

Competitiveness of Malaysian and Indonesian Palm Oil Export in the Balkans: A Constant Market Share Analysis

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ABSTRACT

Indonesia and Malaysia are the two largest palm oil exporters in the world. Collectively, they cover on average more than 80% of total palm oil exports. Although Malaysia is ranked second after Indonesia in palm oil exports, their export competitiveness varies between markets. Therefore, the objective of this study is to examine the export competitiveness of Malaysian and Indonesian palm oil in the Balkans market using constant market share analysis (CMS). CMS approach has often been used in examining export performance and indicating the direction of competitiveness. This study shows that Malaysia has demonstrated better market effect and distribution effect performance compared to Indonesia in the Balkans as evidenced in the CMS results of the period under review.

Keywords: Palm oil export, constant market share, Balkans, Malaysia, Indonesia.

INTRODUCTION

The Balkans is a peninsula that is surrounded by the Adriatic Sea on the north-west, the Ionian Sea on the south-west, the Mediterranean and the Aegean Sea on the south and south-east, and the Black Sea on the east and north-east (Crampton, 2015). The Balkans is a strategic location for trading goods as it is located on the commercial sea routes and the gateway to Europe from Asia via the Suez Canal. The Balkans covers ten

countries, namely Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Slovenia and Serbia (Crampton, 2015).

Over the last two decades, the Balkans economy went up and down. The economy of the region witnessed progressive trends during the first half of the period in which the economic growth peaked at 6.1% in 2006. However, due to the 2007-2008 global financial crisis, the economic growth of the region slowed to the lowest point

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of -5.2% in 2009 (World Bank, 2018). The economy was showing some recovery but the recovery seemed feeble where the GDP in the post-crisis was still below its pre-crisis peak (The Economist, 2013). In 2016, the economy of the Balkans reached the highest post-crisis growth of 2.3% (World Bank, 2018).

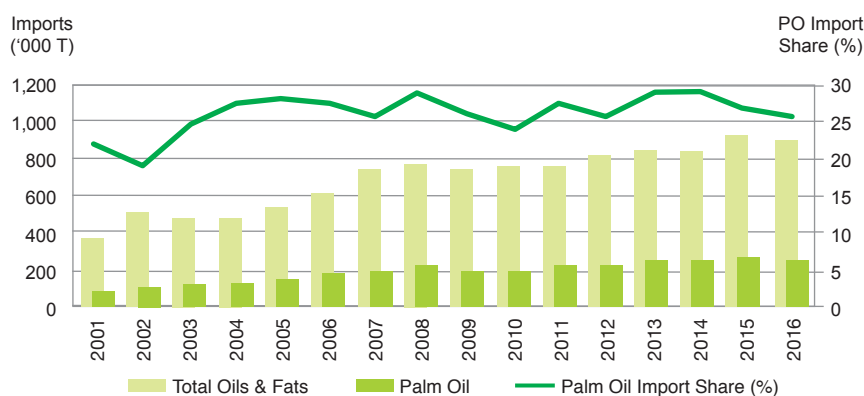
The impact of the global economic crisis on the Balkans economy has affected its demand for oils and fats imports. Although imports of oils and fats from the region were increasing, there was a significant decline in the import growth during the post-economic

crisis (Figure 1). Between 2001 and 2008, oils and fats imports grew at 11.2% compound annual growth rate (CAGR). The growth then declined sharply to 2.1% CAGR from 2008 to 2016. The same situation applied to palm oil imports. The palm oil import growth declined from 15.7% CAGR (2001-2008) to only 0.6% CAGR (2008-2016). Nevertheless, the share of palm oil vis-à-vis other imported oils and fats was sustained at 24% to 29% between 2003 and 2016.

Palm oil imports by the Balkans are mainly sourced directly from producer countries, namely

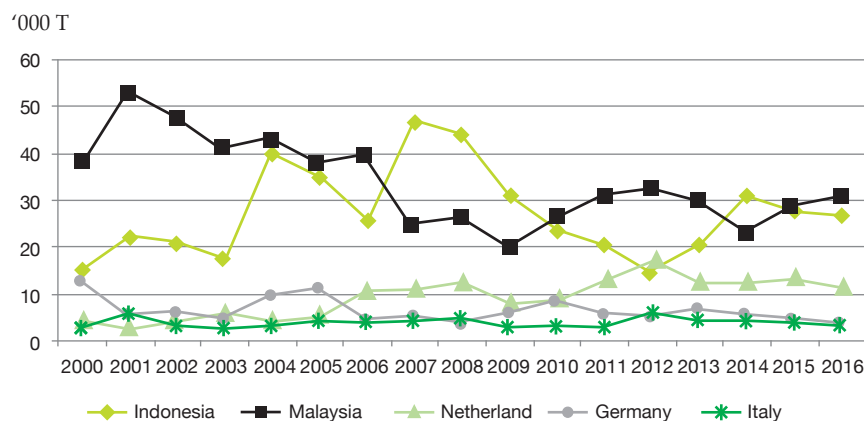
Malaysia and Indonesia. From 2000 to 2016, direct imports from the both countries stabilised at 50% to 70% of total Balkan palm oil imports (Figure 2). However, Malaysian share declined from 38.0% in 2000 to 30.6% in 2016. Meanwhile, between the same periods, the share of Indonesian exports improved from 15.4% to 26.5%. Apart from that, palm oil imports through the Netherlands witnessed an increasing trend with the import share improved from 4.7% in 2000 to 12.1% in 2016.

There were several past studies focusing on palm oil exports to the Balkans. According to Uthaya Kumar (2016), the Malaysian palm oil industry has several opportunities to enter the Balkan market. The opportunities are price sensitive market, functional palm oil and attractive prices, there is no perception issues due to the consistency of palm oil during winter, good port infrastructure and also an excellent gateway to the Balkans and Eastern Europe. Besides that, a study by Azriah Azian (2016) discussed the challenges and opportunities for Malaysian palm oil in the Balkans, but this study focused on the Croatia and Bosnia Herzegovina markets. Palm oil in both countries was mainly sourced from Malaysia and the Netherlands, and was also obtained through other EU countries such as Italy, Germany, Sweden and Austria. Other supplier countries included Indonesia and Singapore. The research by Azriah Azian (2016) found some challenges such as duty protection, competition in pricing from Europe-based palm oil supplying companies who were getting the supply of CPO from either companies having logistic advantages and were able to offer value-added products such as speciality fats and shortening to the local market at cheaper price. However, Malaysia still has the opportunity to enter these



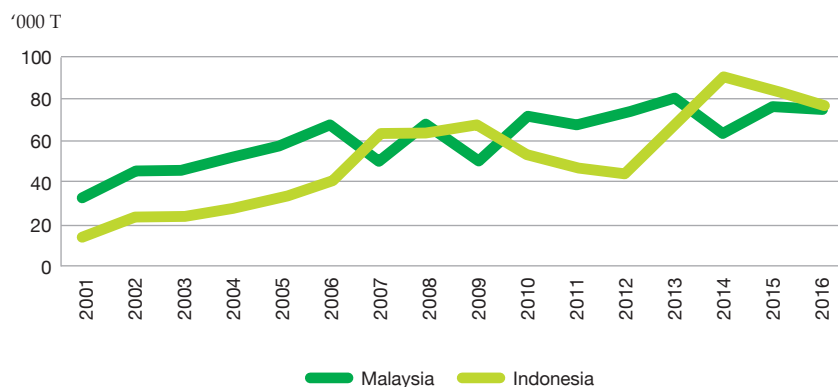
Source: Oil World (2005, 2010, 2017).

Figure 1. Import of Oils and Fats and Palm Oil in the Balkans.



Source: UN Comtrade (2017).

Figure 2. Palm Oil Import Share of Five Major Source Countries in the Balkans.



Source: UNCTAD (2018).

Figure 3. Import of Palm Oil in the Balkans from Malaysia and Indonesia.

two markets (Croatia and Bosnia Herzegovina), because they are aware of the value-added products of palm oil. Besides that, to have joint-ventures and co-operation in trans-shipment facilities, Malaysian companies must have palm oil stocks locally available to capture and co-operate with local bulk facilities, port of Rijeka also has the advantages, such as shorter time to destination market as well as cost effective in terms of freight rates.

The market opportunities for palm oil in the Balkan countries, especially Serbia was carried out by Uthaya Kumar (2016). The main vegetable oil imported by Serbia in 2014 is palm oil, with a total of 25 400 million tonnes, accounting for 67.9% of total oils and fats imports. Serbian companies used it as a raw material for the production of confectionary products, products based on vegetable oils, bakery products and some other finished products. This study shows that the Serbian palm oil direct imports from Malaysia increased by 84.6%, from 2600 million tonnes in 2012 to 4800 million tonnes in 2013 and to 4900 million tonnes in 2014. It also shows that there is an opportunity for the growing palm oil market in the Balkans.

The palm oil imports in Balkans countries are from Indonesia, Malaysia and others sources (e.g. Netherland, Italy, Germany and other). These studies focus only on Malaysia and Indonesia (Figure 3).

Competitiveness of palm oil exports in Malaysia and Indonesia was discussed by Rifin (2010) who found that Indonesia had gained competitiveness over Malaysia. This was mainly due to lower Indonesia product prices than Malaysia, as well as trade liberalisation policy imposed by the importing countries, which reduced trade barriers in the form of import duties. According to Silitonga *et al.* (2013), the competitiveness of Indonesian palm oil industry can be improved through a combination of government policies. Subsequently, Salleh *et al.* (2016) found that Malaysia retained its comparative advantage in exporting crude palm oil (CPO) to Pakistan and India from 2009 to 2014 but different experience with the process palm oil (PPO) indicates that the comparative advantage of the USA and Pakistan has reduced since 2012. On the whole, Malaysia and Indonesia have their own market strategies to grow palm oil performance in term of exports.

Export performance is generally evaluated through an analysis known as constant market share (CMS). Wang *et al.* (2017) found that the CMS analysis was first proposed, modified and improved by Tysznski in 1951 and Jepma in 1989, and they used the analysis to explain fluctuations in export volumes of certain products and evaluate the export performance. Alias *et al.* (1992) also used the CMS analysis to access the competitiveness of palm oil in the world market. The authors found that between 1981 and 1990, market size was a dominant factor in contributing to the expansion of palm oil exports. The CMS analysis was also adopted by Othman and Rashid (1993) in evaluating the export growth of ASEAN wood products and by Ongsritrakul and Hubbard (1996) in evaluating the export performance of Thailand frozen shrimps in the EU market. Through literature, it was shown that other studies also practised the same analysis in evaluating export performance, such as Skriner (2009); Turkekul *et al.* (2010); Singh and Dey, (2011); Bojnet and Imre, (2014); Mahmood, (2015); Ahmed and Wizarat, (2016) and Aguiar *et al.* (2017). This suggests that the CMS analysis is one of the preminent methods to evaluate export performance.

METHODOLOGY

Data

The annual data on Malaysian and Indonesian palm oil exports to the Balkans between 2002 and 2016 were collected from the United Nations International Trade Statistics Database (UN Comtrade). The Balkans countries included Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Macedonia, Montenegro, Slovenia, and Serbia.

Method

A two-step analysis was conducted in this study. The first step was to calculate the market share of Malaysian and Indonesian palm oil exports in the Balkans countries in the three periods which were 2002-2006, 2010-2011 and 2012-2016. The second step was to use the constant market share (CMS) analysis.

The CMS analysis model decomposes the actual gain in export into three separate effects: size of the market, market distribution and competitiveness forces. The CMS identity for the actual change in Malaysian palm oil exports between three periods is as follows:

$$q^1 - q^0 = rq^0 + \sum_i (r_i - r)q^0 + \sum_i (q_i^1 - q_i^0 - r_i q_i^0)$$

Equation (1)

Where:

- $q^1 - q^2$ = Total Malaysian or Indonesian palm oil export
- q_i = Malaysian or Indonesian palm oil export to countries i
- r = Rate of growth of total world palm oil export
- r_i = Rate of growth of world palm oil export to countries i
- 0 = is for the initial period
- 1 = is for the second period

Based on this equation four components are indicated:

1) Total effect

$$[q^1 - q^2]$$

2) Size of market effect

$$rq^0 = s^0 (Q^1 - Q^0)$$

Where:

- rq^0 = Size of market share effect
- s^0 = Initial share of Malaysian export in total world export
- Q = Total world palm oil export

3) Distribution effect

$$\begin{aligned} &= \sum (r_i - r)q^0 i \\ &= \sum r_i q^0 i - \sum r q^0 i \\ &= \sum [(Q^1 i - Q^0 i) / (Q^0 i)] * q^0 i - \sum r q^0 i \\ &= \sum [(q^0 i / Q^0 i) * (Q^1 i - Q^0 i)] - r \sum q^0 i \\ &= [\sum (q^0 i / Q^0 i) * Q^1 i] - q^0 i - r \sum q^0 i \\ &= [\sum (q^0 i / Q^0 i) * Q^1 i] - q^0 - r q^0 \end{aligned}$$

Where,

- r_i = rate of growth of world export to market i
- r = rate of growth of total world export
- $q^0 i$ = export by the focus country to market i in the initial period
- $Q^0 i$ = total world exports to market i in the initial period
- $Q^1 i$ = total world exports to market i in the terminal period

4) Competitive effect

$$\begin{aligned} &= \sum (q^1 i - q^0 i - r_i q^0 i) \\ &= \sum q^1 i - \sum q^0 i - \sum r_i q^0 i \\ &= q^1 - q^0 - \sum r_i q^0 i \end{aligned}$$

Where,

- $q^1 i$ = export by the focus country to market i in the terminal period
- $q^0 i$ = export by the focus country to market i in the initial period
- q^0 = total export by the focus country to market i in the initial period
- q^1 = total export by the focus country to market i in the terminal period
- r_i = rate of growth of world export to market i
- r = rate of growth of total world export

EMPIRICAL RESULTS

The three structural components of the market share model, *i.e.* size of market share, distribution effect and competitive effect, were calculated based on the assumption that the previous period export shares were maintained in order market periods. Under this assumption, the palm oil exports in the period II (2007-2012) were analysed by comparison with the period I (2002-2006). Next, the palm oil exports in the period III (2012-2016) were analysed by comparison with the period II. Lastly, it was a comparison between periods II and III. These three periods represented five-year average.

Table 1 presents the total world exports of palm oil, total exports of Malaysian and Indonesian palm oil and the CMS's market share in palm oil exports for the three (3) periods mentioned above. Palm oil exports from Malaysia to the Balkans increased by 13.78% from 53 854 tonnes to 61 279 tonnes compared to the Indonesian palm oil exports which increased by 99.97% from 29 331 tonnes to 58 656 tonnes between period I to period II while the world exports of palm oil increased by 61.70% from 126 401 tonnes to 204 396 tonnes. The percentage share of Malaysian palm oil in total world export was higher than Indonesian in the periods I and II. The percentage share of Malaysian exports in period I was 42.61%, while Indonesian share was 23.20%. In the period II, Malaysian palm oil share of 29.98% was also considered to be more than 28.70% of Indonesian share in total world exports. However, the percentage change in Indonesian share exceeded the share of Malaysia in total world export as the Malaysian share decreased by 12.63% (from 42.61% to 29.98%), while Indonesian share increased by 5.50% (from 23.20% to 28.70%).

Similarly, for the periods II and III, palm oil exports from Malaysia to the Balkans increased by 19.26% from 61 279 tonnes to 73 081 tonnes compared to the Indonesian exports of palm oil which rose 23.28% from 58 656 tonnes to 72 313 tonnes during the periods II and III. Meanwhile, the world exports increased 15.12% from 204 396 tonnes to 235 274 tonnes. The percentage share of Malaysian palm oil exports in total world exports was higher than that of Indonesia in both periods II and III. The share of Malaysian exports in the period II was 29.98% while Indonesia was 28.70%. In period III, Malaysia (31.06%) was also greater than Indonesia (30.74%) in terms of share of total world exports. However, the percentage change in Indonesian share of total world exports was higher than Malaysia as the increase in Indonesia and Malaysia was 2.04% and 1.08%, respectively.

As shown in *Table 1*, the total

palm oil exports of Malaysia have increased in volume terms from 53 840 tonnes to 61 279 tonnes between the periods I and II. However, the share against the world export markets decreased from 42.61% (period I) to 29.98% (period II) but in the period III, the share of Malaysian palm oil exports in the world export increased to 31.06%. On the other hand, Indonesia's share against the world exports increased from 23.20% (period I) to 28.70% (period II). In terms of volume, it increased from 29 331 tonnes to 58 655 tonnes. The Indonesia's palm oil market share in period III increased to 30.74% and the average volume also increased to 72 313 tonnes. Between the periods I and III, Indonesian palm oil exports increased by 146.55%.

If Malaysia's market share of 42.61% in period I was maintained in period II, total exports would be 87 084 tonnes with 33 230 tonnes exceeding actual exports in period

I (*Table 2*). This figure represents the size of the market effect, which measures the changes (increase or decrease) in Malaysia's exports due to the expansion (or contraction) in world trade assuming that initial market share is maintained. As shown in *Table 2*, the size of market effect and distribution effect were positive and contributed 448% and 115 281% of share, respectively. The positive change of 7425 tonnes was observed in Malaysia's palm oil exports during the periods I and II. Indonesia also had similar experience, the size of market effect and distribution effect were positive and accounted for 61.72% and 16 613.62%, respectively. These led to the positive change of 29 325 tonnes in Indonesia's palm oil exports during the periods I and II. It can be concluded that the expansion in the size of world market dominantly determined the increase in the exports of Malaysia and Indonesia in period II. In terms of competitiveness effect, both Malaysia and Indonesia lost competitiveness in the Balkans. This is shown by the negative values for competitiveness effect, which is caused by most Balkan countries that import PPO and CPO from other countries, e.g. the Netherlands, Italy and Germany.

Over the periods II and III, there was an increase of 11 802 tonnes in Malaysian palm oil exports and 13 657 tonnes in Indonesian palm oil exports. Among the CMS components, the size of market effect and distribution effect of Malaysia and Indonesia have shown a positive contribution to the export changes. Malaysia and Indonesia lost their competitiveness in the Balkans. The results are shown in *Table 3*.

Table 4 displays the results of the CMS for the periods I and III which shows an increase of 19 227 tonnes and 42 983 tonnes in Malaysia and Indonesia, respectively. The components of

TABLE 1. CHANGE IN PALM OIL EXPORT AND MARKET SHARE OF MALAYSIA AND INDONESIA TO THE BALKANS. FROM PERIOD I (2002-2006), PERIOD II (2007-2011) AND PERIOD III (2012-2016)

	Malaysia	Indonesia	World
Period I (2001 – 2006):			
Average Exports (tonnes)	53 854	29 331	126 401
Market Share	42.61%	23.20%	100%
Period II (2007 – 2011):			
Average Export (tonnes)	61 279	58 656	204 396
Market Share	29.98%	28.70%	100%
Period III (2012 – 2016):			
Average Export (tonnes)	73 081	72 313	235 274
Market Share	31.06%	30.74%	100%
Period I and Period II:			
Change in export (tonnes)	7 425	29 325	77 995
Change in market share	-12.63%	5.50%	-
Period II and Period III:			
Change in export (tonnes)	11 802	13 658	30 878
Change in market share	1.08%	2.04%	-

TABLE 2. COMPARISON OF COMPONENTS OF MALAYSIAN AND INDONESIAN PALM OIL EXPORTS IN THE BALKAN, COMPARISON BETWEEN PERIOD I AND II

Palm oil	Quantity (tonnes)	Share (%)
Malaysia		
Total for Malaysia	7 425	100.00
Size of market effect	33 230	448.00
Distribution effect	8 559 904	115 281.00
Competitiveness effect	-8 585 709	-115 629.00
Indonesia		
Total for Indonesia	29 325	100.00
Size of market effect	18 098	61.72
Distribution effect	4 8871 976	16 613.62
Competitiveness effect	-4 860 749	-16 575.33

TABLE 3. COMPARISON OF COMPONENTS OF MALAYSIAN AND INDONESIAN PALM OIL EXPORTS IN THE BALKAN, COMPARISON BETWEEN PERIOD II AND III

Palm oil	Quantity (tonnes)	Share (%)
Malaysia		
Total for Malaysia	11 802	100.00
Size of market effect	9 257	78.00
Distribution effect	7 434 216	62 992.00
Competitiveness effect	-7 431 671	-62 970.00
Indonesia		
Total for Indonesia	13 657	100.00
Size of market effect	8 861	64.88
Distribution effect	5 790 228	42 396.41
Competitiveness effect	-5 785 432	-42 361.30

TABLE 4. COMPARISON OF COMPONENTS OF MALAYSIAN AND INDONESIAN PALM OIL EXPORTS IN THE BALKAN, COMPARISON BETWEEN PERIOD I AND III

Palm oil	Quantity (tonnes)	Share (%)
Malaysia		
Total for Malaysia	19 227	100.00
Size of market effect	46 386	241.00
Distribution effect	9 786 332	50 898.00
Competitiveness effect	-9 813 491	-50 040.00
Indonesia		
Total for Indonesia	42 983	100.00
Size of market effect	25 263	58.78
Distribution effect	5 267 548	12 255.08
Competitiveness effect	-5 249 829	-12 213.86

CMS which were the size of the market effect and the distribution effect of Malaysian and Indonesian palm oil possessed a positive contribution to the export changes. In term of competitiveness, Malaysia and Indonesia have negative competitiveness of -51 040.00% and -12 213.86%.

CONCLUSION

This study aims to evaluate the competitiveness of palm oil exports to the Balkans countries. The study shows that both Malaysia and Indonesia are competitive in the Balkan markets. Therefore, both Malaysia and Indonesia have the opportunity to expand their exports to the markets. According to BMI (Business Monitor International Research) research in 2017, one of the Balkan countries, Croatia, was investing in the expansion of their ports and airports, hence increasing freight volumes and decreasing waiting times to unload goods. This will indirectly decrease lead times to export and import. Besides that, Malaysia will be able to find out the market trends in the Balkan countries, either for industrial or food applications. From there, we can target palm oil exports to the right place.

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REFERENCES

Aguiar, G P; Silva, J C G L; Frega, J R; Santana, L F and Valerius, J (2017). The used of constant market share (CMS) model to assess Brazil nut market competitive. *J. Agricultural Sciences*, 9(8): 174-180.

Ahmed, A and Wizarat, S (2016). Export of Pakistan in European markets (EU27): A constant market share analysis. *International J. Scientific and Engineering*, 7(3): 520-529.

Alias, M; Aeshad, F M and Rahman, A Z B (1992). Market share analysis of Malaysia's palm oil export: Implications on its competitiveness. *Jurnal Ekonomi Malaysia*, 26(1): 3-20.

Azriah Azian (2016). Opportunities for Malaysian Palm Oil in Southeast Europe. *Palm Oil Market Development Report*. MPOC.

Bojnet, S and Imre, F (2014). Agri-food export from European Union Member States using constant market share analysis. *Studies in Agricultural Economics*, 116: 82-86

Crampton, RJ (2015). Encyclopaedia Britannica. <https://global.britannica.com/place/Balkans>.

Mahmood, A (2015). Export performance of Pakistan: A constant market share analysis. *SBP Research Bulletin*. 11(1): 79-86.

Oil World (2010). Oil World Annual. ISTA Mielke GmbH. Germany.

Oil World (2015). Oil World Annual. ISTA Mielke GmbH. Germany.

Oil World (2017). Oil World Annual. ISTA Mielke GmbH. Germany.

Ongsritrakul, S and Hubbard (1996). The export market for Thai frozen shrimps in the European Union. *British Food J.*, 98(8): 24-28.

Othman, M S and Rashid, Z A (1993). Constant market share analysis of the ASEAN timber trade. *Pertanika J. Social Science and Humanities*, 1(1): 71-80.

Rifin, A (2010). Export competitiveness of Indonesia's palm oil product. *Trends in Agriculture Economic*, 3(1): 1-18.

Salleh, K M; Abdullah, R; Rahman, M A K A; Balu, N and Ali, A Z N (2016). Revealed comparative advantage and competitiveness of Malaysian palm oil exports against Indonesia in five Major Markets. *Oil Palm Industry Economic J.*, 16(1): 1-7.

Silitonga, R Y H; Bahagia, S N; Simatupang, T and Siswanto, J (2013). Modeling the competitiveness of Indonesian palm oil industry: A Conceptual model using hierarchical multi-level system approach. *Jurnal Teknikal Industry*, 15(2): 103-110.

Singh, K and Dey, M M (2011). International competitiveness of catfish in

the U.S. market: A constant-market-share analysis. *Agriculture Economics and Management*, 15: 214-229.

Skriner (2009). Competitiveness and specialization of the Australian export sector - A constant-market-share analysis. Working paper N°32. At https://www.econstor.eu/bitstream/10419/121032/1/N_032.pdf, accessed on January 2018.

Jepma, J (1989). Extensions of the constant-market-share analysis with an application to long term export data of developing countries. In: the balance between industry and agriculture in economic development. Palgrave Macmillan, UK. p. 129-133.

Tysznski, H (1951). World trade and manufacturing commodities: 1899-1950. *Manch. Sch. Econ Social Stud*, 19(3): 272-304

Turkekul, B; Gunden, C; Abay, C and Miran, B (2010). Competitiveness of Mediterranean countries in the olive oil market. *New Medit N*. 41-46. At http://wc3.iamb.it/share/img_new_medit_articoli/282_41-turkekul.pdf, accessed on December 2017.

Uthaya Kumar (2016). Market Opportunities for Palm Oil in Serbia. *Palm Oil Market Development Report*. MPOC.

Wang, Z; Zheng, H; Pei, L and Jin, T (2017). Decomposition of the factors influencing export fluctuation in China's new energy industry based on a constant market share model. *Energy policy*, 109(1): 22-35.

World Bank (2018). World Development Indicators. World Bank. Washington DC.