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**THE BENEFITS OF FULL TRADE LIBERALIZATION AND ACCESSIBILITY
RCEP FOR THAILAND'S EXPORT POTENTIALS**

by

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ABSTRACT

This paper aims to investigate Thailand's export potentials in the ASEAN+6 countries, due to a "full liberalization and accessibility scenario" within the Regional Comprehensive Economic Partnership (RCEP). The methodology used is that of "filtering" statistical country data on macro-economic performance and imports following the Decision Support Model (DSM). The macro-economic data used are from the World Bank and the countries' imports data are from the 2017 CEPII *BACI* data set. The export potentials thus identified are the base line in the further analysis. Next, potential exports under a "full liberalization and accessibility scenario" are calculated and compared with the base line export potentials. It is found that when all entry and accessibility barriers for traded goods are removed under RCEP, the most interesting realistic export opportunities (REOs) are in countries where they will increase most (Cambodia and Vietnam). In countries where the potential export revenue is high, like in China, Korea and Japan, the export potential value will increase less than the number of REOs, but will lead to a large export revenue. It is concluded that the Thai exporters and Thailand's export promotion agency should concentrate on the REOs in the RCEP countries offering the higher export revenue.

KEY WORDS: Export potential; Decision Support Model; ASEAN, RCEP

INTRODUCTION

In the present paper, we identify and investigate the export potentials of Thailand as a result of a "fully liberalized RCEP scenario" and compare these potentials with that in the ASEAN+6 countries which constitute the Regional Comprehensive Economic Partnership (RCEP) that is presently still under negotiation. ASEAN as a grouping has already signed bilateral ("ASEAN+1") free trade agreements with China, Japan, South-Korea, India, Australia and New Zealand, thus creating the ASEAN+6, but the FTAs differ in terms of product coverage (on the coverage of ASEAN+1 FTAs, see Cuyvers, Steenkamp, Viviers, Rossouw & Cameron, 2017, p. 3) and many non-tariff trade barriers remain. Tariff elimination coverage for Thailand varies from 98.9 % in the ASEAN-New Zealand FTA and 93.5 % in the ASEAN-China FTA to 78.1 % in the ASEAN-India FTA (Fukunaga & Isono, 2013, p. 8). It appears that "regulatory distance at the extensive margin" that captures differences in patterns of imposition of non-tariff measures of different types is relatively small between the ASEAN countries, but large vis-à-vis e.g. China (Cadot & Ing, 2015, p. 21). Ad valorem equivalents of the non-tariff measures in the ASEAN+6 countries show that these still have a high price impact (Ghodsi, Grübler & Stehrer, 2016, p. 32, Appendix 2). There are also many types of Rules of Origin in the ASEAN+1 FTAs (Fukunaga & Isono, 2013, p. 11-14).

Within RCEP the ASEAN+1 agreements will be “multilateralised” to all countries involved. Negotiations about the RCEP started in November 2012, on the occasion of the ASEAN Summit held in Cambodia and are still underway. The twenty-first round of negotiations was held in Yogyakarta, Indonesia, from February 2 to 9, 2018. Leaders of the 16 countries agreed to intensify negotiations throughout 2018. They set a new target to sign the agreement during the ASEAN summit in Singapore in November 2018, but at that time stated that they “are determined to conclude a modern, comprehensive, high quality, and mutually beneficial RCEP in 2019.” (ASEAN, 2018) Negotiation deadlines were missed three times, in 2015, 2016 and 2017.

LIBERALIZATION OF TRADE IN GOODS IN THE RCEP

The countries that make up the RCEP are very diverse, which explains the slow progress in the negotiations. It also is expected that the RCEP Agreement will not encompass the various aspects of a “WTO-Plus” agreement. Taking experience with the TPP negotiations into account, ERIA economist Lurong Chen stated recently: “While filling RCEP with high-quality standards, like those outlined in the TPP agreement, may be very welcome in some circles, it is not necessary at this stage. What is important is that the negotiations are inclusive and represent the needs and circumstances of all countries in the region from least to most developed. Doing so will not only help to conclude the agreement itself but will also facilitate internal domestic reforms.” (Chen, 2017)

It is very likely that the final RCEP agreement, therefore, will not be as comprehensive as some countries are aiming for. In fact, countries like Thailand, will benefit most from complete free trade with its trading partners of RCEP, as econometric simulations clearly show. As early as 2012, the impact of ASEAN+6 was calculated by Puppavesa *et al.* (2012), using GTAP simulations. The ASEAN+6 scenario investigated was that of ASEAN member countries having free trade agreements under the ASEAN + 6 framework, with import tariffs at 0% (Scenario 3a), and alternatively except for sensitive products (Scenario 4). It was found that ASEAN+6 (Scenario 3a) will increase Thailand’s GDP with 4.03 % (as compared with ASEAN+3 which increases Thailand’s GDP with 3.87 %). If sensitive items are excluded from the agreement, the increase of Thailand’s GDP will be only 3.55 % (Scenario 4). However, these scenarios also showed a deterioration of Thailand’s trade balance.

In the past, quite a few macro-economic studies were carried out to assess the benefits of further regional integration in East Asia and in the Asia-Pacific, to which more recently, also RCEP was added. Plummer, Petri & Zhai (2014) used a CGE model that incorporates recent innovations in heterogeneous-firms trade theory and intra-industry firm heterogeneity in productivity and fixed cost of exporting. The RCEP scenario simulated entailed liberalization of remaining NTBs, accumulation of rules of origin and the partial liberalization of services, which was modelled through full liberalization of tariff barriers among the ASEAN+6 economies, a 40 per cent reduction in regional goods NTBs, a 30 per cent reduction of regional services NTBs, as well as a 20 per cent cut in fixed trade costs among FTA members from 2017 to 2022. They estimated the welfare gain of this RCEP scenario for Thailand to amount to 39.3 billion US\$ by 2025 (in 2007 prices) (Plummer, Petri & Zhai, 2014, Table B1) or 17.7 % of the baseline GDP (Plummer, Petri & Zhai, 2014, Table B2), creating employment of 4.9 million people (of which informal employment 3.1 million) (Plummer, Petri & Zhai, 2014, p.36, Table 12). Exports of Thailand will

increase by 2025 with 47.8 % from the baseline, as compared to imports increasing with 48 % (Plummer, Petri & Zhai, 2014, p. 21, Table 6).

Itakura (2015) has conducted a set of hypothetical simulations with a recursively dynamic CGE model of global trade, focusing on the period 2015–2030 and taking the RCEP countries' trade liberalization commitments (under AEC and their ASEAN+1 FTAs) and measures up to 2015 into account in the baseline estimation. His GTAP model allows international capital mobility and capital accumulation. Three scenarios are simulated, which by 2030 give for Thailand the following cumulative GDP deviation from the baseline:

- S1: Tariff reduction (50 %) + logistics improvements on merchandise trade and reduction of barriers to service trade by 7 %, leading to +2.4 % GDP from the baseline,
- S2: S1 with tariff reduction (75 %), leading to +3.1 % GDP from the baseline,
- S3: S2 + lowering country specific risk by 5 basis point, leading to +5.3 % GDP from the baseline (Itakura, 2015, p. 14, Table 1.7).

Under the three scenarios, Thailand's international trade balance will deteriorate with exports increasing with 3.6 %, 5.3 % and 7.8 %, respectively, and imports with 4.4 %, 6.1 % and 8.9 % (Itakura, 2015: 17-18, Table 1.8 and 1.9)

Petri, Plummer, Urata & Zhai (2017), following up on their former simulations (see above), have more recently explored alternative scenarios for further trade liberalization in the Asia-Pacific after the 2017 withdrawal of the United States from the Trans Pacific Partnership. One of the scenarios they estimated entailed a weaker RCEP, considering recent developments in the negotiations. They assumed relatively limited liberalization provisions among which e.g., weaker tariff reductions than in most ASEAN+1 agreements. Based on their calculations, Thailand's real income will have increased by 2030 only 0.3 % from the baseline, with exports (in 2015 prices) having increased 4.3 % (Petri, Plummer, Urata & Zhai, 2017, p. 14-16, Table 2 and 3). This is a striking result if compared with these of Itakura (2015) but is most likely due to their assumptions about liberalization under RCEP. It is interesting to compare this result with the 1.24 % GDP increase which was found by Gilbert, Furusawa & Scollay (2016, p. 35, Table 5) who assume full tariff liberalization between the RCEP countries.

A different approach was followed by Chen, Cuyvers & De Lombaerde (2017), who calculated market gravitation indicators for the ASEAN member countries with respect to the Trans Pacific Partnership and the RCEP, based on Baldwin (2009, p. 12-14), but weighted using a measure of the degree of market integration of TPP and RCEP (proxied by the percentage of duty-free trade among its member states). They show that to ASEAN and its member states (with an exception for Vietnam and Cambodia), concluding the RCEP can secure a market with greater gravity than TPP even in the most conservative scenario of RCEP only leading to 80% duty free trade among member states.

THE DSM METHODOLOGY

We assume in this paper that RCEP will fully eliminate all existing entry barriers between the member countries. Following this assumption, we will identify Thailand's potential exports in the 15 target economies. The export potentials of Thailand are determined by using the Decision Support Model (DSM). These potentials are compared with the export potentials in ASEAN+6 at present, as a base line.

The DSM is a model derived from international marketing research to identify for an exporting country the realistic export opportunity in a target economy (or target economies) or the world at large. It uses macroeconomic performance data and international trade data of the countries in the world for which these are available and filters out less interesting countries and export products. The DSM was originally designed to help export promotion agencies in identifying interesting export opportunities and evolve suitable export promotion strategies (Cuyvers, De Pelsmacker, Rayp & Roozen, 1995). The model was applied for countries as diverse as Belgium (Cuyvers, De Pelsmacker, Rayp & Roozen, 1995; Cuyvers, Steenkamp & Viviers, 2012b), Thailand (Cuyvers, 1996, 2004, Cuyvers, Steenkamp, Viviers, Rossouw & Cameron, 2017), the Philippines (Archie, 2004), South Africa (Rossouw, Steenkamp, Viviers & Cuyvers, 2010; Pearson, Viviers, Cuyvers & Naudé, 2010), the Netherlands (Viviers, Cuyvers, Naudé, Steenkamp, Rossouw, Cameron, Idsardi & Parry, 2014), Greece (Kanellopoulos & Skintzi, 2014), Czechia (Urban, Mejstřík & Gutierrez Chvalková, 2014), Namibia (Teweldemedhin & Chiripanhura, 2015), Rwanda (Cameron & Viviers, 2017) and Louisiana (USA) (Oluwade, 2018). The DSM has been used recently to investigate and assess Thailand's realistic export opportunities (REOs) in ASEAN+3 (Cuyvers, Steenkamp, Viviers, Rossouw & Cameron, 2017).

For a full description of the DSM methodology the reader is referred to Cuyvers & Viviers (2012) and Viviers, Cuyvers, Naudé, Steenkamp, Rossouw, Cameron, Idsardi & Parry (2014). Suffice it here to summarize this methodology. The analysis starts with 203 importing countries for which macro-economic data and international trade data are available. In Filter 1, all countries that are showing too much commercial and political risk to do business with, as well as countries the macroeconomic performance in terms of GDP and GDP growth can be considered too low, are filtered out. In Filter 2, for the countries that passed Filter 1, imports at the HS 6-digit level are assessed, such that only "possible export opportunities" (PEOs) can be further examined in Filter 3. Filter 3 basically relates to market accessibility of the PEOs. In Filter 3.1, the PEOs that show too high market access barriers due to market concentration are removed, leaving a set E_C . Simultaneously, in Filter 3.2, the PEOs that some way or another are confronted with high trade barriers (tariffs and non-tariff measures, distance of the market, cultural factors, distribution costs, etc.) are removed, leaving a set E_T . The REOs thus identified are the HS 6-digit product-country combinations belonging $E_C \cap E_T$. In Filter 4 the REOs are categorized according to the import market characteristics (large market, growing market, etc.) and Thailand's relative market share. We define Thailand's relative market share as $\mu_{\text{Thailand},i,j} = (X_{\text{Thailand},i,j}/X_{\text{six},i,j})$, with $X_{\text{Thailand},i,j}$ Thailand's exports of product category j to country i and $X_{\text{six},i,j}$ is top six countries' total exports of product category j to country i . We also define¹:

¹ These definitions of relative market share and the rule of thumb used to differentiate between low, intermediate low, intermediate high and high relative market share is more straightforward and transparent than that in our previous DSM researches. See on the previous approach Cuyvers, De Pelsmacker, Rayp & Roosen, 1995; Cuyvers, Steenkamp & Viviers, 2012a).

$\mu_{\text{Thailand},i,j} < 0.05$: Thailand's relative market share is relatively small,

$0.05 \leq \mu_{\text{Thailand},i,j} < 0.25$: Thailand's relative market share is intermediately small,

$0.25 \leq \mu_{\text{Thailand},i,j} < 0.5$: Thailand's relative market share is intermediately high,

$\mu_{\text{Thailand},i,j} \geq 0.5$: Thailand's relative market share is relatively high.

The international trade data used in Filter 2 and 3 are based on the *Base Analytique du Commerce International (BACI)* data set which is a reconciled version of the UN COMTRADE database provided by CEPPII (*Centre d'Études Prospectives et d'Informations Internationales*), 2017 – HS 2007 revision.² The GDP and GDP per capita data used in Filter 1 are from the World Bank Development Indicators database³, and the country risk scores used in the same Filter 1 are from Credendo.⁴

The list of REOs provides trade policy experts, export promotion agencies, private exporting companies and consultants with important information for setting up appropriate export promotion strategies. The availability of the list of REOs, although much smaller than the product-country combinations that are started with in Filter 2 of the DSM, is a necessary condition for the development of a focused and cost-effective export promotion strategy. Evidently, in elaborating and formulating such strategies the information on the target market characteristics and the present export market shares at REO level that are used in the DSM Filter 4 will allow finetuning. In the formulation process of export promotion strategies, also the use of detailed market potential data at the level of the individual REOs is crucial and can be estimated using regression analysis.

THAILAND'S EXPORT POTENTIALS IN THE RCEP COUNTRIES: AN OVERVIEW OF THE MAIN DSM RESULTS

Based on the 2017 DSM update, Thailand's REOs in the world amount to 17,104, equivalent to an estimated export potential of 241.8 billion US\$. 74,5 % of these REOs are in markets that are showing both imports growth in the short and longer period. However, 69.6 % of the Thailand's REOs in the world are in markets where the Kingdom's market share is small. Of these worldwide REOs, the RCEP countries represent 22.4 % (3,836 REOs), which is good for 37.3 % (90.1 billion US\$) of the Thailand's worldwide export potential. However, Lao PDR is not included in these figures because the country drops off the list already in Filter 1 due to too high commercial and political risks involved in doing business. Since including Lao PDR leads only to an additional 71 REOs for Thailand with an estimated export potential of 17.6 million US\$, we decided to include the country. This is done by neglecting commercial and political country risk of the RCEP countries which brings the number of Thailand's REOs in the RCEP countries to 3,907, representing an estimated potential export value of 90 billion US\$.

It is important to stress that Thailand's actual exports to the RCEP countries represent only 58.7 % of its export potential (see Table 1). China alone shows 447 REOs for Thailand with an export potential of 32.8 billion US\$, whereas Thailand's actual exports to China represent only 59.4 % of its export potential in that country. These DSM results,

² See Gaulier and Zignago (2010). For further information also see http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=1

³ <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>

⁴ https://www.credendo.com/country_risk

obviously, vindicate the attention that is devoted in the present paper to export potentials in the RCEP countries and on the impact of further (or full) trade liberalization and accessibility. Table 1 shows the RCEP country distribution of Thailand's REOs as well as the degree of utilization of its export potential.

Table 1.

Thailand's Actual and Potential Exports in the RCEP Countries.

Country	No. of REOs	Realistic Export Market(s) (x1000 US\$) (1)	Target Market(s) (x1000 US\$) (2)	Thailand's actual import market share (%) (3)	Degree of utilization of Thailand's export potential (2)/(1) (%)
Total in RCEP	3,907	90,024,305.83	52,873,799.26	7.6%	58.7%
Australia	240	4,067,671.04	2,301,252.35	7.8%	56.6%
Brunei Darussalam	174	33,349.91	24,716.64	10.3%	74.1%
Cambodia	200	102,231.56	545,941.31	45.7%	534.0%
China	447	32,813,451.99	19,486,986.36	7.9%	59.4%
India	321	4,317,639.53	2,583,467.50	7.5%	59.8%
Indonesia	256	4,752,207.76	1,755,971.94	5.4%	37.0%
Japan	366	12,604,200.00	9,682,301.30	9.9%	76.8%
Korea, ROK	305	9,442,808.64	2,586,904.44	3.6%	27.4%
Lao PDR	71	17,632.45	158,854.03	59.9%	900.9%
Malaysia	287	3,085,742.08	3,474,851.38	13.9%	112.6%
Myanmar	154	370,172.95	854,316.05	27.6%	230.8%
New Zealand	165	272,900.74	183,373.31	8.9%	67.2%
Philippines	192	1,608,898.28	1,048,471.65	9.1%	65.2%
Singapore	298	13,008,978.89	5,258,144.66	4.6%	40.4%
Vietnam	431	3,526,420.03	2,928,246.34	11.4%	83.0%

Source: DSM Results.

It might seem surprising that some utilization rates are larger than 100 % (some substantially larger). In fact, some of the actual exports to a country such as e.g., Cambodia or Myanmar, are not REOs, i.e., exports showing sufficient future potential, which explains why actual exports to some target markets can be higher than the estimated export potential based on the REOs.

China, offering the largest potentials both in terms of money value and in terms of number of REOs, is followed by Singapore (298 REOs; 13 billion US\$), Japan (366 REOs; 12.6 billion US\$) and South Korea (305 REOs; 9.4 billion US\$). Countries such as India, Indonesia, Malaysia and Vietnam show relatively high potential export values, but also a high number of REOs, which means that on average the potential export value per REO is relatively low.

Table 2a shows the distribution of Thailand's 3,907 REOs in the RCEP according to the respective target import market characteristics and Thailand's market share for the respective REOs, whereas Table 2b is showing that distribution based on potential export values.

Table 2a.

Distribution of Thailand's Headcount REOs according to Import Market Characteristics and Thailand's Market Share.

	Small Market Share	Intermediate Small Market Share	Intermediate Large Market Share	Large Market Share	Total
1-Large Market	4.2%	3.8%	1.3%	1.0%	10.3%
2-Growing Market (Short & Long term)	27.9%	18.7%	6.9%	11.9%	65.4%
3-Large Growing Market (Short term)	0.9%	0.9%	0.3%	0.3%	2.4%
4-Large Growing Market (Long term)	1.6%	1.6%	0.3%	0.5%	4.0%
5-Large Growing Market (Short & Long term)	7.8%	6.3%	1.8%	2.0%	17.9%
Total	42.4%	31.3%	10.6%	15.7%	100.0%

Source: DSM Results.

Table 2b.

Distribution of Thailand's REOs Based on Potential Export Value, according to Import Market Characteristics and Thailand's Market Share.

	Small Market Share	Intermediate Small Market Share	Intermediate Large Market Share	Large Market Share	Total
1-Large Market	26.0%	14.1%	1.5%	0.4%	42.1%
2-Growing Market (Short & Long term)	7.7%	4.1%	1.3%	0.7%	13.9%
3-Large Growing Market (Short term)	7.2%	1.9%	1.5%	0.2%	10.7%
4-Large Growing Market (Long term)	2.2%	1.3%	0.1%	0.2%	3.7%
5-Large Growing Market (Short & Long term)	16.3%	10.4%	1.8%	1.1%	29.6%
Total	59.4%	31.7%	6.3%	2.6%	100.0%

Source: DSM Results.

Of Thailand's REOs in the RCEP countries, 65.4% are in markets that show import growth in the short and long run, and 26.3 % of the REOs are in markets where Thailand import market share is high or intermediately high. However, in terms of potential export values involved these percentages are much lower.

It is striking that the 15.7 % of the REOs in RCEP markets are relating to product-country combinations with a high Thai market share, whereas these combinations only represent 2.6 % of the Kingdom's potential export value of the REOs in these markets. In contrast, 42.4 % of the REOs are in import markets where Thailand's market share is very low but are good for 59.4 % of the total potential export value in the RCEP. There exists a huge export potential in the RCEP markets, but often Thailand has a low presence and is facing much competition, which implies that a lot of resources will have to be devoted to increase its exports. This conclusion is strengthened further if due account is taken of the relatively low percentages that the high market share REOs in the total potential export value in the RCEP countries are representing: 26.3 % of the REOs represent only 8.9 % of the total potential export value in the RCEP.

Table 3.

Top 20 of REOs (HS 2-digits).

Rank	HS2	HS2 Chapter	No. of REOs	Realistic Export Potential to	
				Target Market(s) (x1000 US\$)	
		Total	3,907	90,024,305.83	
1	HS85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	463	35,004,971.30	
2	HS27	Mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes.	37	18,575,053.40	
3	HS84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof.	319	7,738,015.98	
4	HS39	Plastics and articles thereof.	227	6,871,310.06	
5	HS29	Organic chemicals.	118	3,714,098.80	
6	HS90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus: parts and accessories thereof.	125	1,988,488.19	
7	HS40	Rubber and articles thereof.	239	1,979,915.59	
8	HS87	Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof.	91	1,407,354.66	
9	HS74	Copper and articles thereof	40	1,371,535.69	
10	HS73	Articles of iron or steel.	99	1,049,356.69	
11	HS21	Miscellaneous edible preparations.	67	932,491.90	
12	HS03	Fish and crustaceans, mollusks and other aquatic invertebrates	73	900,978.99	
13	HS71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewelry; coin.	43	796,301.42	
14	HS44	Wood and articles of wood; wood charcoal	65	762,032.58	
15	HS52	Cotton	106	531,074.19	

Rank	HS2	HS2 Chapter	No. of REOs	Realistic Export Potential to Target Market(s) (x1000 US\$)
		Total	3,907	90,024,305.83
16	HS19	Preparations of cereals, flour, starch, or milk; pastrycooks products	46	356,378.71
17	HS48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	101	344,577.31
18	HS55	Man-made staple fibres.	98	341,072.30
19	HS94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings.	23	297,661.10
20	HS54	Man-made filaments	71	297,019.64

Table 3. (continued)

Source: DSM Results.

The largest export potentials are found among electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles (HS85: 463 REOs; 35 billion US\$); mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes (HS27: 37 REOs; 18.6 billion US\$); nuclear reactors, boilers, machinery and mechanical appliances; parts thereof (HS84: 319 REOs, 7.7 billion US\$); plastics and articles thereof (HS39: 227 REOs; 6.9 billion US\$), organic chemicals (HS29: 118 REOs; 3.7 billion US\$), followed by optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus: parts and accessories thereof (HS90: 125 REOs; 2 billion US\$); rubber and articles thereof (HS40: 239 REOs; 2 billion US\$) and vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof (HS87: 91 REOs; 1.4 billion US\$).

THAILAND'S EXPORT POTENTIALS IN THE RCEP COUNTRIES IN A FULL TRADE LIBERALIZATION AND ACCESSIBILITY SCENARIO

In previous DSM studies that investigated Thailand's REOs, as well as the present one, existing trade barriers are not quantified⁵, but a proxy is used instead by looking for a given potential export opportunity of Thailand, whether this is also the case for the Kingdom's neighboring ASEAN-6⁶ countries. If at least one of these neighboring countries is exporting the product to the target import countries in which also Thailand's export opportunity is located, it is assumed that there are sufficiently low "revealed barriers to trade" and that Thailand's absence or low presence in that market for the given export product cannot be attributed to such trade barriers. However, if all ASEAN+6 countries are confronted with the same barriers to trade, e.g. in China, the export opportunity which was identified will not be classified as a realistic export opportunity. The removal of all barriers to trade and full accessibility of the ASEAN countries with the six other countries of ASEAN+6 under the RCEP would classify all export opportunities of Thailand as a realistic export opportunity. By not applying the Filter 3.2 of the DSM which is testing for the "revealed absence of trade barriers" export opportunities that otherwise would be classified as possible export opportunities, will now be classified as realistic export opportunities. All these realistic export opportunities can be assumed to be the result of the complete removal of trade barriers and full accessibility of Thailand's exports in the RCEP countries.

Stated with reference to the DSM methodology: we consider in Filter 3.1 first the possible export opportunities (i.e., all export opportunities having passed Filter 1 and 2) the import market for which is not concentrated (E_C) and next, in Filter 3.2, the possible export opportunities for which the many barriers to trade are "revealed" to be sufficiently low (E_T), such that neighboring ASEAN-6 countries are exporting the products to the respective markets. The set of realistic export opportunities is then consisting of the possible export opportunities which are both not concentrated and are not confronted with high barriers to trade, i.e. $E_C \cap E_T$. In contrast, by only applying Filter 3.1 and not applying Filter 3.2, the

⁵ Apart from the tariff barriers for which data can be used such as the nominal tariff rates or the tariff rate equivalents, quantitative data on non-tariff measures are mostly ad valorem equivalents which are often available only for a limited number of products. A wide variety of measures and indicators of distribution costs and transportation costs exist, such as the time required for importing in a country, etc.

⁶ ASEAN-6 consists of Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand, i.e. the original member countries of ASEAN that signed the Bangkok Declaration of 1967, plus Brunei, which joined ASEAN in 1984 after independence.

set E_C can be assumed to consist of the realistic export opportunities in a scenario where all trade barriers are removed.

Not applying Filter 3.2 leads to 6,847 REOs in the RCEP countries for an estimated export potential of 112,543 million US\$. Compared to the baseline scenario the number of REOs thus increases with 75 % and the total value of Thailand's export potential with 25 %. It should be stressed that we are not that much interested in the estimated value of potential exports, as in how this is different from the ASEAN+6 baseline, as well as in the composition of the set of REOs and how different this is from the composition in the baseline scenario.

Table 4.

Thailand's Actual and Potential Exports in the RCEP Countries: Full-Trade Liberalization and Accessibility Scenario.

Country	No. of REOs	Target Market(s) (x1000 US\$) (1)	Realistic Export Potential to	Increase in No. of REOs (%)	Increase in Export Potential to Market(s) (%)
Total in RCEP	6,847	112,542,753.25		75.2%	25.0%
Australia	467	5,716,163.12		94.6%	40.5%
Brunei Darussalam	192	34,668.06		10.3%	4.0%
Cambodia	359	215,877.33		79.5%	111.2%
China	751	40,912,811.26		68.0%	24.7%
India	517	6,243,000.97		61.1%	44.6%
Indonesia	428	5,589,027.17		67.2%	17.6%
Japan	589	15,779,544.57		60.9%	25.2%
Korea, ROK	563	11,698,351.45		84.6%	23.9%
Lao PDR	367	71,740.28		416.9%	306.9%
Malaysia	498	3,907,744.20		73.5%	26.6%
Myanmar	347	529,077.10		125.3%	42.9%
New Zealand	331	469,720.72		100.6%	72.1%
Philippines	336	2,100,070.82		75.0%	30.5%
Singapore	465	13,577,515.57		56.0%	4.4%
Vietnam	637	5,697,440.63		47.8%	61.6%

Source: DSM Results.

The most interesting developments of a removal of all entry barriers to traded goods between the RCEP countries are in countries where the number of REOs are increasing a lot, but the export potential in value increasing even more spectacularly, as this will imply that not only the potentials of the realistic export opportunities will shoot up, but that also the export revenue per REO is increasing. As Table 4 shows, this is the case with Thailand's exports to Cambodia and to a lesser extent these to Vietnam. The largest rates of increase are in the Lao market, where the number of REOs increases with 416.9 % and the potential export value with 306.9 %, but where the potential export revenue involved is low. In countries where the potential export revenue is high, like in China, Korea and Japan, the export potential value increases less than the number of REOs, but the export revenue involved is large.

In the scenario of full removal of entry barriers to traded goods between RCEP countries, the Top 20 is as shown in Table 5.

Table 5.

Top 20 of REOs (HS 2-digits) under the Full-Trade Liberalization and Accessibility Scenario.

Rank	HS2	HS2 Chapter	No. of REOs	Realistic Export Potential to Target Market(s) (x1000 US\$)
1	HS85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	635	112,542,753.25
2	HS27	Mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes.	48	18,688,882.86
3	HS84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof.	593	9,863,360.82
4	HS39	Plastics and articles thereof.	346	8,015,790.24
5	HS87	Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof.	194	5,990,599.37
6	HS29	Organic chemicals.	185	4,410,623.01
7	HS71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewelry; coin.	85	3,573,850.82
8	HS90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus: parts and accessories thereof.	178	2,775,898.07
9	HS40	Rubber and articles thereof.	350	2,284,177.08
10	HS73	Articles of iron or steel.	190	1,438,502.90
11	HS74	Copper and articles thereof	58	1,406,870.57

Rank	HS2	HS2 Chapter	Total (all REOs)	No. of REOs	Realistic Export Potential to Target Market(s) (x1000 US\$)
12	HS03	Fish and crustaceans, mollusks and other aquatic invertebrates		6,847	112,542,753.25
13	HS21	Miscellaneous edible preparations.		93	1,119,365.26
14	HS44	Wood and articles of wood; wood charcoal		84	949,841.42
15	HS52	Cotton		86	852,088.32
16	HS17	Sugars and sugar confectionery		227	680,413.52
17	HS54	Man-made filaments		61	651,616.63
18	HS16	Preparations of meat, of fish or of crustaceans, mollusks or other aquatic invertebrates		175	625,069.00
19	HS70	Glass and glassware.		112	570,634.58
20	HS10	Cereals		90	545,386.93
				28	544,257.60

Table 5. (continued)

Source: DSM Results.

Compared with the baseline scenario (Table 3), it will be seen that the Top 20 is similar but not identical. Some article groups are shifting to positions a bit lower or higher (e.g. vehicles, HS87), which becomes more apparent particularly from the 10th rank. Mention can be made of natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewelry; etc. (HS71) that moves to the 7th position (coming from the 13th). Some products drop from the Top 20, such as paper and paperboard; articles of paper pulp, of paper or of paperboard (HS48, which now ranks 24th) or preparations of cereals, flour, starch, or milk; pastrycooks products (HS19, which now ranks 25th), while other products appear, such as sugars and sugar confectionery (HS17), preparations of meat, of fish or of crustaceans, mollusks or other (HS16), or glass and glassware (HS70).

Table 6 compares the changes in the number of REOs and the realistic export potential brought about by the removal of all trade barriers between the RCEP countries. Most REOs among the Top 10 show moderate increases in the realistic export potentials involved. Since these increases are going together with larger percentage increases in the number of REOs, the average export potential per REO drops, which should incite the Thai exporters and Thailand's export promotion agency to rather concentrate on the REOs offering the higher export revenue. Some spectacular changes are also apparent. For instance, the number of REOs and the realistic export potential of vehicles and parts (HS87) increases with 113.2 % and 325.7 % respectively. Similarly, but further down on the Top 20 list, mention should be made of the rise in importance of Sugars and sugar confectionery (HS17) and Cereals (HS10).

Table 6.

Changes in the Top 20 of REOs (HS 2 digits) under the Full Trade Liberalization and Accessibility Scenario.

Change in rank	HS2	HS2 Chapter	Total	Change in	
				No. REOs (%)	Change in Realistic Export Potential (%)
0	HS85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	75.2%	37.1%	25.0%
0	HS27	Mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes.	29.7%		0.6%
0	HS84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof.	85.9%		27.5%
0	HS39	Plastics and articles thereof.	52.4%		16.7%
3	HS87	Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof.	113.2%		325.7%
-1	HS29	Organic chemicals.	56.8%		18.8%
6	HS71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewelry; coin.	97.7%		348.8%
-2	HS90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus: parts and accessories thereof.	42.4%		39.6%
-2	HS40	Rubber and articles thereof.	46.4%		15.4%
0	HS73	Articles of iron or steel.	91.9%		37.1%
-2	HS74	Copper and articles thereof	45.0%		2.6%
0	HS03	Fish and crustaceans, mollusks and other aquatic invertebrates	27.4%		24.2%
-2	HS21	Miscellaneous edible preparations.	25.4%		1.9%
0	HS44	Wood and articles of wood; wood charcoal	32.3%		11.8%
0	HS52	Cotton	114.2%		28.1%

Change in rank	HS2	HS2 Chapter	Change in	
			No. REOs (%)	Change in Realistic Export Potential (%)
			Total	
11	HS17	Sugars and sugar confectionery	103.3%	222.6%
3	HS54	Man-made filaments	146.5%	110.4%
5	HS16	Preparations of meat, of fish or of crustaceans, mollusks or other aquatic invertebrates	96.5%	121.3%
3	HS70	Glass and glassware.	83.7%	103.3%
30	HS10	Cereals	833.3%	838.7%

Table 6. (continued)

Source: DSM Results.

SOME STRATEGIC IMPLICATIONS

When considering the changes outlined in the previous section, a warning is in place. REOs in markets where Thailand's market share is small, are more difficult to penetrate further and will require disproportionately more resources, than markets where Thailand's market share is already high. Of the 3,818 REOs of the Top 20 list of Table 6, 20.3 % are about markets where Thailand's market share is high ($\mu_{\text{Thailand},i,j} \geq 0.5$) and 10.9 % where it is intermediately high ($0.25 \leq \mu_{\text{Thailand},i,j} < 0.5$). The realistic export potential of these 3,818 REOs amounts to 102,731.9 million US\$, of which only 3.2 %, and 10.9 % and 6.4 % are about markets where Thailand's market share is high ($\mu_{\text{Thailand},i,j} \geq 0.5$) and where it is intermediately high ($0.25 \leq \mu_{\text{Thailand},i,j} < 0.5$).

Table 7.

Top 20 of REOs (HS 2-digits) under the Full-Trade Liberalization and Accessibility Scenario per Country and Thailand's Market Share.

Country	Thailand Market Share High ($\mu_{\text{Thailand},i,j} \geq 0.5$)		Thailand Market Share Intermediate High ($0.25 \leq \mu_{\text{Thailand},i,j} < 0.5$)		Thailand market Share Intermediate Low $0.05 \leq \mu_{\text{Thailand},i,j} < 0.25$	
	No. of REOs	Realistic Export Potential (x1000 US\$)	No. of REOs	Realistic Export Potential (x1000 US\$)	No. of REOs	Realistic Export Potential (x1000 US\$)
Australia	33	379,620.90	31	581,659.40	61	952,052.31
Brunei Darussalam	8	598.46	9	787.61	22	7,923.17
Cambodia	85	51,250.36	23	5,507.80	36	44,850.82
China	36	929,068.91	30	2,051,981.71	130	11,615,907.24
India	34	140,988.96	26	307,244.62	99	1,573,511.47
Indonesia	36	157,456.03	22	265,893.85	68	679,400.91
Japan	54	566,136.19	53	1,401,467.91	119	5,305,259.19
Korea, ROK	21	129,901.09	19	172,897.19	74	1,515,051.88
Lao PDR	174	39,589.89	13	699.46	11	9,710.85
Malaysia	61	320,590.63	44	610,932.44	93	1,165,170.31
Myanmar	91	73,406.97	34	256,537.11	38	75,801.00
New Zealand	19	47,078.74	17	28,890.74	38	128,650.23
Philippines	35	111,178.73	28	144,164.91	48	491,017.47
Singapore	32	123,039.67	21	342,164.60	57	5,175,398.20
Vietnam	55	209,517.68	47	358,227.30	123	920,279.44
Total	774	3,279,423.23	417	6,529,056.65	1,017	29,659,984.50

Source: DSM Results.

As is evidenced by Table 7, the RCEP countries offering REOs for which Thailand's market share is already high or intermediately high, are China, Japan, Malaysia and Australia. It is surprising to see that Thailand's high market share REOs in South Korea are relatively small in terms of export potential value.

At this point it is also interesting to consider the export potentials in China again. It was found that in the baseline scenario the potential export value of Thailand's REOs amounted to 32.8 billion US\$ (Table 1), which increases to 40.9 billion US\$ (Table 4) under the full-trade liberalization and accessibility scenario, i.e. an increase with 24.7 %. Recent calculations about China's export potentials under its Belt-and-Road Initiative showed, by comparison, that it amounts in Thailand at 3.9 billion US\$ (Cameron, Cuyvers, Fu & Viviers, 2018). Considering the size of China's market this is far from surprising, but the implication is that Thailand can benefit more from its international trade with China, than vice versa.

This is not the place to go into small details, but some striking examples of market potentials at the product level are worth mentioning. In China, HS85 - Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles represents 36.6 % of the export potential of Thailand's REOs in China (14,965 million US\$ export potential), but only 1 % (of the export potential) of the REOs in HS85 have already achieved a high or intermediately high market share. Similarly, HS87 - Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof, represent 5.3 % of the export potential of Thailand's REOs in China, but a dismal 0.1 % (of the export potential) of these HS87 REOs in China have a high market share (none have an intermediately high market share). In contrast, HS84 - Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof, are good for 9.1 % of Thailand's export potential in China, and 33.6 % of the export potential of these HS84 REOs have an intermediately high market share (another 0.6 % have a high market share).

In Malaysia, HS85 - Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles makes up 39.6 % of Thailand's export potential in the country, and 4.5 % of the export potential of the REOs with a high and intermediately high market share. Much brighter category of REOs belong to HS84 - Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof (14.2 % of Thailand's export potential in Malaysia), 87.8 % of Thailand's export potential in this HS category showing a high or intermediately high market share.

In the Australian market, HS27 - Mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes, makes up 40.6 % of Thailand's export potential in the country, but In contrast, 45.3 % of Thailand's export potential of HS87 - Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof in Australia (13.7 % of Thailand's export potential in Australia) are about REOs with a high or intermediately high Thai market share.

CONCLUSION

From our calculations it clearly appears that a full liberalization of trade in goods and a complete removal of all existing barriers to accessibility of Thai exports under a future Regional Comprehensive Economic Partnership agreement, will deliver important benefits for the Kingdom. We reached this conclusion by using the DSM methodology, first identifying Thailand's realistic export opportunities and attempting at making an estimate of the potential export value per opportunity. Under the baseline assumption, we found that there exists for Thailand a lot of export potential in the ASEAN+6, since this export potential is only used for 58.7 %. China offers the largest potential exports, followed by Singapore and Japan. This underutilization of the export potential in the ASEAN+6 is further vindicated by the share of the REOs in markets where Thailand's market share for these products is small, or even negligible (42.4 % based on number of REOs, and 59.4 % based on the estimated export value), which stands in sharp contrast to the share of the REOs in markets where the market share is high or moderately high (26.3 % based on number of REOs, but hardly 8.9 % in value terms). This implies that the ASEAN+6 market offers huge potential, that however, will only be tapped if the country follows a clear and well-defined strategy in the RCEP negotiations and by earmarking enough funds for export promotion in these markets.

Next, we have identified Thailand's REOs under a scenario of complete removal of all existing barriers to accessibility of Thai exports. This scenario is implemented in the DSM by "switching off" the filter that eliminates all possible export opportunities that are due to apparent trade barriers. The thus not-eliminated possible export opportunities of that filter become under this scenario realistic export opportunities. Their number and their estimated export potential, as compared to the baseline scenario, enables a first quantification of these potentials under the complete market accessibility scenario for the ASEAN+6 countries, if agreed in the future RCEP agreement. Strikingly, an additional 6,847 REOs in the RCEP countries (for an estimated export potential of 112,543 million US\$) are found, which, compared to the baseline scenario, represents an increase in the number of REOs with 75 % and of the total value of Thailand's export potential with 25 %. If these REOs are fully tapped, this will lead to particularly spectacular export increases in neighboring Laos and Cambodia, and considerable increases in India, New Zealand and Australia. The increase of the export potentials in China, although offering the largest export potential of all ASEAN+6 countries, is moderate. Moreover, it is found that for many of the Top 20 REOs in China, Thailand has already a large market share. This is also the case in Japan and Singapore.

As compared to the baseline scenario the full liberalization and full accessibility scenario leads to moderate to small increases in the export potential of HS85-Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles, and HS27-Mineral fuels, oils and products of their distillation; bituminous substances; mineral waxes – both are product groups that showed already in the baseline scenario the highest export potential. Particularly striking is the rise in importance of HS87- Vehicles (excluding railway or tramway rolling-stock) and parts and accessories thereof, and HS71-Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewelry; coin.

From our results it can be concluded that in the RCEP negotiations, Thailand should go for full liberalization. However, the negotiations will not lead to full trade liberalization and full accessibility. Even in the most optimistic scenario with the tariff duties between the ASEAN+6 removed, important non-trade barriers will remain that relate e.g., to product standards, custom procedures, etc. Thus, by “switching-off” the DSM filter that tests whether at least one of Thailand’s neighboring countries is exporting a product, which for Thailand is a REO, to a market, does not guarantee full market accessibility. The “revealed absence of trade barriers” in our calculations is merely a proxy that gives an indication of a possible opportunity that might be a realistic one, but not more than that. For instance, Singapore’s logistics and distribution system in Australia or New Zealand (or that of Malaysia in Indonesia) is probably more developed than that of Thailand, thus reducing market accessibility for Thailand exports to these countries. The DSM, obviously, does not allow the implementation of differences between exporting countries in accessibility of target markets, or less than full market accessibility by using the “revealed absence of trade barriers” proxy in the baseline scenario and then assuming a complete absence of trade barriers in the full trade liberalization and full accessibility scenario. More fine-tuned scenarios require the use of data on distance to market, tariff and non-tariff barriers, transport cost and country specific logistics performance (such as the World Bank’s Logistics Performance Index) (see on this Cameron and Viviers, 2017; Cameron, Cuyvers, Fu and Viviers, 2018). This is the subject of future research.

REFERENCES

- Archie, S. (2004). *Realistische exportmogelijkheden voor de Filippijnen: Resultaten van het normatief model*, Vols.1-2. Antwerp: University of Antwerp, Master thesis.
- ASEAN (2018). *Joint Leaders' Statement on the Regional Comprehensive Economic Partnership (RCEP) Negotiations*. Second RCEP Summit, 14 November 2018 https://asean.org/storage/2018/11/RCEP-Summit-2_Joint-Leaders-Statement_FINAL2.pdf
- Baldwin, R. (2009). The Spoke Trap: Hub and Spoke Bilateralism in East Asia, *NCCR Trade Working Paper No 2009/28*. Bern: Swiss National Centre of Competence in Research, May 2009.
- Cadot, O., & Ing, L.Y. (2015). Non-Tariff Measures and Harmonisation: Issues for the RCEP, *ERIA Discussion Paper Series 2015-61*. Jakarta: Economic Research Institute for ASEAN and East Asia, September 2015.
- Cameron, M., & Viviers, W. (2017). *Using a Decision Support Model to identify export opportunities: Rwanda*. Potchefstroom: TRADE (Trade and Development) re-search focus area, North-West University, report.
- Cameron, M., Cuyvers, L., Fu, D., & Viviers, W. (2018). *Identifying Export Opportunities for China in "One Belt One Road": A Decision Support Model Approach*. Paper presented at the International Sino-Brazilian Seminar: Economy and Development, Recife, Brazil: Universidade Federal de Pernambuco, 23-24 November 2018.
- Chen, L. (2017). *Accelerate the RCEP to Consolidate Asian Regional Integration*. Jakarta: Economic Research Institute for ASEAN and East Asia (ERIA) <http://www.eria.org/opinion/FY2017/01/accelerate-the-rcep-to-consolidate-asian-regional-integration.html>
- Chen, L., Cuyvers, L., & De Lombaerde, P. (2017). *Mega FTAs: Which Strategy for ASEAN?* Paper presented at the SEASIA 2017 Conference "Unity in Diversity: Transgressive Southeast Asia", Consortium for Southeast Asian Studies in Asia, Bangkok, 16-17 December 2017.
- Cuyvers, L., De Pelsmacker, P., Rayp, G. & Roozen, I. (1995). A Decision Support Model for the Planning and Assessment of Export Promotion Activities by Government Promotion Institutions: the Belgian Case. *International Journal of Research in Marketing*, 12(2), 173-186.
- Cuyvers, L. (1996). Export Opportunities of Thailand: A Decision Support Model Approach. *Journal of Euro-Asian Management*, 2(2), 71-97.
- Cuyvers, L. (2004). Identifying Export Opportunities: The Case of Thailand. *International Marketing Review* 21(3), 255-278.
- Cuyvers, L., Steenkamp, E. & Viviers, W. (2012a). The Methodology of the Decision Support Model. Cuyvers, L. & Viviers, W. (Eds.), *Export Promotion – A Decision Support Model Approach*. Stellenbosch: SUN Press, 53-80.
- Cuyvers, L., Steenkamp, E. & Viviers, W. (2012b). Belgium's Export Opportunities and Export Potentials in the World: A Quantitative Assessment using the DSM Approach. Cuyvers, L. & Viviers, W. (Eds.), *Export Promotion – A Decision Support Model Approach*. Stellenbosch: SUN Press, 83-107.

- Cuyvers, L., Steenkamp, E., Viviers, W., Rossouw, R. & Cameron, M. (2017). Identifying Thailand's High-Potential Export Opportunities in ASEAN+3 Countries. *Journal of International Trade Law and Policy*, 16(1), 2-33.
- Cuyvers, L. & Viviers, W. (Eds.), *Export Promotion – A Decision Support Model Approach*. Stellenbosch: SUN Press, 260 pp.
- Fukunaga, Y. & Isono, I. (2013). Taking ASEAN+1 FTAs towards the RCEP: A Mapping Study. *ERIA Discussion Paper Series 2013-02*. Jakarta: Economic Research Institute for ASEAN and East Asia, January 2013.
- Gaulier, G. & Zignago, S. (2010). BACI: International Trade Database at the Product Level. The 1994-2007 Version. *CEPII Working Paper, No. 2010-23*, October 2010.
- Ghodsi, M., Grübler, J., & Stehrer, R. (2016). Estimating Importer-Specific Ad Valorem Equivalents of Non-Tariff Measures. *WIIWW Working Paper 129*. Vienna: Wiener Institut für Internationale Wirtschaftsvergleiche.
- Gilbert, J., Furusawa, T., & Scollay, R. (2016). The Economic Impact of Trans-Pacific Partnership: What Have We Learned from CGE Simulation? *ARTNeT Working Paper Series No. 157*. Bangkok: ESCAP.
- Itakura, K. (2015). Assessing the Economic Effects of the Regional Comprehensive Economic Partnership on ASEAN Member States. Yan Ing, L. (Ed.). *East Asian Integration*. Jakarta: Economic Research Institute for ASEAN and East Asia, 1-23.
- Kanellopoulos, N.C., & Skintzi, G.D. (2014). Identifying Export Opportunities for Greece. *International Economics and Economic Policy*, 13(3), 369–386.
- Oluwade, B.B. (2018). An Application of the Decision Support Model to Louisiana's Exports. *International Journal of Social Sciences and Humanities Invention*, 5(1), 4307-4313, DOI: 10.18535/ijsshi/v5i1.10, ISSN: 2349-2031.
- Pearson, J., Viviers, W., Cuyvers, L. & Naudé, W. (2010). Identifying Export Opportunities for South Africa in the Southern Engines: A DSM Approach. *International Business Review*, 19(4), 345-359.
- Petri, P. A., Plummer, M. G., Urata, S. & Zhai, F. (2017). Going It Alone in the Asia-Pacific: Regional Trade Agreements Without the United States. *PIIE Working Paper 17-10*. Washington D.C.: Peterson Institute for International Economics, October 2017.
- Plummer, M.G., Petri, P.A. & Zhai, F. (2014). Assessing the Impact of ASEAN Economic Integration on Labour Markets. *ILO Asia-Pacific Working Paper Series*. Bangkok: ILO Regional Office for Asia and the Pacific, September 2014.
- Pupphavesa, W. et al. (2012). *Effects of ASEAN + 3 and ASEAN + 6 FTAs and Appropriate Negotiation Framework for Thailand*. Bangkok: Thailand Development Research Institute (in Thai language).
- Rossouw, R., Steenkamp, E., Viviers, W. & Cuyvers, L. (2010). *Identifying Realistic Export Opportunities for South Africa: Application of a Decision Support Model (DSM) using HS 6-digit Level Product Data. Final Report*. Report prepared for the Department of Trade and Industry, South Africa, September 2010, 56 pp.

- Teweldemedhin, M.Y. & Chiripanhura, B. (2015). Market Diversification Opportunities for Namibian Fish and Fish Products. *Journal of Development and Agricultural Economics*, 7(12), 400-409.
- Urban, M., Mejstřík, M. & Gutierrez Chvalková, J. (2014). Application of the Decision Support Model to Czech Exports. *Acta Oeconomica Pragensia*, 22(2), 33-47.
- Viviers, W., Cuyvers, L., Naudé, W., Steenkamp, E.A., Rossouw, R., Cameron, M.J., Idsardi, E. & Parry, A. (2014). Can the Netherlands Diversify and Grow Its Exports? Identifying Thirty Thousand Opportunities. *Business Brief #2, 2014*. Maastricht: Maastricht School of Management, 47 pp.