Competitive analysis of crude palm oil (CPO) in West Sumatera Province to other provinces in Sumatera Island in domestic market

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Abstract. The agricultural sector in Indonesia, especially Crude Palm Oil (CPO) has contributed the country's foreign exchange with the value of CPO exports in 2016 amounting to the US $ 17.8 billion, up 8 per cent compared to the previous year of US $ 16.5 billion. This has led Indonesia to become the largest producer and exporter of palm oil until now. Six provinces became the largest production centre of palm oil in Indonesia, but West Sumatera Province has not been included in the big six. West Sumatera Province, which is still dominated by an agriculture sector, and or plantation sub-sector has contributed 6.57%. The purpose of this research is to analyze the competitiveness of CPO export of five provinces located in Sumatra Island in domestic market and compare it with CPO competitiveness in West Sumatera Province with time-series data from 2000-2016 using RCA (Revealed Comparative Advantage) Index. The results show that on average the RCA value produced by RCA > 1 is only South Sumatera province with RCA < 1 if each year the analysis of each Province shows fluctuating RCA values that lend to show a decline. Except for the value of RCA Provinces West Sumatera showed on the increase. One of the causes of the declining RCA values is that each Province has started to focus on the development of downstream CPO products so that the CPO that was once more exported overseas has gradually started to reduce exports and more to meet domestic demand as raw materials CPO downstream products such as the manufacture of food and non-food products. Meanwhile, CPO in West Sumatera Province is still dominated by foreign exports compared to downstream development.

Keywords: Competitive. CPO, RCA, Sumatera Island

1. Introduction
Along with the enactment of the ASEAN Economic Community (AEC) in 2015 in the form of implementation of free trade agreements among ASEAN member countries, this will be a strategic momentum for Indonesia to take maximum benefit from the economic globalization. Therefore Indonesia must enhance its competitiveness to get profit from the AEC. ASEAN countries, on average in producing and consuming agricultural products are almost the same. Thus, there will be a competition between countries of the exporter to supply the importing countries. According to the World Economic Forum, in 2015, Indonesia's competitiveness in ASEAN ranked 37. Meanwhile, other countries such as Singapore (2nd), Malaysia (18th), Thailand (32nd), the Philippines (47th),
Vietnam (56\textsuperscript{th}), Laos (83\textsuperscript{rd}), Cambodia (90\textsuperscript{th}), and Myanmar (131\textsuperscript{st}).

The production of palm oil in Indonesia donated foreign exchange of the CPO export activity by 33.6\% in 2015 with a value of CPO exports in 2016 was the US $ 17.8 billion, up 8 per cent compared to the previous year's US $ 16.5 billion. Based on Oil World Annual, palm oil world production is dominated by Indonesia and Malaysia, approximately 85-90\% of total world palm oil production. Indonesia is a producer and the largest exporter of palm oil. In the long term, world demand for palm oil on an upward trend is the same with the growing number of the world's population and hence increase the consumption of products with palm oil feedstock such as food, cosmetic products, and biofuels. Six provinces became the centre of the largest palm oil production in Indonesia (see Table 1), which provides a large share of the total palm oil production in Indonesia, three of them are Riau Province with a share of 23.75\%. North Sumatera by 16. 24\%, Central Borneo 10.96\%, while the Province of West Sumatra has not been included in the top six.

| Province       | 2012 Production (Ton) | 2013 Production (Ton) | 2014 Production (Ton) | 2015 Production (Ton) | 2016* Production (Ton) | Share(%) |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|----------|
| Riau           | 6.421.228             | 6.646.997             | 6.993.241             | 7.333.610             | 7.717.612              | 23.75    |
| North Sumatera | 4.182.052             | 4.549.202             | 4.870.202             | 5.099.246             | 5.314.644              | 16.24    |
| Central Borneo | 2.771.268             | 3.127.138             | 3.158.239             | 3.424.937             | 3.727.775              | 10.96    |
| South Sumatera | 2.603.536             | 2.690.620             | 2.791.816             | 3.034.697             | 3.308.042              | 9.76     |
| Jambi          | 1.885.530             | 1.749.617             | 1.773.735             | 1.947.048             | 2.089.879              | 6.39     |
| West Borneo    | 1.601.200             | 1.794.466             | 1.965.515             | 2.112.797             | 2.278.951              | 6.6      |
| Others         | 6.550.706             | 7.223.964             | 7.725.441             | 8.311.971             | 9.063.788              | 26.31    |

Note: *) estimates, Source: Directorate General of Plantation, 2016

West Sumatra Province business sector is still dominated by agriculture, forestry, and fishery with a contribution of 23.10\% to GDP of West Sumatra in 2016. Plantation sub-sector contributed 6.57 \% [1]. The plantations in West Sumatra has the potential for sizeable competitiveness.

Table 2. Percentage of Gross Regional Domestic Product of West Sumatra Province Upper Constant Prices By Industry (%) Years 2012-2016

| No | Sector of Activity | 2012 | 2013 | 2014 | 2015 | 2016 | Mean | Rank |
|----|-------------------|------|------|------|------|------|------|------|
| 1  | Agriculture, and Fishery | 24.67 | 24.12 | 24.11 | 23.85 | 23.10 | 23.97 | 1    |
| 1  | Agriculture, livestock, hunting, and agriculture service | 20.10 | 19.52 | 19.49 | 19.10 | 18.44 | 19.33 | 1    |
| a. Food Crops | 7.04 | 6.83 | 6.86 | 6.74 | 6.36 | 6.73 | 6.73 | 1    |
| b. Horticultural Crops | 3.92 | 3.76 | 3.77 | 3.67 | 3.56 | 3.74 | 3.74 | 1    |
| c. Plantation Crops | 6.94 | 6.80 | 6.80 | 6.67 | 6.57 | 6.67 | 6.67 | 1    |
| d. Livestock | 1.66 | 1.60 | 1.55 | 1.57 | 1.45 | 1.50 | 1.50 | 2    |
| e. Agriculture Service and Hunting | 0.520 | 0.51 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 2    |
| 2  | Forestry and logging | 1.42 | 1.43 | 1.38 | 1.4 | 1.36 | 1.4 | 1.4 | 2    |
| 3  | Fishery | 3.171 | 3.14 | 3.24 | 3.34 | 3.29 | 3.24 | 3.24 | 2    |
| 4  | Mining and Quarrying | 4.48 | 4.34 | 4.44 | 4.37 | 4.23 | 4.41 | 4.41 | 2    |
| 5  | Manufacturing | 11.53 | 11.42 | 11.35 | 10.96 | 10.92 | 11.24 | 11.24 | 3    |
| 6  | Electricity and Gas | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 3    |
| 7  | Water supply | 0.10 | 0.11 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 3    |
lab oil is still high. Indonesia can increase CPO production because the

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7:01 elastic crude palm oil, while export financing is an important factor. Primitive (2012) suggested that

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ACAS and recycle themselves (2017)

The export value of West Sumatera and Indonesia from 2000 - 2016 have fluctuated. From 2000 -

2011, the Indonesian CPO export value showed a continuous increase with the highest point in 2011. However, from 2012 – 2016, it showed a decline in the value of Indonesia CPO exports. However, if

one considers the CPO export value of West Sumatera Province remains relatively stable from year to

year although the increase is relatively small. Meanwhile, the market outlook is prospective because

global demand for palm oil is still high. Indonesia can increase CPO production because the

availability of oil palm land continues to increase, and oil maintenance costs are still relatively low.

Several research on the competitiveness of palm oil commodities has been conducted. Zulkifli [2] stated that the Indonesian and Malaysian palm oil export is inelastic and slow to respond to the changes in prices and solely influenced by the level of CPO production. Purwanto [3] suggested that global CPO prices showed a negative response to the increase in exports and a positive impact on imports. The influence of the world price of crude palm oil to export prices, import and domestic prices of each of the main exporters and a major importer, in general, are also positive and inelastic.

Susila and Setiawan [4] (2001) studied the impact of the CPO export tax on Indonesian CPO industry and stated that the imposition of export taxes reduce the competitiveness of Indonesia's CPO exports. Sulistyanto mentioned that the government policy is not optimal in supporting the export of crude palm oil, while export financing is an important factor. Primitive (2012) suggested that Indonesia's CPO exports are inelastic to changes in Indonesia's CPO production in the short term but elastic in the long term. If CPO production increased to 10 per cent, the export of CPO increased to 7:01 per cent in the short term and increased to 12:44 per cent in the long term. And it was lowering the export tax of Indonesian CPO exports. The rupiah exchange rate against the USD has a positive influence on Indonesia's CPO exports. Monandar, et al. (2013) research on Competitiveness Analysis of the Indonesian Palm Oil using the Reveal Comparative Advantage (RCA), symmetric Revealed Comparative Advantage (RSCA) and Trade Specializations Ratio (TSR). Based on the analysis, RCA Indonesian crude palm oil more competitive compared to the Malaysian palm oil in the country of China, Pakistan and India. Based on the value RSCA Indonesian palm oil products can not compete with countries of China, Pakistan, and India based on the analysis of TSR Indonesia towards the export of crude palm oil.

Helbing et al. (2008) suggested that economic growth is one of the factors that influence the increase in commodity prices. Economic growth has driven the demand for various commodities. Drajat et al. (2005) suggested that the position and competitiveness of Indonesian palm oil in the

| No | Sector of Activity | Year | Condition |
|----|-------------------|------|-----------|
| 6  | Construction      | 2012 | 8.27      |
|    |                   | 2013 | 8.60      |
| 7  | Wholesale and     | 2014 | 8.64      |
|    | retail trade      | 2015 | 8.75      |
|    |                   | 2016 | 8.86      |
|    |                   | Mean | 8.62      |
| 8  | Transportation   | 2012 | 15.40     |
|    | storage           | 2013 | 15.44     |
|    |                   | 2014 | 15.39     |
|    |                   | 2015 | 15.36     |
|    |                   | 2016 | 15.37     |
|    |                   | Rank | 2         |
| 9  | Accommodation    | 2012 | 10.78     |
|    | service and Food | 2013 | 11.02     |
|    |                   | 2014 | 11.20     |
|    |                   | 2015 | 11.55     |
|    |                   | 2016 | 11.81     |
|    |                   | Mean | 11.56     |
| 10 | Information      | 2012 | 5.93      |
|    | communication and | 2013 | 6.10      |
|    |                    | 2014 | 6.24      |
|    |                    | 2015 | 6.43      |
|    |                    | 2016 | 6.67      |
|    |                    | Mean | 6.38      |
| 11 | Financial        | 2012 | 3.07      |
|    | Communication     | 2013 | 3.06      |
|    |                   | 2014 | 3.03      |
|    |                   | 2015 | 2.98      |
|    |                   | 2016 | 3.05      |
|    |                   | Mean | 3.04      |
| 12 | Real estate      | 2012 | 1.97      |
|    |                   | 2013 | 1.96      |
|    |                   | 2014 | 1.96      |
|    |                   | 2015 | 1.95      |
|    |                   | 2016 | 1.95      |
|    |                   | Mean | 1.95      |
| 13 | Business activities | 2012 | 0.43      |
|    |                   | 2013 | 0.43      |
|    |                   | 2014 | 0.44      |
|    |                   | 2015 | 0.44      |
|    |                   | 2016 | 0.44      |
|    |                   | Mean | 0.44      |
| 14 | Public Administration | 2012 | 6.09      |
|    |                   | 2013 | 3.85      |
|    |                   | 2014 | 5.63      |
|    |                   | 2015 | 5.61      |
|    |                   | 2016 | 5.60      |
|    |                   | Mean | 5.79      |
| 15 | Education        | 2012 | 3.39      |
|    |                   | 2013 | 3.46      |
|    |                   | 2014 | 3.49      |
|    |                   | 2015 | 3.60      |
|    |                   | 2016 | 3.71      |
|    |                   | Mean | 3.58      |
| 16 | Human and Health | 2012 | 1.27      |
|    | and social work activities | 2013 | 1.29      |
|    |                   | 2014 | 1.31      |
|    |                   | 2015 | 1.32      |
|    |                   | 2016 | 1.31      |
|    |                   | Mean | 1.31      |
| 17 | other service activities | 2012 | 1.53      |
|    |                   | 2013 | 1.52      |
|    |                   | 2014 | 1.55      |
|    |                   | 2015 | 1.61      |
|    |                   | 2016 | 1.68      |
|    |                   | Mean | 1.62      |
| GRDP |                   | 100 | 100 | 100 | 100 | 100 | 100 |

Source: ACAS and recycle themselves (2017)

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International Market is associated with the domestic market situation by using the approach of market share. The purpose of this study was to investigate the competitiveness of CPO exports in Sumatera Island on the Province that produces the largest CPO, i.e. Riau, North Sumatera, South Sumatera and Jambi in the domestic market from 2000-2016 by using Index RCA (Revealed Comparative Advantage).

2. Methods
2.1 Approach Research and Data Series
The study used a quantitative approach in the form of secondary data sources. Secondary data were obtained from relevant government agencies, such as West Sumatera Province Plantation Office, Department of Food and Horticulture, Department of Industry, Trade and cooperative of West Sumatera Province, Central Bureau of Statistic, Ministry of Industry and also through the review of the literature. This study measures the competitiveness of exports of CPO in five provinces in Sumatera, namely Riau, Jambi, North Sumatera, South Sumatera and West Sumatera in basic domestic by using analysis of RCA, then compare whether CPO in West Sumatera has competitiveness compared to the Province of Riau, Jambi, North Sumatera, South Sumatera. The study used time series data from 2000-2016 to investigate variables that comprise: CPO export value (Riau, Jambi, North Sumatera, South Sumatera and West Sumatera) in USD, the value of total exports (Riau, Jambi, North Sumatera, South Sumatera and West Sumatera) in USD, the value of Indonesia's CPO exports (USD), the value of Indonesian exports (USD), the world's CPO export value (USD) and the total value of world exports (USD).

2.2 Analysis Methods
The analysis of calculation used is the analysis of Revealed Comparative Advantage (RCA). RCA is used for measuring the export competitiveness of a region/country; thus, the comparative advantages of a commodity in a region/country can be calculated. Competitiveness analysis has been formulated by Balassa [1] in the RCA method. RCA index value can be calculated as follows:

Where: $X_{ij}$ = the value of exports of commodity i by country j

$X_j$ = the value of total exports by country j

$X_{iw}$ = the value of total exports of commodity i world

$X_w$ = the value the world's total export

RCA index value > 1 = export commodity has a competitive edge over the competitiveness of the world average

RCA index value < 1 = export commodity has competitive edge competitiveness below the world average.

3. Research Findings
A country will have a competitive edge in the form of comparative advantage if the regions are capable of producing and exporting goods at a cheaper cost than the country to import goods and services from other countries. West Sumatera Province is a province in Indonesia as the largest CPO producer so that the competitiveness of the CPO on another island in Indonesia in the domestic market.

The five Province which contributed among other things was the Province of Riau, North Sumatera Province, South Sumatera Province, Jambi and West Sumatera Province. Furthermore, to know whether the CPO production of West Sumatera is competitive with other provinces in Sumatera Island in the domestic market can be viewed by using the Index Revealed Competitive Advantage (RCA) of the five provinces in Sumatera by using time series data starting in 2000 through 2016, results obtained will be analyzed further.

3.1 CPO Export Competitiveness of Riau Province
From Table 3, it can be seen that the obtained value of RCA index of Riau Province from 2000 - 2016
average of over one. This indicates that the CPO export competitiveness of Riau province has a competitive edge over the average competitiveness of the domestic market CPO export, where the highest value of RCA index in 2000 and the lowest occurred in 2014.

**Table 3. The value of RCA Index Riau Province in Domestic Market**

| Years | Export Riau (USD) | Export CPO Riau (USD) | Export CPO Indonesia (USD) | Export Indonesia (USD) | RCA |
|-------|-------------------|-----------------------|---------------------------|------------------------|-----|
| 2000  | 5,313,503.955     | 246,354.740           | 1,326,398.000             | 62,124,000.000         | 2.17|
| 2001  | 4,779,167.226     | 215,930.262           | 1,227,165.000             | 56,320,900.000         | 2.07|
| 2002  | 5,011,332.721     | 392,510.390           | 2,348,638.000             | 57,158,800.000         | 1.91|
| 2003  | 5,469,951.975     | 5,15441.149           | 2,719,304.000             | 61,058.200.000         | 2.11|
| 2004  | 5,680,225,460     | 596,063.458           | 3,944,457.000             | 71,584,600.000         | 1.90|
| 2005  | 7,024,774.091     | 624,117.355           | 4,344,303.000             | 85,660,000.000         | 1.75|
| 2006  | 8,694,706.369     | 774,853.974           | 4,139,286.000             | 100,798,600.000        | 2.17|
| 2007  | 11,080,526.285    | 1,512,951.896         | 8,866,445.000             | 114,100,900.000        | 1.75|
| 2008  | 15,224,978.662    | 2,422,799.416         | 14,110,229.000            | 137,020,400.000        | 1.55|
| 2009  | 10,961,690.702    | 2,322,411.569         | 11,605,431.000            | 116,510,000.000        | 2.13|
| 2010  | 14,891,323.643    | 3,081,009.435         | 15,413,639.000            | 157,779,100.000        | 2.12|
| 2011  | 20,139,981.359    | 3,502,083.226         | 19,753,190.000            | 203,496,600.000        | 1.79|
| 2012  | 19,144,904.656    | 2,572,894.485         | 22,451,089.000            | 190,020,300.000        | 1.14|
| 2013  | 17,557,157.090    | 1,943,053.505         | 17,667,471.000            | 182,551,800.000        | 1.14|
| 2014  | 17,248,436.529    | 1,455,600.068         | 19,555,633.000            | 175,980,000.000        | 0.76|
| 2015  | 14,374,251.541    | 1,822,313.813         | 17,360,395.000            | 150,366,300.000        | 1.10|
| 2016  | 13,718,83.974     | 1,791,748.531         | 18,100,000.000            | 145,186,200.000        | 1.05|

*Source: CBS, Ministry of Agriculture and the data processed (2017)*

3.2 CPO export competitiveness in North Sumatera Province

Table 4. RCA index values obtained North Sumatera Province started the Year 2000-2016 average of over one; this indicates that the CPO export competitiveness of North Sumatra Province competitiveness above-average competitiveness of exports of CPO domestic market but from 2012 until 2016 RCA index shows that less than one, so we can say since 2012 until 2016 CPO North Sumatera province has low competitiveness in the domestic market.

**Table 4. Index Value of RCA of CPO in North Sumatra Province in Domestic Market**

| Years | Export North Sumatera (USD) | Export CPO North Sumatera (USD) | Export CPO Indonesia (USD) | Export Indonesia (USD) | RCA |
|-------|-----------------------------|---------------------------------|----------------------------|------------------------|-----|
| 2000  | 2,420,354.545               | 170,342.768                     | 1,326,398.000             | 62,124,000.000         | 3.30|

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3.3 CPO Export Competitiveness in South Sumatra Province

From Table 5, RCA index value in South Province from 2000-2016 on average were below one. It indicated that the CPO export competitiveness of South Sumatra province's competitiveness below average CPO exports in the domestic market. Hence, from 2000 - 2016 CPO in North Sumatra province had low competitiveness in the domestic market.

Table 5. Index Value of RCA of CPO in South Sumatra Province in Domestic Market

| Years | Export CPO South Sumatera (USD) | Export South Sumatera (USD) | Export CPO Indonesia (USD) | Export Indonesia (USD) | RCA |
|-------|---------------------------------|-----------------------------|---------------------------|------------------------|-----|
| 2000  | 21,991,845                      | 752,010,950                 | 1,326,358,000             | 62,124,000,000         | 1.37|
| 2001  | 8,114,400                       | 703,951,190                 | 1,227,165,000             | 56,320,500,000         | 0.53|
| 2002  | 16,126,514                      | 838,685,863                 | 2,348,638,000             | 57,158,800,000         | 0.47|
| 2003  | 6,108,260                       | 317,670,100                 | 2,719,304,000             | 61,058,200,000         | 0.43|
| 2004  | 33,706,865                      | 1,400,870,873               | 3,944,457,000             | 71,584,600,000         | 0.44|
| 2005  | 35,360,985                      | 1,544,690,970               | 4,344,303,000             | 85,660,000,000         | 0.45|
| 2006  | 40,619,723                      | 2,695,873,465               | 4,139,286,000             | 100,798,600,000        | 0.37|
| 2007  | 61,491,559                      | 3,130,955,476               | 8,866,445,000             | 114,100,500,000        | 0.25|
| 2008  | 14,722,870                      | 3,900,902,807               | 14,110,229,000            | 137,020,400,000        | 0.04|
| 2009  | 68,255,569                      | 2,446,791,545               | 11,605,431,000            | 116,510,000,000        | 0.28|
| 2010  | 87,103,517                      | 4,061,980,688               | 15,413,639,000            | 157,775,100,000        | 0.22|
| 2011  | 53,737,595                      | 5,772,350,957               | 19,753,190,000            | 203,496,600,000        | 0.10|
| 2012  | 46,970,775                      | 5,045,476,652               | 22,451,089,000            | 190,020,300,000        | 0.08|
| 2013  | 41,282,605                      | 4,434,468,380               | 17,667,471,000            | 182,551,800,000        | 0.10|
| 2014  | 7,049,716                       | 3,772,040,304               | 19,555,633,000            | 175,980,000,000        | 0.02|
| 2015  | 32,538,633                      | 3,134,397,702               | 17,360,395,000            | 150,366,300,000        | 0.09|

Source: CBS, Ministry of Agriculture and the data processed (2017)
3.4 CPO Export Competitiveness of Jambi Province

In Table 6, RCA index values obtained in Jambi from 2000-2016 on average were below one. It indicated that the CPO export competitiveness picks Jambi Province competitiveness under the average CPO domestic market. Thus, from 2000-2016, CPO in Jambi province have low competitiveness in the domestic market.

| Years | Jambi Export (USD) | Value CPO Export (Jambi USD) | Indonesia CPO Export (USD) | Value Indonesia Export (USD) | RCA |
|-------|-------------------|----------------------------|---------------------------|-----------------------------|-----|
| 2000  | 455,744,853       | 2,190,000                  | 1,326,398,000             | 62,124,000,000              | 0,23|
| 2001  | 511,378,394       | 1,062,500                  | 1,227,165,000             | 56,320,900,000              | 0,10|
| 2002  | 416,051,430       | 967,758                    | 2,348,638,000             | 57,158,800,000              | 0,06|
| 2003  | 469,300,065       | 17,477,780                 | 2,719,304,000             | 61,058,200,000              | 0,84|
| 2004  | 450,941,202       | 7,816,000                  | 3,944,457,000             | 71,584,600,000              | 0,31|
| 2005  | 418,884,908       | 22,237,936                 | 4,344,303,000             | 85,660,000,000              | 1,05|
| 2006  | 838,791,601       | 23,075,262                 | 4,139,286,000             | 100,798,600,000             | 0,67|
| 2007  | 1,081,198,850     | 19,494,161                 | 8,866,445,000             | 114,100,900,000             | 0,23|
| 2008  | 1,189,925,443     | 38,516,332                 | 14,110,229,000            | 137,020,400,000             | 0,31|
| 2009  | 813,443,013       | 33,195,496                 | 11,605,431,000            | 116,510,000,000             | 0,41|
| 2010  | 1,488,055,908     | 148,930,230                | 15,413,639,000            | 157,779,100,000             | 1,02|
| 2011  | 2,383,555,126     | 126,630,230                | 19,753,190,000            | 203,496,600,000             | 0,55|
| 2012  | 1,845,235,696     | 10,056,392                 | 22,451,089,000            | 190,020,300,000             | 0,05|
| 2013  | 1,437,144,088     | 23,038,878                 | 17,667,471,000            | 182,551,800,000             | 0,17|
| 2014  | 1,267,280,046     | 26,126,970                 | 15,555,633,000            | 175,580,000,000             | 0,19|
| 2015  | 1,076,261,454     | 25,444,446                 | 17,360,395,000            | 150,366,300,000             | 0,20|
| 2016  | 973,946,164       | 23,025,558                 | 18,100,000,000            | 145,186,200,000             | 0,19|

Source: CBS, Ministry of Agriculture and the data processed (2017)

3.5 Competitiveness of CPO Export of West Sumatra Province

From Table 7, it can be seen that an index value of RCA CPO West Sumatra Province in the domestic market each year from 2000 to 2016 were on average demonstrate. RCA index > 1 indicated that CPO in West Sumatra Province has high competitiveness in the domestic market. The RCA highest value of 7.83 happened in 2006 while the lowest of 7.83 in 2016. Thus, West Sumatra Province had a comparative advantage to compete in the domestic market.

| Years | CPO Export West Sumatera (USD) | Export Sumatera (USD) | WestExport (USD) | CPO IndonesiaExport (000 USD) | IndonesiaRCA |
|-------|--------------------------------|----------------------|-----------------|-------------------------------|--------------|
| 2000  | 26,770,199                     | 229,630,107          | 1,326,398,000   | 62,124,000,000               | 5,46         |
| 2001  | 26,026,130                     | 208,180,000          | 1,227,165,000   | 56,320,900,000               | 5,74         |
| Years | CPO West Sumatera (USD) | Export West Sumatera (USD) | Export Indonesia (000 USD) | RCA |
|-------|------------------------|---------------------------|--------------------------|-----|
| 2002  | 86.611.008             | 307.849.000               | 2.348.638.000            | 6,85|
| 2003  | 130.213.755            | 377.277.000               | 2.719.304.000            | 7,75|
| 2004  | 219.559.755            | 594.956.000               | 3.944.457.000            | 6,70|
| 2005  | 278.074.610            | 731.189.000               | 4.344.303.000            | 7,50|
| 2006  | 345.204.890            | 1.074.134.000             | 4.139.286.000            | 6,70|
| 2007  | 622.691.326            | 1.512.799.000             | 8.866.445.000            | 5,30|
| 2008  | 1.068.800.714          | 2.363.583.000             | 14.110.229.000           | 4,35|

Source: CBS, Ministry of Agriculture and the data processed (2017)

So from the above description may be presented recaps RCA index value Sumatera five provinces in the Table. 8. It can be seen that the average value of the RCA generated by the five provinces had been above one (RCA> 1). The Province of South Sumatra had an RCA <1. However, if the analysis of each of the provinces showed RCA fluctuating value that is likely to show a decline, except RCA West Sumatra Province, showed an increase.

**Table 8. RCA index value CPO in five provinces in Sumatera Island**

| Years | RCA Riau | RCA North Sumatera | RCA South Sumatera | RCA Jambi | RCA West Sumatera |
|-------|----------|-------------------|--------------------|-----------|-------------------|
| 2000  | 2,17     | 3,30              | 1,37               | 0,23      | 5,46              |
| 2001  | 2,07     | 2,83              | 0,53               | 0,10      | 5,74              |
| 2002  | 1,91     | 2,93              | 0,47               | 0,06      | 6,85              |
| 2003  | 2,11     | 2,24              | 0,43               | 0,84      | 7,75              |
| 2004  | 1,90     | 1,80              | 0,44               | 0,31      | 6,70              |
| 2005  | 1,75     | 1,84              | 0,45               | 1,05      | 7,50              |
| 2006  | 2,17     | 2,18              | 0,37               | 0,67      | 7,83              |
| 2007  | 1,76     | 2,08              | 0,25               | 0,23      | 5,30              |
| 2008  | 1,55     | 1,98              | 0,04               | 0,31      | 4,35              |
One cause RCA decreased because had each Province has begun to focus on product development downstream CPO, so CPO once more exported abroad, gradually began to reduce exports and more to meet domestic demand as the raw material of CPO downstream products such as the manufacture of food and non-food products.

However, different from what happened in the Province of West Sumatra, which shows the fairly high RCA values with an average value of 5.09. This is because until now the CPO in the Province of West Sumatra is mostly exported abroad than is used for domestic needs as the raw substance for the manufacture of derivative products, characterized by the small number of CPO downstream product manufacturing plant. There is the only refinery and cooking oil factory. So to see this condition as one of the causes of competitiveness CPO West Sumatra Province in the domestic market is still very high. Also still inadequate infrastructure for the distribution and transportation of CPO and downstream palm oil resulting in more entrepreneurs CPO choose to export CPO abroad through the port of Teluk Bayur are coupled current global CPO prices higher, so they do not need to think of substantial costs for making the plant processing the oil into derivative products which, although of the added value is smaller.

4. Conclusion
The average value of RCA produced by five provinces located on the island of Sumatra is above one (RCA> 1) only the Province of South Sumatra that had RCA < 1. This is because until now the CPO in the Province of West Sumatra is more exported abroad than used for domestic needs as an mcv material for CPO derivative products, characterized by the fact that there are still a few CPO production downstream products. There are the only refinery and cooking oil factories.

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| Years | RCA Riau | RCA North Sumatera | RCA South Sumatera | RCA .Iambi | RCA West Sumatera |
|-------|----------|--------------------|--------------------|----------|------------------|
| 2009  | 2.13     | 1.94               | 0.28               | 0.41     | 4.84             |
| 2010  | 2.12     | 1.72               | 0.22               | 1.02     | 4.74             |
| 2011  | 1.79     | 1.43               | 0.10               | 0.55     | 4.09             |
| 2012  | 1.14     | 0.88               | 0.08               | 0.05     | 3.23             |
| 2013  | 1.14     | 0.72               | 0.10               | 0.17     | 3.06             |
| 2014  | 0.76     | 0.26               | 0.02               | 0.19     | 2.98             |
| 2015  | 1.10     | 0.39               | 0.09               | 0.20     | 3.36             |
| 2016  | 1.05     | 0.24               | 0.08               | 0.19     | 2.68             |
| mean  | 1.68     | 1.69               | 0.31               | 0.39     | 5.09             |

Source: data processed (2017)
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