

การสำรวจองค์ประกอบที่เกื้อกูลกันระหว่างเศรษฐกิจของประเทศไทยกับประเทศ ในประชาคมเศรษฐกิจอาเซียน

Investigating the Complementarity between Thailand and AEC Countries' economies

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บทคัดย่อ

เมื่อวันที่ 20 เดือนพฤศจิกายน 2007 ผู้นำอาเซียนได้ลงมติยอมรับพิมพ์เขียวเศรษฐกิจอาเซียนเข้ามาในการประชุมสุดยอดอาเซียนครั้งที่ 13 ที่ประเทศสิงคโปร์เพื่อใช้เป็นแผนแม่บทที่สอดคล้องกับแนวทางการจัดตั้งประชาคมเศรษฐกิจอาเซียนในปี 2015 ประเทศไทยไม่สามารถผลิตสินค้าทั้งหมดหรือจัดให้มีการบริการทั้งหมดที่เกิดจากข้อจำกัดของทรัพยากรและความสามารถในการที่จะทำให้อัตราการผลิตต่ำกว่าของประเทศอื่นๆ จึงเป็นผลให้ประเทศไทยควรกำหนดข้อตกลงทางการค้ากับประเทศในประชาคมเศรษฐกิจอาเซียนอื่นๆ เพื่อที่จะเพิ่มความเป็นอยู่ที่ดีของเศรษฐกิจ ในการศึกษานี้ทำการตรวจสอบระดับของความเกื้อกูลกันระหว่างประเทศไทยและประเทศอื่นๆ ในประชาคมเศรษฐกิจอาเซียน โดยดูที่หมวดหมู่สินค้าที่ประเทศไทยมีความได้เปรียบแล้วนำไปเปรียบเทียบกับประเทศอื่นๆ ในประชาคมเศรษฐกิจอาเซียนเพื่อที่จะเห็นว่าเศรษฐกิจของประเทศทั้งสองมีการค้าขายในลักษณะที่เกื้อกูลกันหรือมีการค้าขายในลักษณะที่แข่งขันระหว่างกัน

คำสำคัญ: ประชาคมเศรษฐกิจอาเซียน ความเกื้อกูลทางการค้า

Abstract

On 20 November 2007, ASEAN leaders adopted the ASEAN Economic blueprint at the 13th ASEAN summit in Singapore to serve as a coherent master plan guiding the establishment of the ASEAN Economic Community 2015. Thailand cannot produce all its goods or provide for all the services due to the limitations of resources and the capability to make the cost of production lower than that of other countries. As a result, Thailand should establish trade agreements with other ASEAN Economic Community (AEC) countries that will maximize the well-being of the economy.

In this study, we investigated the degree of complementarity between Thailand and other AEC countries by looking at the product categories that Thailand has a comparative advantage, and then compare them to other countries to determine whether both economies are trading in complementary or competing with each other.

Keywords: *Asean Economic Community (AEC), Trade Complementarity*

1. Introduction

Thailand could not produce all the goods and services due to the limitations of resources and the capability which make the cost of production differences from another country. Because of this reason Thailand should construct trade pattern with other countries such as ASEAN Economic Community (AEC) countries in order to maximize the welfare of the economy. (Amita, 2007)

Whether, the two countries such as Thailand and another AEC country should construct the trade together or not. We should look at the comparative advantage that these two countries have. A country such as Thailand should produce the products that Thailand has comparative advantage and then exports products that Thailand has comparative advantage to another country. This also should be the same with another AEC country; a country should produce the product that the country has comparative advantage

and then exports to Thailand. In this paper, we will study the level of complementarity between Thailand and other AEC countries by looking at the product categories that Thailand country has comparative advantage and then compare to another country to see that both economies are doing trade in complementary way or competing with each other.

2. Objective

The objective of this study is to investigate the comparative advantages and the trade complementarity between Thailand economy and other AEC countries' economies. To see whether the two economies are complemented to each other in the bilateral trade rather than competing.

1) Study the comparative advantage between Thailand and AEC countries

2) Analyze products that Thailand has advantage and disadvantage with AEC's countries products

3) Look for the level of complementarity existing between Thailand economy and AEC's countries' economies

3. Materials and Method

This paper will focus on the investigation for the comparative advantage and level of complementarity between Thailand and other AEC countries' economies. By using descriptive analyze and quantitative analyze, Reveal Comparative Advantage index and Trade Complementarity index. (Bernadette and Francoise, 2007) A comparative advantage is an economic theory about the potential gains from trade for individuals, firms, or nations that arise from differences in factor endowments or technological progress. (Maneschi, 1998) The data is ranged from 2002 – 2011 to see the level of trade complementarity between Thailand and other AEC countries after 1997 Asian financial crisis (Tom Yum Kung) and at the current time.

$$RCA 1 = (x_i/X) - (m_i/M)$$

X = Total export of the country

M = Total import of the country

x_i = Exports of product i

m_i = Imports of product i

- Negative figure denotes a revealed comparative disadvantage
- Positive figure denotes a revealed comparative advantage

The revealed comparative advantage (RCA 1) is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows.

$$RCA 2 = (X_{tk}/X_t) \div (X_{ck}/X_c)$$

X_{tk} = Total export of good k of Thailand

X_t = Total exports of Thailand

X_{ck} = Total export of good k of AEC country

X_c = Total exports of AEC country

- If the $RCA > 1$, it means that Thailand has a revealed comparative advantage of exporting a particular good over AEC country.
- If the $RCA < 1$, this means that AEC has a revealed comparative of exporting a particular good over Thailand

The revealed comparative advantage (RCA 2) is an index used in international economics for calculating the relative advantage or disadvantage of two countries in comparison for a certain class of goods or services as evidenced by trade flows.

$$TCI = (X_{ki}/X_i) \times [(M_w - M_i)/(M_{kw} - M_{ki})] \times (M_{kj}/M_j)$$

X_{ki} = The export of product k of Thailand

M_{kj} = The import of product k of AEC country

M_{ki} = The import of product k of Thailand

M_{kw} = The world import of product k

X_i = Total exports of Thailand

M_j = Total imports of AEC country

M_i = Total imports of Thailand

M_w = Total world imports

- If $C < 1$ or $= 1$, it means that the trade relationship between the two countries is competing with each other.
- If $C > 1$, it means that the trade relationship between the two countries is complemented with each other.

Trade Complementarity Index (TCI) is an index used in international economics for calculating the trade relationship of two countries in comparison for a certain class of goods or services as evidenced by trade flows to see whether the trade relationship of a particular good or service is competing or complemented with each other.

(Note that by 2001, Thailand's economy had recovered from the crisis due to high financial disciplinary with the increasing tax revenues. In 2003 the country can balance its budget and repay all its debts to the IMF, four years ahead of schedule.)

The data use in this study included:

- exports and imports of Thailand during 2002 – 2011
- exports and imports of AEC countries during 2002 – 2011
- exports and imports of the world during 2002 – 2011

4. Result and Discussion

Revealed Comparative Advantage Index (RCA 1) (Bernadette and Françoise, 2007)

Table 1 RCA 1 Thailand

Thailand	Description	2002	2007	2011
HS:CODE				
02	Meat	0.0087	0.0001	0.0003
03	Fish	0.0086	0.0044	0.0022
07	Vegetable	0.0043	0.0043	0.0042

Thailand	Description	2002	2007	2011
08	Fruit	0.0023	0.0012	0.0021
10	Cereal	0.0219	0.0214	0.0267
17	Sugar	0.0113	0.0086	0.0163
27	Fuel and Oil	-0.0889	-0.1355	-0.1341
39	Plastic	-0.0010	0.0132	0.0198
40	Rubber	0.0361	0.0538	0.0859
62	Cloth	0.0197	0.0076	0.0041
84	Machinery parts	0.0008	0.0536	0.0262
85	Electrical parts	-0.0187	-0.0253	-0.0205

Source: Author's calculations based on the United Commodity Trade Statistic

- Negative figure denotes a revealed comparative disadvantage
- Positive figure denotes a revealed comparative advantage

From the table 1, we can see that Thailand has a comparative advantage in producing most of the selected products such as meat, vegetable, fruit, cereal, cloth, machinery and electrical parts as the country relies on the export growth economic. On the other hand, they clearly do not have comparative advantage in producing products such as fuel, oil and electrical part. This is because that Thailand does not have a lot of oil wells and for electrical part even we produce a lot of electronic parts but most of them are components and we then to import the finished products back from other countries.

4.1 Revealed Comparative Advantage Index Analysis

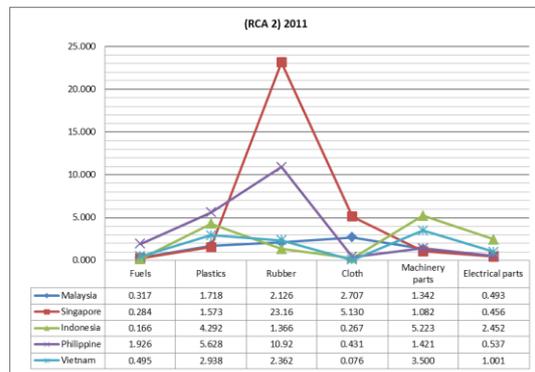


Figure 1 Revealed Comparative Advantage Index 2 (2011) (RCA 2: 2011) (Bela, B., 1965)

- If the $RCA > 1$, it means that Thailand has a revealed comparative advantage of exporting a particular good over AEC country.
- If the $RCA < 1$, this means that AEC has a revealed comparative of exporting a particular good over Thailand.

From the figure 1, we can see that Thailand has a comparative advantage in producing rubber and Plastics over most of the AEC countries as all of the RCA results are more than one. However, in the cloth sector countries like Vietnam, Philippine and Indonesia seems to have a comparative advantage over Thailand in producing this product. It is clearly that Singapore and Malaysia do not have a comparative advantage over Thailand in producing cloth as these two countries labor costs might be higher than Thailand. Thailand seems to have less comparative advantage in producing flues as the RCA results show that Malaysia, Singapore, Indonesia and Vietnam have a comparative advantage over Thailand

as all figures are less than one. Philippine is the only country that Thailand has more comparative advantage in producing fuels. In machinery parts sector, Thailand also has a comparative advantage in producing these parts when compare to the others. For the electrical parts sector, we can see that Thailand only have the comparative advantage over Indonesia and Vietnam but do not have the comparative advantage over Malaysia, Singapore and Philippine. The reason might be that because electrical parts also require high technology and Indonesia and Vietnam have less technology to producing these products when compare to Thailand. (Chang, L.D., 2005)

4.2 Trade Complementarity Index Analysis

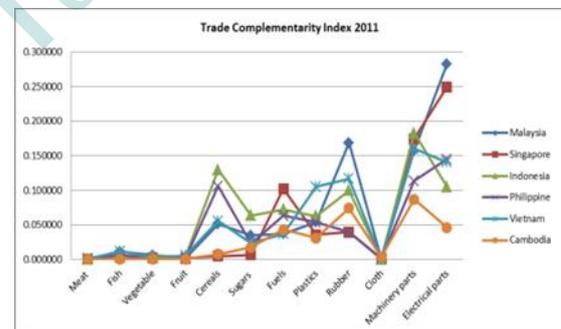


Figure 2 Trade Complementarity Index (2011): 12 selected product categories (Xinshu, G., 2011)

Note: When all the TCI results are less than one, it implied that the trade relationship between the two countries is more competing which each other rather than complemented

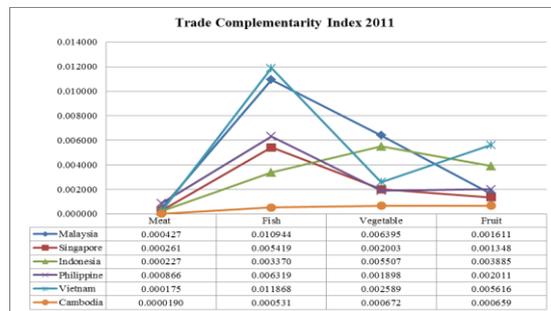


Figure 3 Trade Complementarity Index (2011): meat, fish, vegetable and fruit (Elizabeth, P. and Rukmani, G., 2003)

Note: When all the TCI results are less than one, it implied that the trade relationship between the two countries is more competing which each other rather than complemented

According to the graph above (figure 2), we can see that the trade relationship between Thailand and AEC countries is competing with each other as all index figures are lower than one. This implied that the two countries are more competing with each other in producing and exporting the same product categories. From the figure 3, we can see that the trade relationship between Thailand and AEC countries is likely to be competed with each other rather than complemented in products such as meat, fish, vegetables and fruit as all index figures are less than zero. However, Thailand and AEC countries seem to have the highest level of complementarity in fish sector as the index figures are closer to one when comparing with other sectors. Meat sector has the lowest level of complementarity as the index figures are very low ranging from 0.000175 to 0.000866. This can be implied that Thailand and AEC countries are competing a lot in meat products as this sector uses a lot of labor intensive. Vegetable and fruit sectors seem to have similarly index figures but still lower than one which means that the two countries are competing with each other in producing and exporting in these two categories.

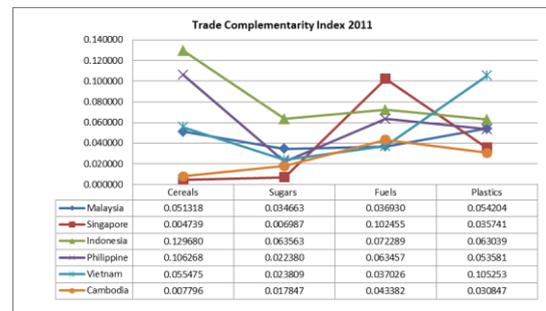


Figure 4 Trade Complementarity Index (2011): cereals, sugars, fuels and plastics (Elizabeth, P. and Rukmani, G., 2003)

Note: When all the TCI results are less than one, it implied that the trade relationship between the two countries is more competing which each other rather than complemented

From figure 4, we can see that the trade relationship between Thailand and AEC countries is likely to be competed with each other rather than complemented in products such as cereals, sugars, flues and plastics as all index figures are less than zero. On the other hand, Thailand and AEC countries seem to have more complementarity in Fuels and plastics when compare to cereals and sugars as the results show in the table above. The reason might be that because fuels and plastics require high technology process in producing these two products and Thailand is more specialize in agricultural export products. Cereals and sugars are more labor intensive products, Thailand and AEC countries seem to have less level of complementarity as they are competing a lot in producing and exporting these products due to the low labor costs.

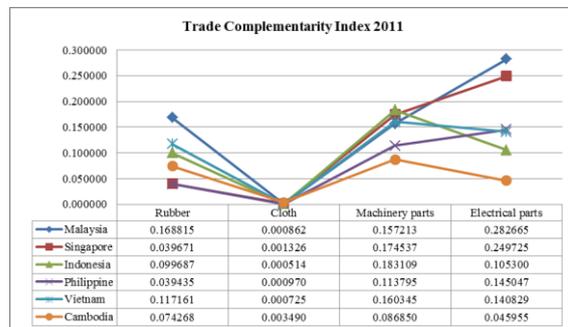


Figure 5 Trade Complementarity Index (2011): rubber, cloth, machinery parts and electrical parts (Elizabeth, P. and Rukmani, G., 2003)

Note: When all the TCI results are less than one, it implied that the trade relationship between the two countries is more competing which each other rather than complemented

From the results in figure 5, we can see that the trade relationship between Thailand and AEC countries is likely to be competed with each other rather than complemented in products such as rubber, cloth, machinery parts and electrical parts as all index figures are less than one. However, Thailand and AEC countries seem to have the highest level of complementarity in machinery and electrical parts sectors as the index figures are more closer than one when compare to rubber and cloth sectors. Cloth sector has the lowest level of complementarity as the index figures are very low ranging from 0.000725 to 0.003490. Note that cloth is more labor intensive product when compare to others as they require a lot of labors and skills to produce.

Research Limitation

Due to the imperfections of this research like any studies, there is a limitation that we need to be considering. Countries such as Myanmar, Laos and

Brunei Darussalam only provide some information for the past few years and do not cover to data ranged from 2002 – 2011 in the research calculations.

5. Discussion

This paper investigates the level of complementarity between Thailand and AEC countries including Malaysia, Singapore, Indonesia, Philippine, Cambodia and Vietnam. In addition, this study used the data during the year 2002 to 2011 to investigate the level of complementarity between Thailand and AEC countries in twelve selected categories including meat, fish, vegetable, fruit, cereals, sugars, plastics, rubber, cloth, machinery parts and electrical parts. ASEAN Economic Community (AEC) is a uniting of 10 ASEAN countries which are Thailand, Myanmar, Laos, Vietnam, Malaysia, Singapore, Indonesia, Philippines, Cambodia, and Brunei. Considering on Thai economy prospect in 2015, AEC will bring a new era of economic cooperation to all 10 countries. For example, investors will be able to invest anywhere in the AEC countries. Workers can go to work more freely in the AEC region with less tight restriction (unrestricted visa). Competition will be more competitive for those (people and countries) that are not well-prepared and all 10 countries agree to use English as the language for business.

6. Conclusion

From the results of Reveal Comparative Advantage Index (RCA 2), we can see that each of AEC country has its own specialize in producing and

exporting some particular products. Countries such as Vietnam, Cambodia, Indonesia and Philippine seem to have a comparative advantage in producing cloth products over Thailand as all RCA 2 indices of these countries are less than one. In contrast, countries like Malaysia and Singapore are better than Thailand in producing and exporting products such as Fuels and electrical parts. Next, if we look at products that use a lot of labor (labor intensive products), countries like Vietnam and Philippine seem to be better than Thailand in producing and exporting meat, fruit, cereal and vegetable as these products will require a lot of labors.

On the other hand, if we look at Trade Complementarity Index results and the analysis of selecting product categories, we can see that even the bilateral trade between Thailand and AEC countries had grown tremendously from 2 billion USD in 2002 to 17 billion USD in 2011. The trade relationship between Thailand and AEC countries on twelve selected product categories are more competing with each other rather than complemented. According to the calculation of the TCI index, we found that the trade relationship between Thailand and AEC countries are competing in all selected categories with each other. For Thailand and Malaysia, the highest level of complementarity of these twelve products is electrical product. The reason might be that because there are a lot of intermediate parts of electrical products such as computer chip and semi-conductor product which produced in Thailand and exported to Malaysia for assembling into finished products. Singapore and Thailand seem to be more

complemented in product categories such as machinery and electrical parts when compare to other selected products. The reason may be because these two products categories are high tech products and Singapore also has a very large seaport which can be used to ship the products to the world market. Next for Thai and Indonesia, TCI result shows that in the high technology sector (machinery and electrical products) Thailand and Indonesia seem to have the highest level of complementarity with each other. The figures of these two product categories are closer to 1 which can be implied that they are less competing with each other in these product categories when comparing to other product categories and agriculture sectors. Thailand and Indonesia seem to have cheap labor cost which is benefit for the labor intensive products but for high technology products including machinery and electrical products do not require a lot of labor but use technology instead. In conclusion, Thailand and AEC countries should produce and export the products that they have comparative advantage with and should be more focused in high complemented area sectors to maximize the trade efficiency and enhancing the trade cooperation between Thailand and AEC countries. ASEAN countries are in different stages of economic development and Thailand can be considered as a main hub for the AEC with trade cooperation in all product categories. Note that, Asian Economic Community (AEC) also considering as new emerging economic market with high potential growths to the world economy.

As a final point, we need to consider the policy implementation that will help to increase our trade balance, trade efficiency and the welfare of Thai economy. First, for the product categories that we are better off or have a reveal comparative advantage over other AEC countries, we should implement the policy that promote and support these product categories such as agriculture products. By doing this, it will help to boost our trade balance, trade efficiency and the welfare of Thai economy. Secondly, for the product categories that we are equally or not better off than other AEC countries, we can use AEC as a production base and export these product categories to other markets and the world market. Next, for the product categories that we are worse or do not have a reveal comparative advantage over other AEC countries, we could set up regulations to protect and prevent the competitions from our local companies and industries. Lastly, Thailand will be benefits from the Asian Economic Community (AEC) because it will help to reduce the trade barrier between Thailand and AEC countries.

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