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Covid-19 Bulletin

Maize Grain Price trends in food surplus and deficit areas of Mozambique under Covid-19

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This bulletin presents an overview of maize price movements in Mozambique with the view of investigating whether there may be a relationship between the incidence of Covid-19 and maize price changes in local markets.

Understanding such price dynamics is important as price movements may guide interventions seeking to ensure food security among households during times of crises. The bulletin concludes with a number of key observations and recommendations.

The Central provinces of Zambezia, Tete, Manica, and Sofala are Mozambique's major producers of maize and many other agricultural commodities. These are followed by the Northern provinces of Niassa, Nampula and Cabo Delgado. The Southern provinces, including Maputo, Inhambane and Gaza produce a smaller share of agricultural commodities and are food deficient (Government of Mozambique, 2007). Thus in the subsequent analysis; Zambezia, Tete, Manica are considered

surplus areas, while Niassa, Sofala, Nampula and Cabo Delgado are second in maize sufficiency and Gaza, Inhambane and Maputo are considered deficit areas.

As depicted in Figure 1, the maize prices in the markets located in deficit areas of Gaza, Inhambane and Maputo are generally higher (averaging above MT20/Kg) compared to the prices in the key food sufficient markets of Niassa, Sofala, Nampula and Cabo Delgado averaged below MT20/Kg throughout 2019 and 2020 but reached a peak of MT33/Kg around February 2020. The average prices for maize in the areas considered as surplus regions (Zambezia, Tete and Manica) have also generally been below MT20/Kg, peaking to MT25/Kg around February 2020. In each of

LOCAL STAPLE FOOD MARKET DYNAMICS UNDER COVID

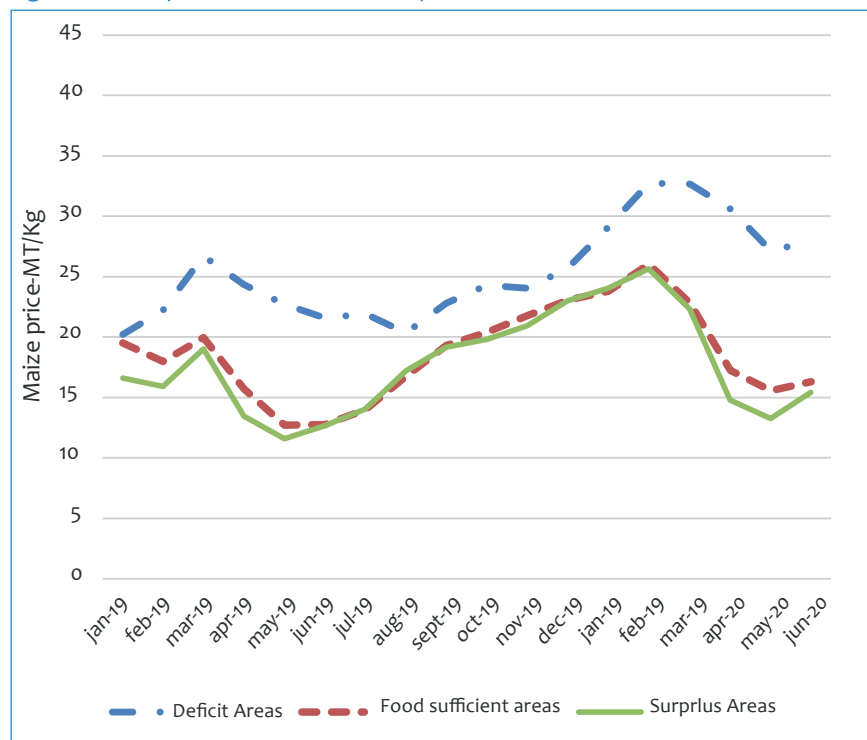
The pandemic is likely to be more disruptive to local food markets and thus have more serious effects on the poorest and most vulnerable groups and communities than any of the crises in recent years. This is because the poor and vulnerable are affected by changes in local food staple prices significantly more than other population groups, not only because of more limited purchasing power but also because of differences in consumption baskets. Moreover, domestic markets for local food staples such as yam, cassava, white maize, cowpeas, millet or sorghum tend to behave differently during times of crisis than global markets for major commodities such as rice, wheat or yellow maize. For instance, the last global food price crisis had much more significant impacts on the latter group of food commodities. Local food staples markets tend to be rather segmented from global food markets. Staple food prices therefore tend to be isolated from global market shocks. The difference with Covid is that the disruption of food supply chains has hit both domestic and global food markets rather badly.

The global nature and complex ramifications of the pandemic make it impossible to avoid the pain from rising food prices, in particular among vulnerable groups. Different staples weigh differently in local diets. Different communities are affected differently by changes in prices of different staples. Some markets are more connected than others and therefore price changes for the same staple food vary across geography and over time. Consequently, a good understanding of how local staples markets behave and close tracking of changes in food prices at community level have to be key elements of any strategy to protect livelihoods. AKADEMIYA2063 scientists and their partners are working to ensure that governments and other national stakeholders have sufficient information to plan and respond to the effects of the pandemic on local markets.

Ousmane Badiane, Executive Chairperson

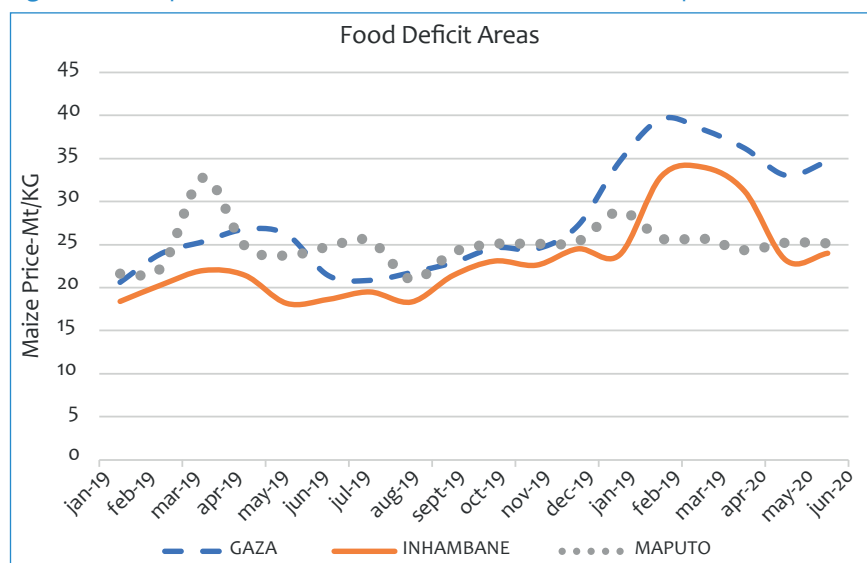
these areas, maize prices dropped markedly after January 2020, but the drop was more in the surplus markets than the deficit markets.

Figure 1. Maize price trends in Mozambique



Source: Author Computation from MIS 2020 -Mozambique

Figure 2. Maize price trends in the maize deficit areas of Mozambique



Source: Author Computation from MIS 2020 -Mozambique

It is worth noting that among the food deficit areas, Maputo markets had the least price changes in 2020 plausibly because it is also the main market for maize produced in the central provinces of Zambezia, Tete and Manica. Gaza and Inhambane experienced higher maize prices especially after January 2020, reaching a peak of MT 40/Kg in Gaza and MT35/Kg in Inhambane as compared to MT25/Kg in Maputo around the same month of February 2020 (Figure 2). This may signal the impact of Covid-19 market restrictions, which may have increased scarcity in the deficit regions. For example, it is possible that the directives by the government to manage the spread of Covid-19 virus by limiting public gatherings, implementing general social distancing, and closing schools, among other things, led to reduced demand and supply for commodities. The decline in prices of commodities in these deficit area markets

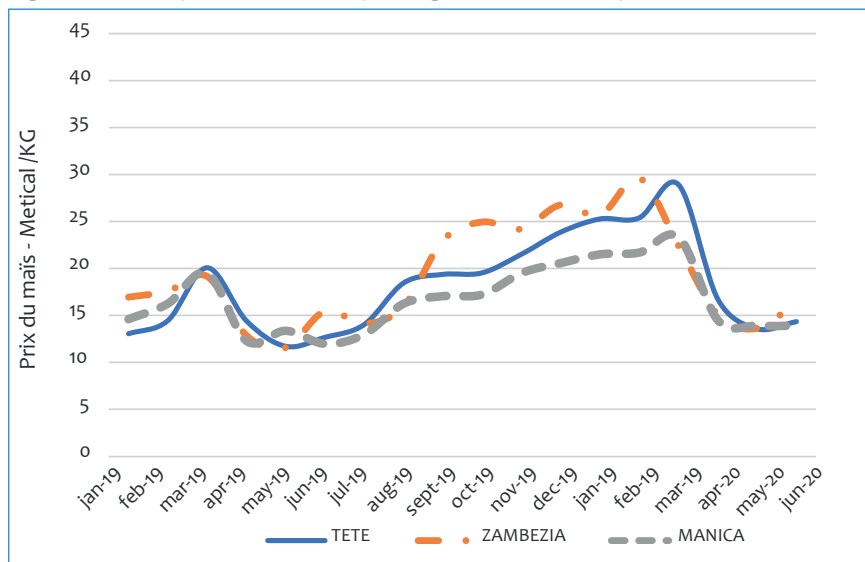
seems to indicate that the effects from the lack of sufficient demand to clear markets outweighed that from possible reduction in supplies coming from surplus areas¹.

By contrast, the food surplus regions of Mozambique experienced relatively low price increased between January 2020 to June 2020. The price of maize reached a peak of MT30/Kg in Tete and Zambezia but stayed under MT25/Kg in Manica before dropping significantly to around MT15 /Kg in June 2020. These price dynamics may signify the importance of market functionality for price stability. The rapid drop of prices after January 2020 in all the markets of Mozambique may be a result of decreased market activity as international demand plummeted due to COVID-19 scare (Figure 3). A sizable portion of maize produced in Mozambique is exported and hence the closure of foreign markets may have led to the saturation of the domestic market which eventually led to a decline in prices.

The provinces of Sofala, Niassa, Nampula and Cabo Delgado are considered to be of high agricultural potential. The price trends observed in Figure 4 suggest that markets in these areas experienced a decline in prices after January 2020 with maize prices reaching as low as MT10/Kg in April 2020 in Niassa and Sofala, but remained high around MT20 /Kg in Cabo Delgado. Prices in these four provinces were generally above those observed in food surplus provinces of Zambezia, Tete and Manica. The price drop slowed in Mampula and reversed after April in Niassa and Sofala. Prices in Cabo Delgado in contrast continued to decline, likely owing to market accessibility issues compounded by the armed political insurgency problems that have plagued the province in recent years.

¹ <https://covid19.ins.gov.mz/covid-19-presidente-da-republica-declara-estado-de-emergencia-em-mocambique/>

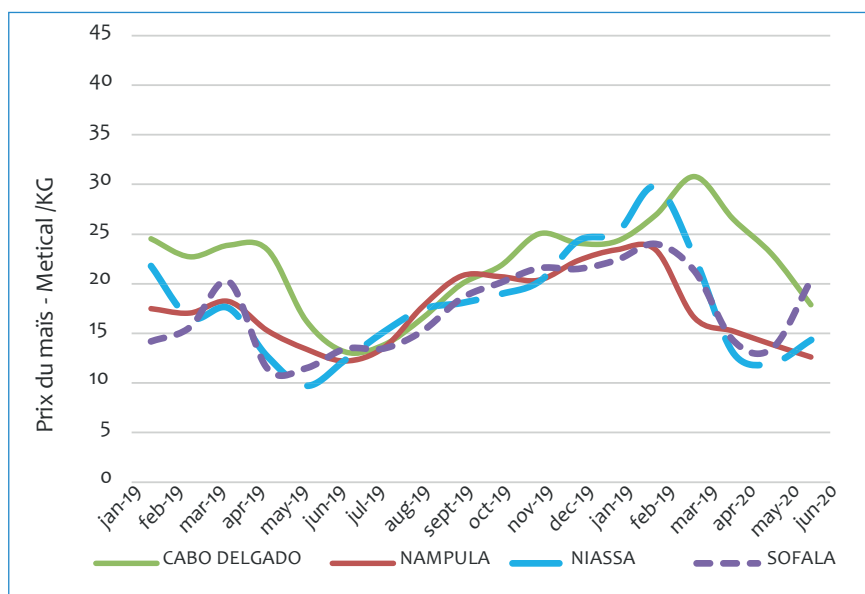
Figure 3. : Maize price trends in surplus regions of Mozambique



Source: Author Computation from MIS 2020 -Mozambique

Under normal circumstances, maize produced in the northern region (which are also the food self-sufficient areas) is sold to local markets as well as markets in neighbouring regions for consumption. Some maize is sold to neighbouring countries mainly Malawi and some goes to the global market. Similarly, the main maize producing central areas export most of their maize to other central areas and Maputo in the South (Government of Mozambique, 2007).

Figure 4. Maize price trends in self-sufficient areas



Source: Author Computation from MIS 2020 -Mozambique

On the other hand, the northern region retains maize surplus even in the dry season. Any restrictions in people’s movements, therefore, are likely to reduce exports from surplus areas with the result that prices would go down in surplus areas and increase in importing areas, which seems to be what happened in Mozambique.

High transportation cost attributed to poor road conditions, results in difficulty for the northern maize to compete with imported products in the southern region. As a result of this, maize produced in the northern region is exported to neighboring countries such as Malawi and Zimbabwe (Government of Mozambique, 2007) implying that maize prices from these

provinces were susceptible to Covid-19 related demand shocks in the latter countries, in addition to being affected by domestic restrictions.

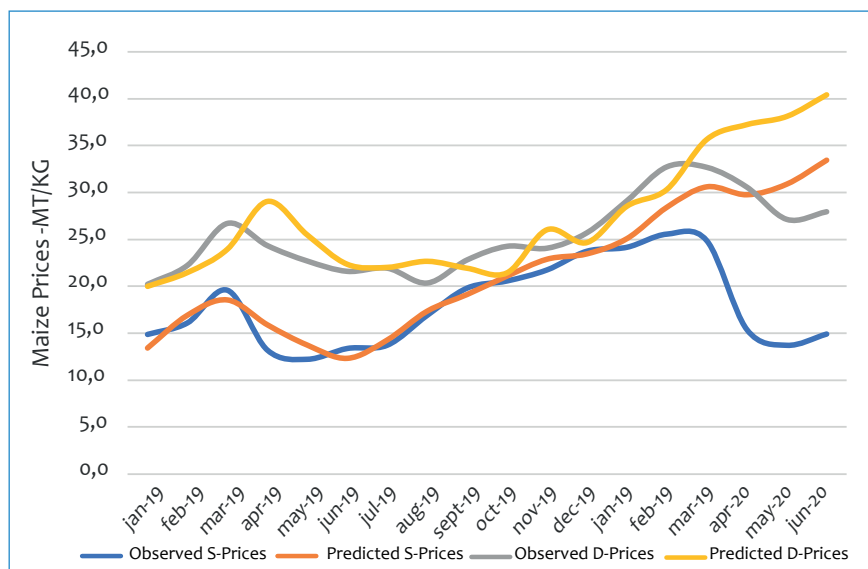
The above trends in price behavior derived from a simple observation of actual price movements in local markets show a downward pressure on prices in surplus areas and in deficit areas too. The same trends are also observable from the findings of a local price prediction model that controls for seasonality (see Figure 5). The model is designed to mimic the behavior of local prices from January 2017 to December 2019 and use that information to predict the trajectory of local staples prices in the first half of 2020 which should have been expected in the absence of the disruption caused by COVID-19.

The results in Figure 5 show that prices in both deficit and surplus areas dropped from the prices that would have been predicted in absence of the Covid-19 restrictions. Prices dropped earlier, faster and more in surplus areas than in deficit areas. The gap between observed and predicted prices in surplus areas (MT19/Kg) was more than the price drop in food deficit areas (MT12/Kg) in June 2020. These results support the findings in the preceding sections. Covid-19 restrictions within Mozambique and likely in the neighboring countries affected both demand and supply of maize leading to low prices in Mozambique.

Key observations and emerging lessons

Thus far, Covid-19 appears to be correlated with some maize price changes in the first six months of 2020, but these correlations have been heterogeneous across time and space. The restrictions imposed on movements and public gatherings together with the school closure in April 2020, and international travel restrictions in June 2020, among others, might have led to limited market activities. This may be the

Figure 5. Observed and predicted maize prices in surplus and deficit areas of Mozambique.



Source: Author Computation from MIS 2020 –Mozambique. Prediction is based on Autoregressive Integrated Moving Average (ARIMA) models with seasonality controls.

Notes: S stands for surplus areas and D for deficit areas

reason for the unusual observed price changes.

The trends in this report also show that the prices of commodities rose and fell between January and June 2020. Overall, the price fall was more pronounced and may imply that producers or small businesses that thrived on trading in maize may have been worse off and may need government attention, especially in the surplus areas where the price fall was higher. It appears from the generalized trends of falling prices across all market types that difficulty to sell across the border into neighboring countries may have played a greater role in determining price behavior across the country, not just in border areas. The potential negative impact from the observed decline in prices shows the critical importance of trans-border trade for smallholder farmers and small business.

To avoid enormous negative effects on demand, future restrictions and interventions should therefore be sequenced such that the impact on market operations, in particular cross-border markets, is minimized. For example, instead of blanket market closures, there may be a need to invest more in the wearing of masks, and usage of sanitizers to comply with the COVID-19 protocols as stipulated by the World Health Organization (WHO) while allowing market activities to continue with less disturbance.

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