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Agri-food Trade in Myanmar

Its role in Myanmar's future economic takeoff

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EXECUTIVE SUMMARY

Agri-food exports are important for Myanmar's economic takeoff, in particular for the transformation of agri-food systems. This paper analyzes the past performance of key agri-food exports and assess their role and future potential to contribute to the transformation of Myanmar's agri-food system and the overall economy.

- Agri-food exports have played an important role in Myanmar recent growth acceleration, accounting for approximately one-third of Myanmar total exports. While agriculture's share of total GDP has fallen, which is common in economic transformation processes, the share of agri-food exports in total exports and as a share of total GDP have both risen in recent years. This is an indication that agri-food exports have grown more rapidly than total exports and the overall economy. Further opening of Myanmar's economy and policy measures to liberalize exports will contribute to further growth in agri-food exports.
- Asia remains the most important agri-food export market for Myanmar, with approximately 80 percent of Myanmar's agri-food exports destined for the Asian market. Despite Myanmar's membership in ASEAN, the Southeast Asia market has become less important, now accounting for less than 20 percent of Myanmar's agri-food exports. However, Myanmar has benefited from Free Trade Agreements with its partners in the Association of Southeast Asian Nations (ASEAN), with China, and with India. China, whose market share is more than one-third of Myanmar's total agri-food exports, has become the most important trading partner in recent years. India is the second most important market, with a 20 percent market share.
- Myanmar's agri-food exports are highly concentrated in a few commodities. The ten most important are pulses, fish, rice, rubber, maize, cattle, groundnut, sesame, melons, and onions, which together account for more than 80 percent of total agri-food exports. There has not been much change to this group of commodities since the early 2000s – only groundnut and melons are new to the list in recent years.
- The concentration of agri-food exports around a small number of commodities and destination markets implies that these commodities and their foreign markets will continue to play important roles in the growth of agri-food exports for the immediate future. Moreover, exports accounting for a large portion of total production for many of these commodities. Several have potential for future growth given that Myanmar is not the dominant exporter of the commodity to many of the importing countries. Thus, to capitalize on this growth potential, Myanmar producers must increase supply by improving productivity and expanding crop areas. They also must make improvements to overall quality.
- Stability in market access is important. Several of the commodities exported principally go to a single market – pulses to India and rubber, maize, cattle, melon, and onion to China. Seeking long-term bilateral trade agreements with these dominant importers of Myanmar's agri-food products will be key to ensuring such stability. A multilateral approach could be advantageous to Myanmar, through ASEAN, in discussing trade issues with China and India.
- Targeting new markets and diversifying both the destinations and the commodities making up Myanmar's agri-food exports will minimize risk to producers. While India is the top market for Myanmar pulses, the share that imports make up in the market for pulses in India has declined in recent years. Myanmar will need to explore market opportunities both

for other varieties of pulses that Myanmar's farmers could produce and for new markets for its pulses. On the other hand, as markets for rice, for example, are more diverse than those for pulses, further market diversification will require improvements to product quality in order to expand beyond current export markets to new high value markets.

- Fish remains the second most important agri-food export. While the catch of wild fish and other aquatic species has grown steadily, the share of fish exports has fallen from one-third of all agri-food exports in the early 2000s to less than 20 percent in recent years. Myanmar's many wild capture fish products are unlikely to grow rapidly in the future and prawn fishing is expected to continuously decline. Farmed fisheries provide the best prospects for growth. However, most of this growth potential is in supplying the domestic market as a substitute for the declining production in capture fisheries, with the exception of farmed shrimp.
- Exports of fruit and other horticultural products have grown rapidly in recent years. Melons, including watermelon and muskmelon, were barely exported in the early 2000s but have now become a top-ten agri-food export commodity. Exports of bananas have also grown rapidly. However, as perishable commodities, they are constrained by seasonality, transportation difficulties, lack of storage facilities, and other logistical issues. The export markets for these products are often influenced by changes to trade policy in China, as the primary export destination. This is evident in recent experiences of exporters as governments responded to the COVID-19 pandemic. Efforts made by the Government of Myanmar to improve its bilateral trade relationship with China and other major partner countries are important steps to increasing exports of the country's products. However, strong regional competitors are emerging, including Viet Nam, and accessing new markets in the Middle East and the European Union will require meeting Good Agriculture Practices standards, which poses a number of challenges for Myanmar.
- In the case of Viet Nam, processed food exports have played a large role in the expansion of that country's agri-food exports. Viet Nam has placed an emphasis on value-addition of their primary agricultural export products, e.g., exports of processed fish and manufactured fruit products. Processed agricultural products have become more important in Myanmar, and there is potential to develop a fruit processing industry, e.g., jams and juices., However, the overall contribution that processed fruit products can make to the overall growth of agri-food exports of Myanmar should not be overestimated.
- Myanmar has experienced a substantial increase in imports of palm oil in recent years. As a result, the government has pushed for intensive oil palm development to meet domestic demand as well as to potentially become an international market player. However, environmental concerns, including lessons learned from the challenges experienced by both Indonesia and Malaysia in this regard, should be reflected in the design of a palm oil import substitution strategy.
- Policies are important to foster export competitiveness. Since the adoption of the National Export Strategy in 2015, Myanmar has seen some progress in improving its competitiveness in agri-food export markets through investments to improve access to finance, quality management, trade facilitation and logistics, and trade information and promotion. However, despite this progress, Myanmar exports costs are the highest among ASEAN countries. These are primarily attributed to the time required to complete the logistical process for exporting goods, i.e., the average time needed to meet border and documentary compliance. Facilitating trade and reducing such regulatory barriers to exports should be prioritized as part of any export promotion policy.

1. INTRODUCTION

Myanmar has seen rapid economic growth in recent years as it has engaged in a process of political and economic liberalization. This has lifted Myanmar from a low-income country in the early 2000s to a lower-middle income country in recent years (Diao and Li 2020). Since the lifting of economic sanctions in 2013, Myanmar has pursued an export-led growth strategy – which has proved for many of its Southeast Asian neighbors to be an effective economic development strategy – and has worked towards removing barriers to trade and investment to enable private sector growth, job creation, and poverty reduction.

Agriculture, livestock, and fisheries are important sectors of Myanmar's economy, accounting for nearly 30 percent of GDP and 60 percent of employment. The importance of agri-foods to Myanmar's economy is reflected in Myanmar's National Export Strategy, which identifies rice; beans, pulses, and oilseeds; fisheries; textile and garments; forestry products; rubber; and tourism as key export products for value chain development. In addition to these value chains, the Agricultural Development Strategy includes vegetables, coffee, sugarcane, and cattle as priority value chains in which to support agri-business development.

The government has been working with the private sector to develop these value chains. These efforts have the potential to create many jobs throughout these value chains. However, agricultural development has been constrained by poor access to credit, uncertainties in land tenure, and inadequate infrastructure and inputs. Improving agricultural productivity will be essential to expand the potential for agri-food exports and the sustainable and inclusive growth such exports might support.

In this paper we analyze the past performance of key agri-food exports and assess their potential role in the transformation of Myanmar's agri-food system and the overall economy. The second section of this paper provides an overview of Myanmar's agri-food exports in terms of trends and markets. The following section presents an analysis of the potential and constraints of specific agri-food commodities. The fourth section looks at the policy environment for agri-food exports, while the last section concludes, providing policy recommendations for making agri-food exports an important driver of Myanmar's economic takeoff.

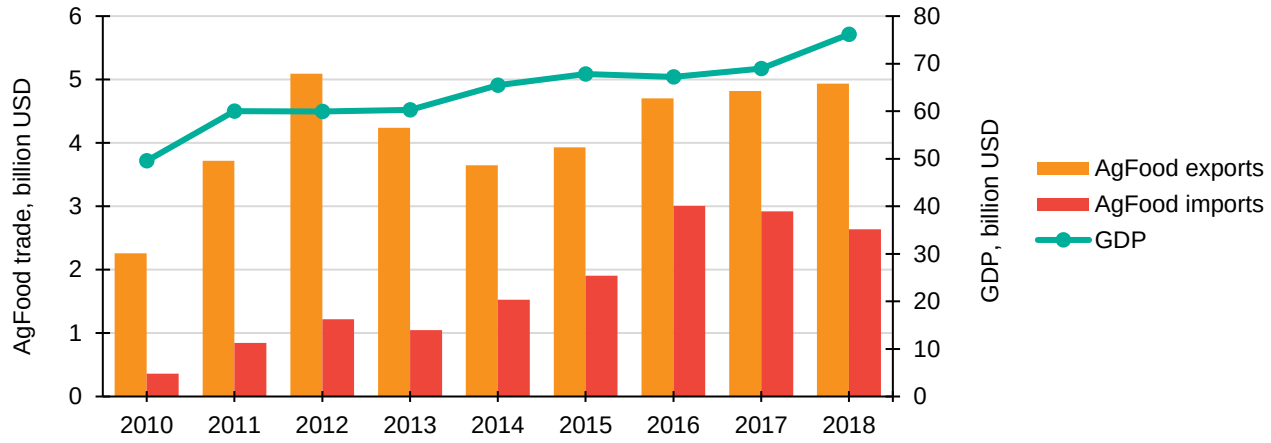
2. OVERVIEW OF MYANMAR'S AGRI-FOOD EXPORTS

Agri-food exports have played an important role in Myanmar's recent accelerated economic growth. The value of agri-food exports rose from USD 2.3 billion in 2010 to USD 4.9 billion in 2018 (Figure 1). The overall share of agriculture in total GDP decreased during this period, which is a commonly seen pattern as economic transformation proceeds. However, values for agri-food exports as a share of total exports and as a share of total GDP both rose between 2018 and 2010, indicating that agri-food exports have grown more rapidly than total exports and the overall economy (Diao and Li 2020).

Agri-food exports are undoubtedly one of the significant drivers for broad growth of Myanmar's total GDP and agricultural GDP. Moreover, agri-food exports account for approximately one-third of total exports, thus making Myanmar a net exporter in agri-food trade. As shown in Figure 1, the value of agri-food exports has been almost double that of agri-food imports in recent years. When measured by export volume and in comparison to GDP at constant value, agri-food exports grew more rapidly than GDP (Figure 2). Further opening of Myanmar's economy and policy measures to liberalize exports will contribute to continued growth in agri-food exports (World Bank 2014). Agri-

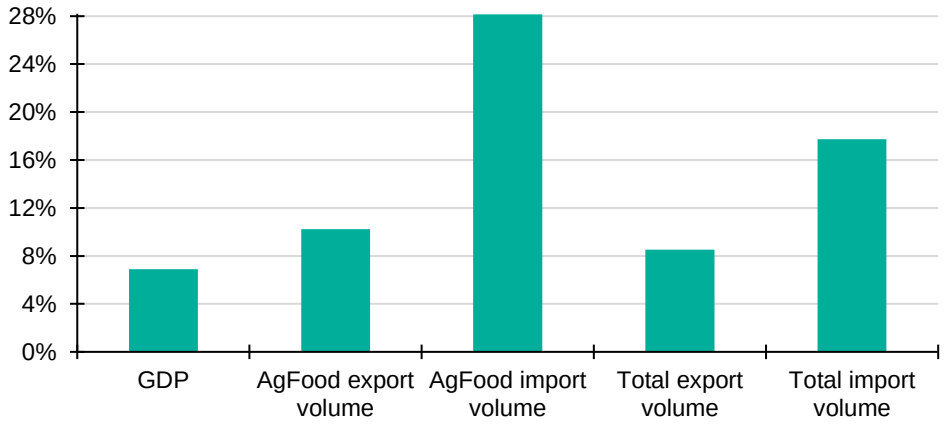
food exports have also been a source for foreign exchange earnings to reduce the total trade deficit – a deficit that started in 2012 (Figure 3).

Figure 1. Myanmar's GDP and agri-food trade, 2010 to 2018, current billion USD



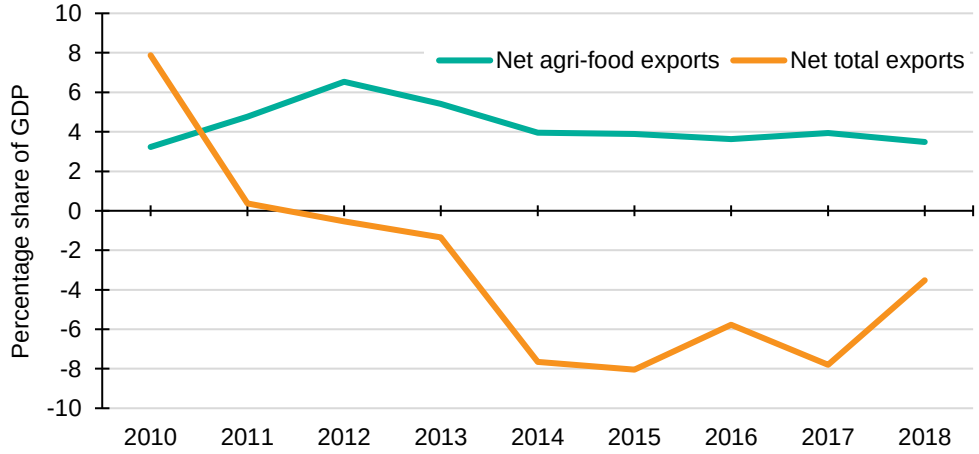
Source: Authors' calculation from World Development Indicators (World Bank 2020).

Figure 2. Annual growth rates of Myanmar's GDP and volumes of agri-food and total exports and imports, 2010 to 2018 average



Source: Authors' calculation from World Development Indicators (World Bank 2020).

Figure 3. Net agri-food exports and net total exports, as percentage share of Myanmar's total GDP, 2010 to 2018



Source: Authors' calculation from World Development Indicators (World Bank 2020).

The importance of the Asian market to Myanmar's agri-food exports

Asia remains the most important agri-food export market for Myanmar – about 80 percent of Myanmar's agri-food exports go to Asian markets. China and India are Myanmar's primary agri-food export markets. Despite Myanmar being a member of the Association of Southeast Asian Nations (ASEAN), the Southeast Asian market is not a significant destination for Myanmar's exports. Table 1 shows annual average imports in current USD million and the share of total Myanmar exports for the ten largest importers of Myanmar's agri-food products between 2014 and 2018, alongside figures from between 1998 and 2002, the earliest five-years in the Base pour l'Analyse du Commerce International (BACI) international trade database at product-level used for our analysis.

Table 1. Top ten countries importing Myanmar's agri-food exports between 2014 and 2018

	5-year average (USD million)		Share in total agri-food exports (%)	
	1998-02	2014-18	1998-02	2014-18
China	17	1,237	3.8	35.1
India	125	722	27.8	20.5
Thailand	30	269	6.7	7.6
Japan	62	130	13.7	3.7
Malaysia	41	125	9.2	3.5
Singapore	62	71	13.7	2.0
Korea	6	68	1.2	1.9
Indonesia	15	66	3.3	1.9
United Arab Emirates	0	63	0.0	1.8
Viet Nam	1	59	0.1	1.7
Ten countries total	357	2,808	79.5	79.6
ASEAN total	150	614	33.5	17.4
China, India, Japan, & Korea	209	2,156	46.5	61.2

Note: ASEAN total includes exports to all nine ASEAN member countries.
Source: Authors calculation using data from BACI (2020).

China has surpassed India to become the most important importer of agri-food products from Myanmar. China imported approximately 35 percent of Myanmar's agri-food exports, valued at approximately USD 1.2 billion per year between 2014 and 2018. This represents a large jump from import levels in the period from 1998 and 2002, when the Chinese market accounted for less than 4 percent of Myanmar's total agri-food exports at only USD 17 million per year. Although, India's share of Myanmar's agri-food exports fell from 27.8 percent in the 1998 to 2002 period to 20.5 percent between 2014 and 2018, it still remains one of the most important markets for Myanmar. Japan and Korea are also among of the top ten importers. Together China, India, Japan, and Korea account for 61.2 percent of Myanmar's total agri-food exports between 2014 and 2018.

ASEAN countries accounted for one-third of Myanmar's total agri-food exports between 1998 and 2002. However, their share of agri-food exports fell to 17.4 percent over the period 2014 to 2018. The United Arab Emirates (UAE) is the only non-Asian country in the list of top ten agri-food importers from Myanmar. Overall, approximately 80 percent of Myanmar's agri-food exports are sent to these ten countries. Given this high degree of export concentration, the aggregate share of these countries in total agri-food exports is surprisingly stable, although individual country shares may vary significantly between the two periods e.g., China, Japan, and Singapore.

Concentration in agri-food exports

At the HS 4-digit commodity classification level used in product-level international trade databases, Myanmar exports about 150 agri-food commodity items, a number much smaller than the items

exported by Thailand, Viet Nam, Malaysia, Philippines, and Indonesia, all of which export 200 or more agri-food commodity items. Despite exporting about 150 agri-food commodity items, Myanmar's agri-food export trade is highly concentrated in a few commodities. Using the five-year average export value between 2014 and 2018, we identified the ten most important export commodities or commodity groups (Table 2; Figure 4 shows their export values over the period from 2005 to 2018). These are pulses, fish, rice, rubber, maize, cattle, groundnut, sesame, melons,[1] and onions, which together account for more than 80 percent of total agri-food exports. There has not been much change to this group of export commodities since the early 2000s – only groundnut and melons are new to the list in recent years.

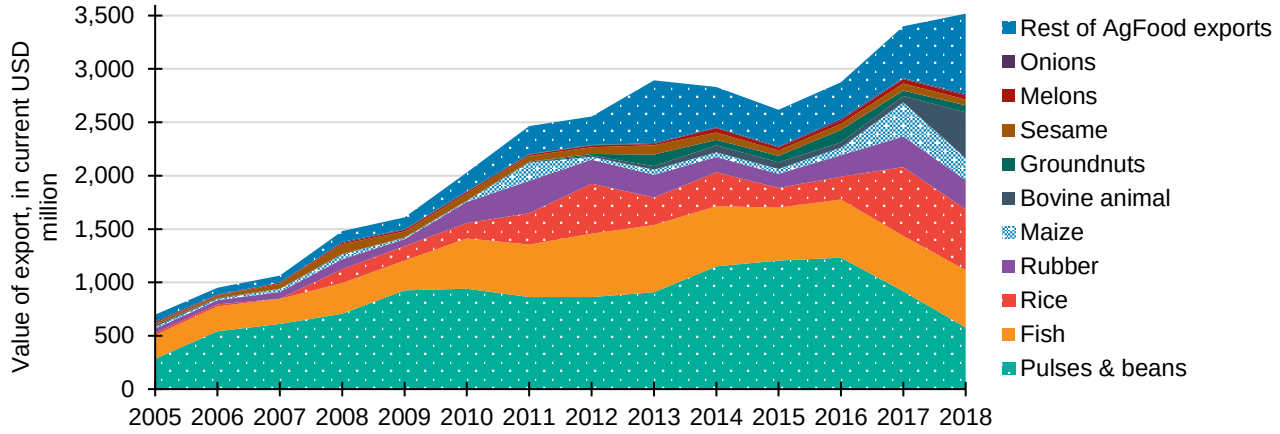
Table 2. Myanmar's top ten agri-food export commodities or commodity groups by value between 2014 and 2018

	Rank		5-year average (USD million)		Share in total agri-food exports, %	
	1998-02	2014-18	1998-02	2014-18	1998-02	2014-18
Pulses	1	1	162	982	36.1	30.5
Fish	2	2	159	525	35.4	16.3
Rice	3	3	24	403	5.5	12.5
Rubber	4	4	15	223	3.3	6.9
Maize	8	5	6	160	1.4	5.0
Bovine animal	6	6	10	134	2.3	4.1
Groundnuts		7	0	69	0.0	2.2
Sesame	5	8	11	58	2.6	1.8
Melons		9	0	32	0.0	1.0
Onions	7	10	9	12	2.1	0.4
Top 10 total	--	--	397	2,598	88.7	80.6

Note: Sugar products are excluded from total agri-food exports. Sugar exports are dominated by exports to China for two reasons: (1) reexport of sugar imports from India and Thailand (Global New Light of Myanmar 2019; Bangkok Post 2018), and (2) recent Chinese investment in sugar plantations in Myanmar, which directly supply the Chinese market. A significantly lower share of fish and other seafood in total agri-food exports in the 2014 to 2018 period is due to sharp declines in shrimp exports relative to other agri-food exports. Shrimp exports accounted for about 30 percent of total agri-food exports between 1998 and 2002 but only about 2 percent more recently.
Source: Authors calculation using data from BACI (see Gaulier & Zignago 2010).

[1] Exports of bananas have become increasingly important in recent years, too.

Figure 4. Value of exports of top agri-food commodities between 2005 and 2018 from Myanmar by commodity, in current USD million



Note: Sugar products are excluded from total agri-food exports in the calculation.
Source: Authors calculation using data from BACI (2020).

3. FUTURE AGRI-FOOD EXPORTS–ITS ROLE IN MYANMAR'S ECONOMIC TAKEOFF

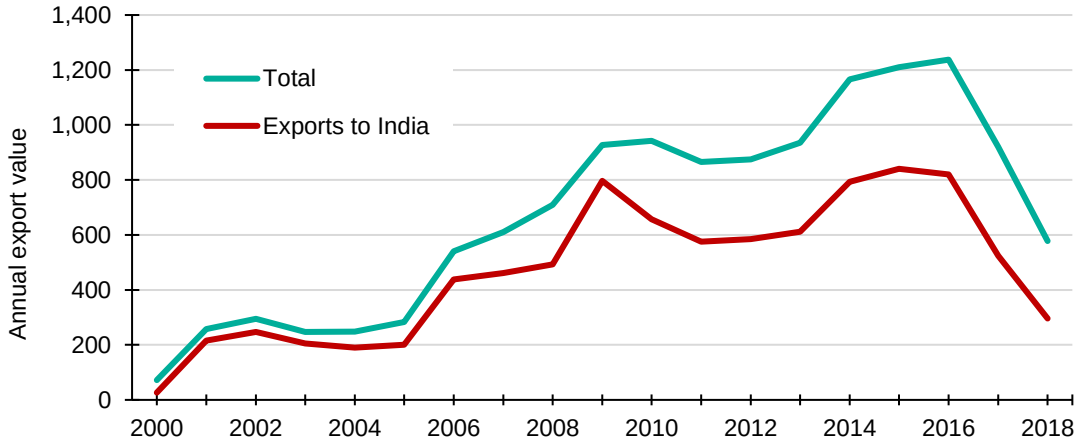
This section focuses on the agri-food commodities that can play important roles in the economic development of Myanmar's agri-food export sector. We primarily rely on an open-access international trade database, Base pour l'Analyse du Commerce International (BACI), developed by CEPII, a French center for research on the world economy (Gaulier & Zignago 2010). The BACI database is built on the United Nations International Trade Statistics Database (UN COMTRADE), which is based on data reported directly to the UN by individual countries. UN COMTRADE, which is managed by the United Nations Statistics Division, covers bilateral trade flows with commodity-level detail among 200 countries or areas. BACI uses a standard procedure to reconcile the declarations of the exporter and the importer, which may differ in the original data reported by each country (Gaulier and Zignago 2010). The BACI dataset provides disaggregated data on balanced bilateral trade flows for more than 5,000 products.

Pulses

Pulses, including beans, are the most important agricultural commodity group for export in Myanmar, accounting for almost one-third of total agri-food exports annually valued at between USD 1.0 billion and 1.4 billion in recent years (Table 1). Pulses are primarily grown by smallholder farmers across the country with between 30 and 40 percent of production destined for export (MOALI 2020). The export of pulses has grown rapidly in recent years, with the exception of 2017 and 2018, when an import quota was imposed by India on Myanmar's pulse and bean exports (Boughton, Haggblade, and Dorosh 2018). Pulses are expected to play an important role in the growth of agri-food exports from Myanmar for the immediate future and to continue to make an important contribution to inclusive growth in agriculture to benefit many smallholder farmers.

Myanmar has exported pulses to India since the early 1990s, and the Indian market will continue to be the primary destination of these exports (Figure 5 and Table 3). India will likely remain the world's dominate consumer of pulses for the foreseeable future, given that its population includes roughly 500 million vegetarians. Myanmar's largest pulse export, black gram, has been used by Indian consumers since ancient times to make dahl (Roy et al. 2017). The Indian market is expected to be a driving force for rapid growth in Myanmar's three major pulses – black gram, green gram, and pigeon pea – and for chickpea as well.

Figure 5. Annual pulse export value, total exports and exports to India, 2000 to 2018, in current USD million



Source: Authors' calculation using data from BACI (2020).

Table 3. Value of pulse exports to selected Asian countries in 1998 to 2002 and 2014 to 2018 periods, in current USD million

	1998-02	2014-18
India	119.7	653.3
Indonesia	4.7	43.0
Malaysia	8.2	33.0
Philippines	0.8	10.0
Thailand	0.1	22.0
Viet Nam	0.0	36.0
Bangladesh	0.3	7.0
China	1.2	35.0
Japan	5.8	23.0
Korea	2.4	7.0
Pakistan	0.0	24.0

Source: Authors' calculation using data from BACI (2020).

Given the importance of the Indian market, long term reliable access with decreased volatility in demand remains key to the future growth of Myanmar pulse exports to the country. The experience with India's import restrictions in 2017 and 2018 led to a complete cessation of black gram and pigeon pea purchases by Myanmar traders, followed by an inevitable collapse in prices. Furthermore, the recent unpredictability of India's quotas has led Myanmar farmers to shift production to other crops. Discussions with the Indian government to improve the predictability and transparency of their pulse import policy are important in the short term. In the long term, Myanmar should explore an agreement to stabilize access to the Indian market. Doing so should result in more stable domestic supply levels and prices. ASEAN has a Free Trade Agreement with India. As a member country of ASEAN, Myanmar should also explore this multilateral channel to resolve trade issues with India that may be challenging to address bilaterally.

However, it is important to recognize that the incentives of Myanmar's farmers, domestic traders, pulse exporters, and the government differ in some respects (Boughton, Haggblade, and Dorosh 2018). Myanmar's farmers clearly benefit from higher pulse prices, but can also reap substantial benefits from measures to promote crop productivity. Meanwhile, Myanmar's domestic traders have little incentive to commit to an international price agreement. Since trader's profits are

largely determined by geographical price arbitrage, their margins are likely to be unaffected by the presence or absence of a trade deal between Myanmar and India specific to pulses. Moreover, speculators benefit from price instability as it provides an opportunity for temporal price arbitrage. Processors of pulses, eager to increase value added through processing and improving quality, would not be interested in continued sales to the Indian market, which they perceive as a market in which low quality produce is preferred, so offers limited price premiums for higher value produce. Finally, the Myanmar government has to balance the desire to support farmers against the significant obstacles to implementing such an agreement, including: 1) a lack of fiscal resources to underwrite potential trader losses, 2) the potential for false declarations by traders in pulses that could greatly increase government costs if it agrees to cover their losses, and 3) the risk of setting a precedent for providing support to special agricultural interest groups that could be demanded by other actors, such as rice producers.

While India is the largest importer of Myanmar's pulses, there are 26 other countries (excluding India) that annually imported over USD 1 million in pulses from Myanmar in recent years and another 35 countries with annually imports over USD 100,000. Between 2014 and 2018, approximately 26 percent of total pulse exports were destinated for Asian countries excluding India, with approximately 15 percent of total pulse exports going to ASEAN member countries, six of which imported pulses valued in excess of USD1 million annually. Green gram from Myanmar, which enjoys a more diversified market compared to other pulses, has a growing number of high-value markets within ASEAN, primarily Thailand, Indonesia and Malaysia. Outside of ASEAN, Bangladesh, China, and Japan are also important importers, with each importing green gram valued at over USD 1 million annually in recent years. Overland exports of green gram to China have become particularly significant recently. Together, non-ASEAN countries account for more than 10 percent of Myanmar's total pulse exports. Table 3 shows the value of exports to select Asian countries in the two subperiods.

According to BACI data more than 50 percent of other leguminous crops (HS code 071390) from Myanmar are exported to countries other than India, with the UAE and Malaysia being important importers. Thus, expanding to other markets outside of India is equally important to the growth of Myanmar's pulse exports. For example, Japan largely imports the same variety of beans that Myanmar exports to India, but Myanmar accounts for less than 10 percent of Japan's total imports of this product. Diversifying beyond the Indian market may also require expanding production and export of other varieties that have large markets outside of India, but Myanmar only exports other varieties of pulses in small quantities. For instance, Bangladesh imports a different variety of bean from India. While Myanmar produces this variety, Myanmar accounts for a small share of Bangladesh's imports of it.

There is also some potential for growth in high-value and value-added markets. Myanmar exporters currently clean and sort by size only 35 percent of green gram and 10 percent of pigeon pea exports (Kyaw Myint 2014). In recent years, large Myanmar traders have made forays into high-value niche markets, with particular success with large-sized green gram, preferred for making bean sprouts in many wealthy Asian countries. Europe could be an important potential additional market for this high value product, which could offer high returns if Myanmar is able to meet their quality and traceability requirements.

Expanding the supply of quality value-added pulses will require investment in storage to achieve sufficient inventory as well as processing facilities to ensure year-round supply to foreign customers. To achieve this, foreign companies will need to be allowed to trade in the domestic market and to purchase and locally store adequate raw material to make an investment in such processing facilities profitable. Opening up the domestic pulse market to foreign investors, while also ensuring that local traders have access to equivalent financial services, will enhance the level

of investment and liquidity in the market and provide more stable and consistent price and quality incentives to Myanmar farmers (Boughton, Haggblade, and Dorosh 2018).

Rice

Rice regained its status as an important export crop after Myanmar liberalized its rice export policy in the late 2000s and early 2010s, removing many restrictions on rice exports (World Bank 2014). According to MOALI (2020), between 10 and 15 percent of rice production is produced for export. The value of rice exports doubled between 2011/12 and 2018/19 reaching USD 700 million. Using BACI data, rice's share of total agri-food exports has more than doubled from 5.5 percent in 1998-2002 to 12.5 percent in 2014-2018 (Table 2). However, both BACI and MOALI data may significantly underreport rice exports to China, which those sources report having surged to 1.5 million tons per year in 2013-2016. Much of the rice exported to China from Myanmar uses informal trade channels, so this figure is likely underestimated by up to one million tons per year (Dorosh, Myat Thida Win, and van Asselt 2019). Based on other sources (e.g., Dorosh 2019; USDA 2020), Myanmar's rice exports are now likely to be as important as pulse exports in terms of export value, reaching USD 900 million in 2019/20 (U Ye Min Aung 2020) instead of the USD 500 million recorded in the BACI database.

In contrast to pulses, Myanmar has a more diverse set of trading partners for its rice exports. This is encouraging given that global demand for rice is projected to continue growing over the next 10 to 15 years (World Bank 2014). Taking advantage of duty-free access to the European Union market, Myanmar rice exports to European countries reached USD 140 million per year between 2014 and 2018, making that market the largest destination of Myanmar formal rice exports. BACI shows that Myanmar exported rice valued at more than USD 10 million per year to 15 countries over the period from 2014 to 2018, of which five are European countries (Table 4). More than 30 other countries annually import rice from Myanmar valued at over USD 1 million (Table 4), while another 40 countries imported rice from Myanmar at a value of over USD 100,000 per year.

Myanmar is not the dominant rice exporter to many of these key rice importing countries. This means that there is a smaller risk of market interruptions and price fluctuations caused by changes in the rice import policies of individual importing countries compared to what is seen for Myanmar's pulse exports to India. Thus, to expand rice exports, Myanmar will need primarily to focus on the supply side by increasing land and labor productivity. For example, it is estimated that closing the rice yield gap so that productivity levels in Myanmar are closer to those of Viet Nam could generate about 13 million tons of surplus available for export (World Bank 2014).

To export more, attention will also need to be paid to the quality of rice. Currently, most exports from Myanmar are of low quality. In addition to low quality rice not generating more export earnings, it also provides limited income to farmers and other actors along the rice value chain. To improve rice quality for exports, modernizing rice industries and diversifying to higher value rice varieties for export markets is key. In this regard, there is strong regional competition from Viet Nam and Cambodia. Viet Nam no longer only exports low quality rice, as it did in the early 1990s. High quality rice has made up about 40 percent of the country's total rice exports in recent years. For Cambodia, the government's strong commitment to export-led rice sector development has been implemented by creating a liberal and improving business environment and not through government interventions in trade or price support mechanisms. This allows the country to attract significantly more foreign direct investment in rice milling than Myanmar does (World Bank 2014).

Table 4. Myanmar rice exports in the periods 1998 to 2002 and 2014 to 2018 to countries importing rice valued at over USD 1 million per year in 2014-2018, in current USD million

	1998-02	2014-18		1998-02	2014-18
Europe	**6.3**	**151.0**	**Africa**	**30.4**	**128.6**
Belgium-Luxembourg	0.5	38.9	Côte d'Ivoire	14.6	37.7
Russian Federation	0.2	14.9	Guinea	3.4	24.2
Poland	0.1	14.3	Madagascar	0.0	19.2
Germany	0.0	14.0	Cameroon	4.4	12.2
France	0.0	10.0	Burkina Faso	0.8	10.2
United Kingdom	0.0	9.7	Ghana	0.0	8.8
Bulgaria	1.2	8.5	South Africa	0.0	2.5
Spain	0.0	7.8	Togo	0.0	3.0
Netherlands	0.0	7.0	Senegal	1.4	2.5
Czech Republic	0.0	5.5	**Other Asia**	**3.8**	**105.8**
Italy	0.0	3.3	Bangladesh	3.7	22.9
Portugal	0.0	2.5	Sri Lanka	0.0	26.4
Lithuania	0.0	2.4	Afghanistan	0.0	9.5
Greece	0.0	2.3	India	0.0	5.0
Romania	0.4	1.8	Japan	0.0	1.7
Hungary	1.2	1.3	Turkey	0.0	1.1
Croatia	0.0	1.2	Taiwan, China	0.0	1.1
Denmark	0.0	1.2			
ASEAN	**9.7**	**36.1**			
Indonesia	5.3	13.2			
Singapore	3.5	7.5			
Philippines	0.0	6.3			
Malaysia	1.0	3.9			
Viet Nam	0.0	3.5			
Thailand	0.0	1.4			

Note: BACI data captures formal trade only and most Myanmar rice exports to China were not captured in the dataset. Therefore, we exclude China in the table.
Source: Authors' calculation using data from BACI (2020).

However, rice exports to China have a different story. Low quality rice dominates Myanmar rice exports in recent years. Most of these exports went to China. While Myanmar considers such rice exports to be legal and documents them, the Chinese government views most of them as illegal and to not officially exist since most of these movements of rice from Myanmar into China evade a large import tariff of 37 percent. Consequently, trade figures for rice from the BACI database we use, which balances bilateral trade flows between importers and exporters, likely relies primarily on Chinese import figures, so will not capture all rice imports into China from Myanmar. This is also evident in the decline in the price of rice that occurred in mid-2016, when China stopped rice imports through the main land entry point near Muse in Shan State (Dorosh, Myat Thida Win, and van Asselt 2019). BACI barely captures this 2016 decline in Myanmar's rice exports, suggesting that the database significantly underreports rice exports to China. Moreover, while China imports large quantities of broken rice from Myanmar, Myanmar's broken rice exports only account for between 10 and 20 percent of its total rice exports in BACI, further indicating that a large amount of Myanmar's rice exports to China are missing in the BACI database.

Myanmar signed a barter trade agreement with China in 2019 that increased rice exports fourfold to 400,000 ton per year. This agreement with China will provide farmers, the milling sector, and merchants more stability over income that is not subject to border closures and the price volatility associated with smuggling (Lindsay 2019). This may help Myanmar export varieties of long-grain rice that are difficult to sell in European markets. Furthermore, in early 2020, Myanmar reached an agreement with the General Administration of Customs of China under which 43 companies and 79 rice mills in Myanmar would be registered with the customs authority and allowed to export rice to China via all border entry points. As a result, it is expected that exports of broken and other low quality rice will increase significantly, as such low cost rice is a major raw material for making noodle products in China.

Overall, the export channels for rice to China have thus far benefited Myanmar producers and exporters. Through improvements in quality and increases in rice production, Myanmar could expand its rice exports to both China and the broader international markets. This would provide great benefits, not only for Myanmar's rice sector, but for the country's rural development in general (Dorosh, Myat Thida Win, and van Asselt 2019).

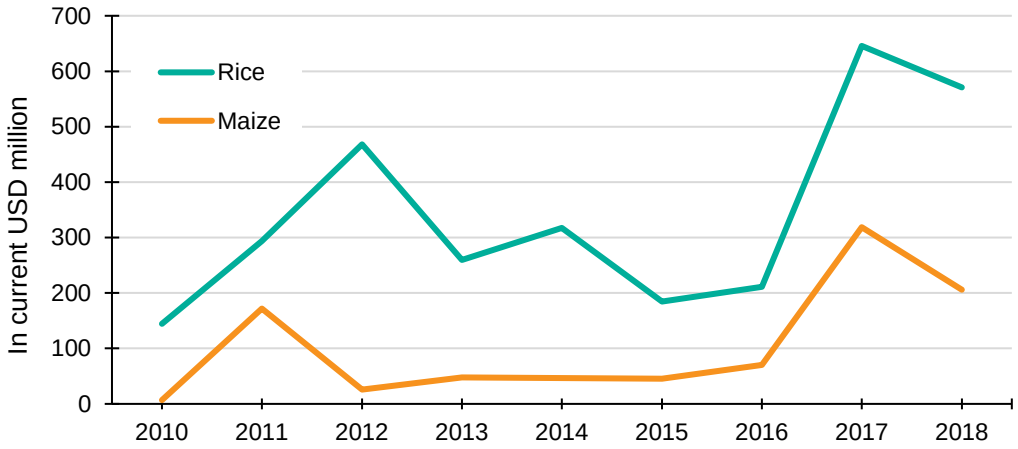
Increasing Myanmar's competitiveness in the global rice market also requires that policies and public services be put in place to create a favorable investment climate for farmers, millers, traders, and logistics service providers to improve efficiency along the entire rice value chain. In addition to farm level productivity, which is lower than that in most of Myanmar's neighboring countries, inefficiencies in the milling sector further lowers the country's competitiveness in exports. According to the World Bank (2014), most rice mills operate with outdated processing units, leading to about 20 percent losses in quality and quantity during milling. The average milling ratio for paddy is below 60 percent, much lower than in neighboring countries. Upgrading and modernizing the milling industry requires a policy environment that encourages foreign direct investment and enables domestic mills to gain access to long-term credit, technical and managerial knowhow, and low cost and reliable electricity. Reducing export costs is also crucial. Myanmar has the highest export cost for rice among ASEAN countries (Bouët and Laborde 2019). This is not only due to infrastructural conditions in Myanmar's ports that makes Yangon port among the most expensive ports in the world (World Bank 2014), but also due to the costs of doing business, including the time required for export approval and to complete other regulatory procedures.

Maize

The importance of maize for export has grown in recent years (Figure 6). Maize's share of total agri-food exports grew to 5 percent in 2014-2018, rising from 1.4 percent in 1998-2002 (Table 2). The value of maize exports may possibly reach USD 400 million in 2019/2020 (U Ye Min Aung 2020), doubling the level recorded in BACI for 2018. Approximately 60 percent of maize production in Myanmar is for export (MOALI 2020; USDA 2020). Moreover, as the unit value of maize is higher, it is a more attractive crop than rice for farmers. While production of maize, measured by harvest area and production, is only 7 percent that of rice, maize exports were approximately 40 percent the value of rice exports in 2018/19 (MOALI 2020).

Studies have shown that maize is more profitable than rice at the farm level. Fang and Belton (2020) found rapid expansion of maize production in southern Shan State, which produces about half of the country's maize. The number of maize growers in southern Shan State tripled between 2007 and 2017. This increase was driven both by the rising domestic demand in feed grains and growing export opportunities to China.

Figure 6. Rice and maize exports, 2010 to 2018, in current USD million



Note: Rice exports could be underreported due to part of cross border exports to China not being recorded in BACI.
Source: Authors' calculation using data from BACI (2020).

Table 5. Myanmar maize exports to dominant import partners, in current USD million

	1998-02		2014-18	
	Value, USD million	% of total	Value, USD million	% of total
China	0.1	2.5	129.6	91.6
Viet Nam			5.7	4.0
Philippines			3.2	2.3
Malaysia	1.5	37.1	1.0	0.7
Taiwan, China	0.1	3.0	0.6	0.4
Thailand	0.0	0.3	0.5	0.4
Sri Lanka	0.1	1.9	0.3	0.2
Singapore	1.4	34.5	0.3	0.2
Hong Kong	0.7	16.2	0.2	0.1
India	0.2	4.5	0.1	0.0
Subtotal	4.1	100.0	141.4	100.0

Source: Authors' calculation using data from BACI (2020).

The recent boom in maize exports is led by significant increases in imports to China, which accounted for more than 90 percent of Myanmar's total maize exports between 2014 and 2018 (Table 5). However, the concentration in maize exports to China is highly risky for Myanmar. Frequent interruptions in access to the Chinese maize market, as a result of Chinese import bans to crack down on illegal trade (evading high tariffs on formal trade) and import quotas, are a common complaint of Myanmar's maize farmers and traders. These unpredictable policy changes in China cause price fluctuations that have the potential to crash Myanmar's entire maize market and quash farmers' incentives to expand maize production. Ensuring predictability in export demand for maize can help reduce the risk of price fluctuations and provide information farmers need to make decisions on their maize production targets. A long-term trade agreement with China can help accomplish these goals and create a stable and reliable Chinese market for Myanmar's maize exports. ASEAN has a Free Trade Agreement with China. Taking advantage of this multilateral channel could considerably increase the amounts sold of the broad range of agricultural commodities that Myanmar producers are now supplying to the Chinese market.

Meanwhile, Myanmar can also seek to expand exports to other countries. Currently, Malaysia, the Philippines, Singapore, Viet Nam and Thailand accounts for less than 10 percent of Myanmar's maize exports. However, demand for maize in ASEAN countries is rising (Khin Su Wai 2019) and could be a potentially large market for Myanmar in the future. While maize is commonly grown in

many ASEAN countries, Myanmar has some comparative advantages. Maize is more climate resilient than alternative rainfed crops, requires less labor than many other crops, and production credit is available from traders, all of which can help to lower labor and other production costs (Fang and Belton 2020). While the government does not provide any subsidies to maize farmers, it provides technical assistance, such as training via extension agents on Good Agricultural Practices for certification and pest and disease control during the growing season. Also, there are no trade restrictions for maize exports – permits are required for the export of maize only for sea shipments, not for land border trade. (USDA 2020). As a result, Myanmar's maize exports have the potential to become more competitively priced and increasingly important among the country's agri-food exports.

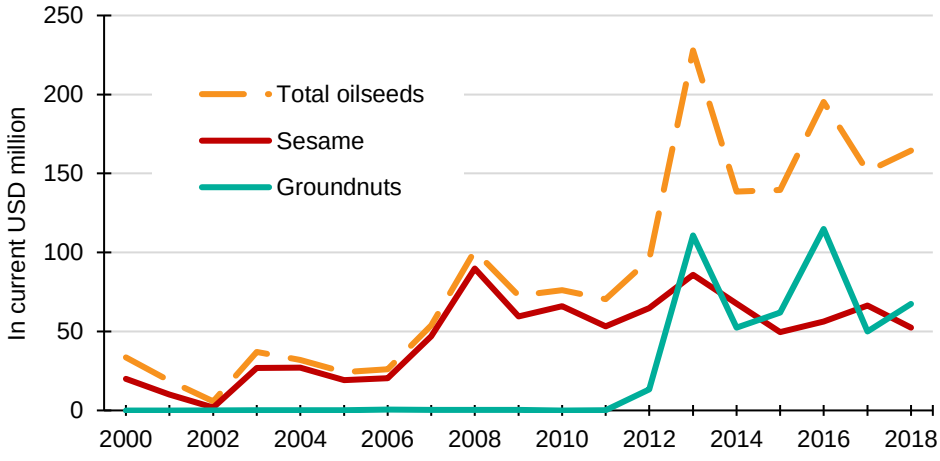
However, similar to rice, expanding exports of maize is primarily constrained by the supply side. Maize yields are less than 4 metric tons per hectare, which are low compared to those of farmers in other ASEAN countries. Countries such as Thailand and Viet Nam, where demand for maize is high due to their highly developed poultry and other livestock sectors, average up to 4.7 metric tons per hectare (FAOSTAT 2020). In addition, quality requirements in the maize markets of many ASEAN countries are more stringent than in China. For example, lack of drying facilities in Myanmar could affect maize quality due to storage pests. Sanitary and phytosanitary certificates are already required for maize exports to China. Expanding exports to ASEAN markets will require improvements in both the productivity and the quality of maize.

High seasonal prices during monsoon months and large price variability are factors that affect incentives for production of maize for export. Increasing price stability through the provision of improved storage facilities can be a good way forward. Because of such price variability, speculation and hoarding behavior are seen as problematic issues in Myanmar's maize markets. Increased use of commodity exchanges and warehouse receipt systems could help in reducing price variability and make Myanmar a more reliable participant in regional and global maize trade.

Groundnut and sesame

Oilseeds, particularly groundnut and sesame, are becoming more significant in Myanmar's agri-food exports (Figure 7). The share of groundnut and sesame in total agri-food exports rose from 2.6 percent in 1998-2002 to 4 percent in 2014-2018 (Table 2). Exports of groundnut and sesame were annually valued at USD 130 million in 2014-2018. The growth of groundnut and sesame exports, which account for 80 percent of all oilseed exports, is more rapid than the growth of overall agri-food exports. Growth of groundnut exports have outpaced sesame in recent years, with exports of sesame seeds stagnating.

Figure 7. Oilseeds exports, in current USD million



Source: Authors' calculation using data from BACI (2020).

Groundnut is primarily exported to China and Thailand, with 65 percent and 31 percent of the export market share, respectively. Six other countries, five in the ASEAN region (Table 6), account for the rest of Myanmar's groundnut exports.

Table 6. Myanmar's groundnut major import partner countries

	1998-02		2014-18	
	In USD 1,000	% of total	In USD 1,000	% of total
China	4	5.1	45,388	65.5
Thailand	11	14.9	21,509	31.0
Indonesia	15	20.1	969	1.4
Taiwan	0	0.0	712	1.0
Malaysia	29	39.8	402	0.6
Singapore	0	0.0	112	0.2
Viet Nam	0	0.0	121	0.2
Philippines	0	0.0	29	0.0
Subtotal	59	80.0	69,242	99.9

Source: Authors' calculation using data from BACI (2020).

The sesame market is more diverse with 19 countries annually importing from Myanmar sesame valued at more than USD 100,000. Table 7 shows the nine major trading partners that imported more than USD 500,000 of sesame per year between 2014 and 2018. Together, these nine countries account for 95 percent of Myanmar's sesame exports. China, Japan, Taiwan, and Thailand each import over USD 3 million of sesame annually from Myanmar.

Table 7. Myanmar's sesame major import partner countries

	1998-02		2014-18	
	In USD 1,000	% of total	In USD 1,000	% of total
China	507	3.8	20,134	32.8
Japan	5,486	41.0	19,764	32.2
Taiwan, China	2,209	16.5	9,951	16.2
Thailand	149	1.1	3,895	6.3
Singapore	3,189	23.8	1,367	2.2
Denmark		0.0	1,054	1.7
Kuwait		0.0	850	1.4
Hong Kong	640	4.8	825	1.3
Korea		0.0	661	1.1
Subtotal	12,182	91.1	58,503	95.3

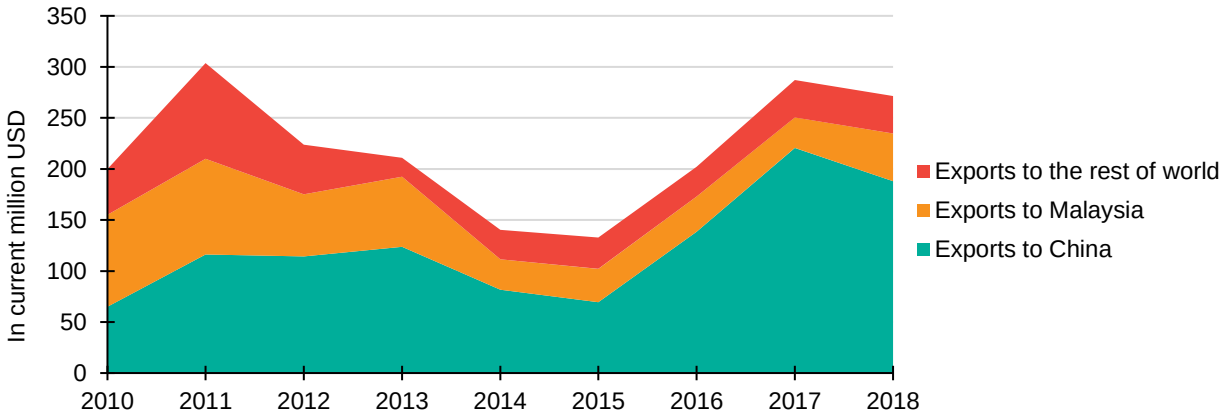
Source: Authors' calculation using data from BACI (2020).

Rubber

The rubber sector in Myanmar was liberalized in 2004, and since then the area planted has tripled. According to the Myanmar Rubber Planter and Producer Association, more than 90 percent of rubber planters are smallholders who own plantations between one and 40 hectares in size. The increasing number of smallholders involved in rubber production has led to an increase from 200,000 hectares planted in 2004 to 640,000 hectares in 2015 (van Asselt, Htoo, and Dorosh 2017).

The downstream rubber market in Myanmar is small, and, hence, almost all rubber is exported. Focusing on the period after 2010, Figure 4 shows that natural rubber exports have been expanding steadily, rising in value from USD 200 million in 2010 to close to USD 300 million in 2017. However, in Asian markets, natural rubber exports from Myanmar are viewed as being of low quality and are highly concentrated in two destination countries, Malaysia and China – the two countries accounted for almost 90 percent of Myanmar's rubber exports in 2018 (Figure 8). Malaysia, one of the world's largest rubber producers and exporters, used to be Myanmar's largest importer, importing inferior grades of Myanmar's block and sheet rubber and processing it into higher grades for tire production or re-exporting. China overtook Malaysia as the largest importer of Myanmar rubber in 2011. Chinese imports are mainly used for domestic tire manufacturing.

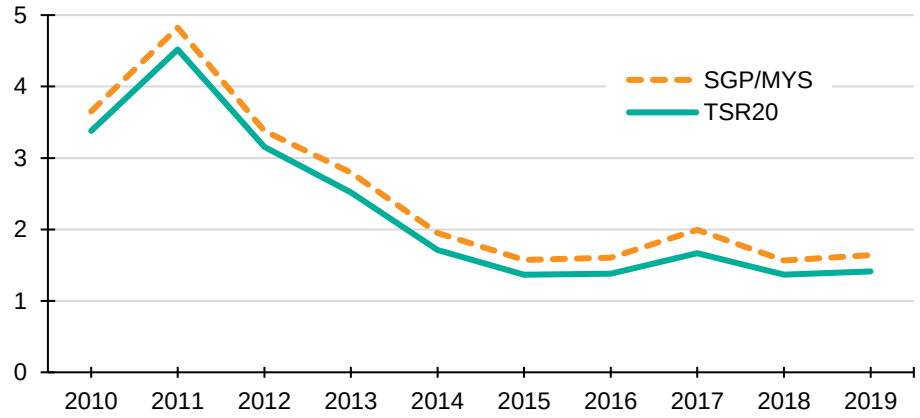
Figure 8. Natural rubber exports, in current USD million



Note: Total value of natural rubber exports was USD 200 million in 2010 and close to USD 300 million in 2017 and 2018, rising from less than USD 20 million in the early 2000s.
Source: Authors' calculation using data from BACI (2020).

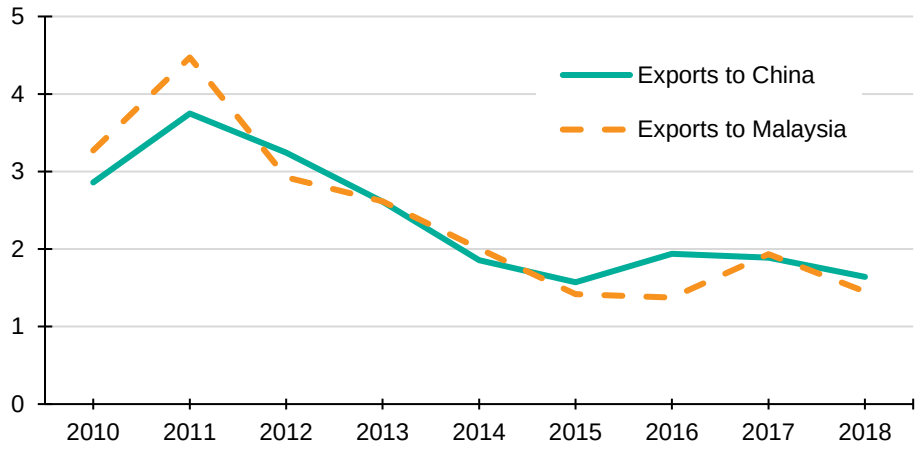
While Myanmar's rubber exports are highly concentrated to these two countries, Myanmar is not a dominant exporter in either market. Hence, it has little power to affect prices in these import markets, which are determined by international rubber prices. Since 2012, the world price of rubber has fallen, mainly due to weak demand in China and other Asian countries (Figure 9). As such, the unit value for Myanmar's rubber exports fell, consistent with this decline in the world price (Figure 10). While rubber prices have stabilized since 2015, they remain at a relatively low level of approximately 30 percent of the 2011 nominal price level. The low price implies lower levels of profitability for rubber farmers and producers in recent years, as it takes five to six years after plantation establishment before latex harvesting becomes profitable.

Figure 9. World natural rubber prices, annual nominal, USD /kg



Note: TSR20 = Technically Specified Rubber grade 20; SGP/MYS = Singapore/Malaysia price.
Source: Commodity price data (World Bank 2020).

Figure 10. Unit value of natural rubber exports, annual nominal, USD /kg



Source: Authors' calculation using data from BACI (2020).

Myanmar has lower yields than other major rubber producing countries, averaging 600 to 800 kilograms per hectare across states/regions, compared to average yields ranging between 1,500 and 2,000 kilograms per hectare in other rubber producing countries in the region. Poor tapping practices are an important factor accounting for these low yields and can lead to a reduced lifespan for the tree. Van Asselt, Htoo and Dorosh (2017) noted that tappers have not been trained in appropriate tapping practices, and more than 70 percent of farmers in Mon State, the largest rubber production state in Myanmar, had no knowledge of the optimal girth or height of the tree before it should be first tapped. Charles and Aung (2015) found that 70 percent of farmers did not know the ideal angle at which to make initial incisions for tapping. These studies emphasized the need for government investment in training rubber producers, in providing improved varieties of rubber, and in providing marketing and certification schemes for improved tapping practices.

Rubber produced in Myanmar is primarily brought to market in the form of Ribbed Smoked Sheets (RSS) and Technically Specified Rubber (TSR) or block rubber. Poor practices in processing rubber into sheets by smallholder rubber farmers also contribute to the low quality. Typically, rubber is mixed in containers with leaves or dirt debris then dried on sand or dirt, during which the rubber sheet absorbs debris. The sheets are then sold to traders for smoking, where traders will further contaminate the rubber by mixing it with rubber from other sources. Van Asselt, Htoo and Dorosh (2017) found that traders interviewed in Mon State felt that the quality of Myanmar's rubber raw material was among the best in the world. However, as a result of poor planting techniques, plantation management, tapping practices, field-level processing, and factory-level processing, the quality of the country's processed rubber is viewed to be quite poor by international rubber traders.

Improving the quality of processed rubber is key to raising prices for exports and making rubber more profitable. However, there are limited incentives for rubber actors to produce higher-quality rubber. At the producer level, smallholders have limited incentive to keep rubber clean during initial processing, as traders buy all rubber sheets regardless of quality, and the price difference for higher qualities is small. Whereas rubber sheets in most countries are generally visually graded based on texture, color, and amount of resinous matter, in Myanmar the grade is determined almost entirely by the thickness of the rubber sheet. Therefore, prices are paid based on weight and not on the true quality of the rubber. Similarly, further down the rubber value chain, traders also have limited incentives to improve the quality of the rubber they sell to processers, as processors buy their rubber by weight and not by physical quality.

At the processor level, there is no certification scheme or public lab to test the quality of rubber. Technologies used to treat rubber during processing are often inadequate and outdated. Processing infrastructure is limited. Most processing plants do not have reliable electricity and must rely on generators to produce electricity, which is costly. There is also a lack of regulations for rubber processors. Although the Ministry of Industry issues licenses for rubber factories to operate, there are no regulations regarding the production processes those factories use. Furthermore, there are no standard operating procedures to control the quality of processed rubber. Consequently, as the quality of rubber cannot be guaranteed, Myanmar's rubber processors will continue to receive a discounted price for their products on the world market.

Van Asselt, Htoo and Dorosh (2017) proposed a set of potential interventions and policy options along the rubber value chain. At the production level, the manner in which rubber trees are planted and maintained throughout their lifetime affects rubber yields. Education programs and training on purchasing improved planting material, planting rubber tree seedlings, using fertilizer, tapping, and collection are necessary to raise awareness of best practices among rubber farmers. Smallholders will also need to be trained in field-level processing and made aware of the different processing inputs available and their uses. Extension—either by government agencies alone or in partnership with universities, agronomists and other experts, local companies, or donors—is essential to improving cultivation management.

Most rubber exporting countries have standards for the technical specifications of block rubber. Some Myanmar factories label their products as Myanmar Standard Rubber (MSR) 10 and 20. However, the quality within each grade varies significantly. Moreover, the quality of MSR 20 is below that of the internationally recognized Technically Specified Rubber grade 20 (TSR 20) and its equivalents. As a result, Myanmar receives a discounted price for what they identify as the same grade.

In consequence, at the processing level, a rubber grading system and a standard payment method for graded rubber will be essential for growth in the rubber sector. Sheets, slabs, and clumps should be graded based on sheet thickness and visual qualities, rather than simply weight at the farmgate. Processors should then only use rubber of the same grade to produce sheets. Testing for the level of dirt, ash, volatile matter, nitrogen content, plasticity, and color is necessary for grading and labeling. The Myanmar rubber industry needs to ensure that products that receive a certain grade are of the correct quality and an appropriate pricing system based on grade needs to be developed. By adopting strict grading, marketing, and payment standards across the rubber value chain, Myanmar will be able to improve prices for producers and develop a competitive rubber sector.

Furthermore, a rubber certification system is also necessary for processors to receive higher prices and access important international rubber markets. The Research, Technology, and Training Center for Rubber Products laboratory is currently charged with evaluating the quality of processed rubber. However, tests are conducted on an irregular basis and the laboratory is not accredited. Myanmar needs to seek the ISO 9000 industrial standard series certification, which is the standard for the rubber manufacturing industry. This certification would help the promotion of Myanmar's rubber product exports, as buyers are increasingly requiring the ISO 9000 standard.

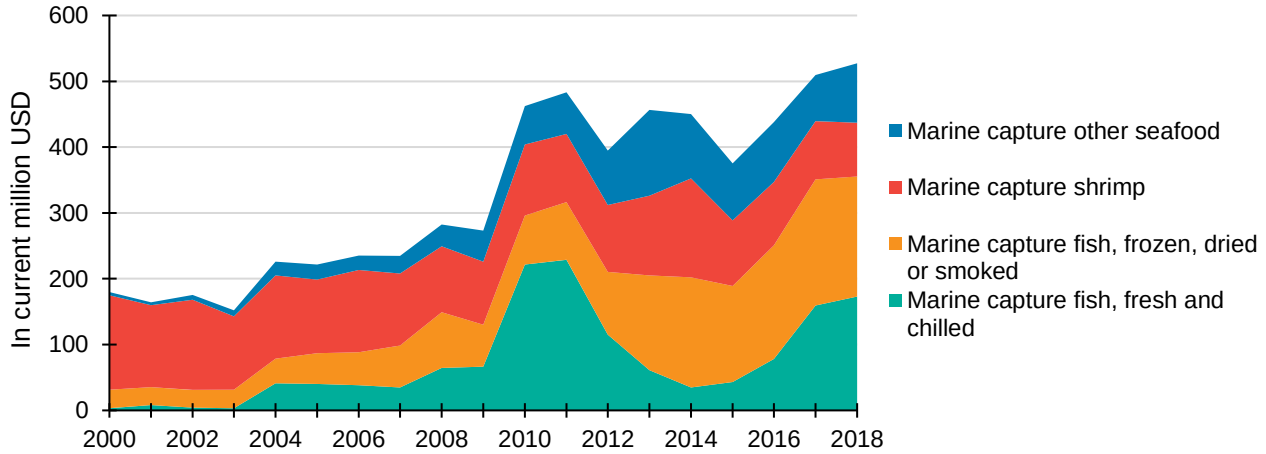
Fishery products[2]

With a coastline of nearly 3,000 km and many rivers, several large estuaries, and numerous offshore islands, Myanmar historically has a comparative advantage in the fishery industry. Also, due to the considerable range of coastal and freshwater habitats, the country exports a diverse list

[2] We define fishery products as including all wild capture and farm marine and freshwater fish and other seafood products.

of fishery products. Based on the HS 6-digit commodity classification scheme, Myanmar exports about 60 fishery products.[3] Together they are one of the most important agri-food export commodity groups (Figure 11). While the catch of wild fish and other aquatic species continued to grow steadily over the past decade, fish exports as a share of total agri-food exports has declined, falling from 35 percent in 1998-2002 when fishery products were the number one export commodity group to 16 percent in 2014-2018 (Table 2). This reduction primarily is a result of a decline in marine capture shrimp and prawn exports, which accounted for approximately 80 percent of total fishery exports between 1998 and 2002. At current prices, annual exports of marine capture shrimp and prawns were valued at USD 150 million in the early 2000s but fell to below USD 100 million between 2014 and 2018 (Figure 11). On the other hand, fish exports have grown more rapidly, particularly fresh or chilled marine capture. The annual value of fish exports was less than USD 10 million in the early 2000s, but had increased to USD 170 million by 2018.

Figure 11. Exports of fishery products, in current USD million



Source: Authors' calculation using data from BACI (2020).

Myanmar's fish exports have a diverse set of markets. Frozen fish, for example, was exported to more than 50 countries between 2014 and 2018, at a value over USD 140 million a year. Eighteen countries imported over USD one million of frozen fish annually in 2014-2018 (Table 8), and together accounted for 96 percent of Myanmar's total frozen fish exports.

[3] BACI data includes 85 fishery items under the HS 6-digit commodity classification scheme. Based on a fishery expert's evaluation, we exclude 19 items that are unlikely to be produced in Myanmar's tropical climate.

Table 8. Myanmar's top 18 frozen fish import partners between 2014 and 2018

	1998-02		2014-18	
	USD 1,000	% of total	USD 1,000	% of total
Saudi Arabia	71	0.4	29,755	21.2
United Kingdom	4,457	23.6	23,778	16.9
United States of America	1,412	7.5	11,760	8.4
Malaysia	4,940	26.2	11,394	8.1
United Arab Emirates		0.0	10,040	7.1
Iraq		0.0	8,607	6.1
Bahrain	70	0.4	4,509	3.2
China	962	5.1	4,494	3.2
Thailand	1,192	6.3	4,479	3.2
Bangladesh	682	3.6	4,276	3.0
Italy		0.0	3,726	2.6
India	154	0.8	3,707	2.6
Qatar	240	1.3	3,617	2.6
Kuwait		0.0	3,172	2.3
Singapore	2,981	15.8	2,525	1.8
Australia	386	2.0	1,940	1.4
Canada	151	0.8	1,742	1.2
Oman		0.0	1,335	0.9
18 countries subtotal	17,699	93.7	134,855	95.9

Source: Authors' calculation using data from BACI (2020).

Myanmar's many wild capture products are unlikely to grow rapidly in the future and prawn fishing is expected to continuously decline. The best prospects for growing exports are through farmed fisheries. Production of farmed shrimp and crab is increasing but starting from a very low base. Farmed freshwater carp has been exported to the Middle East, however this is a limited market, as carp is not widely consumed outside of these Middle East countries. Moreover, the carp importing countries produce the fish themselves.

Myanmar can diversify production of farmed freshwater fish away from carp to other species with wider export market potential, such as tilapia and pangasius. However, it will be difficult for Myanmar to compete with China and Viet Nam, both of which are already established exporters of these species. Furthermore, the profit margins for these species are quite low. With the exception of farmed shrimp, supplying the domestic market as a substitute for the declining production in capture fisheries has the greatest potential for growth of aquaculture in Myanmar.

Cattle

Myanmar has the highest number of cattle and buffalo in Southeast Asia, according to Myanmar Livestock Statistics (2017). These animals have been the most important livestock exports for Myanmar in recent years. Cattle exports rose from USD 50 million annually in 2014-2017 to almost USD 400 million in 2018, when the government implemented a new policy that officially allowed exports of livestock (MoC announcement no. 49/2017). Prior to 2018, cattle exports were restricted as the animals were considered to be key to Myanmar's agricultural production for draught power. However, the rapid development of agricultural mechanization in recent years made them less essential as draught animals, so the regulations were changed to allow the export of cattle.

Prior to 2017, Thailand was the primary importer of Myanmar's cattle. Even though cattle exports were illegal in Myanmar at the time, Thailand placed these cattle into their official system for quarantine, vaccination, documentation, and tagging. China, however, may have been the largest importer of Myanmar cattle at the time (Zhizhi et al. 2018). This is evident in that China became the largest importer of cattle in 2018 after cattle exports from Myanmar became legal. Furthermore, Smith et al. (2019) estimated that in excess of 500,000 cattle were smuggled from Myanmar to China in 2015 alone. By comparison, the Ministry of Commerce shows that 450,000 cattle and 52,000 buffaloes were exported between October 2017 and March 2019.

Myanmar is located at a critical point in the movement of cattle within the region. Myanmar traders arrange to import cattle and buffalo from India and Bangladesh and sell the cattle to Thai traders for fattening, as there is no well-established pasture in Myanmar and grazing is primarily done on fallow land. Chinese traders, who are restricted from taking ownership of cattle in Thailand, visit markets in Thailand and use Thai traders as intermediaries. The Thai traders bring the cattle to the Myanmar border near Chang Rai. The Chinese traders will take ownership of the cattle there and arrange for their transportation by boat on the Lancang river through Myanmar and into China (Smith et al. 2019).

Despite the initial boom in cattle exports, the government of Myanmar implemented new rules in 2019 that essentially halted exports out of concern that the large number of cattle leaving the country were not being replaced, and, thus, the trade would be unsustainable. The new rules require companies that raise cattle to change their land registration in order to qualify for an export license. Land in Myanmar is registered with a specific use. Deviation from that use can result in confiscation of the land. Several studies have looked at the challenges of land use registration in Myanmar (Boutry et al. 2017; Mark and Belton 2020; Mark 2016; Suhardiman et al 2019). This added regulatory barrier resulted in costly delays in the formal cattle export process and provided additional incentives for cattle trade to be done illegally. One report showed how cattle smugglers would work with slaughterhouses close to the Chinese border, who are licensed to transport cattle domestically, to evade local authorities before bringing the cattle across the border (Kyaw Lin Htoon 2020).

Myint, Mu, and San (2018) show that most smallholder cattle farmers have little knowledge about the procedures required for the export of their cattle and primarily sell their cattle to traders in local livestock markets. This is primarily because transportation of cattle across townships is restricted and requires documentation from multiple government departments, which often takes considerable time to secure. Once at the border, verification by the Livestock Breeding and Veterinary Department is required. Traders noted that this process is time consuming and costly because of extra expenses incurred during the verification process, such as feed, shelter, and labor. When these additional expenses are accounted for, Myint, Mu and San (2018) found that profits from illegal exports of cattle are two to three times higher than from formal exports.

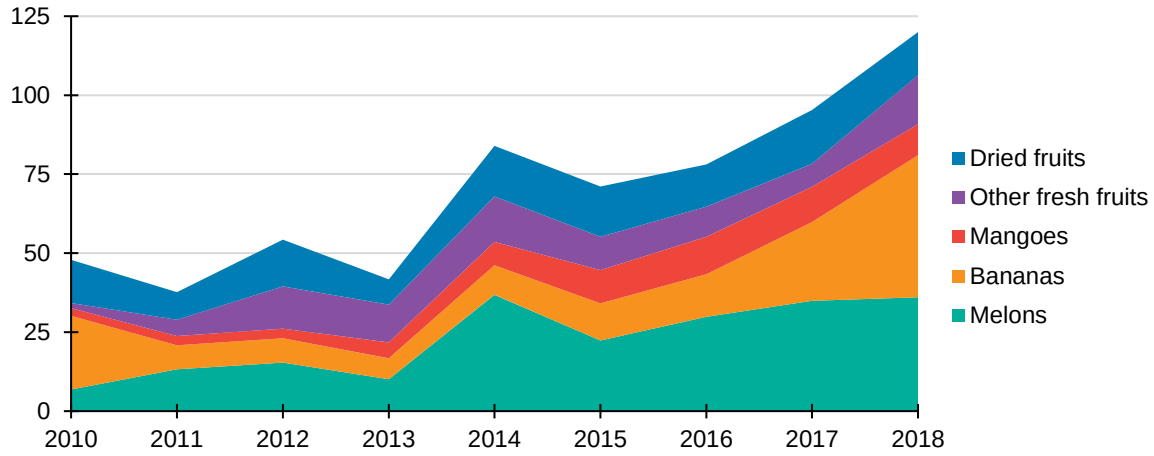
Relatedly, beef exports from Myanmar are new, valued at USD 6 million in 2017 and USD 13 million in 2018. In the domestic market, there is relatively low demand for beef, even though the country has a large population of cattle and buffalo. As consumption of beef has increased in China, the price of beef there tripled between 2007 and 2014. This may present a potential opportunity to expand exports of beef from Myanmar. Beyond China, Middle East beef markets offer potential. Doing so, however, would require more investments in slaughterhouses.

Exportable fruits

Fruit exports have grown rapidly in recent years, dominated by growth in the export of melons, particularly watermelon and muskmelon. The export of melons has grown from almost zero in the early 2000s to being among the top ten agri-food commodities exported in 2014-2018 (Table 2).

Recent growth in fruit exports are also driven by exports of banana (Figure 12). While the data does not differentiate between fresh and dried for each fruit type, given that almost 100 percent of exports went to China would indicate that these are primarily exports of fresh fruits.

Figure 12. Fruit exports from Myanmar, in current USD million



Source: Authors' calculation using data from BACI (2020).

According to the Ministry of Commerce, the top ten export fruits for the period 2018 to 2020 in order were watermelon, muskmelon, tissue-culture banana, mango, orange, traditional banana, avocado, pineapple, apple (Chin), and jujube. Watermelon, muskmelon, mangoes, and jujube are mostly planted in central part of Myanmar and Shan State. Avocado is expanding rapidly in Shan and Chin states, often intercropped with coffee. Apples, known as Chin Taung apples, are grown in Chin state. Pineapple is mainly grown in Northern Shan state and is exported mainly to China via border trade.

Two types of banana are included in the list of the top ten exported fruit, tissue-culture banana and traditional banana. Tissue-culture banana is propagated using tissue culture techniques to maintain seedling quality and is grown mainly in Kachin State. As the production area is close to the border, all products are exported directly to China. Traditional banana is grown in the central parts of Myanmar and in Ayeyarwady Division. Traditional bananas are mainly produced for the domestic market, in which demand has been growing in recent years, but there have been exports to China.

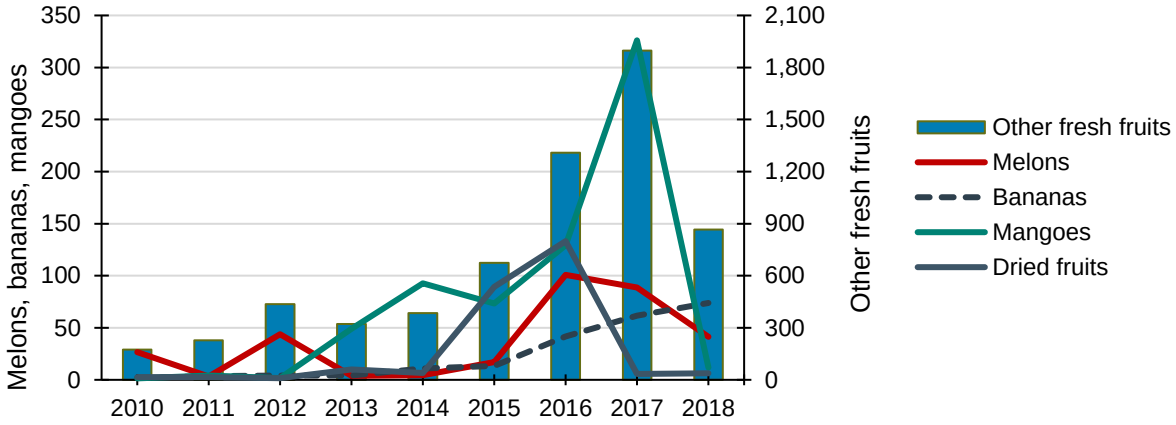
China is the major importer for all fruits exported from Myanmar. Singapore is an important second importer for mangoes. In recent years, European and Middle East countries have developed into new markets for Myanmar fruit products, but these markets require phytosanitary certificates for all fruit imports. With China as a dominated importer, both the prices and quantities of fruit exports are mainly determined by Chinese buyers. Fruit exports are also subject to changes in trade policy across the border in Yunnan Province, China. Moreover, watermelon, muskmelon, mango, and jujube, Myanmar's four primary fruit exports, are restricted to specific border entry points into Yunnan province. Other fruits, including lychee, longan, mangosteen, and rambutan, can be exported through all Chinese border crossing. However, as there is high demand within Myanmar for these fruits, the quantity of exports is low.

Import demand in China for fresh fruits is expected to continue rising. Currently, the Myanmar government is negotiating with the General Administration of China Customs agency for permissions to export tissue-culture banana, pineapple, avocado, pomelo, and other fruits that will benefit growers in Kachin State and in the central part of Myanmar. This could have positive benefits for expanding the production of crops, like tissue-culture banana, which have large and

stable market demand. However, expanding production will require improvements to the supply side, such as stronger input markets and improved logistical and storage facilities.

Fresh fruit exports are also important for Viet Nam. Bananas, melons, and mangoes are all exported by Viet Nam with export value levels that are higher than for Myanmar (Figure 13). This makes Viet Nam a strong competitor to Myanmar in fresh fruit markets outside of China.

Figure 13. Fruit exports from Viet Nam, in current USD million



Source: Authors' calculation using data from BACI (2020).

Efforts are also being made to penetrate new markets, such as the European Union and countries in the Middle East. However, fruit exports to these markets will require that Myanmar meet Good Agriculture Practices and other certification requirements. There are many challenges for Myanmar to meet such requirements. First, while Myanmar farmers have experience in growing these fruits with high export potential, they currently use local varieties and follow conventional production practices. For example, the variety of pineapples commonly grown in Myanmar is perceived to be of a lower quality (sweetness, maturity, and texture) to the pineapples produced in Thailand. Identifying the best varieties for export production will be important. Adoption of international varieties is also taking place. In 2018, the Hass variety of avocado was brought to Myanmar and planted for mass production in Chin and Shan states. These plantations are now at the early production stage and are expected to have the permission of China's customs authorities for export via all points of entry into China.

Furthermore, standardization, quality management, accreditation, and metrology requirements also pose a barrier to expanding to these high-end fruit export markets. The Ministry of Agriculture, Livestock and Irrigation (MOALI) is responsible for certifications, i.e., phytosanitary certificates are issued by the Plant Protection Division and Good Agriculture Practices certificates by the Department of Agriculture. However, MOALI does not have the capacity to issue certain certifications, such as chemical residue certificates. Exporters must rely on private certification companies and private labs in Thailand for such documentation. Moreover, farmers and traders do not have incentives to sort and grade their products. Typically, higher quality fruits are mixed with lower quality ones to maximize the quantity exported. However, this practice leads to lower prices for all fruits exported as the product cannot meet standardization requirements for exports to high-end markets.

As perishable commodities, fresh fruit exports are constrained by seasonality and difficulties in transportation, storage facilities, and other logistical challenges (Wuit Yi Lwin 2020). Farmers and traders have limited access to proper post-harvest facilities. As a result, most fruit exports have little additional value-added, resulting in exports being highly concentrated to a single market with

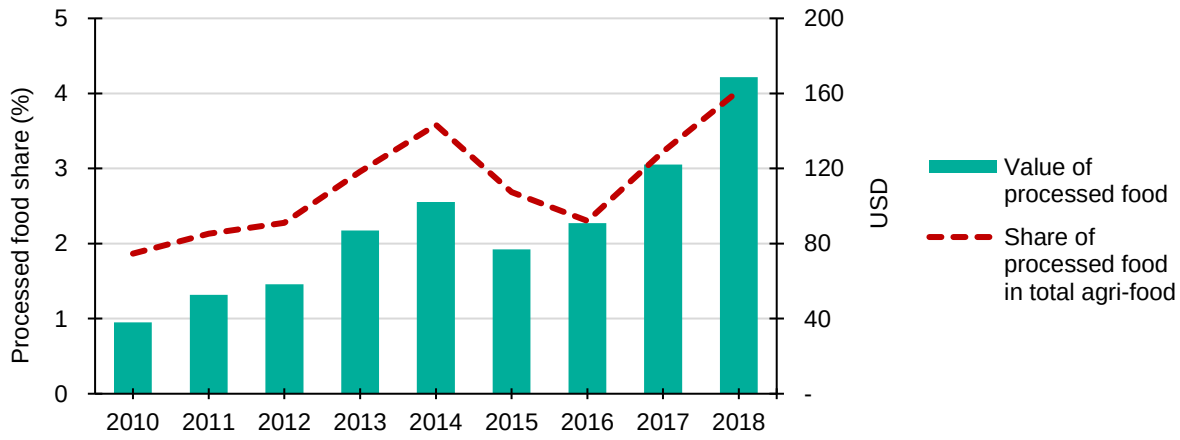
low prices. However, some developments have been made in recent years on value-addition to fruit. For example, two factories that produce mango puree for export and which are jointly owned by Myanmar and foreign investors have been established recently. Additionally, the recent removal of elephant foot yam from the banned export list has led to an expansion in its production and to new investments in processing facilities.

The recent COVID-19 pandemic had made fruit exports difficult as border closures have restricted the flow of goods to China, Thailand, and India. Notably, borders with China were closed at the peak of the harvest season for melons and mangoes in April 2020. This demonstrated the high risk of having exports concentrated to a single market for such perishable exports (Diao et al. 2020). According to the Myanmar Fruit, Flower and Vegetable Producer and Exporter Association, losses from the COVID-19 related border closures and travel restrictions on melons alone are estimated to have been USD 65 million.

Development of processed foods for exports

While agri-food exports have grown rapidly and been an important engine to broad economic development in recent years, processed agricultural exports have played a much more modest role in Myanmar's total agri-food exports. Processed foods, excluding minimally processed and unprocessed agricultural products, account for 2 percent in 2010 to 4 percent in 2018 (Figure 14) of total agri-food exports.

Figure 14. Value of Myanmar's processed food exports and share of processed food exports in total agri-food exports, in current USD million

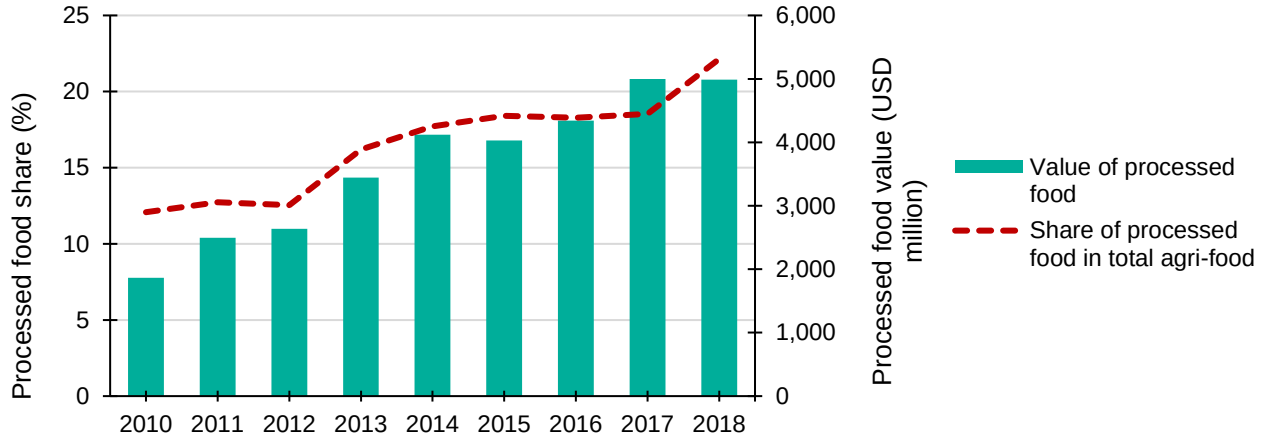


Note: Manufactured tobacco products are excluded. We also exclude sugar and sugar processing because processed sugar products are dominated by exports to China possibly from the reexport of sugar imports from India and Thailand and/or Chinese owned sugar plantations in Myanmar.
Source: Authors' calculation using data from BACI (2020).

Processed food exports were valued at USD 38 million in 2010 and USD 170 million in 2018 (in current prices). However, a relatively rapid rise in processed food exports between 2010 and 2014 flattened out in the following two years. Growth resumed in 2017 and 2018, while the share of processed foods in total agri-food exports was 4 percent in 2018, slightly higher than the 3.6 percent in 2014.

In contrast to the situation in Myanmar, processed food exports play a much larger role in Viet Nam's agri-food exports and continue to rise steadily (Figure 15). Viet Nam's processed food exports were valued at USD 1.9 billion in 2010 and USD 5.0 billion in 2017 and 2018. These exports account for about 13 percent of total agri-food exports in 2010 and 22 percent in 2018.

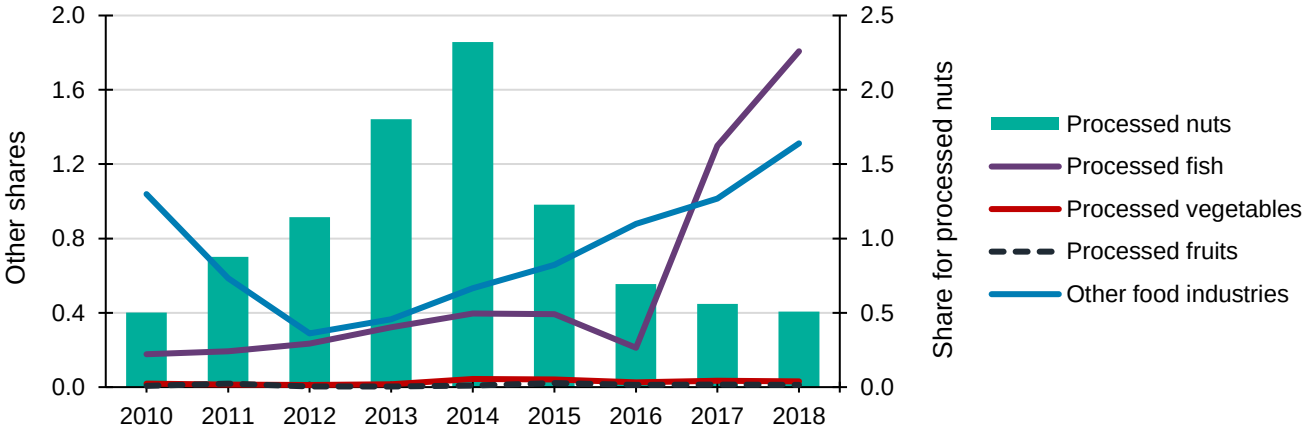
Figure 15. Value of Viet Nam's processed food exports and share of processed food exports in total agri-food exports, in current USD million



Note: To be consistent with the figure for Myanmar, both manufactured tobacco products and sugar and sugar processing are excluded.
Source: Authors' calculation using data from BACI (2020).

Figure 16 breaks down Myanmar's processed food exports into subgroups and shows their shares of total agri-food exports. Rising trends of processed food exports between 2010 and 2014 were mainly driven by processed nut exports. However, these fell sharply from 2015. From 2010, almost all processed nuts were exported to South Korea. While Myanmar's exports to South Korea fell significantly after 2014, South Korea's total imports of processed nuts from the rest of world continue to rise. Thus, it is possible that other countries may have replaced Myanmar as the main suppliers of processed nuts to the South Korean market.

Figure 16. Share of selected processed food commodity groups in total agri-food exports in Myanmar, percent

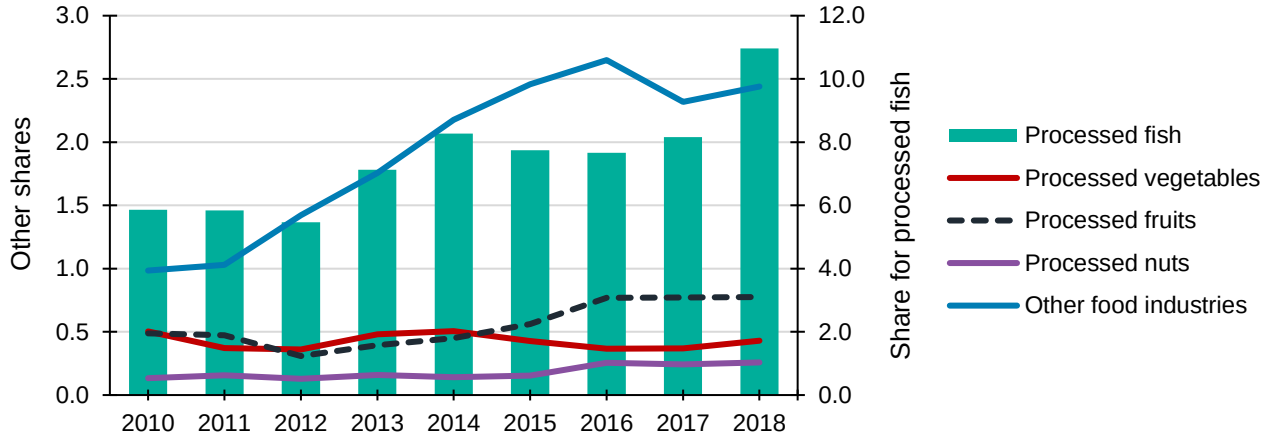


Note: 1) Processed vegetable products include preparations of various vegetables. 2)Processed fruits are jams, juices and other fruit products. 3) Processed nuts include groundnut and other seeds. 4) Processed fish includes preparations of various fisheries and other seafoods such as shrimp, prawns, crabs and others.
Source: Authors' calculation using data from BACI (2020).

In 2017 and 2018, processed fish jump up from second to become the most important processed food export. The share of processed fish of total agri-food exports rose from below 0.4 percent in 2010-2016, to 1.3 percent and to 1.8 percent in 2017 and 2018, respectively. However, compared with Viet Nam, processed fish plays a smaller role for Myanmar's agri-food exports. In Viet Nam, processed fish is the largest of the country's processed food exports, accounting for 11 percent of total agri-food exports in 2018, rising from 6 percent in 2010 (Figure 17). Viet Nam's

growth in processed food exports is mainly led by growth in processed fish, which accounts for 50 percent of total processed food exports.

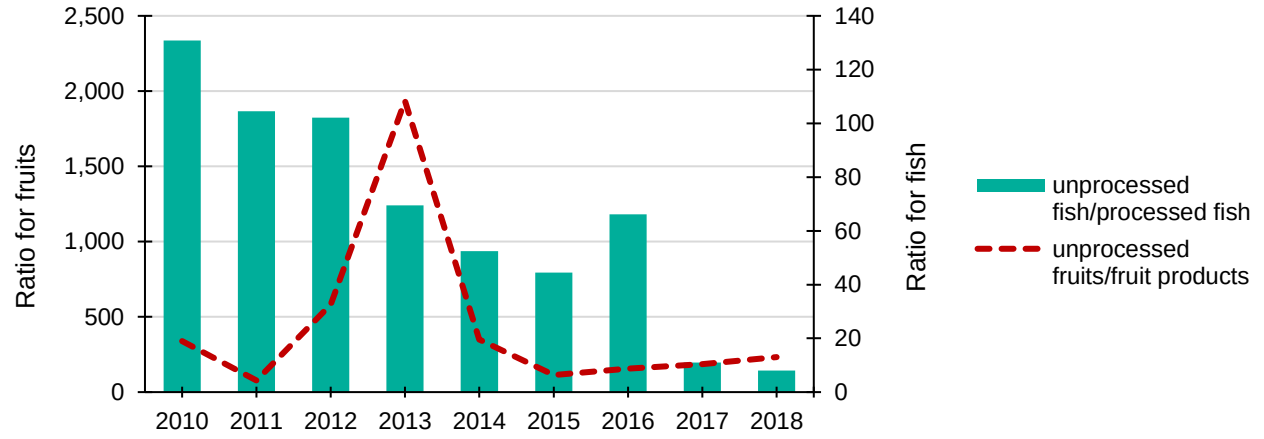
Figure 17. Share of selected processed food commodity groups in total agri-food exports in Viet Nam, percent



Note: 1) Processed vegetable products include preparations of various vegetables. 2) Processed fruits are jams, juices and other fruit products. 3) Processed nuts include groundnut and other seeds. 4) Processed fish includes preparations of various fisheries and other seafoods such as shrimp, prawns, crabs and others.
Source: Authors' calculation using data from BACI (2020).

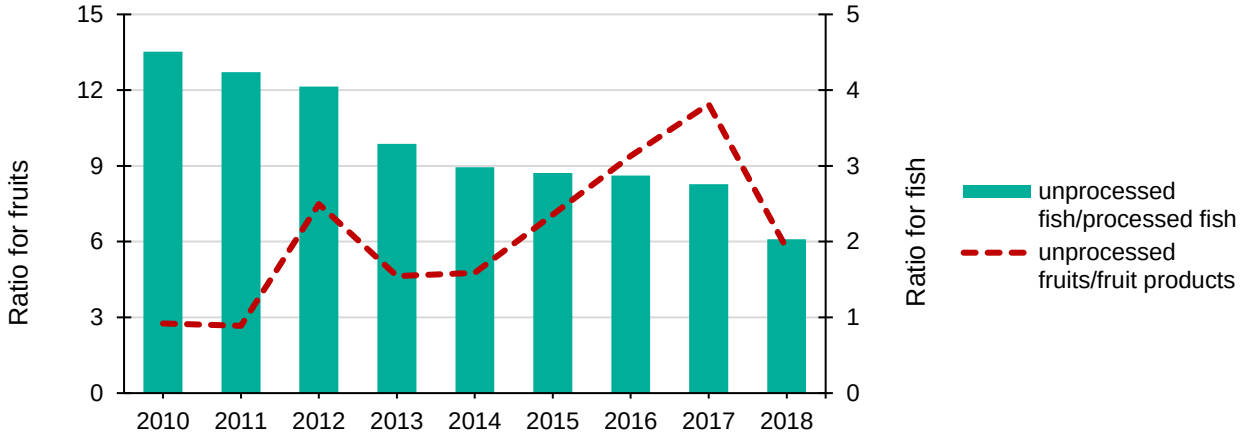
To further understand the important role of processed fish for driving growth in processed food exports, the ratio of unprocessed to processed fish is shown in Figure 18 for Myanmar and in Figure 19 for Viet Nam. In both figures, the ratio of fresh fruits and fruits products are shown for comparison.

Figure 18. Ratio of annual value of unprocessed to value of processed export products for fish and fruit from Myanmar, 2010 to 2018



Note: Fruit products include jams, juices and others.
Source: Authors' calculation using data from BACI (2020).

Figure 19. Ratio of annual value of unprocessed to value of processed export products for fish and fruit from Viet Nam, 2010 to 2018



Note: Fruit products include jams, juices and others.
Source: Authors' calculation using data from BACI (2020).

The ratio of unprocessed to processed fish falls for both countries, an indication of the rising role of processed fish. However, in 2018 the ratio is 8:1 in Myanmar while it is 2:1 in Viet Nam. Putting it differently, for each USD one million of processed fish it exported, Viet Nam exported only USD two million of unprocessed fish, while Myanmar exported USD eight million of unprocessed fish. Fish without further processing is unlikely to have broad markets. Moreover, processing adds value to a fishery sector whose growth is now constrained by supply side factors.

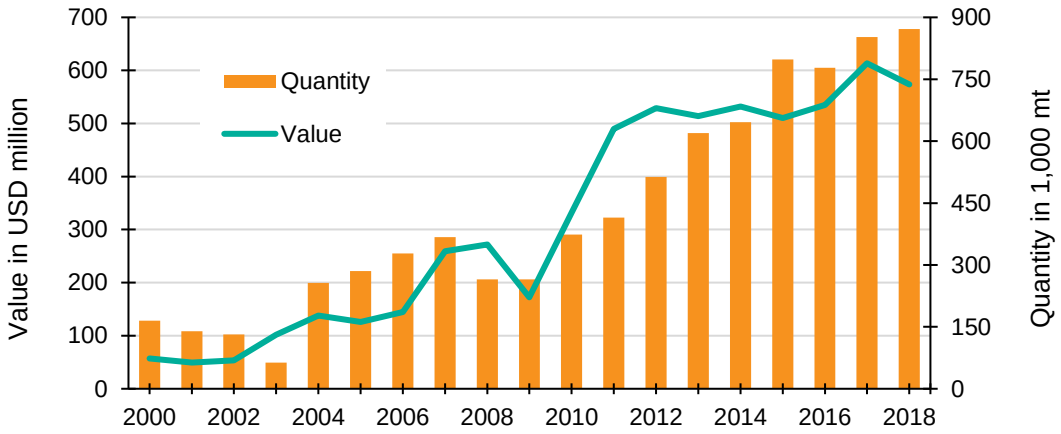
The second ratio in Figures 18 and 19 is for fresh fruit exports to manufactured fruit exports. While manufactured fruit products account for a modest share of agri-food exports for both countries – 0.01 percent in Myanmar and 0.77 percent in Viet Nam in 2018, in terms of ratio of fresh fruits to manufactured fruit products, the ratio is much higher in Myanmar than in Viet Nam. For each USD one million of exported manufactured fruit products in 2018, Viet Nam exported less than USD six million of fresh fruit. In contrast, Myanmar exported in 2018 more than USD 200 million of fresh fruit for every USD one million of processed fruit products.

Viet Nam's experience shows the importance of processed fish and processing fresh fruit in growing its agro-processing industry, including for export. Myanmar has potential to develop a similar export-oriented food processing industry. However, with fruit, for example, even with double digit growth and a significant rise in its share of total agri-food exports, with the current share being only 0.01 percent, the contribution of manufactured fruit products to total agri-food export growth should not be overestimated.

Potential for import substitution for palm oil

Rapid growth in palm oil imports is led by the boom in the fast-food industry in Myanmar. Palm oil is also used by households as a cooking oil for fried food, accounting for more than half of Myanmar edible oil consumption. Myanmar only allows imports of "higher quality" palm oil, primarily buying from Malaysia and Indonesia. Figure 20 shows steady increases in palm oil imports year to year. While imports of palm oil have increased, its share of total agri-food imports has fallen in recent years, from 28 percent in 1998-2002 to 14 percent in 2014-2018. That is, Myanmar has increased imports of many other processed food products. The most rapid growth among agri-food imports has been in sugar imports, for which the share of total agri-food imports rose from 2 percent in 1998-2002 to 17 percent in 2014-2018.

Figure 20. Myanmar's palm oil imports between 2000 and 2018



Source: Authors' calculation using data from BACI (2020).

With the substantial increase in palm oil imports in recent years, the Myanmar government has recently pushed for intensive development of oil palm plantations to meet domestic demand, as well as to become an international market player. According to Mongabay (2019), the Myanmar government has allocated more than 400,000 hectares of oil palm concessions to 44 companies to date. While 60 percent have not yet been developed, there is concern that Myanmar will follow a similar path to Indonesia and Malaysia, both of which sacrificed large swaths of natural forest for oil palm plantations. Indeed, the development of oil palm has always been controversial as a development strategy due to its large environmental impact.

However, oil palm plantations can be developed in a manner for improved land conservation. Nicholas et al. (2018) characterizes the nature of deforestation for oil palm production in Myanmar, its relationship to increased biodiversity loss, and contextualizes the potential impacts of this loss on diets and human health in rural Myanmar. They found that oil palm concessions in southern Myanmar are typically incompletely planted to varying degrees, leaving considerable land unused. The remaining forests within these concessions are at high risk of deforestation, as there are normally no legal hurdles to their clearance. These remaining forests, therefore, should be targets for conservation. Furthermore, only 15 percent of the total concession area is now planted with oil palm (49,000 ha), while 25,000 ha of oil palm is planted outside the concession boundaries. This leaves most of the concession area available for other land uses, including forest conservation and for meeting the livelihood needs of local communities. Reconsidering the use of unused oil palm concession areas can also significantly reduce risks of future greenhouse gas emissions.

4. POLICY FOR IMPROVING MYANMAR'S AGRI-FOOD TRADE

Since 2011, Myanmar has implemented several policies to increase competitiveness and attract foreign investment to the country. As a founding member of the World Trade Organization (WTO) and a least developed country, Myanmar has sought to take advantage of the Special and Differential treatment provisions which provide preferential market access for goods and services for such countries under regional and WTO agreements and technical assistance related to trade. Furthermore, Myanmar has made efforts to integrate and implement its commitments to ASEAN Free Trade Agreements, including those with China, India, Japan, South Korea, Australia and New Zealand.

In learning from the experiences of its East Asian neighbors, Myanmar developed a National Export Strategy aiming to create "sustainable export-led growth" that will create jobs and contribute to the overall socio-economic development of the country (MoC 2015). The strategy aims to

improve the export competitiveness of seven priority sectors, of which four are agri-food exports -- textiles and garments; forestry products; beans, pulses, and oilseeds; rice; fisheries; rubber; and tourism. This is to be done through investments to improve access to finance, quality management, trade facilitation and logistics, and trade information and promotion.

Since the adoption of the Export Strategy in 2015, Myanmar has seen some progress. Export volumes of priority sector goods increased by approximately 30 percent in 2017, Good Agricultural Practices certifications were issued to over 15 crops, and promotional events for Myanmar's bean and pulses and fishery products were held abroad (MoC 2019). The forthcoming Export Strategy for the period from 2020 to 2025 is expected to continue to address constraints to competitiveness and modernize the regulatory system with the aim of increasing exports. The focus of the new strategy will be on micro, small, and medium enterprises and on expanding priority sectors, including fruits and vegetables and processed food products (Htet 2019).

However, despite the progress, Myanmar's export performance still ranks poorly compared to its ASEAN counterparts. Bouët and Laborde (2019) developed a measure of trade integration that estimates trade costs in *ad valorem* equivalents. These costs include tariffs, non-tariff measures, and the time and cost for border and documentary compliance. This unit allows for comparisons across countries and is an important measure of a country's competitiveness in international trade. Based on it, Myanmar's export costs are found to be the highest among ASEAN countries at 23 percent of the value for all goods and 59 percent for agricultural goods (Bouët and Laborde 2019). The high trade costs for Myanmar are primarily attributed to the time required to successfully complete the logistical processes for exporting goods, i.e., the average time needed to meet border and documentary compliance.

Table 9. World Bank's Doing Business Trading Across Borders indicator for ASEAN counties in 2020

	Trading Across Borders	Exports				Imports			
		Border Compliance		Documentary Compliance		Border Compliance		Documentary Compliance	
Countries	Overall Score	Time (Days)	Cost (USD)	Time (Days)	Cost (USD)	Time (Days)	Cost (USD)	Time (Days)	Cost (USD)
Singapore	89.6	0.4	335	0.1	37	1.4	220	0.1	40
Malaysia	88.5	1.2	213	0.4	35	1.5	213	0.3	60
Thailand	84.6	1.8	223	0.5	97	2.1	233	0.2	43
Laos	78.1	0.4	140	2.5	235	0.5	224	2.5	115
Viet Nam	70.8	2.3	290	2.1	139	2.3	373	3.2	183
Philippines	68.4	1.8	456	1.5	53	5.0	690	4.0	68
Indonesia	67.5	2.3	211	2.5	139	4.1	383	4.4	164
Cambodia	67.3	2.0	375	5.5	139	0.3	240	5.5	120
Brunei	58.7	4.9	340	6.5	90	2.0	395	5.5	50
Myanmar	**47.7**	**5.9**	**432**	**6.0**	**140**	**9.6**	**457**	**2.0**	**210**
ASEAN Average	72.1	2.3	302	2.8	110	2.9	343	2.8	105

Note: Figures reflect the average cost and time for trade with all countries.
Source: World Bank Doing Business Report 2020

Bouët and Laborde (2019) draws heavily from the World Bank's Doing Business Indicators, which annually provides estimates of the cost and time required for documentary compliance. These include obtaining, preparing, and submitting documents for transport, clearance, inspections, and port or border handling in or between origin/destination economies. Table 9

shows the scores for the Trading Across Borders indicator for ASEAN countries. According to these estimates, it takes three days longer and costs approximately 39 percent more to meet border and documentary compliance for exports in Myanmar than in the average ASEAN country.

Minor and Hummels (2011) estimate the ad valorem rate of a day in transit for Myanmar to be between 0.24 and 0.62 percent for all export goods. However, time delays on perishable agricultural goods can have a 6 percent or higher cost per day (Djankov et al. 2010). These time delays often constitute a larger cost to exporters than do direct tariffs (Hummels et. al. 2007).

Export process in Myanmar

The Ministry of Agriculture, Livestock and Irrigation (MOALI), through the Agricultural Development Strategy, have promoted measures to eliminate export licenses for all agricultural exports and to develop more effective trade facilitation capacities, such as streamlining and automating non-tariff measure processes, including sanitary and phytosanitary measures, to reduce the cost of clearing goods through customs and border control. However, the export process remains lengthy and has high transaction costs due to the complexity of national administrative procedures, inspection charges, insurance premiums, and the licensing system. These all constitute significant costs for companies. Table 10 summarizes the key steps in the export process and the respective government departments involved with each.

Table 10. Export process steps and relevant departments concerned

Process	Department
Company registration	Directorate of Investment and Company Administration
Registration of importer and exporter	Directorate of Trade
Recommendation for export license	Relevant ministries or associations under the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI)
Export license	Department of Commerce and Consumer Affairs
Insurance and customs clearance	Relevant departments under the Ministry of Finance
Banking	Central Bank of Myanmar
Port Clearance	Myanmar Port Authority

Source: World Trade Organization Trade Policy Review of Myanmar 2014

Export licenses are required for most of Myanmar's export goods, including most agricultural products. In 2015, 71 percent of all exports were subject to export licenses. By comparison, if Myanmar adopted Thailand's export licensing system, only 3 percent of exports would be subject to an export license (Rahardja et al. 2020). The use of export licenses in Myanmar has traditionally been used to keep track of export flows and more recently has been used as a measure to ensure compliance with sanitary and phytosanitary measures. While tracking export flows and ensuring sanitary and phytosanitary measures are important, there are other means to efficiently accomplish these goals. Current procedures cause long and costly delays and create barriers for new and existing exporters.

Export licenses are only available to registered companies. Myanmar ranks well compared to other ASEAN countries on the World Bank Doing Business 2020 report indicator on starting a business. Regardless, registering a business in Myanmar requires six procedural steps, takes an average of seven days, and the process costs 13.3 percent of Myanmar's per capita income. These costs are a barrier to new firms looking to enter export sectors and disincentivize formalization of the businesses, which can have a substantial impact on these firms. Looking at the impact of easing registration requirements in Viet Nam, Demenet et al. (2016) found that formalization increased the value-added of firms by an average of 20 percent.

Generally, exporters can apply for an export license through an automated process and receive a renewable license valid for 3 months typically within 24 hours of applying. However, key commodities require an additional step of receiving a recommendation from a line ministry. For example, agricultural products would require recommendations from MOALI. These ministries are free to place additional requirements or restrictions on the goods to be exported, without coordination with other relevant bodies, which can have unintended consequences. These requirements have been used to place unofficial export quota or prohibitions on goods with little transparency for exporters.

Commodity associations also have the power to informally regulate the export of certain commodities. Certifications of the country of origin are required to apply for an export license and are only issued by the respective commodity association. Access to these certifications are restricted to the members of the association, who must comply with the association rules. Therefore, the association can regulate who can export those products and to an extent the quantity of goods exported.

Goods must go through an inspection and valuation process conducted by Customs officials at the port of export. The government states that the purpose of the inspections on export goods is to avoid disputes between exporters and importers concerning specifications. While guidelines are set for by the Ministry of Commerce, the final determination is made by officials at the port of export. The delegation of this authority is intended to decentralize and streamline decision-making.

This decentralization may be having unintended consequences. Myanmar collects a two percent income tax on all exported goods, and a special goods tax on eight commodities. These taxes are assessed on the valuation made by officials at the port of export. As such, they encourage rent-seeking behavior. In recent years, there have been reports of port officials being charged with corruption. One report stated that rent-seeking is an institutionalized behavior, with little actual negotiation between exporters and officials as to the cost of these informal fees, since they are well known and rarely change (Mratt Kyaw Thu 2018). Furthermore, any disputes with port officials over the valuation or inspection of goods can result in the goods being held for long periods while a review is undertaken.

As Myanmar undertakes reforms to remove trade barriers, attention should be paid to ensuring that non-tariff measures meet its policy objectives, are uniform and consistently defined, and that there is coordination across the various agencies regulating these measures. In the case of Viet Nam, while it undertook reforms to lower its direct tariffs, at the same time the number of non-tariff measures increased rapidly from 15 measures in 2004 to 330 in 2015. This created a complex web of legal documents, implementation procedures, and forms with overlapping requirements across the various regulating agencies (World Bank 2018). According to Ing and Cadot (2018), these non-tariff measures have been costly for Vietnamese exporters, adding an average ad valorem equivalent on exported goods of 5.4 percent for technical barriers to trade and 16.6 percent for sanitary and phytosanitary measures.

Lowering export barriers can also attract foreign direct investment, which is crucial to developing Myanmar's trade competitiveness and can help expand market size, value added processing, and facilitate re-export of processed goods, in addition to financing recent overall trade deficits. However, encouraging such capital inflows also requires protections for investors so that the private sector can attract the funds it needs to grow and compete.

Reforms were made in 2014 to create Special Economic Zones, designed to facilitate imports, exports and foreign direct investment; with plans for four zones focused on agro-industry covering Sagaing, Bago, Magwe, Ayeyarwady, and Tanintharyi regions. While this special economic zone approach has been used by many Southeast Asian countries with mixed success, Myanmar should

consider using these zones to experiment with policies and new institutions that can improve the business climate. Many of the economic reforms that were made in China originated from policy experimentation in such zones, including allowing foreign banks to operate, loosening foreign exchange controls, and adjusting price controls. Positive spillover effects can be realized through linkages between such zones and the rest of economy (Khandelwal and Teachout 2016).

5. CONCLUSION AND POLICY RECOMMENDATIONS

This paper focuses on the role of agri-food exports to catalyze Myanmar's economic takeoff and the transformation of its agri-food systems. By analyzing the performance of agri-food exports in the past and assessing their potential, the paper emphasizes that agri-food exports have played and will continue to play an important role for Myanmar's broad economic growth and agricultural transformation. Agri-food exports make up about one-third of Myanmar total exports and both their share of total exports and as a ratio of total GDP have risen in recent years. While the share of agriculture's contribution to Myanmar's total GDP has fallen, which is common in economic transformation processes, growth of agri-food exports has been more rapid than broad economic growth. If Myanmar can continue to maintain this growth momentum and continue to be a net agri-food exporter in the immediate future, agri-food exports will not only create increased income for farmers, traders, processors, and other players along agri-food value chains, but also help the country with foreign exchange earnings for supporting the necessary imports of many manufactured products embodied with modern technology.

Myanmar's agri-food exports are highly concentrated in a few commodities. These include pulses, fish, rice, rubber, maize, cattle, groundnut, sesame, melons, bananas, and onions. Exports of its agri-food products are primarily destined to Asian countries, among which China has become the most important trading partner with India ranking second. The concentration in commodities and country destinations implies that the currently dominant commodities and foreign markets are expected to continue to play important roles for agri-food export growth in the immediate future. Moreover, Myanmar is not the dominant source of imports in most of these markets, which means that many of these export markets have huge potential for future growth in the share they obtain from Myanmar. To realize this growth potential depends primarily on the capability of Myanmar to expand its supply through improving productivity and quality. However, when a market for a dominant export commodity is highly concentrated, reliable market access is important, such as pulse exports to India, and rubber, maize, cattle, melon, and onion exports to China. Long-term government to government trade agreements between Myanmar and dominant importing countries are important for improving access to such export markets.

Increasing trade market diversification is important to reduce the risk to Myanmar's producers of agri-food exports caused by policy uncertainty in the dominant importing countries of those products. For example, while exports to India continue to dominate Myanmar's pulse exports, the market share for Myanmar in India's imports of pulses has fallen in recent years. Exploring market opportunities in other countries beyond the Indian market requires diversification in the varieties of pulses produced for export. The rice export market is relatively more diverse than that for pulses. Continuing such market diversification requires that Myanmar improve the quality of its rice to meet the standards of higher value export markets beyond China.

While fish still ranks as the second most important agri-food export, the share of fish exports in total agri-food exports has fallen. This is due primarily to Myanmar's marine fisheries having been heavily overexploited – many of its wild capture products are unlikely to grow much more in the future. The best prospects for growing fish exports are from farmed fisheries. However, except for

farmed shrimp, most of the growth potential for aquaculture in Myanmar is in supplying the domestic market as a substitute for declining capture fisheries production.

Fruit and other horticultural exports have grown rapidly in recent years. Exports of melons, particularly watermelon and muskmelon, and bananas dominate recent growth. As perishable commodities, fresh fruit exports are constrained by seasonality and difficulties in transportation, storage facilities, and other logistics. Currently, the major export channel is border trade with China, where the export market is often influenced by trade policy changes. The recent COVID-19 pandemic has demonstrated the vulnerability of such perishable exports. The recent efforts by the Myanmar government to improve the bilateral trade relationship with China is important for further increasing fruit and other horticultural exports. However, in markets outside of China, with strong competition from Viet Nam, for Myanmar to be able to penetrate new markets in the European Union and in countries in the Middle East will require that Myanmar producers and exporters follow global Good Agriculture Practices and other certification requirements. There are many challenges for Myanmar to meet the quality requirements in these new markets.

Exports of processed agricultural products have increasingly become important in recent years, though starting from an extremely low base. In contrast with the situation in Myanmar, processed food exports play a much large role in Viet Nam's agri-food exports, and their value has continued to rise steadily. Viet Nam's experience emphasizes the importance of value-addition to the dominant primary agricultural export products, e.g., exports of processed fish and manufactured fruit products instead of unprocessed ones. While Myanmar has potential to develop a fruit product manufacturing industry for jams and juices, because of its extremely small current base as a starting point, contribution of manufactured fruit products to total agri-food export growth in the foreseeable future should not be overestimated.

With substantial increases in palm oil imports in recent years, the Myanmar government has recently pushed for intensive oil palm development to meet domestic demand as well as to become a potential international market supplier. However, environment concerns, as lessons from Indonesia and Malaysia show, should be part of the design of an oil palm import substitution strategy.

In conclusion, the following policies are important for increasing export competitiveness and making agri-food exports an important driver of Myanmar's economic takeoff.

- Remove export licensing requirements on key agri-food export commodities and streamline export customs clearance requirements.
- Continue investments to improve quality of key agri-food export commodities to meet Good Agriculture Practices and other standards to take advantage of preferential trade agreements under the WTO Global System of Preferences and diversify to markets in advanced economies.
- Increase agricultural productivity through improved access to agricultural extension and services, financing, and agricultural inputs and by removing barriers in the supply chain.
- Build capacities to trace production processes to meet the product traceability standards required in countries where Myanmar exports its agri-food products.
- Seek bilateral and/or multilateral agreements with regional trade partners to improve trade policy and market stability, including around sanitary and phytosanitary protocols.
- Provide to producers, traders, processors, and agri-food exporters in Myanmar market information on demand for those goods, prices, and the standards and procedures required for exporting to specific countries.

- Promote Myanmar’s products in targeted foreign markets and provide farmers and processors information about any new export opportunities.

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