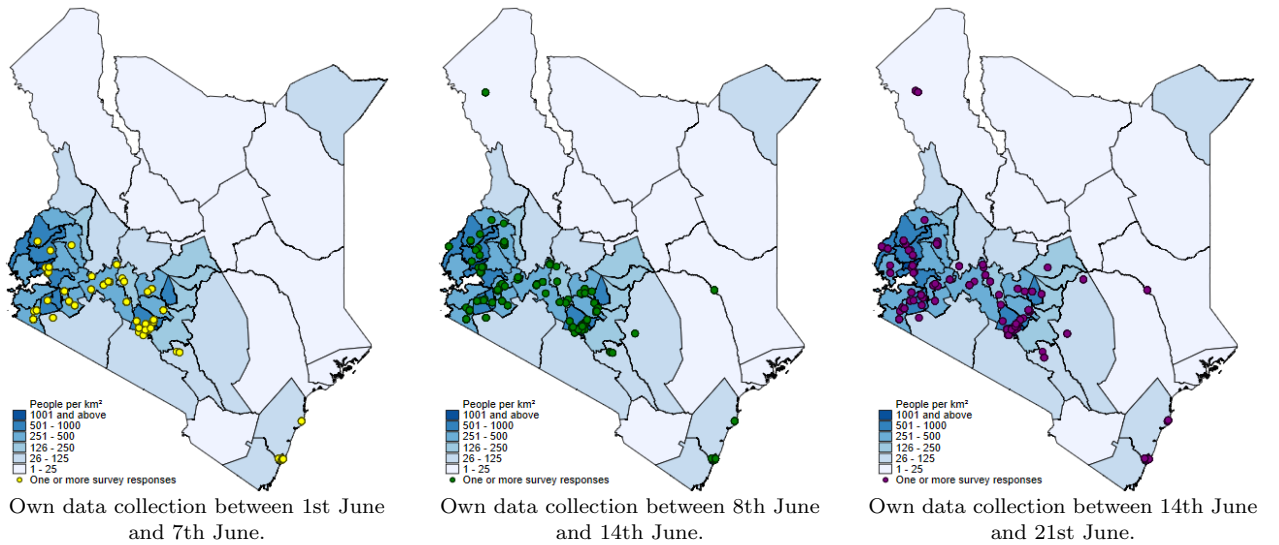# Data description price survey

21st June 2020

We rely on a quick-response online survey to track product prices and availability of selected essential consumer products across Kenya. We recruit volunteers, mainly university students and staff members of NGOs, who record information through an online form on their smartphone - either when or after visiting a shop in-person or getting deliveries. Embedding the survey into day-to-day activities of respondents helps us to address concerns about initiating or prolonging human interactions that would not occur otherwise. The main variables are retail prices and product availability. Through the survey we further collect information on product brands, shop (e.g. supermarket, *kibanda*, general shop), road (e.g. tarmac road, dirt road) and neighbourhood characteristics (e.g. residential area with informal settlements, formal settlements, open air market area, high-way stop-over market).

The key advantage of mainly relying on university students as volunteers is that many own a smartphone and currently stay with their families spread across the country as universities have halted on-campus activities. While the geographic distribution of the survey responses correlates strongly with population density (see Figure 4), regions of Kenya that are more likely to send students to universities in Nairobi and those with good mobile network coverage are over-represented. In May we further recruited students from two public universities in Garissa county and Laikipia county to partly mitigate the concentration around Nairobi and Kiambu. Areas where our sample has shortcomings relative the overall population are (i) rural areas (ii) prices from open air markets, and (iii) frontier counties in the North of Kenya.

Between the week of the 23rd March and the week of 18th May we collected on average 23 survey responses each week. Between the week of 25th May and 8th June we have been collecting about 100 survey responses per week. On average volunteers record prices for close to 5 items per survey. This week we have substantially increased the pool of actively contributing volunteers to 140 with the help of IPA Kenya, who shared our survey link with their network of current and former staff members. The data collected since 14th June are not yet included in the price plots below.

Figure 1: Population density and geographic dispersion of survey responses in Kenya

Own data collection between 1st June and 7th June.

Own data collection between 8th June and 14th June.

Own data collection between 14th June and 21st June.

As a first step we compare the price for sugar and maize flour to last year's price trends, the two products for which KNBS reported the most consistent time series in 2019 (Figure 2). We further show scatter plots with fitted national trends (Figure 3). Finally, we plot national average prices for six items in Figure 4. As we collected substantially fewer data points in the first nine weeks of our data collection, we take less confidence in the shown price movements and would either not report the data for items with unstable price trends on a dashboard or fade them out to signal a lower level of confidence in the reported data points. For maize flour, we have two weeks where we unfortunately only collected one data point each, and therefore consider reporting maize flour prices from 25th May onwards only.

In the future, we hope to further report differential price trends for rural and urban areas, with the main caveat that the classification is blurry outside the main metropolitan areas around Nairobi, Mombasa, Kisumu and Nakuru. In addition, with the most recent and future data we are able to report county level average prices for popular items and a number of well-represented counties like Nairobi, Kiambu, Nyeri, Kakamega, Kisumu and Migori. The additional dis-aggregations could be introduced retrospectively to the data collected since the start of the week of 25th May.

Figure 2: Comparing price dynamics for maize flour and sugar to monthly average price reported by KNBS
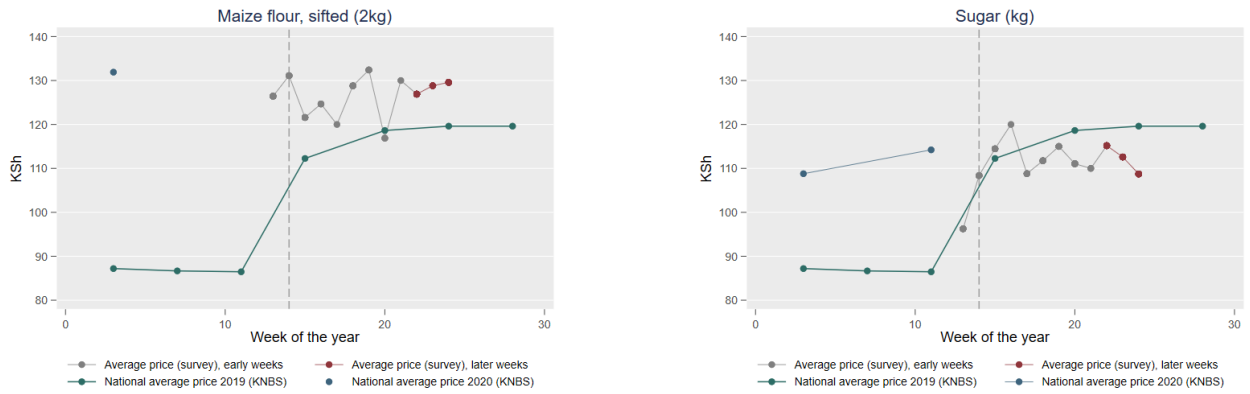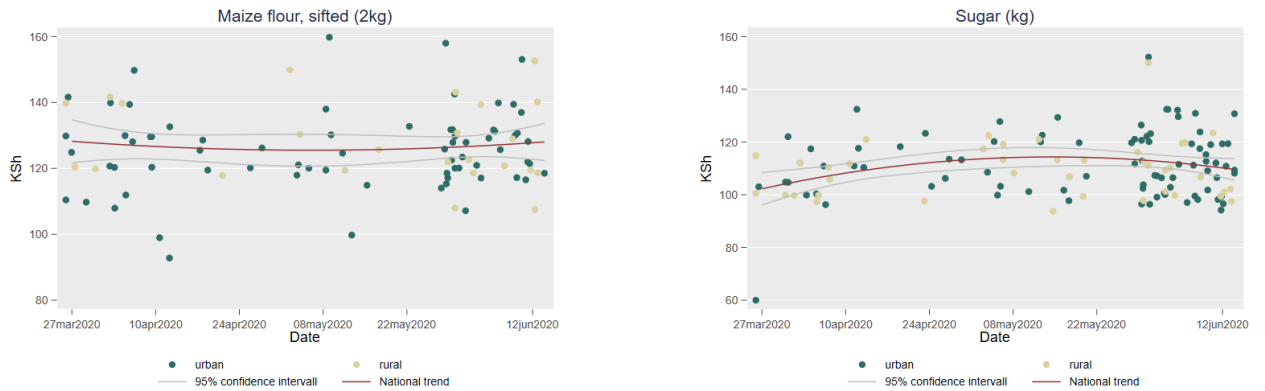

Figure 3: Scatter plot of maize flour and sugar prices with fitted national trends

KNBS monthly price reports from 2019 and 2020 and own data collection between 27th March and 14th June 2020. Each month KNBS reports the national average price for about 15-20 items. The list of items varies on a monthly basis. The two items for which the most consistent price series was available are sugar and maize flour.

Figure 4: Weekly national average, minimum and maximum prices
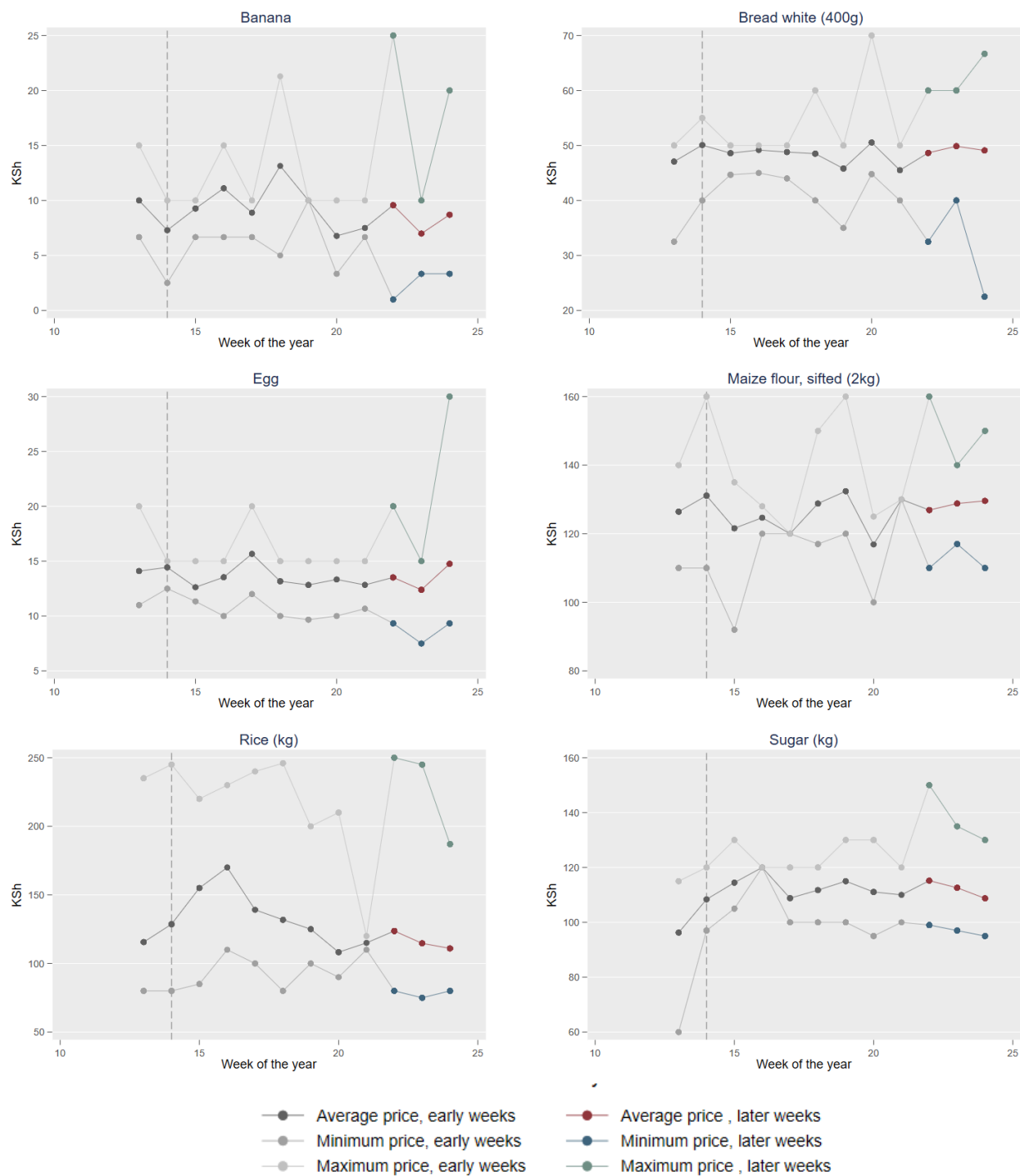
We first calculate county level average prices and then aggregate them to the national level. No weights are applied.