

THE IMPLICATIONS OF THE EBOLA OUTBREAK ON MARKETS, TRADERS, AND FOOD SECURITY IN SIERRA LEONE

February 2016

Researchers: Rachel Glennerster (J-PAL, IGC, and IPA), Tavneet Suri (MIT, IGC, and IPA), and Shweta Bhogale (IPA)

In brief

- The number of traders for both imported and domestic rice dipped pre-harvest but has been largely similar since.
- Except for the months of March and April 2015, the number of traders for gari and palm oil has consistently been lower than in pre-Ebola years. The number continued to be below 2011 levels in May-July 2015.
- The price of imported rice has consistently been lower than in pre-Ebola years, particularly in cordon districts. The price of domestic rice saw an expected fall around harvest time. However, the price recovery post-harvest has not matched up to previous levels.
- Prices for gari and palm oil have been stably higher than the 2011/12 season.
- The number of markets reported to be closed have been on a decline after peaking in October (except for a spike in April). From May through July, less than 10% of markets sampled reported to be closed.

Sierra Leone was declared free of Ebola earlier in November after 42 days had passed since the last patient was discharged on 25 September. As of 8 November, the number of deaths in Sierra Leone stood at 3,955 with 14,122 cases (WHO).

This note provides updated information based on four rounds of market surveys which took place: i) 24 April to 30 April, ii) 22 May to 27 May, iii) 25 June to 30 June, iv) 23 July to 29 July.

Survey details and additional data used

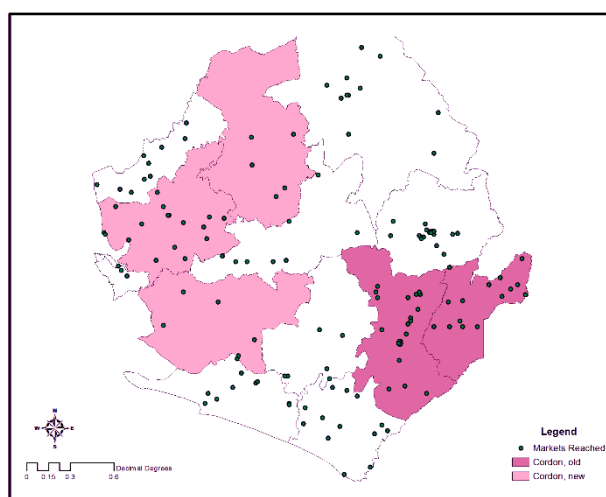
The additional data in this note comes from four rounds of phone surveys which took place between 24 April and 29 July. As in previous rounds, Innovations for Poverty Action (IPA) staff and enumerators phoned respondents (usually traders or market officials) at a representative random sample of 208 markets across Sierra Leone. Data was successfully collected from 192 markets in April, 164 in May, 185 in June and 186 in July. Respondents answered questions about prices and the level of activity at the markets where they were based. We have baseline data for April from 2012 only, and 2011 and 2012 are both available for May, June and July. We define an agricultural season as

starting in May and ending in April to make our graphs easier to read. Our data can be broken up as follows into 4 seasons, of which 1 is a full season:

Season 1	May 2011 to April 2012
Season 2	May 2012 to October 2012
Season 3	August 2014 to April 2015
Season 4	May 2015 to July 2015

Figure 1 shows the geographic spread of the markets that were reached in the latest rounds of the survey which even span the districts that were under quarantine (old cordon) or special transport restrictions (new cordon) at some point during the survey period.

Figure 1: Locations of markets reached at least once from April to July, Market survey

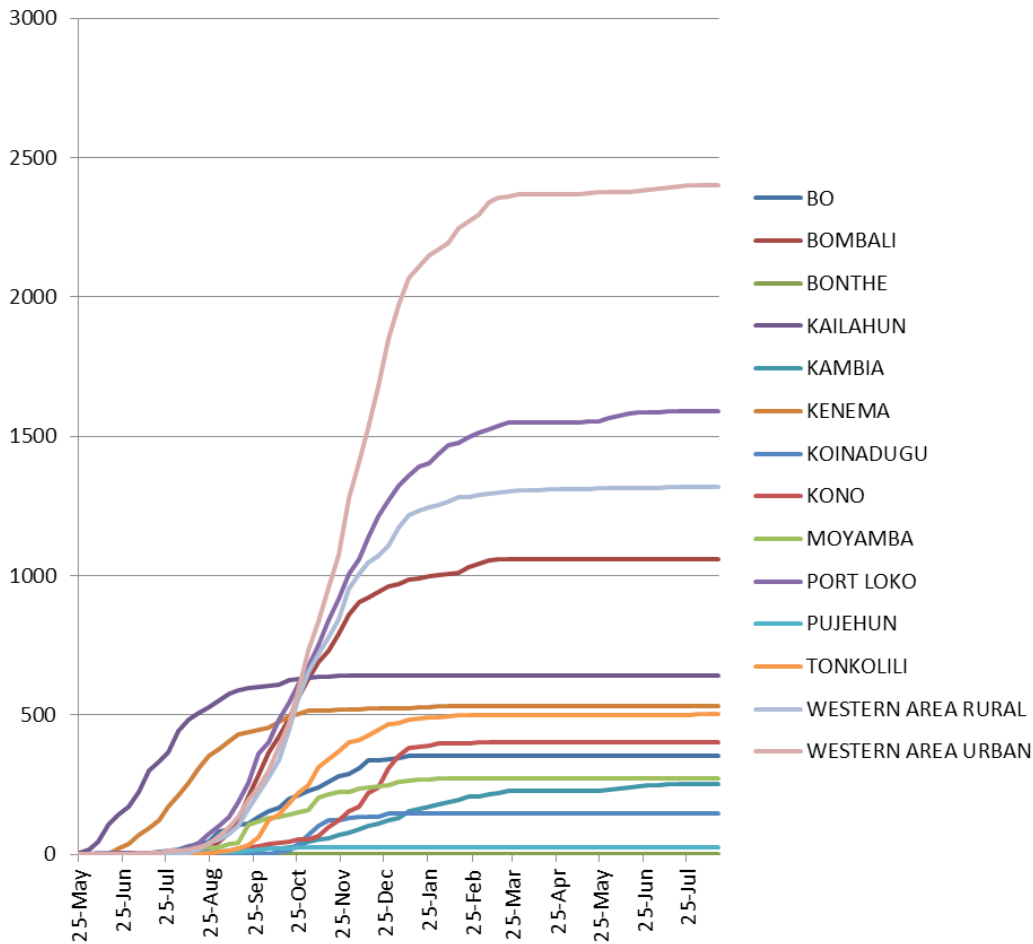


In addition to the market phone surveys, we present data on weekly cases of Ebola from the patient databases made publicly available by WHO.

State of emergency and restrictions

After having lifted district quarantines in January and reinstated them in February, the President of Sierra Leone relaxed restrictions on market trading, motor bikes, bars, nightclubs and public gatherings on 7 August 2015. Despite the relaxation, all facilities and venues of public meeting were required to follow strict protocols of precaution and markets were required to be closed on

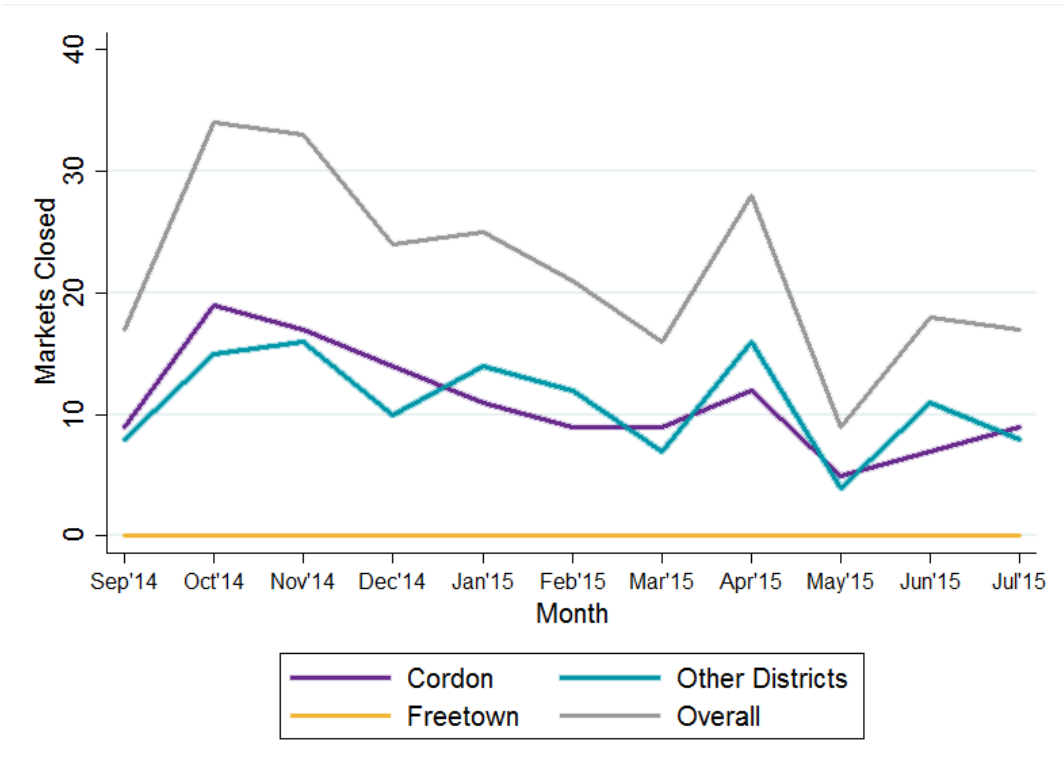
Figure 2b: Trends in confirmed cases across districts



Markets closed

The number of markets (in our sample) that are reported to be closed peaked in October and then continued to decline steadily, with the exception of a spike in April.

Figure 3: Trends in market closures by district category



Price results

Average prices for domestic and imported rice remain below the 2011-2012 levels (Figure 4a, and 4b), more so in cordon than non-cordon districts. On average, local rice prices were 10% below their level in 2011 (5% below 2012 level) in July and the gap was larger in cordon than non-cordon areas. The relative magnitudes for imported rice are similar. As in previous years the onset of the harvest in October/November was associated with a sharp fall in domestic rice prices followed by a steady rise in subsequent months.

Figure 4a: Domestic rice prices in cordon and non-cordon districts

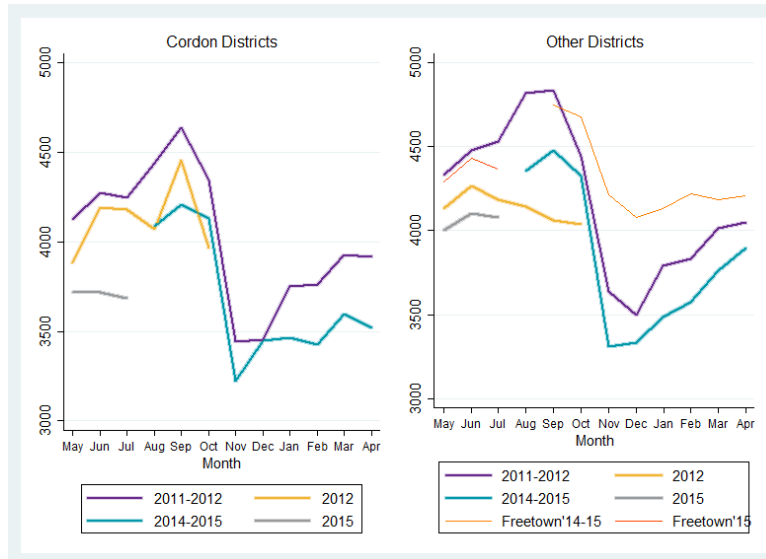
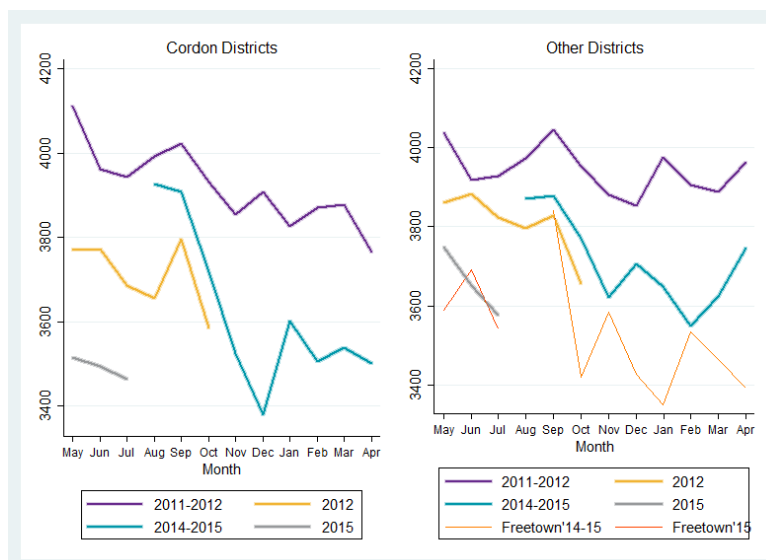


Figure 4b: Imported rice prices in cordon and non-cordon districts



Gari (processed Cassava) and palm oil prices (the major source of fat in the Sierra Leone diet) have been reasonably stable, though much higher than the previous season. In cordon districts, the price of palm oil was similar to the 2011-2012 cycle in January and February, but shot back up from March through July. The price of palm oil in non-cordon districts continued to be stably high. The

results for Masankay palm oil, not shown, are similar.

Figure 4c: Gari prices in cordon and non-cordon districts

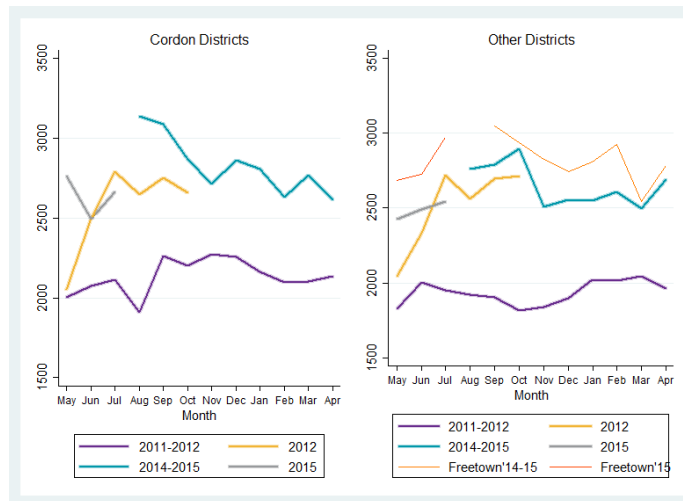
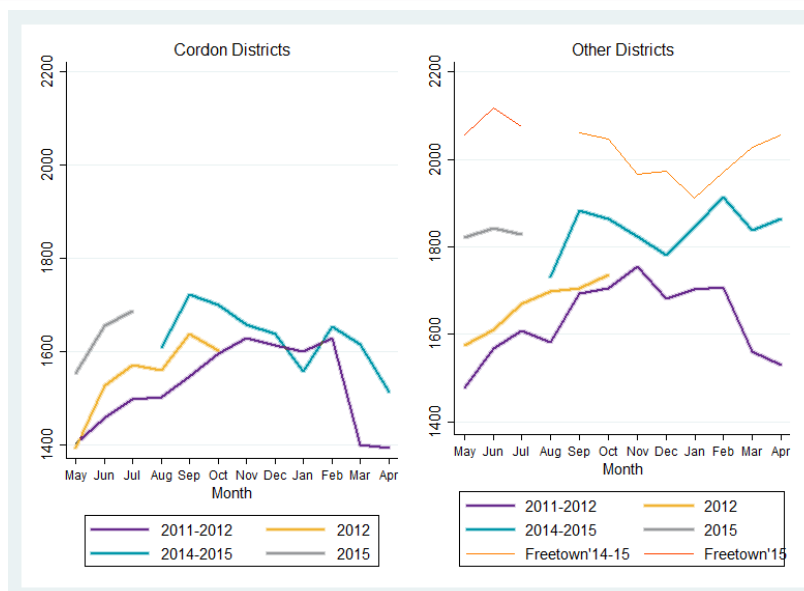


Figure 4d: Palm oil (red) in cordon and non-cordon districts



While average rice prices are similar to previous seasons, the peak of the crisis (September through December) saw a larger number of high price outliers than normal. This was less true in our previous report (Figure 5a). Currently, as we approach the hungry season, we begin to notice some price outliers (greater than 6,000 leones per kg) in the April to July window, though the tails are

similar. Because we did not collect data in markets in Western Area Urban (Freetown) in earlier rounds, we show the distribution of prices in Freetown separately.

The geographic distribution of these outlier markets can be seen in Figure 6. Here we use a slightly different definition of outlier, as the number of markets selling rice above a given price level depends on the time of year and thus the average price level. Here we define outlier as having a price more than 90 percentiles above the mean of that time period in the 2011/12 season. Outlier markets for price of local rice are concentrated in Pujehun and Bonthe in the south, which in fact are low Ebola districts. In previous reports, Port Loko and Kailahun - both highly affected areas - consistently had outlier markets, but prices appear to have stabilised in Kailahun, with Port Loko continuing to show an occasional outlier market. Outlier markets are shown in red, while non outliers are in green. There were no outlier markets in June.

Figure 5a: Distribution of domestic rice prices by year

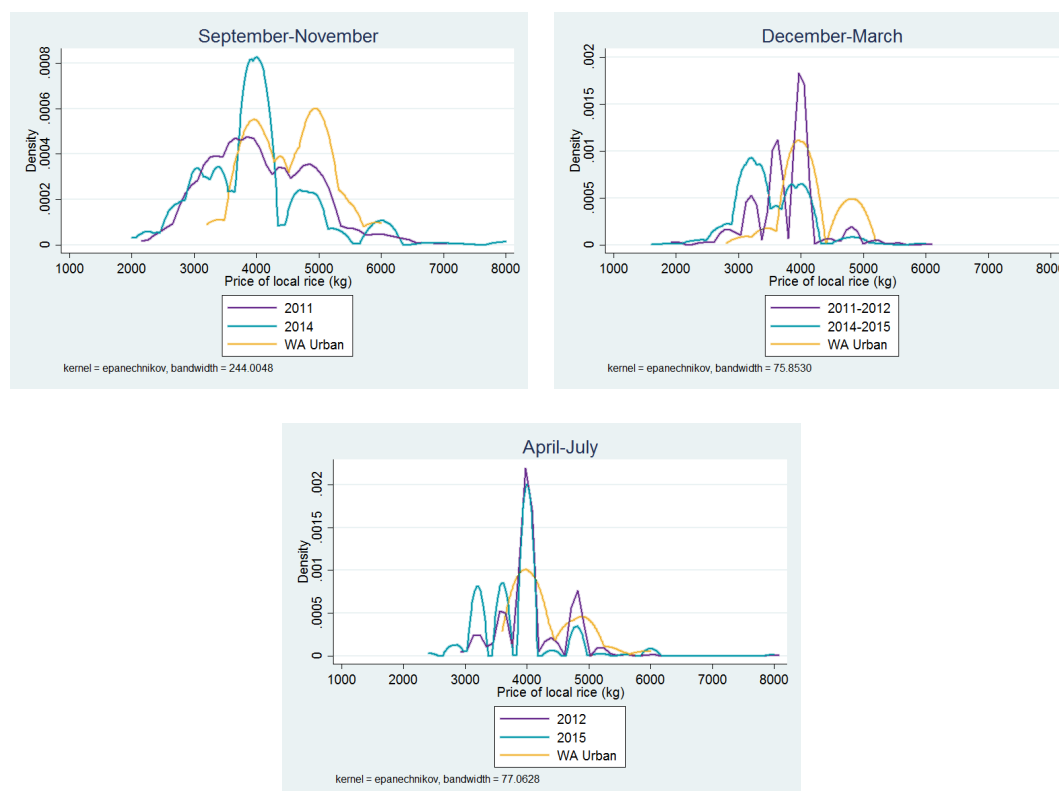
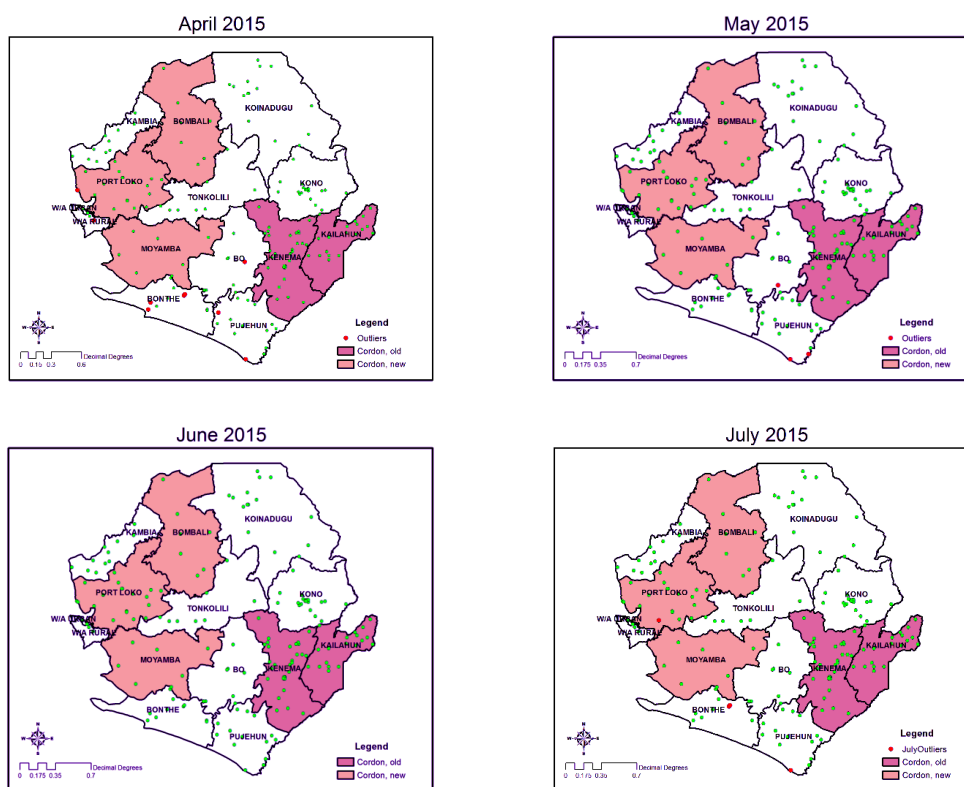


Figure 6. Maps of outlier markets



Trader activity

The number of traders for local and imported rice continues to be similar to previous years (Figure 7a and 7b). For imported rice, there were fewer traders this year during September and October than in previous years, especially in cordon districts, but the gap disappeared in November and has not reappeared (except in the months of May-July for cordon districts, if compared to the 2011-2012 cycle). Interpreting the trends for domestic rice traders is harder because of the big difference in traders in the autumn of 2011 and the autumn of 2012. This is complicated by the fact that we stopped collecting data at the end of 2012. Looking just at 2011/12 season, the number of traders this year has not been very different. The numbers of traders for gari and palm oil in 2014/15 season have been persistently below that for 2011/12 season. The gap closed in March (Figure 7c and 7d), but has reappeared from May through July when compared to these months in 2011. Here again, it must be noted that the 2011 and 2012 levels from May to June are vastly different and the current levels are similar to 2012 from May to July.

Figure 7a: Number of domestic rice traders per market

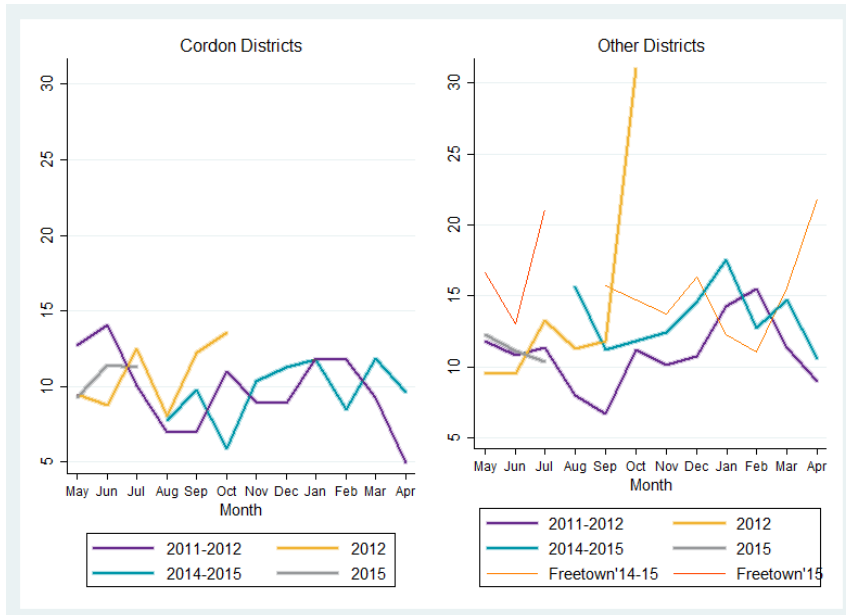


Figure 7b: Number of imported rice traders per market

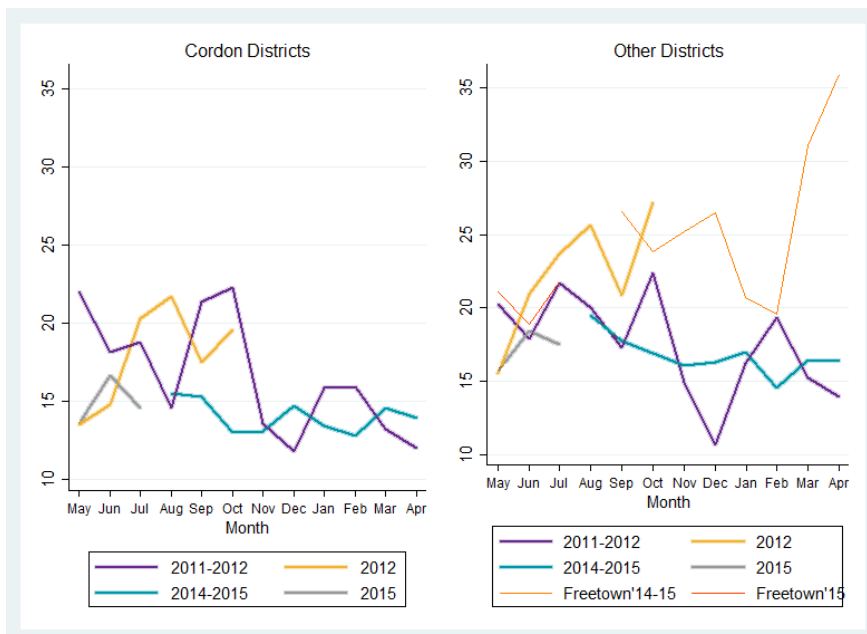


Figure 7c: Number of gari traders per market

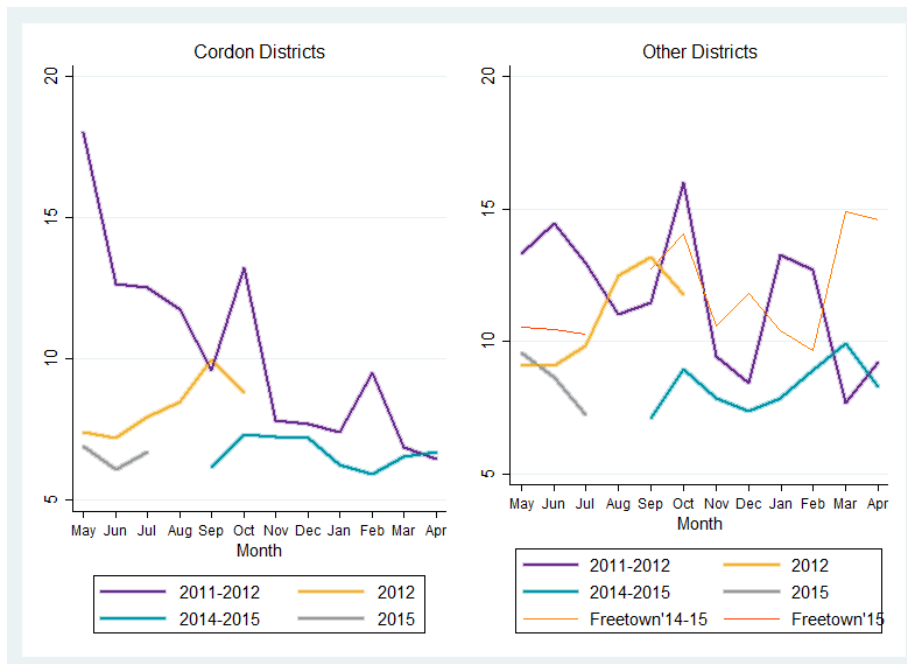
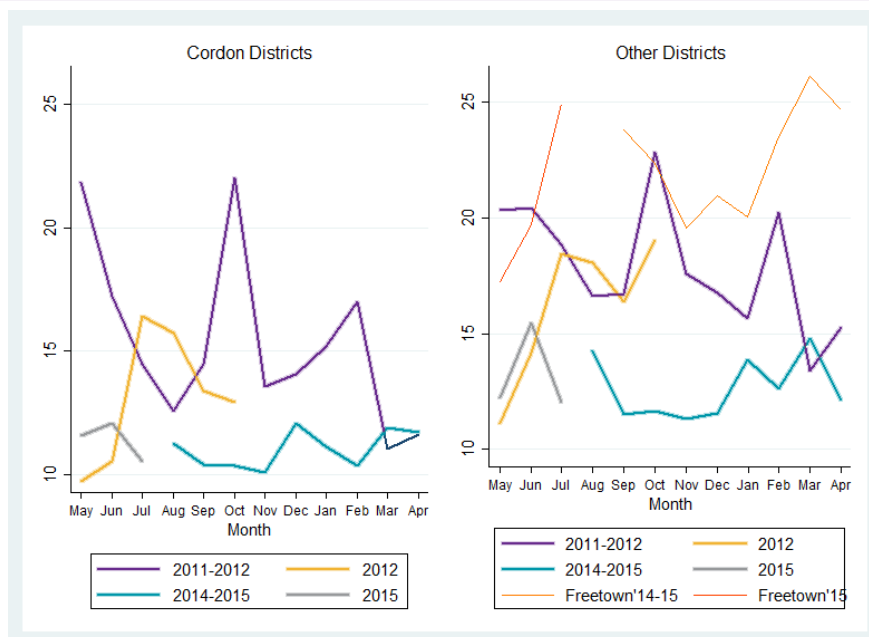


Figure 7d: Number of palm oil (red) traders per market



Conclusion

The effects of the crisis have been persistent through the year with price of rice being marginally lower despite no differences in the number of traders, and the prices other staples being higher with fewer traders in the markets. The food price situation in Sierra Leone has been on its way to normalcy with markets now functioning on a more regular basis and the transport restrictions being relaxed.

Economics of Ebola initiative

The recent outbreak of Ebola in West Africa has generated global alarm; attention is now turning to its economic consequences, which may add to the damage caused by the disease.

In response, the IGC's [Economics of Ebola initiative](#) aims to support the Governments of Sierra Leone and Liberia and their development partners by producing and disseminating credible demand-driven research, data, and analysis to ensure that policy responses are evidence based and that corrective actions are effective and well targeted.

In this set of bulletins on the economic impacts of Ebola, the IGC is disseminating the data collected, including key facts and policy recommendations. The IGC shares these bulletins with the broad group of aid agencies, NGOs, and journalists with an interest in the Ebola epidemic.

Previous editions of the IGC's economic impact of Ebola bulletin are available online here: <http://www.theigc.org/project/economics-of-ebola-initiative/>

The IGC has also developed a web page collating the results of IGC and non-IGC research on the economic impacts of Ebola in order to make their policy implications more accessible. This page is available here: <http://www.theigc.org/economics-of-ebola-research/>

About the International Growth Centre

The International Growth Centre (IGC) aims to promote sustainable growth in developing countries by providing demand-led policy advice based on frontier research. The IGC directs a global network of world-leading researchers and in-country teams in Africa and South Asia and works closely with partner governments to generate high quality research and policy advice on key growth challenges. Based at LSE and in partnership with the University of Oxford, the IGC is funded by the UK Department for International Development (DFID).