

APPLYING SYSTEM MAPPING TECHNIQUES TO UNDERSTAND SHOCKS COVID-19 UPDATE REPORT NO. 3 (20 JULY 2020)

Executive Summary

This report captures key impacts of COVID-19, and the corresponding government response, on the agriculture market system in Uganda. This update report focuses on agricultural commodity distribution, particularly wholesaling, transportation, processing, and distribution. It is based on our analysis of open-source information combined with targeted key informant interviews and insights derived from system maps. These assessments will be updated as new information becomes available.

Transportation costs have increased, along with operating expenses, negatively impacting profitability

Businesses of all sizes are facing increased costs, particularly for transportation and logistics, which are negatively impacting their profitability and could result in some businesses temporarily unable to operate at all (particularly smaller traders, who rely more heavily on smaller vehicles and public transportation and who have less overall capital). Several traders also reported difficulty in reaching farmers to collect produce, which means reduced business volumes and lower income.

Wholesale maize prices are low, though within historical range

Maize grain prices were below historical averages in May and June, mainly attributed to a drop in domestic demand. This has negatively impacted the profitability of collectors and traders, who are facing the combined impact of both lower prices and lower demand, in addition to higher operating costs. This in turn has led to low farmgate prices for many products, which further depresses farm household incomes and could further reduce demand. The impact of the June-July harvest on prices is still uncertain, as the harvest was reported as average to above average, but many farmers may choose to keep their harvest for home consumption or may still be unable to reach markets or collectors to sell. If domestic supply does not increase as expected, this could put upward pressure on prices, particularly if demand begins to recover. However, this decrease in supply could be offset if informal exports remain low. Overall, the impact of maize prices on commodity distributors over the next few months is still uncertain. The maize price dynamics do appear to have benefitted retailers, as the ratio of retail to wholesale prices is the highest it has been in at least the past three years. This increased margin may translate to higher profits for retailers, but without more information about retail demand and operating and transportation costs it is hard to say.

Imports and exports have declined, impacting commodity distributors – particularly smaller, informal traders

Informal cross-border trade has essentially stopped. This will disproportionately affect small traders near the border who do not have the means to engage in formal trade. Formal trade has also decreased, but not as severely as informal trade. Overall, the data suggests lower profitability for traders conducting formal exports, particularly in May and June. A continued downward trend in export values would indicate further issues that could threaten the viability of these businesses. Reduced processed food imports seem to indicate a reduced demand for processed food, which could also impact the profitability of domestic processors. However, imports for grain, flour, and seeds have remained stable.

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Methodology

The USAID/Uganda Feed the Future Market System Monitoring team is conducting a Rapid System Assessment of the agricultural market system in Uganda. This report is based on consultations with a few key stakeholders and our team's existing knowledge of the agricultural market system, combined with publicly available data and news reports and interviews with key system actors. This information has been layered onto the Uganda Agricultural Market System Map, created by our team and available to view on the Kumu platform at <https://kumu.io/MSM/usaaid-uganda-fff-msm-activity-covid-19-map#full-map/shock-status>. The system map allows us to identify how the shock is propagated through the system, where we anticipate the shock will have an effect, and through what mechanism this effect will occur.

- For a guide to interpreting the system maps, please consult <https://humanitarian.mit.edu/rapid-system-assessment-methodology-kumu-example/>.
- For more on our Rapid System Assessment methodology, please visit <https://humanitarian.mit.edu/rapid-system-assessment-methodology>.
- Please contact our team at msm.uganda@mit.edu with any questions or feedback.

Transportation and Operating Costs

Our research suggests that commodity distributors across the supply chain (including collectors, traders, processors, and distributors) have been negatively impacted by the COVID-19 preventative measures, both through higher costs and decreased prices.

Operating Expenses

As expected, agribusinesses in general have reported adverse impacts on their profitability. A [survey](#) from early May reported that 76% of agribusinesses had experienced a severe decline in business activity, and that 43% expected to close within six months if the conditions at the time of the survey continued. This figure was higher for micro businesses, at 58%, which seems to correspond with the experience of smaller traders.

The businesses that we spoke to said that their operating costs had increased across several dimensions. Almost all were providing masks and sanitizer for their employees, and some were paying increased transportation costs for employees as well. Some had told employees to stay home, and some employees were unable to come in to work. Several mentioned they were incorporating ICT into their business practices.

Their ability to conduct business has also been impacted. They reported issues with their agents being able to reach farmers, given movement restrictions, higher transportation costs, and limited public transportation. Several mentioned that these restrictions had impacted their relationship with farmers: in-person engagement is far more difficult, and trainings have been postponed. One mentioned that with markets closed, the produce in their stores had spoiled.

The businesses reported mixed results on access to credit, which is often an essential tool for remaining operational during a crisis. One already had a loan they were struggling to service, one did not need capital, one had been offered a loan and turned it down, and one had tried to access a loan and had been denied. Several expressed interest in accessing credit. In general, it is unlikely that these businesses will continue to provide the same level of credit to their customers and business partners.

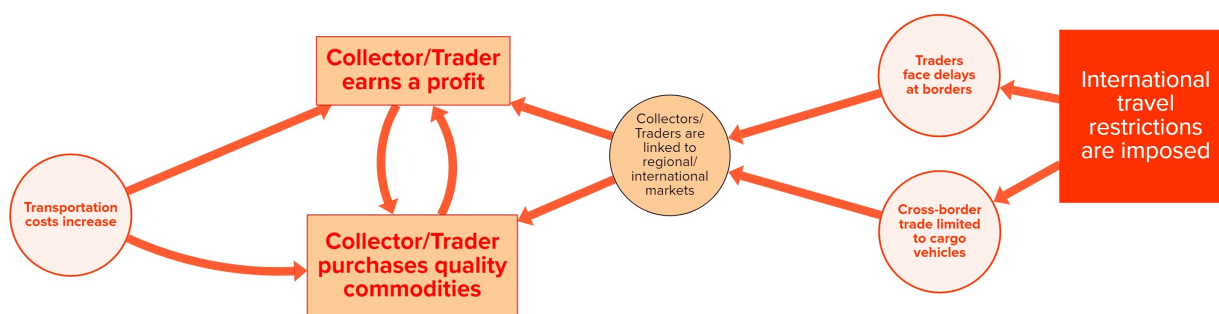


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Transportation Costs

The main impact on business expenses for this portion of the supply chain appears to be the increase in transportation and logistics costs. There are several drivers of increased costs. For exporters, delays at the border for COVID-19 testing add to transit time and increase logistics costs. The curfew that was imposed limits the number of hours that drivers can be on the road, further delaying transportation times. None of the businesses we spoke to reported any issues with freedom of movement, and most did not have to acquire a special movement permit. However, most of these were larger traders who use cargo vehicles – the situation is very different for smaller traders that rely on smaller vehicles and public transportation. Larger distributors tend to own their own trucks; those traders that we spoke to that hire vehicles reported increased costs. Besides the cost of moving produce, the general transportation costs involved in conducting business will also have increased. Finally, there were [reports](#) of damaged road infrastructure in some areas from the flooding earlier in the year, which may not have been repaired yet and which could require expensive detours.

Several of the impacts of the COVID-19 measures on commodity distribution can be seen in the diagram below. This excerpt from our system map shows how several shocks to the system (international travel restrictions, border delays, and increased transportation costs), travel along various pathways to negatively impact both the functioning of commodity distributors and the profitability of these businesses.



Legend

- Shock Status: Impacted to point of being non-functional
- Shock Status: Significantly impacted
- Shock Status: Somewhat impacted
- Shock Status: Not impacted
- Shock Status: Improved
- Shock Status: Impact unknown

Maize Prices

Maize prices increased considerably in the early weeks of the COVID-19 restrictions. The average wholesale price of maize grain increased from 879 UGX/kg in mid-March to 1,220 UGX/kg in the fourth week of April, while the average retail price increased from 1,129 UGX/kg to 1,458 UGX/kg. This increase has been [attributed](#) to a combination of factors, including panic buying, speculation, government purchases for food distribution, and supply chain disruptions, [as well as](#) tighter supplies due to losses from the December harvest and high demand in the region.

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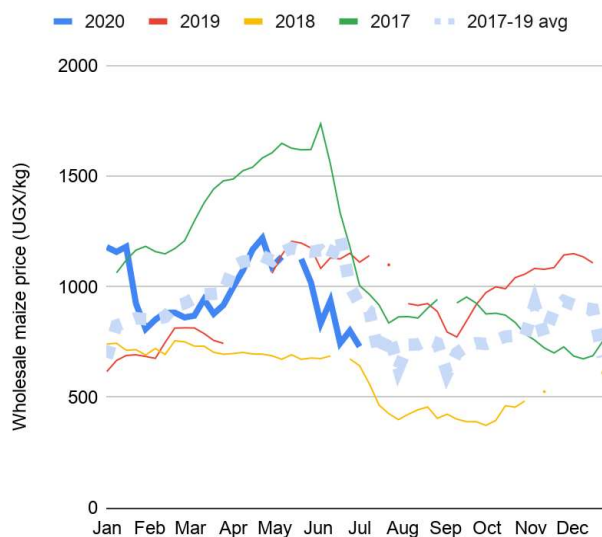
However, this price trend did not diverge significantly from the historical average – these values were within the normal range for this time of year, according to data from both RATIC and Farmgain. As such, it is possible that the increase in prices was the result of normal seasonal trends, or driven by [post-harvest losses](#) experienced in January. The COVID-19 restrictions (and the various factors mentioned above) certainly contributed to the price increases, but may not have been wholly responsible, and certainly did not push the prices out of the historical range. They do appear to have been felt more strongly than in previous years, however, as they coincided with a period when many households saw a reduction in income, particularly urban households (who also rely more on purchased food).

Both wholesale and retail maize grain prices subsequently dropped below the historical average in May and June. The average wholesale price of maize grain was down to 730 UGX/kg by early July; the average retail price was at 1,062 UGX/kg. While maize prices do tend to decline during these months, particularly as the June harvest increases the supply of maize, the average prices this year were lower than usual. Indeed, almost all of the traders we spoke to reported lower prices this year compared to last year.

This decrease in prices does seem to be driven in part by the impact of the COVID-19 measures, and has [generally](#) been [attributed](#) to a decline in demand. Schools, hotels, restaurants, and other institutional buyers have been closed. Retail [demand](#) was also likely low, as many households continued to face reduced incomes during this period, particularly in urban areas. Public transportation [resumed](#) in early June, but at reduced capacity and with higher prices, so there were still barriers to market access during this period, which would further decrease demand. As we discuss in the next section, both formal and informal export volumes were below average in May and likely into June, which would further depress the domestic price of maize. As suggested by [FEWS NET](#), the decline in aggregate demand is likely offsetting the impact of the increased transportation, logistics, and operating costs that we discussed above, which would put upward pressure on prices. It is worth pointing out, however, that the wholesale and retail prices in May and June were still higher than the levels for 2018, and so are within what could be considered a normal range.

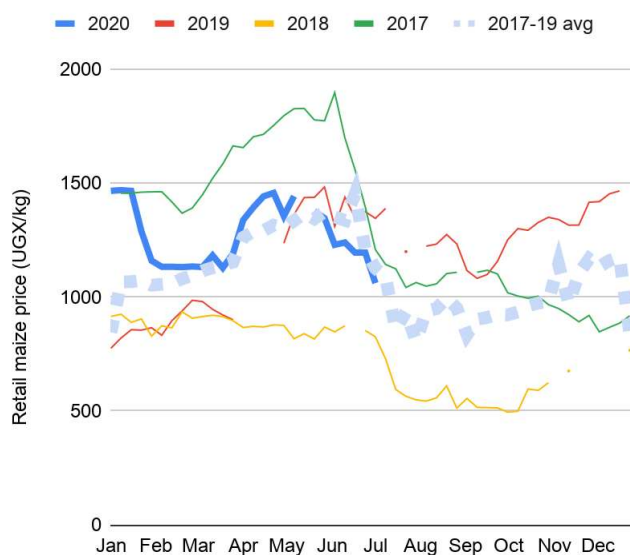
Wholesale maize grain price

Cross-country average, from RATIC



Retail maize grain price

Cross-country average, from RATIC



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There are [indications](#) that the decrease in demand has negatively impacted the profitability of collectors and traders, which is further compounded by the decrease in prices. This in turn has led to low farmgate [prices](#) for many products, which further depresses farm household incomes and could further reduce demand.

If farmgate prices remain low, many farmers may choose to store or consume their crops instead of selling them. There are already indications of supply issues. Almost all of the traders we spoke to reported a drop in volumes compared to last year, as did a miller. Some reported difficulties in reaching farmers and collecting produce. Others suggested that farmers may have difficulty reaching the markets or are facing prohibitive transportation costs, and that some farmers are already keeping back their harvests for home consumption.

Harvest volumes for June and July were expected to be above average, according to an FAO [assessment](#) from early June, except in those areas affected by flooding in April and May. FEWS NET more recently [reported](#) average to slightly below average production levels overall, with below-average harvests in areas impacted by flooding offset by above-average yields in other areas, and only localized damage from desert locusts. The post-harvest increase in supply would normally depress wholesale and retail prices further, but the impact on prices will depend on how much of this production is actually sold by farmers.

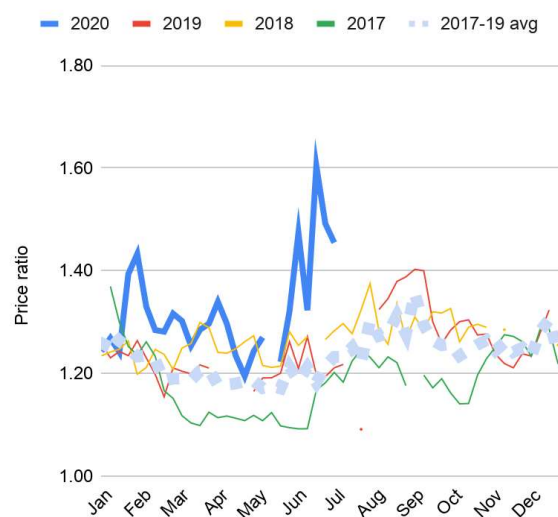
If domestic supply does not increase as expected after the June-July harvest, this could put upward pressure on prices, particularly if demand begins to recover. However, this decrease in supply could be offset if informal exports remain low, as discussed in the next section. Overall, the impact of maize prices on commodity distributors over the next few months is still uncertain.

Finally, we considered the impact of recent price trends on processors and retailers. As discussed above, the recent trends for wholesale and retail maize prices do fall within what could be considered a normal historical range. However, we did see more unusual market behavior when considering the ratio of the retail price for maize grain to the wholesale price. This ratio is a proxy for the gross margin for a retailer. In May and June 2020, this ratio increased to the highest value in at least the past three years. This happened as wholesale prices fell more quickly than retail prices, possibly because fewer buyers were present in the wholesale market, such as schools and other institutional buyers. It is also possible that fewer mills were able to operate, given the restrictions on movement of workers during the initial lockdown. Smaller local processors have likely seen a reduction in demand for their services, as we have heard reports of households cutting costs by making their own flour using traditional methods. Finally, the trend could reflect price increases by the retailers themselves, though if this were the case we would have expected to see higher margins in April as well.

This increased margin may translate to higher profits for retailers, but without more information about operating and transportation costs it is hard to say. It is possible that these increased margins were offset by increased costs elsewhere. Notably, this deviation from typical market behavior is not apparent from considering only the absolute prices, and may be a useful indicator for the health of commodity retail

Retail to wholesale price ratio for maize grain

Cross-country average, from RATING



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businesses. Considering the margins on other commodities would also be useful for traders that work in several commodities.

Maize Exports

This analysis focuses on maize, as both a food crop and a significant export crop, accounting for more than twice the export value of beans, rice, or sesame.

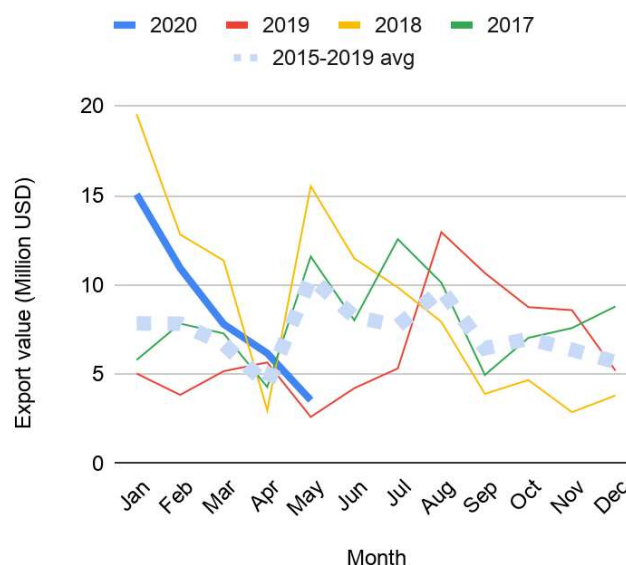
Formal Exports

According to the [Bank of Uganda](#), formal maize export values steadily decreased from January to May 2020. In January and February, the decline in formal maize export values tracked with historical trends, and remained well above the five-year average for these months, in line with [reports](#) of high demand in the region. In March and April, following the onset of the COVID-19 preventative measures, export values still roughly matched historical seasonal patterns. However, export values continued to decline in May, the month in which export values have historically increased significantly. Export prices also dropped in May (see Appendix). This further contributes to the drop in value, but appears to be roughly on track with seasonal trends, suggesting that the continued decline in export value is driven by a decrease in volume.

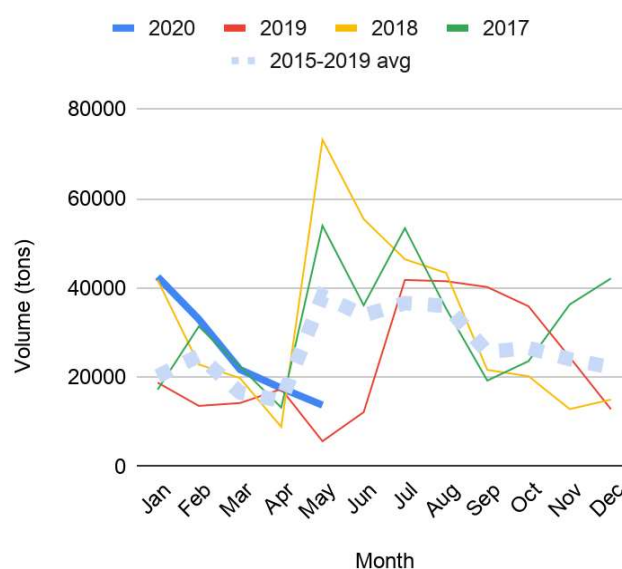
Formal maize export volumes followed a similar pattern. Volumes for January to April roughly tracked with those in 2018 and 2017 (2019 appears to be an anomalous year). However, while volumes in 2018 and 2017 picked up sharply in May, this did not occur in 2020, and initial reports suggest that export volumes continued to decline in June.

This could be the result of a lower than average yield for the [January harvest](#), or low domestic maize stocks as farmers held on to their harvests in the face of declining farmgate prices. However, it is also likely that the drop in formal

Maize formal export value



Maize formal export volume



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exports in May and June reflects the combined effects of transportation delays, increased logistics costs, and reduced foreign demand (mainly Kenya and South Sudan). Two of the traders we spoke to reported issues finding buyers in Kenya.

The impact on port and inland logistics appears to be largely driven by the backups caused by COVID testing at the borders and the closure of certain border crossing points. In late May, the line of trucks waiting to enter Uganda from Kenya stretched to [21 miles](#) at the Malaba border crossing, and average cargo transit times between Mombasa and Busia [reportedly](#) increased from four days in January to twelve days in March. Reports [suggest](#) that Mombasa has operated near normal levels, such that the increase in transit time is largely due to delays at the border. The traders we spoke to did not report any delays other than those at the border checkpoints. There have been [reports](#) of discrimination against truckers as suspected COVID-19 patients; though unfortunate, this does not appear to have materially impacted the transport companies. Increased transportation costs also make it less profitable to trade, which may have further reduced volumes.

Overall, the data suggests lower profitability for traders conducting formal exports, particularly in May and June. A continued downward trend in export values would indicate further issues that could threaten the viability of these businesses. Thus, a key indicator for the health of commodity distribution businesses will be the export values and volumes in June and July. More information regarding the production volumes for the June-July harvest and domestic consumption of maize in the past six months would also be important to understand these export dynamics. However, most estimates put exports at less than 20% of production, perhaps closer to 10%, so domestic consumption trends will be more important for the sector as a whole.

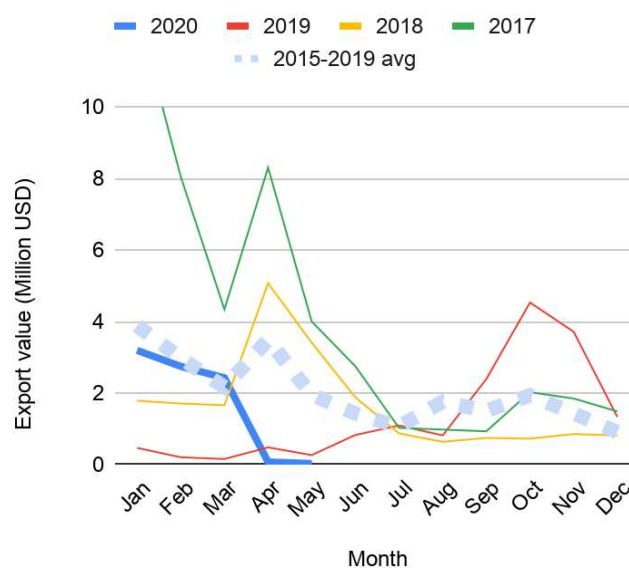
Informal Exports

The Bank of Uganda also collects [data](#) for informal cross-border trade (ICBT), defined as trade transactions that are not recorded by customs authorities. Since data collection began in 2003, informal maize exports have accounted for 33% of total maize export value, and the monthly ICBT value exceeded the monthly formal export value almost 25% of the time.

Maize ICBT values were above average in late 2019, and continued to track roughly with seasonal trends through March 2020. However, the value of informal maize exports dropped to nearly zero in April, and remained there in May. This was the case for all commodities, with ICBT values for all measured products falling at least 98% from March to May.

This is almost certainly due to the closure of the borders and the limiting of crossings to cargo vehicles. Much informal trade takes place outside of formal border crossings, and depends on smaller vehicles or public transportation. The formal export price of maize did decrease during this period; however, if we consider this a rough proxy for the informal price, this decline is still not enough to explain the drop in ICBT value.

Maize ICBT export value



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This data suggests that the border closures and movement restrictions have had a serious adverse effect on the smaller traders who conduct ICBT. [More than 80%](#) of these traders are women, who rely on ICBT as their main source of income. They likely were unable to take advantage of the exemptions on internal movement and cross-border travel for cargo vehicles. We have heard reports of informal traders using watercraft to cross the Malaba River into Kenya, though the total value of these transactions is likely small, and the informal exports to the DRC are far more important (nearly twice the value of informal exports to Kenya).

As such, the impact on communities near the border will be significant, particularly on the households that rely on ICBT for their livelihood. This will be further compounded by the continued restrictions on movement in some border districts, limiting households' ability to engage in other economic activities. Households may begin to sell productive assets as a result, which would impede income generation long-term and have important implications for the poverty status of these communities.

As with formal exports, it will be important to see whether ICBT exports pick up again in June and July. However, unlike formal exports, this is not expected to happen unless border restrictions are relaxed, as well as movement restrictions in border districts. If ICBT exports remain low, border traders will undergo even further strain.

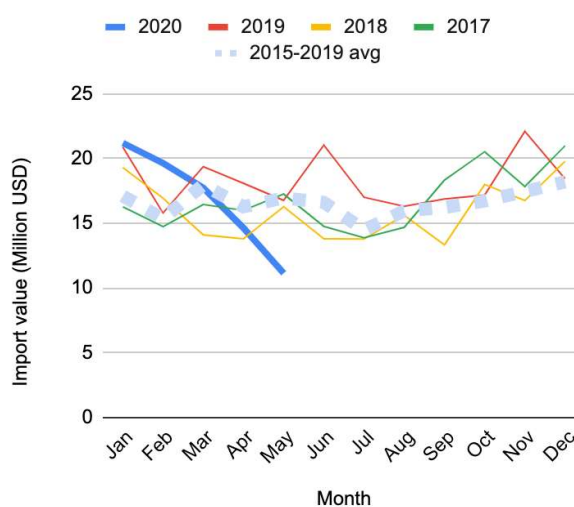
Imported Food Products

Overall, total imports across all categories have decreased over the course of the pandemic. The value of imports for nearly all product categories has decreased or remained roughly constant, except for minerals (see the Appendix for more). We looked specifically at food imports, as a proxy for overall demand for processed food.

Imports for "Vegetable Products, Animal, Beverages, Fats & Oil" did not deviate significantly from previous years. Unfortunately, this is quite a broad category that comprises essentially all seed, grain, and flour, among other products, as imports are disaggregated by the top-level categories in the Harmonized Coding System. This makes it difficult to draw specific conclusions, but could broadly indicate that agriculture-related imports have not suffered as much as other sectors.

However, import values for the "Prepared Foodstuff, Beverages & Tobacco" category did decline steadily from February to May. This category comprises nearly all processed food except flour, which is included in "Vegetable Products, Animal, Beverages, Fats & Oil." Some of the decline in value from February to May could be attributed to normal month-to-month variation, but the value for May 2020 is exceptionally low - the lowest since 2011. This may indicate a decreased demand for processed food, or more generally for higher value food. Households are likely opting for cheaper, less processed foodstuffs due to reduced incomes. If this is the case, it will likely take several months (or perhaps until the end of the year) for demand to recover. The price of these imports may also have increased, due to the increase in logistics costs driven

"Prepared Foodstuff, Beverages & Tobacco" imports value



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by border delays and restrictions on movement, which would further depress demand for these products. It is also possible that there have been supply issues in the source countries for these products, though we did not investigate this.

These values suggest that domestic demand for processed food has decreased, as it is likely that the reduction in household incomes is driving the decline more than the increase in logistics costs. As such, we can likely expect domestic food processors to be facing a reduction in demand as well, which will threaten their profitability and business viability.

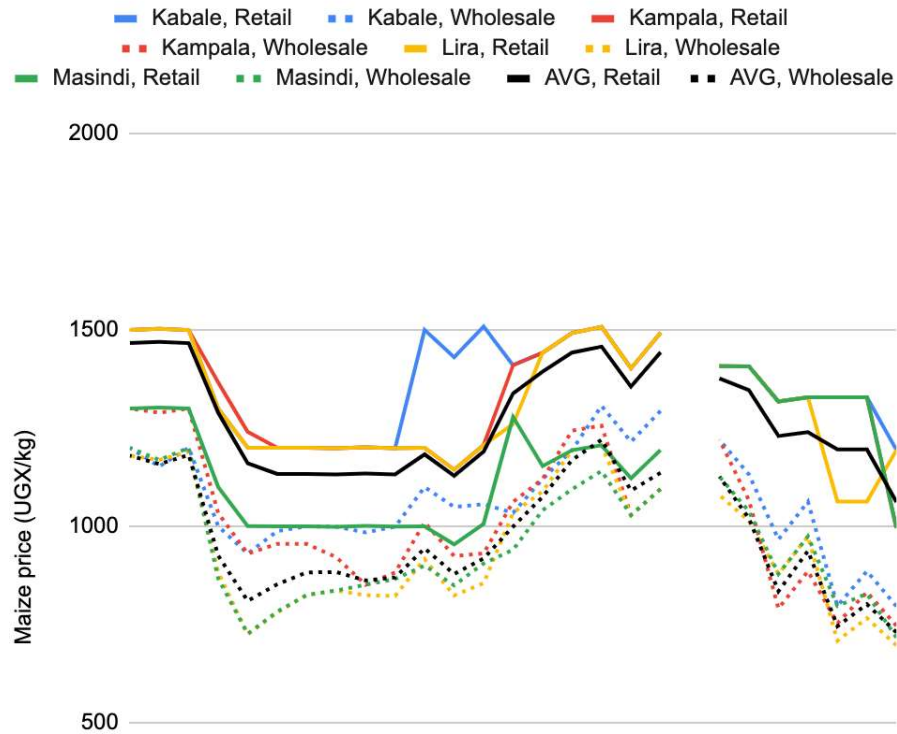


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Appendix

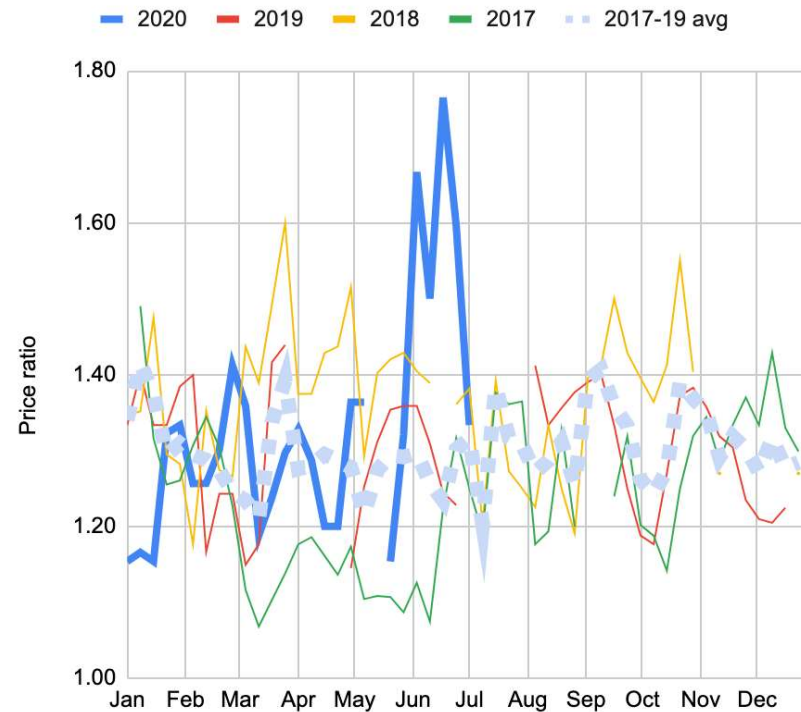
Maize price by market

From RATIN



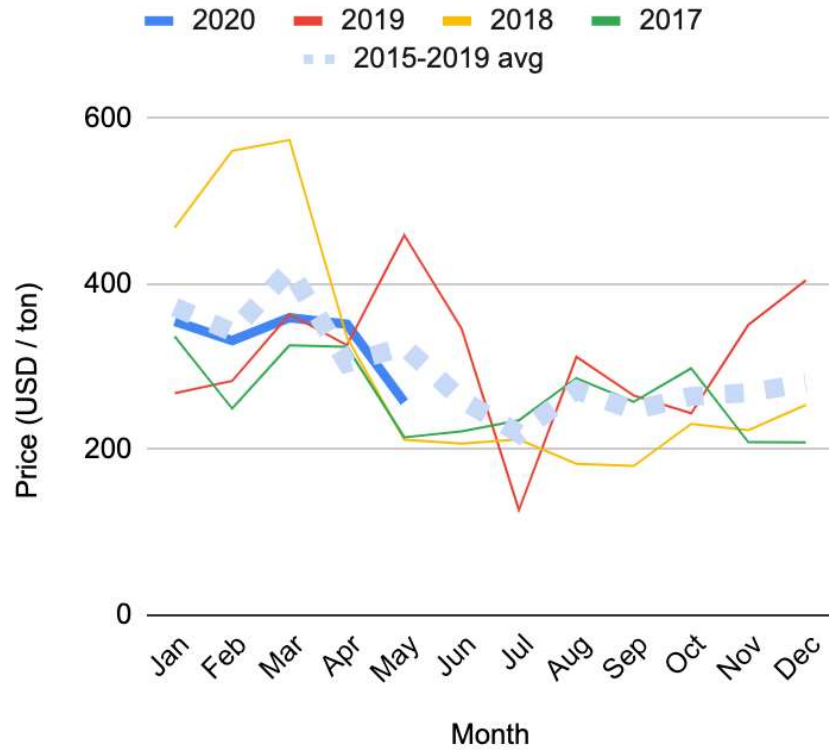
Retail to wholesale price ratio for maize grain

Kampala market only, from RATIN

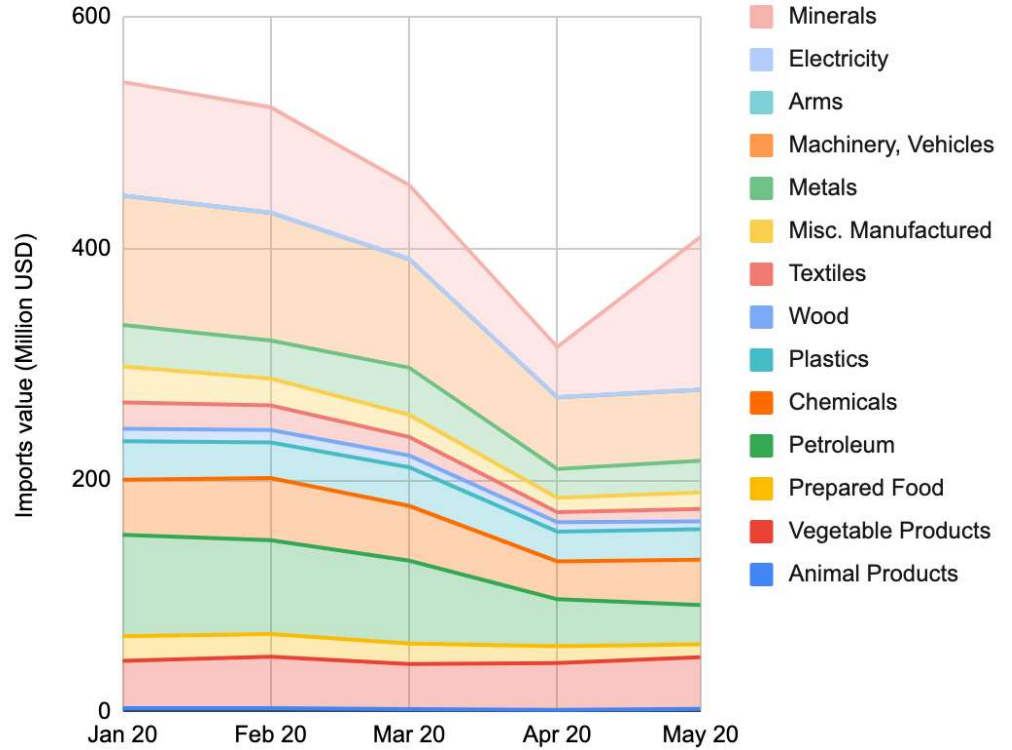


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Maize formal export price



Imports - 2020



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Normalized import values

