

Agro-processing, food prices, and COVID-19

The case of rice mills in Myanmar

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This note assesses the impacts of COVID-19 on the processing sector of Myanmar's agri-food system. We focus on the milling of rice, Myanmar's most important staple, which accounts for more than half of calories consumed and serves as one of the country's leading export commodities. Using unique data collected from telephone surveys with more than 400 medium- and large-scale rice mills, we highlight the major disruptions caused by the pandemic.

Key findings

- The COVID-19 pandemic caused significant disruptions for medium- and large-scale rice mills, including lower milling throughput, employee layoffs, and lower credit availability.
- Despite these issues, we find significant resilience in the sector. COVID-19 has been associated with relatively small changes in processing margins. Any changes in rice prices during the pandemic were mostly transmitted to rice farmers.
- Modern mills pay higher prices to their suppliers and sell rice more expensively due to extra processing. Modern and traditional mills were similarly affected by the COVID-19 crisis, as seen in similar changes in the prices each paid to buy paddy and the prices they received for their milled rice.
- Byproducts are very important for milling margins both before and during the COVID-19 pandemic. Without byproduct sales there would be a need for much higher margins between paddy producer and rice consumer prices to assure the profitability of the mills.

Recommended actions

- Access to international markets has seemingly contributed to price stability in local markets, indicating the importance of continued trade, albeit in a safe way, during shocks.
- Monitoring crucial processing nodes in agricultural value chains through high-frequency inexpensive telephone interviews has allowed us to track a large sector of Myanmar's economy that has strong and wide links to producers and consumers. Similar survey set-ups should be pursued in other sectors.
- Modernization of mills is associated with higher prices for farmers and, therefore, should be encouraged. Further relaxation of restrictions on investments in agro-processing and on international trade in the sector will foster increased modernization.

Introduction

In the rice supply chain, mills are the most important actor and add significant value, which benefits both consumers and producers. Mills process raw paddy into rice, which is the single most important processed food in Myanmar by a wide margin, with average per capita consumption at 170 kg per year.¹ Rice is also an important export commodity and Myanmar was the sixth biggest rice exporter worldwide in 2018, with about 2.7 million tons of milled rice exported. From a production perspective, rice is Myanmar's most important crop, accounting for more than 30 percent of all crop value.² The far-reaching upstream and downstream influences of rice milling highlight the importance of understanding COVID-19's impacts on the sector.

To learn about the effects of COVID-19 on Myanmar's rice processing, we conducted phone interviews with a sample of rice millers starting in July 2020 and continuing monthly through November 2020. The sample covers six townships in three regions—Ayeyarwady, Bago, and Yangon—which collectively account for 45 percent of the monsoon rice produced in Myanmar. The phone surveys were designed as a panel across the five monthly interview rounds. Six-hundred and fifty-seven mills were randomly selected as our sample. Each mill was called for the five rounds. However, the number of interviews fluctuated across rounds due to mill closures, unavailable or unreachable phone numbers, and interview refusals. The number of completed interviews for each of the five rounds was approximately 400 per round.

Significant disruptions to the rice milling sector due to COVID-19

Mills reported large business disruptions caused by COVID-19 and the corresponding policy responses implemented to mitigate its tremendous health burdens. In the August survey round, 44 percent of the millers interviewed reported disruptions to buying paddy caused by transportation restrictions. However, the downstream effects of these restrictions in selling rice were less pronounced, with only 26 percent reporting such disruptions (Table 1). This likely reflects the localized implementation of transport restrictions in Myanmar. Millers had more difficulty with transport in the upstream sections of rice supply chains in obtaining paddy in production regions than they did in downstream sections in supplying commodity exchange centers and wholesale markets with milled rice. Moreover, 38 percent of the mills reduced the number of employees.

Table 1. Share of rice mills reporting operations changes and disruptions due to COVID-19

Share of mills reporting operations changes, August 2020 compared with August 2019 (%)				
	Decrease	Same	Increase	Mean change
Rice throughput	51	46	3	-18
Demand for credit from farmers	1	86	13	4
Expected annual revenue	79	17	4	-28
Share of mills reporting business disruptions in August 2020 (%)				
Transport restrictions in selling rice	26			
Transport restrictions in buying paddy	44			
Applied for COVID-19 relief loan	38			
Reduced the number of employees	38			
Reduced mill operating days	46			
Closed for at least one week	19			

Source: Mill survey

¹ USDA (United States Department of Agriculture). 2020. "Burma: Grain and Feed." Annual report no. BM 2020-0003.

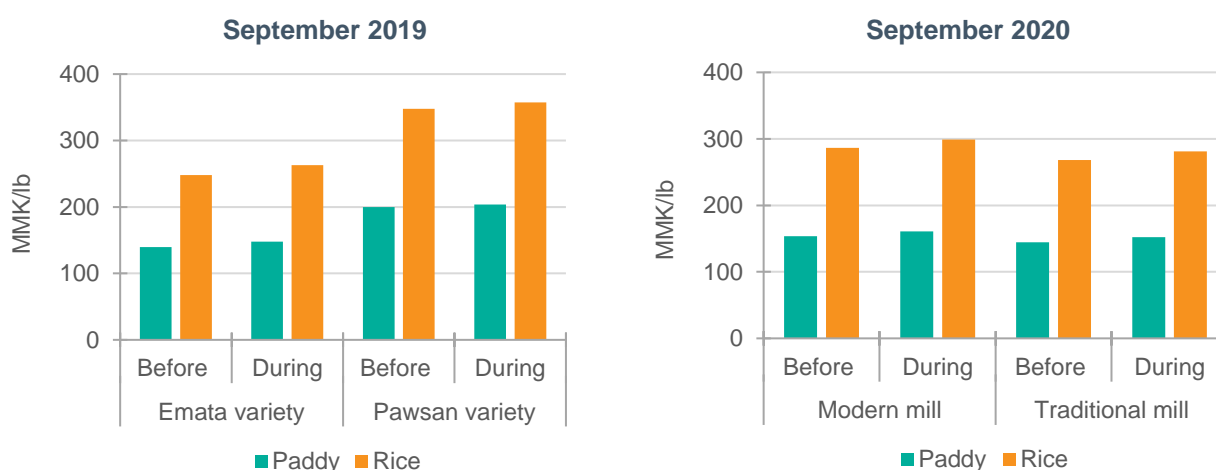
² CSO (Central Statistical Organization). 2019. "Myanmar agricultural statistics (2008-2019 to 2017-2018)." Ministry of Planning and Finance. Nay Pyi Taw.

The net effects of these challenges for the mills appear to be lower rice throughput and decreased revenues. Only 3 percent reported higher daily throughput of rice in August 2020 compared to 2019, while 51 percent of mills reported a year-on-year decline. Only 4 percent of millers expected a revenue increase in 2020 compared to 2019. There were also increases in demand for credit, both by mills—38 percent of millers applied for a government COVID-19 relief loan in August, the first month that loans were made available to agribusinesses—and by farmers—13 percent of mills reported increased demand for credit provision from the farmers supplying them paddy.

Resilience in the rice sector during the pandemic

Rice exports were almost at similar levels during the pandemic period as a year earlier.³ Rice prices were generally higher in 2020 compared to 2019. Overall, these increases were passed through to farmers as the prices paid for paddy were also higher (Figure 1). Varietal differences are shown to matter tremendously in price setting. Pawsan, which is a variety mostly destined for local markets, receives significantly higher prices than Emata, a variety mostly destined for international markets. Gross margins for both Emata and Pawsan were slightly higher in 2020 than in 2019, but not by very much, suggesting that challenges presented by the COVID-19 crisis have not had substantial negative effects on milling margins. We further note that margins for the more expensive Pawsan variety are higher, as noted in other settings for higher quality rice.⁴ Modern mills can achieve higher rice quality, controlling for variety, through the use of polishers and color sorters, which translates to higher margins of about 10 MMK per pound over traditional mills. A substantial portion—about 50 percent—of the higher prices modern mills receive for head (whole grain) rice is passed through to farmers in higher prices for paddy. In terms of price changes during the COVID-19 crisis, both modern and traditional mills show similar patterns.

Figure 1. Rice prices before and during the COVID-19 pandemic (September 2019 versus September 2020), by rice variety and type of rice mill



Source: Mill survey

Milling byproducts matter enormously for mill profits, including during the pandemic

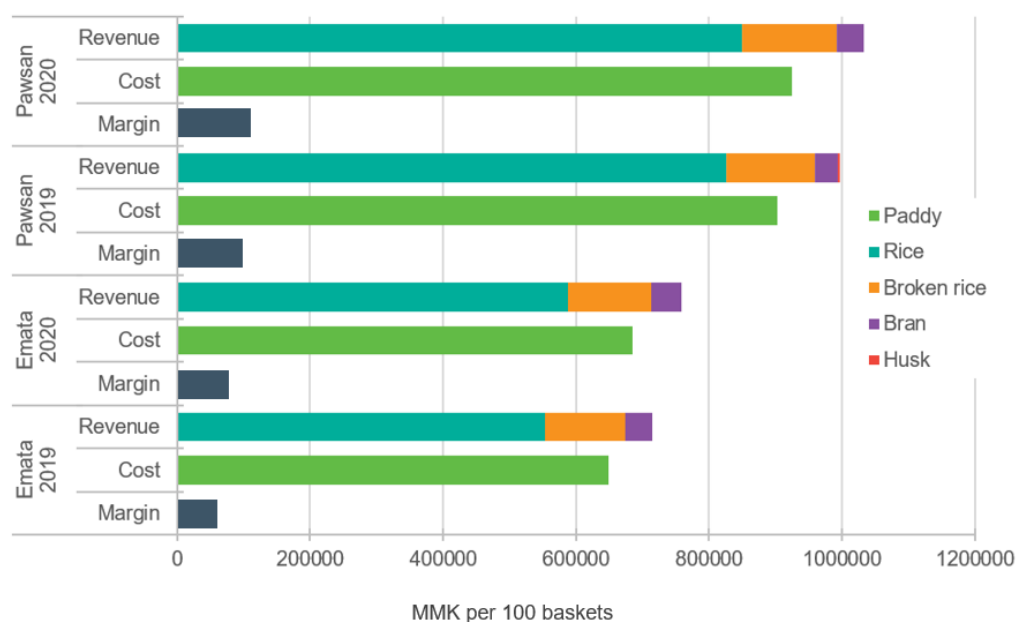
Figure 2 presents the average output revenues and paddy costs for Emata and Pawsan by year. The importance of byproduct sales is evident in both years. The revenue from rice sales alone is

³ USDA (United States Department of Agriculture). 2021. "Burma: Rice Trade – Monthly." Report no. BM 2021-0004.

⁴ Minten, B., K.A.S. Murshid, and T. Reardon. 2013. "Food quality changes and implications: Evidence from the rice value chain of Bangladesh." *World Development*, 42, February, 100-113.

less than the paddy cost in each case. Thus, without the ability to market byproducts, milling paddy-to-rice margins would need to increase for mills to remain profitable, putting downward pressure on paddy prices paid to farmers and upward pressure on milled rice prices to consumers.

Figure 2. Average milling paddy costs, revenues, and margins in MMK per 100 baskets of paddy, Pawsan and Emata varieties for 2020 and 2019



Source: Mill survey

After head rice, broken rice is the main contributor to miller's margins. Pawsan revenues from broken rice are slightly higher than those for Emata. However, this is not because Pawsan broken rice prices are higher, but because more broken rice is recovered from Pawsan varieties, as the final consumer head rice is sold with a lower percentage of broken rice in it.

Bran is the third leading contributor to milling margins, but with total values of about one-third of that of broken rice for Emata and one-quarter of broken rice for Pawsan. The value of husks is negligible.

The overall expansion of marketing opportunities for byproducts, such as, for instance, for feed in the rapidly growing aquaculture and poultry sectors in the country, and their stable or increasing prices during the pandemic might have had important spillover effects and contributed to lower paddy-to-rice processing margins. Overall, this resulted in reduced rice prices for consumers and higher paddy prices for farmers.⁵

⁵ Fang, P., B. Belton, X. Zhang, and H.E. Win. 2020. "Impacts of COVID-19 on Myanmar's poultry sector: Implications for achieving the sustainable development goals." Myanmar SSP Discussion Paper 05. Washington DC: IFPRI (International Food Policy Research Institute).

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