



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.



Assessing Agricultural Trade Comparative Advantage of Myanmar and Its Main Competitors

H. Zhang¹; K. Chen²

1: International Food Policy Research Institute, DSGD, China, 2: International Food Policy Research Institute, DSGD, China

Corresponding author email: Huaqi.Zhang@cgiar.org

Abstract:

Myanmar's agricultural sector has unexploited potential to underpin its economic development. This paper aims to provide a better understanding of Myanmar's agricultural export sector and its performance against neighboring agricultural exporting countries using the UN Comtrade data. The key research question is to find whether Myanmar has the revealed comparative advantages of exporting the selected agricultural commodities when comparing with its major competitors in the target market. The findings are as follows: 1) Myanmar shows low product and market diversification in the agricultural export sector in the global market; 2) Myanmar enjoys comparative advantage in the agricultural export in the global market; 3) Myanmar reveals high level of NRCAs in black gram & pigeon peas, natural rubber, sesame seeds, rice, frozen fish, while has a low NRCAs in crustacean, dried fruits; and suffers a loss of NRCAs in bananas, fish fillet, maize, nuts, and watermelon in the certain years.

Acknowledgment: First and for most, it is my great pleasure to acknowledge Dr. Kevin Chen for all the help, guidance, and sharing of knowledge on all the aspects of this work. My gratitude also goes to my colleagues for precious inspirational suggestions on this study.

JEL Codes: F13, O24

#904



**Assessing Agricultural Trade Comparative Advantage of Myanmar
and Its Main Competitors**

Abstract

Myanmar's agricultural sector has unexploited potential to underpin its economic development. This paper aims to provide a better understanding of Myanmar's agricultural export sector and its performance against neighboring agricultural exporting countries using the UN Comtrade data. The key research question is to find whether Myanmar has the revealed comparative advantages of exporting the selected agricultural commodities when comparing with its major competitors in the target market. The findings are as follows: 1) Myanmar shows low product and market diversification in the agricultural export sector in the global market; 2) Myanmar enjoys comparative advantage in the agricultural export in the global market; 3) Myanmar reveals high level of NRCAs in black gram & pigeon peas, natural rubber, sesame seeds, rice, frozen fish, while has a low NRCAs in crustacean, dried fruits; and suffers a loss of NRCAs in bananas, fish fillet, maize, nuts, and watermelon in the certain years.

1. Introduction

Myanmar has been gaining continuous attention from international community recently. With GDP growth rate of 6.5% in 2016 (World Bank 2017), Myanmar is one of the world fastest economies in the growing nations (Kim and Thunt 2017). Agriculture is the backbone of Myanmar economy, contributing to 37.8% of the Gross Domestic Product (GDP), 70% of employment, and 27.5% of total exports earnings (FAO 2017). Myanmar's agricultural products are mainly the land and labor intensity products, such as rice, pulses and beans, maize, sesame, fruits and vegetables (ADB 2013; Sri Lanka Export Development Board 2014; Embassy of the Republic of The Union of Myanmar 2017). However, Myanmar's agriculture sector has substantial unexploited potential to underpin its economic development (Raitzer, Wong, and Samson 2015). The agricultural export is only US \$2.02 billion in 2016, comparing with the neighboring country Viet Nam's trade value of \$19.64 billion in the same year (UN Comtrade 2017). With vast land in three different agroecological zones (i.e., the delta and coastal zone, the dry zone, and the hill regions), abundant water, low-cost labor resources, as well as the location closing to the two large markets, Myanmar's agricultural can become more competitive and has great potential for growth.

Tight control over agricultural marketing, trading, and pricing during the socialist period (1962-1987) resulted poor agricultural trade performance (Fujita and Okamoto 2006). The agricultural trading sector gradually develops after the declaration to an open economy in 1988 (Soe 2004; ADB 2012). Furthermore, Myanmar's government has introduced significant political and economic reforms to liberalizing agricultural trading sector since 2011 (Raitzer et al. 2015), including opening to global trade, encouraging foreign direct invest, and deepening agricultural policy reforms. In particular, the government is aiming to promote agriculture exports and pursue an exported-oriented strategy for agriculture (ADB 2013). Therefore, the government promote exports, diversity markets abroad, and improve the quality of exported products (ADB 2012). Some reforms are taken to remove some of the most significant barriers to trade including export taxes, restrictive license requirements, and fixed exchange rates (Tun, Kennedy, and Nischan 2015). Furthermore, in 2016, Vice Minister of Agriculture, Livestock, and Irrigation (MOALI) called for a change in Myanmar's national strategy in developing and managing its agri-food export sector, aiming to fuel agricultural export.

The purpose of this paper is to provide a better understanding of Myanmar's agricultural export sector and its performance against neighboring agricultural exporting countries. Three specific objectives are: 1) to examine Myanmar agricultural export pattern including export destination, value, and trends of the selected commodities; 2) to compare the comparative advantages of Myanmar and its major competitors in the selected agricultural commodities; and 3) to develop policy recommendations for enhancing Myanmar agricultural exports.

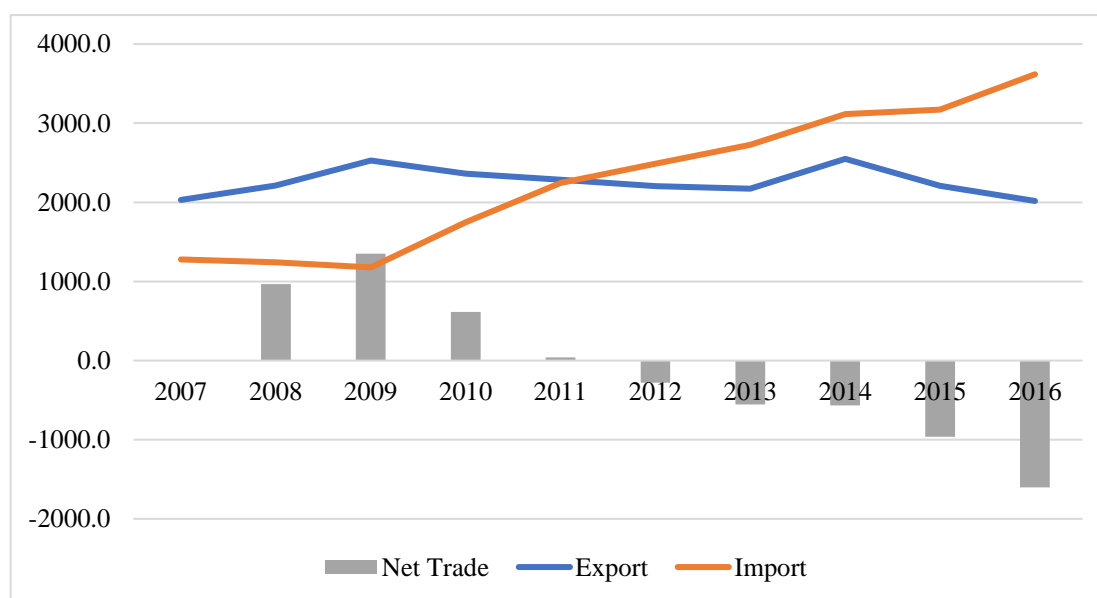
2. Data Source and Agriculture Export Pattern in Myanmar

The agricultural export in Myanmar is underdeveloped with reliance on exporting primary goods. Myanmar was under the Ministry Governor since 1988 until 2011. New agricultural market and trade policy have been applied since 2011. We are interested in comparing the trade value and trends before and after reforms, and therefore, we are looking at the trade value and trend through 2007 to 2016 with the data collected from UN Comtrade in “Harmonized Commodity Description and Coding System” (HS).

UN Comtrade database shows advantage of providing accurate and disaggregated trade statistics, containing annual imports and exports statistics for more than 160 reporting countries or areas (USITC 2015). The products can be broken into around 5,000 sub-commodities with detailed description. There are three concerns in the database. Firstly, the exports reported by one country may not be exactly coincide with imports reported by its trading partner due to the confidential issues (UN Comtrade 2017). Secondly, in UN Comtrade, Myanmar’s export data is not reported, therefore, we use partners’ import value as Myanmar’s export value. Thirdly, the UN Comtrade database doesn’t include the unofficial trade data (Guillaume and Soledad 2010).

From Figure 1, Myanmar’s agricultural import value steadily grows through 2009 to 2016, however, the export value is comparatively stable and starts to decrease from 2014 to 2016. Moreover, Myanmar shift from a net export to a net import with trade deficit after 2011, and the trade deficit grows larger through 2011 to 2016. The imports products are mainly from consumer-ready and preprocessed intermediate goods which require further processing or value-added technology on the commodities.

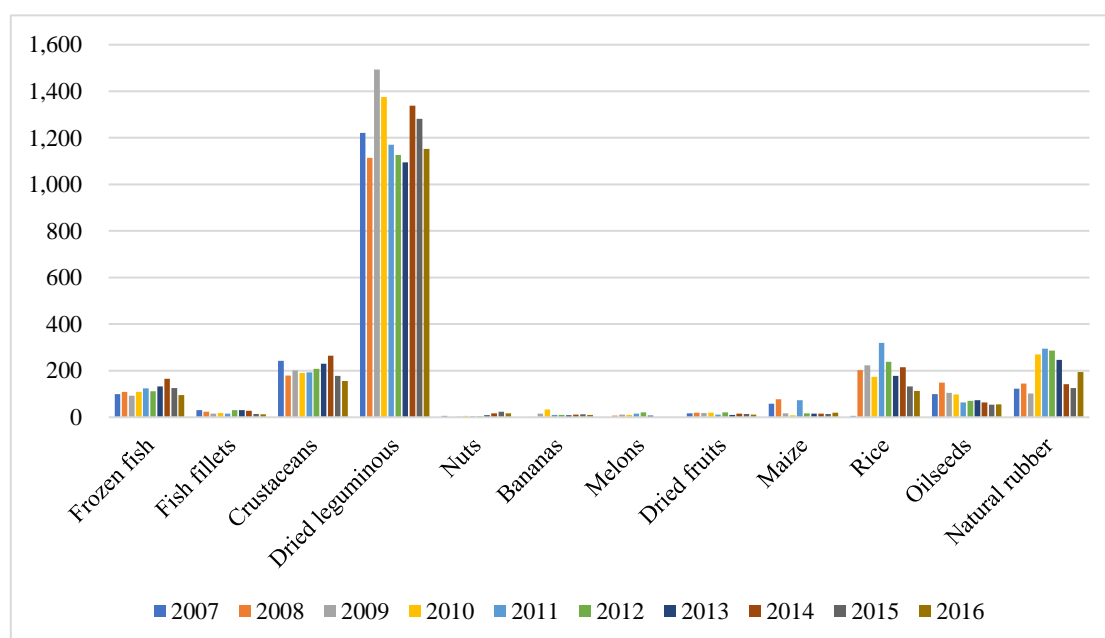
Figure 1: Agricultural Trade Value in Myanmar from 2007-2016 (Unit: US million \$)



Source: UN Comtrade

To understand Myanmar's agricultural trade performance, the top export commodities are selected for further analysis. Firstly, we selected the top nine exported commodities by 2-digit HS code, and secondly, under these selected commodities, we choose the top 1 or 2 exported commodities by 4-digit or 6-digit HS code. According to UN Comtrade, Myanmar exports a range of commodities but dominated by dried leguminous, natural rubber, crustaceans, rice and frozen fish (Figure 2). Myanmar's agricultural trade partner are mainly concentrated in the Asia Region especially India, China, Thailand, Japan, and Malaysia. The detailed trade value and commodity export share is attached in the Appendix. The trade values are all in 2016 US dollars, deflated by the CPI index from World Bank.

Figure 2: Myanmar's Agricultural Exports by Commodity (\$US million)



Dried leguminous (e.g., black gram, pigeon peas, dried chickpeas, small red beans, kidney beans, and cow peas, etc.) is a number one sector in Myanmar's agricultural export. Beans and pulses accounts for 28 percent of total sown area (World Bank 2017). Myanmar is one of the world's top five producer of beans and pulses, while other producers include Canada, India, Australia, and Tanzania (Myanmar Inside 2015). However, the export value of dried leguminous fluctuates greatly though the past ten years. There is a tremendously decline of dried leguminous export value through 2009 to 2011, mainly because of the decreasing of export value to India. India is the largest buyer of dried leguminous from Myanmar, accounting for 65%-83% of Myanmar's total dried leguminous export in though the past ten years partly because the ease of procurement, short delivery time, and high domestic demand (Myanmar Inside 2015). Nevertheless, concentrating of exporting dried leguminous to India makes Myanmar's pulses and bean sector vulnerable to India's import and policy changes.

Table 1: Export Destinations of Myanmar's Agricultural Products in 2016

HS Code	Commodity	Export Destinations			
071331 & 071336	Black gram & pigeon peas	India (82.29%)	Malaysia (3.56%)	Indonesia (3.53%)	Sri Lanka (2.53%)
4001	Natural rubber	China (74.41%)	Malaysia (17.92%)	Japan (3.94%)	Korea (3.37%)
0306	Crustaceans	Japan (33.41%)	China, Hong Kong (17.39%)	China (17.08%)	USA (11.67%)
1006	Rice	China (31.13%)	Belgium (16.41%)	France (8.65%)	Germany (8.30%)
0303	Frozen fish	UK (33.67%)	Malaysia (15.48%)	USA (14.72%)	United Arab Emirates (11.33%)
120740	Sesame seeds	Japan (53.01%)	Other Asia (25.91%)	China (18.6%)	Singapore (1.65%)
0304	Fish fillets	Japan (26.74%)	Malaysia (23.82%)	Korea (17.44%)	UK (14.66%)
0813	Dried fruits	China (80.23%)	Pakistan (10.91%)	Malaysia (8.48%)	United Arab Emirates (0.27%)
080711	Watermelons	China (92.04%)	Malaysia (4.17%)	China, Hong Kong (3.69%)	Russian Federation (0.10%)
1005	Maize	China (94.4%)	Philippines (3.95%)	Singapore (0.91%)	Other Asia (0.74%)
0803	Bananas	China (99.91%)	Korea (0.08%)	Singapore (0.01%)	
0802	Nuts	India (97.46%)	Pakistan (0.98%)	Australia (0.42%)	UK (0.38%)

Natural rubber is the second largest export commodity in Myanmar, accounts for 1.6% of world total rubber export (Win 2016). Most of the exports goes to China and Malaysia in 2016 (Table 1). The export trend of natural rubber export is in a bell shape, the trade value climbs through 2007 to 2011, and then starts to decrease till 2015, but bounces back in year 2016 with the value of US\$194.13 million. This sector helps to utilize underemployed labor resources since it needs intensive labor resource (Aung 2009). However, the rubber exported by Myanmar in low quality, and therefore the price of Myanmar is far lower than the world standard rubber price (Win 2013).

Myanmar has a long coastline with 2,832 kilometers, providing a very good base for fishery sector (Haggblade et al. 2013). The fishery sector plays an important role in international export market for foreign exchange earnings (FAO 2012). Frozen fish, fish fillets and other fish meat, and crustaceans are the major export products in this sector. Crustacean (e.g., lobster, shrimp, pawn, and crab) accounts for highest export share among the fishery sector, with the export value of US\$ 143.99 million in 2016. Japan stand as an important importer of Myanmar's crustaceans, followed by Hong Kong, China, and USA. Frozen fish (e.g., salmon, trout, tilapias, catfish, eels, and plaice) is mainly exported to UK, Malaysia, USA, and United Arab Emirates, with the export value of US\$ 87.51 million in 2016. Fish fillets are mainly exported to Japan, Malaysia, Korea, and UK. However, one limitations of export potential of the fishery sector may be the lack of capital market, insufficient facilities such as ice plants, cold storage, canning factories and fish-meal plants (Aung 2009).

Rice is the most important agricultural commodity of Myanmar as a staple food, and Myanmar was the largest rice exporter in the 1950s (before General Ne Win seized power in 1962) (Raslan 2017). Moreover, rice is one of the major sectors prioritized by the Myanmar National Export Strategy (2015), aiming to fuel the country's sustainable development through export promotion (World Bank 2017). However, Myanmar faces strong competition from Thailand, Viet Nam, and Cambodia. In addition, the constantly rising demand for the higher-quality rice has put pressure on Myanmar's rice sector which has been focused on low-quality export markets. Export value of rice was in a downward trend after 2011, from US\$ 319.14 million in 2011 to US\$ 113.15 million in 2016. The sharp export drops in 2015 is mainly because of the widespread flood that decreasing the rice production in Myanmar (Win and Aung 2015). The top four export destinations of Myanmar include China, Belgium, France, and Germany. China imports mainly semi-/wholly milled rice and broken rice; France, and Germany imports mainly husked (brown) rice and semi-/wholly milled rice; and Belgium mainly import husked (brown) rice and broken rice. World Bank predicted there are good market prospects to accommodate higher rice exports from Myanmar over the next 10-15 years. China is becoming a large net importer of Myanmar rice, and the European Union has opened its markets for duty free imports from Myanmar. However, Myanmar's rice price fluctuates more profound than its neighbor countries. Moreover, Myanmar also faces the challenges of low rice productivity (with the average paddy yields of only 2.5 tons per hectare) and poor quality. The global demand for low quality rice, which accounts for almost 95 percent of Myanmar's recent exports, is on the decline, necessitating Myanmar to focus on improving quality (e.g., developing the high-quality rice like "Paw San" variety) for the new market opportunity (World Bank 2015).

Maize is an important crop in Myanmar's agricultural export market. China is Myanmar's biggest buyer of maize. In 2016, Myanmar exported US\$ 20.42 million maize to the world, and 94.4% of the corn exports took place between Myanmar and

China. However, to guaranteeing the high quality of imported food, Chinese officials has more rigorous inspections and substantial seizures in 2016, pushing Myanmar to pay more attention to the quality of maize exportation and diversify the trade partners (USDA 2016).

Myanmar is a significant producer of oilseed specialties. Oilseeds cover around 20% of total crop area and are important crop with higher margins than rice (Wijnands et al. 2014). However, generally, oilseed's export value decreased from US\$ 99.97 million in 2012 to US\$ 55.62 million in 2016. According to the FAO (2014), the oilseed sector of Myanmar is heavily regulated on all levels of the chain resulting in severe distortions (Wijnands et al. 2014). In addition, amongst all the oilseed crops, sesame oilseed is the most important one, occupying 47% of the oilseed sown area, and the export value accounts for 80% of total oilseed exportation.

Edible fruit and nuts are also important sector in agricultural trade in Myanmar. And 97.4 percent of nuts (e.g., almonds, walnuts, hazelnuts, chestnuts, pistachios, and macadamia, etc.) are exported to India. Other export destinations include Pakistan, Australia, and UK. China is Myanmar's biggest buyers of bananas, melons and papaws, and dried fruit.

In summary, the top exported products are concentrated on primary agricultural products, there is lack of value-added products. In addition, the foreign trade of Myanmar depends highly on certain Asian countries such as China and India. Myanmar doesn't show product or market diversifications. This makes Myanmar's export very vulnerable to partner's trade policy or external shocks. Appropriate measures should be taken to diverse the export commodity and destinations.

3. Method: An Application of Normalized Revealed Comparative Advantage

Comparative advantage describes the tendency for the countries to export the commodities which are relatively more competitive over the rest of the world. The export competitiveness can be broadly defined and measured by revealed comparative advantage (RCA) index. The most widely used RCA index is Balassa's RCA (BRCA). Although the BRCA index is useful in assessing whether or not a country has comparative advantage in a certain commodity, its magnitude has neither the ordinal property nor the cardinal property (Hillman 1980; Yeats 1985, Yu, Cai and Leung 2009). Additionally, the BRCA index has asymmetric property. The BRCA index has a lower bound of 0 with 1 being the comparative advantage-neutral point, while its upper bound in general is not delimited, implying the same magnitude of BRCA might signify different levels of comparative advantage for different countries or commodities. Yu, Cai and Leung (2009) demonstrated that normalized RCA (NRCA) index is capable of revealing the extent of comparative advantage more precisely and consistently than BRCA. NRCA not only successfully solve the asymmetric issues, but also can be

compared across the commodity, country and time. Furthermore, NRCA index has stable mean across space and time, and independent aggregation level can be helpful in analyzing trade specialization (Yu, Cai and Leung 2009; Sanidas and Shin 2010).

Although studies have been done to analyze the comparative advantage in Myanmar (Aung 2009; Kim and Thunt 2017), little literature measures Myanmar's comparative advantages in agricultural commodities and compares the comparative advantage between Myanmar and its competitors. Additionally, rarely research utilize NRCA index assess Myanmar's comparative advantage. In this study, we will explore the export competitiveness of Myanmar by using historical data to understand which products the Myanmar export market should be focused on for achieving more stable export earnings. In addition, we will compare NRCAs of Myanmar's and its trade competitors to develop the export policies recommendations for enhancing the export competitiveness.

The NRCA method is generated by Yu, Cai and Leung (2009). The key to the derivation of the NRCA index is the comparative-advantage-neutral point. Under the situation of comparative-advantage-neutral, country j' s export of commodity i would equal to $E^j E_i / E^W$. Country j's actual export of commodity j in the real world would be E_i^j , and the difference would be stated as

$$\Delta E_i^j = E_i^j - E^j E_i / E^W$$

Normalizing ΔE_i^j by the world export market, E, NRCA index is obtained as follows

$$NRCA_{ij} = (E_i^j / E^W) - (E^j E_i / E^W E^W)$$

Where E_i^j refers to county j's export of product i; E^j tells total exports of country j; E_i refers to world export of product i; E^W tells total world export. An NRCA value greater than zero indicates that a country reveals comparative advantage in particular product, while a value of less than zero indicates a revealed comparative disadvantage (Yu, Cai, and Leung 2009). An increasing NRCA value is interpreted as a country gaining advantage in that product, relative to the world market. Additionally, higher NRCA value indicates higher comparative advantage. Since the NRCA index is normalized by the size of world total exports and typically a huge number compared with a country's trade sector, the numeric value is usually very small. Yu, Cai and Leung (2009) recommended to scale them by 10,000. Additionally, all the trade value is deflated to 2016 value with the CPI index from the World Bank¹.

¹ The CPI index of the world level is the average of CPI index of all the country.

To identify Myanmar's agricultural exporting competitors, the following procedures are applied. Firstly, we select the top exported commodities by 4 or 6-digit HS code. Secondly, for each of the exported product, we find the top four export destinations of Myanmar. Thirdly, for each of these export destinations, find other leading exporters of the same commodity to the four selected countries and then choose competitors from these countries. There are several rules in choosing the competitors: 1) we choose Asia countries as the priority; 2) if the non-Asia countries are the top one export countries to Myanmar's biggest export destination, or if the non-Asia countries are the top four exporters for more than one target destinations, we will also take it as the competitor. The selected commodity, export destinations and competitors of Myanmar is shown in Table 2.

Table 2: Selected Commodity, Export Destinations and Competitors of Myanmar

HS Code	Commodity	Export Destinations	Competitors for Each Export Destinations	Competitors
071331 & 071360	Black gram & Pigeon peas	India (82.29%), Malaysia (3.56%), Indonesia (3.53%), Sri Lanka (2.53%)	To India: Myanmar, United Rep. of Tanzania, Mozambique, Sudan To Malaysia: Myanmar, Australia, Thailand, China To Indonesia: Myanmar, Ethiopia, Australia, Thailand To Sri Lanka: Myanmar, Australia, India, Thailand	Australia, China, India, Thailand, United Rep. of Tanzania
0303	Fish; frozen	UK (33.67%), Malaysia (15.48%), USA (14.72%), United Arab Emirates (11.33%)	To UK: Norway, Myanmar, France, Netherlands To Malaysia: China, Viet Nam, Indonesia, Japan To USA: China, Canada, Korea, other Asia To United Arab Emirates: other Asia, Myanmar, India, Indonesia	China, India, Indonesia, Japan, Norway, Viet Nam
0304	Fish fillets and other fish meat (whether or not minced); fresh, chilled or frozen	Japan (26.74%), Malaysia (23.82%), Korea (17.44%), UK (14.66%)	To Japan: Norway, USA, Chile, China To Malaysia: Viet Nam, Indonesia, China, USA To Korea: Viet Name, USA, Russian Federation, China To UK: Iceland, China, Germany, Russian Federation	China, Indonesia, Norway, Russian Federation, USA, Viet Nam
0306	Crustaceans	Japan (33.41%), China, Hong Kong (17.39%), China (17.08%), USA (11.67%)	To Japan: Russian Federation, Viet Nam, India, Indonesia To China: Canada, USA, New Zealand, Argentina To China, Hong Kong: China, Viet Nam, Australia, USA To USA: India, Canada, Indonesia, Ecuador	Canada, China, India, Indonesia, Russian Federation, USA, Viet Nam
1005	Maize (Corn)	China (94.4%), Philippines (3.95%),	To China: Ukraines, USA, Lao People's Dem. Rep., Myanmar	Indonesia, Lao People's Dem. Rep.,

		Singapore (0.91%), Other Asia, nes (0.74)	To Philippines: Thailand, Argentina, Brazil, USA To Singapore: Malaysia, Pakistan, USA, Indonesia	Malaysia, Thailand, Ukraine, USA
1006	Rice	China (31.13%), Belgium (16.41), France (8.65%), Germany (8.30%)	To China: Viet Nam, Thailand, Pakistan, Cambodia To Belgium: Spain, Italy, Netherlands, Pakistan To France: Italy, Thailand, Cambodia, Spain To Germany: Italy, Belgium, Netherlands, Cambodia	Cambodia, Italy, Pakistan, Spain, Thailand, Viet Nam
120740	Sesame seeds	Japan (53.01%), Other Asia, nes (25.91), China (18.6%), Singapore (1.65%), Rep. of Korea (0.59%)	To Japan: Nigeria, Paraguay, United Rep. of Tanzania, Myanmar Other Asia: India, Myanmar, Thailand, Sri Lanka To China: Ethiopia, Nigeria, Sudan, United Rep. of Tanzania Singapore: India, Mexico, Nigeria, Myanmar	India, Nigeria, Sri Lanka, Thailand, United Rep. of Tanzania
0802	Nuts (excluding coconuts, Brazils and cashew nuts)	India (97.46%), Pakistan (0.98%), Australia (0.42%), UK (0.38)	To India: USA, Iran, Australia, Sri Lanka To Pakistan: Indonesia, USA, Iran, Afghanistan To Australia: USA, Turkey, Areas, nes, China To UK: USA, Germany, Spain, Italy	China, Indonesia, Iran, Sri Lanka, USA
0803	Bananas, including plantains	China (99.91%), Rep of Korea (0.08%), Singapore (0.01%)	To China: Philippines, Ecuador, Thailand, Viet Nam To Rep of Korea: Philippines, Ecuador, Guatemala, Peru Singapore: Philippines, Malaysia, Ecuador, Mexico	Ecuador, Malaysia, Philippines, Thailand
080711	Watermelons	China (92.04%), Malaysia (4.17%), China, Hong Kong SAR (3.69%), Russian Federation (0.10%)	To China: Viet Nam, Myanmar, Malaysia To Malaysia: Thailand, Rep. of Korea, Australia, China To China, Hong Kong SAR: Malaysia, China, Japan, Philippines To Russian Federation: Iran, Brazil, Turkey, China	China, Japan, Malaysia, Philippines, Rep. of Korea, Thailand, Viet Nam
0813	Fruit, dried; mixtures of nuts or dried fruits of this chapter	China (80.23%), Pakistan (10.91%), Malaysia (8.48%), United Arab Emirates (0.27%)	To China: Thailand, Myanmar, USA, Chile To Pakistan: India, Indonesia, Afghanistan, Myanmar To Malaysia: Indonesia, Thailand, China, India To United Arab Emirates: Thailand, India, Turkey, USA	China, India, Indonesia, Thailand, USA
4001	Natural rubber, balata, gutta- percha, guayule, chicle and similar gums	China (74.41%), Malaysia (17.92), Japan (3.94%), Rep of Korea (3.37%)	To China: Thailand, Malaysia, Indonesia, Viet Nam To Malaysia: Thailand, Cote d'Ivoire, Viet Nam, Philippines	Indonesia, Malaysia, Philippines, Thailand, Viet Nam

			To Japan: Indonesia, Thailand, Vet Nam, Malaysia To Rep of Korea: Indonesia, Thailand, Vet Nam, Malaysia	
--	--	--	---	--

4. Comparison of NRCA between Myanmar and Its Main Competitors

NRCA of the agricultural sector of Myanmar and its competitors are calculated and shown below in Figure 3 to 16. The NRCA scores of Myanmar is higher than zero through 2007 to 2016, indicating Myanmar enjoys comparative advantage in the agricultural export in the global market (Figure 3). NCR scores are comparatively stable across the ten years for Myanmar, except for a far low NRCA score in 2014. The outlier in 2014 lies to the Myanmar's extremely high total export value in this year, mainly comes from exporting peals, stones, mineral fuel, and apparel in this year. Myanmar's agricultural export sector is not very competitive while comparing with a number of identified competitors. USA shows the highest NRCA score among the countries, followed by Australia, Thailand, India, Viet Nam, Indonesia, and Myanmar. Myanmar's agricultural export sector is more competitive than Malaysia, Cambodia, Philippines, Japan, and China. In addition, each country shows different fluctuating trend of the export competitiveness.

Figure 3: NRCA Scores of Aggregate Agricultural Exports of Myanmar and Its Competitors

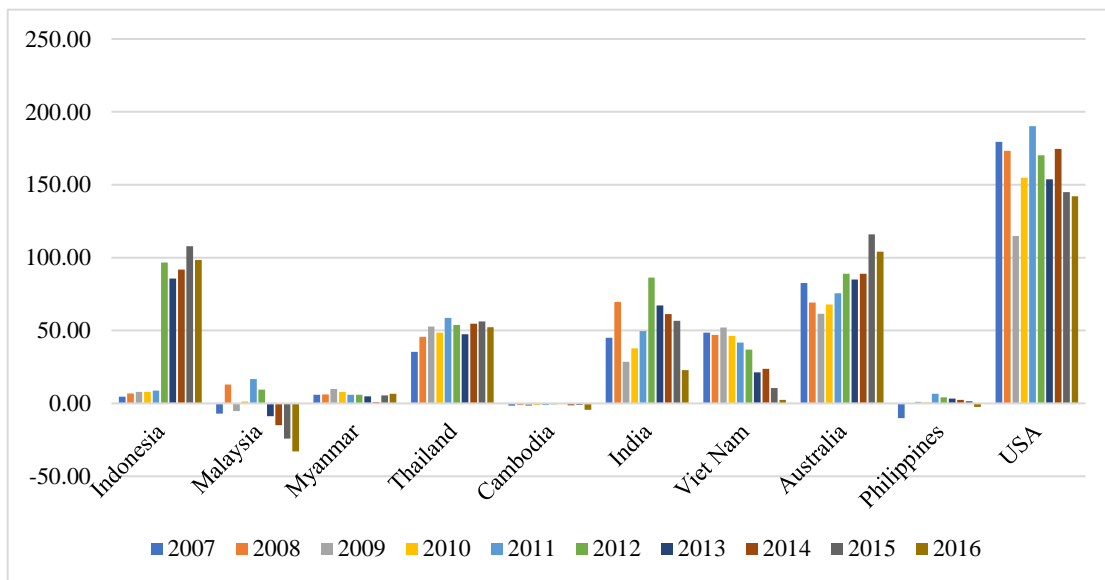
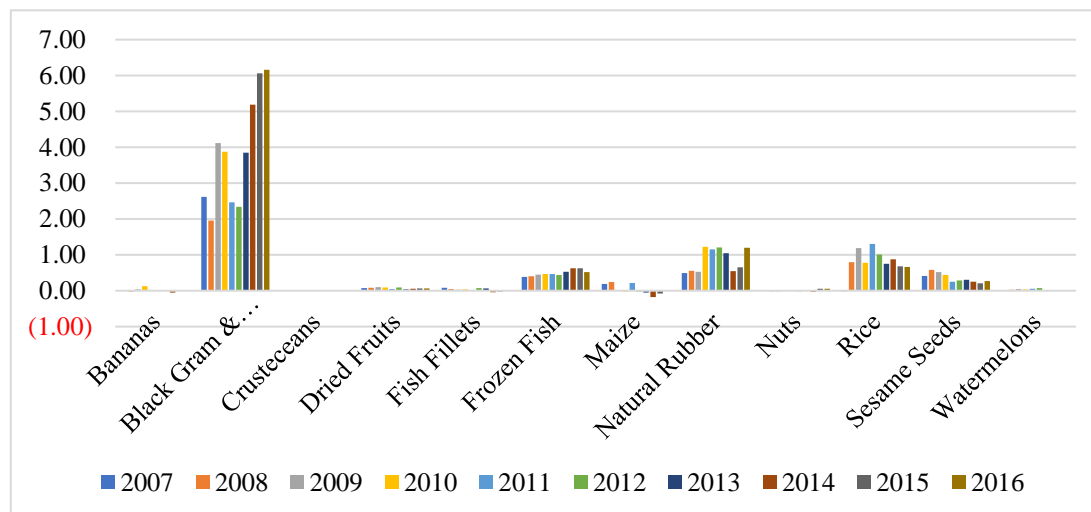


Figure 4 presents NRCA scores across 12 major commodity groups for ten years to identify Myanmar's export comparative advantage. Black gram & pigeon peas enjoy highest comparative advantage, followed by rice, natural rubber, frozen fish, and sesame seeds. Moreover, the NRCA score of bananas, fish fillets, maize, nuts, and watermelon in certain years are less than zero, indicating these particular products

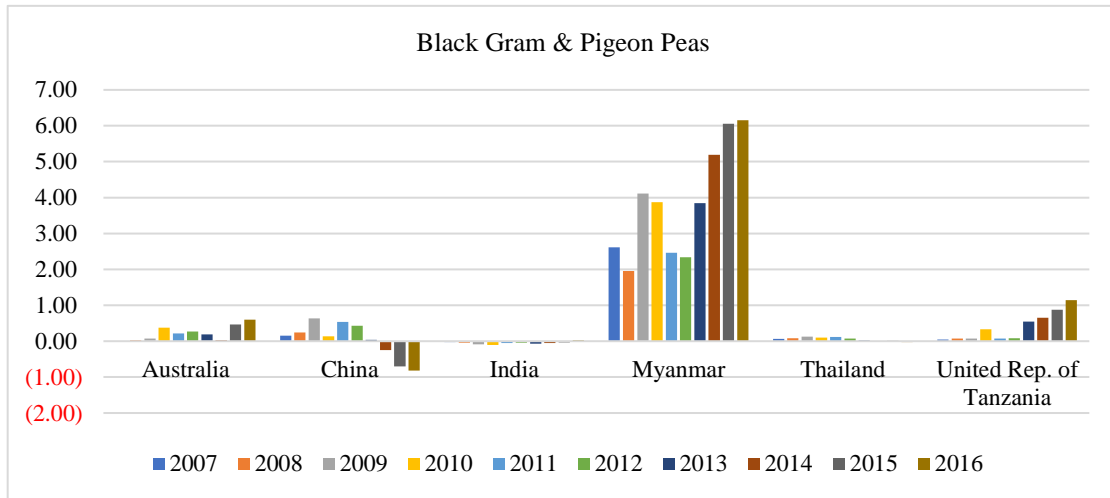
group reveals no comparative advantage. The NRCA of the 12 agricultural commodities fluctuate across 2007 to 2016.

Figure 4: NRCA Scores of Myanmar’s Agricultural Export by 4-Digit or 6-Digit Levels



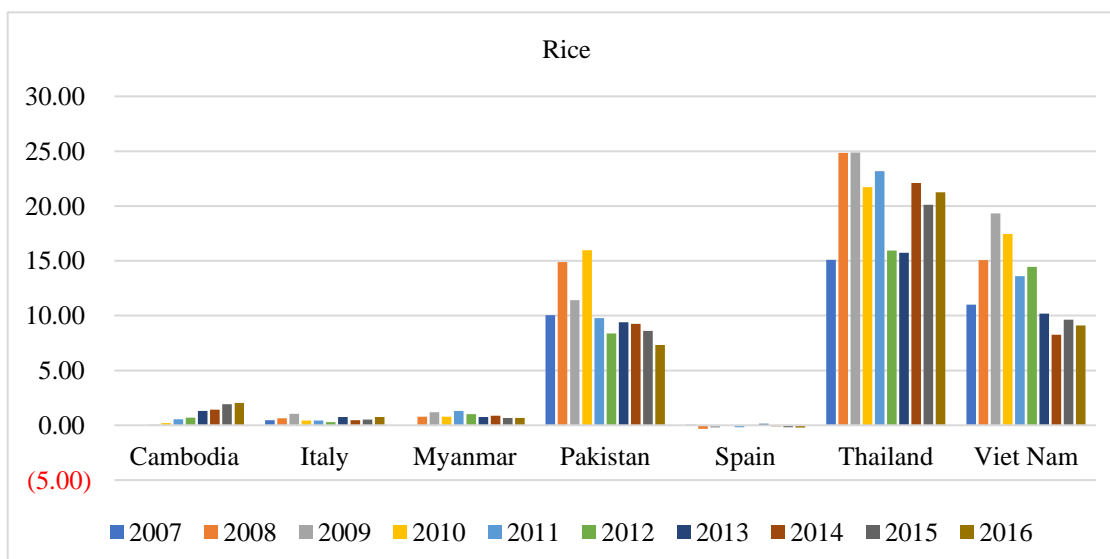
Furthermore, the NRCA score is compared between Myanmar and its competitors according to the selected agricultural commodities. Black gram & pigeon peas enjoy the strongest comparative advantages for the overall period between the value range of 1.96 (Year 2008) and 6.16 (Year 2016) (Figure 5). Although the NRCA scores fluctuate up and down from 2007 to 2012, after 2012, the NRCA score is in a growing trend and reaches the highest value in 2016. Myanmar’s competitors including Australia, China, India, Thailand, and United Rep. of Tanzania have considerably lower NRCA scores than Myanmar, indicating a lower competitiveness of Myanmar’s competitors in exporting black gram & pigeon peas. The black gram & pigeon peas are land-intensive commodities, experts in the fields suggest the development of value added products emerging in the beans and pulses business, setting up of more processing centers and selling processed rather than raw goods (Myanmar Inside 2015).

Figure 5: NRCA Scores of Myanmar and Its Competitors in Black Gram & Pigeon Peas



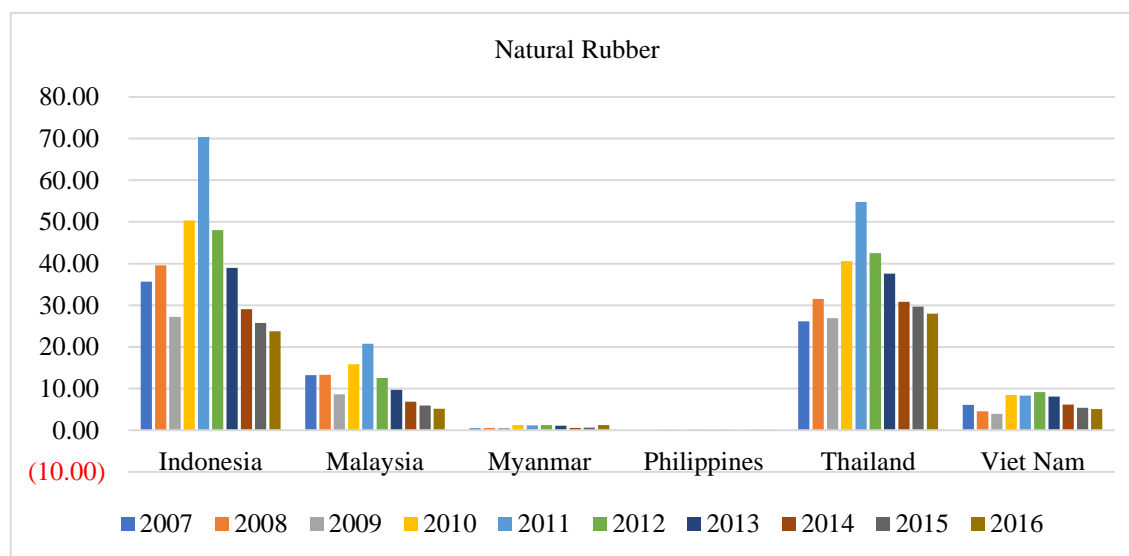
Rice plays a crucial role in agricultural exporting market in Myanmar. The NRCA value is less than zero in 2007, indicating a comparative disadvantage in rice exporting. After 2007, Myanmar enjoys positive and stable NRCA scores (Figure 6). Among Myanmar’ competitors, Thailand shows the highest NRCA score, followed by Viet Nam and Pakistan. Cambodia, Italy, and Myanmar has comparatively low competitiveness in rice exporting, while Spain shows no competitiveness. The potential limitations of rice exporting in Myanmar include low productivity and poor rice quality at the farm level. For example, the average paddy yields of 2.5 tons per hectare are only half of those realized by its competitors in the region. In addition, the milling sector operates with obsolete processing units that causes about 15-20 percent losses in quality and quantity during the milling (World Bank 2017).

Figure 6: NRCA Score of Myanmar and Competitors in Rice



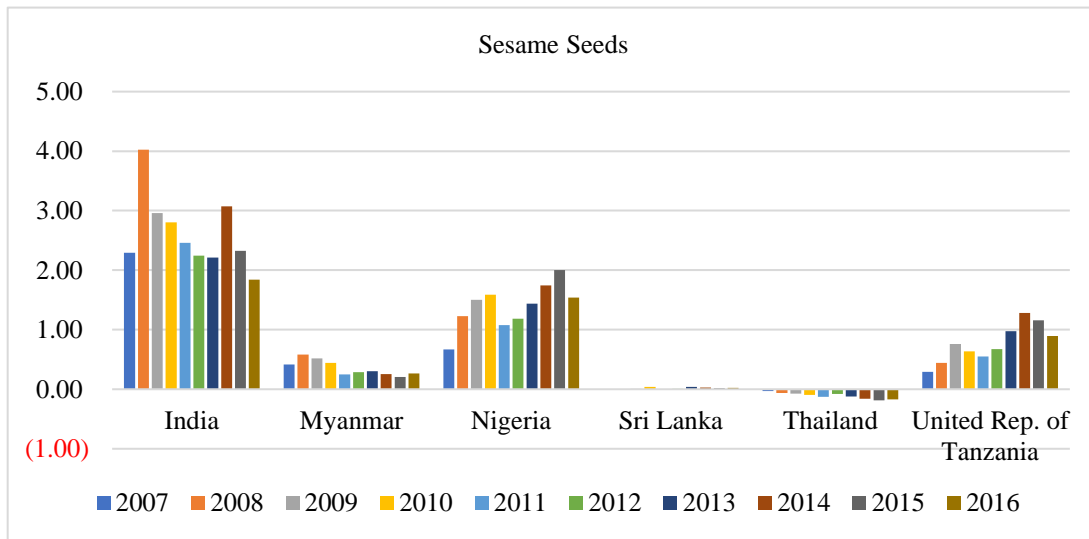
NRCA score of natural rubber ranges from 0.49 (Year 2007) to 1.22 (Year 2010) (Figure 7). However, Myanmar faces strong competition from Asia countries such as Indonesia, Malaysia, Thailand, and Viet Nam. The average NRCA score of the past ten years in Thailand, Indonesia, Malaysia, and Viet Nam is around 55.6, 51.1, 18.1, and 8.2 times than that of Myanmar, respectively. The shortcomings of Myanmar's rubber exporting include the low productivity, high labor cost, and sub-par quality. Myanmar's rubber plantation produces at less than half the international production rate, and a rise in volume must be matched by improvements in product quality (Win 2016).

Figure 7: NRCA Score of Myanmar and Competitors in Natural Rubber



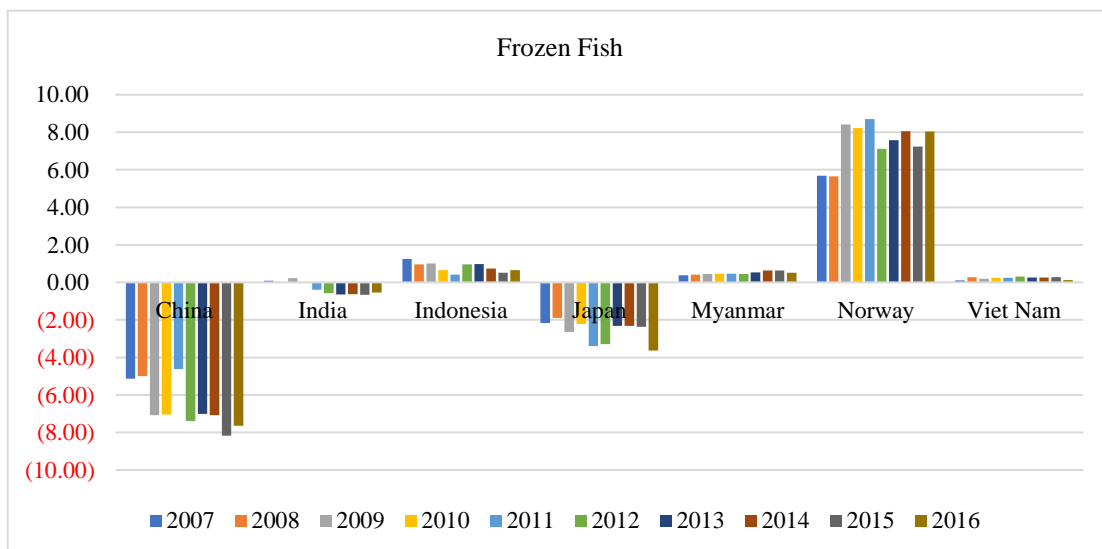
NRCA score of sesame seeds in Myanmar ranges from 0.20 to 0.58 with the highest score in 2008. In addition, the NRCAs are quite stable after 2010 (Figure 8). India reveals highest NRCA value among all the competitors, followed by Nigeria, Tanzania and Myanmar; Thailand and Sri Lanka reveals no comparative advantage. However, Myanmar's trade value of sesame oilseed is low considering the strong competitiveness of sesame oilseed exporting. Guaranteeing the quality, raising efficiency of sesame seeds production, and further processing (e.g., proper extraction, roasting and producing snacks) provide potential ways to enhance the trade value and open new market (Wageningen University & Research 2015).

Figure 8: NRCA Score of Myanmar and Competitors in Sesame Seeds



In the fishery sector, frozen fish and crustaceans reveal strong competitive advantage, while fish fillets reveal comparative disadvantage (Figure 9-11). Myanmar’s competitors in exporting frozen fish include Norway, China, Viet Nam, Indonesia, Japan, and India. NRCA score of Myanmar is 0.52 in 2016, higher than the competitors except for Norway and Indonesia. Averagely, Norway’s NRCA is around 15 times than that of Myanmar.

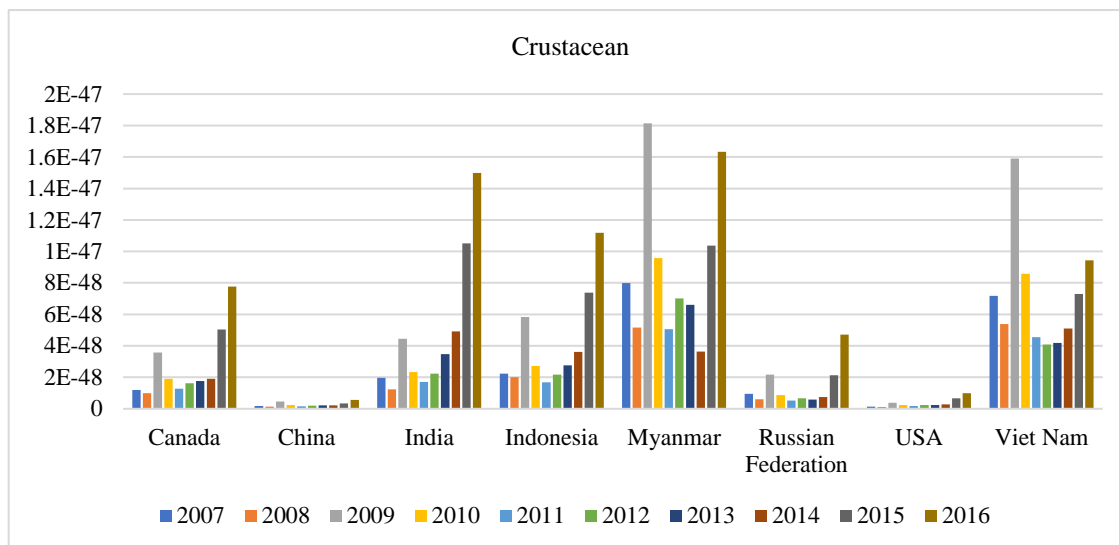
Figure 9: NRCA Score of Myanmar and Competitors in Frozen fish



Crustaceans exporting shows considerably lower NRCA score than frozen fish in Myanmar. However, Myanmar has the highest NRCA score among its competitors, followed by Viet Nam, Indonesia, India, Canada, Russian Federation, China, and USA

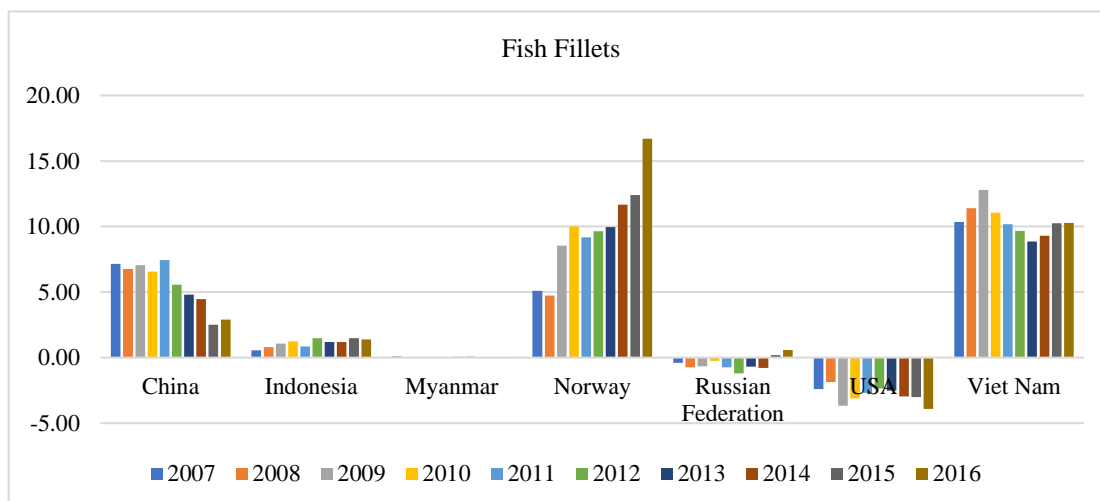
(Figure 10). Additionally, the NRCA scores goes up and down for all the selected countries, with the extreme high value in 2009, 2015, and 2016.

Figure 10: NRCA Score of Myanmar and Competitors in Crustacean



Norway shows highest NRCA score in the fish fillets export market, Viet Nam, China, and Indonesia also enjoys comparatively higher NRCA score than Myanmar (Figure 11). In addition, Myanmar reveal comparative advantage in exporting fish fillets from the year 2007 to 2013, but lost the competitiveness from 2014 to 2016.

Figure 11: NRCA Score of Myanmar and Competitors in Fish Fillets

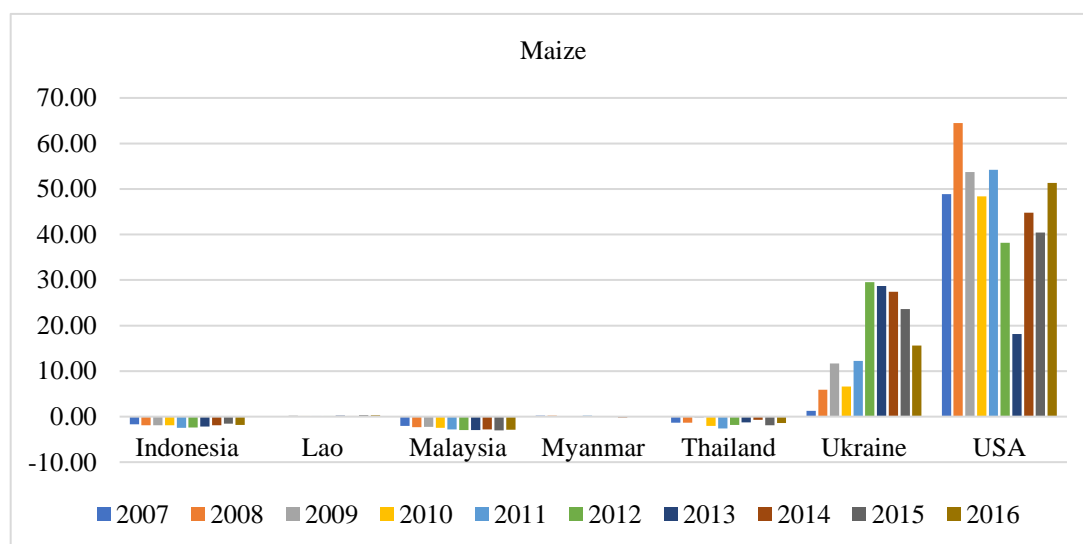


The NRCAs and export value in Myanmar’s fishery sub-sector is unstable through 2007 to 2016. The fishery production and exporting needs special processing stages which include the facilities of fishing vessels, carried vessels, ice plants, processing

plants, cold store, fishmeal plants, dehydration plants, etc. However, the insufficient facilities in Myanmar maybe a restriction for fishery sector production, exporting, or generating value added products for the international export market. It's necessary to construct the facilities and introduce fishery policies for the development of this sector (Aung 2009).

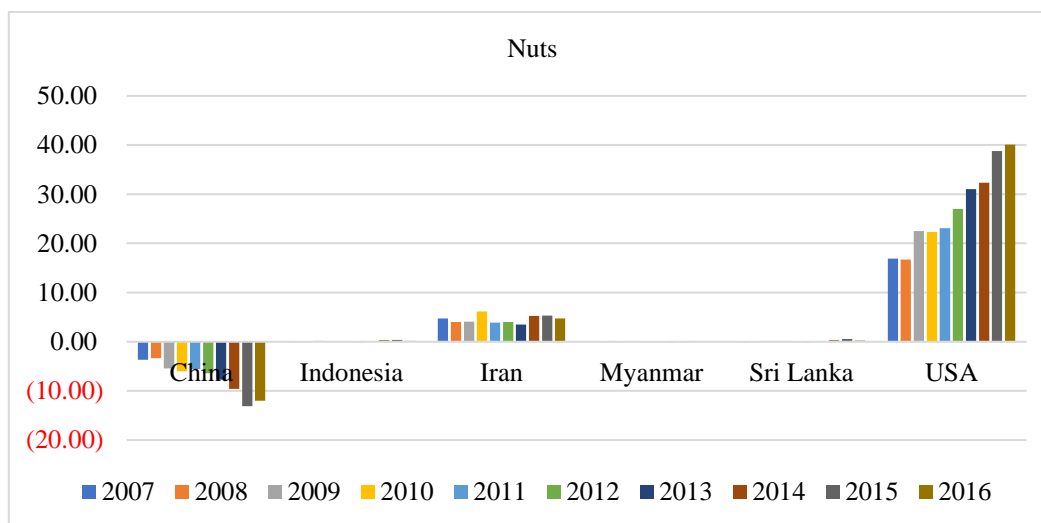
Maize's comparative advantage in Myanmar is unstable across the ten years. Maize lost the comparative advantage from 2012 to 2015, and gained the competitiveness in 2016 (Figure 12). USA reveals the highest comparative advantage, followed by Ukraine; Indonesia, Malaysia, and Thailand shows no comparative advantage.

Figure 12: NRCA Score of Myanmar and Competitors in Maize



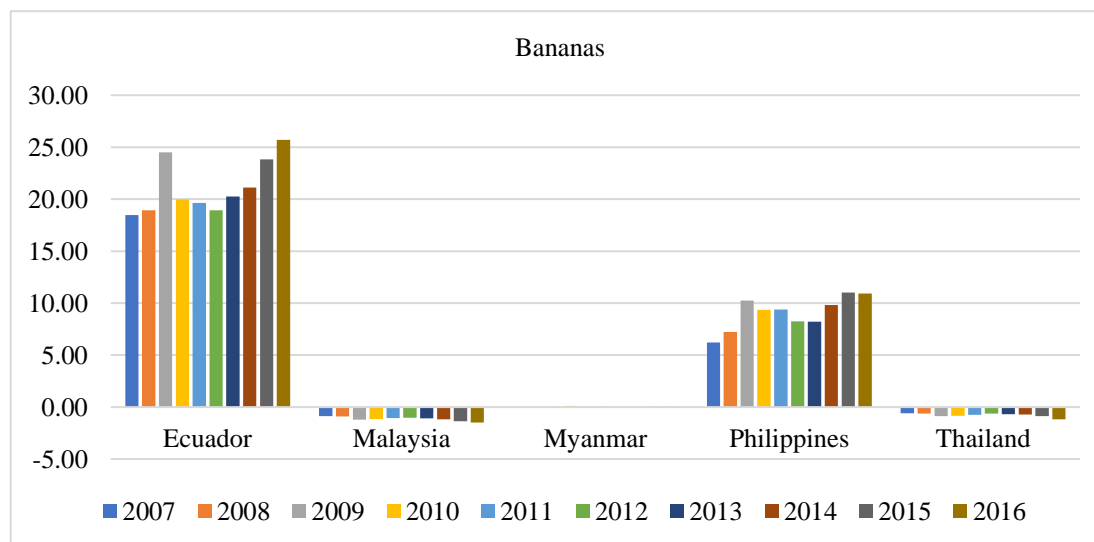
Nuts (e.g., almonds, walnuts, hazelnuts, and macadamia), bananas, watermelons, and dried fruits shows unstable NRCA across the period (Figure 13-16). USA has the highest NRCA score in nuts exporting, followed by Iran and Indonesia. Myanmar only gains comparative advantage in nuts exporting in 2007, 2010, 2015 and 2016.

Figure 13: NRCA Score of Myanmar and Competitors in Nuts



China is the biggest buyer of bananas, importing 99.91 percent of Myanmar’s bananas. Myanmar’s competitors include Ecuador, Malaysia, Philippines, and Thailand. In the past ten years, Ecuador has the highest NRCA score, followed by Philippines and Myanmar; Malaysia and Thailand shows no competitive in exporting bananas (Figure 14). Myanmar lost its competitiveness in 2013 and 2014, and gained the competitiveness in 2015 and 2016.

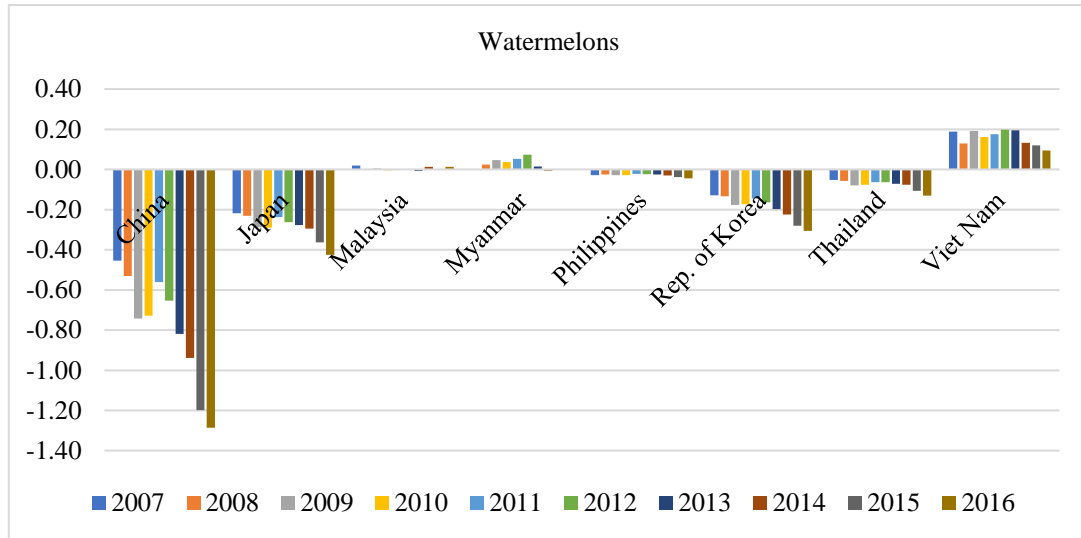
Figure 14: NRCA Score of Myanmar and Competitors in Bananas



Among Myanmar’s competitors of watermelon exporting, only Viet Nam enjoys comparative advantage consistently over the period (Figure 15). China, Japan, Philippines, Rep. of Korea, and Thailand show no comparative advantage across the years. Myanmar gains and lost the comparative advantage over time. Myanmar reveals

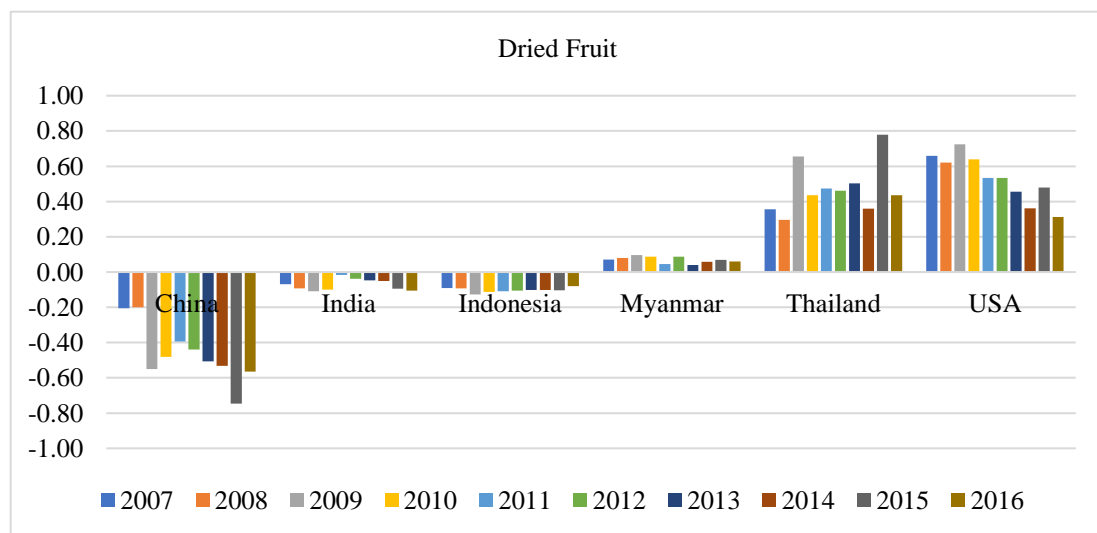
no comparative advantage in 2007, but gains the competitiveness from 2008 to 2013, and again lost the competitiveness after 2014.

Figure 15: NRCA Score of Myanmar and Competitors in Watermelons



Dried fruits are with higher NRCA score in Myanmar, right after Thailand and USA. Other competitors include China, India, and Indonesia reveals no comparative advantage (Figure 16).

Figure 16: NRCA Score of Myanmar and Competitors in Dried Fruits



In summary, Myanmar's black gram and pigeon peas, crustacean, dried fruits, frozen fish, natural rubber, and sesame seeds reveals comparative advantage in the global market. In addition, Myanmar has the strongest NRCA score at the global level

in the industries of black gram & pigeon peas, followed by rice, natural rubber, frozen fish, and sesame seeds. However, for the other products, such as bananas, maize, fish fillets, nuts, watermelons, the export competitiveness is unstable, the commodities lost and gain their comparative advantage through the years.

5. Conclusion, Implication, and Limitation

Myanmar is an agrarian country, with agricultural sector contributes 37.8% of the Gross Domestic Product (GDP). Agricultural export takes part of 27.5% of the total export earnings. However, the agriculture development and agricultural trade is still far below its potential. The export value and trade pattern from UN Comtrade through 2007 and 2016 demonstrates Myanmar is depending on its nature resource rather than value-added products. The major export products include beans and pulses, fishery products, rice, and nuts, etc. However, the export value of these products fluctuates more through the period of 2012 to 2016 than the period of 2007 to 2011. In addition, Myanmar's agricultural trade mainly concentrated with neighboring countries and other countries in the region. The major export partners are in Asia with China, Thailand, India, Singapore, Japan, and Malaysia. Agricultural trade with developed economy is still low, and the partners are limited to US and EU. Furthermore, for black grams & pigeon peas and nuts, more than 80 percent of the export value comes from India, while for watermelon, natural rubber, and dried fruits, the export market is concentrates in China. And therefore, the export market of Myanmar would be vulnerable to the major partner's trade policy. Myanmar shows low product and market diversification in the agricultural export sector in the global market.

Myanmar enjoys comparative advantage in the agricultural export in the global market. Additionally, the agricultural sector's competitiveness is comparatively stable in the past ten years for Myanmar. However, Myanmar's agricultural export sector is not very competitive when comparing with its major competitors. USA shows the highest NRCA score among the countries, followed by Australia, Thailand, India, Viet Nam, Indonesia, and Myanmar. Myanmar's agricultural export sector is only more competitive than Malaysia, Cambodia, Philippines, Japan, and China. Furthermore, among the selected agricultural commodities, Myanmar enjoys high level of NRCA in black gram & pigeon peas, natural rubber, sesame seeds, rice, frozen fish, while has a low level of NRCA in crustacean, dried fruits; and suffers a loss of RCAs in bananas, fish fillet, maize, nuts, and watermelon in the certain years. Additionally, compared with its competing countries, Myanmar is highly competitive in black gram & pigeon peas, crustaceans, sesame seeds, frozen fish, and dried fruits, is competitive in rice, natural rubber, watermelon; and noncompetitive in nuts, bananas, fish fillets, and maize. Myanmar and its competitors fluctuates in terms of NRCA for the selected commodities across the last ten years.

One of the challenges of Myanmar's agricultural export have been greater reliance on a smaller number of exportable commodities, mainly are land intensity products. Export diversification can be attained by horizontal diversification (i.e., including more commodities in the existing export pattern) or vertical diversification (i.e., including new commodities lines by means of value added measures). In terms of horizontal diversification, land development strategies, agriculture research, as well as the agriculture service (e.g., extension) and basic infrastructure for the new commodities need to be developed. In terms of vertical diversification, agricultural machinery and equipment (e.g., milling machines, processing equipment) are encouraged for promoting downstream processing of primary commodities. Overall, for both horizontal and vertical diversification, the private and foreign direct investment in the processing facilities as well as fertilizer, agricultural machinery and equipment, and agricultural productivity would contribute to the development of the whole agricultural sector. Therefore, the government need to provide an environment conducive to attracting new investment development into this country, improve support services in trade financing, market access, as well as trade facilitation.

China, India, Thailand and Japan are Myanmar's four most important neighboring trade partner, appropriate measures should be taken to enter into more bilateral or multilateral trade agreements, to strengthen trade promotion (e.g., branding, trade fairs), eliminate complicated and lengthy legal procedures, and facilitate trade to make trade policies and procedures stable, transparent, and affordable for small- and medium-sized traders, as well as to make trade credits available. For example, Myanmar should take the opportunity of "one-belt-one-road" in China and enhance the trade with China. Furthermore, in order to achieve the goal of trade security, stable market, and expanding the trade market, Myanmar should build trade lines with more countries, in the wider international community, to include EU, America, Africa, and the Middle East. The achieve the goals, Myanmar can also learn the lessons from its competitors' trade promotion strategy in the global environment. For example, Viet Nam operated a national trade promotion program since 2005 with the activities of hiring experts for advises on export development and commodity quality improvement, trade fairs, and market investigation, etc. Additionally, the Viet Nam Development Bank (VNDB) was established in 2006 to provide financial supporting of trade promotion. VNDB provides export credits, investment credit guarantees, and export project performance security to support the exporters needing funding to increase the scale of investment (OECD 2015).

One possible limitation of the study is the lack of unofficial trade data. Cross-border trade plays a significant role in Myanmar's agricultural trade market. The cross-border trade in Myanmar can be divided into two categories: legal/documented trade and legal/undocumented trade. Legal/ documented trade includes the trade of commodities with an official license issued by the border trade authority, whereas legal/undocumented trade includes exports and imports of the agricultural commodities

without official import or export licenses (Aung 2009). Due to the complicated licensing system and strict trade policies in Myanmar, the informal cross-border trade was quite normal and significant. Especially the cross-border trade with China and Thailand of the commodities such as rice, fishery products, and watermelon are important part of Myanmar's agricultural trade. However, the data from UN Comtrade records only the official trade of Myanmar in the global market and therefore the legal/undocumented trade is not included. Moreover, cross-border trade, though legal from Myanmar side since 2012, is illegal in China since it evades a large (37 percent) import tariff. Since we utilize the partner's import value as Myanmar's export value, the trade value may be influenced by the unofficial trade. For some commodities, such influence could be large (Aung 2009). The future direction for the study is to find a way to count for such unofficial trade in the analysis.

References

- ADB. 2012. *Myanmar in Transition Opportunities and Challenges* Manila: ADB. ISBN 978-92-9092-812-6 (Print), 978-92-9092-813-3 (PDF) Publication Stock No. RPT124850-2.
- ADB. 2013. *Agriculture, Natural Resources, and Environment Initial Sector Assessment, Strategy, and Road Map*. ISBN 978-92-9254-353-2. Publication Stock No. RPT136157.
- Aung, W. 2009. *The Role of Informal Cross-border Trade in Myanmar*. Institute for Security & Development Policy. ISBN: 978-91-85937-65-3.
- Embassy of the Republic of The Union of Myanmar. *Trade Policy of Myanmar*. Internet Site: <http://www.mecairo.org/index.php/en/myanmar/trade-policy-of-myanmar> (Accessed: June 13th 2017)
- FAO. 2012. Fishery and Aquaculture Country Profiles. The Republic of the Union of Myanmar. Internet Site: <http://www.fao.org/fishery/facp/MMR/en> (Access June 2017).
- FAO. 2014. Country Statement of Myanmar Ministry of Agriculture and Irrigation. Internet Site: http://www.fao.org/fileadmin/user_upload/faoweb/docs/MM3/Statements/Myanmar.pdf
- FAO. 2015. "Myanmar floods: Huge Impact on Agricultural Live hoods, More International Support Urgently Needed." Internet site: http://www.fao.org/fileadmin/user_upload/emergencies/docs/Final%20fact%20sheet%201%20-%20web%20version.pdf. (Access June 2017).
- FAO. 2017. *Myanmar at a Glance*. Internet Site: <http://www.fao.org/myanmar/fao-in-myanmar/myanmar/en/> (Access June 2017).
- Fujita, K., I. Okamoto. 2006. *Agricultural Policies and Development of Myanmar's Agricultural Sector: An Overview*. Discussion Paper No. 63.
- Guillaume, G., Z. Soledad. 2010. "BACI: International Trade Database at the Product-level The 1994-2007 Version." CEPII, WP No 2010-23.
- Haggblade, S. 2013. *A Strategic Agricultural Sector and Food Security Diagnostic for Myanmar*. MSU International Development Working Paper.
- Hillman, A.L. 1980. Observations on the relation between "revealed comparative advantage" and comparative advantage as indicated by pre-trade relative prices. *Weltwirtschaftliches Arch* 116:315–321
- Kim, M., H. Thunt. 2007. "An Analysis of Export Competitiveness in Myanmar: Measuring Revealed Comparative Advantage." *Journal of International Trade & Commerce* Vol. 13(2007). P:149-72.
- Myanmar Inside. 2015. Myanmar's Beans and Pulses Internet Site: <http://www.myanmarinsider.com/myanmars-beans-and-pulses/> (Accessed June 2017).

- OECD. 2015. Agricultural Policies in Viet Nam. Internet site: [http://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policies-in-viet nam 2015/assessment-and-policy-recommendations_9789264235151-4-en](http://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policies-in-viet-nam-2015/assessment-and-policy-recommendations_9789264235151-4-en)
- Oo. T. H., A. Soe, and P. Y. Myat. 2017. Agricultural Policy and Institutional Reforms in Myanmar: Experiences, Impacts, and Lessons. Southeast Asian Agriculture and Development Primer Series 2nd Edition
- Raitzer. D., L. Wong, and J. Samson. *Myanmar's Agriculture Sector: Unlocking the Potential for Inclusive Growth*. ADB Economics Working Paper Series. No. 470. December 2015.
- Raslan. K. 2017. Paw San Rice: Myanmar's Ticket Back to The International Stage? <http://www.scmp.com/week-asia/business/article/2077385/paw-san-rice-myanmars-ticket-back-international-stage> (Access Dec 2017)
- Sri Lanka Export Development Board. 2014. *Country Report on Myanmar*.
- Soe. T. 2004. *Myanmar in Economic Transition: Constraints and Related Issues Affecting the Agriculture Sector*. Yangon University of Distance Education, Yangon, Myanmar
- Sanidas. E and Y. Shin. 2010. Comparison of Revealed Comparative Advantage Indices with Application to Trade Tendencies of East Asian Countries. Seoul: Department of Economics, Seoul National University.
- Tun, T., A. Kennedy, and U. Nischan. 2015. *Promoting Agricultural Growth in Myanmar: A Review of Policies and Assessment of Knowledge Gaps*. Working Paper 07.
- UN. 2011. Facilitating Agricultural Trade in Asia and the Pacific. Internet Site: <http://www20.iadb.org/intal/catalogo/PE/2012/10040.pdf>
- USDA. 2016. Corn Production, Supply, and Demand Update. Internet Site: https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Corn%20Production%20Supply%20and%20Demand%20Update%202016_Rangoon_Burma%20-%20Union%20of_12-2-2016.pdf (Accessed July 2017).
- USITC. 2015. "Rice: Global Competitiveness of the U.S. Industry". Publication Number: 4530. Internet Site: <https://www.usitc.gov/publications/332/pub4530.pdf> (Accessed Dec. 2017).
- Wijnands. J., J. Biersteker, L. Hagedoorn, and J. Lousse. 2014. *Business Opportunities and Food Safety of the Myanmar Edible Oil Sector*. LEI Wageningen UR
- Win., N. 2013 "Experiences of Myanmar Agricultural Development Bank Program on Value Chain Finance on Agriculture." Country Report of Myanmar
- Win, S., Aung, H. 2015. Rice Exports Suspended as 500,000 Acres Flood. Internet Site: <https://www.mmtimes.com/business/15837-rice-exports-suspended-as-500-000-acres-flood.html>
- Win, S. P. 2016. "Low Production and Quality to Blame for Rubber Sector's Export Woes." Internet Site:

- <https://www.mmtimes.com/business/22929-low-production-and-quality-to-blame-for-rubber-sector-s-export-woes.html> (Accessed July 2017).
- Wong, L. C. Y., and E. M. A. Wai. 2013. Rapid Value Chain Assessment: Structure and Dynamics of the Rice Value Chain in Myanmar. Background Paper 6. Michigan State University in partnership with the Myanmar Development Resource Institute-Centre for Economic and Social Development. Internet Site: http://fsg.afre.msu.edu/Myanmar/myanmar_background_paper_6_rice_value_chain.pdf (Accessed July 2017).
- Wageningen University & Research 2015 "Wageningen University & Research 2015" Internet Site: <https://www.wur.nl/en/newsarticle/Myanmar-has-large-export-potential-in-oilseed-and-vegetable-oil.htm> (Accessed August 2017)
- World Bank. 2015. Myanmar: Capitalizing on Rice Export Opportunities. Economic and sector work
- World Bank. 2017. Myanmar: Capitalizing on Rice Export Opportunities. Internet Site: <http://www.worldbank.org/en/country/myanmar/publication/myanmar-capitalizing-on-rice-export-opportunities> (Accessed August 2017)
- Yeats, A. J. 1985. "On the appropriate interpretation of the revealed comparative advantage index: implications of a methodology based on industry sector analysis." *Weltwirtschaftliches Arch* 121:61–73
- Yu, R., J. Cai, P. Leung. The Normalized Revealed Comparative Advantage Index. *Ann Reg Sci* 2009 (43): 267-282.

Appendix

Table 1: Export Value and Commodity Share² of Agricultural Products from 2007 to 2016 (\$ million and %)

HS Code	Commodity	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0303	Frozen fish	99.03 (1.04%)	109.13 (1.10%)	92.48 (1.02%)	108.93 (1.18%)	124.33 (1.11%)	112.49 (1.00%)	131.82 (0.97%)	165.29 (0.58%)	125.43 (0.87%)	95.05 (0.82%)
0304	Fish fillets	30.88 (0.32%)	23.51 (0.24%)	16.13 (0.18%)	18.47 (0.20%)	15.08 (0.13%)	30.12 (0.27%)	30.81 (0.23%)	27.48 (0.10%)	14.88 (0.10%)	12.71 (0.11%)
0306	Crustaceans	241.88 (2.54%)	179.34 (1.80%)	200.67 (2.21%)	189.72 (2.06%)	192.54 (1.71%)	207.98 (1.85%)	230.72 (1.70%)	264.32 (0.93%)	177.63 (1.23%)	156.14 (1.35%)
0713	Dried leguminous	1220.95 (12.82%)	1113.87 (11.19%)	1494.03 (16.45%)	1375.48 (14.93%)	1170.96 (10.42%)	1126.81 (10.05%)	1095.33 (8.06%)	1338.38 (4.72%)	1281.52 (8.90%)	1151.97 (9.97%)
0802	Nuts	5.43 (0.06%)	1.64 (0.02%)	2.65 (0.03%)	6.63 (0.07%)	4.34 (0.04%)	4.51 (0.04%)	9.14 (0.07%)	16.45 (0.06%)	24.19 (0.17%)	16.87 (0.15%)
0803	Bananas	0.00 (0.00%)	0.83 (0.01%)	15.69 (0.17%)	33.87 (0.37%)	10.67 (0.09%)	10.59 (0.09%)	8.93 (0.07%)	11.56 (0.04%)	12.57 (0.09%)	9.89 (0.09%)
0807	Melons	0.67 (0.01%)	8.00 (0.08%)	10.88 (0.12%)	10.01 (0.11%)	15.83 (0.14%)	20.45 (0.18%)	7.36 (0.05%)	0.86 (0.00%)	0.95 (0.01%)	0.65 (0.01%)
0813	Dried fruits	17.31	20.40	18.25	19.26	11.70	20.57	10.01	15.34	13.73	10.91

² The commodity share is the ratio of the commodity's export value over the total export value in Myanmar

		(0.18%)	(0.20%)	(0.20%)	(0.21%)	(0.10%)	(0.18%)	(0.07%)	(0.05%)	(0.10%)	(0.09%)
1005	Maize	58.28	78.00	17.31	9.29	73.51	16.96	16.07	15.10	14.19	20.42
		(0.61%)	(0.78%)	(0.19%)	(0.10%)	(0.65%)	(0.15%)	(0.12%)	(0.05%)	(0.10%)	(0.18%)
1006	Rice	5.46	203.08	223.41	174.29	319.14	237.63	178.45	215.42	132.72	113.15
		(0.06%)	(2.04%)	(2.46%)	(1.89%)	(2.84%)	(2.12%)	(1.31%)	(0.76%)	(0.92%)	(0.98%)
1207	Oilseeds	99.97	148.78	104.73	97.68	63.64	70.53	74.00	64.16	53.74	55.62
		(1.05%)	(1.49%)	(1.15%)	(1.06%)	(0.57%)	(0.63%)	(0.54%)	(0.23%)	(0.37%)	(0.48%)
4001	Natural rubber	122.94	145.47	102.48	269.41	295.21	285.96	246.45	141.41	125.24	194.13
		(1.29%)	(1.46%)	(1.13%)	(2.92%)	(2.63%)	(2.55%)	(1.81%)	(0.50%)	(0.87%)	(1.68%)
