0.27	0.27	0.28	0.31	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.41	0.37

Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity.

Therefore, RTP_{ij} = RTP_{ji}.

Table A-4: Trade complementarity between ASEAN and its five FTA partners (2001 – 2021)

Years and the Trade Complementarity Indexes (TCI _{ij})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASEAN – Australia																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
76.76	77.39	78.87	78.08	77.99	78.53	79.68	78.47	77.66	76.68	77.01	77.31	76.24	76.37	74.67	80.8	79.93	79.44	79.12	80.81	79.37
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
72.98	73.492	73.33	73.46	76.99	76.59	74.61	75.70	73.20	73.02	74.57	73.97	73.97	73.77	71.69	77.1	77.17	77.53	76.44	76.14	76.27
ASEAN – China																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
95.35	94.83	94.31	93.63	91.46	90.46	89.72	88.02	89.23	88.52	86.93	86.89	86.96	86.74	89.81	90.8	89.86	89.45	89.97	90.61	88.72
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
74.41	77.15	79.93	83.06	83.19	82.2	84.45	82.26	83.33	82.69	80.80	81.21	80.81	81.00	83.44	84.57	83.93	83.81	84.65	85.19	84.6
ASEAN – Japan																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				

91.	91.	91.	90.	89.	88.	88.	87.	89.	88.	86.	86.	87.	87.	89.	90.	89.	89.	89.	90.	89.
28	21	65	58	45	86	76	55	01	16	61	8	34	04	99	50	56	17	794	99	46
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
90.	91.	90.	90.	87.	86.	89.	87.	90.	89.	87.	87.	88.	88.	91.	89.	90.	90.	89.	91.	90.
97	06	51	68	16	95	83	64	41	22	12	72	03	30	01	99	44	02	93	52	98
ASEAN – New Zealand																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
68.	68.	69.	67.	65.	65.	66.	66.	66.	65.	64.	63.	61.	60.	63.	80.	79.	79.	79.	80.	79.
9	97	20	52	69	48	38	97	92	32	18	31	07	31	81	80	93	44	12	81	37
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
76.	77.	78.	78.	82.	83.	79.	81.	78.	78.	80.	79.	78.	77.	76.	77.	77.	77.	76.	76.	76.
89	99	03	77	54	02	56	10	65	44	18	52	76	85	33	08	17	53	44	14	27
ASEAN – South Korea																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
94.	93.	93.	92.	92.	92.	91.	91.	91.	90.	90.	91.	90.	90.	92.	92.	92.	92.	92.	92.	92.
36	73	93	99	23	06	78	17	31	89	72	36	89	42	20	74	06	34	98	96	42
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
93.	92.	91.	92.	87.	87.	90.	88.	89.	89.	88.	89.	88.	88.	90.	90.	89.	88.	88.	88.	88.
02	21	60	04	65	68	17	70	76	24	49	88	82	82	33	89	70	98	93	71	76
ASEAN – India*																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
92.	92.	94.	93.	92.	94.	95.	94.	95.	96.	97.	95.	96.	96.	96.	97.	96.	97.	97.	96.	98.
69	28	23	41	63	52	17	94	86	17	14	31	69	67	71	73	5	88	76	41	01
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
64.	65.	66.	67.	72.	74.	74.	79.	78.	80.	83.	80.	82.	82.	80.	79.	80.	81.	81.	78.	81.
46	33	42	26	97	27	65	76	51	86	42	48	40	77	13	49	09	66	48	93	72

Source: Own calculations based on trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: * = India is not yet an RCEP member.

Trade complementarity is from the ASEAN perspective, i.e., ASEAN is region i and the FTA partners are region j.

Table A-5: Revealed Trade Barriers Index (RTB^{ij}) between ASEAN and its five FTA partners (2001 – 2021)

(a) ASEAN – Australia

Years and the Revealed Trade Barriers Indexes (RTB ^{ij})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Food, basic (SITC 0 + 22 + 4)																				
3.54	3.62	3.29	3.83	3.31	3.22	3.05	2.99	3.28	3.49	3.37	3.77	3.63	3.47	3.86	3.94	3.66	2.92	2.88	2.74	2.99
Agricultural raw materials (SITC 2 less 22, 27 and 28)																				
4.48	3.44	3.04	2.67	2.22	2.07	1.77	1.36	1.51	1.91	2.01	1.82	2.01	1.91	1.51	2.12	2.05	1.74	1.03	0.84	1.34
Non-ferrous metals (SITC 68)																				
6.21	6.41	6.73	6.86	7.28	6.96	6.57	6.58	6.41	5.25	5.36	7.64	8.18	7.72	7	6.65	5.22	4.01	4.78	3.58	3.54
Other ores and metals (SITC 27 + 28)																				
2.53	2.39	2.82	2.59	2.22	2.24	2.46	1.88	2.05	2.33	1.52	2.68	3.43	3.14	3.09	3.36	4.48	4.03	3.71	5.94	4.39
Fuels (SITC 3)																				
1.56	1.55	1.85	1.44	1.57	1.42	1.47	1.31	1.45	1.43	1.24	1.19	1.03	1.36	1.56	1.98	2.13	2.24	2.63	3.54	2.92
Pearls, precious stones, and non-monetary gold (SITC 667 + 971)																				
5.82	6.24	5.39	5.63	7.94	8.06	6.85	7.55	6.72	6.88	7.74	3.12	3.34	5.47	4.35	2.57	3.56	4.97	3.10	2.01	3.55
Percentage (%) share of products being given preferential treatment to total ASEAN imports from Australia																				
67.92	66.94	67.18	68.03	71.67	73.04	71.6	71.94	72.16	77.28	79.99	80.13	80.62	84.29	80.66	78.81	84.17	80.42	78.88	82.23	88.87

Source: Own calculations based on trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region j and Australia is region i. Thus, the possible preferential treatment is of the commodity k originating from region i (Australia) going into region j (ASEAN).

(b) ASEAN – China

Years and the Revealed Trade Barriers Indexes (RTB ^{ik})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-ferrous metals (SITC 68)																				
1.55	1.29	0.97	1.14	0.98	1.1	0.99	0.89	0.73	0.82	0.91	0.85	1.18	1.15	1.1	1.2	0.96	1.1	1.09	0.80	1.03
Machinery and transport equipment (SITC 7)																				
1.3	1.33	1.33	1.43	1.36	1.42	1.46	1.56	1.65	1.53	1.58	1.61	1.57	1.46	1.36	1.26	1.3	1.3	1.3	1.37	1.35
Other manufactured goods (SITC 6 + 8 less 667 and 68)																				
0.97	0.95	1.01	1.06	1.08	1.12	1.25	1.29	1.07	1.25	1.35	1.44	1.44	1.49	1.47	1.52	1.49	1.52	1.49	1.43	1.49
Percentage (%) share of products being given preferential treatment to total ASEAN imports from China																				
77.53	77.33	77.02	81.35	76.53	79.00	82.67	81.45	80.83	80.68	80.60	82.51	82.72	82.21	84.25	83.05	81.40	81.03	80.92	83.06	80.52

Source: Own calculations based on trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region j and China is region i. Thus, the possible preferential treatment is of the commodity k originating from region i (China) going into region j (ASEAN).

(c) ASEAN – Japan

Years and the Revealed Trade Barriers Indexes (RTB ^{ik})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-ferrous metals (SITC 68)																				
0.88	1.01	1.11	1.02	0.98	1.15	1.23	1.42	1.43	1.52	1.36	1.37	1.73	1.67	1.63	1.61	1.55	1.63	1.49	1.58	1.69
Machinery and transport equipment (SITC 7)																				
1.67	1.65	1.66	1.66	1.59	1.52	1.57	1.60	1.63	1.58	1.57	1.71	1.79	1.54	1.54	1.44	1.44	1.4	1.42	1.44	1.38
Other manufactured goods (SITC 6 + 8 less 667 and 68)																				
0.83	0.85	0.85	0.92	0.98	1.05	1.08	1.12	1.06	1.16	1.25	1.28	1.313	1.27	1.14	1.1	1.17	1.22	1.19	1.13	1.23
Percentage (%) share of products being given preferential treatment to total ASEAN imports from Japan																				
87.92	86.98	86.03	86.89	82.86	81.38	83.58	80.53	81.36	82.3	79.47	83.73	81.43	81.40	81.09	81.75	80.09	80.46	80.44	78.97	80.52

Source: Own calculations based on trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region j and Japan is region i. Therefore, the possible preferential treatment is of the commodity k originating from region i (Japan) going into region j (ASEAN).

(d) ASEAN – New Zealand

Years and the Revealed Trade Barriers Indexes (RTB ^{ik})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Food, basic (SITC 0 + 22 + 4)																				
11.10	10.14	10.34	11.30	11.42	11.46	11.43	9.63	8.49	10.57	10.17	10.28	10.01	9.87	9.29	8.82	9.36	9.37	9.65	9.2	9.3
Agricultural raw materials (SITC 2 less 22, 27 and 28)																				
4.5	5.1	5.2	4.9	5.6	7.0	5.6	4.8	5.9	5.3	4.5	5.1	5.0	4.7	4.9	5.1	5.2	6.1	4.7	4.3	5.5

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0	7	0	1	9	3	0	4	6	9	5	2	3	9	5	9	3	7	2	9	6
Percentage (%) share of those being given preferential treatment to total ASEAN imports from New Zealand																				
80.	76.	77.	78.	76.	75.	75.	68.	70.	79.	77.	77.	77.	78.	75.	78.	76.	77.	81.	79.	
22	39	58	24	92	36	81	22	16	85	38	83	69	08	75	87	54	22	54	31	36

Source: Own calculations based on trade data available at

<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region **j** and New Zealand is region **i**. Therefore, the possible preferential treatment is of the commodity **k** originating from region **i** (New Zealand) going into region **j** (ASEAN).

(e) ASEAN – South Korea

Years and the Revealed Trade Barriers Indexes (RTB _{ik})																				
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
Agricultural raw materials (SITC 2 less 22, 27 and 28)																				
0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.8	0.8		1.2	1.3	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.4
7	8	1	4	3	6	1	1	3	0.9	0	9	3	0	3	6	6	9	6	5	1
Non-ferrous metals (SITC 68)																				
1.3	1.3	1.4	1.4	1.3	1.5	1.6	1.6	1.5	1.5	1.3	1.4	1.6	1.6	1.9	1.9	1.7	1.7	1.7	1.4	1.6
2	3	7	3	5	0	1	4	7	2	5	6	7	3	2	0	1	7	2	4	
Machinery and transport equipment (SITC 7)																				
1.3	1.4	1.5	1.5	1.2	1.2	1.5	1.3	1.4	1.3	1.2	1.3	1.3	1.2	1.3	1.3	1.4	1.4	1.3	1.5	1.4
2	9	9	5	6	9	1	2	6	9	7	2	5	1	5	9	5	2	9	4	4
Percentage (%) share of those being given preferential treatment to total ASEAN imports from South Korea																				
56.	62.	65.	63.	50.	51.	59.	49.	54.	52.	46.	48.	49.	46.	55.	57.	59.	57.	56.	62.	57.
22	27	15	18	10	93	59	07	02	96	55	25	69	03	27	97	48	21	39	57	18

Source: Own calculations based on trade data available at

<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region **j** and South Korea is region **i**. Therefore, the possible preferential treatment is of the commodity **k** originating from region **i** (South Korea) going into region **j** (ASEAN).

(f) ASEAN – India

Years and the Revealed Trade Barriers Indexes (RTB _{ik})																				
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
Food, basic (SITC 0 + 22 + 4)																				
3.6	4.1	2.7	2.7	1.8	2.0	2.1	2.3	1.9	1.7	1.7	1.9	2.0	2.0	1.8	2.0	1.4	1.6		1.7	1.9
3	1	6	1	3	1	9	9	1	3	3	7	5	4	9	3	9	8	1.5	3	4
Agricultural raw materials (SITC 2 less 22, 27 and 28)																				
0.5	0.4		0.6	0.6	1.2		1.4	1.0	1.3	1.0	0.8	1.1	1.3	1.3	1.1	1.3		0.9	0.9	1.3
1	5	0.5	5	2	2	1.2	6	1	3	7	9	9	8	2	4	5	1.6	6	8	8
Non-ferrous metals (SITC 68)																				
2.3	3.2		2.5	2.4	2.7	3.3		2.6	1.7	1.0	0.6	1.4	1.3	3.2	2.8	2.4	2.0	2.9		1.4
7	8	2.6	5	8	3	3	3.1	1	9	3	7	3	6	7	9	9	3	6	3.9	9
Fuels (SITC 3)																				
0.2	0.8	1.8	2.1		2.1	1.9	1.6	1.3	2.3	2.2	2.0	1.9	1.8	1.8	2.1	2.5	2.0	1.5	1.9	1.6
6	9	4	4	1.5	4	2	8	6	3	2	8	3	3	6	9	7	1	3	8	3
Pearls, precious stones and non-monetary gold (SITC 667 + 971)																				
6.7	6.6	5.6	5.9	15.	4.2	3.9	2.9	3.9	1.6	1.5	1.0	0.9	0.8		0.9	1.4	1.7	1.7	1.4	1.6
	1	2	9	5	5	9	7	3	8	6	1	3	1	0.8	9	5	9	2	3	6
Chemical products (SITC 5)																				
1.5	1.4		1.3	1.3	1.4	1.2	1.0	1.1	1.0	1.0	1.2	1.2	1.3	1.4	1.3	1.1			1.3	1.3
8	2	1.4	4	7	2	7	1	4	9	8	6	5	8	5	7	6	1.4	1.4	5	9
Percentage (%) share of those being given preferential treatment to total ASEAN imports from India																				
55.	66.	64.	68.	71.	71.	68.	67.	58.	68.	70.	70.	68.	65.	62.	62.	64.	65.	57.	62.	60.
16	11	36	40	81	00	64	99	58	73	14	04	50	96	01	54	32	08	35	33	81

Source: Own calculations based on trade data available at

<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: ASEAN is region **j** and India is region **i**. Therefore, the possible preferential treatment is of the commodity **k** originating from region **i** (India) going into region **j** (ASEAN).

India is not yet an RCEP member.

Table A-6: Revealed comparative advantage in the RCEP member countries (2001 – 2021)

Product Group	ASEAN	Australia	China	India*	Japan	New Zealand	South Korea
Food, basic excluding SITC 07 (SITC 0 + 22 + 4 less 07)	√	√	x	√	x	√	x
Tea, coffee, cocoa and spices (SITC 07)	√	x to 2015	x	√	x	x to 2015	x
Beverages and tobacco (SITC 1)	x	√	x	x	x	√	x
Agricultural raw materials (SITC 2 less 22, 27 and 28)	√	√	x	x to 2004	x	√	x
Non-ferrous metals (SITC 68)	x	√	x	x	x	√	x
Other ores and metals (SITC 27 + 28)	x	√	x	√ to 2011	x	x to 2015	x
Fuels (SITC 3)	√	√	x	x to 2004	x	x to 2015	x
Pearls, precious stones & non-monetary gold (SITC 667 + 971)	x	√	x	√	x	x to 2015	x
Chemical products (SITC 5)	x	x	x	√	x	x	x to 2009
Electronic excluding parts and components (SITC 751 + 752 + 761 + 762 + 763 + 775)	√	x	√	x	x	x	x
Parts and components for electrical and electronic goods (SITC 759 + 764 + 772 + 776)	√	x	√	x	√ to 2017	x	√
Other machinery and transport equipment (SITC 7 - (751 + 752 + 761 + 762 + 763 + 775 + 759 + 764 + 772 + 776))	x	x	x	x	√	x	√
Iron and steel (SITC 67)	x	x	x	√	√ to 2017	x	√
Textile fibres, yarn, fabrics and clothing (SITC 26 + 65 + 84)	√	x	√	√	x	x	x

Source: Own calculations based on trade data available at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: √ = has a comparative advantage.

x = does not have a comparative advantage.* = not yet an RCEP member.

Table A-7: Revealed Trade Preference index (RTP_{ij}) between Australia and ASEAN’s FTA partners (2002 – 2021)

Years and the RTP _{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia – China																				
0.31	0.31	0.30	0.32	0.34	0.34	0.36	0.36	0.44	0.44	0.47	0.45	0.51	0.50	0.45	0.50	0.46	0.47	0.52	0.53	0.48
Australia – New Zealand																				
0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.91	0.87	0.89	0.89	0.88	0.89	0.90	0.88	0.88	0.87	0.87	0.85
Australia – South Korea																				
0.44	0.44	0.39	0.37	0.37	0.38	0.37	0.37	0.35	0.38	0.38	0.35	0.34	0.34	0.34	0.34	0.33	0.32	0.26	0.25	0.21
Australia – Japan																				
0.50	0.50	0.51	0.54	0.53	0.53	0.59	0.55	0.53	0.55	0.45	0.44	0.44	0.44	0.50	0.42	0.43	0.39	0.33	0.40	0.50
Australia – India*																				
0.25	0.25	0.36	0.46	0.42	0.42	0.40	0.39	0.41	0.39	0.27	0.17	0.02	0.03	0.18	0.20	0.21	0.17	0.09	0.13	0.19

Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity.

Therefore, $RTP_{ij} = RTP_{ji}$.

Table A-8: Revealed Trade Preference index (RTP_{ij}) between China and ASEAN's FTA partners (2002 – 2021)

Years and the RTP_{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
China – Australia																				
0.31	0.31	0.30	0.32	0.34	0.34	0.36	0.36	0.44	0.46	0.47	0.45	0.51	0.50	0.45	0.50	0.46	0.47	0.52	0.53	0.48
China – Japan																				
0.56	0.56	0.56	0.53	0.5	0.48	0.46	0.44	0.48	0.43	0.42	0.37	0.36	0.36	0.36	0.38	0.38	0.37	0.36	0.39	0.35
China – New Zealand																				
-0.0	-0.0	-0.04	-0.05	-0.1	-0.1	-0.1	-0.08	0.0	0.0	-0.04	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
China – South Korea																				
0.55	0.55	0.57	0.57	0.58	0.57	0.56	0.55	0.52	0.49	0.47	0.48	0.49	0.49	0.51	0.52	0.49	0.49	0.48	0.48	0.45
China – India*																				
-0.02	-0.02	0.02	0.12	0.07	0.07	0.17	0.15	0.06	0.06	-0.02	-0.11	-0.17	-0.13	-0.05	-0.01	-0.01	-0.02	-0.02	0.02	-0.03

Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity.

Therefore, $RTP_{ij} = RTP_{ji}$. Therefore, the RTP for China-Australia is the same as in Table 7 above.

Table A-9: Revealed Trade Preference index (RTP_{ij}) between Japan and ASEAN's FTA partners (2002 – 2021)

Years and the RTP_{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Japan – Australia																				
0.50	0.50	0.51	0.54	0.53	0.53	0.59	0.55	0.53	0.55	0.45	0.46	0.41	0.43	0.50	0.42	0.44	0.39	0.33	0.40	0.50
Japan – China																				
0.56	0.56	0.56	0.53	0.5	0.48	0.46	0.44	0.48	0.43	0.42	0.37	0.36	0.36	0.36	0.38	0.38	0.37	0.36	0.39	0.35
Japan – New Zealand																				
0.35	0.35	0.35	0.36	0.35	0.33	0.33	0.29	0.24	0.23	0.08	0.19	0.21	0.22	0.26	0.26	0.26	0.27	0.26	0.24	0.29
Japan – South Korea																				
0.47	0.47	0.48	0.48	0.47	0.46	0.45	0.41	0.42	0.4	0.4	0.39	0.39	0.35	0.34	0.37	0.36	0.35	0.35	0.36	0.35
Japan – India*																				
-0.23	-0.23	-0.25	-0.27	-0.3	-0.29	-0.27	-0.3	-0.35	-0.32	-0.34	-0.33	-0.33	-0.33	-0.36	-0.33	-0.33	-0.33	-0.33	-0.27	-0.29

Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity. Therefore, $RTP_{ij} = RTP_{ji}$. Therefore, the RTP for Japan-Australia is the same as in Table 7 above; and the RTP for Japan – China is as in Table 8 above.

Table A-10: Revealed Trade Preference index (RTP_{ij}) between South Korea and ASEAN’s FTA partners (2002 – 2021)

Years and the RTP_{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
South Korea – Australia																				
0.44	0.44	0.39	0.37	0.37	0.38	0.37	0.37	0.35	0.38	0.38	0.35	0.34	0.32	0.34	0.34	0.38	0.26	0.25	0.21	0.31
South Korea – China																				
0.55	0.55	0.57	0.57	0.58	0.57	0.56	0.55	0.52	0.49	0.47	0.48	0.49	0.49	0.51	0.52	0.49	0.49	0.48	0.48	0.45
South Korea-Japan																				
0.47	0.47	0.48	0.48	0.47	0.46	0.45	0.44	0.42	0.44	0.44	0.39	0.39	0.35	0.34	0.37	0.36	0.35	0.35	0.36	0.35
South Korea – New Zealand																				
-1.00	-1.00	0.14	0.15	0.12	0.13	0.11	0.06	0.13	0.07	-0.04	0.13	0.13	0.15	0.09	0.10	0.05	0.13	0.1	0.12	0.14
South Korea – India*																				
0.01	0.01	0.12	0.1	0.03	0.08	0.09	0.09	0.00	0.01	-0.05	-0.09	-0.14	-0.12	-0.08	-0.05	-0.05	-0.07	-0.04	-0.03	-0.08

Source: Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity. Therefore, $RTP_{ij} = RTP_{ji}$. Therefore, the RTP for South Korea-Australia is the same as in Table 7 above; the RTP for South Korea – China is as in Table 8 above; the RTP for South Korea – Japan is as in Table 9 above.

Table A-11: Revealed Trade Preference index (RTP_{ij}) between New Zealand and ASEAN’s FTA partners (2002 – 2021)

Years and the RTP_{ij} indexes																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
New Zealand – Australia																				
0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.91	0.87	0.88	0.88	0.88	0.88	0.90	0.88	0.88	0.87	0.87	0.85
New Zealand – China																				
-0.0	-0.0	0.04	0.05	0.1	0.1	0.1	0.08	0.0	0.04	0.04	0.11	0.2	0.23	0.17	0.22	0.27	0.3	0.36	0.36	0.39
New Zealand – Japan																				
0.35	0.35	0.35	0.36	0.35	0.33	0.33	0.29	0.24	0.23	0.08	0.11	0.2	0.22	0.26	0.26	0.26	0.27	0.26	0.24	0.29
New Zealand – South Korea																				
-1.00	-1.00	0.14	0.15	0.12	0.13	0.11	0.06	0.13	0.07	-0.04	0.13	0.13	0.15	0.09	0.10	0.05	0.13	0.1	0.12	0.14
New Zealand – India*																				
0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4

6	6	1	8	3		6		5	6	5		9	1	4	5	7	7	9	4	
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Source: Source: Own calculations based on trade data available at <https://www.trademap.org/>

Notes: * = India is not yet an RCEP member.

The RTP_{ij} indexes are corrected for range variability, range symmetry and dynamic ambiguity.

Therefore, RTP_{ij} = RTP_{ji}. Therefore, the RTP for New Zealand-Australia is the same as in Table 7 above; the RTP for South Korea – China is as in Table 8 above; the RTP for New Zealand – Japan is as in Table 9 above; the RTP for New Zealand – South Korea is as in Table 10 above.

Table A-12: Trade complementarity in China-Japan trade (2001 – 2021)

Years and the Trade Complementarity Indexes (TCI _{ij})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
China is country i and Japan is country j																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
81.68	83.47	82.59	79.51	78.53	77.62	75.9	71.04	73.28	70.97	67.97	67.81	70.25	70.91	75.24	75.10	71.70	70.54	68.56	69.95	67.16
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
84.22	85.76	86.72	87.74	88.37	89.07	88.33	86.25	89.14	87.19	85.30	84.52	85.05	85.41	88.03	88.14	87.54	86.89	86.36	88.15	86.09
Japan is country i and China is country j																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
69.67	69.4	67.88	66.471	63.27	60.43	59.03	53.29	60.04	58.27	55.18	54.63	55.35	57.09	66.9	69.75	67.06	65.68	66.98	69.39	64.80
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
72.92	73.00	74.09	74.35	75.14	75.41	74.88	75.65	76.14	75.36	75.68	74.74	74.29	73.35	71.93	72.06	72.80	73.39	73.12	72.07	72.00

Source: Own calculations based on trade data available at

<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: Trade complementarity is from China’s perspective when China is country i and Japan is country j

Trade complementarity is from Japan’s perspective when Japan is country i and China is country j

Table A-13: Trade complementarity in South Korea-Japan trade (2001 – 2021)

Years and the Trade Complementarity Indexes (TCI _{ij})																				
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
South Korea is country i and Japan is country j																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
82.14	83.53	83.74	83.35	82.26	81.01	81.57	79.78	81.91	81.22	78.60	77.85	78.98	79.64	83.98	85.36	84.29	82.39	83.29	86.28	83.34
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
82.09	82.77	83.12	83.19	83.09	82.81	82.72	81.54	85.08	84.05	81.50	80.37	81.73	82.47	87.24	86.94	87.19	85.90	86.56	89.18	87.83
Japan is country i and South Korea is country j																				
Primary commodities (SITC 0 + 1 + 2 + 3 + 4 + 68)																				
83.85	83.62	82.96	82.91	82.24	81.82	81.57	79.80	82.10	81.51	81.38	81.78	81.61	82.23	85.84	86.81	85.72	85.74	86.50	87.05	86.07
Manufactured goods (SITC 5 to 8 less 667 and 68)																				
83.12	82.70	81.54	80.31	81.01	80.97	80.66	79.01	81.40	80.81	80.81	81.25	80.94	81.55	83.32	83.58	82.55	82.34	82.20	81.42	83.27

Source: Own calculations based on trade data available at

<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

Notes: Trade complementarity is from South Korea’s perspective when South Korea is country i and Japan is country j

Trade complementarity is from Japan’s perspective when Japan is country i and South Korea is country j.

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