The Socio-Economic Impacts of Ebola in Liberia

Results from a High Frequency Cell Phone Survey

Round 5

April 15, 2015

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Overview

As of April 8, 2015, Liberia has reported over 9,860 cases of Ebola Virus Disease (EVD), and over 4,400 deaths, according to the World Health Organization. Liberia continues to show progress toward getting to zero cases, and in the 21 days leading up to April 8, there was only one confirmed case nationally. Due to the improving health situation, a number of Ebola Treatment Units have closed.

The World Bank Group, with the Liberia Institute of Statistics and Geo-Information Services (LISGIS) and the Gallup Organization, has continued to monitor the socio-economic impacts of EVD on households through a series of mobile-phone surveys conducted in October, November, and December 2014, and January and March 2015. As the health crisis continues to abate, it will be crucial to shift toward economic recovery and to promote the medium- and long-term welfare of the Liberian people.

The employment situation in Liberia continues to improve. Although 40 percent of respondents report not working since the start of the crisis (compared to 41 in January), that number belies a steady return in wage work and rural self-employment, offset by a typical seasonal lull in agricultural work. The survey does not indicate whether the level of economic activity of those returning to work is the same as before the crisis, and it is likely that Liberians' living standards are below what they were. Women continue to experience the worst job losses – they are typically self-employed, working as traders or in markets, the type of jobs that have been most impacted by the EVD crisis.

Most agricultural households report that their 2014 harvest was smaller than the previous year, though the link to EVD is not clear. Of those surveyed that had completed the harvest, 65 percent said the 2014 harvest was smaller than last year, 28 percent said it was higher, and six percent said it was the same. Harvest results have not necessarily correlated to county-specific shocks, which underlines a need to focus agricultural support across the sector, not just in areas that have been impacted directly by EVD.

Food insecurity remains high, but has seen significant improvement in rural areas. This is likely due to the completion of the rice harvest, the main staple crop across Liberia. Increases in food insecurity in Monrovia and other urban areas have offset the decrease in rural areas, so the national level of food insecurity stayed about the same since January, with just under 75 percent of households surveyed reporting that they were concerned about having enough to eat in the previous week. The use of economic coping strategies has also levelled off, a hopeful sign that households are beginning to rebuild lost assets.

The use of public services appears to be rebounding to levels seen before the crisis. As schools have re-opened, more than three-quarters of respondents with primary school-aged children reported at least some have returned to school. Older children have seen a decline in attendance compared to last year, with only 73 percent of households reporting sending their older children back to school. In both age groups, for those who did not sent their children back to school, families cited a lack of money as the main barrier, rather than fear of infection. In the health services area, based on the survey responses, there does appear to be a shift from private back to public providers, back to pre-crisis levels.

As Liberia continues on the path to zero cases of Ebola, economic recovery is on everyone's minds. In order to provide more and better data to target recovery efforts, the World Bank Group will shift its focus to supporting LISGIS in conducting in-person household surveys, planned to start in July, and will no longer conduct mobile phone surveys. In addition to targeting economic recovery efforts and understanding long-term welfare impacts, this will also help better highlight the effects of EVD on Liberian households, and how the World Bank Group and partners can help countries prepare for and mitigate the effects of future pandemics and crises.

Map


IBRD 33435R2
SIERRA LEONE
GUINEA
CÔTE D'IVOIRE
ATLANTIC OCEAN
LIBERIA
LOFA
GBARPOLU
GRAND CAPE MOUNT
BOMI
BONG
NIMBA
MARGIBI
GRAND BASSA
MONTSERRADO
RIVER CESS
GRAND GEDEH
SINOE
RIVER GEE
GRAND KRU
MARYLAND
MONROVIA
Voinjama
Kolahun
Mt. Wuteve (1,380 m)
Vahun
Gelahun
Zorzor
Wologizi Range
Wonogizi Mts.
Nimba Mts.
Yekepa
Senniquellie
Karnplay
Ganta
Kongo
Gbalatuah
Bopolu
Gbarnga
Palala
Bo
Tubmanburg
Bong Town
Zeansue
Totota
Yopie
Sagleipie
Robertsport
Klay
Careysburg
Kakata
Botota
Gloie
Tappita
Bensonville
Harbel
Guata
Tobli
Poabli
Kola Town
Zwedru
Hartford
Gaamodebi
Babu
Buchanan
Trade Town
Gonglee
Pyne
Bokoa
Cestos City
Pelokehn
Kopo
Juazohn
Sehnkwehn
Kanweaken
Fish Town
Tawake
Tawlokehn
Greenville
Nyaake
Nana Kru
Barclayville
Sasstown
Grand Cess
Plibo
Harper
To Irié
To Buedu
To Pendembu
To Kenema
To Zimmi
To Lola
To Nzérékoré
To Danané
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To Tabou
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LIBERIA
SELECTED CITIES AND TOWNS
COUNTY CAPITALS
NATIONAL CAPITAL
RIVERS
MAIN ROADS
RAILROADS
COUNTY BOUNDARIES
INTERNATIONAL BOUNDARIES
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0 20 40 60 80 100 Kilometers
0 20 40 60 Miles
JULY 2007

Objective

Since Liberia's Ebola Virus Disease (EVD) epidemic began in March 2014, nearly 10,000 persons have contracted the virus and more than 4,000 have died.[1] The Economic Impact of Ebola survey is a high frequency cell phone survey designed to monitor the socio-economic impacts of the EVD crisis in Liberia. The survey has now been conducted in five rounds from October 2014 to March 2015. The sample is based on the nationally representative Household Income and Expenditure Survey (HIES) implemented from February to August 2014 by the Liberia Institute of Statistics and Geo-Information Services (LISGIS). This effort was designed to provide rapid indicators of well-being from households across the country at a time when conducting a traditional face-to-face survey was extremely challenging. The survey was conducted by phone, and attempted a number of times to contact all households that participated in the HIES and for which cell phone numbers were recorded. As in the previous rounds, low response rates hinder the representativeness of this survey.

The report begins with an update of the epidemiological situation in Liberia and associated response efforts at the time of the fifth round of data collection (March 12-18, 2015). This is followed by updates on the employment, prices, food security, coping strategies, health, and education indicators surveyed. This report is meant as a stand-alone document based on the Round 5 survey, but further context and methodological information on data collection and weight calculations can be found in the previous reports covering rounds 1 and 2, round 3, and round 4.

Background

The number of reported EVD cases has decreased rapidly since the height of the epidemic in September, and on March 5, Liberia released its last known EVD patient from treatment. More than two weeks passed before there was another confirmed case in the country, a food vendor in Monrovia who is suspected of being infected through sexual contact with an Ebola survivor. Containment and contact tracing measures responded quickly and effectively and by early April no further cases had been identified. While ongoing monitoring and preventive measures continue (eg, compulsory hand washing and temperature monitoring), the government has not re-imposed any of the earlier restrictions intended to contain the spread. Though schools officially reopened across Liberia on February 16, 2015, a large number of private institutions and many public institutions opted to reopen on March 2, 2015. International land borders were reopened, though there are reports of restrictions entering Guinea at some points, and international air links remain limited.

Employment

The overall share of respondents reporting that they are not working did not change relative to the previous round, but important gains have been made in the non-agricultural sectors. Forty percent of household heads reported not working in round 5, compared with 41 percent in round 4. The stable share, however, masks a continued return to work in wage employment and rural non-agricultural self-

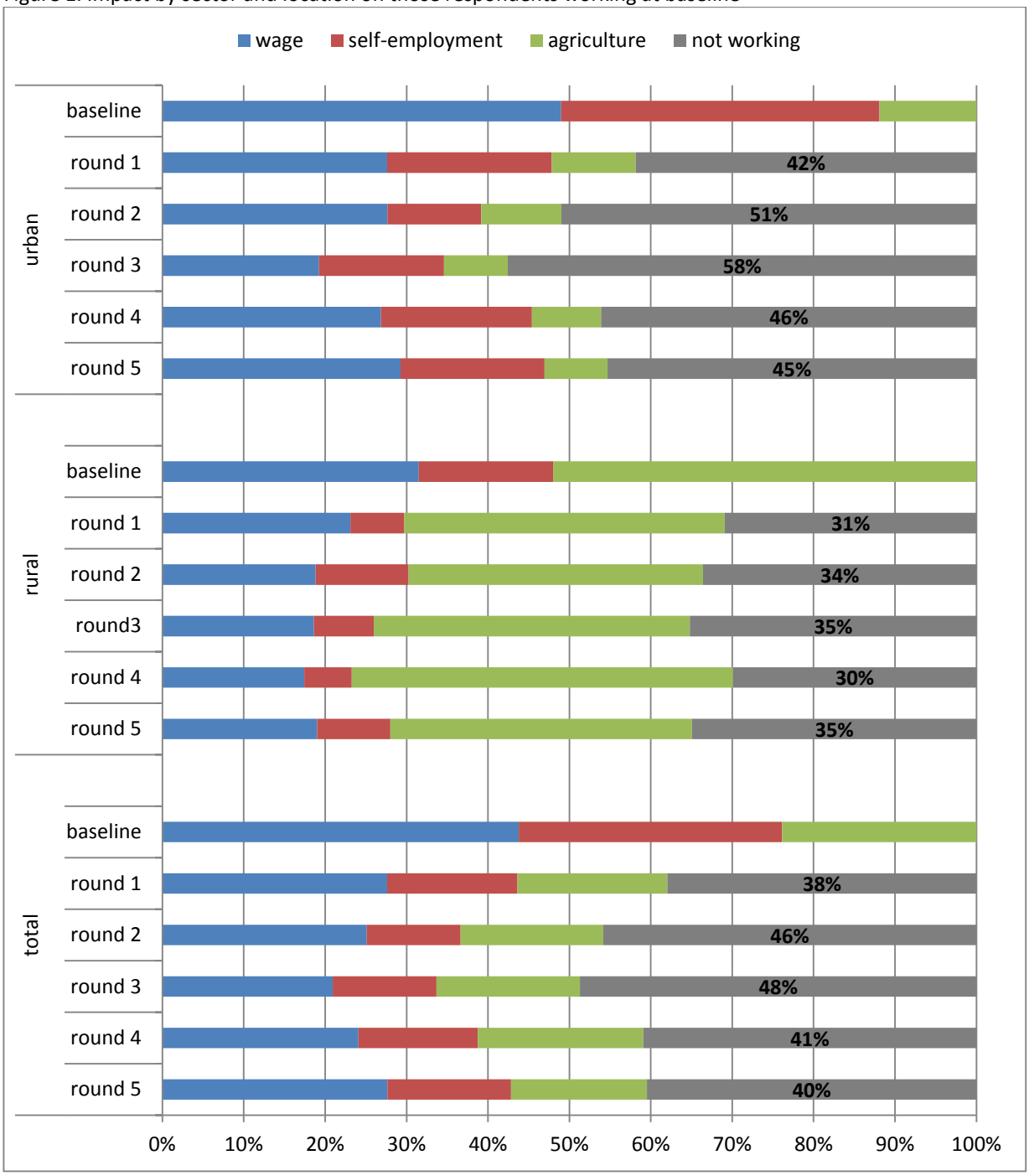
[1] Ebola Situation Report April 8, 2015, World Health Organization. Available at: http://apps.who.int/gho/data/view.ebola-sitrep.ebola-summary-latest?lang=eng, accessed on April 9, 2015.

employment. These increases are offset by a reduction in those working in agriculture in rural areas. The decrease in agriculture though is likely to be due to a seasonal lull between the end of the harvest and the start of the next planting season rather than reduced activity in the sector. Encouragingly, round 5 shows an increase in rural areas in self-employment activities, which had been particularly hard hit by restrictions introduced to slow the spread of EVD infections and the associated economic slowdown. However, even among those who are again working, the survey does not indicate whether their level of economic activity has yet returned to pre-crisis levels, and it is likely that there are some lingering impacts of the EVD crisis affecting households' living standards.

Women continue to be disproportionately impacted by EVD job losses. Prior to the outbreak, female household heads, and women generally, worked disproportionately in non-agricultural self-employment. As this was the hardest hit sector, women remain disproportionately out of work. But even among those that were working in self-employment, men had a 63 percent likelihood of working by round 5, compared to only 17 percent for women, controlling for age and location. This is important because many female-headed households have only one wage earner, and the inability of the head to work would therefore have a larger impact on well-being of all household members.

There is little evidence of workers changing sectors in response to the crisis in the year since the baseline survey was conducted. In crisis situations, one possible coping strategy would be for those that had lost their livelihood in one sector to seek temporary work in another sector. For example, one who lost a position in wage employment would instead sell things in the market until they could find another job, or a small trader would no longer sell goods at closed markets but would instead work on the family farm until conditions allowed him/her to return to trading. There is limited evidence of this in Liberia during the EVD outbreak. Of round 5 respondents that were working in wage employment in the 2014 HIES baseline survey, nearly 90 percent were either still working in wage jobs or not working at all. About four percent of respondents were working in self-employment activities, all of whom were in urban areas, and an additional seven percent of respondents were working in new jobs but did not provide enough information to be classified into a sector. None had moved into agriculture, even in rural areas, which may have been expected in a crisis situation. Similarly for those in non-agricultural self-employment at the baseline, 90 percent were either still in self-employment or unemployed, with about eight percent in unclassified activities. Less than two percent had moved into paid employment, and a negligible percentage into agriculture. Of those working in agriculture, none had moved into wage work or self-employment. Also, of those not working at the baseline, nearly 90 percent still were not working, with the remaining percentage moving into unclassified work.

Figure 1. Impact by sector and location on those respondents working at baseline

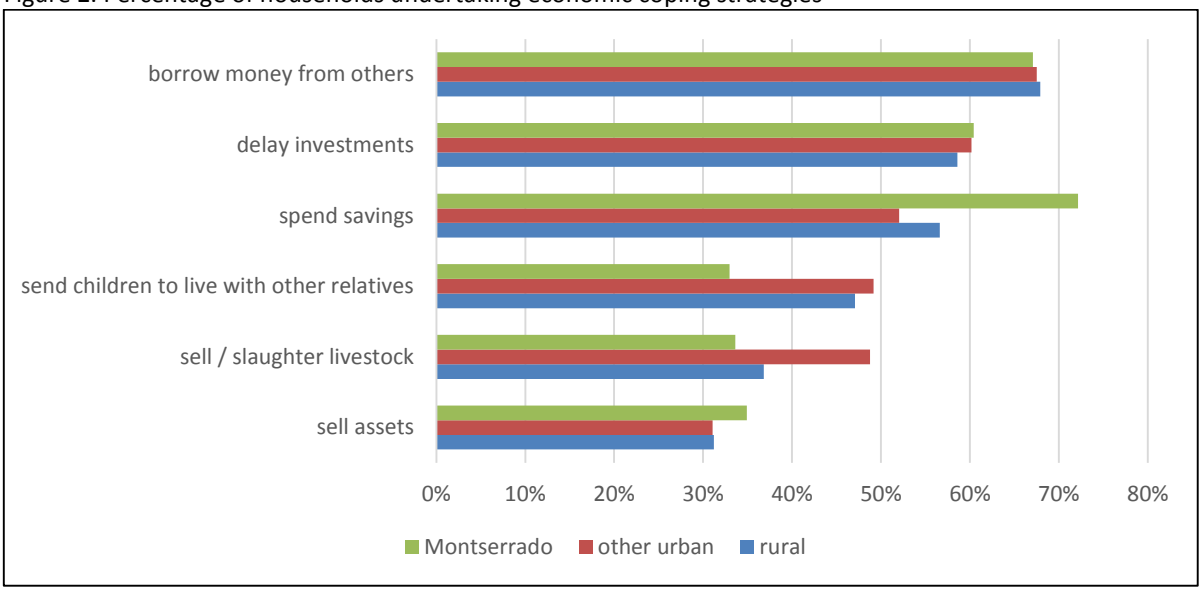


Source : Results from HIES baseline survey (January – August 2014) and five rounds of high frequency phone survey (Oct 1 - 7, 2014; Oct 21 - Nov 7, 2014; Dec 2 - Dec 8, 2014; January 19 – 27, 2015; March 12 – 18 , 2015)

Note: Approximately seven percent of respondents have switched sectors between baseline and round 4, but many with new jobs do not provide sufficient information to determine their new sector so the true percentage may be higher. Due to the method used to present the above findings, it is difficult to show these changes on the graph and therefore those that have switched are presented as still part of their original sector. Because the high frequency survey attempts to contact all potential respondents in every round of the survey, the composition of respondents varies in each round. To compare estimates across rounds, the share of the original baseline population that is working at the time of each round is estimated for each sector. This percentage is then applied to the baseline share of that sector. For example, 60 percent (weighted) of baseline wage workers were still working by round 1. Wage workers represented 44 percent (weighted) of all workers at baseline. Therefore, 26 percent is reported as the share of baseline workers who are wage workers in Round 1.

The use of economic coping strategies remained the same as in previous rounds. Since the start of the EVD crisis, more than 90 percent of households employed one or more of the following actions: sell assets, such as tools, furniture, machines, jewelry, etc.; sell or slaughter livestock; borrow money from others; send children to live with other relatives; spend savings; delay investments. After increasing between rounds 3 and 4, however, there was no statistically significant change in the use of coping strategies between rounds 4 and 5. As six weeks elapsed between the rounds, this is an encouraging sign of economic recovery, though round 4 may have been artificially high due to the holiday season. Across Montserrado county, other urban areas, and rural areas, the use of individual strategies is relatively constant. Exceptions include a higher incidence of spending savings and lower incidence of sending children to live with other relatives in Montserrado county, and selling or slaughtering livestock in other urban areas.

Figure 2. Percentage of households undertaking economic coping strategies



Source: Cross sectional estimates from round 5 (March 2015)

Agriculture

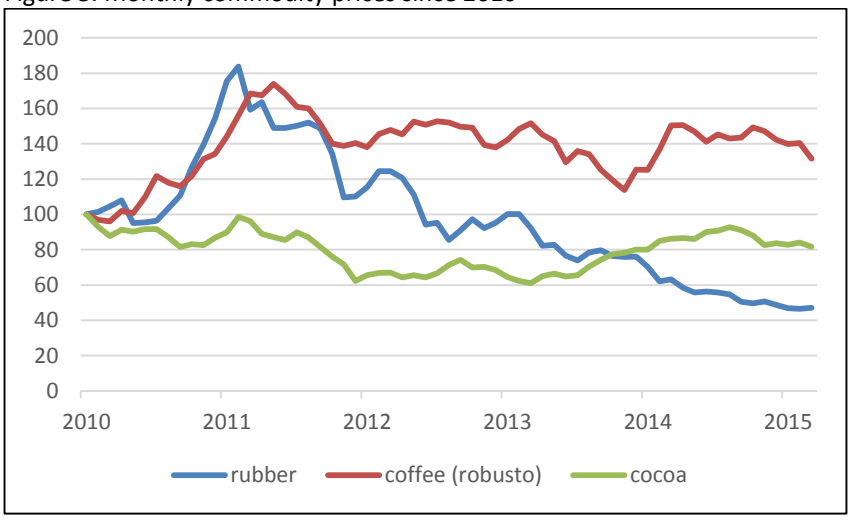
With the harvest being largely completed, most agricultural households say the 2014 harvest was smaller than the previous year, although this does not appear to be directly caused by EVD infections. Between the fourth and fifth rounds, the percentage of agricultural households reporting having completed their harvest increased from around 75 percent to almost 85 percent. Of round 5 agricultural households that had completed the harvest, about 65 percent said the 2014 harvest was smaller than the previous year, six percent said it was about the same, and 28 percent said it was larger. There is not a statistically significant relationship between the county of residence and the respondents' beliefs on harvest size, indicating that harvest results were not driven by county-wide shocks, such as delayed rainfall

or the magnitude of the EVD outbreak. This would also indicate that agricultural support programs should target the sector generally rather than specifically areas impacted by EVD.

Agricultural outreach services in advance of the coming planting season are limited. About one-quarter of agricultural households reported being visited by an agricultural extension agent in the six weeks prior to the survey. The households most often received seeds or money from the agents, with smaller numbers receiving fertilizer or farm implements. When asked what the main obstacles were to the upcoming planting season (which begins in April), households were most likely to cite difficulties in finding outside labor and a lack of tools and equipment. The difficulties in finding outside labor are related to EVD's disruption of the traditional labor sharing systems, and was cited as the main reason for smaller or delayed harvests in the previous season. As shared labor is relatively more important to the intensive land clearing activities at the start of the season, continued disruption to traditional systems could have impacts on land planted, and therefore harvest size, in the coming season.

Cash crops have been differentially impacted by the outbreak of EVD. Cash crops are complicated in that they must also be transported, sold, and exported, leaving them more vulnerable to transportation restrictions. Declines in international market prices that coincided with the EVD epidemic also make it difficult to separate the impacts. Of households that grew rubber in the previous year, about 50 percent of those surveyed over all rounds had harvested rubber since the outbreak of EVD. At the same time, however, rubber prices hit a 5-year low in December 2014. Of those households which produced cocoa last year, more than 60 percent had harvested cocoa this year so far and a further 20 percent said that they planned to do so. This is a slight decrease since the last round, but extremely small sample sizes make it difficult to identify a trend with certainty. Of those that completed the cocoa harvest, about half had sold at least some of their crop, the same percentage as the previous round. This would point to difficulties in agricultural markets, which is supported by the December 2014 FEWS NET survey of market traders, but again the sample sizes are small.[2] The fifth round also included questions on coffee production, but the sample size was less than 25 farmers. Of those who grew coffee last year, about 35 percent had harvested at least some of their coffee this year, with a further 45 percent planning to do so

Figure 3. Monthly commodity prices since 2010



Source : World Bank Commodity Price Data (March 2015)
Note: 100 = January 2010

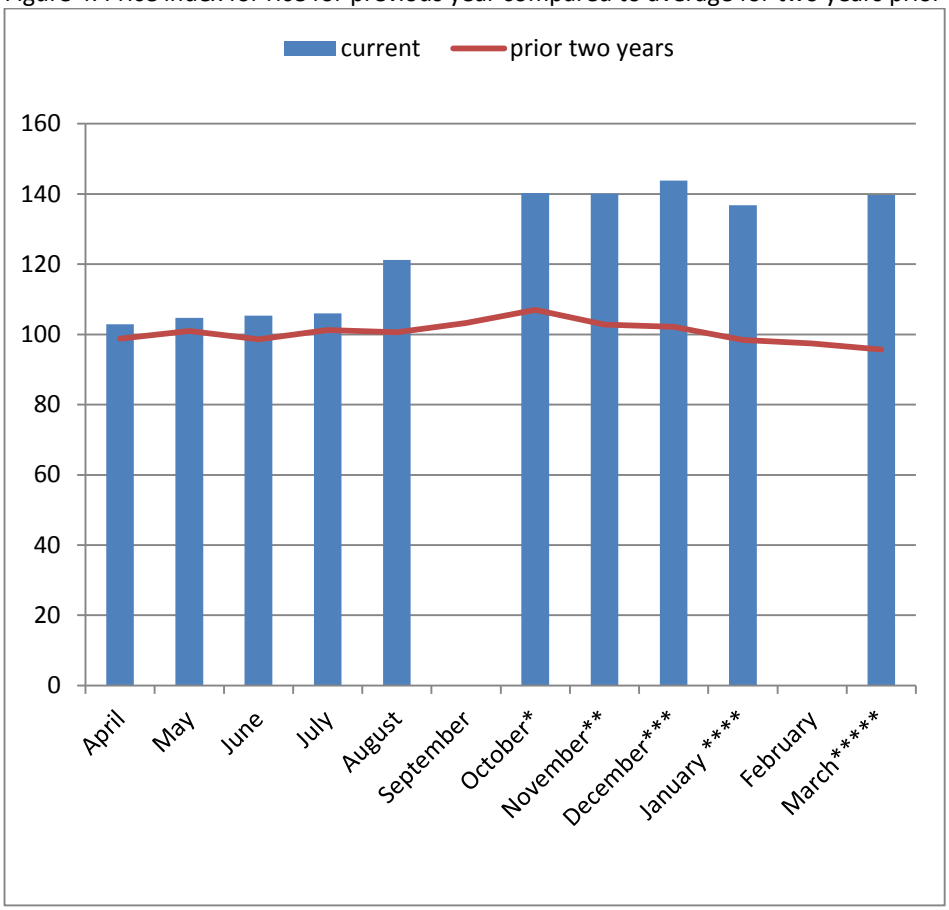
[2] See full report at :
http://www.fews.net/sites/default/files/documents/reports/Liberia%20Trader%20Report_Round4_01312015.pdf

before the end of the year. In addition, there was a limited number of new entrants into the market. Of all coffee growers, 18 percent had not harvested in the previous year.

Prices

Prices for imported rice remain well above normal. Prices for imported rice have continually been approximately 40 percent above the average for the previous two years. The average estimated price for a 50 kg bag of imported rice was 3,197 LD in round 5, compared to 3,130 LD in round 4. Though the change is not statistically significant, it offsets much of the reduction seen between round 3 and 4. Figure 4 shows the estimated price change by month for a 50 kg bag of rice from a January baseline in 2014 as well as the monthly average over the previous two years.[3] The continued high prices for rice compound the impact of lost incomes on poverty. Households, particularly those in urban areas, are forced to spend a greater percentage of a smaller income to meet food needs. This crowds out the households' ability to pay for non-subsistence items, such as education expenditures, or risks reducing the quality of diets.

Figure 4. Price index for rice for previous year compared to average for two years prior



Source: 2014 HIES, high frequency phone survey, WFP VAM
*Notes: January 2014 = 100, * Oct 1 - 7, 2014 ** Oct 21 - Nov 7, 2014*
****Dec 2 - Dec 8, 2014 **** January 19 – 27, 2015 ***** March 12 – 18 , 2015*

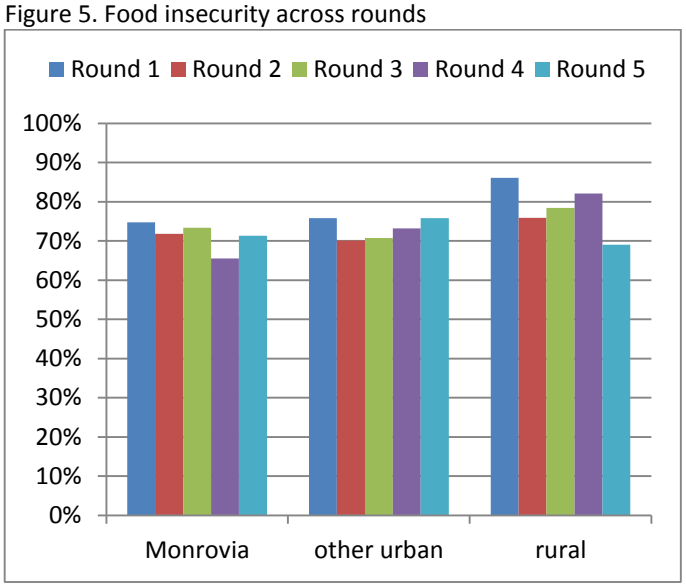
[3] In the HIES the question refers specifically to imported rice while in the first two rounds of high frequency phone survey, the question was more general. As local rice is generally less expensive than imported rice any bias in the measure would understate levels in October and November. This impact, however, is likely to be small due to the large percentage (estimated by FAO to be up to 80 percent) of rice consumed in Liberia that is imported. The third, fourth, and fifth round questionnaires specifically refers to imported rice, though do not make the distinction between Asian rice and more expensive US parboiled rice, and report the prices as average for all imported rice.

Regional price differentials persist for rice despite the harvest. Montserrado county, which includes the capital city, Monrovia, had an average price of 3,073 LD for 50 kg of imported rice, more than six percent lower than the 3,277 LD average for the remainder of the country. The difference in price can likely be attributed to transportation costs and size of the market, and is found also in the pre-crisis price data. For example, rice prices were nearly 20 percent higher in the counties in the extreme southeast of the country, Maryland, Grand Kru, and River Gee, as compared to Montserrado county. Though food aid was most common in Monrovia, it is unlikely to have contributed to the difference in prices. Only a small percentage indicated receiving aid, and the difference in price between those counties which had the next highest percentages, Bong and Lofa, were not statistically different from the remainder of the country, even when Montserrado county is excluded.

Food Insecurity

Food insecurity remains high, though there has been a substantial drop in rural areas. The decline in rural areas is likely related to the completion of harvesting and processing of the rice harvest, the main staple crop in much of Liberia. These decreases were offset, however, by increases in Monrovia and other urban areas, and nationally food insecurity remained about the same, with just under three-quarters of households surveyed reporting that they were worried at some point in the last week that they would not have enough to eat. The counties which showed significantly higher percentages of food insecurity in round 5 as compared to Montserrado were Bomi and Grand Kru, both of which were also higher in the previous round. The other counties with higher insecurity in the previous round, Grand Gedeh, Maryland, and Sinoe, no longer were significantly higher, though this is likely due as much to deterioration in Monrovia as improvements in these areas. While the continued high level of insecurity is concerning, the lack of comparable baseline data makes it impossible to determine the amount directly attributable to EVD.

Figure 5. Food insecurity across rounds



Source: Cross sectional estimates from cell phone survey

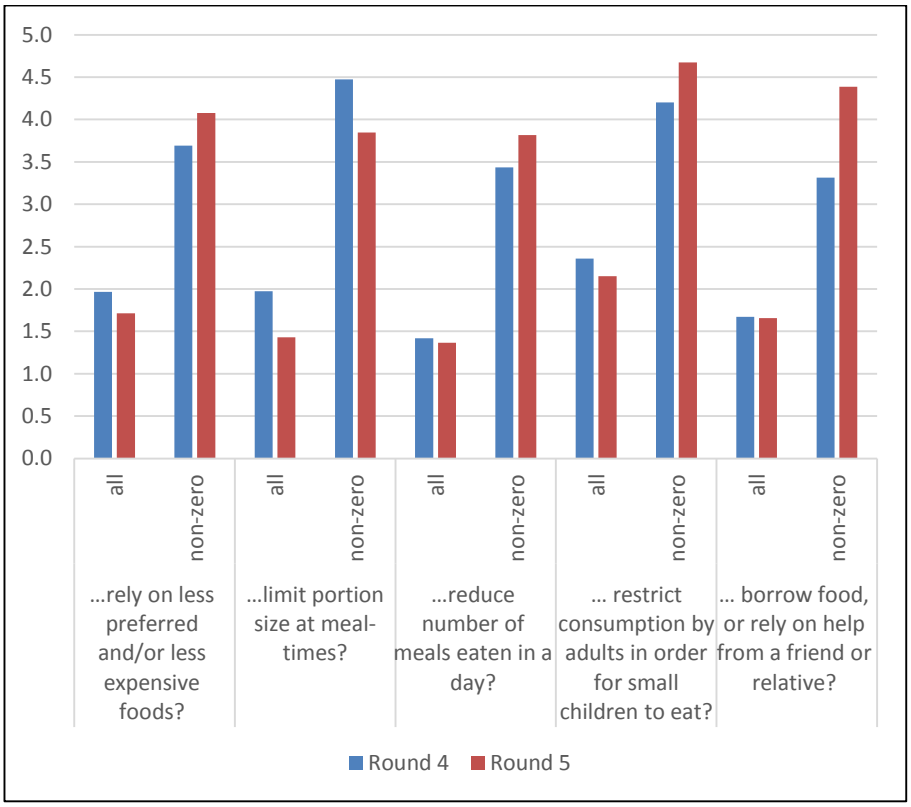
As in previous rounds, a lack of money, rather than availability or high prices, continues to be the main problem with meeting rice needs. Consistently across all five rounds of the cell phone survey, about 65 percent of households indicated that they were not able to purchase enough rice to meet their needs at some point in the previous two weeks. The main reason cited by respondents continues also to be that the household did not have enough money, rather than that price was too high or rice was not available. The percentage citing a lack of money has increased from 66 percent in round 1 to 76 percent in round 2 to 80 percent in round 3, then remained constant at 88 percent for rounds 4 and 5. Less than two percent

of households cited a lack of availability of food as the main problem in round 5. As was noted in the previous report, this indicates that households will continue to have difficulties meeting food needs without an increase in household resources, either through a rebound in employment or some social protection intervention.

Only a small percentage of households indicate receiving food aid or cash transfers. Approximately five percent of households indicated receiving food aid in the seven days previous to round 5, the majority of which were in Montserrado and Lofa counties. More than half of respondents that received food aid reported that it came from the World Food Programme or the government, with the remainder coming from the United Nations and other smaller NGO partners. A smaller percentage indicated receiving cash transfers, which was a similar percentage to round 4. Compared to round 4, however, the geographic scope was larger. Though most recipients were still in Montserrado county, a small number living in Lofa, Margibi, Bomi, and Bong counties, among others, also indicated receiving transfers.

The use of various strategies to cope with food insecurity has decreased across Liberia, led by a sharp decline in rural areas following the harvests. The need to use food coping strategies is highly correlated with perceived food insecurity, and therefore similar decreases in incidence were seen in rural areas and increases in urban areas. The magnitude of the decrease in coping strategies was largest for rural households, where the percentage of rural households employing at least one coping strategy fell from 77 percent in round 4 to 57 percent in round 5. This is in comparison to 66 percent to 63 percent in other urban areas, and 62 percent to 60 percent in Montserrado county. The usage of individual coping strategies, however, has largely

Figure 6. Number of days out of the previous seven in which coping strategies were employed [rural only]



Source: Cross sectional estimates from rounds 4 and 5 of high frequency phone survey (January and March 2015)

remained the same since the previous round. Households still on average use each of the strategies more than twice a week (see table 1 below). Particularly in rural areas, this indicates that fewer households needed to employ coping strategies, but households that were in food stress appear to be in greater stress and are resorting to coping strategies more often, therefore maintaining near constant averages between rounds 4 and 5. In rural areas, this was particularly true of borrowing food or receiving assistance from friends or relatives, which indicates that households have been able to turn to their informal safety net systems.

Table 1. Coping strategies for food insecurity

	In the past 7 days, how many days have you or someone in your household had to…				
	…rely on less preferred and/or less expensive foods?	…limit portion size at meal-times?	…reduce number of meals eaten in a day?	… restrict consumption by adults in order for small children to eat?	… borrow food, or rely on help from a friend or relative?
Round 1	2.9	3.0	3.4	3.3	2.1
Round 2	2.6	3.1	2.6	2.8	2.3
Round 3	2.7	2.9	2.3	3.1	2.2
Round 4	2.4	2.5	2.2	2.5	2.2
Round 5	2.4	2.5	2.1	2.7	2.3

Source: Cross sectional estimates from high frequency phone survey (October 2014 – March 2015)

Education

Following the re-opening of schools, the majority of primary school age children are reported to be attending school. Eighty percent of households in the cell phone survey indicated that there were primary school age children (age 6 – 12) living in the household, compared to 53 percent in the 2014 baseline HIES. The large increase in the percentage of households with primary age children is partly attributable to methodology. In the HIES respondents were asked about the individual ages of each child, while in the cell phone survey one general question was asked for the household ("are there any primary school age children in the household?"). The cell phone survey did specify children between ages of 6 and 12, but it is likely that respondents considered older children to be primary school age given that a large percentage of students in Liberia are out of the conventional age groups.

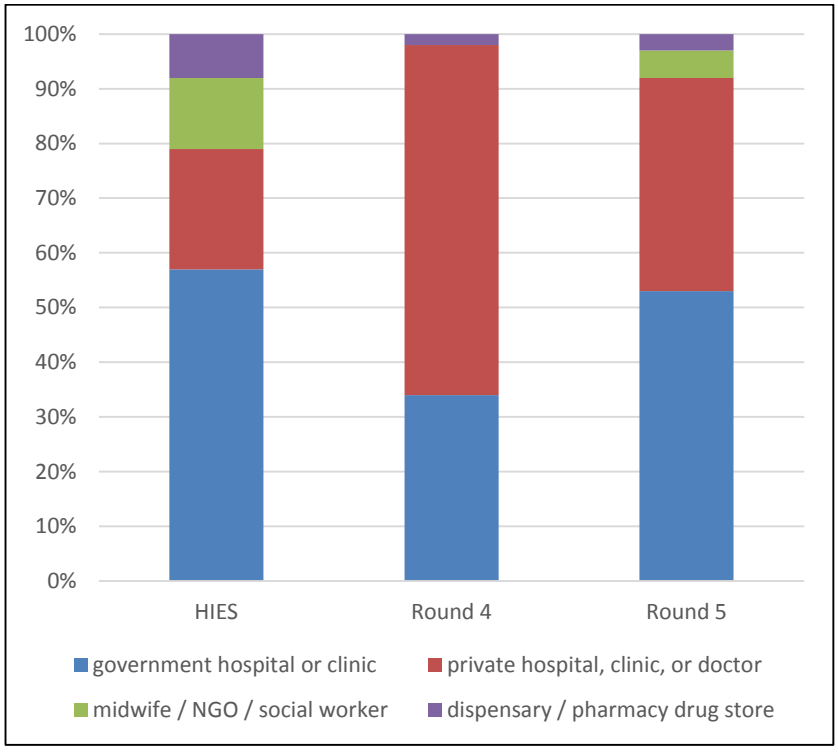
Of households with primary school age children, more than three-quarters said that these children were attending, though it is not possible to tell if all or only some of the children had returned. Of those households where the children were not attending, 82 percent of households said the main reason was a lack of money. Only 14 percent cited either a fear of infection or EVD specifically as the main reason. Students who were enrolled attended a mixture of institutions, with 37 percent of households indicating that children attended public schools, 36 percent indicating private schools, and 27 percent in a combination of the two.

There appears to have been a decline in school attendance by older children. Seventy-three percent of households with children over age 12 attending school last year indicated these children were attending this year. The main reasons cited were similar to those for primary school aged children. Of those not attending, 80 percent of households indicated a lack of money was the main reason and 14 percent cited a fear of infection. The cost constraints may be more significant for older children as fees and costs are higher for later years of schooling, and because older children have more income generating potential for the household. An additional five percent indicated either that the schools had not reopened or the teachers had not yet arrived at the time of the survey. Among older children's school attendance, like their younger siblings, there was no difference between Monrovia and the remainder of the country.

Health

There has been a shift in the type of providers used by households for non-Ebola related illness. Similar to round 4, respondents in round 5 did not report that their household was avoiding medical services. The HIES, and round 4 and round 5 of the rapid survey, all included questions as to whether children under the age of five had experienced diarrhea in the previous week, and, if so, what if any actions were taken. Comparing the responses, a slightly higher percentage in round 5 reported children being ill, at 17 percent, compared with a little over 10 percent in the 2014 baseline HIES and in round 4 of the rapid survey. This increase could be due to seasonal fluctuations or instability in averages due to small sample sizes. Of those, 54 percent received treatment in round 5, a similar rate to the earlier surveys (approximately 60 percent in the 2014 baseline HIES and 58 percent in round 4). Where the households sought treatment, however, changed. More respondents reported using government hospitals and clinics, shifting away from private facilities. The round 5 percentages were similar to those found in the pre-EVD HIES baseline. While there are comparability concerns between the HIES and the

Figure 7. Location of treatment sought by households with children under 5 with diarrhea in last 14 days



Source: Cross sectional estimates from the HIES (January – August 2014) and round 5 (January & March 2015)

cell phone survey, the general trend indicates a return of both availability and willingness to use government services. If anything, the likelihood that poor and remote households are underrepresented in the cell phone survey means the actual percentage using public services is higher, although these findings should be treated with caution given that the sample sizes for this analysis are limited.

Conclusion

Overall the employment situation in Liberia continues to improve despite flat numbers in those who were not working. Round 5 showed further increases in wage employment and in rural non-agricultural self-employment since the previous round. The latter is particularly encouraging since this group was one of the most highly affected by EVD, though concerns remain particularly for female-headed households and women generally. In this period there was also an offsetting decrease in agricultural employment, but this is likely the result of the seasonal lull between harvest and planting.

For the agricultural sector generally, the 2014 harvest activities have largely been completed, and there has been a decrease in food insecurity and use of food coping strategies in rural areas. As farmers prepare for the next planting season, to begin in April, the main concerns are difficulties in finding labor outside the household and a lack of farm implements.

Prices for imported rice continue to be above normal, exacerbating food insecurity resulting from lost employment or decreased wages, particularly in urban areas. Food aid and cash transfers are reaching only a limited number of recipients and overall are unlikely to make substantial differences in food insecurity. Also, though food insecurity is decreasing in rural areas, the number of time per week that food coping strategies were employed by those households still using them was increasing. Economic coping strategies, however, such as the sale of assets or borrowing of money, have not increased since round 4, raising hopeful signs that at least some households may be in a position to begin rebuilding buffers.

The use of public services is also rebounding towards pre-crisis levels. Of households with primary school age children, more than three-quarters said that these children were attending school. For those not attending, the main constraints were financial rather than related to fear of infection. The impacts though appear larger for older children, where only 73 percent of households with children over age 12 attending school last year indicated these children were attending this year. In health services, there is no evidence that households are avoiding the health care system generally. There does appear to be a shift in providers, however, from private to public, corresponding to pre-crisis levels.

Annex

Response Rates and Non-Response Adjustment

For a full description of the survey methodology and the implementation, see the methodological annex of the first report.

Table A1. Number of respondents by round

round 1 only 109	round 2 only 17	round 3 only 78	round 4 only 66	round 5 only 85
round 1 & 2 52	round 1 & 3 30	round 1 & 4 16	round 1 & 5 18	round 2 & 3 8
round 2 & 4 2	round 2 & 5 3	round 3 & 4 31	round 3 & 5 38	round 4 & 5 46
round 1,2 & 3 56	round 1,2 & 4 26	round 1,2 & 5 32	round 1,3 & 4 11	round 1, 3 & 5 15
round 1, 4 & 5 22	round 2,3 & 4 2	round 2,3 & 5 4	round 2,4 & 5 1	round 3,4 & 5 43
round 1,2,3 & 4 49	round 1,2,3 & 5 54	round 1,2,4 & 5 34	round 1,3,4 & 5 14	round 2,3,4 & 5 11
round 1,2,3,4 & 5 110	total 1,083			

Table A2. Regional distribution of households

		round1		round 2		round 3		round 4		round 5	
geography	% households (census)	% households survey (unweighted)	n	% households survey (unweighted)	n	% households survey (unweighted)	n	% households survey (unweighted)	n	% households survey (unweighted)	n
Bomi	3.1	4.0	26	4.7	22	5.4	31	4.5	23	5.6	32
Bong	10.4	6.3	41	5.5	26	8.1	47	7.6	39	5.6	32
Grand Bassa	7.1	6.2	40	5.5	26	6.9	40	6.7	34	6.5	37
Grand Cape Mount	3.6	3.9	25	3	14	2.8	16	2.7	14	4.2	24
Grand Gedeh	2.7	7.6	49	7.6	36	7.6	44	5.9	30	7.9	45
Grand Kru	1.3	2.6	17	2.1	10	2.6	15	2.2	11	2.1	12
Lofa	7.4	3.4	22	3.8	18	4.0	23	3.3	17	4.6	26
Margibi	6.7	8.6	56	8.1	38	7.4	43	6.3	32	8.3	47
Maryland	2.9	4.2	27	3.4	16	4.2	24	5.5	28	7.0	40
Montserrado	34.7	37.7	244	40.7	192	33.9	196	38.4	196	31.9	181
Nimba	12	3.9	25	5.7	27	5.2	30	6.7	34	4.9	28
River Cess	2.1	2.3	15	3.0	14	2.4	14	2.5	13	3.0	17
Sinoe	2.4	3.6	23	1.9	9	3.8	22	2.7	14	3.2	18
River Gee	1.5	2.6	17	2.8	13	2.3	13	1.6	8.0	3.3	19
Gbarpolu	2.2	3.2	21	2.3	11	3.5	20	3.5	18	1.8	10
Urban	56.2	71.5	463	74.2	350	69.2	400	73.6	357	69.5	395
Rural	43.8	28.6	185	25.9	122	30.8	178	26.4	128	30.5	173
Total	100	100	648	100	472	100	578	100	511	100.0	568

Table A3: Regression coefficients for round 5 logit response model

	coef	se
Respondent Characteristics		
female	-0.300**	0.129
age	0.021	0.024
age squared	-0.000	0.000
Sector of Employment (Reference : Wage)		
self-employment	-0.132	0.135
agriculture	-0.409***	0.150
unpaid family work	0.340	0.388
other	0.101	0.190
Geographic Strata (Reference : Monrovia)		
Bomi Urban	-1.266**	0.552
Bomi Rural	-0.332	0.255
Bong Urban	-0.475*	0.288
Bong Rural	-0.744**	0.337
Grand Bassa Urban	0.004	0.263
Grand Bassa Rural	-1.237***	0.383
Grand Cape Mount Urban	-0.370	0.544
Grand Cape Mount Rural	-1.046***	0.278
Grand Gedeh Urban	-0.137	0.238
Grand Gedeh Rural	-0.879**	0.343
Grand Kru Urban	-0.856	0.657
Grand Kru Rural	-1.698***	0.369
Lofa Urban	-0.254	0.319
Lofa Rural	-0.765**	0.380
Margibi Urban	-0.046	0.263
Margibi Rural	-0.586**	0.290
Maryland Urban	-0.161	0.242
Maryland Rural	-1.188***	0.404
Montserrado Urban	-0.183	0.481
Montserrado Rural	0.401	0.532
Nimba Urban	-0.606**	0.277
Nimba Rural	-1.019**	0.436
River Cess Urban	0.123	0.543
River Cess Rural	-1.369***	0.349
Sinoe Urban	-0.243	0.396
Sinoe Rural	-1.938***	0.387
River Gee Urban	-0.491	0.343
River Gee Rural	-1.966***	0.441
Gbarpolu Urban	-1.258**	0.417
Gbarpolu Rural	-1.671***	0.417
Constant	-0.860	0.537
N	2324	
Pseudo R-squared	0.0721	

note: *** p<0.01, ** p<0.05, * p<0.1