

The Economic Impact of Ebola: Monitoring the Impact of Potential Transport Disruptions on Traders, Food Availability, and Market Prices

Summary

Uncertainty about the exchange rate, restrictions on shipping routes, reduced activity by informal traders fearing infection from Ebola and the cordon imposed around Kenema and Kailahun has the potential to interrupt the trade of basic commodities across the country. We therefore collected data on food availability, prices, and number of traders in 153 markets throughout Sierra Leone (with the exception of Western Area Urban) in the week of 19-27 August 2014. Note that these are prices in the markets only. Many communities rely on traders taking the food to villages and therefore these prices do not necessarily equal the prices that households would pay in locations without markets. We conducted a second round of market surveys and included questions on petrol prices, the closure of markets, and food prices in Freetown markets during 11-16 September, 2014. This round was conducted before the shutdown between September 19th and 21st. Anecdotal evidence suggests that prices may have changed a lot after September 21st. We are therefore conducting a third round of the pricing survey, starting on September 30th and will report on that as soon as the data is available.

The second round in September covered 157 markets of which 25 were in Western Area Urban. We compare these prices with those in August and September 2012. In addition, we compare the cordon districts (Kailahun and Kenema) to the non-cordon districts to look at whether the cordon is impacting food and petrol availability and prices. We do not have data from Western Area Urban markets in 2012 so we show these separately and compare them to other regions and not over time. We find that:

- With over 20% of markets now reporting that the rice harvest has started (up from 8% in August), it is possible to examine prices of domestic rice. For much of the country prices are similar to prices in 2012. Indeed, prices of domestic rice are actually lower in cordon areas than they were in 2012, underlining the importance of not flooding the markets in these districts with too much rice. As discussed below, the key is to ensure good distribution of rice.
- The number of traders of local rice is lower, by about 40%, compared to this time in 2012 in cordon districts. If this translates into fewer traders purchasing rice from farmers this could negatively affect farmers' incomes. Trading of local rice does not (yet) seem to have been adversely impacted in other parts of the country.

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- We do not yet have data for traders of cash crops, however, the lower numbers of local rice traders in cordon areas raise concerns about the ability of farmers in Kailahun and Kenema to sell their cocoa and coffee.
- While on average rice, gari and palm oil prices are similar to previous years there are a handful of markets, especially in Kailahun that are showing price spikes for imported and domestic rice and it will be important to ensure that these markets receive inflows of imported rice.
- 17 markets out of 157 contacted in September are reported to be closed, including because of Ebola. For the most part in these markets traders continue to sell produce from their homes.
- Petrol prices are similar in cordon and non-cordon areas suggesting the government's efforts to bring in key commodities into the cordon areas are continuing to be successful.
- Rainfall has been higher in the summer months in 2014 than in typical years suggesting that rice should have grown well. However, we do not know the extent to which the harvest itself has been disrupted by the ebola outbreak

Methodology

Between August 19 and 27 we activated a previously established phone-based market survey to provide independent monitoring of possible food shortages this was followed by a second round which started on September 11. In 2010, we collected phone numbers of people who could report on activity at a random sample of markets across Sierra Leone as part of a national agriculture survey run jointly with the Ministry of Agriculture Fisheries and Food Security and Statistics Sierra Leone. Monthly data were collected from 185 markets on food prices, availability and number of traders during 2011 and 2012. In August, we were able to collect data from 152 of these markets (Figure 1). This September, we added 25 markets in Western Area Urban as well as prices for petrol. So far we have collected data from 157 markets in September, about 3/4 of the full sample. Because we asked similar questions in each year we can compare how prices differ from those in the same month in 2012 and how changes in the cordon districts of Kenema and Kailahun, compared to changes in other districts across the country.

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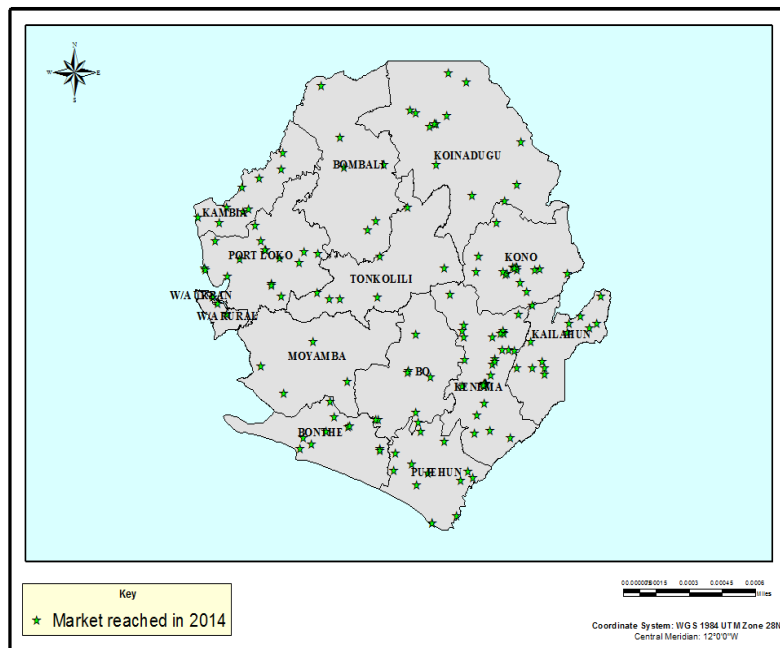
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Figure 1: Location of Markets for Monitoring Survey, August 2014



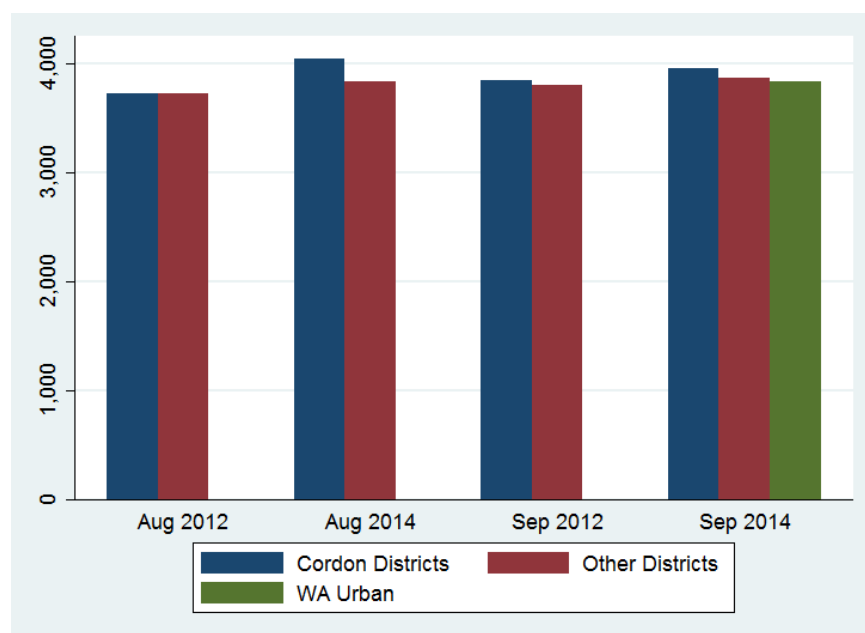
Results

Rice

In August, little domestic rice is traded and the most important price is that of imported rice. In September, 20% of markets reported that the local rice harvest had started so we also examine prices and traders for domestic rice.

Imported rice was the same price across cordon and non-cordon districts in 2012. However, prices for imported rice in these districts are now very slightly higher in the cordon districts. This is similar to the price difference in August. These results suggest that the Government's efforts to bring food into the impacted districts have been largely successful. However, as discussed below there are a few markets in Kailahun with much higher rice prices suggesting that action does need to be taken to ensure even distribution of rice in the cordon areas. In general, since prices have not risen much compared to 2012 in all areas, it suggests that transport issues and fear of infection on the part of traders have not significantly disrupted the flow of food to markets or competition in the markets.

Figure 2: Prices of Imported Rice (Leones/kg) in 2012 and 2014



Prices of domestic rice are also similar to the same period in 2012. Indeed, prices in cordon areas are actually down compared to 2012, underlying the need to avoid flooding the market with rice. Domestic rice is more expensive in Freetown than in rural areas, which is unsurprising given transport costs (for the same reason imported rice prices are lower in Freetown than elsewhere).

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Figure 3: Prices of Domestic Rice (Leones/kg) in 2012 and 2014

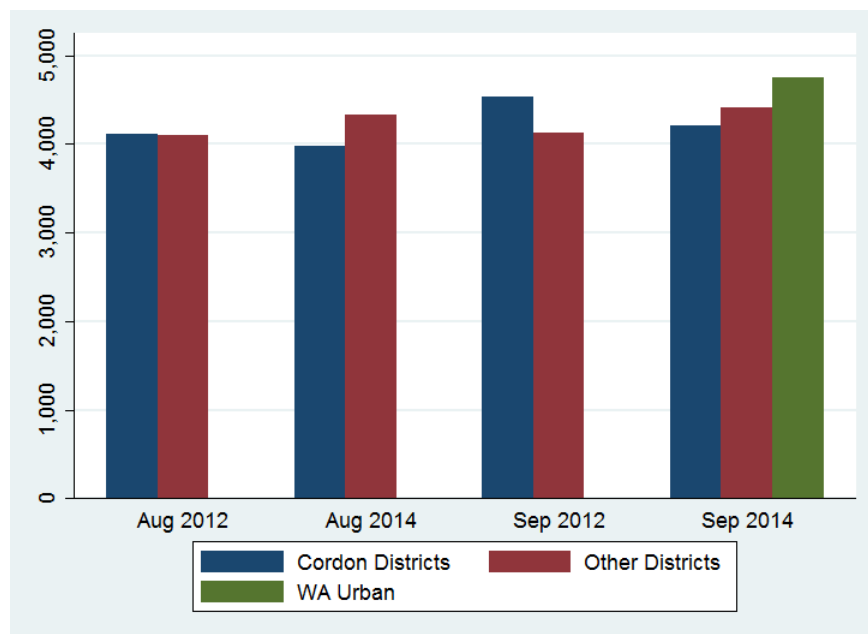
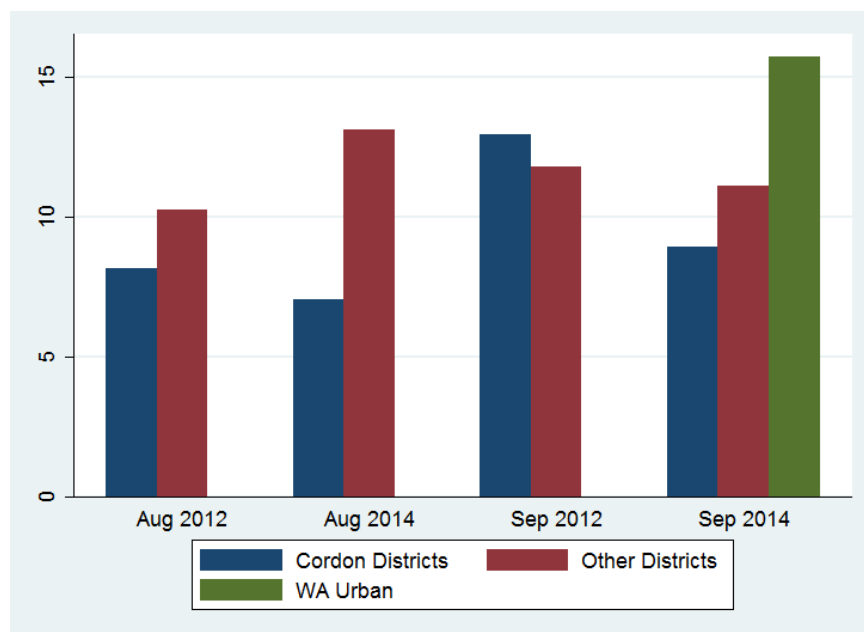


Figure 4: Number of Traders of Domestic Rice in 2012 and 2014



The number of domestic rice traders is unchanged between 2012 and 2014 for most of the country. However, for the cordon districts the number of traders of domestic rice is down sharply (by about a third). This is not simply a reflection of the closure of periodic markets in response to the Ebola outbreak. In total we find 17 (of 157) markets contacted in September did not operate during the

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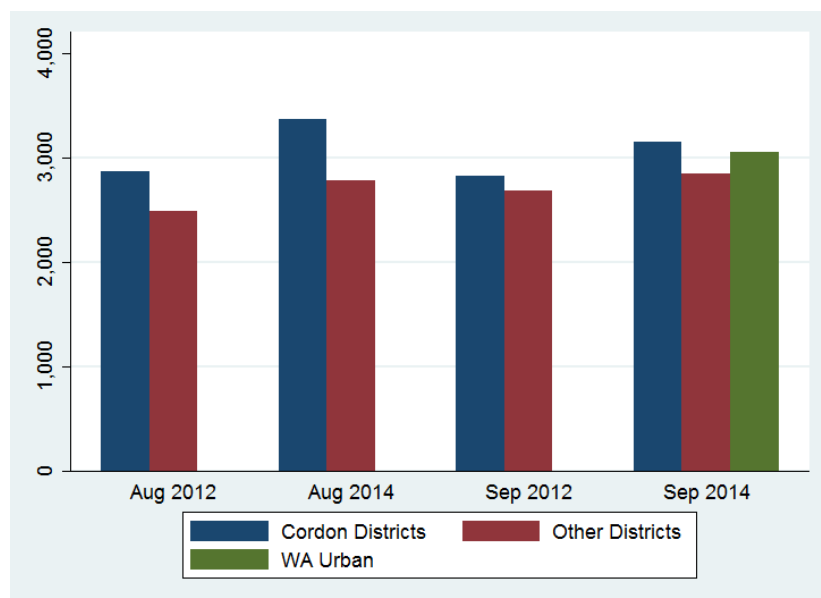
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previous week in 2014. Of these, 1 was in Bonthe, 1 in Bombali, 2 in Kailahun, 4 in Kenema, 4 in Koinadugu, 2 in Port Loko and 3 in Kono. In these markets, traders are continuing to sell rice from their houses (and the prices reported here reflect these sales). Even in markets that have not been closed within the cordon areas the number of traders is lower than normal. While this is not, yet, impacting market prices it does raise the concern that fewer traders are visiting households to purchase rice which will negatively impact farmers.

Gari

As with imported rice, the price of Gari is higher in cordon districts than it was in 2012, by 3.1%. The price is also higher in WA Urban but this likely reflects normal transport costs. Non-cordon areas have not experienced price rises compared to previous years.

Figure 5: Price of Gari (Leones/kg) in 2012 and 2014



Palm Oil

The number of traders supplying both, red and masankay palm oil is down in 2014 compared to 2012 and down between August and September but there are still on average about 11 traders per market in both cordon and non-cordon districts. The prices for red palm oil and masankay palm oil have increased in the highly affected areas in comparison to other districts and are a little higher than both August as well as the same time in 2012.

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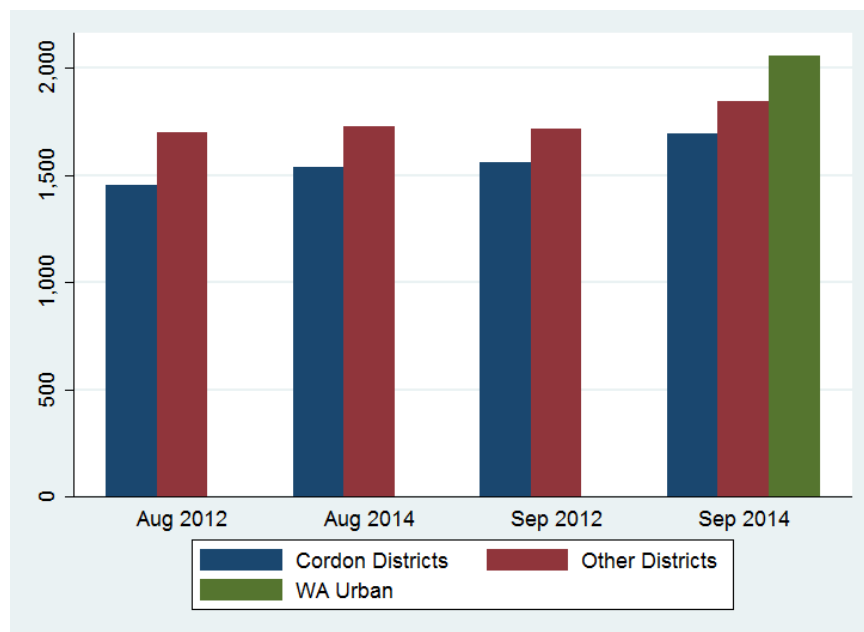
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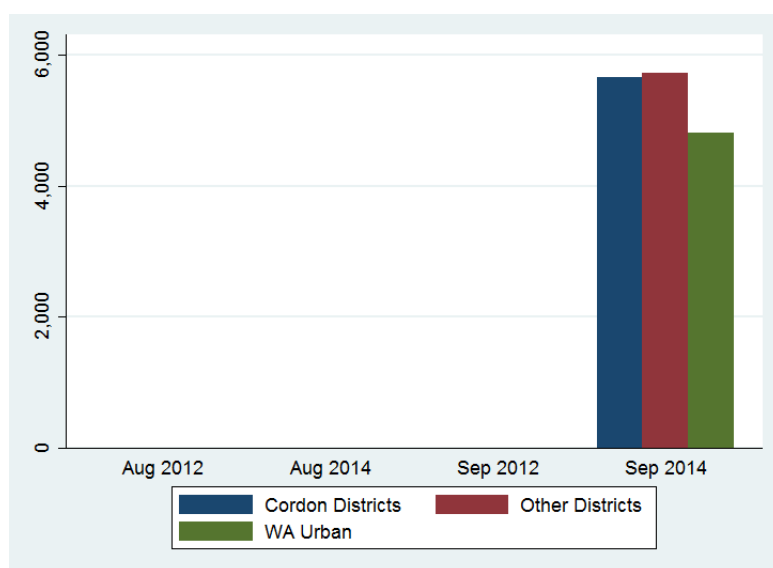
Figure 6: Price of Red Palm Oil (Leones/pint), 2012 and 2014



Petrol

Petrol prices were added to the survey in September 2014. We find prices are slightly lower in Freetown than elsewhere, reflecting transport costs but no higher prices in cordon areas than elsewhere in the country suggesting the Government has been effective in ensuring supplies of key goods into the cordon areas.

Figure 7: Prices of petrol in September 2014



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Price peaks

Even in normal years the price of basic food stuffs vary from market to market, partly because of transport costs. We do find more “outliers” in both imported and domestic rice prices in 2014 than in 2012.

For the month of August, there were 2 markets with an imported rice price of over 4500 Leones per kg in 2012 (1 in Kailahun, 1 in Pujehun), and 16 in 2014. Of these 16, 8 were in Kailahun (of a total of 19 markets we surveyed in Kailahun) 1 in Bonthe, 2 in Kenema, and 5 in Pujehun. These are of course, small numbers of observations but should be continued to be monitored. For September 2012, 13 markets had prices higher than 4500 Leones per kg of imported rice of which 2 were in Bonthe, 5 in Kailahun, 2 in Kenema, 1 in Port Loko and 3 in Pujehun. In September 2014, there were 15 markets with prices higher than 4500 Leones per kg for imported rice of which 5 were in Kailahun, 1 in Bonthe, 2 in Kenema, 2 in Koinadugu, 2 in Tonkolili, 1 in Kono and 2 in Freetown.

For domestic rice, in 2012, 1 market in August and 2 in September had price greater than 5500 Leones per kg of rice but, in August 2014, 7 markets did (2 in Bo, 1 in Bonthe, 1 in Kenema, 1 in Moyamba, 1 in Port Loko and 1 in Freetown) and in September 2014, 13 markets did (2 in Bo, 4 in Bonthe, 1 in Kailahun, 1 in Kenema, 1 in Moyamba, 1 in Kono and 3 in Freetown).

Freetown has a number of outlier prices for imported rice in 2014. The price of domestic rice is, as discussed above, higher than in other parts of the country, with the majority of markets falling between 4,000 and 6,000 Leones per kg but there are not large outliers.

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Figure 8: Kernel Density of Price of Imported Rice (Leones/kg)

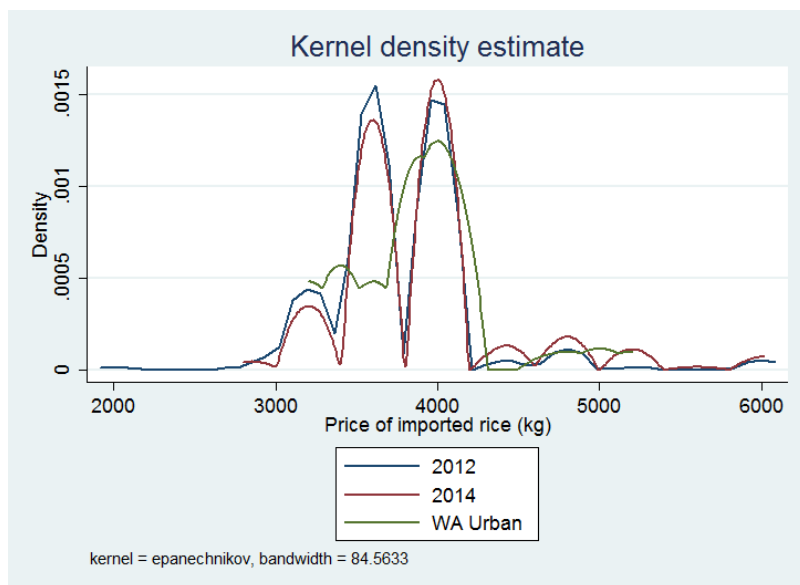
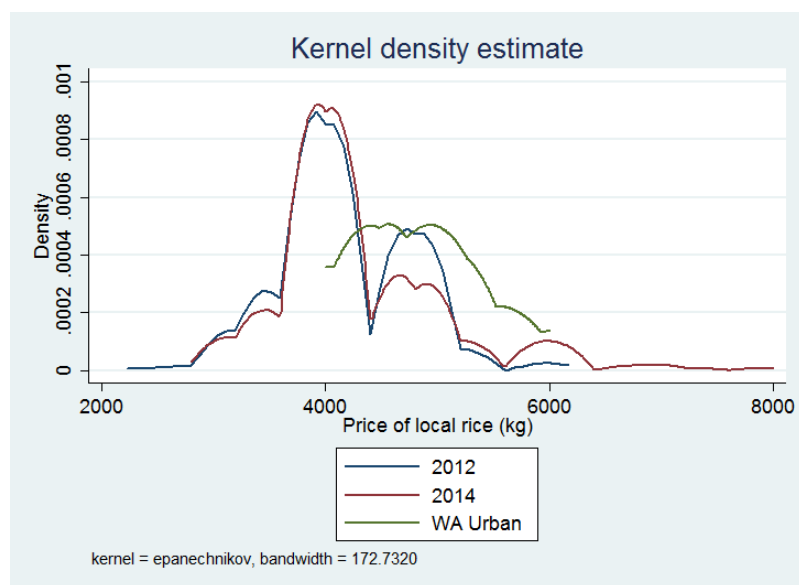


Figure 9: Kernel Density of Price of Local Rice (Leones/kg)



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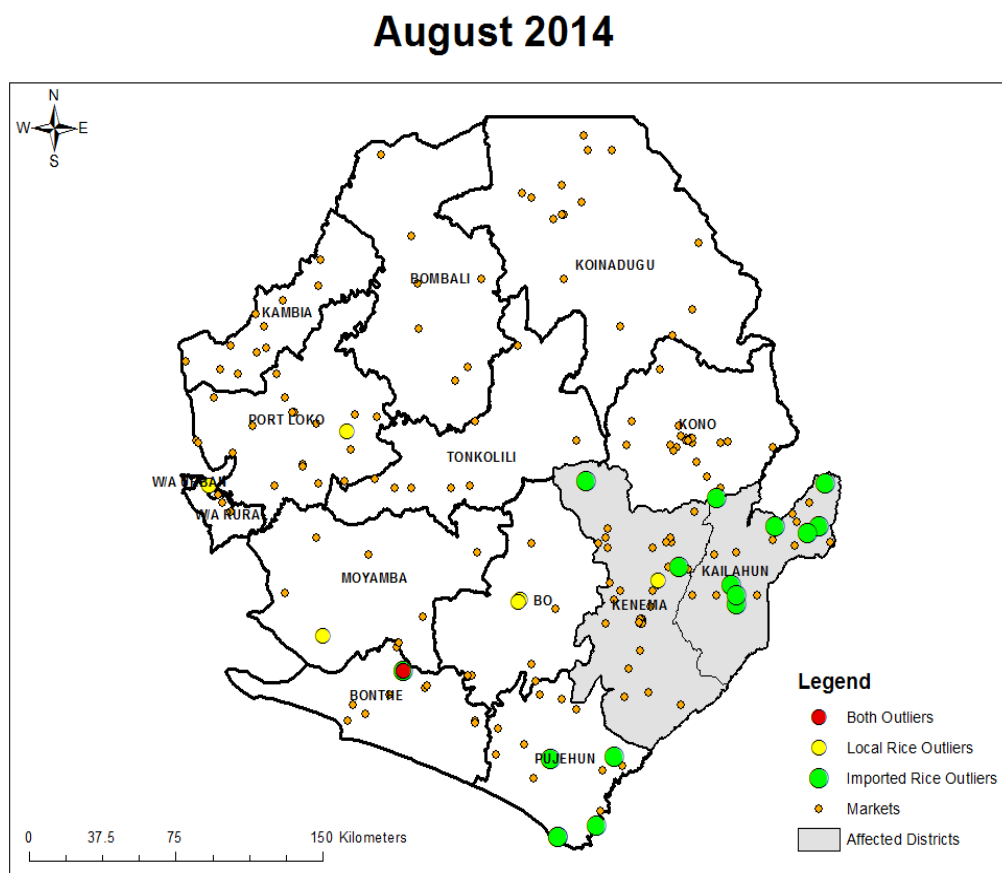
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Figure 10a: Locations of Markets with Outliers, August 2014



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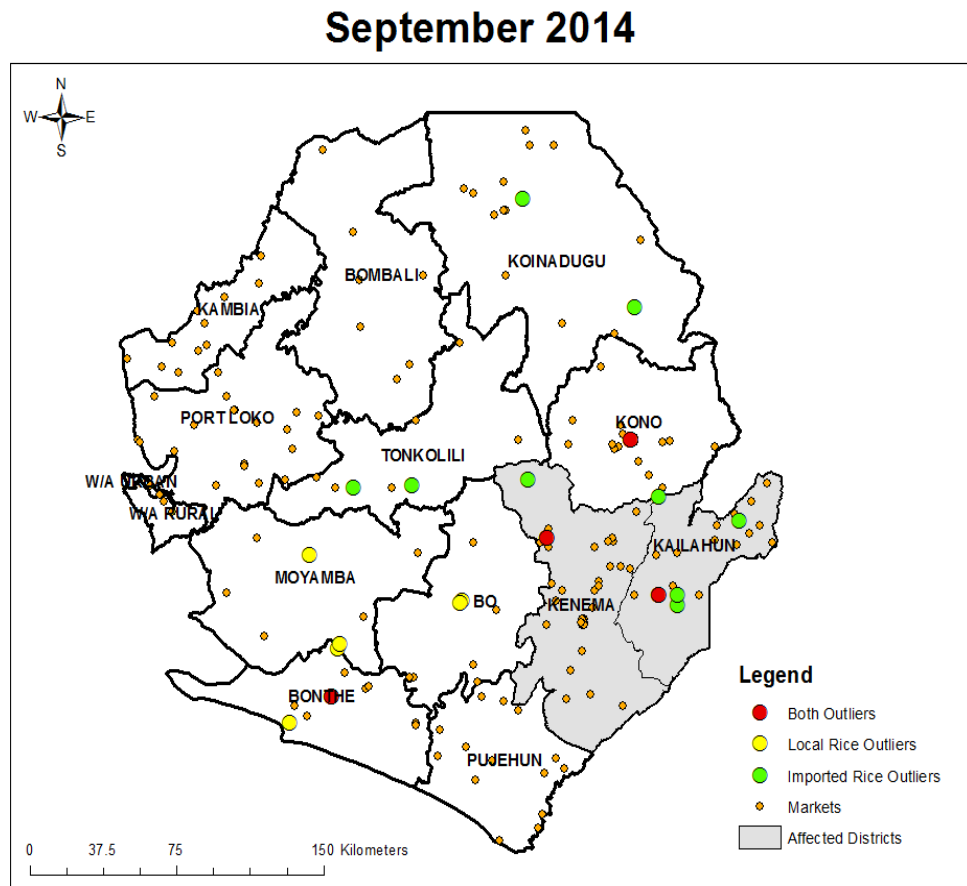
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Figure 10b: Locations of Markets with Outliers, September 2014



Rainfall

Looking at rainfall data and comparing it to previous years shows that the rains were good throughout the summer – this suggests that this year’s rice crop should have grown well. However, we do not have access to data on the extent to which the harvest itself has been disrupted by the ebola outbreak.

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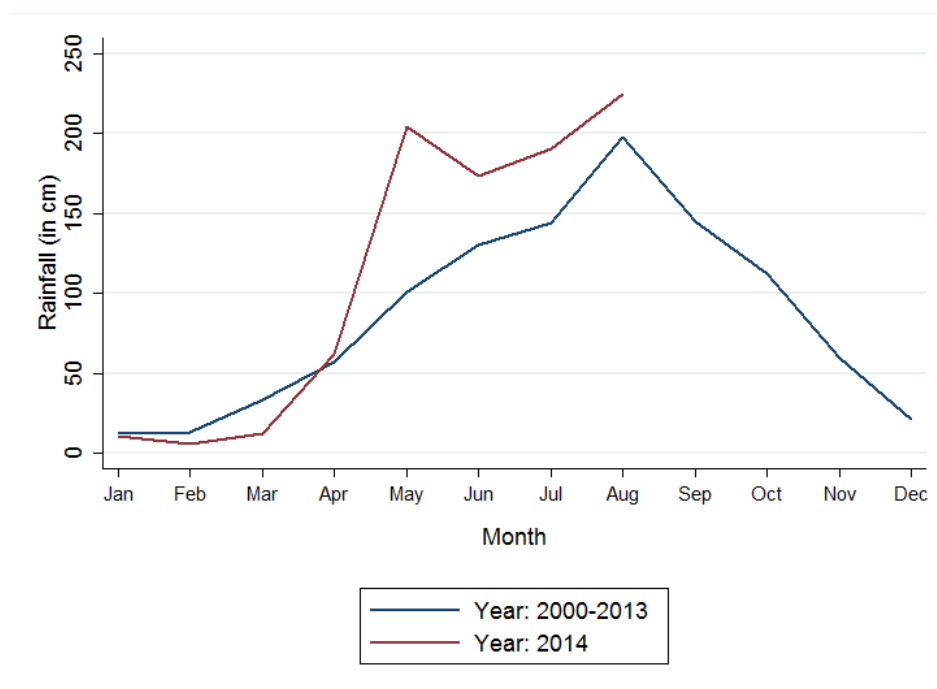
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Figure 10: Monthly Rainfall in 2014 Compared to Previous Years



Conclusion

Our findings suggest that the Government has been effective in getting food into the cordoned districts and that food is reaching even remote markets. Traders do not appear to be reducing their activity because of fear of infection in non-cordon areas but the number of traders in domestic rice and palm oil is down in Kailahun and Kenema by about 40% compared to 2012. With the harvest now starting to get underway these districts farmers will need to be able to sell their rice. The cocoa harvest has already started in these districts and it will be important to make sure that farmers can sell their cash crops or they, and the country as a whole, will lose important income.

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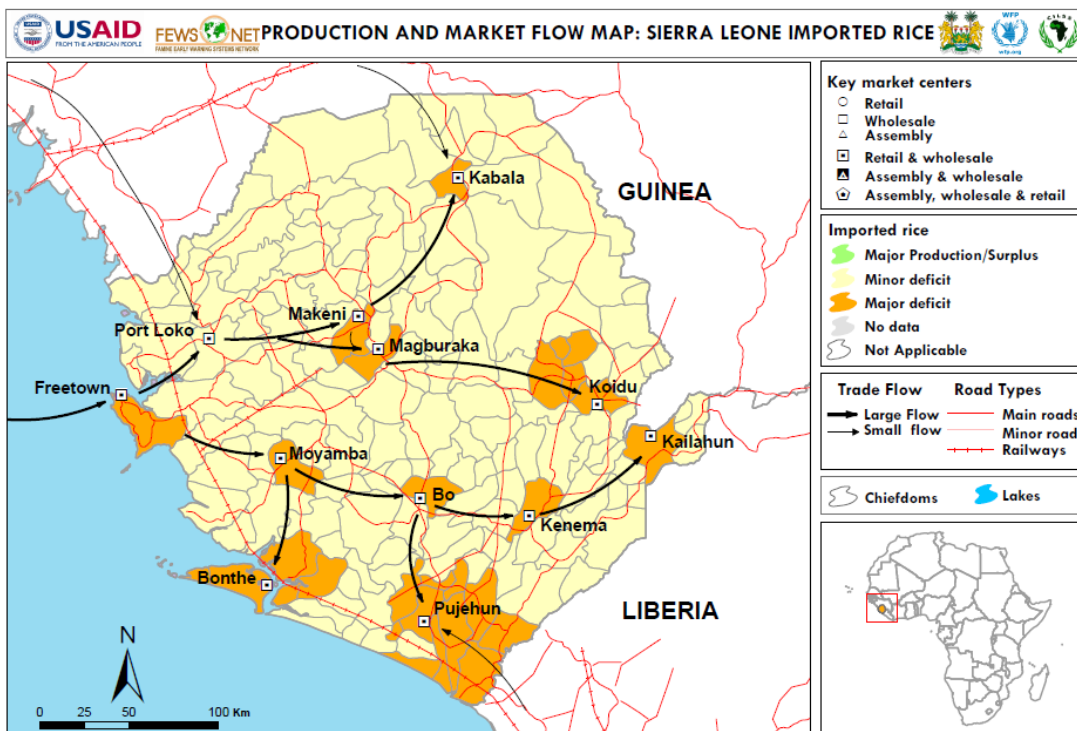
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Appendix: Normal trade flows of imported and domestic rice in Sierra Leone

FEWSNET produces estimates of the flows of both imported (Appendix Figure 1) and domestic rice (Appendix Figure 2) in normal years. This suggests that Pujehun imports some imported rice from Liberia and thus might be negatively impacted by the closing of the border. This flow reverses for domestic rice, i.e. after harvest. Fortunately other districts (except Kailahun) rely on transport of rice through Kailahun or and Kenema.

Appendix Figure 1: Production and market flow of imported rice in normal years



Source: FEWSNET

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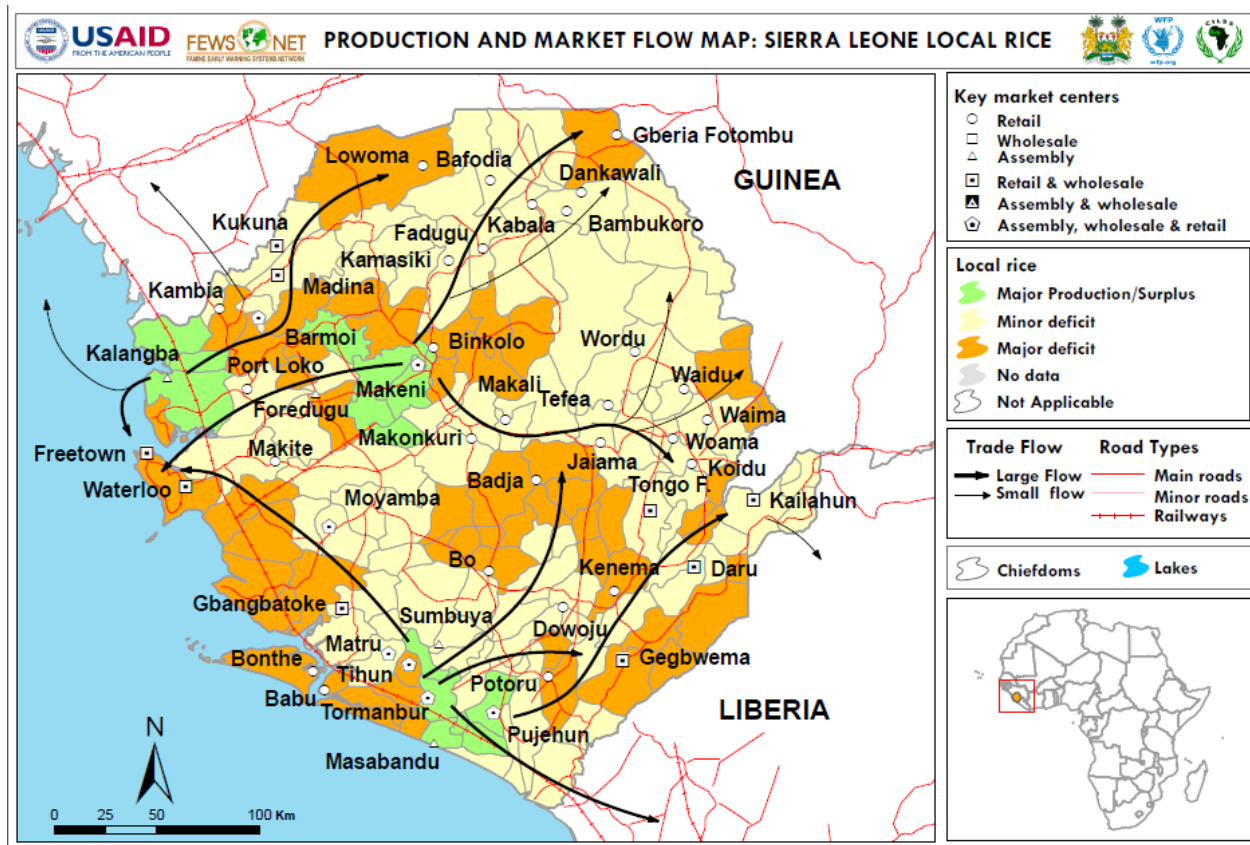
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Appendix Figure 2: Production and market flow of domestic rice in normal years



Source: FEWSNET

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