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Covid-19 Bulletin

Impact of the COVID-19 Pandemic on Staple Food Prices: The case of Maize Markets in Burkina Faso

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This bulletin examines the short-run effects of the COVID-19 pandemic on maize prices across local markets in Burkina Faso.

It compares actual monthly prices with predicted prices that would have prevailed based on seasonal patterns observed from January 2011 to December 2019. These predictions were made based on univariate modeling of the trends in the series of weekly prices collected during the same period. The comparison of prices is carried out during the first half of 2020 for thirteen rural markets[1] in surplus areas and twelve urban markets in maize deficit areas, for a total of twenty-five markets. The price data used in this study were obtained from Burkina's market information system. Price correlations among local markets are also analyzed to explore the extent to which the connectivity between markets helps explain differences between actual prices and predicted levels.

Considering a correlation threshold of 70% for counting connected markets, the market of Ninieta in Bobo-Dioulasso is the most connected with a correlation coefficient of more than 70% with almost all maize markets. On the other hand, the Kaya, Dori and Guelwongo markets did not show a correlation coefficient of at least 70% with another market.

The findings summarized below relate to the period from April to June, which was marked by measures taken to curb the spread of the pandemic and restrictions on travel between the provinces

1 Except for the market of Banfora which is located in an urban area.

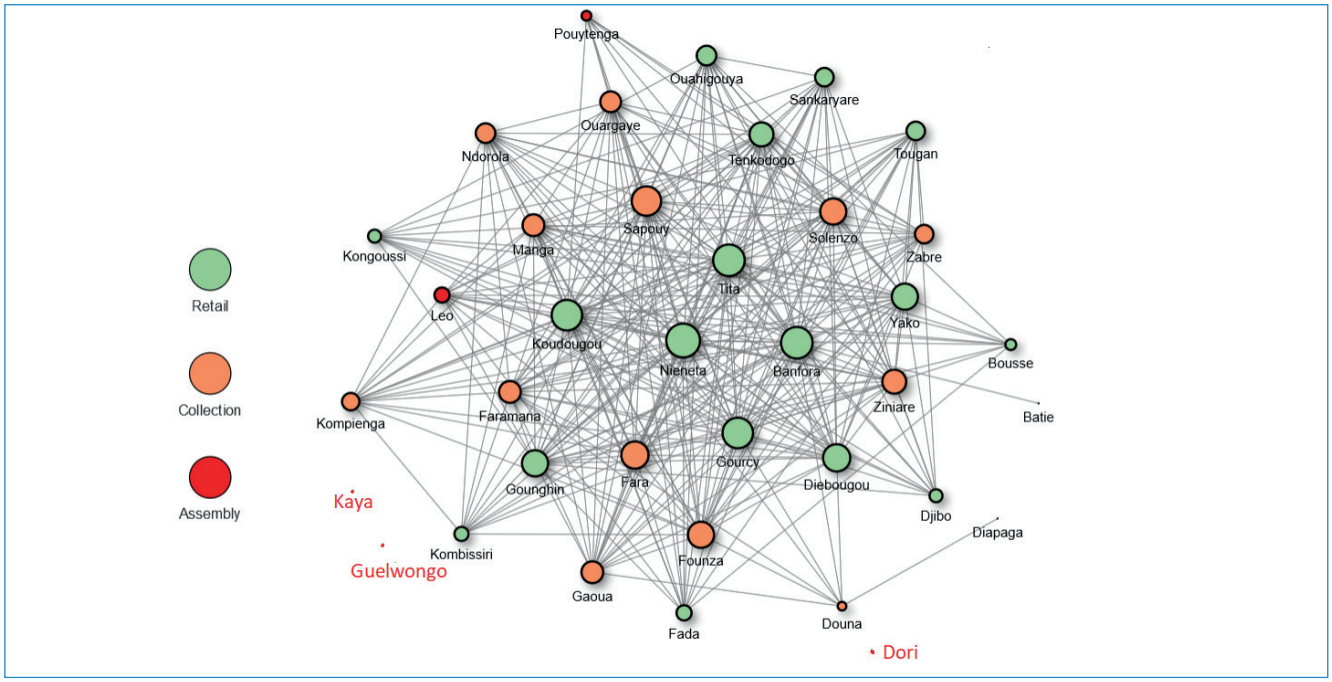
LOCAL STAPLE FOOD MARKET DYNAMICS UNDER COVID

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

Figure 1 : Maize market interconnectedness in Burkina Faso



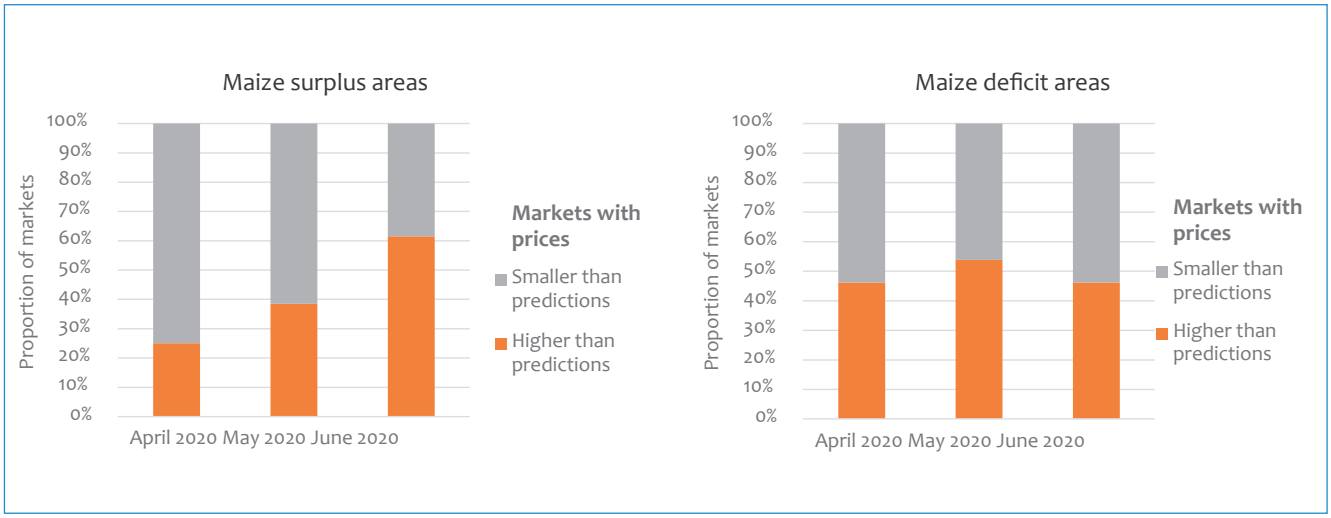
Source: Authors, with SIM/SONAGESS data.

of Burkina Faso. The detailed results are presented in Table 1 (see Appendix).

Measures to curb the pandemic have generated lower prices in surplus area markets and higher prices in deficit area markets.

Maize prices on local markets have evolved differently in surplus areas in comparison with deficit areas. As expected, the confinement measures taken in the last ten days of March in response to the COVID-19 pandemic led to a decrease in maize prices in surplus areas and an increase in deficit areas.

Figure 2. Proportion of markets according to differences between actual and predicted prices



Source: Authors, with SIM/SONAGESS data.

Figure 2 shows a rapid increase in the percentage of markets with higher-than-predicted prices, particularly in surplus areas. The bar chart on the left side of Figure 2 shows that the downward trend in surplus areas was gradually replaced by an upward trend as population movement restrictions were lifted. Three-quarters (75%) of the markets in surplus areas had lower-than-predicted maize prices in April, during confinement, but this proportion was reduced to 62% in May at the end of the confinement period and was down to 38% in June when the effects of the confinement were largely mitigated. Conversely, the proportion of markets with higher than predicted prices rose from 25% in April to 62% in June in surplus areas, reflecting the price recovery that followed the lifting of the restrictions.

In deficit areas, the share of markets with higher than predicted prices did not change significantly between the confinement period and the post-confinement period. The bar chart on the right side of Figure 2 shows that higher than predicted prices were prevailing in about half of the deficit area markets in both periods, more precisely 46% of the markets in April, 54% in May,

and again 46% in June, suggesting a small effect of the easing of restrictions on population movement on the evolution of prices. It is important to emphasize that markets with lower than predicted prices were as well represented as markets with higher than predicted prices. Such a frequency of markets with lower than predicted prices (54%) could be related to the possible availability of maize stocks in these markets or to the proximity of supply areas, or to other factors that helped avoid a price increase during the confinement period. It can be seen in Figure 1 that consumer markets are the most connected ones (the size of the circle reflects the degree of interconnectedness), which favors a certain fluidity that may have allowed to maintain the level of supply and thus reduce the upward trend of prices.

Maize prices generally responded with downward trends during confinement and then upward trends in the post-confinement period.

Figure 3 illustrates the distribution of price differences across the analyzed markets. In April 2020 (see pie chart on the left), two-fifths (42%) of the considered markets had very modest price deviations from predicted levels (between -5% and +5%). The same proportion of markets experienced price deviations that were more than 5% lower than predictions, while only 16% of markets experienced price deviations that were more than 5% higher than predictions. By April, the restrictions on the movement of goods and people had depressed prices not only in most surplus area markets (as would be expected) but also in a few deficit area markets. In June (see pie chart at right), the proportion of markets with modest price differences decreased by 17 percent (35 percent in June versus 42 percent in April), indicating some recovery in market activity. The increased activities seem to have boosted prices with the reduction in the share of markets affected by downward price deviations higher than 5%. This share fell from 42% in April to 27% in June. In addition, the share of markets experiencing more than 5% upward price deviations more than doubled in June, reaching 39% compared to 16% in April. In general, the markets analyzed had either experienced modest price deviations from predictions or diverged downwards during confinement. At the end of the confinement period, there was a general upward trend in prices.

Conclusion and recommendations

The measures taken to control the pandemic have, as expected, resulted in lower prices in surplus area markets and higher prices in deficit area markets. At the end of the confinement, prices tended to rise in surplus area markets while upward and downward price deviations were equally observed in deficit areas. It therefore appears that market dynamics have led to a relatively generalized trend towards higher prices in the post-confinement period. This would have a negative impact on the cost of food consumed by the poorest and most vulnerable households living in these areas. It would be important to examine the behavior of operators as well as the state of market supply to better understand the factors that would explain the price behavior observed during the post-confinement period. To mitigate the potential impact on households in deficit areas but also on net food-buying households in surplus areas, it is important to immediately implement food distribution programs or sale at social prices.

Also, to deal effectively with future shocks, there is a need for better planning and implementation of confinement measures and other restrictions to minimize disruptions to market operations and ensure the continuity of staple food flows between surplus and deficit areas.

Figure 3 : Proportion of markets with higher than predicted prices

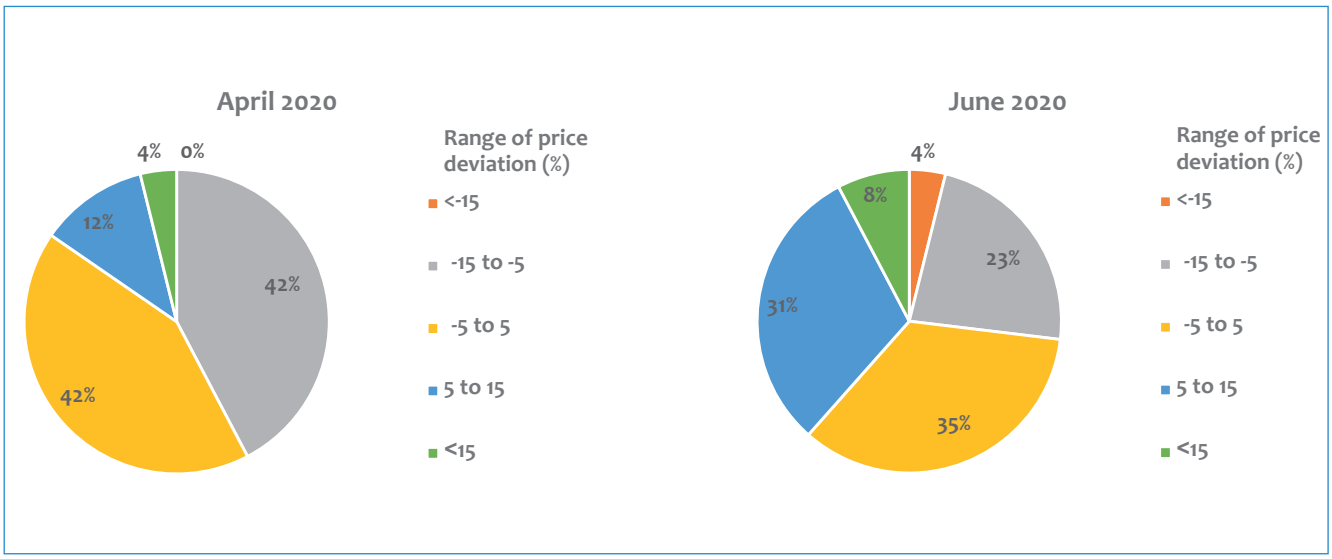


Tableau 1 : Difference between actual maize prices and model predictions (%)

Type zone	Mark	April	May	June
Surplus areas	Banfora	6.4	12.2	9.2
	Douna	-6.9	-8.8	-7.7
	Fara	4.5	9.1	16.2
	Faramana	-3.9	-3.2	-1.5
	Founza	0.0	5.8	5.8
	Kompienga	-3.8	1.1	3.1
	Ndorola	-3.2	-5.5	3.6
	Ouargaye	2.6	19.4	12.5
	Sapouy	-9.5	-10.4	-3.8
	Solenzo	-2.7	-4.0	6.1
	Tita	-6.8	-3.4	8.8
	Tougan	-7.1	-5.5	-2.5
	Zabré	-7.2	-12.1	-18.1
Deficit areas	Bousse	-6.6	-1.7	-5.2
	Dori	-4.0	-4.0	-8.5
	Fada	-8.6	-8.7	-13.4
	Gourcy	-5.9	-8.6	-6.9
	Kombissiri	-8.8	-7.7	-9.2
	Kongoussi	19.0	14.7	13.5
	Koudougou	-6.0	0.5	2.7
	Ninieta	0.5	1.2	-1.3
	Ouahigouya	-8.0	-5.4	-1.8
	Sankaryaré	2.3	10.1	15.3
	Tenkodogo	1.0	11.3	3.4
	Yako	11.0	8.5	6.3

Source: Authors, with SIM/SONAGESS data.

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