Liberia Institute of Statistics & Geo-Information Services (LISGIS)

Household Income and Expenditure Survey 2016

Statistical Abstract

August 2017

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PREFACE & ACKNOWLEDGMENTS

Since 1964, the implementation of a nationally representative Household Income and Expenditure Survey (HIES) has been a challenge due to financial and human capacity constraints. The calculation of accurate key indicators such as the Gross Domestic Product (GDP) and the Consumer Price Index (CPI) has been a complicated task because the available data was outdated and inadequate.

The HIES 2016 provides new data for the update of the GDP, the consumption basket, the CPI weights, the population figures and the poverty estimates. Additionally, it will create a national accounts benchmark and a baseline for socio-economic indicators. The survey is nationally representative and it is designed to provide estimates not only at the national level, for both urban and rural areas, but also at the county level. The estimates of the HIES are needed for a well-informed national vision and an evidence-based development agenda, aiding in the formulation of policy and in the monitoring of the effects of the AfT-II and the newly launched Sustainable Development Goals (SDGs).

The fact remains that the post-war socio-economic planning and development of our nation is a pressing concern of the government of Liberia and its development partners. Virtually every aspect of life in the country has become an emergency in resource allocation. It is therefore crucial that policy decisions are taken in a carefully planned and sequenced manner using adequate data. Such policy-making and planning will elevate the development agenda for the betterment of the citizenry.

The Liberia Institute of Statistics and Geo-Information Services (LISGIS) implemented and concluded the third Household Income and Expenditure Survey (HIES) in 2017. This survey is the third after the HIES of 1964 and the partially completed HIES of 2014 (interrupted due to the Ebola Virus Disease). With an improved design, the survey fieldwork was concluded on January 19, 2017.

The HIES 2016 is the first survey in Liberia that captures the seasonality of household incomes and consumption patterns across twelve months. The original sample design for the HIES exploited two-phased clustered sampling methods, encompassing a nationally representative sample of households in every quarter and was obtained using the 2008 National Housing and Population Census sampling frame. The questionnaires and survey tools were all prepared in-house at LISGIS through extensive consultations with various stakeholders such as line ministries and agencies (LMA), donor organizations and NGOs. In 2016, amendments on the questionnaire were made based on the lessons learnt from the 2014 survey.

Training was conducted for almost a month in 2015 (December 1st to 28th). Specialised trainings in CS-PRO and ArcGIS were conducted for data entry and geographic information system (GIS) staff respectively.

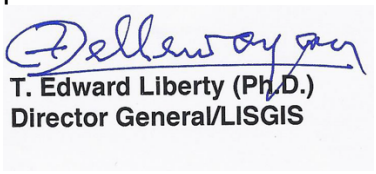
With the publication of this Statistical Abstract 2016 we celebrate a landmark in the progress of statistics in Liberia and in our pursuit towards transforming Liberia's development and planning strategy through the Agenda for Transformation (AfT) I and II. We, therefore, endorse that these end results be used for all development planning to obtain improved policy-making in favour of the people of Liberia.

The successful execution of the field data collection needed considerable human, material and financial resources. The efforts of LISGIS were accompanied by the generous support and cooperation received from various stakeholders which led to the successful completion of this one-year survey. We recognize the efforts of those who provided relevant information. Specifically, the participant households for their tolerance, cooperation and devoted time spent with the field personnel during the numerous visits and interviews.

The HIES 2016 would not have been a success without the involvement of national and international donors. Although the Government contributed considerable resources to this project, the requirements were beyond her capacity and it is with pleasure that we recognize the support of its partners including the World Bank, the United States Aid for International Development Agency (USAID), the European Union (EU), the Swedish International Development Corporation (SIDA) and the African Development Bank (AfDB). We also acknowledge with gratitude the special assistance received, both technical and otherwise, from the World Bank throughout the project implementation and dissemination.

Special gratitude goes to the employees of LISGIS for the level of cooperation received in many forms, particularly the Board of Directors, management and staff. Special thanks go to the HIES secretariat, the field staff, GIS specialists and data entry clerks for committing their services at all levels during the period of data collection and the public for their assistance. Additional appreciations go to the county authorities, as well as to traditional and community leaders for the multiple ways in which they provided assistance to the field teams to ensure the success of the fieldwork and data collection.

We, the Liberia Institute of Statistics and Geo-Information Services express esteemed gratitude to all who assisted but were not captured in this acknowledgement, we salute and also recognize their contributions. Please continue to work with LISGIS as we produce statistical information for strategic planning, policy and development.



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LIST OF ACRONYMS AND ABBREVIATIONS

ACS	Agriculture Crop Survey
AfDB	African Development Bank
AfT	Agenda for Transformation
COICOP	Classification of Individual Consumption by Purpose
CPI	Consumer Price Index
CWIQ	Core Welfare Indicator Questionnaire
EA	Enumeration area
ECOWAS	Economic Community of West African States
EU	European Union
EVD	Ebola Virus Disease
FAO	Food & Agricultural Organization
FISIM	Financial Intermediation Services Indirectly Measured
GDP	Gross Domestic Product
GIS	Geographic Information System
GOL	Government of Liberia
HCPI	Harmonised Consumer Price Index
HH	Household
HIES	Household Income and Expenditure Survey
ICP	International Comparison Program
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
LD	Liberian Dollar
LDHS	Liberia Demographic and Health Survey
LEC	Liberian Electricity Corporation
LFS	Labour Force Survey
LISGIS	Liberia Institute of Statistics & Geo-Information Services
LMA	Line Ministries and Agencies
LMIS	Liberia Malaria Indicator Survey
MCPI	Monrovia Consumer Price Index
MEA	Mean Adult Equivalent
MT	Metric Tones
NCPI	National Consumer Price Index
NGO	Non-governmental Organisation
NPISH	Non-profit institutions serving households
PHCP	Primary Health Care Provider
PRSP	Poverty Reduction Strategy Program
SIDA	Swedish International Development Agency
TTM	Trained Traditional Midwife
UK	United Kingdom (of Great Britain and Northern Ireland)
UNMIL	United Nations Mission in Liberia
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollar

EXECUTIVE SUMMARY

The HIES 2016 represents a milestone in the history of statistics in Liberia as it is the country's first year long survey that is statistically representative at the National, Regional and County level. The multi-year project started with the first attempt of the HIES in 2014 which unfortunately had to be halted due to the Ebola Virus Disease (EVD) outbreak. A rerun of the HIES was started in January 2016 and this report marks its successful completion. The project was implemented by the Liberia Institute of Statistics and Geo-Information Services (LISGIS), with support from the Government of Liberia (GoL) as well as from the World Bank (WB), the European Union (EU), the United States Agency for International Development (USAID), the Swedish International Development Corporation Agency (Sida) and the African Development Bank (AfDB).

The main objectives of the HIES are to offer high quality and nationwide representative household data that will provide information on incomes and expenditure in order to update the Consumer Price Index, improve National Accounts statistics, provide agricultural data and measure poverty as well as other socio-economic indicators. These statistics are urgently required for evidence-based policy making and monitoring of implementation results supported by the Poverty Reduction Strategy (I & II), the AfT and the Liberia National Vision 2030. The HIES 2016 collected household level data over a period of 12 months that captured the effects of seasonality, making it the first of its kind in Liberia. Below are the summary findings under the twelve main topics covered in this report.

Demographic Characteristics: The population of Liberia is estimated to be just above **4.2 million**. Out of these, approximately **48.9%** are males and **51.1%** are females. With a total of about 990,966 households nationally, the average household size is estimated to be 4.3 persons per household. Overall, Liberia has a young population, with **49.1%** of Liberians being under the age of 18 years.

Poverty: About 2.2 million Liberians or 50.9% of the population is classified as poor. Poverty is higher in rural areas **(71.6%)** than in urban areas **(31.5%).** Around **39.1%** of the population are food poor. While food poverty is still higher in rural areas **(50.9%)** than in urban areas **(28.1%),** the gap is smaller than with absolute poverty, showing the impact of subsistence farmers' contribution to food needs. Extreme poverty is **16.5%** at the national level. In rural areas, extreme poverty is higher at **26.5%,** while in urban areas it is as low as **7.2%**. By regions, Montserrado has the lowest rate of extreme poverty **(2.7%),** while the South Eastern B region has the highest **(40.8%).** Male headed households are on average poorer than female headed households with absolute poverty at **52.3%** and **46.3%** respectively.

Inequality: The level of inequality nationally stands at **0.33**, as measured by the Gini coefficient. Inequality is higher in urban areas **(0.32)** than rural areas **(0.27)**. The national

inequality is lower in Liberia compared to neighbouring countries including Sierra Leone (0.34), Cote D'Ivoire (0.43), Ghana (0.43), and Guinea (0.34).

Food Security: 51.2% of households reported that in the 12 months prior to being surveyed, they suffered from food shortages. Food insecurity was higher in rural areas with **58.8%** of households reporting such shortages, than in urban areas where **44.2%** of households faced shortages.

Household Characteristics: In Liberia, the most common type of occupancy is the ownership of one's own house, with **44.6%** of Liberians reporting this type of occupancy. Home ownership is higher in rural areas **(61.1%)** compared to urban **(29.3%).** Inversely, renting of properties is more prevalent in urban areas **(46.3%)** compared to rural areas **(6.9%).**

Education: It is estimated that **64.7%** of Liberians are literate, meaning that they are able to read and write. Regionally, urban residents are more likely to be literate **(78.1%)** than rural residents **(47%).** Regarding current students, **48.4%** of students are enrolled in government institutions.

Health: In the last 30 days prior to the survey, **20.7%** Liberians reported visiting a primary health care provider (PHCP). Government facilities (including clinics and hospitals) make up **63.2%** of the total of PHCP visited. Approximately **81.6%** of Liberians that visited a PHCP, were able to reach within less than 60 minutes and the most common mode of transport is by foot (**59.4%** of Liberians).

Employment: The unemployment rate in Liberia is estimated at **3.9%** nationally. The percent of Liberians in informal employment is as high as **79.9%** and the vulnerable employment rate is **79.5%** which highlights the fragility and instability in the labour market. Of those Liberians in formal employment, **64.9%** are employed in the private sector while **19.5%** are employed by the government.

Household Non-Farm Enterprises: It is estimated that **54.8%** of households operate at least one non-farm enterprise. The prevalence is higher in urban areas **(62.5%)** than rural areas **(46.5%).** A higher percent of primary managers are female **(56.1%)** compared to male **(43.8%). 60.8%** of the businesses recorded are classified as traders or shopkeepers, **22.1%** are classified as producers, and **17.1%** as service providers.

Agriculture: Farmers were asked whether they had grown any crops in the past twelve months. According to the results, farming households primarily grew on average three different types of crops. **74%** of the households reported they grew Cassava, the same percent reported they grew Rice and **60%** reported they grew vegetables. Households were also asked about livestock and **40.6%** of farming households reported having livestock.

Transfers: An estimated **46.2%** of Liberian households received some kind of transfer. Predominately transfers are in the form of money **(40.1%)**. Rural households receive fewer transfers than urban households (**40.0%** versus **51.9%**). In comparison, **33.9%** of households sent a transfer, with **24.5%** sending cash and **11.3%** sending food goods.

Shocks: An estimated **32%** of households reported a shock in the 12 months prior to the interview. The death of a household/family member was the most commonly recorded shock **(33.1%).**

Subjective Welfare: The highest level of satisfaction was shown in relation to the country's peace and stability, with **94.8%** of Liberians satisfied. **77.6%** were satisfied with their health status and **69.4%** were satisfied with the protection against crime available to them. However, only **34.8%** were satisfied with their financial situation and **37.8%** were satisfied with their jobs.

1 BACKGROUND INFORMATION

Statistical Development in Liberia

The Liberian statistical system was severely disrupted by the civil war; the system which was already weak due to low capacity in statistical education and training, all but ceased to function after the war. Due to the civil war, the majority of existing data was lost, the population census was not carried out as planned, economic statistics were extremely limited and restricted to Monrovia, social statistics such as health and education, and demographic statistics were largely not available. The infrastructure to support implementation of statistical activities was destroyed. The capacity to collect and analyse relevant statistics and other information critical for decision-making was therefore weak. The statistics producers had unsophisticated statistical procedures, a poor record keeping and archiving culture, poor physical infrastructure and information and communications technology (ICT). Staff members received and still receive low salaries; are not well trained and are demoralized. Users of statistics had no option but to seek statistical information from various sources via web and other means thereby gathering unofficial data for planning, research, and other purposes. Basically, statistics were largely unavailable to guide informed policy formulation and decision making for government.

Despite the evolving stance in the development of statistics overtime, significant data gaps remain. The first attempt of a Household Income and Expenditure Survey (HIES) in Liberia dates back to 1964, when household data was collected in Monrovia for the period of one month. Following this, it was not until 2014 when the first nationally representative HIES was carried out across the entire country. However, the HIES 2014, which aimed to collect data for the period on an entire year, had to be cut short at six months due to the Ebola Virus Disease outbreak. Overdue implementation of the HIES has amplified statistical gaps related to national accounts, prices, and poverty. GDP estimates using the expenditure approach are not available due to a lack of information on the informal sector, while sectorial GDP using the production approach is grossly under-estimated. The Consumer Price Index (CPI) suffers from out-dated goods and services in the consumption basket. A new basket of goods and services needs to be reconstructed and their weights revised. These statistics are urgently required for evidence-based policy making and monitoring of implementation results supported by the Poverty Reduction Strategy (I & II), the AfT and the Liberia National Vision 2030.

A household income and expenditure survey enables the filling of these critical data gaps, by providing detailed information on consumption expenditure, income, and household characteristics of a representative sample of residents in Liberia at a particular time at the national and other disaggregated levels, both in urban and rural areas at the regional and county level and taking in account gender.

Accordingly, the key objectives of the HIES 2016 are to:

- ***Update the Consumer Price Index (CPI):*** To obtain a new set of weights for the basket of goods and services that upgrade the Monrovia Consumer Price Index (MCPI) and the National Consumer Price Index (NCPI) and to revise the CPI basket of goods and services in Liberia to reflect the current consumption pattern of residence.
- ***Improve National Accounts Statistics****:* To get information on annual household expenditure patterns in order to update the household component of the National Accounts.
- ***Measure Poverty****:* To prepare robust poverty indices that enable the understanding of poverty dynamics across the country and of the factors influencing them.
- ***Improve Agricultural Statistics****:* To obtain nationally representative and policy relevant agricultural statistics in order to undertake in-depth analysis of agricultural households.
- ***Capture Socio-economic Impact of Ebola Virus Disease (EVD)****:* To obtain a post-EVD dataset which allows for an in-depth analysis of the socioeconomic impact of EVD on households.
- ***Benchmark Agenda for Transformation Indicators****:* To provide an update on selected socioeconomic indicators used to benchmark the government's policies embedded within the Agenda for Transformation.
- ***Develop Statistical Capacity****:* Emphasize capacity building and development of sustainable statistical systems through every stage of the project to produce accurate and timely information about Liberia.

HIES and the CPI

In 2014, the first post-war HIES was conducted and expenditure weights were gathered aimed at improving the CPI for Liberia with a true representation of expenditures at the household level. This survey was intended to last for one consecutive year but short-landed due to the outbreak of the Ebola Virus Disease (EVD) with the declaration of a state of emergency by the president of Liberia. Six months of data collection were considered and as such the market basket and weights were updated to have an Interim Harmonized Consumer Price Index (IHCPI) from half-year data collection, which did not represent households' full expenditure but was by far more realistic than the previous basket and weights. This was enhanced with efforts made by the IMF for compiling the CPI.

Since all efforts to improve the CPI with a one-year full data of expenditures proved futile in 2014, a rerun of the HIES in 2016 was again paramount to curb some of the key issues aimed at mitigating seasonality, capturing holistic expenditures over a period of a full year and observing products consumed by households over these periods.

HIES and National Accounts

Liberia uses the production approach in estimating GDP series[1]. There are different sources of information available for estimating different components of the GDP. These can be classified by grouping activities by sector, that is, the financial and non-financial corporations, the government, non-profit institutions serving households (NPISH) and the household sector. For the first three, books of accounts are available and reasonable statistical information can be obtained from these sources. NPISH are also required to maintain proper accounts, however in Liberia, enforcement of this rule is weak and often there is no central repository where the information is kept. To get information from the household perspective, the HIES is the main source of information at this level.

The National Accounts of a nation are compiled in constant prices for ease of comparison over time. However, much of the information going into the estimates is in current prices. Therefore, it is necessary to develop methods to restate these current-price values to constant prices. This process is called deflation and the indicators used for this purpose are the deflators. In many cases, the CPI is used as deflator by default.

The 2014 HIES provided meaningful pieces of information for the compilation of GDP estimates using household's consumption levels; but, it could not provide to seasonal patterns.

HIES & Poverty Measurement

In the wake of monitoring poverty and household living conditions, Liberia through LISGIS has led a many wide-ranging multipurpose surveys. These include but are not limited to the Census of Population and Housing, the Liberia Demographic and Health Survey (LDHS), the Liberia Malaria Indicator Survey (LMIS), the Agriculture Crop Survey (ACS), the Core Welfare Indicator Questionnaire (CWIQ), and the Labour Force Survey (LFS).

Comparatively, the only survey conducted in the past that captured household expenditure since the 1964 HIES was the 2007 Core Welfare Indicator Questionnaire (CWIQ) Survey. This survey is not representative at the county level, which makes it difficult to provide specialized policy recommendations at that geographic level.

The GoL and donor organizations are particularly interested in obtaining data on poverty and in understanding poverty dynamics at the county level to improve policy instruments for development. Other than the CWIQ, there is no other survey collecting information on

[1] In the production approach of the national accounts, output and value added for all activities in the economy are estimated. After adjustments for taxes (import duties and Goods and Services Taxes) and FISIM (*Financial Intermediation Services Indirectly Measured)*, the national GDP is computed.

consumption and expenditures, and the CWIQ itself had its own limitations such as a small sample size, the method of random selection of households, amongst others.

The 2014 HIES attempted to mitigate some of these issues but could not suffice, as six months could not account for total or average consumption over a period of one year. Hence, the 2014 HIES was not able to provide answers to queries regarding seasonality or patterns of expenditures amongst others.

Improving income, and reducing poverty for the country are pressing priorities for the Government of Liberia (GoL). As such, LISGIS alongside its development partners (USAID, EU, SIDA and AfDB) with technical assistance from the World Bank implemented a multi-purpose HIES that addresses some of the concerns and data gaps.

Socio-economic impacts of the Ebola Virus Disease (EVD) and the HIES

Liberia experienced 9,860 cases of the EVD up to early April 2015 and more than 4,400 deaths reported occurred because of the virus. Out of the total number of cases recorded, most of them were happening in Monrovia and its environs mainly in densely populated localities; but the virus affected nearly all counties. Considerable efforts were made to measure the economic impact of EVD on Liberian households.

LISGIS, the World Bank and the Gallup Organization conducted five rounds of mobile-phone surveys, in October, November, and December of 2014, as well as in January and March of 2015. The results clearly indicated that the EVD substantially impacted the Liberian economy across all sectors of employment during the first two rounds of the survey while in the last rounds job losses were rather related to other economic reasons.

Ebola Virus Disease outbreak and the ongoing impacts on the HIES Sample Representativeness

In 2014, almost half of the enumeration areas (409 EAs) of the target sample (836 EAs) were covered. Approximately two quarters of data collection was completed out of a planned four quarters. Furthermore, in the second quarter nine EAs were unable to be completed due to the EVD outbreak, for reasons such as communities having many of EVD cases, and communities in quarantine. These EAs were in Bomi, Margibi, Grand Cape Mount and Lofa county. Thus, in total, 409 out of 418 EAs were covered in the first two quarters. From the sampling perspective, fortunately, the HIES data for the first two quarters was designed to be nationally representative. Even though a few sample EAs were not enumerated in the second quarter, it has been possible to adjust the sampling weights, based on the distribution of the missing EAs.

Data Collection & Fieldwork (HIES 2016)

In 2016, data collection started in mid-January 2016 and ended in mid-January 2017 using fourteen teams that included one supervisor, four enumerators, one GIS specialist who doubled up as an enumerator, one data entry clerk, and one driver. The fourteen teams enumerated across Liberia taking into consideration all sample enumeration areas (EAs) on a quarterly basis. No team was allowed to do data collection in a given zone twice during the course of data collection. The country was sub-divided into fourteen zones and each team was mandated to cover a zone during a quarter.

During each quarter, a monitoring team from LISGIS headquarter visited the field teams to observe fieldwork, assess data quality, and provide feedback and further training where applicable. Monitoring trips also acted as a way to supply teams with rounds of provisions and collect the hard copy of the questionnaires to be brought back to the headquarter. The first data entry of the questionnaires was done at the field level aimed at minimizing first set of errors to be picked up while teams were still in an assigned EA. Soft copies of the data were sent back to the headquarters on a weekly basis to run basic quality checks using STATA. Once hard copies of the questionnaires reached the LISGIS headquarter, these questionnaires were then re-entered. Second data entry allowed for first and second data entry comparisons, which helped to minimise data entry errors during the data cleaning period and to validate responses through questionnaire pulling activities.

In 2016, the survey was structured in categories using a total of 8350 interviews as a sample size in 835 enumerated areas (EAs) doubling the efforts from the previous survey. The deployment strategy which included 14 teams and 8 members per team were recruited to serve as Supervisors, Enumerators, GIS Specialist and Data Entry Clerks. During the HIES 2014, only 6 months of data was collected making the analysis statistically significant only at the regional level due to the limited numbers of observations. However, the HIES 2016 was able to complete the total of 8350 interviews, thus providing sufficient observations to make the data statistically significant at the county level. For reference, please note the regional disaggregation in Table 1.1. below.

Table 1.1: Region definitions by County

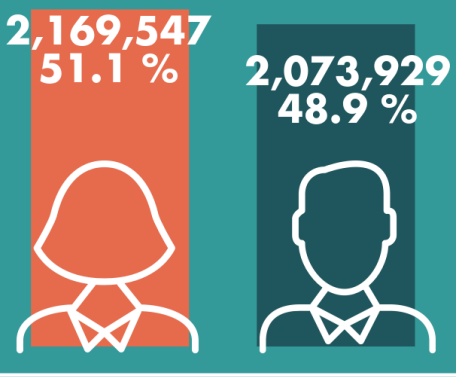
Region	Counties
North Western	Bomi, Grand Cape Mount, Gbarpolu
South Central	Margibi, Grand Bassa
South Eastern A	River Cess, Sinoe, Grand Gedeh
South Eastern B	Rivergee, Grand Kru, Maryland
North Central	Bong, Nimba, Lofa
Montserrado	Montserrado

2. Demographic Characteristics

Total Population

4,243,475

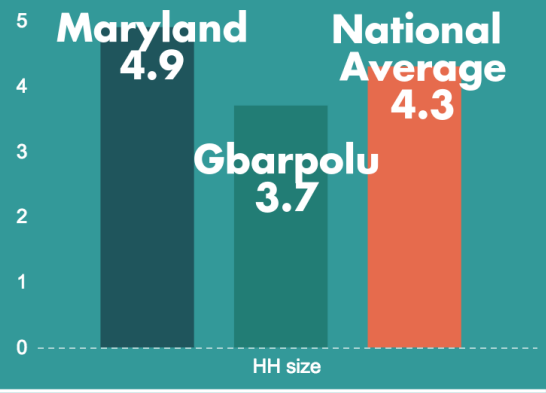
Liberia's population is estimated to be just over 4.2 million people, of which 51.1% are female and 48.9% are male.



Household Size

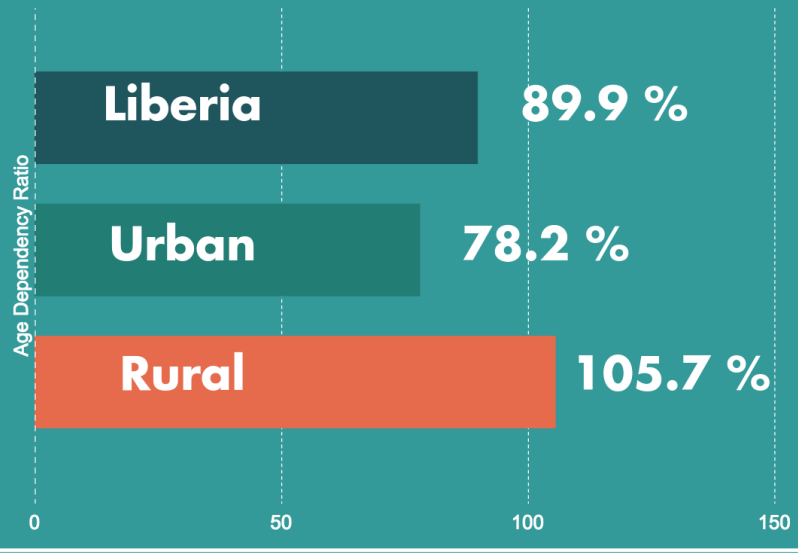
The average household size is estimated to be 4.3 people per household.

The county with the highest average household size is Maryland (4.9 people per household). While, Gbarpolu holds the lowest average household size (3.7).



Age Dependency Ratio

44.5% of Liberia's population is under the age of 15 years, which makes the age dependency ratio as high as 89.9% nationally. This figure is even higher in rural areas, where the ratio of working age population is lower than the 'dependent' population causing a dependency ratio over 100%.



2 DEMOGRAPHIC CHARACTERISTICS

2.1 Population

Liberia's population is estimated to be just over 4.2 million people (4,243,475). Of these, 48.9% are males and 51.1% are females, which results in a gender ratio of males to females of 95.6 (as outlined in Table 2.1).

Table 2.1 further classifies the population by rural and urban localities. According to standardized definitions[2], the rural and urban classification reveals that 1,956,438 of residents are estimated to live in rural areas, while the majority of inhabitants, 2,287,037 are considered to live in urban areas.

Figure 1: Population by county

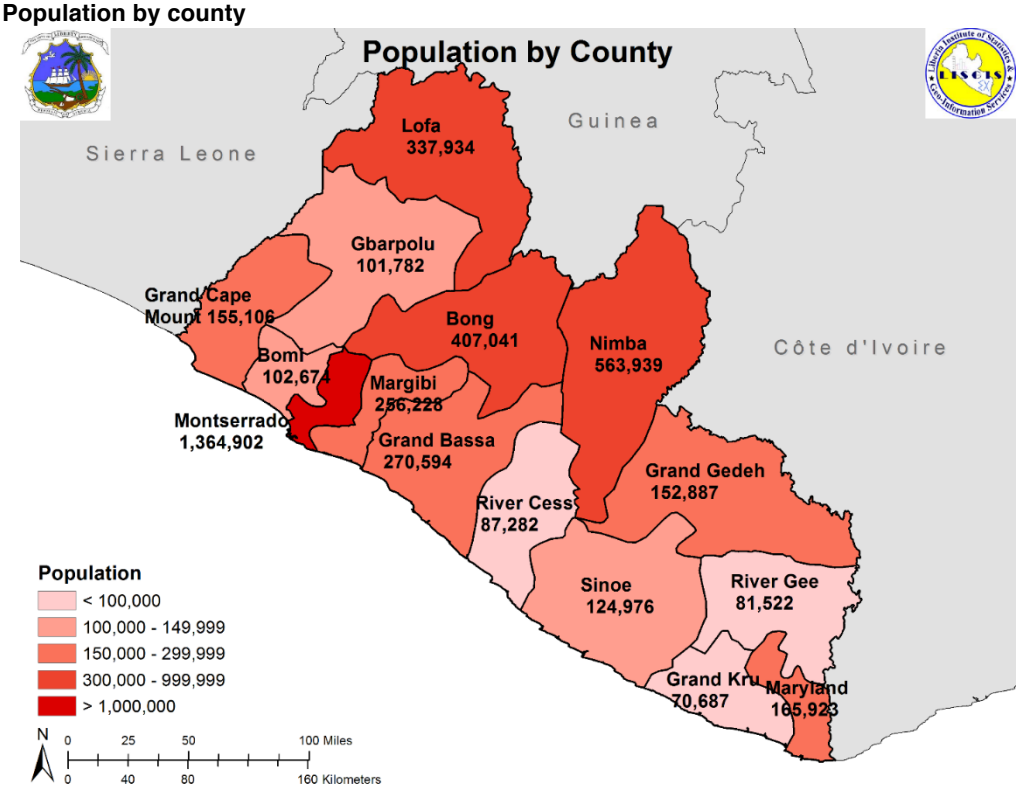


Table 2.1 further disaggregates the demographic information by regions and counties. Montserrado is classified as its own separate region with an estimated 1,364,902 Liberians living there. According to regional disaggregation, the North Central region

[2] The definition of an urban locality is it holds a population of 2,000 or more based on data from the 2008 Population and Housing Census, and localities with a population less than 2,000 are classified as rural. Furthermore, regardless of population size, localities are classified as urban if they are county capitals or other important towns.

(Bong, Nimba, Lofa) holds the largest percent distribution of the population (30.8%). At the county level, however, it becomes clear that Montserrado holding 32.2% of the total population concentrates more people than any other individual county. The second and third largest populations reside in Nimba (13.3%) and Bong (9.6%) respectively.

Table 2.1: Distribution of the Population of Liberia

	Total		Male		Female		Sex ratio [3]
	Number	%	Number	%	Number	%	(males to females)
Liberia	4,243,475	100	2,073,929	48.9	2,169,547	51.1	95.6
Area of residence							
Rural	1,956,438	46.1	981,979	50.2	974,459	49.8	100.8
Urban	2,287,037	53.9	1,091,949	47.7	1,195,087	52.3	91.4
Region							
Montserrado	1,364,902	32.2	647,803	47.5	717,099	52.5	90.3
North Central	1,308,913	30.8	645,292	49.3	663,621	50.7	97.2
North Western	359,562	8.5	181,397	50.4	178,165	49.6	101.8
South Central	526,822	12.4	259,662	49.3	267,160	50.7	97.2
South Eastern A	365,145	8.6	183,423	50.2	181,722	49.8	100.9
South Eastern B	318,132	7.5	156,351	49.1	161,781	50.9	96.6
County							
Montserrado	1,364,902	32.2	647,803	47.5	717,099	52.5	90.3
Bomi	102,674	2.4	51,078	49.7	51,596	50.3	99
Bong	407,041	9.6	200,841	49.3	206,199	50.7	97.4
Grand Bassa	270,594	6.4	137,792	50.9	132,802	49.1	103.8
Grand Cape Mount	155,106	3.7	77,850	50.2	77,256	49.8	100.8
Grand Gedeh	152,887	3.6	76,375	50	76,512	50	99.8
Grand Kru	70,687	1.7	35,070	49.6	35,618	50.4	98.5
Lofa	337,934	8	162,104	48	175,830	52	92.2
Margibi	256,228	6	121,870	47.6	134,358	52.4	90.7
Maryland	165,923	3.9	79,915	48.2	86,008	51.8	92.9
Nimba	563,939	13.3	282,347	50.1	281,592	49.9	100.3
River Cess	87,282	2.1	45,318	51.9	41,965	48.1	108
Sinoe	124,976	2.9	61,731	49.4	63,245	50.6	97.6
River Gee	81,522	1.9	41,367	50.7	40,155	49.3	103
Gbarpolu	101,782	2.4	52,469	51.6	49,313	48.4	106.4

2.2 Household Size

Based on the data collected, Liberia holds an estimated of 990,966 households[4], with a mean household size of 4.3 persons per household (see Table 2.2). The mean household size does not vary greatly between rural and urban localities (4.3 and 4.2 respectively).

[3] The sex ratio is the ratio of males to females in a population. A balanced ratio of one male to one female would be 100:100. In Liberia, there are approximately 96 males to every 100 females (i.e. sex ratio of 95.6).

[4] In the HIES 2016, a household was defined as everyone who shares the same resources such as income, consumption, food and cooking facilities. By this definition it is not necessary that all members live in the same dwelling or are blood relatives.

Table 2.2: Distribution of Household Sizes in Liberia

	Number	Mean Household Size	Mean Adult Equivalent*
Liberia	990,966	4.3	3.3
Area of residence			
Rural	476,599	4.3	3.3
Urban	514,367	4.3	3.4
Region			
Montserrado	330,456	4.1	3.2
North Central	288, 848	4.5	3.5
North Western	90, 497	4	3
South Central	130, 246	4	3.1
South Eastern A	83, 707	4.4	3.4
South Eastern B	67, 212	4.7	3.6
County			
Montserrado	330,456	4.1	3.2
Bomi	25,046	4.1	3.1
Bong	96,241	4.2	3.2
Grand Bassa	66,879	4.1	3.1
Grand Cape Mount	38,104	4.1	3.1
Grand Gedeh	35,314	4.3	3.4
Grand Kru	15,000	4.7	3.6
Lofa	73,435	4.6	3.6
Margibi	63,367	4	3.1
Maryland	33,865	4.9	3.8
Nimba	119,173	4.7	3.6
River Cess	20,129	4.3	3.3
Sinoe	28,264	4.4	3.4
River Gee	18,347	4.4	3.5
Gbarpolu	27,347	3.7	2.9

* The Mean adult equivalent scale is defined as the proportionate increase in income per adult necessary to maintain a certain level of household living standard given some change in demographic circumstances This calculation takes into account the gender and age of the household members. In terms of their consumption, a 30-year-old man and a five-month old baby cannot be compared one to one.[5]

Regional analysis in Table 2.2 above shows that the South Eastern B region is the region with the largest mean household size, followed closely by the North Central region (4.7 and 4.5 respectively). Specially, Maryland holds the largest average household size at 4.9 people and Gbarpolu has the lowest average family size at 3.7 people on average per household.

[5] For a discussion of equivalence scales see the FAO's EASYPol repository.

2.3 Age Groups

An important demographic characteristic to analyse is the percentage distribution of population by age groups and age dependency ratio, this is outlined in Table 2.3. The dependency ratio is not an indicator of economic dependency. People under the age of 15 years or over the age of 64 years may be in the labour force, while many working-age people might not be. But generally, people under the age of 15 and over 64 are not working and therefore dependent on those between the age 15 to 64 or those in working age group.

The data reveals that Liberia has a very young population as 44.5% of the population is below 15 years of age and only 2.9% is above the age of 65 years. The percent of the population of working age (aged 15 to 64) is 52.6% nationally, this percentage is higher in urban areas at 56.1% compared to 48.6% in rural areas.

The age dependency ratio is the proportion of dependents (people younger than 15 or older than 64) to the working-age population (those aged 15-64). In Liberia a high national age dependency ratio of 89.9% reflects the large percent distribution of the total population that is under the age of 15 years (44.5%).

Considering the urban and local differentiation, the age dependency ratio is particularity high in rural areas (105.7%). Moreover, the age dependency ratio is above a 100% in the North Central, North Western and South Eastern A regions. Montserrado holds the lowest age dependency ratio as the highest proportion of working-age Liberians reside there (74.1%).

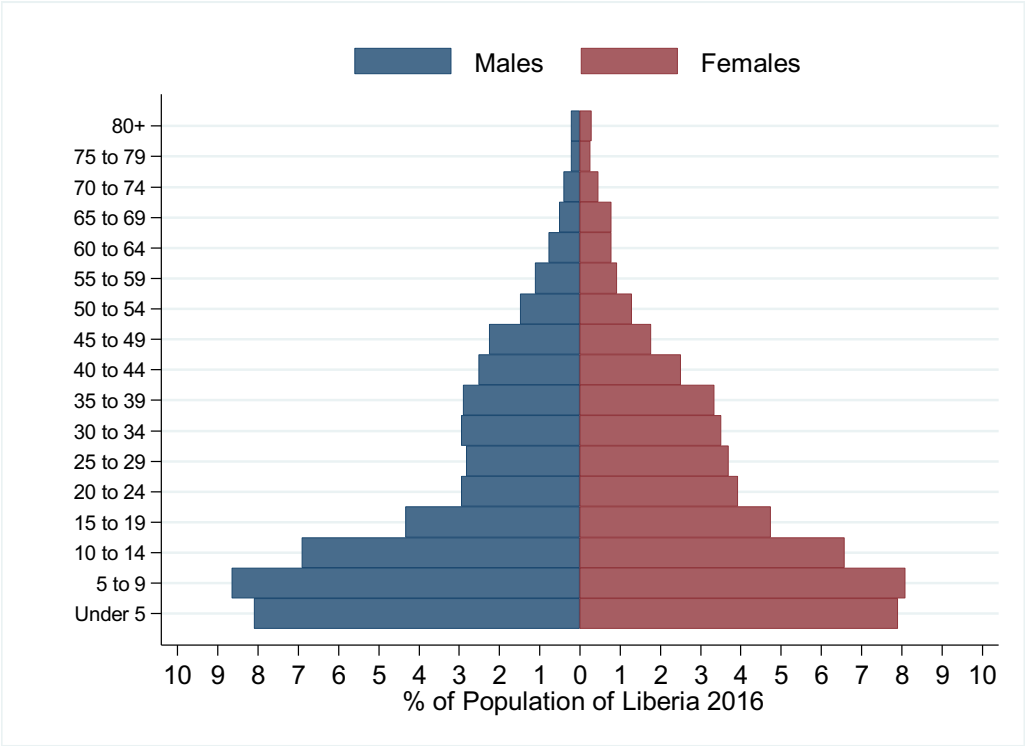
Table 2.3: Distribution of population by age groups

	All Ages	0-14 years	15-64 years	65+ years	18+ years	Age dependency ratio
	Number	(%)	(%)	(%)	(%)	
Liberia	4,243,475	44.5	52.6	2.9	49.1	89.9
Area of residence						
Rural	1,956,438	47.6	48.6	3.8	47.2	105.7
Urban	2,287,037	41.8	56.1	2.0	50.7	78.2
Region						
Montserrado	1,364,902	40.4	57.4	2.2	52.0	74.1
North Central	1,308,913	46.5	49.8	3.6	47.3	100.6
North Western	359,562	47.2	49.1	3.6	48.2	103.6
South Central	526,822	44.6	53.3	2.1	49.6	87.6
South Eastern A	365,145	47.4	49.4	3.1	46.7	102.2
South Eastern B	318,132	47.2	50.3	2.5	46.7	98.9

Finally, the age distribution can be represented graphically through an age distribution pyramid (see Figure 2 below). The pyramid has a broad base and a narrow top, which indicates the largely young population in Liberia. By gender, it is noteworthy that there is

a smaller proportion of males in the age groups between 20-34 years old than for females[6].

Figure 2: Population pyramid by gender

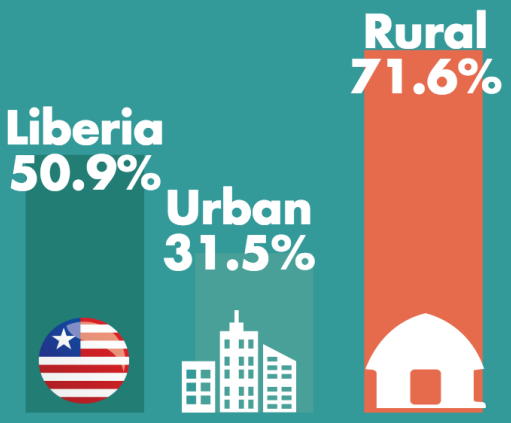


[6] It should be noted that the HIES 2016 is representative of the population living in households, and would exclude any institutional populations (for example, those residing in hospitals, prisons, military barracks etc.).

3. Poverty

Poverty Headcount

The national poverty headcount for Liberia is 50.9%. Meaning that slightly more than a half of Liberia population are poor. Poverty is higher in rural areas compared to urban areas.



Poverty levels by Education attainment

The highest levels of poverty are found in households in which the head has no formal education, 66 %, compared to 58.7% for heads with at least some primary education, 43.8% for heads with at least some secondary education, and 15.9% for heads with post-secondary education.

Types of Poverty

	Absolute Poverty	Food Poverty	Extreme Poverty
	Liberia 50.9%	39.1%	16.5%
	Female Headed Households 46.3%	34.2%	15.4%
	Male Headed Households 52.3%	40.7%	16.8%

3 POVERTY

The 2016 HIES survey was completed over 12 months as per the sample design, starting in mid-January 2016 and finishing in mid-January 2017. The survey was comprehensive and allows for estimation of poverty down to the county level. The 12 months of data collection accounts for Liberia's seasonal consumption patterns, providing unbiased estimates for the average poverty level in Liberia.

To measure monetary poverty in Liberia, per adult equivalent household consumption is used as the primary welfare indicator. The poverty estimation methodology entails constructing consumption aggregates based on total food and non-food spending, and then deriving a poverty line using the Cost-of-Basics Needs method.

To compare different well-being situations, three poverty definitions are employed. *Absolute poverty* is defined as a situation where individuals cannot meet their food and non-food minimum needs. The benchmark for those needs is established through an overall or absolute poverty line and is defined as the line below which individuals cannot meet their food and non-food minimum needs. *Food poverty* is defined as a situation whereby individuals cannot meet their basic food needs. The minimum benchmark for those food needs is established through a food poverty line. *Extreme poverty* is observed when the individuals' total food and non-food consumption falls below the minimum food requirements of 2400 kilo-calories.

Therefore, to compare different well-being situations, two poverty lines were used in the analysis: The overall or absolute poverty line and the food poverty line.

In constructing these poverty lines, the first step was to define the typical consumption basket for the poor and near-poor, which captures the consumption habits of these groups. Next, the cost of acquiring a minimum daily calorie requirement, 2400 kilo-calories for an adult in Liberia, based on the products and shares in the consumption basket is calculated. This value represents the food poverty line and the food component of the absolute poverty line. The non-food component of the absolute poverty line is calculated as the mean value of total non-food expenditures consumed by population whose food expenditures fall within a ten percent point interval above and below the food poverty line.[7]

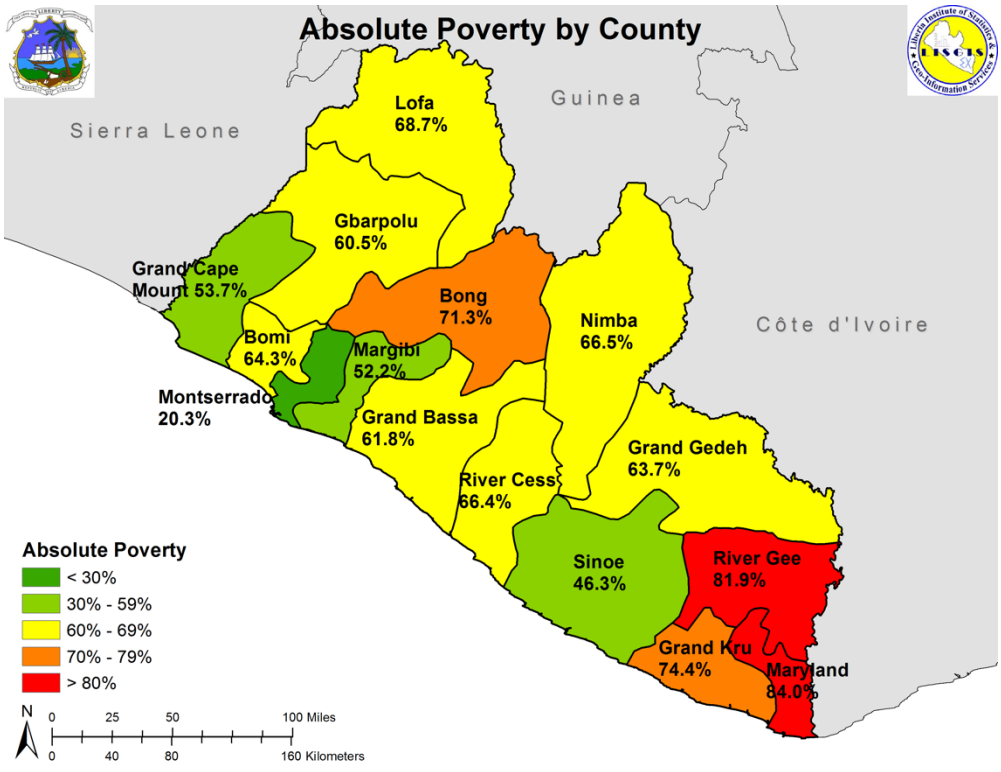
[7] See Annex A for a complete methodology on consumption aggregation and poverty measurement in Liberia based on the HIES 2016 survey.

3.1 Poverty Headcount

According to the 2016 HIES survey, the national poverty headcount for Liberia is 50.9 percent[8]. Meaning that slightly more than a half of the Liberian population is poor. This also mean that 50.9 percent of Liberians could not achieve the minimum expenditure to acquire basic food and non-food items. Poverty is higher in rural areas compared to urban areas. Rural poverty is 71.6 percent compared to urban poverty at 31.5 percent. Regional poverty was lower in Montserrado, 20.3 percent, followed by 57.2 percent in South Central, 58.4 percent in South Eastern A, 58.6 percent in North Western, and 68.5 percent in the North Central region. The region with the highest poverty level was South Eastern B at 81.3 percent.

At the county level, poverty was lower in Montserrado which includes Monrovia at 20.3 percent, followed 46.3 percent in Sinoe, and by Margibi and Grand Cape Mount at 52.2 and 53.7 percent respectively. The absolute poverty numbers for all the counties can be seen in figure 6 below.

Figure 3: Absolute poverty by county



[8] From this sub-section, onwards all the analyses are based on the full 2016 HIES survey data and not the half year data as done in comparative analysis in sub-section 3.6 of chapter 3 (Poverty trends across 2014 and 2016).

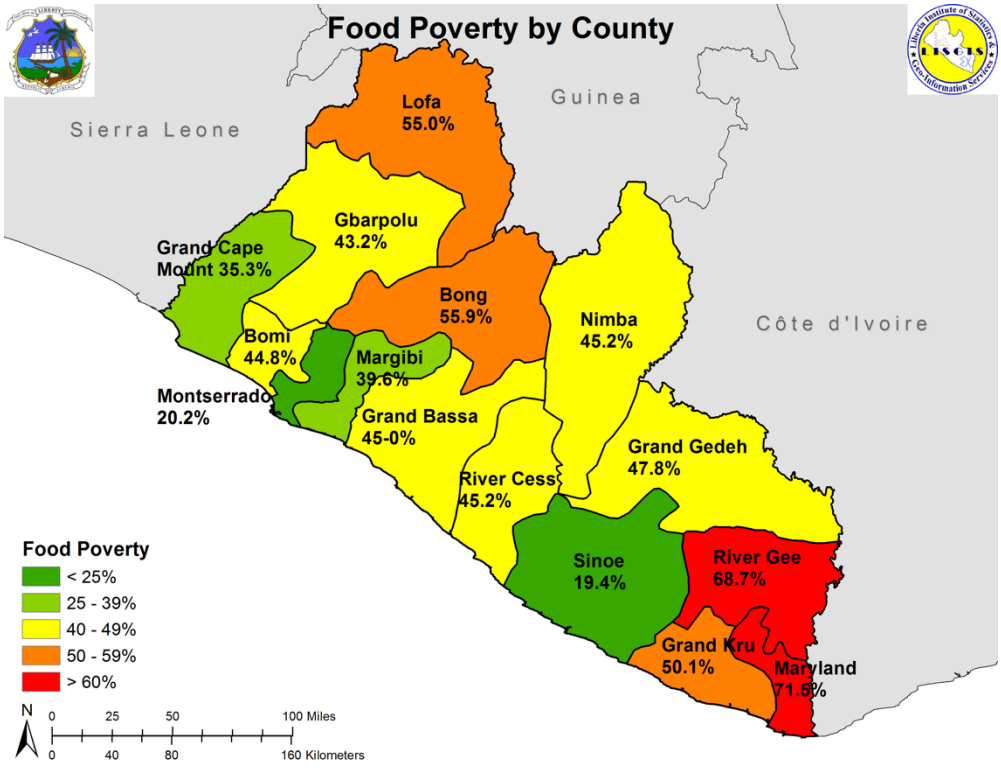
3.2 Food Poverty

The food poverty level was 39.1 percent for Liberia. Like absolute poverty, food poverty was higher in rural areas, 50.9 percent, compared to urban areas, 28.1 percent. The level of food poverty in rural areas, however, was significantly lower than the absolute poverty headcount (71.6 percent vs. 50.9 percent), while the levels were nearly the same in urban areas (31.5 percent vs. 28.1 percent). This indicates that in rural areas some households can meet their food poverty needs even though they had relatively little non-food consumption. This is likely the result of subsistence farmers in rural areas raising sufficient food to eat regularly, but having little access to income generating activities.

In urban areas, households must purchase both food and non-food items, and therefore there are fewer differences between absolute and food poverty levels. Regionally, food poverty level is lower in Montserrado at 20.2 percent, followed by 37.4 percent in South Eastern A, 40.2 percent in North Western, 42.4 percent in South Central, and 51.1 percent in North Central. The food poverty is higher in South Eastern B at 66 percent.

At the county level, food poverty was lowest in Sinoe and Montserrado which includes Capital Monrovia at 19.4 percent and 20.2 percent respectively. Just as in absolute poverty, the food poverty is also highest in River Gee and Maryland at 68.7 percent and 71.5 percent respectively.

Figure 4: Food poverty by county



3.3 Extreme Poverty

Of the total Liberian population, 16.5 percent were classified as extremely poor. This percent was 26.5 percent in rural areas and 7.2 percent in urban areas. Across the regions, the level was the lowest in Montserrado at 2.7 percent, compared to 15.5 percent in South Eastern A, 18.1 percent in South Central, 20.4 percent in North Western, 23.5 percent in North Central, and 40.8 percent in South Eastern B.

Across the counties, the extreme poverty level was lower in Montserrado and Sinoe at 2.7 percent and 7.6 percent respectively. Just as in absolute and food poverty, the extreme poverty is highest in River Gee and Maryland at 39.4 percent and 47.5 percent respectively.

Figure 5: Extreme poverty by county

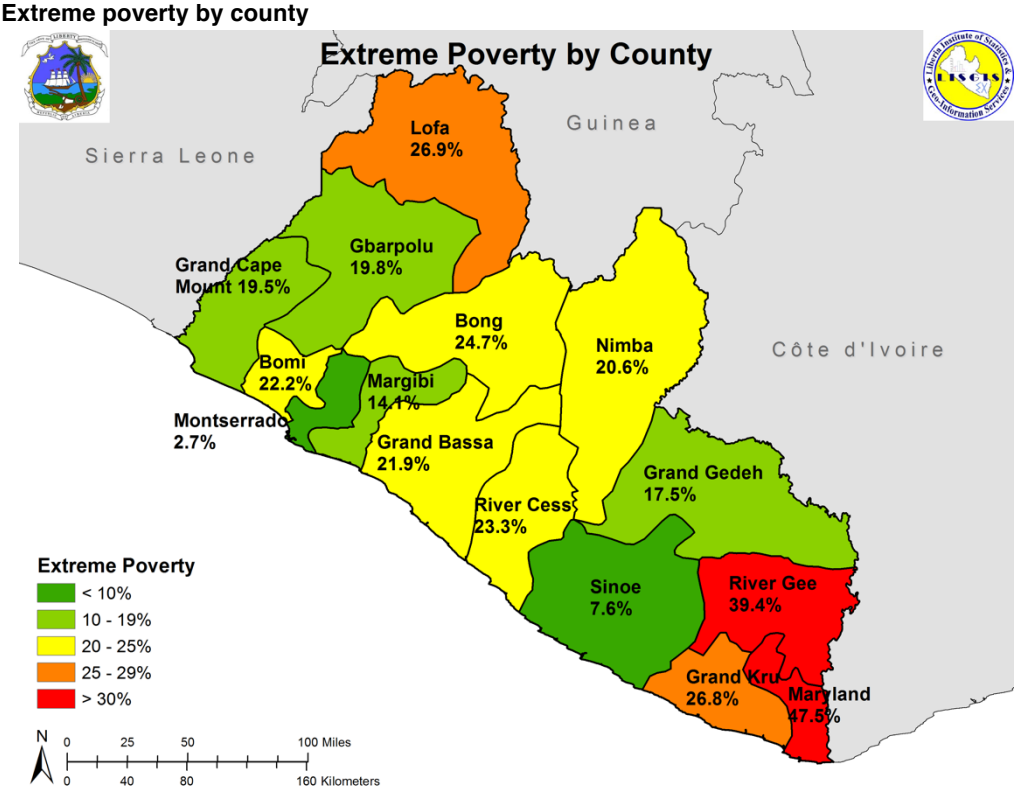


Table 3.1: Poverty levels by geographic characteristics

	Absolute Poverty	Food Poverty	Extreme Poverty
Liberia	50.9	39.1	16.5
Area of residence			
Rural	71.6	50.9	26.5
Urban	31.5	28.1	7.2
Region			
Montserrado	20.3	20.2	2.7
North Central	68.5	51.1	23.5

North Western	58.6	40.2	20.4
South Central	57.2	42.4	18.1
South Eastern A	58.4	37.4	15.5
South Eastern B	81.3	66.0	40.8
County			
Monrovia/Montserrado	20.3	20.2	2.7
Bomi	64.3	44.8	22.2
Bong	71.3	55.9	24.7
Grand Bassa	61.8	45.0	21.9
Grand Cape Mount	53.7	35.3	19.5
Grand Gedeh	63.7	47.8	17.5
Grand Kru	74.4	50.1	26.8
Lofa	68.7	55.0	26.9
Margibi	52.2	39.6	14.1
Maryland	84.0	71.5	47.5
Nimba	66.5	45.2	20.6
River Cess	66.4	45.2	23.3
Sinoe	46.3	19.4	7.6
River Gee	81.9	68.7	39.4
Gbarpolu	60.5	43.2	19.8

3.4 Number of Poor

From an expected population of about 4.2 million, a poverty headcount of 50.9 percent means that about 2.2 million Liberians are living in poverty (Table 3.2). These are split almost evenly between urban and rural areas because even though the poverty headcount in rural areas is higher, the overall population share in urban areas is greater.

The largest number of poor are living in the North Central region, 897,150, more than 41 percent of the total poor in Liberia. The next highest total is in the South Central region, with 301,154 poor persons, followed by Montserrado with 276,888 poor persons, followed by South Eastern B with 258,645, South Eastern A with 213,149, and North Western with 210,875.

Of the other main poverty measures, there were about 1.7 million Liberians living in food poverty and 699,166 living in extreme poverty.

Table 3.2: Total numbers of poor by geographic characteristics

	Total population	Absolute Poverty	Food Poverty	Extreme Poverty
Liberia	4,243,475	2,157,861	1,659,039	699,166
Area of residence				
Rural	2,045,773	1,464,964	1,041,827	541,702
Urban	2,197,702	692,898	617,212	157,464
Region				
Montserrado	1,364,902	276,888	275,806	36,483
North Central	1,308,913	897,150	668,420	307,577
North Western	359,562	210,875	144,635	73,268
South Central	526,822	301,154	223,383	95,431

South Eastern A	365,145	213,149	136,726	56,530
South Eastern B	318,131	258,645	210,069	129,876

3.5 Poverty by Gender and Characteristics

This section illustrates poverty levels (absolute poverty, food poverty and extreme poverty) across different demographic characteristics.

a. Poverty by household head characteristics

Comparing poverty levels by the gender of the household head, male-headed households have slightly higher poverty than the female-headed households. Poverty levels are 52.3 percent among the male-headed households and 46.3 percent among female-headed household. Considering different age categories of household heads, the highest levels of poverty are found among household heads above age 60, at 60.2 percent. The lowest poverty rate, is found for those in households whose heads are under age of 20 and between age 20 and 29, at 41.8 and 43 percent respectively. The poverty rate for those with households' head between age 30 and 39 is 47.5 percent, while 53.4 percent for age 40 to 49, and 53 percent for household heads between age 50 to 59.

Table 3.3: Poverty levels by characteristics of household head

Sex of household head	Share	Absolute Poverty	Food Poverty	Extreme Poverty
Female	27.7	46.3	34.2	15.4
Male	72.3	52.3	40.7	16.8
Age of household head				
15 - 19	0.5	41.8	23.4	10.2
20 - 29	13.6	43.0	28.0	12.0
30 - 39	30.3	47.5	35.4	15.2
40 - 49	28.3	53.4	42.7	18.0
50 - 59	16.5	53.0	43.7	16.2
60+	10.8	60.2	47.6	22.2
Highest education level attained of household head				
None	35.8	66.0	48.9	25.6
Primary	13.6	58.7	41.7	19.8
Secondary	41.1	43.8	34.6	10.9
Post-secondary	9.5	15.9	19.7	2.4
Employment sector of household head				
Paid employee	33.0	34.5	29.5	7.1
Self-employed (non-agriculture)	31.1	40.1	30.3	10.2
Self-employed (agriculture)	28.0	79.6	58.0	32.5
Not working / Unpaid employment	0.4	51.2	41.5	19.3

The highest levels of poverty are found in households in which the head has no formal education, 66 percent, compared to 58.7 percent for heads with at least some primary education, 43.8 percent for heads with at least some secondary education, and 15.9 percent for heads with post-secondary education. In terms of food poverty, a larger

percent of those with post-secondary education are in food poverty than in poverty overall, which is consistent with most individuals with post-secondary education are residing in Montserrado.

The difference, however, is more extreme than was found between Montserrado and other areas, indicating that in particular those with higher education are more likely to forego food consumption in favour of non-food spending. The trend however is still consistent in that those with post-secondary education have lower food poverty at 19.7 percent compared to 48.9 percent for those with no education, 41.7 percent for those with at least some primary education, and 34.6 percent for those with at least some secondary education. For the extreme poverty, similar trend is reported. Highest levels of extreme poverty are found in households in which the head has no formal education, 25.6 percent, compared to 19.8 percent for heads with at least some primary education, 10.9 percent for heads with at least some secondary education, and 2.4 percent for heads with post-secondary education.

Considering the employment categories of the household head, people living in households in which the head whose primary activity is self-employed agriculture have substantially higher poverty rates, 79.6 percent, compared to those heads working in paid employment, at 34.5 percent; non-agricultural self-employment, at 40.1 percent; and heads not currently working or are in unpaid employment at, 51.2 percent. About 58 percent of those in agriculture are also in food poverty and more than one-third are in extreme poverty.

3.6 Poverty Trends across 2014 and 2016

The estimation of comparable poverty trends using the 2014 and 2016 rounds of the HIES data is not straightforward. The 2014 survey was administered from January through July (instead of the full calendar year as planned) due to the outbreak of Ebola Virus Disease in Liberia. When fieldwork was halted in August 2014, approximately half of the data had been collected. By contrast, the HIES 2016 was collected throughout the full year.

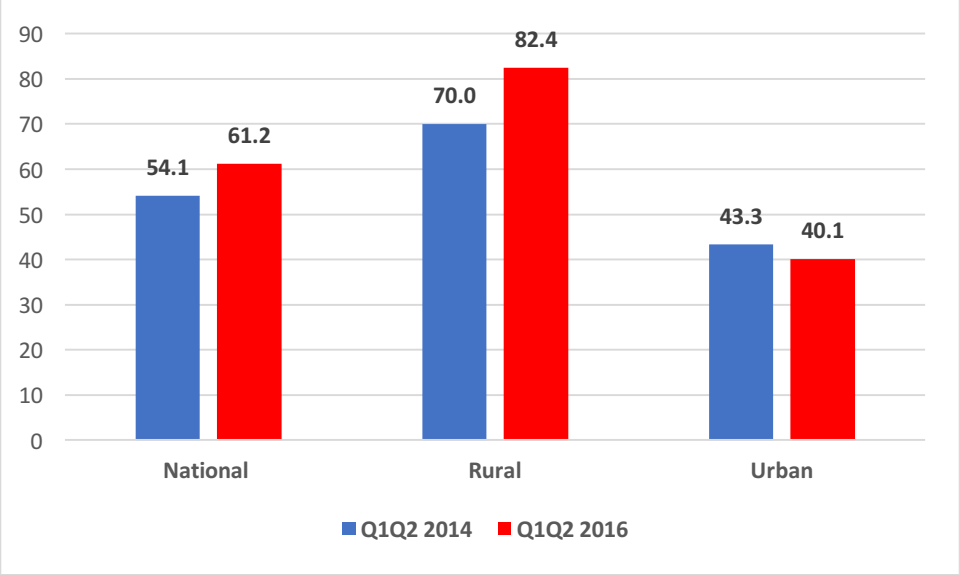
The difference in survey dates between the HIES 2014 and 2016 has several implications for the estimation of consumption and poverty lines. First, the consumption data for HIES 2014 collected between January and July, coincides with the lean season in Liberia, which is a time in the calendar year when poverty levels are expected to be at their highest. Second, households and individuals eat a different mix of foods in the pre-harvest period than over the year in general, and have a different balance in their food and non-food spending. And third, adjusting for inflation the poverty line calculated using 6 months of data for the HIES 2014 and using the CPI in the full sample of 2016 will not render a comparable poverty line across time.

For all these reasons, the poverty estimates for 2014 calculated using the *half-year* data (54.1 percent), are *not* comparable to the poverty estimates calculated using the *full* year data for 2016 (50.9 percent). These numbers represent different measures.[9]

The only way to arrive at comparable poverty trends in Liberia between 2014 and 2016 is to focus on the first semester (Q1Q2) of both HIES rounds; and in doing so use consumption aggregates and poverty lines derived from the same time period (i.e., the poverty line from the baseline in 2014 is inflated to the new survey period in 2016 using the CPI only for the same six months of data available in both surveys).

Figure 6 shows the trend in the poverty status of the population between 2014 and 2016. This comparison shows an increase in the poverty headcount from 54.1 percent in to 61.2 percent nationally using as a base the 2014 poverty line.[10] In urban areas, the incidence of poverty remained much lower than rural areas and flat between 2014 and 2016 (it fell from 43.3% to 40.1% though without statistical significance). While poverty was already much higher in rural areas, it rose significantly from 70% in 2014 to 82.4% in 2016, thus widening the urban-rural poverty divide.

Figure 6: Headcount Poverty trends, 2014 and 2016



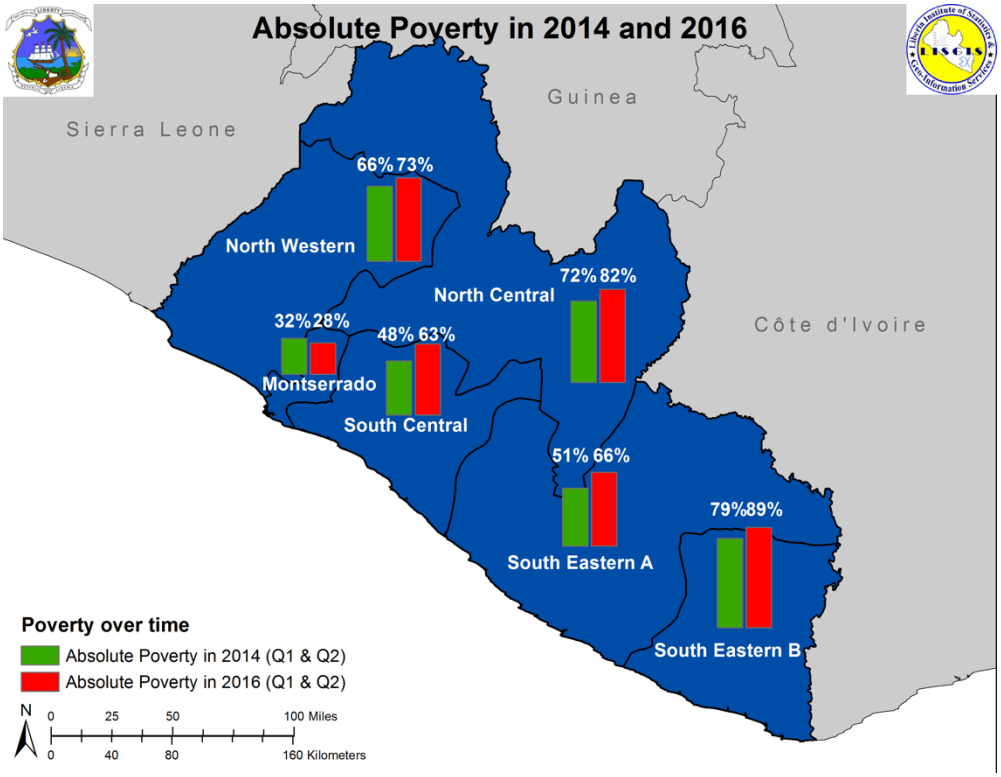
Note: Poverty estimates based on half-year data (Q1-Q2) for HIES 2014 and 2016. b. Poverty comparison is made using as a base the 2014 poverty line.

[9] Analyzing poverty trends back to 2007 is further complicated by the lack of comparability between the 2007 CWIQ survey and the HIES surveys in terms of questionnaire and methodology.

[10] The upward trend in poverty between the half-year estimates of 2014 and 2016 in Liberia is not affected by the choice of the baseline poverty line. When poverty trends are estimated using the 2016 poverty line, poverty headcount levels are still higher in 2016 compared to 2014: At national level, the poverty headcount goes from 45 percent in 2014 to 52.2 percent in 2016.

Comparing the poverty levels on Q1Q2 of 2014 and Q1Q2 of 2016 across the six regions (Figure 7), poverty increased in all regions except for Montserrado. Poverty increased from 71.7 percent to 82 percent in the North Central region, from 66.0 percent to 73.4 percent in the North Western region, from 47.5 percent to 62.9 percent in the South Central region, from 51.1 percent to 65.6 percent in the South Eastern A region, and from 78.9 percent to 88.7 percent in the South Eastern B region. In contrast, poverty declined in Montserrado from 31.6 percent to 27.5 percent.

Figure 7: Absolute Poverty in 2014 and 2016



In summary, the incidence of poverty in the first half of 2016 is higher than in the first half of 2014, both nationally and in rural areas. The full year poverty line and poverty estimates of 2016 will represent the new baseline measure for future poverty calculations. The baseline value for headcount poverty in 2016 is 50.9 percent.

3.7 Inequality

The Gini coefficient[11] estimates the inequality across the distribution of household consumption. A higher Gini coefficient indicates more unequal distributions. The Gini index however, measures only monetary inequality and does not capture disparities in alternative access to services. For Liberia, the national Gini coefficient is 0.33. This is

[11] For technical details about the Gini coefficient, please see the methodological appendix.

slightly lower compared to the most recent measurements for neighbouring Guinea and Sierra Leone, and substantially lower than Cote d'Ivoire (see Table 3.4).

In Liberia, inequality was higher in urban areas (0.31) compared to rural areas (0.27). Across regions, the highest inequality was found in South Central (0.31), South Eastern B (0.30), compared with Montserrado (0.29), and North Western (0.28). The lowest inequality was in South Eastern A (0.26) and North Central (0.26).

Table 3.4: Inequality by regions and regional comparison

National	0.33
Area of residence	
Urban	0.31
Rural	0.27
Region	
Montserrado	0.29
North Central	0.26
North Western	0.28
South Central	0.31
South Eastern A	0.26
South Eastern B	0.30

Liberia (2016)	0.330
Neighbouring countries*	
Sierra Leone (2011)	0.340
Cote d'Ivoire (2008)	0.432
Guinea (2012)	0.337
Other countries in the region*	
Ghana (2013)	0.428
Benin (2011)	0.434
Burkina Faso (2014)	0.353
Mali (2009)	0.330
Nigeria (2009)	0.430
Senegal (2011)	0.403

*World Bank GINI Index

3.8 Consumption

The HIES 2016 collected sufficient information to estimate total consumption comprising food and non-food items (including housing) for each household. Commodities included food and non-food consumption that may be explicitly purchased by households, or acquired through other means (own production activities or receipts). The household consumption measure considers all these sources captured in different modules of the questionnaires.

Food vs. Non-food

Nationally 67.5 percent of total spending is on food, including the equivalent market value of home production and gifts, and 32.5 percent is on non-food, including estimated rent for those that own their homes and the estimated use value of household assets. The food share of total consumption spending is higher in rural areas, 74.1 percent, compared to urban areas, 61.3 percent. This is consistent with rural areas being generally poorer than urban areas, therefore devoting a larger share of the budget to food spending, and to the larger number of necessary non-food expenditure in urban areas, including rent, and transportation. Montserrado has the lowest share of food spending to total spending at 58.9 percent. All other regions have similar share of food to total spending at 69.9 for South Central, 71.1 percent for North Central, 72.3 percent for South Eastern A, 73.3 percent for South Eastern B and the high of 73.4 percent for North Western.

Table 3.5: Food and non-food consumption by location

	Share of food	Share of non-food
Liberia	67.5	32.5
Area of residence		
Rural	74.1	25.9
Urban	61.3	38.7
Region		
Montserrado	58.9	41.1
North Central	71.1	28.9
North Western	73.4	26.6
South Central	69.9	30.1
South Eastern A	72.3	27.7
South Eastern B	73.3	26.7
County		
Montserrado	58.9	41.1
Bomi	73.1	26.9
Bong	70.8	29.2
Grand Bassa	71.7	28.3
Grand Cape Mount	74.1	25.9
Grand Gedeh	67.9	32.1
Grand Kru	76.4	23.6
Lofa	70.5	29.5
Margibi	68.0	32.0
Maryland	72.6	27.4
Nimba	71.7	28.3
River Cess	75.6	24.4
Sinoe	75.3	24.7
River Gee	71.9	28.1
Gbarpolu	72.5	27.5

Across the counties, food share of the total spending was lowest in Montserrado at 58.9 percent. This means that even in Montserrado people are spending more on food, than non-food. Food share spending for other counties is higher, ranging from 67.9 percent in Grand Gedeh to 76.4 percent in Grand Kru.The poorest quintile of the population has the highest share of food to total consumption spending, with slightly more than three-quarters of the budget going to food consumption at 75.6 percent. The wealthiest households or those in the first quintile spend only slightly more on food than non-food spending, but still more than a half of the budget on food at 55.3 percent on food compared to non-food at 44.7 percent.

Table 3.6: Food and non-food consumption by consumption Quintiles

	Share of food	Share of non-food
Quintile (1^{o} = poorest)		
Poorest Quintile	75.6	24.4
Second Quintile	72.7	27.3
Third Quintile	68.3	31.7
Fourth Quintile	65.4	34.6
Richest Quintile	55.3	44.7

Food Consumption

Nationally just 18.1 percent of food consumption is from home-production (Table 3.8). This share is far higher in rural areas compared to urban areas, 32.1 percent versus 5.1 percent, but this still means that nearly 67.9 percent of total food spending in rural areas comes from purchases. In Montserrado, about 3.4 percent of total food spending comes from home production.

Across the consumption quintiles, the poorest population in the lowest quintile obtain 34.5 percent of food consumption from home production. This percent declines steadily across the income quintiles to a low of 3.4 percent in the richest (highest) quintile. In addition, the poorest quintile had the highest share of food expenditure coming from only rice, at 31.5 percent. This share declined across the quintiles and was 13.0 percent in the least-poor or richest quintile.

Table 3.7: Food consumption by Consumption Quintile

	Share to total household food consumption expenditure		
	Share from home production	Share from rice (home product & purchased)[12]	Share consumed away from home
Quintile (1^{o} = poorest)			
Poorest Quintile	34.5	31.5	12.0
Second Quintile	26.4	26.9	17.9
Third Quintile	16.1	22.7	22.2
Fourth Quintile	10.2	17.9	30.8
Richest Quintile	3.4	13.0	35.0

Of all food items, rice comprises the largest single share of food consumption at 22.4 percent including purchases and home production. The share is similar in urban and rural areas, 19 percent and 26.1 percent, respectively, and across the regions, ranging from 17 percent in Montserrado to 26.6 percent in South Eastern B.

[12] This calculation excludes the value of rice consumed as part of prepared meals eaten away from home, and therefore is a minimum estimation of the share of rice in total food consumption.

Table 3.8: Food consumption by location

	Share to total household food consumption expenditure		
	Share from home production	Share from rice (home product & purchased)[13]	Share consumed away from home
Liberia	18.1	22.4	23.6
Area of residence			
Rural	32.1	26.1	18.0
Urban	5.1	19.0	28.7
Region			
Montserrado	3.4	17.0	30.5
North Central	28.6	25.6	20.0
North Western	21.7	24.6	19.1
South Central	16.3	22.6	24.8
South Eastern A	27.8	24.9	18.5
South Eastern B	25.9	26.6	17.8
County			
Montserrado	3.4	17.0	30.5
Bomi	16.2	25.6	18.5
Bong	24.4	26.2	19.3
Grand Bassa	19.9	23.5	22.7
Grand Cape Mount	19.5	21.5	19.6
Grand Gedeh	19.9	25.6	20.4
Grand Kru	31.9	26.4	16.1
Lofa	29.6	23.0	22.5
Margibi	12.5	21.7	27.0
Maryland	21.1	24.9	19.6
Nimba	31.0	26.8	19.0
River Cess	39.2	24.4	19.4
Sinoe	29.4	24.6	15.4
River Gee	30.4	30.2	15.5
Gbarpolu	30.7	28.2	19.0

Nationally, 23.6 percent of food consumption was on food or drinks consumed outside the home. This category included full meals, snacks and barbequed meat, non-alcoholic drinks, alcoholic drinks, and ice cream and other sweets. These categories cover either spending in restaurant or street vendors, or the estimated value of the food item if it was eaten in another household. The share was nearly double in urban areas compared to rural, at 28.7 percent and 18 percent, respectively. Montserrado had the highest percent of spending on food in restaurant or street vendors, across the regions, 30.5 percent, compared to the others, which ranged from 17.8 percent in South Eastern B to 24.8 percent in South Central.

[13] This calculation excludes the value of rice consumed as part of prepared meals eaten away from home, and therefore is a minimum estimation of the share of rice in total food consumption.

Non-Food Consumption

Of non-food spending, nationally 12.5 percent of household's non-food budget was spent on education, though the share was almost double in urban areas, 16 percent, compared to rural areas, 8.6 percent (Table 3.10). Of the regions, education spending was highest in Montserrado at 16.5 percent of non-food spending, and lowest in North Western, at 9.1 percent. Across the quintiles, the poorest and the richest quintile spent lowest share on education, 12.2 percent and 12.4 percent respectively. Although spending among the lowest shares on education to total non-food expenditure, the richest quintile also had the highest absolute spending on education and therefore the lowest share because of higher spending generally. On the other hand, the first and the second quintiles had comparatively the lowest share of spending on education, despite having limited non-food spending overall. This reflects the lowest enrolment rates for children and young adults in this quintile.

Health spending comprised a limited share of total non-food spending, 1.9 percent nationally, and 2.4 percent and 1.5 percent in rural and urban areas, respectively. The share of health spending to total non-food spending was also between 1.3 percent and 2.5 percent across the six regions. The share was the highest for the poorest quintile, 2.7 percent, and lowest for the least poor quintile, 1.2 percent, though similar to education, the overall amount spent was the highest for the top quintile. It should be noted that this includes regular health spending only, such as preventative care and treatment for illnesses, but not extraordinary expenses such as hospitalization (See the methodological appendix for further details of included and excluded expenditures).

Table 3.9: Non-Food consumption by Quintile

	Share of non-food spending on Education	Share of non-food spending on health	Share of non-food spending on rent[14]
Quintile (1^{o} = poorest)			
Poorest Quintile	12.2	2.7	7.1
Second Quintile	11.7	2.4	4.9
Third Quintile	12.5	1.8	3.6
Fourth Quintile	13.5	1.5	2.9
Richest Quintile	12.4	1.2	2.1

[14] includes estimated rent for those that own and live in their homes.

Table 3.10: Non-food consumption by Location

	Share spent on education	Share spent on health spending	Share spent rent[15]
Liberia	12.5	1.9	4.1
Area of residence			
Rural	8.6	2.4	5.0
Urban	16.0	1.5	3.3
Region			
Montserrado	16.5	1.3	3.6
North Central	10.4	2.3	3.8
North Western	9.1	2.5	3.5
South Central	11.0	2.2	4.6
South Eastern A	9.5	1.8	5.3
South Eastern B	12.9	1.7	6.8
County			
Montserrado	16.5	1.3	3.6
Bomi	11.7	2.6	3.4
Bong	8.4	2.1	4.0
Grand Bassa	9.4	2.2	5.4
Grand Cape Mount	8.3	2.3	3.6
Grand Gedeh	10.9	1.6	4.0
Grand Kru	11.5	2.0	6.8
Lofa	12.1	1.7	3.6
Margibi	12.7	2.2	3.8
Maryland	15.7	1.7	7.1
Nimba	10.9	2.8	3.6
River Cess	7.1	2.0	7.8
Sinoe	9.5	1.8	5.1
River Gee	8.4	1.6	6.2
Gbarpolu	7.5	2.5	3.4

Spending on housing is problematic to measure because only a small percent of households, 27.3 percent national rented their dwelling. In rural areas, only about 6.9 percent rented their dwelling, compared to 46.3 percent in urban areas. The rent paid by these households is used to estimate the rent that would be paid by households that own their home or live there for free.

The estimated share nationally for housing is 4.1 percent of non-food spending. The spending on rent is similar in both urban and rural areas, at 3.3 and 5.0 respectively. The highest value of any region is found in South Eastern B, at 6.8 percent of non-food spending. Similar to education and health spending, the share of total spending on housing decreased from the poorest to the most well-off consumption quintile even though in absolute terms the richest quintile pays more in housing than the poorest

[15] Includes estimated rent for those that own and live in their homes

Across the counties, Montserrado had the highest share of education spending to total non-food spending at 16.5 percent, and the lowest are from River Cess at 7.1 percent and Gbarpolu at 7.5 percent. The counties however, had similar shares of health spending to total non-food spending ranging from the low of 1.3 percent in Montserrado to the high of 2.6 and 2.8 percent in Bomi and Nimba respectively. For the expenditure on housing, the lowest share is from Bomi and Gbarpolu, at 3.4 percent to the high of 7.8 in River Cess. It is worth mentioning that while the share of spending on housing is higher in River Cess and other counties compared to Montserrado, the value of spending is higher in later compared to other counties.

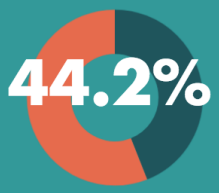
4. Food Security

Food Insecurity

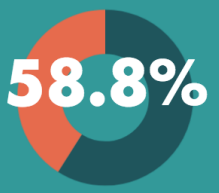
The 2016 HIES gathered data from Liberian households on the availability of food over the previous 12 months.

51.2%

Nationallu, 51.2% of Liberian HHs reported food shortages. Urban areas are less affected (44%) than rural ones (59%)



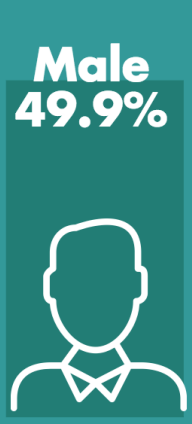
Urban



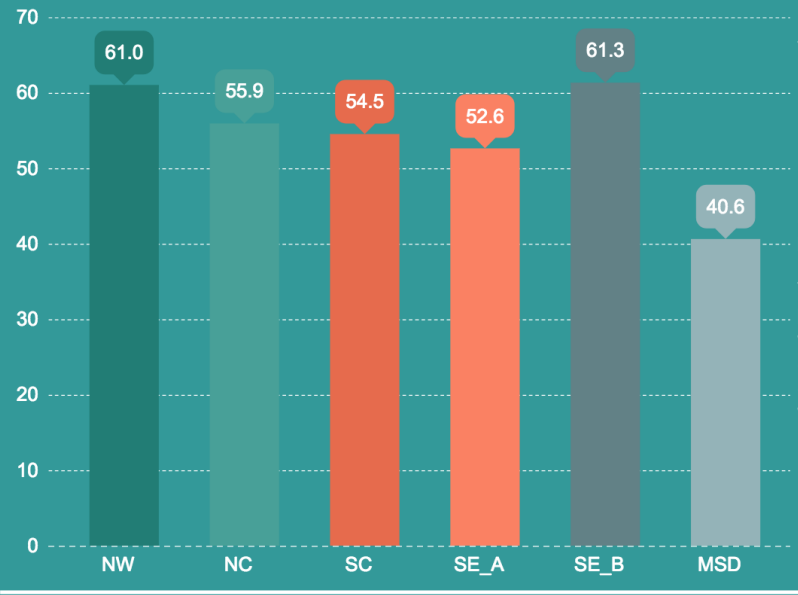
Rural

Food Insecurity by Gender of Household Head

Disaggregation by gender shows that female headed households face food shortage more commonly than male headed ones (54.6% vs. 49.9%).



Regional Imbalances in Food Shortages



There are clear regional differences in the share of households that report having faced a food shortage.

Montserrado reports the lowest share: 40.6% of homes in the capital county had to deal with a food shortage.

The South Eastern B (SE_B) and the North Western (NW) regions were the hardest hit part of the country. Here 3 in 5 households did not have enough food for a whole day at least once in the past 12 months (61.4% and 61.1% respectively).

4 FOOD SECURITY

4.1 Access to Food

Food security is determined in the 2016 HIES at household level using two definitions. The first definition is based on varying degrees of food shortages recorded over the last seven days, as listed in Table 4.1. The second definition is based on the question that asks respondents whether they faced a situation in which they did not have enough food to feed the household over the last 12 months. The estimated proportions for the seven-day definition are tabulated in Table 4.1.

A household may rely on less preferred food without their health suffering. If they have to reduce the number of meals a day then it can be expected that they are not only not getting the items they want but also that they are not eating the amount they would like to consume, potentially even consuming less than the necessary caloric intake.

As Table 4.1 shows, the severity of the food shortage decreases through time (either for 1, for 2, or for 3 or more days), 37.4% of households in Liberia rely on preferred foods (such as cassava, rice, etc.) in the past 7 days. 90.4% said this happened to them for one day, while 86.8% said that this was the case for them on three or more days. In 97.2% of households every member of the household had at least a small portion of food to eat in the seven days before interviews took place. Table 4.1 also reports the proportion of households which expressed no concerns at national, urban, and rural level. Overall, there seem to be few differences in terms of food security according to their location. Rural areas report a consistently lower share of food secure households than urban areas. However, the differences are not large, ranging between 5.2 and 0.3 percentage points.

Table 4.1: Percent distribution of food access over the past 7 days *

	Liberia	Urban	Rural	1 day	2 days	3 or more days
Rely on preferred foods	62.6	64.5	60.5	90.4	85.5	86.8
Access to unrestricted variety of foods	64.0	66.0	61.9	89.4	87.5	87.2
Unrestricted portion of meal sizes	68.6	71.1	65.9	89.0	89.7	89.9
Increases number of meals a day	71.0	73.3	68.6	89.9	89.5	91.7
Not compromises food of Adults for Children	84.7	86.8	82.5	94.9	94.9	94.9
Uses own foods	88.6	90.9	86.1	95.7	96.3	96.6
Has any food in the household	92.8	92.9	92.7	96.8	97.9	98.1
Eats at least one portion of food per day	97.2	97.6	96.8	98.2	99.2	99.8

*The table categories contain the opposite of the original questionnaire statements.

4.2 Food Insecure Households

Table 4.2 records the percent of households that report not having enough food to feed the household at least once at some point in the 12 months prior to the interview. Nationally 51.2 percent of households reported not to have enough food. The difference between urban and rural areas indicates that rural areas are more food insecure. While 44.2 percent of urban households experienced a food shortage in the year prior to the interview, 58.8 percent of rural households said that they faced food shortage in the 12 months before data collection.

The same pattern holds true in the richest quintile where households in rural areas face higher food insecurity compared to urban areas (43.4% compared to 31.5%). However, this is inverted for the poorest quintile where a slightly higher percentage of households face food insecurity in urban areas as compared to rural areas. Disaggregation by gender shows that female headed households face food shortage more commonly than male headed ones (54.6% vs. 49.9%).

Table 4.2: Percent distribution of food insecure households (12 months) by gender and location

	Percent answering yes	Poorest Quintile %	Richest Quintile %
Liberia	51.2	68.7	33.3
Area of residence			
Urban	44.2	69.4	31.5
Rural	58.8	68.5	43.4
Gender of the HH head			
Male	49.9	67.1	31.5
Female	54.6	72.6	37.8
Region			
North Western	61.0	73.9	57.8
North Central	55.9	67.3	32.7
South Central	54.5	71.4	37.9
South Eastern A	52.6	58.1	35.8
South Eastern B	61.3	71.5	37.5
Montserrado	40.6	68.7	30.6

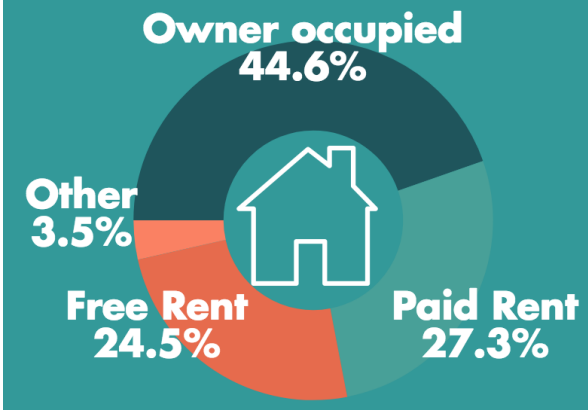
The regional breakdown shows that the South Eastern B region is the most food insecure region, closely followed by the North Western region (61.3% and 61.0% respectively). Montserrado, on the other hand, is the region with the lowest food insecurity in the country (40.6%).

The region of Montserrado displays the biggest gap in food shortage by consumption quintiles (68.7% in the poorest quintile versus 30.6% in the richest quintile).The South Eastern A region has the smallest gap between quintiles (33.7% vs. 57.4%).

5. Housing Characteristics

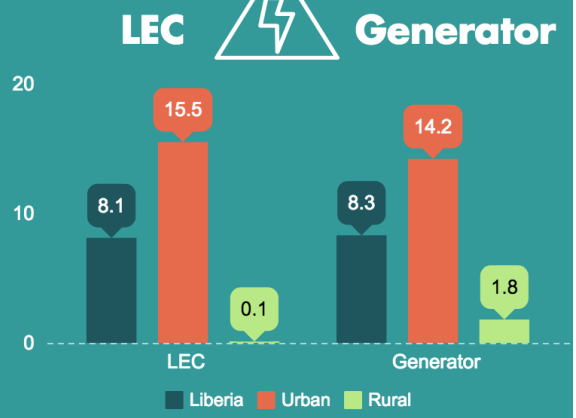
Ownership Status

The majority of Liberians live in a house they own (44.6%), while 27.3% pay a rent to inhabit their home. A quarter rents but does not pay for it, while 3.5% have other housing arrangements.



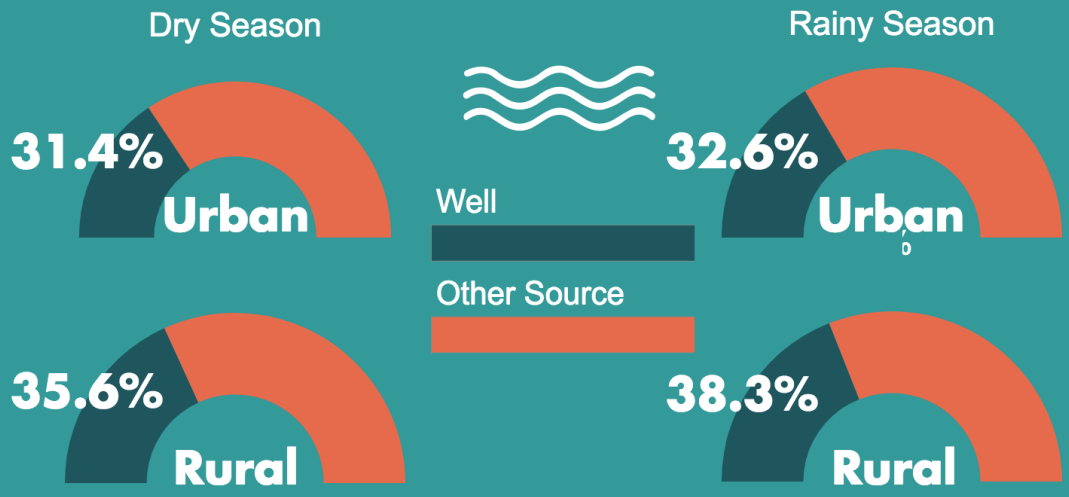
Electricity by Area

Only one in every six households has access to electricity from a generator or from the Liberian Electricity Company.



Relying on wells

Mechanical wells or boreholes are the single most important source of water for Liberian households. Both in rural and in urban areas, both during the rainy season and during the dry months, reliably about a third of homes report that their water comes from a well.



5 HOUSING CHARACTERISTICS

5.1 Ownership status

The HIES 2016 asked Liberians for the various means by which their homes are acquired or held. According to the results displayed in Table 5.1 the type of house ownership varies in Liberia. A house may be bought, purchased or given as an inheritance. The HIES 2016 registered owners according to the status of their rent payment or property entitlement.

Nationally, most respondents live in a house they own[16] (44.6%). Many people also rent their residence (27.3%). The third largest group (24.5%) receives housing for free though they do not have ownership of their housing, examples would include a case where a household receives housing for free from relatives or friends who have travelled abroad or have built another home. The prevalence of different types of ownership status differs according to location.

Table 5.1: Percent distribution of ownership status by location and gender

	Liberia	Urban	Rural	Male	Female
Owner occupied	44.6	29.3	61.1	46.5	39.5
Rented- Employer Subsidised	1.4	2.0	0.8	1.4	1.5
Employer provided (rent-free)	2.1	1.4	3.0	2.5	1.2
Rented (other)	27.3	46.3	6.9	25.8	31.3
Rent free (other)	24.5	21.0	28.3	23.7	26.4

In urban areas more people rent than own (46.3%) homes while in rural areas the vast majority live in owner occupied housing (61.1%) and a very small proportion rent (6.9%). The (small) population who rents in the rural areas are mostly made up of skilled and unskilled migrant labourers who moved from county to county in search of season jobs, such as temporary projects, road works, concession workers and those with non-governmental organisations (NGOs) on a contractual basis. Employer provided housing is not so common to Liberia and it is mostly confined to large concessions. Among these few cases, a full provision of housing is more common than a subsidised residence.

Differences between male and female-headed households exist, but are small. Around 46.5% of male-led households own their houses while 39.5% of female-headed houses are owned.

[16] In the context of Liberia, land and property ownership status is not well defined, and so, this survey recognizes ownership beyond the scope of only those possessing documentation evidencing ownership. A household is considered to own their housing if they do not pay rent for it, and are not given free lodging in a structure recognizably owned by another household or individual; they must have full authority to live in it freely and the right to sell it, whether they have purchased it, built it, or received the property for free (inherited or otherwise).

5.2 Rental costs

Table 5.2 contains the estimated rental cost that is paid by the total 27.3% of the households that live in rented housing. The costs of rent based on this population represents the rental market, but not generally real estate as renters are not representative of the population. For example, as can be seen in Table 5.1 urban renters represent a larger subpopulation than the Liberia's average.

Nearly 28% of the renters pay between 1 and 349 LD per month for their dwelling. The rents are lower in rural areas than in urban areas. Only 9.9% of renters pay less than 350 LD in urban areas, while 46.9% of rural rents are below that threshold.

Table 5.2: Percent distribution of rents paid by location and gender

	Liberia	Urban	Rural	Male	Female
LD 1-349	27.7	9.9	46.9	28.0	27.1
LD 350-599	20.3	18.0	22.7	21.0	18.4
LD 600-999	19.2	22.3	15.8	18.8	20.2
LD 1,000-1,499	9.2	12.5	5.6	9.4	8.7
LD 1,500-1,999	7.2	10.8	3.3	7.0	7.9
LD 2,000+	16.5	26.3	5.6	15.8	17.8

5.3 Electricity source

Access to electricity is determined by asking households what their main source of electricity is. Some households might have more than one source, but our attention focuses on the main source of electricity. As seen in the table below, 82.3% of all household's state that they have no access to electricity in their homes (Table 5.3); also in rural areas the proportion of households without access to electricity is even higher at 96.9%. The Liberian Electricity Corporation electrifies 15.5% of urban households. In urban areas, approximately 14.2% of households obtain electricity from generators (both owned and community sources), while only 1.8% of rural households have access to these options (community and owned generators).

Sources of electricity such as owned generator and community generators are used more by houses headed by female Liberians than male headed households (8.5% versus 8.1% respectively). Likewise, female headed households use more the LEC supplier (8.6%) than male headed households (7.9%).

Table 5.3: Percent distribution of main source of electricity for the household by location and gender

	Liberia	Urban	Rural	Male	Female
None	82.3	68.8	96.9	82.4	82.1
Community Generator	5.5	9.9	0.6	4.9	6.8
Own Generator	2.8	4.3	1.2	3.2	1.7
Electricity from Power Supplier (LEC)	8.1	15.5	0.1	7.9	8.6
Other Source	1.4	1.5	1.3	1.6	0.7

*Other source include Solar panels, Car/motorcycle battery, etc.

5.4 Dwelling structure

An important aspect of housing characteristics includes the kind of materials the dwellings are made from. This includes the walls, the floor, roof, etc. In the instance where household occupants are spread out over several dwellings in a compound or space, the estimation is based only on answers relating to the main dwelling. Table 5.4 list the distribution of the main material for the walls and the roof.

The majority of dwellings' walls in Liberia are made of mud and sticks (40%). Concrete and cement blocks (26.4%) and mud bricks (24.3%) are the other most common materials for the walls (Table 5.4).

There are significant differences between rural and urban dwellings. In rural Liberia the use of mud and sticks and mud bricks are ubiquitous (93.5%). However, in the urban parts of the country, concrete and cement blocks, as well as zinc, iron and tin, make up nearly 55% of the material used for walls.

As seen in Table 5.4, there is far less diversity existing in materials used for dwellings' roofs as compared to the walls. Zinc sheets, iron or tin are used to roof a clear majority of dwellings in the country (86.1%) and nearly all roofs in urban areas (96.0%) are made of zinc sheets, iron or tin. The percent in rural areas is lower (75.5%), where there is a higher prevalence of thatched roofs (22.9%).

Table 5.4: Percent distribution of main material for walls and roof by location and gender

	Liberia	Urban	Rural	Male	Female
Wall Type					
Mud and Sticks	40.0	13.6	68.6	41.7	35.6
Mud Bricks	24.3	23.8	24.9	24.9	22.8
Zinc/Iron/Tin	4.3	7.9	0.4	4.2	4.5
Stone/Clay Bricks	4.0	6.5	1.3	3.8	4.5
Sand Crete/ Cement Blocks	26.4	47.1	4.1	24.5	31.5
Other Materials	1.0	1.1	0.7	0.9	1.1
Roof Type					
Iron Sheets, Zinc/Tin	86.1	96.0	75.5	85.2	88.6
Straw, Grass, Bamboo or Thatch	11.8	1.5	22.9	13.1	8.6
Other Materials*	2.1	2.5	1.6	1.7	2.8

*Other includes wood, timber, poles, reeds, bamboo, grass or mat, tarpaulin, plastic sheet. concrete, roofing tiles, asbestos and others.

5.5 Source of drinking water

Access to improved drinking water has important implications for both urban planning and public health, among other areas. Water access encompasses distance, quality and source. In Liberia, it varies from one source to another and from rural areas to urban areas with varieties of water sources. Table 5.5 lists the sources of drinking water accessed by households in both the dry and the rainy season.

Table 5.5: Percent distribution of households by main source of drinking water

	Dry Season		Rainy Season	
	Urban	Rural	Urban	Rural
Pipe or Pump Indoors	1.0	0.2	1.0	0.2
Pipe or Pump Outdoors	19.6	16.8	19.6	17.3
Public Standpipe / Tap	15.9	9.5	16.1	10.1
Boreholes / Tubewell / Mechanical Well	31.4	35.6	32.6	38.3
Closed Well	8.9	4.3	8.4	4.2
Open Well	1.5	4.8	1.0	4.5
River, Lake, or Creek	1.0	28.4	0.5	23.4
Bottled Water / Drum / Plastic Bag	17.8	0.4	17.3	0.2
Other Source	2.9	0.1	3.6	1.8

*Neighbouring Household, water vendor (clean water), push-push water vendor, rainwater

Indoor pumps or pipes are still rare and are found to be hardly used in both urban and rural areas in Liberia. Only 1% of households use them for drinking water in urban areas and 0.2% in rural areas. Rivers, lakes, or creeks are the single largest source of drinking water in rural areas (23.4% in the rainy season, 28.4% in the dry season), while playing a minor role in urban Liberia (0.5% and 1.0% respectively).

Outdoor pipes or pumps are the most significant source of drinking water for urban dwellers (19.6% in the rainy season, 19.6% in the dry season). In rural areas they are also the second largest source of drinking water in both urban and rural areas (17.3% and 16.8% respectively).

5.6 Garbage disposal

Based on Table 5.6, only a small proportion of Liberian households had their garbage either collected (both private and government) or disposed of in a government bin (10% of the cases). These methods of disposal are largely urban based, representing 18.6% of all cases in urban areas, and nearly none in the rural parts of the country. In rural areas majority of households abandon garbage in sites that are not purposely built for disposal (93% of cases), including methods such as burying, burning and abandoning garbage in unauthorised sites.

Table 5.6: Percent distribution of main method of garbage disposal by location

	Liberia	Urban	Rural
Collected by Government	2.6	4.8	0.2
Collected by Private Firm	3.9	7.2	0.3
Government Bin	3.5	6.6	0.1
Bury	3.5	4.8	2.1
Burn	4.3	6.1	2.4
Disposal within compound	3.7	5.6	1.8
Abandon/ Unauthorised Site	78.0	64.2	93.0
Other Method	0.5	0.8	0.1

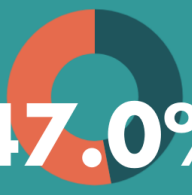
6. Education

Literacy by strata

Literacy is the ability to read and write - in English or in any other language for Liberians aged 15 to 49. The HIES reports literacy rates based on the respondent's self-evaluation of their ability to read and write in any language.

64.7%

78.1%
Urban

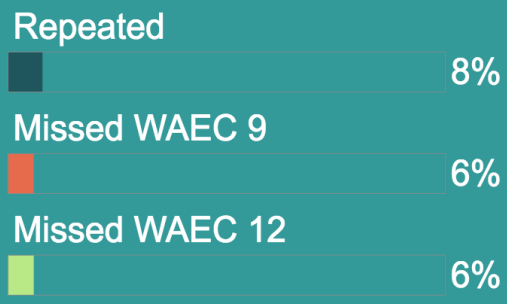


47.0%
Rural

Ebola effect on education

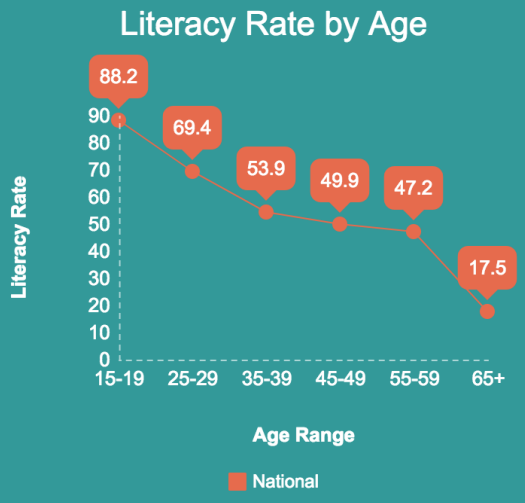
The Ebola Virus disease affected the education system as schools where closed and students could not attend exams due to the restriction of movement.

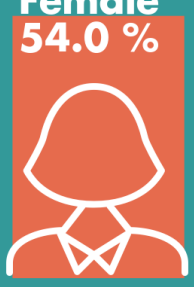
Nationwide, 8% of students across all grades had to repeat a year because of the disease. 6% of students who wanted to take the WAEC 9 or 12 exams were not able to do so.



Literacy Rates according to Age and Gender

There is a clear trend among the population. Younger Liberians are much more likely to be literate. For example, while only about half of those aged between 35 and 39 are literate (53.9%), nearly 9 out of 10 Liberians between 15 and 19 years of age (88.2%) can read and write.





6 EDUCATION

6.1 Literacy Rate

Literacy has been shown to be crucial in the foundation for social development because it promotes the learning in the population and contributes to the reduction of poverty. The HIES reports literacy rates based on the respondent's self-evaluation of their ability to read and write in any language. The literacy rate is measured based on responses for those aged between 15 and 49. It should be noted that the methodology used is different to that used to construct the LDHS literacy estimates, and thus is not comparable.

Overall, 64.7% of Liberians are literate (Table 6.1). The literacy rate in rural areas is approximately 40% lower than in urban areas. If we focus on the difference between male and female respondents, the male literacy rate is on average 30% higher than female literacy rate. While, the difference in literacy between the poorest and richest group reaches 50%.

With regards to differences by counties, the lowest literacy rate can be found in Grand Cape Mount at 41.9% and the highest in Montserrado at 82.1%. This means that the highest rate of literacy is double the lowest rate meaning that for every 1 literate person in Cape Mount there are 2 in Montserrado.

The literacy rate also varies significantly between each consumption quintile. On average, the literacy rate increases by 10% across income quintiles in favour of the rich. Less than half of the respondents in the poorest 20% can read and write, while 84.4% of the richest 20% are literate.

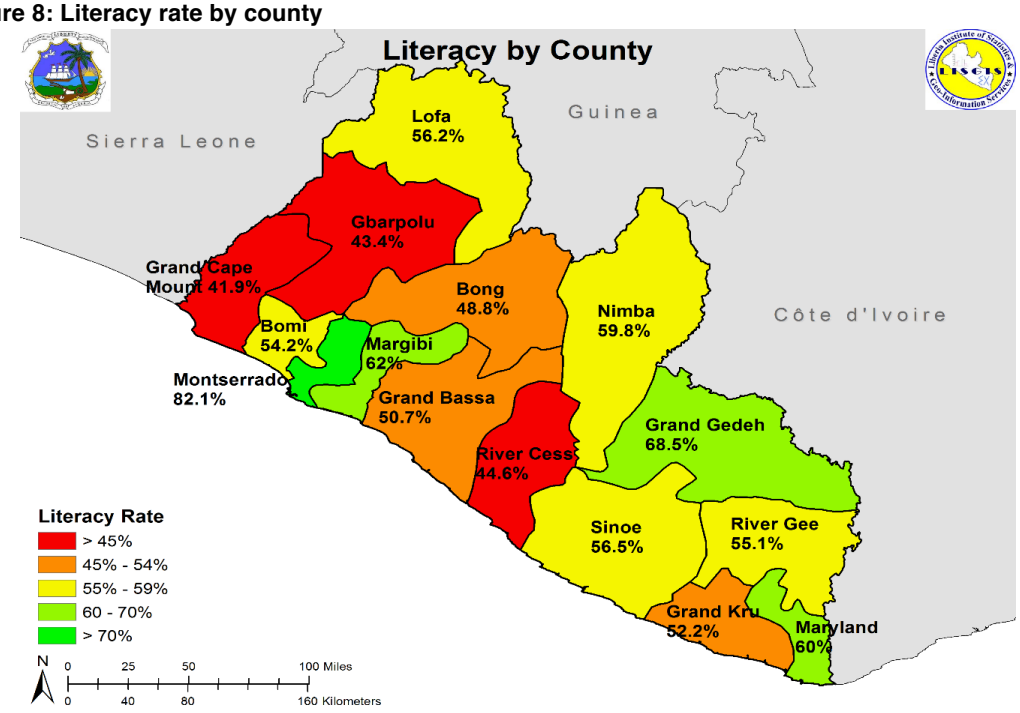
Table 6.1: Percent distribution of the literacy rate by location and consumption quintiles

Characteristic	%
Liberia	64.7
Area of residence	
Urban	78.1
Rural	47.0
Gender	
Males	77.0
Females	54.0

Quintile	%
Poorest Quintile	42.9
Second Quintile	53.2
Third Quintile	63.1
Fourth Quintile	69.5
Richest Quintile	84.4

County	%
Bomi	54.2
Bong	48.8
Grand Bassa	50.7
Grand Cape Mount	41.9
Grand Gedeh	68.5
Grand Kru	52.2
Lofa	56.2
Margibi	62.0
Maryland	60.0
Montserrado	82.1
Nimba	59.8
River Cess	44.6
Sinoe	56.5
River Gee	55.1
Gbarpolu	43.4

Figure 8: Literacy rate by county



6.2 Formal education

Formal education is defined as attending a primary school, secondary school or university. A respondent is considered to have at least some formal education if he/she attended primary school, even without finishing. Pre-school, vocational training, and adult education do not count as formal education.

The distribution of the population with at least some formal education is presented in Table 6.2. In comparison to the literacy rate, the percent of the population attending formal education is lower (62.7%). Formal education rates are significantly higher in urban areas, between male respondents, and within the richest population group.

Table 6.2: Percent distribution of the population with formal education by location and consumption quintile

Characteristic	%
Liberia	62.7
Area of residence	
Urban	76.2
Rural	46.6
Gender	
Males	75.7
Females	51.2

Quintile	%
Poorest Quintile	41.9
Quintile 2	52.9
Quintile 3	60.3
Quintile 4	66.9
Richest Quintile	84.0

County	%
Bomi	49.5
Bong	48.2
Grand Bassa	52.1
Grand Cape Mount	38.7
Grand Gedeh	67.4
Grand Kru	54.0
Lofa	51.5
Margibi	64.1
Maryland	61.3
Montserrado	78.9
Nimba	58.4
River Cess	45.7
Sinoe	57.7

River Gee	56.0
Gbarpolu	42.4

While access to formal education is often correlated with gender, location, and income, age range may be a more important determinant. The youngest group (age 15-19) in the poorest quintile has approximately double the formal education rate of the eldest group (age 65 and above) in the richest quintile.

On a national level, those under age 30 have much more access to formal education than the previous generations. While the impact of poverty does affect accessibility, it appears that the gap is increasingly closing among the younger population as can be seen in Table 6.3 below.

Table 6.3: Percent distribution of the population with formal education by age groups and consumption quintile

Age	National	Poorest Quintile	Richest Quintile
15-19	88.2	77.3	93.7
20-24	80.5	67.1	91.6
25-29	69.4	41.4	88.7
30-34	62.0	40.0	82.4
35-39	53.9	33.4	80.4
40-44	51.2	30.7	76.7
45-49	49.9	27.1	79.4
50-54	49.8	34.1	74.1
55-59	47.2	26.9	72.4
60-64	39.2	19.1	77.6
65+	17.5	8.9	34.0

6.3 Highest education achieved

The distribution of the highest educational level achieved (Table 6.4) is derived from data on respondents aged 15 years and above, both those who are out of education and those currently in formal education. Approximately 50% of the population has primary school as their highest educational attainment, followed by about a quarter with senior high school, and one-fifth with junior high school. Less than one in ten Liberians has a university degree.

Gender differences are present, with female respondents less prevalent in the higher levels of formal education, such as senior high school or university.

In addition, 37.2 percent of students in rural Liberia finished primary school while less than the double finished primary education in urban areas (60.9%).

Table 6.4: Percent distribution of the population with formal education by highest educational achievement

	Liberia	Male	Female	Urban	Rural	Montserrado
Primary School	45.5	41.4	50.4	37.2	60.9	34.2
Junior High School	21.1	20.5	21.7	20.9	21.3	19.7
Senior High School	26.3	29.9	21.8	31.6	16.3	33.5
University (Bachelor's)	6.8	7.7	5.8	9.7	1.4	11.9
Master's	0.4	0.5	0.2	0.6	0.03	0.8

6.4 Education provider

The government, religious organizations, and private institutions provide over 95% of all education in Liberia. At the national level, 48.4% of respondents that are currently attending school are studying at a government establishment. This trend stems predominately from the rural areas, in which 76.1% of schooling is provided by a government facility. In urban areas, however, religious and private non-religious schools play a bigger role in school provision. Moreover, the percent of students who attend private non-religious schools increases from 8.7% (poorest quintile) to 35.9% (richest quintile).

Table 6.5 Distribution of educational providers by location and by consumption quintile (%)

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
Government	48.4	36.0	76.1	77.0	29.4
Church /missionary school/ Islamic School	23.4	29.3	10.3	11.6	33.8
Private non-religious	25.7	32.6	10.5	8.7	35.9
Community	1.4	1.4	1.5	1.8	0.7
Other provider	1.0	0.8	1.7	0.9	0.2

6.5 Time to school

The accessibility of education depends, in part, on the ability of students to easily reach the school. Respondents were asked how long their daily commute to school required. Table 6.6 shows the time spent to get to school in minutes, although this measure does not take account for different methods of transport. Overall, about half of the students in Liberia take between 10 to 29 minutes to get to school. The time it takes to reach schools varies more in rural areas, where a higher percentage of students take both shorter and longer to reach than their counterparts in urban areas.

Table 6.6: Percent distribution of the time to school

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
0-4 minutes	7.0	4.6	12.5	11.9	4.0
5-9 minutes	14.8	13.2	18.2	19.3	12.3
10-29 minutes	49.2	52.3	42.2	37.3	52.6
30-59 minutes	22.4	24.5	17.8	24.6	22.4
60+ minutes	6.6	5.4	9.2	6.9	8.7

6.6 Source of books

The ownership status of school books is important because it often dictates how much time the student can use the books without having to share them. Table 6.7 shows the distribution of the ownership status of books used by students. Students borrow books from their school the majority of the time, except in urban areas and if they are part of the richest consumption quintile. Only about 10% of students from rural areas and from the poorest quintile own books. Even in the richest quintile, a little over half the households own all the required books.

Table 6.7: Percent distribution of the source of school books by location and consumption quintile

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
Borrowed from school	47.4	36.4	74.3	75.6	25.1
Owned by household	33.4	42.0	12.5	10.8	57.3
Borrowed from friend / relative	4.9	5.8	2.7	3.7	3.4
Borrowed from school & owned by household	9.9	11.8	5.0	3.5	10.8
Borrowed from school & other	3.0	2.9	3.2	4.7	2.7
Other source	1.5	1.1	2.3	1.7	0.6

6.7 Expenditure per pupil

Table 6.8 summarizes educational expenditure per pupil in the last 12 months. This includes expenditures related to formal education (tuition fees, textbooks, notebooks, stationary, uniforms, school provided transport) as well as expenditure for non-formal education (vocational training, pre-school, etc.).

Expenditure on education correlates strongly with location and income level, with about half of urban respondents and those in the richest quintile spending more than 6000 LD per student per year. The biggest proportion, 34.3%, of the poorest quintile spend 1000 to 2000 LD.

Table 6.8: Percent distribution of expenditure per pupil by location and consumption quintile

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
No Expenses	0.7	0.3	1.6	2.3	0.7
LD 1-999	3.8	1.3	9.6	11.1	0.2
LD 1000-1999	15.2	6.9	33.5	34.3	3.4
LD 2000-3499	19	15	28.1	30.4	7.9
LD 3500-5999	14.9	14.5	15.6	12.6	9.6
LD 6000-9999	13.2	16.1	6.7	6.0	13.4
LD 10000-14999	12.5	17	2.4	2.2	18.8
LD 15000+	20.9	28.9	2.6	1.0	46.0

In terms of the type items on which pupils spend the most on, school fees rank by far the most significant investment, with an average of 5796 LD per year. The difference in average cost for school fees between the poorest and richest quintile is large (902 LD

versus 14,469 LD respectively). In second place is uniforms at 1,010 LD per year, followed by other materials at 895 LD.

Table 6.9: Average cost of most common expenses for students (in LD)

	National	Urban	Rural	Poorest Quintile	Richest Quintile
School Fees	5,796	8,831	1,07	902	14,469
Books	689	919	329	225	1,261
Uniforms	1,010	1,185	737	664	1,408
Transport by School	75	119	7	1	273
Extra Tuition	223	319	74	86	539
Other Materials	895	1,188	439	334	1,703
Extra Curricular	69	97	24	19	172
Other Contribution	86	105	57	40	177

6.8 Ebola Related Disruptions

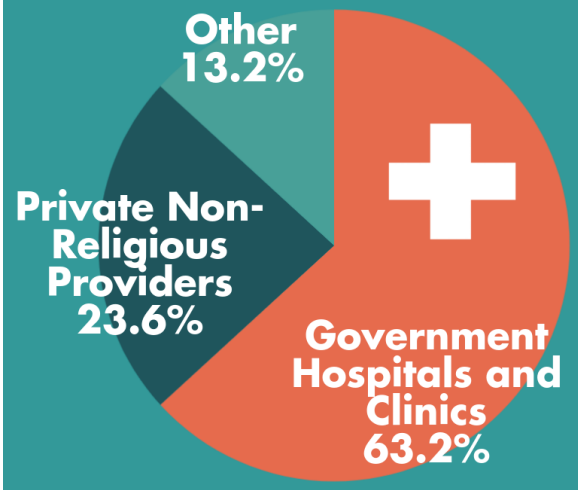
As the HIES 2016 was conducted approximately a year after the containment of EVD in Liberia, students were interviewed regarding whether EVD had disrupted their schooling. On a national level, of the students who had attended a school before the EVD outbreak, 7.9% of students said that they had to repeat their grade because their school closed down during the Ebola period. During that time, of those who were supposed to the take the Grade 9 WAEC (West Africa Examination Council Exam), 5.5% of students failed to take the examinations due to Ebola; and 5.6% declared that they did not take the Grade 12 WAEC for the same reason.

Table 6.10: Percent of school disruptions caused by Ebola

Proportion of students affected	%
Percent of students repeating grade from last year due to school closing from Ebola	7.9
Percent of students who did not take the Grade 9 WAEC due to Ebola	5.5
Percent of students who did not take the Grade 12 WAEC due to Ebola	5.6

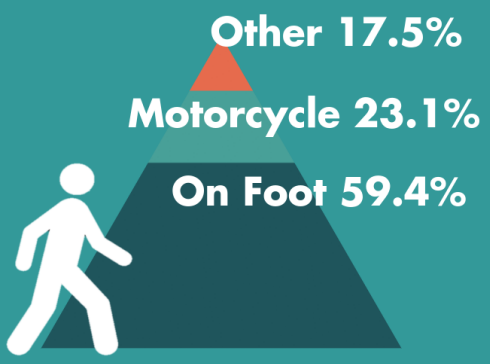
7. Health

Type of Primary Health Care Provider (PHCP)



Transportation to PHCP

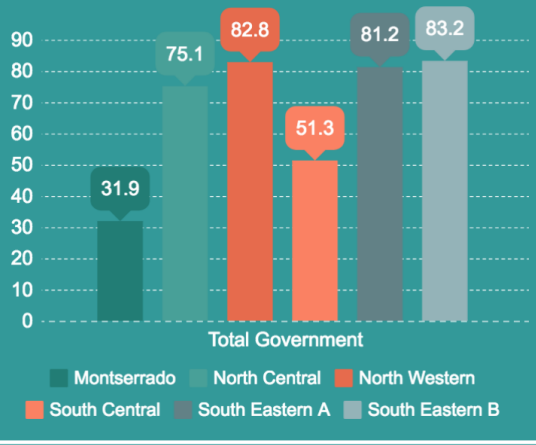
At the national level, nearly all of those in need of primary medical attention reach the provider by foot (59.4%) or by motorcycle (23.1%). The category 'other' includes public taxi (9.3 %) and other methods of transport including private bicycles, car, public buses or canoes.



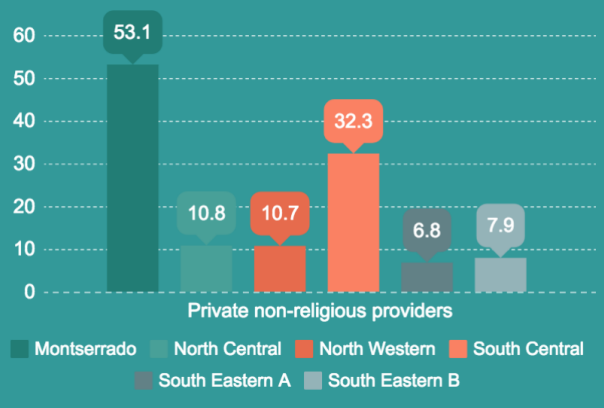
Type of Primary Health Care Provider by Region

The graphs below show the percent distribution of visits across regions to the two different types of PHCP (Government hospitals and clinics or Private non-religious providers).

Government Hospitals and Clinics



Private Non-Religious Providers



7 HEALTH

7.1 Primary health care visits and hospitalisations

This section presents the percent of Liberians who visited a primary health care provider (PHCP) over the last 30 days and the percent of Liberians who were hospitalised over the last 12 months. The differentiation between these measures is made by hospitalisation being defined once a person stays overnight at the PHCP. Primary health care providers are defined as formal health care centres, including hospitals and clinics and excluding traditional and faith healers.

Table 7.1 outlines the distribution of people who visited a PHCP in the last 30 days and those who stayed hospitalised overnight in the last year. Both categories are divided into different age groups or range and across the urban and rural stratum. A total of 20.7 % of Liberians visited a PHCP in the last 30 days prior to being interviewed, while 3.4% were hospitalised in the 12 months prior to being interviewed. Generally, although the frequency of visits to PHCP is slightly higher in rural areas, the difference is not high: 19.3% versus 22.3%. The difference in overnight hospitalisations is 0.4 percentage points (3.6% versus 3.2%) but is noteworthy given the lower incidence.

Table 7.1: Percent distribution of people who visited a PHCP and stayed hospitalised by age groups

	Primary health care provider			Overnight hospitalisation		
	Liberia	Urban	Rural	Liberia	Urban	Rural
0-4	33.4	31.6	35.0	2.9	3.2	2.6
5-9	16.7	15.8	17.5	2.3	2.9	1.8
10-14	10.3	10.4	10.3	1.1	1.2	1.0
15-19	13.2	12.1	14.8	1.9	2.3	1.1
20-24	21.8	20.1	24.6	4.8	4.7	5.0
25-29	22.3	20.2	25.3	5.9	6.0	5.9
30-34	24.2	24.8	23.5	5.7	6.1	5.2
35-39	21.9	21.4	22.5	4.8	4.3	5.3
40-44	20.3	15.4	25.3	5.1	4.7	5.4
45-49	23.6	23.0	24.2	3.5	3.2	3.7
50-54	22.5	20.2	24.4	4.6	5.0	4.3
55-59	20.2	21.8	18.8	3.8	5.1	2.7
60-64	26.2	28.9	23.8	5.5	6.7	4.3
65+	26.0	26.7	25.7	6.0	5.5	6.4
All ages	20.7	19.3	22.3	3.4	3.6	3.2

7.2 Primary health care provider

It is important to disaggregate the frequency of visits by the type of primary health care provider visited. This information is presented in Table 7.2 across the urban and rural stratum and across consumption quintiles.

At the national level, it is estimated that 63.2% of all the visits made by Liberians in the last 30 days were made to a government facility (be it a government hospital or a government clinic). This is significantly higher than the 23.6% Liberians that visited private non-religious providers (both clinics and hospitals).

Table 7.2: Percent distribution of primary health care provider by stratum and consumption quintile

	Liberia	Urban	Rural	Poorest Quintile	3rd Quintile	Richest Quintile
Government hospital	19.0	25.4	13.1	20.5	15.8	17.1
Private hospital	6.0	10.2	2.1	1.6	5.6	15.5
Religious hospital	1.4	1.9	0.9	1.7	1.4	1.4
Government clinic	44.2	20.0	66.7	62.5	46.9	18.4
Private clinic	17.6	28.2	7.7	7.1	18.1	34.3
Religious clinic	1.3	1.7	1.0	1.0	2.0	1.2
Drug dispensary	7.5	10.4	4.8	3.2	6.5	8.0
TTM/NGO	1.1	0.3	1.7	0.8	2.2	0.6
Private doctor/dentist	1.3	1.6	1.0	1.0	0.7	3.0
Other	0.7	0.3	1.0	0.7	0.9	0.5
Total Government	63.2	45.3	79.8	82.9	62.7	35.4
Private non-religious providers	23.6	38.5	9.8	8.7	23.6	49.8

However, the urban and rural classification in Table 7.2 shows that the government providers play a bigger role in primary health care provision in rural areas as compared to urban areas (79.8% versus 45.3% respectively). Inversely visits to private non-religious establishments are higher in urban areas (38.5%) than in rural areas (9.8%). Furthermore, within government providers, hospitals are more frequently visited in urban areas and clinics play a vital role in rural areas.

A further categorisation is done by disaggregation of PHCP visits by consumption quintile. From Table 7.2, it is clear that, as poverty decreases (i.e. higher consumption quintile), the dependency on government facilities as the primary health care provider decreases. The inverse is true for private health care providers, as poverty decreases the percentage points of Liberians that visit private non-religious providers increases (both hospitals and clinics). Private non-religious providers see 49.8% of cases of the group in the richest quintile while only 8.7% in the poorest quintile.

The regional analysis in Table 7.3 shows that all regions, except for Montserrado, demonstrate a pattern similar to the national average, which is that government facilities receive a greater percent of visitors as compared to private non-religious providers.

However, the South Central region stands out from the rest as having a relatively high rate of visits to private non-religious providers (32.3%). The South Central region consists of Margibi and Grand Bassa, both of which have private health care providers of considerable quality, including the Firestone hospital in Margibi and the Arcelor Mittal Clinic in Grand Bassa. Similarly, Montserrado holds a greater percent of visitors in private non-religious providers than government hospitals and clinics. It is also noteworthy the

importance of drug dispensaries (e.g. pharmacies, drug store e.tc.) in the South Eastern regions.

Figure 9: Usage of Government PHCP Facilities by region

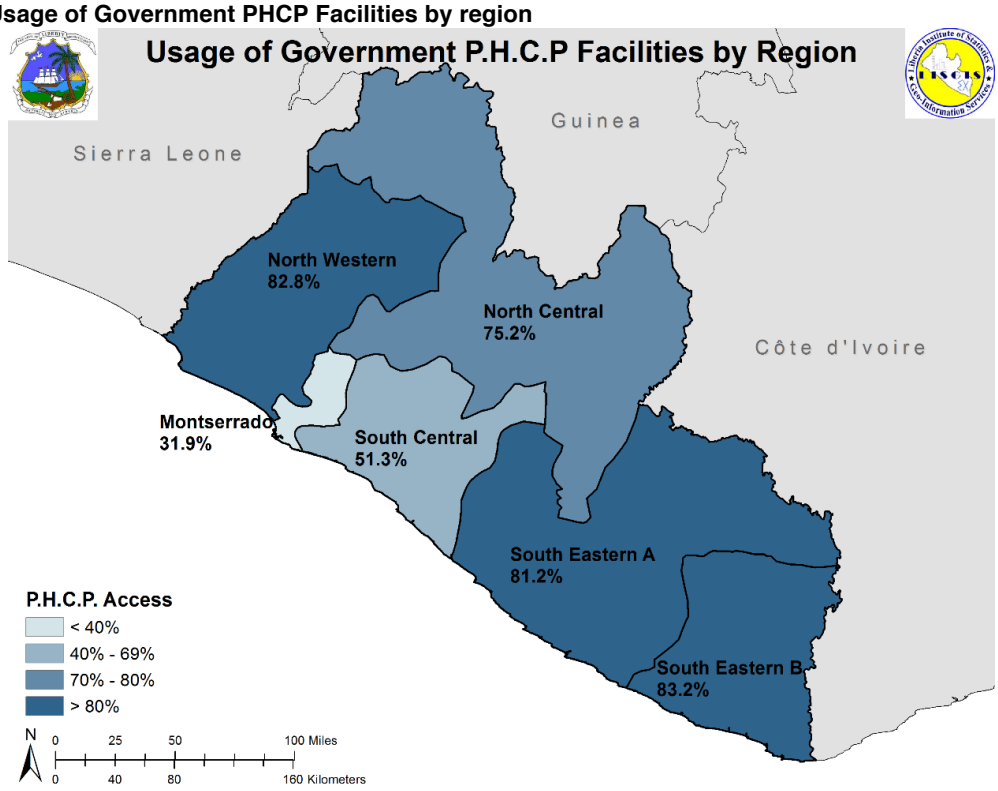


Table 7.3: Percent distribution of primary health care provider by region

	Montserrado	North Central	North Western	South Central	South Eastern A	South Eastern B
Government hospital	15.6	19.3	15.8	16.8	23.3	29.1
Private hospital	13.5	2.4	1.5	10.1	1.8	2.5
Religious hospital	1.4	1.8	0.3	1.5	0.4	1.7
Government clinic	16.3	55.9	67.0	34.5	57.9	54.0
Private clinic	39.6	8.4	9.2	22.2	4.9	5.5
Religious clinic	1.5	1.7	0.1	1.6	1.2	0.4
Drug dispensary	9.8	8.3	2.8	5.8	7.5	5.1
TTM/NGO	0.0	1.1	1.8	2.8	1.6	0.5
Private doctor/dentist	2.4	0.5	0.6	2.4	0.8	0.6
Other	0.0	0.7	1.0	2.3	0.6	0.5
Total Government	31.9	75.1	82.8	51.3	81.2	83.2
Private non-religious providers	53.1	10.8	10.7	32.3	6.8	7.9

Table 7.4 presents the percent distribution of time taken to reach the primary health care providers. Rather than considering the distance to the primary health care provider, it was more informative to consider the time taken in minutes. This is because Liberia's poor

road conditions and unreliable modes of transport make of the distance an inaccurate measure of mobility.

In Liberia, approximately 81.6% of people that visit a health care provider are estimated to reach it in less than 60 minutes. In urban areas approximately 93.9% of PHCP visitors are able to reach within 60 minutes compared to 70.2% in rural areas.

Similarly, those in the richest quintile are generally able to reach a PHCP faster than those in the poorest quintile. In the poorest quintile 28.9% of PHCP visitors take more than 60 minutes to reach it versus 9.6% for the richest quintile.

Table 7.4: Percent distribution of time to primary health care provider

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
< 10 minutes	21.7	24.5	19.2	20.4	25.8
10-19 minutes	26.0	32.9	19.7	15.1	32.1
20-39 minutes	24.7	28.3	21.4	25.4	25.3
40-59 minutes	9.1	8.2	10.0	10.2	7.2
60-119 minutes	12.2	5.6	18.3	17.2	8.0
120+ minutes	6.3	0.5	11.6	11.8	1.6
Less than 60 minutes	81.6	93.9	70.2	71.1	90.4
More than 60 minutes	18.4	6.1	29.8	28.9	9.6

Furthermore, it is relevant to consider the percent distribution of the method of transportation to the PHCP which can be found in Table 7.5. This information is further disaggregated between urban and rural parts of the country and by consumption quintile. At national level, nearly all of those in need of primary medical attention reach the health provider by either foot (59.4%), by public motorcycle (23.1%) or by public taxi (9.3%). This trend continues across urban and rural areas; though public taxis are used less in rural areas than in urban areas.

According to the consumption quintiles, amongst the poorest quintile 72.5% use walking as the mode of transport to the PHCP compared to 42.7% amongst the richest quintile. Public motorcycles and taxis still represent important modes of transport in both the poorest and richest quintiles.

Table 7.5: Percent distribution of the method of transportation to primary health care provider

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
On foot	59.4	53.9	64.4	72.5	42.7
Private: Motorcycle	4.2	3.3	5.1	4.5	4.4
Private: Other*	2.9	3.2	2.4	2.6	6.0
Public: Taxi	9.3	15.0	4.1	3.7	19.8
Public: Motorcycle	23.1	23.6	22.7	15.7	25.4
Public: Other**	1.2	1.0	1.2	0.9	1.4

*Includes Bicycle and Car
** Includes Bus and Canoe

In many instances, the treatment provided, especially by government health providers is free of charge for the patients. In those cases when it is not, the cost of the last visit to the primary health care provider was used to estimate the average costs of treatment. This information is outlined in Table 7.6 below.

At a national level, approximately 75.7% of all treatments cost less than 2,000 Liberian Dollars. Although, costs are generally higher in urban areas than in rural areas, the difference in costs for those in the poorest quintile versus the richest quintile is very small.

Table 7.6: Percent distribution of the cost of most recent visit to primary health care provider

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
LD 1-99	4.4	2.6	8.9	2.8	3.1
LD 100-199	5.5	4.3	8.2	4.5	4.4
LD 200-499	19.1	15.1	29.0	16.3	15.1
LD 500-999	24.3	25.4	21.4	25.5	25.2
LD 1,000-1,999	22.5	24.5	17.6	23.9	24.8
LD 2,000-3,499	13.2	15.2	8.1	14.6	14.8
LD 3,500-5,999	8.4	9.3	6.1	9.0	9.1
LD 6,000+	2.7	3.6	0.6	3.4	3.5
Less than LD 2,000	75.7	71.9	85.2	73.0	72.5
More than LD 2,000	24.3	28.1	14.8	27.0	27.5

7.3 Overnight hospitalisations

This next section analysis the data collected on overnight hospitalisation in the past 12 months since individuals were interviewed. Table 7.7 presents the age distribution of those hospitalised in the last 12 months at the national level by age and poverty quintile.

In Liberia, the estimations indicate a higher incidence of hospitalisations in early childhood, especially for males (19.3 % for males versus 9.2% for females aged below 4 years). The female hospitalisation rate increases during the most fertile years (20-40). There is a slight increase in the percent of hospitalisation for ages higher than sixty-five.

The percent distribution by consumption quintiles demonstrates that patients in the poorest quintile have a higher tendency to be hospitalised if they are below age 15 and above age 65. Women in childbearing years in the richest quintile are, on the other hand, much more likely to spend at least one-night in the hospital than women of the same age in the poorest quintile.

Table 7.7: Age percent distribution of patients with overnight hospitalisations

	Liberia	Male	Female	Poorest Quintile	Richest Quintile
0-4	15.3	19.3	9.2	13.0	8.9
5-9	15.6	14.1	8.2	12.2	5.4
10-14	13.6	4.2	4.7	8.6	3.1
15-19	10.1	2.6	7.2	3.7	7.6
20-24	7.9	5.8	14.0	11.7	11.0
25-29	7.1	7.2	15.2	8.9	17.7
30-34	6.7	11.3	10.9	10.3	14.7
35-39	6.3	6.4	9.9	7.4	10.3
40-44	4.9	6.4	7.8	6.3	5.3
45-49	3.7	4.2	3.5	3.3	4.2
50-54	2.7	5.6	2.4	4.8	3.5
55-59	1.8	2.9	1.5	2.4	2.3
60-64	1.4	3.8	1.3	2.6	3.3
65+	2.8	6.2	4.2	4.9	2.6

The percent distribution of cost of overnight hospitalisation is outlined across broad expenditure categories in Table 7.8. 62.4 percent of the expenditure incurred for an overnight hospitalisation spending lies between 1,000 to 10,000 Liberian Dollars.

The distribution in rural areas is more strongly skewed towards the lower end of the scale, meaning that a larger percent of the population in rural Liberia faces smaller hospital bills or receives free treatment.

Table 7.8: Percent distribution of cost of overnight hospitalisations in the last 12 months

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
No expenditure	15.4	9.7	22.5	12.5	10.7
LD 1-499	3.6	2.2	5.4	2.7	2.6
LD 500-999	8.2	7.1	9.6	7.3	7.0
LD 1,000-1,999	16.0	14.4	18.0	16.1	14.0
LD 2,000-3,499	16.5	18.4	14.2	18.6	17.6
LD 3,500-5,999	17.5	20.2	14.2	17.9	19.7
LD 6,000-9,999	12.4	15.2	9.1	13.8	16.1
LD 10,000-14,999	3.7	4.4	3.0	3.7	4.2
LD 15,000-19,999	2.5	3.0	1.8	2.5	2.8
LD 20,000+	4.1	5.6	2.3	4.2	4.6

7.4 Births

In the HIES 2016, female fertility was defined for women in age group 12-49 years with a reference period of 24 months. Therefore, women of fertile age (defined as between ages of 12 and 49 years) were asked whether they had given birth in the previous 24 months. This information is outlined in Table 7.9 below. In Liberia, an estimated 22.7% women

had a birth within the last two years of being interviewed. It should be noted that a birth is recorded regardless of the baby's lifespan.

Across the income distribution it can be noted that there is a clear decline in the proportion of women giving birth towards the richest quintile. From 23.5% of women in the poorest quintile to 15% of women in the richest quintile. It is also noteworthy, that there is a higher frequency of births in rural areas as compared to urban areas (28.4% in rural areas versus 18.4% in urban areas).

Table 7.9: Percent distribution of women with at least one birth in the last 24 months

	Liberia	Urban	Rural
Poorest Quintile	23.5	7.5	37.4
Second Quintile	21.3	16.3	25.7
Third Quintile	20.1	20.1	20.0
Fourth Quintile	20.2	28.4	13.0
Richest Quintile	15.0	27.7	3.9
Total (All Quintiles)	22.7	18.4	28.4

Further information on the distribution of the places of birth for the most recent births over the previous two years can be found in Table 7.10. Nationally, approximately 68.9% of births took place in government hospitals or clinics. This is significantly higher than the 17.6% of births that took place in private non-religious clinics or hospitals. It is noteworthy that 8.7% of births took place at home, this value is higher in rural areas compared to urban areas (11.5% versus 5.5.%).

Table 7.10: Percent distribution of place of delivery of last child birth

	Liberia	Urban	Rural	Poorest Quintile	Richest Quintile
Government hospital	24.8	35.6	15.4	20.9	34.5
Private hospital	5.6	10.3	1.5	2.0	10.7
Government clinic	44.1	24.5	61.2	57.0	19.0
Private clinic	12.0	18.4	6.3	5.4	24.9
Home	8.7	5.5	11.5	10.1	3.7
Other*	4.7	5.8	4.0	4.6	7.1
Total Government	68.9	60.1	76.6	77.8	53.5
Private non-religious providers	17.6	28.7	7.9	7.4	35.6

*Includes Religious hospitals, clinics and traditional healer's dwelling.

In line with what has been discussed in this chapter for visits to primary health care providers, Table 7.10 shows that government hospitals and clinics play an important role nationally but even a greater role in rural areas (76.6% of all births happening in a government hospital or clinic).

Considering the use of health facilities across the income distribution, it is clear that women in the poorest quintile depend more on government facilities than on private clinics or hospitals (77.8% versus 7.4%). This is lower for women in the richest quintile, 53.5%

reported giving birth in a government facility and 35.6% reported giving birth in a private clinic or hospital. Moreover, home births are also more frequent amongst women in the poorest quintile compared to the richest quintile (10.1% versus 3.7%).

8. Employment

Distribution of Employers

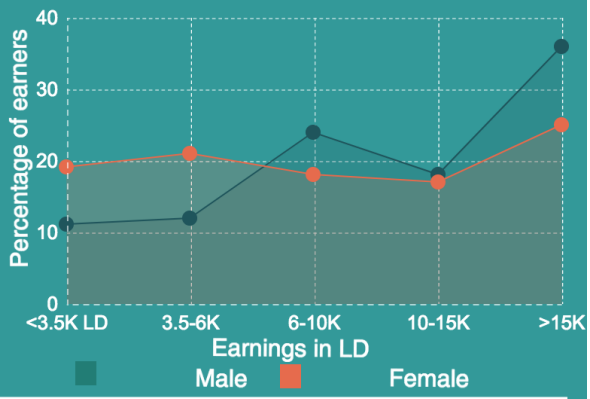
Wage earners are most often hired by employers from the private sector (restaurants, banks, shops, ...) (64.9%).

The second most common employer is the government, with 19.5% of wage earners on its payroll. The remaining 15.6% is working for other employers (NGOs, churches, political parties, ...)

Uneven Wage Earnings

Among wage employed Liberians, females earn less than their male counterparts.

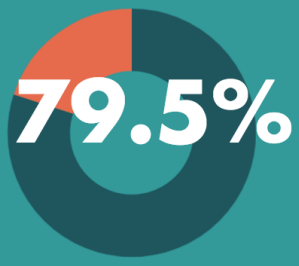
A higher share of women are in low earning categories as compared to males. As wage incomes rise (along the X-axis, monthly wage in LD), the relative share of women in that category vis-à-vis men falls.



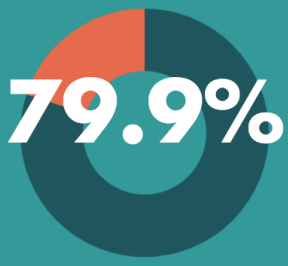
Working under Precarious Conditions

Unemployment

Vulnerable Employment



Informal Employment



Unemployment is low in Liberia - the unemployment rate is estimated to be only 3.9%. However, this masks the fact that work is precarious. 4 out of 5 workers in Liberia are estimated to be in vulnerable employment. The same proportion of workers is engaged in informal employment. Both informal and vulnerable employment are most often characterised by inadequate earnings, low productivity and difficult conditions of work that undermine workers' rights.

8 EMPLOYMENT

8.1 Informal employment, vulnerable employment, and unemployment

According to the international standards of labour, three characteristics identify an unemployed individual. First, an unemployed individual should not perform any remunerated activity. Second, the unemployed must be available to accept employment if this was offered. Third, the individual must be actively looking for a remunerated activity and this intend should be preferably recorded/registered at an unemployment office. The latter characteristic is sometimes not included in environments where the labour market is strongly underdeveloped, which is the case for countries like the Republic of Liberia. Thus, the third condition was not considered in the methodology used for the analysis of the data of this survey.

The informal employment rate is primarily based on types of professions (ISCO code) and in the number of the registration of the employer at the Ministry of Commerce. In line with ILO standards[17], the base population for the calculation of informal employment rate excludes those employed in own account for farming activities, however, it includes wage labourers working in the agriculture sector. For instance, individuals working on their farms are not included, while a worker of a rubber concession is.

Those in vulnerable employment are defined as those either employed on their own account or working as a contributing family worker for either the family farm or the household's non-agricultural business.

According to the Table 8.1, unemployment in Liberia is 3.9% nationwide which for international standards is considered low. Urban areas have the highest proportion of the unemployed with 6.5%, while rural areas reach 1.3% of unemployment. This can be explained by the type of work demanded and supplied in different geographic areas of the country. This idea is reinforced by the 8% of unemployment in Montserrado where there is a higher concentration of the labour force and population.

The disaggregation by consumption quintiles reveal that unemployment is lower among poor Liberians. This is in line with the overall low unemployment rate in the country, unemployment is not an option. People need to find means of earning income through some type of employment, however informal or vulnerable, in order to sustain themselves. Unemployment increases as people reach the richest quintile. This is probably caused, as poverty decreases, people have the chance to wait out for a better employment opportunity.

[17] The 2010 Liberia Labour Force Survey (LFS) was used as a guideline for the current document, this Survey can be downloaded from the ILO's website.

Table 8.1: Percent distribution of informal and vulnerable employment, and unemployment rates

	Informal employment rate	Vulnerable employment rate	Unemployment rate
Liberia	79.9	79.5	3.9
Area of residence			
Urban	72.5	69.1	6.5
Rural	86.5	88.7	1.3
Gender			
Male	69.0	67.9	4.5
Female	90.9	91.1	3.2
Region			
North Western	83.1	83.1	1.4
North Central	88.6	91.5	1.1
South Central	77.2	76.4	3.7
South Eastern A	83.1	83.4	2.8
South Eastern B	80.2	81.1	3.2
Montserrado	69.0	64.1	8.0
Consumption Quintiles			
Poorest Quintile	90.0	91.8	1.6
Second Quintile	87.0	86.6	2.3
Third Quintile	80.9	81.2	3.1
Fourth Quintile	76.4	76.0	4.4
Richest Quintile	66.1	62.8	7.4

In developing countries such as Liberia, unemployment is not the best indicator of the labour market since most of the population must find means to earn income, thus vulnerable and informal employment rates provide a more insightful picture. While outright unemployment is low, informal and vulnerable employment rates are very high, at 79.9% and 79.5% respectively.

In this survey, it is intended to analyse the scope of informal unemployment, for which it is necessary to differentiate between the definitions of informality. According to the theory, informal employment happens either in the informal sector altogether or in a formal business yet under informal circumstances. Informal employment means to execute an agreement of work in which the employer do not contribute to social welfare through taxes, and where the employee has no recourse to proper arbitration in case of labour conflicts.

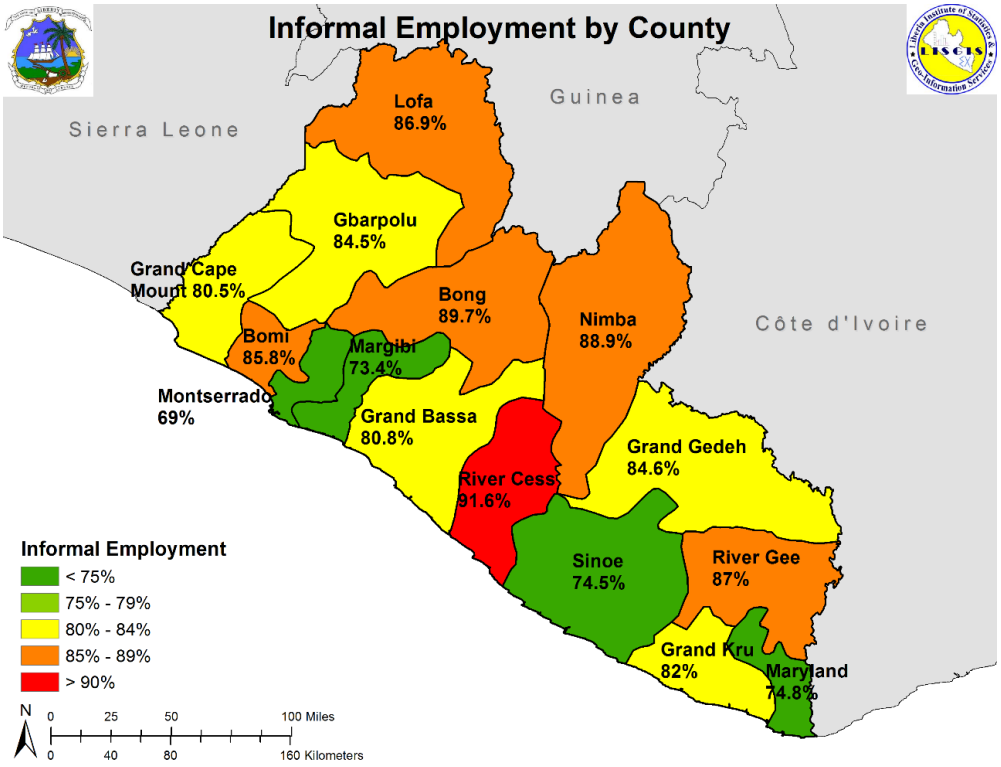
According to the HIES 2016, in Liberia informal employment is higher in rural areas than in urban settings (86.5% versus 72.5% respectively). The difference between men and women is 24.1 percentage points (69% vs. 90.9%) showing that women are more likely to work informally. By regions, Montserrado has the lowest share of informal employment in line with the expectations as it is the region where the capital city is located and where more employers are registered (69%), in the other hand the North Central region has the highest rate in the country (88.6%).

By income distribution, the poorest quintile shows a higher rate of informal labour (90%); while the richest shows a lower rate (66.1%). Again this follows the expectations as the

people in the higher consumption quintile get jobs with registered employers (among them the government), while poorer inhabitants get a job according to their survival needs and disregard conditions of employment.

The following map shows a pictorial presentation of informal employment rates by counties for Liberia.

Figure 10: Informal employment by county

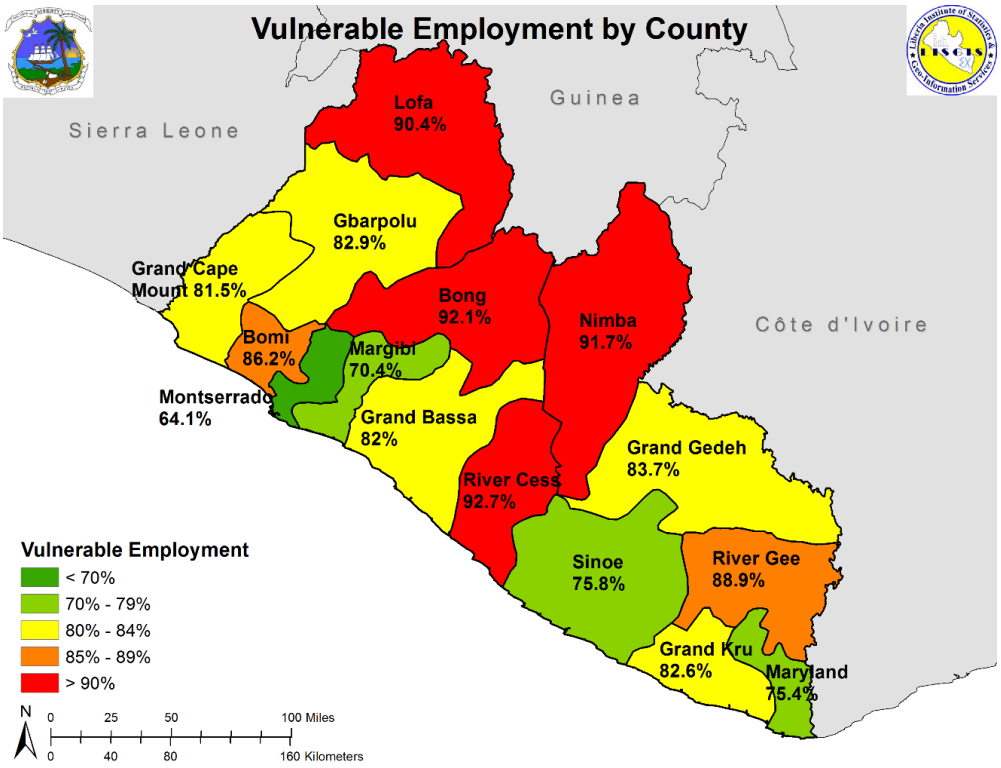


As stated before, vulnerable employment is related but not equal to informal employment. It captures the risk that an employee faces of running into (financial) trouble despite the fact the he or she is employed. The trends can be seen in Table 8.1.

Nationally, 79.5% of the population are in vulnerable employment. In rural areas this percentage is higher at 88.7% and in urban areas it is lower than the national average at 69.1%. This is explained by the quality of the labour market in the remote areas of the country where the wages are low and the employment market is small. The highest percent of vulnerable employment (91.5%) can be found in the north central region; while the lowest rate corresponds to Montserrado with 64.1% of vulnerable employment.

Additionally, the consumption quintile disaggregation shows a higher rate of vulnerable employment among the poorest part of the population (91.7%) and a lower rate for the richest quintile (63.3%).

Figure 11: Vulnerable employment by county



8.2 Primary employer

The primary employer is the employer of the respondents' main job, as defined by the respondent. This includes all types of household entrepreneurial endeavours as well as farming activities. Nationally, the largest employer in Liberia is the private sector followed by the government (64.9% and 19.5% respectively). In urban Liberia (see Table 8.2), the government plays a stronger role, proportionally, in comparison to rural regions of the country.

Table 8.2: Percent distribution of Primary Employer in Liberia

	National	Male	Female	Urban	Rural	Poorest Quintile	Third Quintile	Richest Quintile
Government	19.5	18.8	22.3	21.3	15.9	11.7	19.4	23.8
Cooperative	2.8	3.1	2.0	2.6	3.3	2.4	2.5	2.7
International Org. & NGOs	5.9	6.1	5.5	6.5	4.9	4.4	7.6	6.7
Religious Organizations	2.7	2.5	3.4	3.2	1.7	3.3	2.2	2.5
Private Sector	64.9	65.3	63.7	64.0	66.9	72.1	64.1	61.3
Others*	4.1	4.3	3.2	2.5	7.3	6.1	4.3	3.0

*others include political parties

8.3 Salary structure

The salary information contained in Table 8.3 was calculated using information from respondents who reported weekly and monthly wages. This covers the clear majority of responses. Those who reported their income in daily instalments could not be consistently updated to a monthly rate, as there is no information on how many days a month they usually work.

With this information, it is estimated that around 40% of Liberian wage employees receive a monthly salary between 6,000 and 15,000 Liberian Dollars. In urban areas, where wage employment is more common, the distribution of wages is more spread out than in rural areas.

Female workers' salary structure is more strongly concentrated on lower levels, hinting that more women are in low skill jobs and receive a lower pay than males. 39.90% of females earn under 6,000LD as compared with 22% of male workers. It should be noted that the table below compares overall salaries and does not distinguish job types. It may be true that women are paid less for the same job, but this cannot be concluded from Table 8.3.

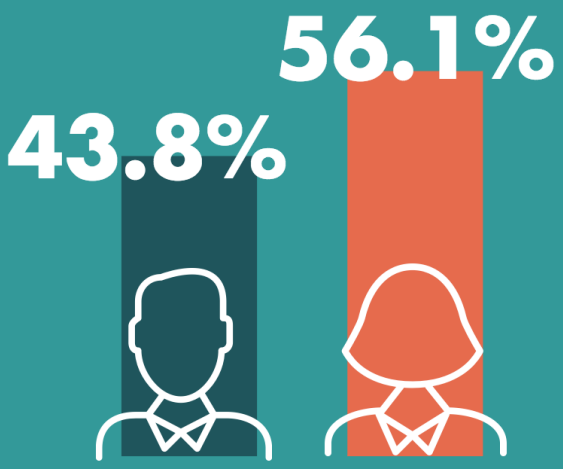
Table 8.3: Percent distribution of the salary structure

	National	Male	Female	Urban	Rural	Poorest Quintile	Third Quintile	Richest Quintile
LD 1-1999	3.0	2.6	4.6	2.1	4.9	6.6	4.5	1.0
LD 2,000-3,499	9.4	8.0	14.5	7.3	13.8	23.7	10.8	5.6
LD 3,500-5,999	13.7	11.7	20.7	12.8	15.6	25.1	11.8	9.9
LD 6,000-9,999	22.4	23.6	18.3	22.9	21.4	20.5	22.4	17.0
LD 10,000-14,999	18.0	18.3	17.0	17.5	19.1	14.1	21.7	17.3
LD 15,000-19,999	10.3	11.1	7.4	9.9	11.0	5.2	10.6	12.3
LD 20,000-29,999	9.6	10.1	8.1	10.3	8.2	2.1	11.4	11.9
LD 30,000+	13.5	14.7	9.4	17.1	6.1	2.8	6.7	25.0

9. HH Non-Farm Enterprises

Female Entrepreneurs

The majority of household non-farm enterprises are managed by women. 56.1 % of businesses are run by females while 43.8% are run by men.

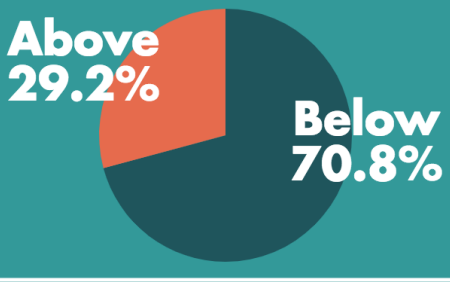


Monthly Turnover

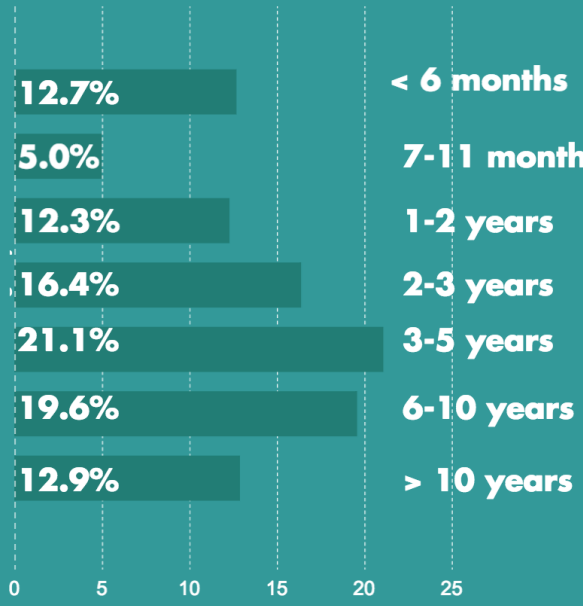
Revenues, that is the turnover generated without netting out costs, is generally low for household non-farm enterprises.

70.8% of enterprises generate less than 30,000 LD per month, while 29.2% achieve a higher monthly turnover.

Turnover above or below 30,000 LD



Business Longevity



The majority of non-farm household enterprises have been in operation for between 2 and 10 years (57.1%).

On the tails of the distribution, just over 1 in 6 businesses have been in operation for less than a year (17.7%). while 12.9% have been running for more than a decade.

9 HOUSEHOLD NON-FARM ENTERPRISES

9.1 Household non-farm manager characteristics

Table 9.1 shows the distribution of the number of non-farm businesses operated by households, both at national level and by urban/rural classification. The data reveals that businesses are a more common occurrence in urban areas: 62.5% of households in urban areas run or own a non-farm business, while just 46.5% do so in rural areas. Among those households that do run businesses, the ratios are fairly stable over the strata: 8 out of 10 households that do operate a non-farm enterprise only run a single enterprise.

Table 9.1: Percent distribution of the number of non-farm enterprises by household

	Liberia	Urban	Rural
HH has a business	54.8	62.5	46.5
1 enterprise	79.6	80.1	78.9
2 enterprises	17.4	17.5	17.4
3 or more enterprises	2.9	2.5	3.6

The HIES 2016 questionnaire asks about both the owners and the managers of the non-farm business. The data is disaggregated by demographic characteristics of managers, who are assumed to be the key decision makers in the business.

Table 9.2: Percent distribution of HH non-farm enterprise managers by gender and age

Age	Male	Female	National
19 or younger	1.0	1.8	2.8
20-24	3.5	6.5	10.0
25-29	6.3	9.0	15.3
30-34	8.0	9.7	17.7
35-39	7.0	8.9	16.0
40-44	5.6	6.9	12.6
45-49	5.0	4.9	9.9
50-54	2.4	3.2	5.5
55-59	2.1	2.1	4.2
60-64	1.1	1.2	2.3
65+	1.7	2.0	3.7
Gender Totals	43.8	56.2	100

Table 9.2 shows both the gender and the age distribution of the managers. The majority of managers are female (56.1% versus 43.8%) and are mostly (61.1%) between the ages of 25 and 44.

Further, Table 9.3 shows the gender and stratum division of managers. Most business managers (and hence businesses) are found in urban areas (58.9% versus 41.1%). The gender imbalance (i.e., the surplus of women managers) is significantly stronger in urban areas than in rural areas.

Table 9.3: Percent distribution of HH non-farm enterprise managers by gender and stratum

	Male	Female	National
Urban	21.7	37.2	58.9
Rural	11.2	19.0	41.1
Totals	43.8	56.1	100

Disaggregating the data by the wealth quintile of managers (Table 9.4) it can be seen that the share of managers increases steadily in urban areas as we go up from the poorest to the wealthiest quintile (from 4.7% to 38.4%). The distribution is quite different in rural areas where managers are roughly equally distributed along the lowest four quintiles (20-24%) while there are fewer managers from the wealthiest quintile (11.5%).This suggests that enterprise is an activity wealthier households engage in in urban areas, but is something nearly all households do in rural areas. The structure and size of these enterprises may of course vary quite significantly.

Table 9.4: Percent distribution of the HH non-farm enterprise mangers by residence and wealth quintiles

	Liberia	Urban	Rural
Poorest Quintile	11.6	4.7	21.5
Second Quintile	16.6	11.8	23.4
Third Quintile	19.8	17.2	23.6
Fourth Quintile	24.6	27.8	20.1
Richest Quintile	27.3	38.4	11.5

9.2 Household non-farm business characteristics

Table 9.5 shows that most businesses can be classified as shopkeepers or traders (60.8%), followed by producers (22.1%) and services (17.1%). It should be noted that while a business can be classified in more than one way, for example, a producer and a shopkeeper, the questionnaire only allowed for one main classification.

Services are a largely urban phenomenon, representing 20.8% of businesses in urban areas, while only 11.8% in rural areas. Producers, on the other hand, are relatively more common in rural areas (39.4%) than urban areas (10.1%).

Female managers are strongly prevalent in trading businesses, while male managers are more evenly spread between the three different business types as defined in the 2016 HIES.

Table 9.5: Percent distribution of the type of non-farm HH enterprise

	Liberia	Urban	Rural	Male	Female
Shopkeeper / Trader	60.8	69.2	48.8	41.8	75.6
Producer	22.1	10.1	39.4	33.1	13.5
Services	17.1	20.8	11.8	25.0	10.9

Table 9.6 presents how long a business has been in operation. Just about 17.7% of businesses have been in operation for less than 12 months, and 30% have been in operation for 2 years or less. More than half the businesses at national level (53.6%) have been in operation for three or more years.

Enterprises managed by women are in general younger than those run by males. There do not seem to be large differences in the age of businesses between rural and urban areas.

Table 9.6: Percent distribution of the duration of the existence HH non-farm businesses

				Gender of Manager	
	Liberia	Urban	Rural	Male	Female
6 months or less	12.7	12.9	12.3	7.6	16.6
7-11 months	5.0	4.5	5.5	4.3	5.4
1-2 years	12.3	13.4	10.7	10.2	14.0
2-3 years	16.4	17.4	15.0	14.6	17.9
3-5 years	21.1	19.9	22.9	22.4	20.1
6-10 years	19.6	18.8	20.9	24.5	15.8
More than 10 years	12.9	13.1	12.7	16.4	10.3

9.3 Profitability of household non-farm businesses

The last section on household non-farm businesses looks at the revenues and costs per month in Liberian Dollars.

Table 9.7 focuses on revenues. Around 51% of enterprises report revenues between 6,000 and 30,000 Liberian Dollars per month. This core is fairly stable when looking at the urban/rural and male/female distinctions. The differences lie at the edges, where small revenue generating firms are more present in rural areas or run by females, while the opposite is true in urban areas and firms managed by men.

Table 9.7: Percent distribution of the revenues of non-farm Household enterprises by stratum and gender

				Gender of Manager	
	Liberia	Urban	Rural	Male	Female
LD 0-3,499	10.7	7.0	16.0	8.8	12.2
LD 3,500-5,999	9.1	6.9	12.2	8.6	9.5
LD 6,000-9,999	14.6	14.0	15.4	12.3	16.4
LD 10,000-14,999	12.4	11.2	14.2	11.9	12.7
LD 15,000-19,999	10.5	9.7	11.7	11.2	10.0
LD 20,000-29,999	13.5	15.1	11.2	14.7	12.6
LD 30,000-49,999	15.0	16.9	12.3	15.4	14.6
LD 50,000-99,999	9.1	11.8	5.1	10.3	8.1
LD 100,000+	5.1	7.4	1.9	6.7	3.9

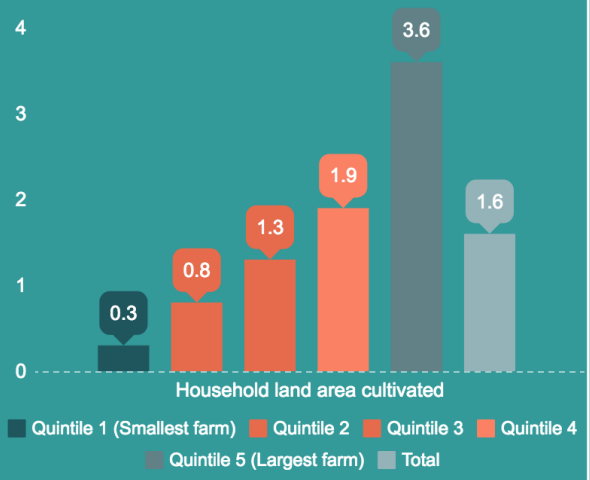
A similar pattern emerges when looking at costs (Table 9.8) at least in terms of the urban rural divide. Inputs are cheaper (or less of them are used, resulting in a lower bill) in rural areas versus urban areas. On average, urban non-farm enterprises report higher costs.

Table 9.8: Percent distribution of costs of Household non-farm enterprises by stratum and gender

				Gender of Manager	
	Liberia	Urban	Rural	Male	Female
LD 0-999	16.8	9.4	27.5	22.1	12.8
LD 1,000-1,999	6.8	5.0	9.4	7.6	6.2
LD 2,000-3,499	9.3	8.7	10.2	9.3	9.3
LD 3,500-5,999	10.8	9.5	12.7	9.4	11.9
LD 6,000-9,999	14.6	15.6	13.1	13.9	15.1
LD 10,000-14,999	11.0	11.7	10.0	9.2	12.4
LD 15,000-19,999	6.8	8.3	4.6	4.4	8.7
LD 20,000-29,999	8.0	10.1	4.9	6.8	8.9
LD 30,000-49,999	8.3	10.8	4.6	8.3	8.2
LD 50,000+	7.6	10.8	2.9	9.0	6.4

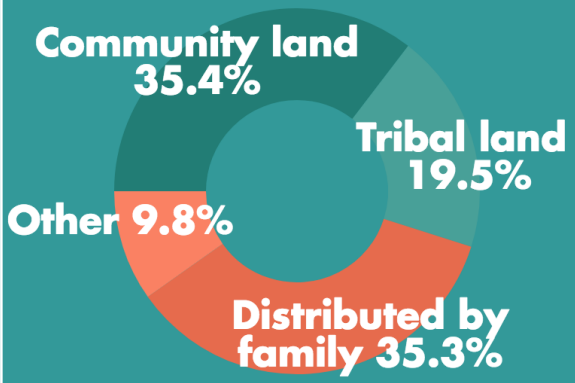
10. Agriculture

Average area of land cultivates (Hectares)



Land Tenure

The top three type of land tenures held by farmers are community land, distributed by family and tribal land. Other includes privately owned land (5.4%), farming as a tenant (2.4%) and rented (2.0%).

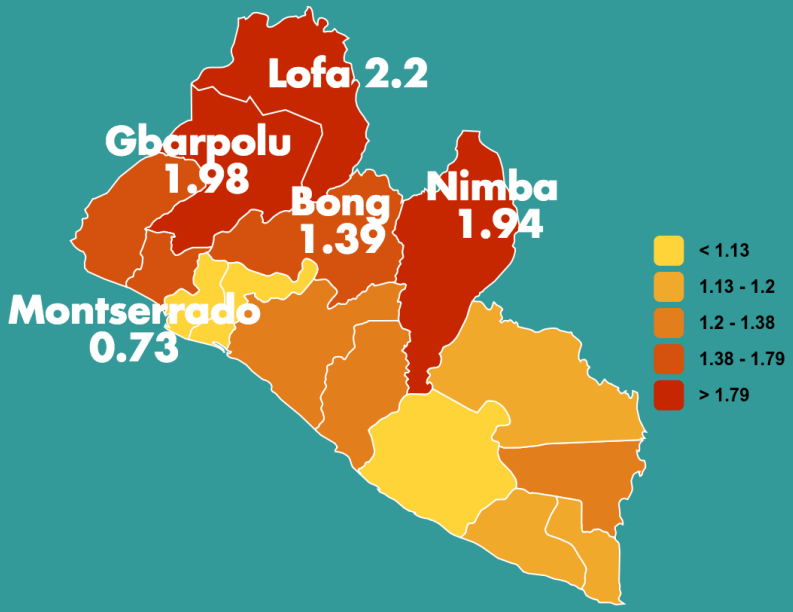


Distribution of average land cultivated

There is also significant difference across counties in term of land area cultivated by household.

Households in Lofa County appear to have the highest land area cultivated per household (2.2 hectares) . Followed by Gbarpolu (1.98 hectares) and Nimba (1.94 hectares).

Montserrado on the other hand holds the lowest average land cultivated (0.73 hectares).



10 AGRICULTURE/ CROP PRODUCTION AND LIVESTOCK

This chapter is based primarily on the agriculture recall survey covering all farming households included in the 2016 HIES, which provides an opportunity to explore farming household performance. Agricultural production data was collected at farm and crop level, with detail on the allocation of production and the use of inputs such as fertilizer, pesticides, hired labour, shared labour and household labour activity. Data on livestock activities was also collected and analysed.

10.1 Characteristics of farming households

Farming households represent 35 percent of Liberian' households in 2016. Table 10.1 reports basic summary statistics for some key characteristics of farming households. These households consist on average of 5 members. However, there is some differences across regions in households' human capital endowment. Farming households in Liberia's South Eastern B, Montserrado, South Eastern A, North Central and North Western regions have much higher levels of dependency ratio[18] than households in the South Central region. The household size in per adult equivalent[19] range from 3.3 in North western to 4.1 in South Eastern B region.

The vast majority of farming households in Liberia are male-headed. One fifth of household heads are female. Households in the South East B are larger and more likely to be headed by a woman. The average age of household heads is 44 years reflecting a relatively high level of experience in farming. Only a few share of farming household heads are single (7%).

On average, farming household heads have completed less than four years of schooling. The highest level of educational attainment of heads is at the primary school level: on average, the number of years of schooling of farming households head is under four years.

Table 10.1: Basic farming household characteristics by region

	Mont-serrado	North Central	North Western	South Central	South Eastern A	South Eastern B	National
Household size	5.3	4.8	4.3	4.5	4.7	5.4	4.8
Dependency ratio per HH	1.2	1.2	1.2	1.1	1.2	1.2	1.2
Household head characteristics							
Household head age	49.3	43.4	45.8	42.2	45.1	46.8	44.3

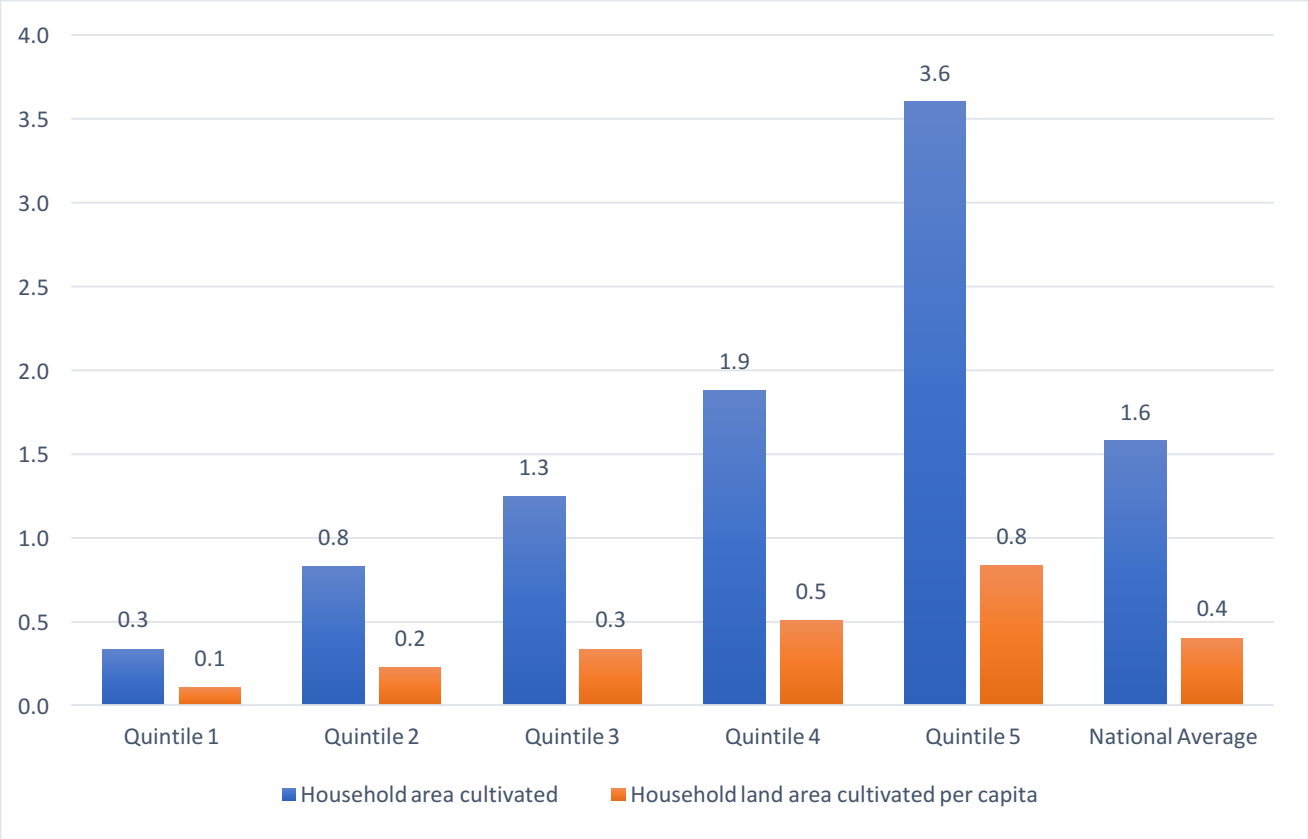
[18] The dependency ratio per household is the number of dependents (household members who are less than 14 or more than 65 years old) per household members of working age (14-65 years olds).
[19] The adult equivalent measures used are based the standard FAO adult equivalent scales developed in Guinea in 2004, and are therefore considered more relevant to the West African context.

Female headed households	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Never Married	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HH head years of schooling	6.2	3.7	3.3	3.4	4.3	4.4	3.9
Average time to walk from the farm to (mins):							
Home	10.3	40.4	33.2	24.2	36.8	46.7	35.8
Market	52.0	106.4	123.0	99.0	128.2	128.5	107.6

10.2 Farm Characteristics

There is a prevalence of smallholder farmers in Liberia. Households in Liberia own an average of two farms. The average size of land cultivated per household is 1.6 hectares. The distribution of land cultivated illustrated in Figure 12 shows the prevalence of smallholder farmers in the country. Less than three percent of farming households cultivate more than 5 hectares of land; even in the top land quintile, average land cultivation is smaller than 4 hectares.

Figure 12: Average land area cultivated in hectares by Quintiles of land cultivated



There is also significant difference across counties in term of land area cultivated as shown in Table 10.2. Households in Lofa County appear to have the largest land area

cultivated per household. Moreover, male-headed households cultivate more area of land than female-headed households across counties.

Table 10.2: Land area cultivated by county in hectares

County	Male-headed households	Female-headed Households	All households	Land cultivated per capita
Bomi	1.5	1.3	1.4	0.4
Bong	1.5	1.1	1.4	0.4
Grand Bassa	1.4	1.2	1.4	0.4
Grand Cape Mount	1.8	1.4	1.8	0.5
Grand Gedeh	1.2	1.1	1.2	0.3
Grand Kru	1.2	1.0	1.2	0.3
Lofa	2.4	1.6	2.2	0.5
Margibi	1.2	0.8	1.1	0.3
Maryland	1.2	0.9	1.1	0.2
Montserrado	0.7	0.7	0.7	0.2
Nimba	2.1	1.5	1.9	0.5
River Cess	1.4	0.8	1.3	0.3
Sinoe	1.1	0.9	1.1	0.3
River Gee	1.3	1.1	1.2	0.3
Gbarpolu	2.1	1.6	2.0	0.5
National	1.7	1.3	1.6	0.4

The land tenure system is dominated by community, tribal and family land (Table 10.3). Only five percent of cultivated farms are privately owned at national level and less than three percent of households have a deed to their farmland. The same patterns are observed across counties. Estimates flag out that land tenure security is potentially a challenge for Liberian farmers.

Table 10.3: Distribution of land tenure by County (percent of farms)

County	Community land	Tribal land	Distributed by family	Privately owned	Rented	Farming as a tenant
Bomi	42.9	29.3	22.5	0.9	0.4	4.1
Bong	28.8	17.3	40.1	7.4	3.8	2.7
Grand Bassa	44.6	19.9	31.7	1.5	1.0	1.3
Grand Cape Mount	47.7	16.6	32.8	2.0	0.0	0.9
Grand Gedeh	34.5	21.3	34.9	6.3	1.2	1.9
Grand Kru	56.1	30.5	10.6	2.2	0.3	0.3
Lofa	40.2	34.4	22.2	2.2	0.0	0.8
Margibi	32.9	8.3	34.7	7.2	1.4	15.5
Maryland	46.5	20.5	23.7	6.2	1.2	1.9
Montserrado	20.5	6.4	32.1	17.0	17.6	6.4
Nimba	26.1	10.2	55.3	7.0	0.8	0.7
River Cess	61.1	30.1	7.7	0.9	0.0	0.2
Sinoe	46.1	29.0	22.2	1.6	0.0	1.1
River Gee	32.4	37.5	20.5	7.8	0.0	1.6
Gbarpolu	40.1	44.0	13.8	0.9	0.0	1.2
National	35.4	19.5	35.3	5.4	2.0	2.4

10.3 Use of modern inputs

The farming sector in Liberia is characterized by an extremely limited use of modern inputs. About 4 percent of the planted area is irrigated while respectively 5.4 and 2.1 percent is fertilised and treated (Table 10.4). The average amount of chemical fertilizer used per hectare is less than 2.8 kilograms. Female-headed households have a lower level of fertilizer and pesticide usage compared to their male counterparts in per hectare. Significant differences also emerge across gender in terms of access to extension services [20] with female-headed households having less access than male-headed households

Table 10.4: Modern inputs utilization and access to extension services

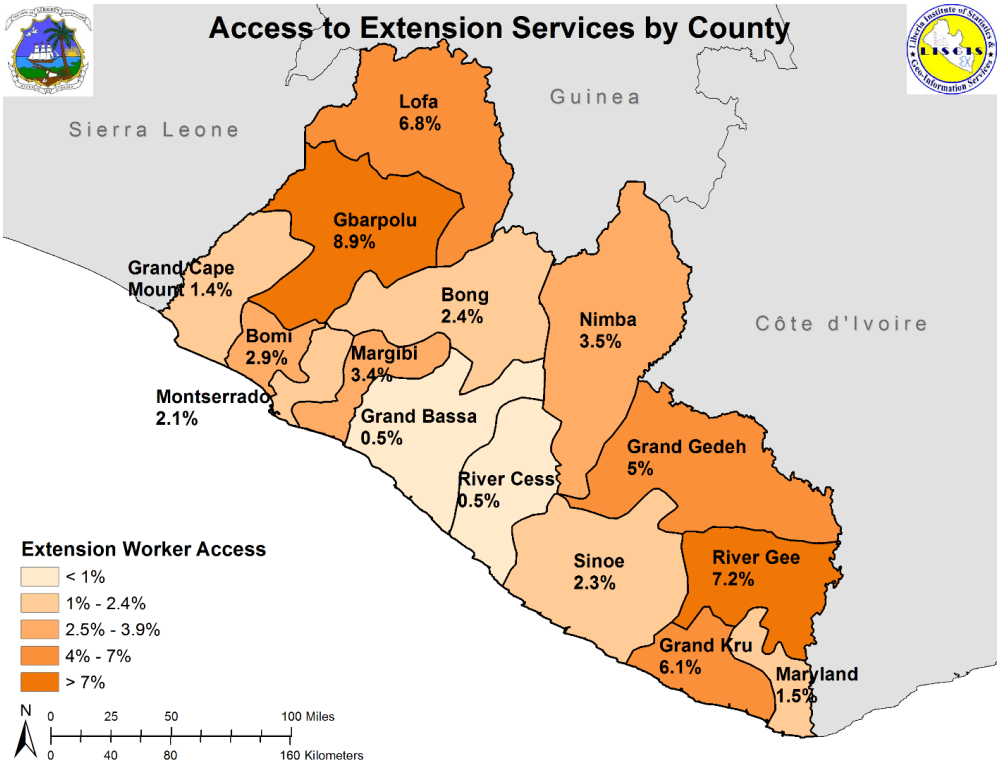
	Male-headed households	Female-headed households	Total
Share of area planted that is:			
Irrigated	3.3	5.2	3.7
Fertilised	5.1	6.6	5.4
Pesticided	2.4	1.0	2.1
Quantity (kg) of inputs use per ha			
Chemical fertilizer	3.4	0.3	2.8
Pesticide	0.7	0.1	0.6
Household has access to extension services	3.6	2.8	3.4

At national level, less than five percent of farming households have access to extension services[21] (Figure 13). The same pattern is observed across counties as shown in the map below. The limited access to extension is not encouraging to improve the adoption of modern inputs. The provision of extension service is an important element contributing to enhance productivity and reduce food insecurity.

[20] The provision of extension services such as treatment of the land is an important element contributing to enhance productivity and reduce food insecurity.

[21] Of note that the survey only capture accessibility to extensions services without providing information on the type of extension services available.

Figure 13: Acces to extension services by county



10.4 Labour utilization

Farming households use a combination of family labour and hired labour. A critical complement to land in the agricultural production process is labour. On average, more than 80 percent of farming households report using hired/Kuu labour[22] (Table 10.5). Some differences emerge across counties. The share of households using hired/Kuu labour range from 58 percent in Montserrado to 98 percent in Lofa. In general, hired/Kuu labour is mostly used for land clearing and planting activities. However, in Lofa County, a high level (in term of share of households) of use of hired/Kuu labour is observed for all farming activities. The share of female[23] labour in agriculture is nearly 50 percent at national level showing a high engagement of females in agriculture.

[22] Kuu labour is a mutual labour system very common between Liberian farmers in which a group of men and women from within the community/town work for the farm of a household in the community. This activity is routinely distributed among farming households, food is the only source of payment and commitment for the days of work.

[23] The share of female labour in agriculture is define as the ratio of total amount of female labour (in person-days) to the overall amount of labour use (in person-days).

Table 10.5: Labour utilization

County	Share of households using hired/Kuu labour	Share of households using hired/Kuu labour for				Share of female labour in agriculture
		Clearing	Planting	Farm management	Harvesting	
Bomi	79.7	76.9	59.8	17.3	31.2	39.9
Bong	86.4	82.6	71.6	38.2	66.0	50.1
Grand Bassa	83.4	81.2	64.9	21.3	48.8	42.3
Grand Cape Mount	87.0	83.4	68.4	44.6	55.4	38.6
Grand Gedeh	86.2	79.1	68.7	24.0	61.2	46.3
Grand Kru	78.3	71.7	67.6	30.7	53.4	49.6
Lofa	97.5	93.1	88.9	65.5	90.3	46.6
Margibi	66.2	62.8	46.8	24.4	41.8	54.6
Maryland	84.1	79.3	66.9	38.0	44.8	43.2
Montserrado	57.5	56.1	34.2	14.0	34.2	40.9
Nimba	93.0	90.4	77.5	43.3	66.2	43.1
River Cess	85.0	79.9	65.9	11.8	51.5	43.4
Sinoe	78.9	75.6	64.7	21.1	48.3	48.1
River Gee	85.2	80.2	64.1	30.7	46.9	47.6
Gbarpolu	90.5	85.4	74.1	17.5	75.9	48.5
National	85.9	82.3	70.0	36.7	60.8	45.3

Panel B in Table 10.6 shows the number of day household members worked in household agricultural production. The patterns are similar to hired/Kuu labour for land clearing and planting. Overall, males are more engaged in land clearing activities, while female labour is mostly used for planting, managing and harvesting (Table 10.6).

Table 10.6: Agricultural labour

	Land area cultivated quintiles					National
	Q1	Q2	Q3	Q4	Q5	
Panel A: Hired/Kuu labour						
Clearing						
Number of days--Men	18.3	25.6	34.1	40.6	56.5	36.4
Number of days--Women	0.8	1.0	1.4	2.3	1.9	1.5
Planting						
Number of days--Men	3.5	3.8	9.9	8.4	16.4	8.9
Number of days--Women	8.2	15.1	19.5	25.7	31.7	20.8
Farm management						
Number of days--Men	1.7	2.7	5.5	5.0	9.5	5.2
Number of days--Women	3.7	6.2	7.5	9.1	15.5	8.8
Harvesting or store preparation						
Number of days--Men	3.7	6.7	10.2	14.2	21.7	12.0
Number of days--Women	8.0	19.8	23.5	34.0	39.5	25.9
Panel B: Household labour						
Clearing						
Number of days--Men	10.3	18.5	23.6	30.6	34.4	24.2
Number of days--Women	5.7	9.5	7.6	8.2	11.5	8.6
Number of days--Under 14 labourers	1.6	2.7	4.8	2.5	4.0	3.2
Planting						
Number of days--Men	6.9	10.9	12.7	14.7	21.2	13.7

	Land area cultivated quintiles					National
	Q1	Q2	Q3	Q4	Q5	
Number of days--Women	11.3	17.3	18.0	21.3	26.5	19.3
Number of days--Under 14 labourers	2.3	3.8	6.2	4.1	8.9	5.2
Farm management						
Number of days--Men	9.8	16.7	18.2	23.2	30.5	20.3
Number of days--Women	14.2	19.6	20.6	23.8	28.4	21.7
Number of days--Under 14 labourers	4.2	5.9	8.6	5.9	9.6	7.0
Harvesting or store preparation						
Number of days--Men	11.5	17.7	19.9	27.2	35.7	23.2
Number of days--Women	14.7	21.5	23.0	29.6	34.6	25.3
Number of days--Under 14 labourers	3.9	5.9	8.5	7.8	11.2	7.7

10.5 Productivity of crops

Table 10.7 shows the total production of crop by land cultivated quintiles. The figure shows large heterogeneity among farming households. While the average harvest is close to 2 tons per household at national level, the total production of farmers at the top land cultivated quintile (16 percent in total) is 2.4 times the total production of those at the bottom quintile. The total production per capita increases with the land quintile. The average production per capita is less than 0.5 tons at national level.

The total production per hectare decreases with the land cultivated quintile. This is consistent with the inverse relationship between yield and farm size in developing countries found in the literature. The low level of output reported by farming households in 2016 denote the prevalence of subsistence farming in Liberia.

Table 10.7: Total production of crop by land cultivated quintiles

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)	National
Total production (kg)-all crops	758	1,368	1,721	2,066	3,247	1,829
Total production per ha	1,225	776	2,903	512	451	1,172
Total production in kg per capita	239	357	448	523	698	452

As shown in the section above, rice and cassava are the most cultivated crops throughout the country. The estimates of production of rice and cassava are shown in Table 10.8 below. It is noteworthy that the figures in those tables are based on farmer estimates. The average yield of rice is 1.26 Metric Ton (MT) per hectare at national level and cassava yield is estimated at 5.28 Metric Tons per hectare.

Table 10.8: Estimated production of rice (based on famer estimate)

County	Number of farming households	Total Rice Production (MT)	Total Cassava Production (MT)
Bomi	12,498	13,413	27,916
Bong	53,885	57,830	120,361

Grand Bassa	22,294	23,926	49,797
Grand Cape Mount	23,444	25,160	52,366
Grand Gedeh	8,956	9,612	20,005
Grand Kru	7,725	8,291	17,255
Lofa	38,883	41,730	86,852
Margibi	15,668	16,815	34,997
Maryland	5,677	6,093	12,681
Montserrado	17,061	18,310	38,109
Nimba	74,658	80,124	166,761
River Cess	8,491	9,113	18,966
Sinoe	9,874	10,597	22,055
River Gee	5,741	6,161	12,823
Gbarpolu	7,459	8,005	16,661
Total	**312,314**	**335,179**	**697,604**

While the yields per hectare vary among counties, the national average has been used to estimate the total production to be consistent with Food and Agricultural Organization (FAO) methodology. The estimated total production of rice and fresh cassava for 2016 is estimated at 335,179 MT and 697,604 MT respectively.

10.6 Livestock

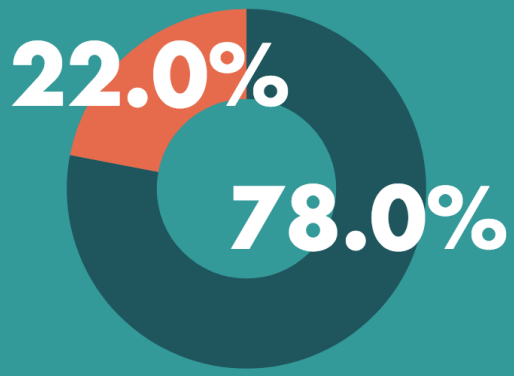
The agricultural sector in Liberia is characterized by high participation in livestock activity. Nearly 50 percent of farming households reported participating in livestock activity (Table 10.9). The participation rate raise with household wealth from 41 percent for the poorest households (first quintile) to 49 percent for the richest households (fifth quintile). It is observed that the poor keep mainly poultry and relatively wealthier households keep more small and large ruminants.

Table 10.9: Livestock participation by wealth quintiles

	Per capita expenditure quintiles- Farming households					
	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)	Total
Percent of households with animal holdings	40.6	41.9	46.3	44.2	48.5	44.3
Livestock ownership by type (Livestock keepers only)						
Cattle	0.4	0.4	0.4	1.0	0.5	0.5
Calf	0.0	0.1	0.0	0.4	0.1	0.1
Sheep/Goats	24.9	29.6	30.2	27.1	32.2	28.9
Goats	20.9	23.1	22.9	21.3	21.5	22.0
Sheep	7.6	11.4	9.9	8.2	15.3	10.6
Pigs	3.9	3.3	6.6	7.3	4.0	5.1
Poultry	89.8	90.5	87.0	90.8	88.0	89.2
Chickens	86.0	89.9	86.2	89.6	85.5	87.4
Ducks	9.8	9.1	6.3	9.8	13.1	9.7
Guinea fowls	0.0	0.0	0.0	1.7	0.0	0.4
Other animals	0.2	0.0	0.0	0.1	0.5	0.2

11. Transfers

National vs. international transfers



78% of all transfers that Liberian households receive come from senders within the country. Only 22% come from abroad. Of that 22% nearly all comes from the USA.

Number of transfers

On average, rural households receive less transfers than urban ones. It is estimated that urban households receive 2.2 transfers (cash, food, or non-food items) while rural homes get only 1.9.

1.9

2.2

Distribution of money delivery method

Bank - 1.2%

Mobile Money - 17.3%

Among the households that received money, only 1.2% received the money through a bank. 24.5% obtained the cash through money transfer systems like Western Union or Moneygram. Finally, 17.3% of the households received money using mobile money.

However, the vast majority (57.0%) received it through other methods. Commonly this means receiving the money through a family member or close acquaintance who brings the money physically to the recipient.

Money Transfer Services - 24.5%

Other - 57.0%

11 TRANSFERS

This section concentrates on all transfers received or sent by households. There are three kinds of transfers recorded: cash, food, and other non-food goods.

11.1 Transfers Received

Table 11.1 shows the proportion of households that received at least one transfer of any kind, as well as those who received cash, food and non-food goods by stratum and county. Overall, 46.2% of households receive some kind of transfer (whether cash, food or non-food). In rural areas fewer households receive transfers than in urban areas (40.0% versus 51.9%). Montserrado's numbers are higher than the national average (54.1% versus 46.2%). Most of the households in Montserrado received transfers in cash.

In terms of money, 40.1% of households in Liberia received at least one cash transfer during the time the survey was conducted. 11.2% received food transfers and a total of 8.3% received non-food transfers. Montserrado has the highest proportion of cash transfers received (51.3%) followed by Grand Gedeh (41.8%). Grand Cape Mount has the highest percent of food transfers (24.0%) and Grand Kru the lowest (4.8%).

More urban households received cash transfers than rural households (48.2% versus 31.3%) but the trend is inversed for food and non-food goods (10.2% vs. 12.3% and 7.5% vs. 9.2% respectively).

Table 11.1: Percent distribution of households that received different types of transfers by county

	At least one transfer	Money	Food goods	Non-food goods
Liberia	46.2	40.1	11.2	8.3
Area of residence				
Urban	51.9	48.2	10.2	7.5
Rural	40.0	31.3	12.3	9.2
County				
Bomi	32.7	28.8	5.8	2.3
Bong	44.1	37.7	16.1	8.6
Grand Bassa	36.3	27.9	9.4	8.1
Grand Cape Mount	49.0	34.2	24.0	9.5
Grand Gedeh	45.9	41.8	6.5	10.0
Grand Kru	31.7	25.1	4.8	8.7
Lofa	48.7	36.6	16.2	13.2
Margibi	42.2	35.6	12.6	10.5
Maryland	40.8	35.6	8.8	6.3
Montserrado	54.1	51.3	8.5	6.5
Nimba	41.3	35.2	10.7	7.1
Rivercess	40.3	28.3	15.1	14.6
Sinoe	44.7	35.9	13.3	14.6
River Gee	40.3	35.2	7.6	7.7
Gbarpolu	39.5	28.3	13.7	8.6

On average, as seen in Table 11.2, urban households received 2.2 transfers on average over the year while rural households received 1.9 transfers in 2016. Looking at the estimated value of these transfers[24], it is noticeable that not only do urban households receive more transfers, but that the value of these transfers is much higher. Urban households received over 25,907 LD in money transfers, while rural households received 15,568 LD.

Note that this is the average not over all households but over household that do receive transfers. Further, the data does not consider potentially higher living costs in urban areas.

Table 11.2: Average number and value (in LD) of transfers received by each household receives by urban/rural

	Number	Money	Food goods	Non-food goods
National	2.0	22,026	5,461	5,962
Urban	2.2	25,907	5,968	7,673
Rural	1.9	15,568	5,506	4,449

Table 11.3 shows the method used for transferring money between households for Liberia as a whole and at the urban and rural level. Institutional money transfers (Banks, Financial services operators, or mobile money) are much more common in urban areas, where they account for over 50% of all inward transfers.

In rural areas, on the other hand, these institutions only represent about a quarter of all transactions. In both strata, banks trail money order companies by a large margin. The category “other” is the largest. This represents in nearly all cases a physical, personal transport of the money from sender to receiver. Further insights to understand this “other” is beyond the scope of this report.

Table 11.3: Percent distribution of method used to transfer cash amounts

	Bank Transfer	Western Union	Moneygram	Mobile Money	Other
Liberia	1.2	13.6	10.9	17.3	57.0
Area of residence					
Urban	1.3	17.1	14.7	19.0	48.0
Rural	1.0	6.4	3.2	13.8	75.6

The origin of transfer is shown in Table 11.4. About four fifths of all transfers received came from within Liberia (78%), while the rest came from outside the country (22%). Within Liberia, Monsterrado County is the largest source of transfers. Just above half of all transfers emanate from there. This is followed, at quite a distance, by Nimba (8.8%)

[24] The calculation included the cleaning of outliers. Values above the 95th percentile of the distribution were replaced by the median of the distribution. The same procedure was used to calculate the values in table 11.6.

and Bong (7.7%). River Gee (1%) and Grand Kru (0.5%) are at the other end of the spectrum.

Looking at the breakdown of the international transfers (i.e. those that originated abroad), the United States of America is the source of most of the transfers about 8 out of 10 transfers from abroad (83.9%). This is followed by Australia and neighbours Guinea and Ivory Coast.

Table 11.4: Most common place of origin of transfer by geographic origin

Origin	Percent	Origin	Percent
Liberia	78.0	International	22.0
Bomi	1.8	USA	83.9
Bong	7.7	UK	1.5
Grand Bassa	4.0	Australia	2.6
Grand Cape Mount	2.6	Guinea	2.3
Grand Gedeh	2.6	Sierra Leone	1.5
Grand Kru	0.5	Ghana	1.5
Lofa	5.2	Nigeria	1.1
Margibi	6.8	Ivory Coast	2.1
Maryland	2.6	South Africa	0.1
Montserrado	51.3	India	0.0
Nimba	8.8	China	0.2
River Cess	1.2	Kenya	0.1
Sinoe	2.7	Others	3.3
River Gee	1.0		
Gbarpolu	1.1		

11.2 Transfers Sent

Table 11.5 shows the proportion of households that sent out transfers in general or either in cash, food or non-food goods. Overall, 33.9% of Liberian households sent at least one transfer during 2016. Gbarpolu and Bomi have the highest and lowest percent of remittances respectively (46.5% versus 22.4%). About the same proportion of households in rural and urban areas sent at least one transfer (34.5% versus 33.4%).

About 24.5% of Liberian households sent cash transfers. 11.3% send food transfers and only 3.3% send non-food transfers. Grand Gedeh has the highest proportion of cash transfers sent (33.9%) followed by Gbarpolu (31.7%). Lofa and Rivercess sent the highest percent of food transfers (20.8% and 20.5% respectively). Urban households sent more cash transfers than rural households (26.9% versus 21.8%) while rural households sent more food transfers than urban areas (15.7% versus 7.3%).

Table 11.5: Percent distribution of households that sent different types of transfers by county

	At least one transfer	Money	Food goods	Non-food goods
Liberia	33.9	24.5	11.3	3.3
Area of residence				
Urban	33.4	26.9	7.3	4.1
Rural	34.5	21.8	15.7	2.4
County				
Bomi	22.4	16.0	7.6	1.6
Bong	32.3	19.4	15.4	1.3
Grand Bassa	35.3	24.9	10.6	2.8
Grand Cape Mount	41.9	26.2	20.4	3.0
Grand Gedeh	42.0	33.9	9.4	2.9
Grand Kru	33.7	28.2	6.6	1.7
Lofa	36.7	15.8	21.0	3.8
Margibi	33.6	25.4	11.3	4.5
Maryland	25.4	19.2	7.7	1.8
Montserrado	33.8	28.3	7.2	5.2
Nimba	29.2	20.0	12.0	0.6
Rivercess	36.2	16.4	20.5	2.9
Sinoe	37.3	27.2	13.5	2.1
River Gee	35.5	30.0	6.8	2.1
Gbarpolu	46.5	31.7	14.7	2.8

On average, each urban household in Liberia sends 1.5 transfers per year. The amount of the outgoing transfers is smaller than the amount received. On average, all money transfers of a household are valued at over 8,000 LD, with a slightly higher value in urban areas than the national average of rural areas. Food transfers are valued at nearly 3,269 LD while respondents estimated that their non-food transfers was 3,421 LD on the market.

Table 11.6: Average number of transfers and value (in LD) sent by each household

	Number	Money	Food goods	Non-food goods
National	1.5	8,825	3,269	3,421
Urban	1.5	9,335	3,223	3,842
Rural	1.5	8,144	3,294	2,625

Table 11.7 lists the data on the method used for transferring money between households by strata. In urban areas just over 1.1% of transfers are made through banks. The proportion drops to 0.5% in rural areas. Western Union and Moneygram make up 7% of transfers in urban areas, while together they are just 1% in rural areas.

Mobile money is the most popular option among the choices of method of transfer, estimated nationally at one quarter of outward transfers. By far the biggest category is “Other” (68.6%), meaning that a person physically brought the money to the destination, (Through the member of the household, a relative, or a friend)

Table 11.7: Percent distribution of method used to transfer cash amounts

	Bank Transfer	Western Union	Moneygram	Mobile Money	Other
Liberia	0.9	2.3	2.3	25.9	68.6
Area of residence					
Urban	1.1	3.7	3.3	33.5	58.3
Rural	0.5	0.3	0.7	14.9	83.6

Table 11.8 shows the most common place of residence of the receivers of a transfer. For this table, the calculations are based on responses of less than 2% of all households. Nearly all transfers are send to people in country (94.2%), while a small fraction is send abroad.

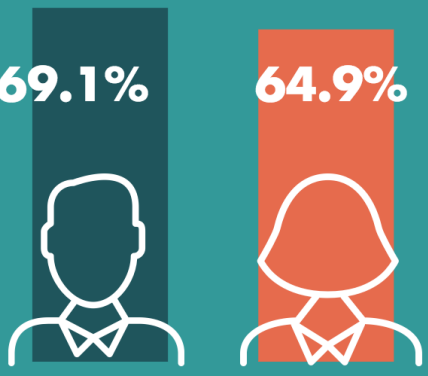
Within Liberia, Monsterrado is again the county with the most transfers. About 41% of all in-country transfers are destined for the capital. 11.3% of inbound transfers go to Bong, while 9.4% go to Nimba. Internationally, the USA is only second (16%) after Australia (39.9%). As seen in table 11.5, 33.9% of households did send at least one transfer.

Table 11.8: Most common destination of transfers sent by geographic location

Destination	Percent	Destination	Percent
Liberia	94.2	International	5.8
Bomi	1.9	USA	16.0
Bong	11.3	Australia	39.9
Grand Bassa	6.4	Guinea	16.5
Grand Cape Mount	3.2	Sierra Leone	6.6
Grand Gedeh	2.7	Ghana	7.8
Grand Kru	0.5	Nigeria	4.1
Lofa	8.5	India	6.6
Margibi	6.0	Others	2.5
Maryland	2.9		
Montserrado	41.2		
Nimba	9.4		
River Cess	1.6		
Sinoe	1.7		
River Gee	1.6		
Gbarpolu	1.1		

12. Shocks

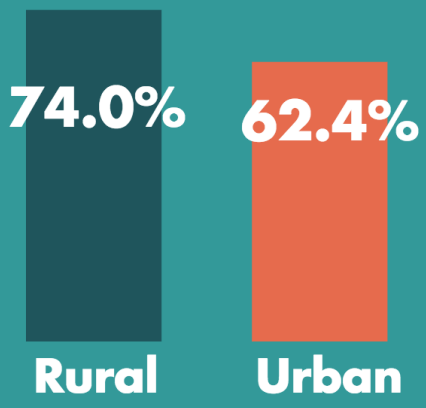
HHs suffering a shock



64.9% of female headed households suffered at least one shock over the past 12 months. Male headed households suffered slightly more, with 69.1% of those households being shocked at least once.

HHs suffering a shock

On average, rural households suffer shocks more often. While 62.4% of urban households had to cope with at least one shock, 74.0% of rural ones suffered one or more shocks.



Most common shocks to hit the household

In the 12 months prior to interviews, the most common shock to hit a household was the death of a family member who is not part of the household. 33.1% of households reported suffering such a shock.

The second most likely shock was a bad harvest due to crop disease or crop pest (12.8%), followed by the shock caused by a household member suffering from a severe or chronic illness or from an accident.

12 SHOCKS

12.1 Number of shocks endured

Shocks are incidences which can adversely affect a household, such as droughts, crop pests, business failures, rise in food prices, death of family members, or theft. When asked how many shocks a family had endured during the last 12 months, 32% of households said that they had not suffered any shocks at all. 31.7% of households reported suffering a single shock, 19% reported suffering two shocks, and a significant proportion of 17.2% suffered three or more shocks.

As a caveat, the World Health Organization (WHO) declared Liberia free of the Ebola virus transmission on 9 May 2015. Field work for the HIES 2016 started on 15 January 2016. As such the 12 months' reference period could have included some households that were affected by the EVD outbreak in relation to the shocks endured. In general, households in rural areas are more prone to shocks than urban households. Regionally, Montserrado reports the lowest proportion of shock at 40.8%. The South Eastern A region was the area most struck by shocks; 75.6% of households reported at least one shock.

As it relates to gender, male headed households have the lowest proportion of households without shocks (30.9%) and also the highest proportion of households suffering three or more shocks (18.5%).

Table 12.1: Percent distribution of number of shocks endured by the household

	No shocks	1 shock	2 shocks	3+ shocks
Liberia	32.0	31.7	19.0	17.2
Area of residence				
Rural	26.0	32.2	21.4	20.4
Urban	37.6	31.3	16.9	14.2
Region				
Montserrado	40.8	32.3	15.6	11.3
North Central	26.0	30.3	20.7	23.0
North Western	30.6	32.7	18.4	18.3
South Central	31.3	33.8	21.8	13.1
South Eastern A	24.4	30.0	23.2	22.3
South Eastern B	27.8	32.1	19.3	20.7
Gender of household head				
Male	30.9	31.7	19.0	18.5
Female	35.1	31.9	19.2	13.8

12.2 Distribution of the most severe shocks

In order to understand which shocks affect households the most, respondents were asked to rate the three most severe shocks their household had suffered. Table 12.2 shows the distribution of the most significant shocks.

The death of a family member close to, but not part of the household is reported as the most severe shock (33.1%). About 12.8% of households suffered from effects of taking care of a member who has chronic or severe illness.

Beyond death of a relative and chronic illness, robbery, hijacking, and theft (7.8%) and a large rise in the price of food (6.6%) are also common shocks that households suffered. As is generally the case, more female headed households (4.7%) suffered the shock of household breakup than male headed households (0.7%). In urban areas, more households suffered robbery, theft and hijacking (10.6%) than rural areas (5%).

Table 12.2: Percent distribution of types of shock experienced by the household

Shock Type Reported as Most Severe	Liberia	Urban	Rural	Male	Female
Drought or Floods	3.0	3.9	2.0	2.9	3.3
Crop disease or crop pests such as ground-hog attacks	9.8	1.5	18.1	10.5	7.8
Livestock died or were stolen	1.0	0.3	1.6	1.1	0.5
Household business failure, non-agricultural	3.1	4.2	1.9	2.4	4.8
Loss of salaried employment or non-payment of salary	2.3	2.4	2.2	2.9	0.6
Large rise in price of food	6.6	7.4	5.8	6.1	8.0
Severe water shortage	5.9	7.6	4.1	5.9	5.7
Restricted access to markets	0.5	0.1	0.9	0.5	0.5
Chronic/severe illness or accident of household member	12.8	15.0	10.5	13.0	12.3
Death of a member of household	5.8	4.7	6.9	5.5	6.3
Death of other family member	33.1	34.4	31.8	32.7	34.1
Break-up of the household	1.8	1.6	2.0	0.7	4.7
Conflict/Violence	1.7	2.1	1.3	1.8	1.3
Hijacking/Robbery/burglary/assault/Theft	7.8	10.6	5.0	8.2	6.8
Dwelling damaged, destroyed	2.5	1.8	3.2	2.8	1.7
Other	2.6	2.4	2.9	3.0	1.5

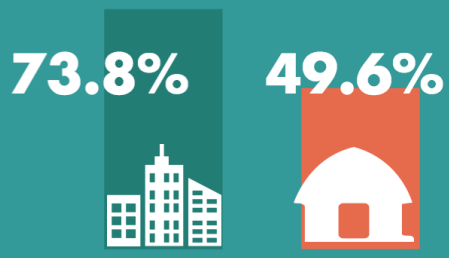
13. Subjective Welfare

Percentage of people satisfied with...

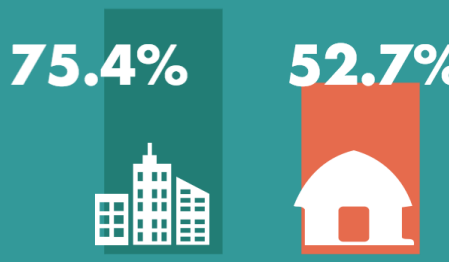
Only 37.8% of Liberians aged 15 and above reported being satisfied with their job.

In rural areas Liberians are less satisfied with the health care and education available to them as compared to Liberians in urban areas (49.6% versus 73.8% for health care and 52.7% versus 75.4% for education).

Health Care

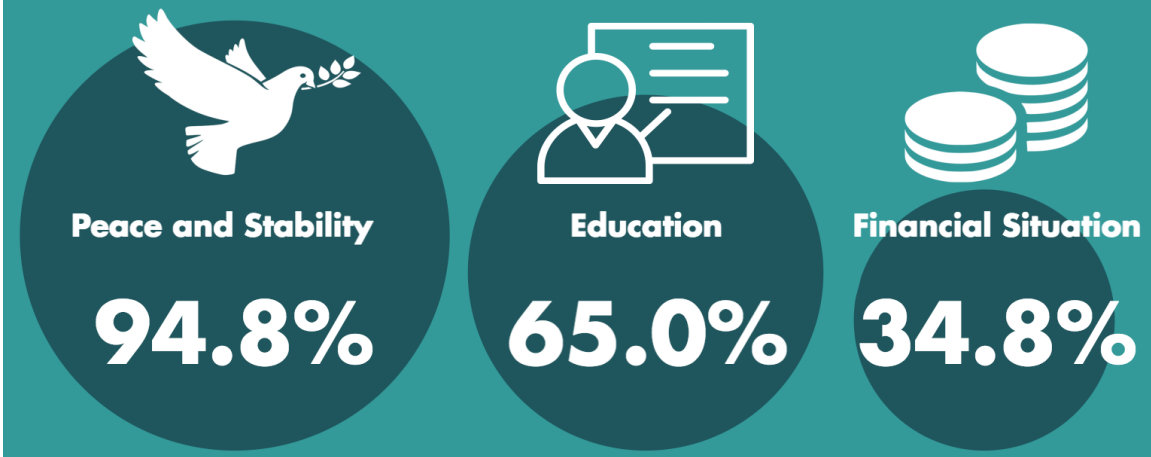


Education



Subjective Welfare in Liberia

Across the different categories of welfare, peace and stability scores the highest percentage of Liberians who feel satisfied (94.8%). In contrast Liberians feel the least satisfied with their financial situation, with only 34.8% reporting to be satisfied. More than half of the Liberian population feels satisfied with the education available to their household (65.0%).



13 SUBJECTIVE WELFARE

This section concentrates on the subjective welfare of Liberians. It is important to remember that this data is 'subjective' which means that all subsequent information is based on individuals' feelings and opinions. Therefore, the data is compiled on the subjective view of Liberians aged 15 and above on a number of issues such as their health, their financial situation, as well as broader questions on their opinion of the country's situation. All the information is directly collected from individuals present in the household during the interview.

The scale of options from which respondents could choose to match their subjective welfare include being very satisfied, satisfied, somewhat satisfied, neither satisfied, somewhat dissatisfied, dissatisfied or very dissatisfied. To reduce this to a single metric, those reporting to be somewhat satisfied, satisfied and very satisfied were classified as 'satisfied' and their proportion over all responses calculated.

The subjectivity of this data means that two individuals facing identical situations in terms of their health or financial situation may report different satisfaction levels depending on their own personal expectations and experiences.

Table 13.1: Proportion of people (15 and above) who are satisfied with:

	Liberia	Urban	Rural	Male	Female
Health Situation	77.6	81.9	72.6	79.0	76.4
Financial Situation	34.8	35.9	33.4	36.6	33.2
Housing Situation	62.4	65.4	58.8	63.4	61.5
Job Situation	37.8	34.2	42.0	42.8	33.3
Health care available	62.7	73.8	49.6	61.8	63.6
Education available	65.0	75.4	52.7	64.3	65.6
Protection against crime	69.4	63.8	76.0	70.5	68.5
The judicial system available	69.1	64.4	74.6	69.2	69.0
Peace and stability	94.8	94.2	95.5	94.6	95.0
Your life as a whole	62.2	65.7	58.1	63.3	61.3

Table 13.1 outlines the distribution of Liberians (aged 15 and above) and their satisfaction on a number of issues including their health, financial situation, housing etc. Overall, 77.6% of Liberians are satisfied with their health situation, while 62.7% are satisfied with the health care available to them. Only 34.8% of Liberians are satisfied with their financial situation.

Trends across urban and rural areas seem to be somewhat consistent across satisfaction expectations. However, it is noteworthy that in rural areas Liberians are less satisfied with the health care and education available to them as compared to Liberians in urban areas (49.6% versus 73.8% for health care and 52.7% versus 75.4% for education). On the other hand, Liberians in rural areas seem to be more satisfied with their jobs compared to urban residents (42% compared to 34.2%).

Table 13.2 outlines the percent distribution of Liberians (15 and above) and their satisfaction by to regions. Montserrado holds higher proportion of people who are satisfied with their health, their housing, the health care and education. However, in other categories such as satisfaction with their job (33.7%), protection against crime (61.7%) and the judicial system available to them (61.6%), Montserrado scores the lowest out of all the regions.

Table 13.2: Percent of people (by regions) who are satisfied with

	Montserrado	North Central	North Western	South Central	South Eastern A	South Eastern B
Health Situation	81.4	75.6	71.7	77.8	77.7	74.7
Financial situation	35.2	34.9	36.6	33.7	36.8	29.3
Housing Situation	66.5	65.1	59.9	55.2	57.1	53.1
Job Situation	33.7	41.1	43.6	38.2	38.9	34.8
Health care available	74.8	59.4	50.5	53.2	55.2	57.3
Education available	76.1	62.2	53.4	58.4	57.0	57.1
Protection against crime	61.7	75.0	71.1	70.3	74.6	73.9
The judicial system available	61.6	76.6	71.9	68.5	71.3	69.2
Peace and stability	93.7	95.3	96.7	94.6	96.5	94.3
Your life as a whole	66.9	63.3	56.3	58.4	58.1	53.7

APPENDIX A - METHODOLOGICAL APPENDIX

There are three elements required to perform poverty analysis:

a. A single dimensional, measureable welfare indicator that can be used to rank the population according to well-being.
b. An appropriate poverty line on the same scale as the above welfare measure that can be used to classify individuals as poor or non-poor.
c. A set of measures that aggregates and describes the combination of the welfare indicator and poverty line.

A1. Measure of Well-Being

The concept of poverty can refer to many various aspects of deprivation - food poverty, social exclusion, lack of access to basic public services, inability to access markets, etc. While each of these is an important component of a multidimensional problem, it is necessary for the purposes of comparability and analysis to simplify the concept of poverty to a single measureable dimension. In the context of sub-Saharan Africa, there is consensus among experts that, due to many factors, consumption-based measures are more representative than income measures in capturing utility and well-being. First there is a substantial contribution of home production to household consumption, particularly in rural areas. Also, households are better able to smooth consumption as opposed to income, which is important in places with seasonal shifts in the availability of employment. The volatility of the income indicator can therefore lead to large over- (or under-) estimations of welfare. Finally, despite well-known difficulties in some aspects of the collection of consumption data, it is generally considered more straightforward than income data. To estimate income those outside of the formal wage sector must often aggregate many small transactions or recall variable payments over long periods. In addition, there are difficulties in valuing in-kind payments or labour-sharing arrangements, separating entwined household and business expenses, and overcoming respondent reluctance to discuss income.

A1.1 Food Consumption

The 2016 HIES survey collected information on 106 food items in 11 categories: cereals and cereal products; starches (roots, tubers, bananas, plantains); sugar and sweets; pulses (dry); nuts, seeds, and oils; vegetables; fruits; meat, meat products, and fish; milk and dairy products; spices and other foods; and beverages (See the questionnaire for a complete list of food items). The questions were asked, for each of these items; how much was consumed in the past seven days? Of this, the consumption was divided into purchases, home production, and gifts, with the value also collected for purchases. This method of collection is like the one used for the 2014 HIES, but differs from that which was used in the expenditure questionnaire of the 2007 CWIQ survey, which asks, “During

how many months in the last 12 months did the household consume purchased […]?" and then the quantity and value for these purchases. There is a separate section for food items that were received as gifts, food aid, or home produced. The list of purchased food products contains 101 items and the gifts list contains 66 food items.

The 2016 HIES questionnaire just like in 2014 HIES, also allows for prices to be provided in either Liberian or US dollars because US dollars are commonly used in many areas of the country. For the purposes of analysis all purchases are converted into Liberia dollars using an exchange rate of 94.92 Liberian dollars per US dollar, which was the average exchange rate between January – December 2016, covering the data collection period.

In addition to the food purchases, the survey also includes an individual level module for purchases of prepared foods outside of the household. This information collects total purchases for six categories: full meals (breakfast, lunch or dinner); barbecued meat, chips, roast plantain, cassava, corn, bread, cake, tea, haitai, coffee, or other snacks; palm wine, club beer or other local or commercial alcoholic brews; soft drinks, juices and other non-alcoholic drinks excluding water; water; and sweets.

A1.2 Consumption Basket

The consumption basket includes all items that compose at least one percent of total spending on food for the 2nd through 7th deciles of the consumption distribution. The lowest decile and the highest deciles are dropped as these can bias the basket on what items are in the final basket. The consumption basket is selected as the most representative of poor households, with the most extreme lowest decile excluded. Several other iterations were done, including, food items listed as "other" are dropped because there are no specific calories, and only items with at least 1 percent share of the total are retained. The basket includes 23 items that together comprise 84.2 percent of total food consumption. This slightly less than the 28 items that comprised 87 percent of consumption in the 2007 CWIQ, but not majorly different from HIES 2014 which had 25 items that comprised 83 percent.

Table 0.1: Consumption Basket

Item	Share of food consumption	Share of consumption basket	Calories per 100g / 100ml
Imported Rice (including pusswa, butter	15.0	17.8	363
Food away-breakfast/lunch/dinner	14.1	16.7	345**
Local Rice	9.0	10.7	344
Palm oil	5.7	6.7	875
Smoked Fish (dried/salted)	5.6	6.6	234
Fresh Fish (cassava fish, cavalla fish etc.)	4.4	5.2	99
Food way-BBQ meat/chips/etc.)	3.5	4.1	384**
Frozen Chicken	2.7	3.3	265
Wild/Bush meat (Porcupine gazelle, palm	2.6	3.1	350*

Chicken Feet	2.5	2.9	287
Cassava roots	2.2	2.6	355
Bouillon cubes (maggi, jumbo, etc)	2.2	2.6	118
Food away-Water	1.9	2.2	4
Plantains	1.4	1.7	77
Fresh Pepper	1.4	1.7	48
Dry Pepper	1.4	1.7	347
Bitter balls/Kitilay	1.4	1.6	32
Onions	1.3	1.5	41
Food way-- non-alcoholic drinks alcoholic drinks excluding water	1.3	1.5	81**
Palm nuts	1.3	1.5	587
Food way- alcoholic brews	1.2	1.5	85**
Pig Feet	1.1	1.4	287
Argo Oils/ Vegetable Oils / Olive Oil	1.0	1.2	884
Total	**84.2**	**100.0**	

Note: Calories from FAO tables except: *estimated from similar meats, and **estimated from included items.

Non-Standard Units

Where conversions from non-standard to standard units were necessary, the quantities obtained from the community price questionnaire were used.

A1.3 Non-Food Consumption

Non-food consumption was divided into two categories: frequently purchased items and infrequent non-food items. The frequently purchased items included matches; public transportation; candles; car washing/parking fees; garbage collection; shoe shining; mosquito repellent devices; cell phone scratch cards; and petrol or diesel expenditures. Spending on cigarettes was also collected in this section but not included in the aggregates. Frequently purchased items were collected with a seven-day recall.

Infrequent consumption was collected with either 30-day or 12-month recall periods. The items collected with a 30 day recall period were expenditures on kerosene/paraffin; electricity; bottled gas/propane; shoe polish; wood and other solid fuels; batteries and other energy sources; pets and pet services; admission charges; newspapers and magazines; charcoal; milling fees; bar soap; laundry soap / powder soap; toothpaste / toothbrush; vehicle rental; personal services; toilet paper; personal oils and lotions; other beauty products; household cleaning products; disposable diapers; light bulbs; scratch cards for internet; motor vehicle service / repairs; oil change; tire repair; bicycle service; wages to domestic help; bleach; laundry services; photocopying and other printing services; and wheel barrow / push-push rental.

The items collected with a 12 month recall period were carpets and rugs; curtains and drapes; linens; mattresses; sports and hobby equipment; film and cameras; building items; cement; paint; bucket; travel expenses; insurance; fines or administrative fees; garments for men; garments for women; garments for children and babies; tailoring costs; footwear for men; footwear for women; footwear for children and babies; accessories; other clothing articles; repairs to household durables; moving and shipping expenses; taxes; games and toys; financial and wire transfer fees; farm implements; and other costs not stated elsewhere.

There were several additional items that were collected in the infrequent non-food consumption sections, but excluded from the consumption aggregates as not being regular expenditures. These items include donations to charities, religious organizations, or beggars; games of chance; losses to theft; bride price / marriage costs; funeral costs; and jewellery purchases. Farm implements were excluded since they are counted as productive assets rather than consumption, and notebooks and drawing materials are excluded to avoid double counting with the education expenditure section.

The method for calculating the value of the non-food expenditure listed above was straightforward. All items were included and normalized to a common reference period (one year). The quantities of these items were not collected since many categories are heterogeneous, so only the total value was used in the calculation.

Housing Costs

In addition to the items above, a few additional categories of non-food consumption warrant special mention. Housing costs were included in the aggregate, even though the value is frequently missing from the survey as the household owns their home or receives free housing. In the 2016 HIES, only a small percent of households, 27.3 percent national rented their dwelling (46.3 percent of urban households and 6.9 percent of rural households).

To obtain measures for all households, a model which imputed the log rent from the log number of main rooms, log number of other rooms, region, urban/rural status, whether the dwelling had electricity, whether the household had an indoor water source, the material from which the walls were constructed, the material of the floor, the type of toilet facilities, and the whether the dwelling was owner occupied, employer subsidized, or free.

Two different model specifications were considered to impute rental values: a log-transformed linear model using all available variables, and a parsimonious linear model in which the eligible variables were selected using a stepwise selection method. The values predicted by the linear model were the most highly correlated with the actual values (approximately 80 percent correlation), so this model was selected and used to substitute for the missing values.

Education

The inclusion of household spending on education can be a controversial measure when constructing the consumption aggregate. It is possible to interpret education as an investment, since the benefits are distributed throughout the life of the student even though spending is concentrated. Therefore, current students may appear to be better off due to education spending, but this would actually be a life-cycle effect rather than a true difference in welfare.

One method to address this would be to smooth the spending on education across the life cycle, but this is not feasible in a cross sectional survey. It is also necessary to consider the supply of public education. If the entire population can access affordable public education, the decision to spend additional resources on private school would be based on quality considerations, strengthening the case for inclusion.

Exclusion would also not allow the distinction between households that have one school age child enrolled in school and households that have multiple school age children, only one of which is enrolled. As the primary goal of a consumption aggregate is to order households based on well-being, this analysis follows standard practice and includes education spending in the aggregate. Included education expenses are school fees, books and notebooks, uniforms, transport provided by the school, extra tuition, other materials, extra-curricular activities (sports, fees, school trips, etc.), and other contributions (including PTA expenses).

Health Care

Spending on health care can also be seen as an investment, particularly in the case of preventative care. In addition, there are other factors that may distort comparisons, such as uneven access to free or heavily subsidized health care services, or health insurance, though insurance coverage rates are generally low in Liberia.

Similar to education expenditures, it was decided to include most health care expenses as their exclusion would make it impossible to distinguish between a household that sought care and one that did not when a member fell ill. An exception to this, however, is in the case of hospitalization. Since hospitalization is a rare event, the cost of which is rarely borne completely by the household with donations frequently coming from family members and the larger community, this expense is excluded from the aggregate.

Expenses included with related to health are prescription medicines; tests; consultations; in-patient fees; pre-natal visits; vaccinations; treatments such as bandages, injections, etc.; non-prescription medicines; and traditional or faith healers.

Use Value of Durable Goods

The ownership of durable good is also an important component of the welfare of households. These goods are purchased at a singular point in time, but the household receives benefits from them over the course of their ownership. The utility from these items cannot be measured, but is represented in the aggregate by the use value, a measure proportional to the current value of the good.

The use value is calculated as the purchase price average multiplied by the interest rate minus average inflation rate plus the rate of the item's depreciation.[25] The interest rate minus the inflation rate is the change in the real value of money. (The interest rate is the rate at which money is increasing in value while inflation is the rate at which money is losing value.) Use value can be written as:

$$UV^d = p_{0d}(r_t - i_t + v_d)$$

where p_{0d} is the price of durable item d at the time of purchase ($t = 0$); r_t is the average interest rate; i_t is the inflation rate; and v_d the depreciation rate of item d.

Depreciation is the changing value of the asset based on the passage of time, and can be either positive or negative. (For example, a new car will lose its value as time passes while an antique car will increase in value.) Depreciation for item d is the median value of the following expression:

$$v_d = 1 - \left(\frac{p_{td}}{p_{0d}}\right)^{\frac{1}{y_d}} + i_t$$

where p_{td} is the current value of the item and y_d is the age of the item in years.

The total use value derived by household h for all items owned D_{td} can therefore written as:

$$TV^h = \sum_{d=1}^{D} D_{td}^h p_{0d}(r_t - i_t + v_d)$$

The following goods were included in the asset index: radio, radio cassette, CD player; mobile telephone; refrigerator or freezer; sewing machine; video / DVD / television; chairs (local or imported); sofa / armchairs (local or imported); tables (local or imported); beds; kerosene lamp; personal computer / printer / scanner / photocopier; pressing iron; stove or cooker; water-heater; calculator; motorcars, vans; motorcycle; bicycle; electric fan; air conditioner; and satellite dish / antenna / DSTV / Satcom; generator. Trucks and

[25] The interest rate is estimated to have been 2.01 percent on average between January and December 2016, and inflation during this period was estimated to be 8.8 percent.

minibuses were also included in this section but excluded as they are productive assets. All listed assets are owned by at least one household in the sample.

Transfers

Transfers outside the household are also excluded from the consumption aggregate to avoid double counting, as it is assumed these goods would be counted as consumption in the recipient household.

Price Adjustment

In order to compare welfare across different areas of the country, the total consumption aggregate must be adjusted for differences in the cost-of-living. Spatial deflators were calculated by constructing a Fisher price index for a bundle of goods in 15 counties. Gbarpolu has been combined with Lofa because of the small number of observations.

A Fisher price index is the geometric average of the Laspeyres and Paasche indices. The component Laspeyres and Paasche indices were developed for given national bundle of goods defined as the average food consumption bundle for the second through seventh deciles of the population, excluding those items with less than a one percent share. The formulas for the price indices are below:

Fisher price index	Laspeyres price index	Paasche price index
$F_i = \sqrt{L_i P_i}$	$L_i = \sum_{k=1}^{n} w_{0k} \left(\frac{p_{ik}}{p_{0k}}\right)$	$P_i = \frac{1}{\frac{1}{w_{0k}} \sum \frac{p_{0k}}{p_{ik}}}$

where w_{0k} is the national budget share of item *k*, p_{ik} is the mean price of item *k* in region *i*, and p_{0k} is the national mean price of item *k*. The national price was constructed by using a population-weighted share of the food item price for each of the 14 counties.

Non-food items were treated as a single item and received the same monthly deflators calculated for food consumption in each county. This is because unit prices of non-food items are extremely difficult to get due to the heterogeneity of the item and unit type. For example, while Kerosene and water have various unit types and can be represented in both standard and non-standard units, clothing type on the other hand has no specific unit type.

A2. Poverty Definitions and Poverty Line

The poverty line is defined as the monetary cost to a given person, at a given place or time, corresponding to a reference level of welfare (Ravallion, 1998). The actual process of defining this poverty line can be complicated, however, by determining the minimum level of welfare as well as costing that bundle of goods and services.

For the purposes of this analysis, two poverty lines are defined: The food poverty line, defined as the line below which individuals cannot meet their basic food needs. The overall or absolute poverty line is defined as the line below which individuals cannot meet their food and non-food minimum needs. Three types of poverty estimations are derived from these two poverty lines, namely: absolute poverty, food poverty and extreme poverty. *Absolute poverty* is defined as a situation where individuals cannot meet their food and non-food minimum needs, so their full consumption is assessed against a benchmark for those needs established through an overall or absolute poverty line. *Food poverty* is defined as a situation whereby individuals cannot meet their basic food needs, so their food consumption is assessed against a minimum benchmark for food requirements of 2400 kilo-calories established through a food poverty line. *Extreme poverty* in this report is defined as a situation where even the individuals' full consumption can still not meet their food needs established also through a food poverty line. This analysis is mainly concerned with absolute poverty.

A2.2 Food Poverty Line

In order to define the food poverty line, it is necessary to determine the nutritional requirements to be a healthy and active participant in society. The minimum calorie requirements range commonly from 2100 to 3000 calories per day, depending on the climate and general level of activity. The minimum calorie requirements are determined to be 2400 per day in Liberia, which is consistent with the regional average and was the values used in the 2007 CWIQ analysis. As specific data for Liberia were not available in terms of the caloric conversion factors for the various food items, conversions are generated using general factors from the Food & Agricultural Organization (FAO). Sensitivity checks were then done for various calories.

A2.3 Non-Food Component

There are a number of different proposed methods for calculating the non-food component of the poverty line, including regression analysis, an Engel's curve, and the upper and lower poverty lines (Ravallion, 1998). Sensitivity analysis was performed comparing the above methods, but in the 2007 CWIQ survey an Engel's curve methodology was used and therefore this was the method used for the 2016 HIES calculations as well.

The Engel's method takes as the reference population of those who have consumption within ten percent above or below the food poverty line. For that population, the ratio of food consumption to total consumption is estimated. This percent is then multiplied to the average value of food consumption for the reference population and this amount is added to the food poverty line to generate the absolute poverty line.

The resulting food poverty line is 37,151.95 LD per year and the overall poverty line is 65,383.58 LD per adult equivalent per year.

	Poverty line (per aq.) per year (LD)
Food poverty line	37,151.95
Overall poverty line	65,383.58

A2.4 Adult Equivalence Measures

For the purposes of comparison, aggregate household consumption measures are often divided by a measure of household size. For the purposes of the poverty statistics presented in this report, per adult equivalent measures are used, instead of a per-capita measure to take into account differences in household composition. Therefore, even households with the same number of members can have different adult equivalent values.

Age Category	Male	Female
Below 1 year	0.27	0.27
1 - 3	0.45	0.45
4 - 6	0.61	0.61
7 - 9	0.73	0.73
10 - 12	0.86	0.73
13 - 15	0.96	0.83
16 - 19	1.02	0.77
20 - 50	1.00	0.77
51 +	0.86	0.79

The table at the right summarizes the adult equivalent measures used for infants, children, adults, and the elderly, with separate measures by gender. These measures are based the standard FAO adult equivalent scales developed in Guinea in 2004, and are therefore considered more relevant to the West African context. The same conversion factors were used in the 2014 HIES and 2007 Core Welfare Indicator Calculations.

A3. Poverty Measures

Following the calculation of the consumption aggregate and the poverty line, it is necessary to have a system of analysis to examine the relationship of these variables. Though a number of different options exist in the literature, this analysis will focus on those proposed by Foster, Greer, and Thorbecke (1984). This family of measurement can be represented by the following equation:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{n}\left(\frac{z - y_i}{z}\right)^\alpha$$

Where α is some non-negative parameter, most commonly 0, 1, or 2, *z* is the poverty line, y_i is the consumption for individual *i*, n is the total population below the poverty line, and *N* is the total population.

The headcount index (α=0) gives the share of the poor in the total population and is probably the most familiar of the three measures. It does have some limitations in that it does not account from the degree to which an individual is below the poverty line.

In addition to the poverty measure discussed above, inequality measures are used to study changes in the composition of the consumption distribution. The Gini coefficient (Gini, 1921) measures the inequality across the frequency distribution of household consumption. A Gini coefficient of zero indicates perfect equality, while a Gini coefficient of one indicates that all consumption within the distribution is by a single household. Therefore, higher Gini coefficients indicate more unequal distributions.

One limitation of the Gini coefficient is that it cannot be decomposed to study the components of inequality. Therefore, in addition to the Gini, the general entropy Theil L measure is used following Mookherjee and Shorrocks (1982). The general formula for the GE(1) model is:

$$I_1 = \frac{1}{n}\sum_i \frac{y_i}{\mu}\log\frac{y_i}{\mu}$$

Where *n* is the total number of households, μ is the mean household consumption, and $y_i$is the consumption of household *i.* This can be decomposed into:

$$I_1 = \sum_k v_k\,\lambda_k I_1^k + \sum_k \mu_k \log\lambda_k$$

Where $v_k = \frac{n_k}{n}$ is the proportion of the population in subgroup *k* and $\lambda_k = \frac{\mu_k}{\mu}$ is the mean consumption of group k relative to the population. The first term of the equation represents the within-group inequality and the second term the between group.

A4. Comparability with 2014 HIES and 2007 CWIQ

The previous poverty numbers for Liberia were generated by the 2014 HIES and 2007 Core Welfare Indicator Questionnaire. While this analysis to the extent possible tries to replicate that methodology, there are a number of important differences and therefore the poverty levels cannot be compared. See LISGIS 2014 HIES Statistical Abstract for a full description of the 2014 methodology and Wodon (2012) for a full description of the 2007 methodology. Differences between 2016, 2014, and 2007 include:

1. The 2016 HIES covered 12 months of data collection, while 2014 HIES and 2007 CWIQ covered shorter duration. 2016 HIES therefore covered all seasons and captures the true consumption patterns in Liberia compared to the other two previous surveys.

2. Regular consumption vs. Recall. In the 2007 CWIQ survey the questions asked about the average number of months per year and average consumption, while

the 2016 HIES and 2014 HIES survey asked specifically about recall periods (either 7 days, 30 days, or 12 months).

3. The 2016 HIES and 2014 HIES includes Food Consumed Away from Home, which was not included in the 2007 CWIQ.

4. The 2007 CWIQ had separate poverty lines for urban and rural areas. The 2016 HIES and 2014 HIES uses Fisher Price Deflators for county differences and produces only one poverty line.

5. The 2007 CWIQ used the 2nd through the 9th deciles of the consumption distribution used for the poverty line calculations while the 2016 HIES and 2014 HIES uses the 2nd through the 7th.

6. The consumption basket in the 2007 CWIQ included spending on the 28 food products most often consumed which represented just over 87 percent of total household spending on food in the country. The 2014 HIES uses all items which have more than one percent of total spending on food, leading to a basket of 25 items representing about 83 percent of consumption. Among these 25 items are four categories of food consumed outside the household (meals, snacks, alcoholic beverages, and non-alcoholic beverages). The 2016 HIES uses all items which comprise at least one percent of total spending on food, leading to a basket of 23 items that together comprise 84.2 percent of total food consumption.

7. In both the 2007 CWIQ, 2014 HIES and 2016 HIES, the average number of calories per adult equivalent were higher than expected. In 2007 CWIQ, the amounts actually consumed for all products in the survey are adjusted in order to yield exactly a total of 2,400 Kcal per equivalent adult per day. Then the total cost of purchasing the resulting food basket was estimated using the survey prices observed in the community questionnaire of the survey.

APPENDIX B - QUESTIONNAIRES

HIES Questionnaires

The field work for the HIES was designed to be implemented throughout a twelve-month period in order to reflect seasonality in expenditures and income. The household questionnaire has twenty-one thematic sections, described in Table 0.1; while the agriculture recall questionnaire has fourteen thematic sections as described in Table 0.2.

Household Questionnaire

Table 0.2: Household Questionnaire Structure

Section	Name	Level of Observation	Description
A-1	Household Identification	Household	Cover page, identification information on location of the household
A-2	Survey Staff Details	Household	Details on survey staff including who implemented the questionnaire and supervised the work, and completed data entry, date and time of interview, and observation notes by enumerator regarding the interview
B	Household Member Roster	Individual	Socio-demographic characteristics of household members (gender, age, relationship with household head, etc.)
C	Education	Individual	Highest education level achieved for those no longer attending school, and the enrolment status and education level of those still attending school, and education expenditures
D	Health	Individual	Recent use of health services, use of mosquito nets, reproductive health for women 12 to 49 years of age, incidence of diarrhoea for children under 5 years of age, and health expenditures
E	Labour	Individual	Employment status, economic activity, occupation, and earnings
F	Food Consumption Outside the Household	Individual	Expenditures on meals, snacks and drinks consumed outside of the household
G	Subjective Welfare	Individual	Respondents' opinions of their welfare situation, for those respondents 15 years and above
H	Family/Household Non-Farm Enterprises	Household	Non-agricultural income generating enterprises which produce goods or services operated by the household
I	Food Security	Household	Assesses the household's ability to provide sufficient food for its members during the past seven days, and what was done to alleviate any problems
J	Housing, Water & Sanitation	Household	Information about the dwelling and its access to water, electricity, fuel and expenditures on services

K	Food Consumption	Household	Household's consumption of food within the household during the last seven days and the amount spent on the food that was consumed
L1	Non-Food Expenditures (past 7 days, past 30 days)	Household	Non-food items that are purchased on a regular basis and the expenditures on those items
L2	Non-Food Expenditures (past 12 months)	Household	Non-food items that are purchased infrequently and the expenditures on those items
M	Household Assets	Household	Assets owned by the household and their values
N	Assistance, Groups and Other Sources of Income	Household	Assistance in the form of cash or in-kind that has been received in the past 12 months
O	Credit	Household	Funds borrowed from someone outside of the household or from an institution in the form of cash goods or services
P	Cash and Gift Transfers	Household	Cash or goods received from other households and cash or goods sent to other households (nationally and internationally)
Q	Recent Shocks to Household Welfare	Household	Shocks that may have been felt by the household and how that shock affected income and/or assets
R	Agric. Crop Production	Household	Production of agricultural crops during the last twelve months
T	Household Re-contact Information	Household	GPS location of the dwelling and how to re-contact the household in the future if needed

Agriculture Recall Questionnaire

Table 0.3: Agriculture Recall Questionnaire Structure

Section	Name	Level of Observation	Description
1	Household Identification	Household	Cover page, identification information on location of the household
1.a	Instructions	Household	Details on survey staff including who implemented the questionnaire and supervised the work, and completed data entry, date and time of interview, and observation notes by enumerator regarding the interview
2	Household Member Roster	Individual	Socio-demographic characteristics of household members (gender, age, relationship with household head, etc.)
3	Farm Roster	Household	List of all farmland cultivated by any member of the household during the last completed farming season
4	Farm Details	Household	Ownership/ management status of the farm and all other relevant details of the farm
5A	Kuu/Hired Labour on Farm	Household	Information on household's use of kuu or hired labour for land clearing (brushing, burning, etc.) for any of your household's farms in the last completed farming season
5B	Household Labour on Farm	Household	Farm management (weeding, fertilizing, fencing, other activities)

6	Annual Crops by Farm	Household	Considers the list all farms from section 4 which have annual crops in this section and does not include cassava or permanent / tree crops in this section
7	Cassava by Farm	Household	List of only farms with cassava planted on them in this section.
8	Tree/Permanent Crops by Farm	Household	List of all farms with tree/permanent crops on them in this section
9	Crops-Sales/Storage	Household	Provides details on the total sales and storage
10A	Livestock	Household	Ownership of livestock by the household
10B	Livestock Products	Household	Production of livestock products by the household (Eggs, meat, honey, etc.)
11	Farm Implements and Machinery	Household	Provides details of farm implements used or owned by the household in the last 12 months
12	Effects of Ebola Crisis	Household	Available information of the EVD on farming activities of the household

APPENDIX C - AGRICULTURE

Table 0.4: Number of farming households engaged in fruits production by county (Top 4 fruits only)

County	Total number of farming households	Banana	Papaw/Papaya	Pineapple	Plantain
Bomi	12 498	640	294	626	891
Bong	53 885	3 583	1 735	3 147	6 790
Grand Bassa	22 294	2 225	28	1 826	4 013
Grand Cape Mount	23 444	1 043	113	1 704	1 686
Grand Gedeh	8 956	1 406	358	914	2 400
Grand Kru	7 725	834	19	470	1 985
Lofa	38 883	6 960	696	2 364	8 632
Margibi	15 668	931	307	436	2 068
Maryland	5 677	800	102	255	1 476
Montserrado	17 061	4 555	5 135	3 020	7 336
Nimba	74 658	9 183	580	4 763	18 888
River Cess	8 491	951	110	701	3 014
Sinoe	9 874	2 044	82	879	3 347
River Gee	5 741	752	21	268	1 326
Gbarpolu	7 459	783	80	1 014	1 872
Total	**312 314**	**36 691**	**9 659**	**22 387**	**65 726**

Table 0.5: Number of farming households engaged in vegetable production by county (Top 6 vegetables only)

County	Total number of farming households	Bitterballs	Cucumber	Egg Plant	Okra	Pepper	Pumpkins
Bomi	12 498	4 837	1 837	2 050	3 324	4 787	1 675
Bong	53 885	14 926	7 436	1 579	11 962	21 716	5 927
Grand Bassa	22 294	8 561	2 408	1 175	4 637	8 762	1 208
Grand Cape Mount	23 444	12 027	3 728	8 041	7 197	11 792	2 173
Grand Gedeh	8 956	3 851	419	1 729	2 902	4 684	1 102
Grand Kru	7 725	3 693	1 344	2 480	3 554	4 341	2 202
Lofa	38 883	20 841	9 876	2 737	12 754	25 118	4 394
Margibi	15 668	5 123	616	1 261	4 371	5 546	1 896
Maryland	5 677	2 316	367	1 760	1 720	2 384	835
Montserrado	17 061	7 268	961	942	2 952	4 999	1 535
Nimba	74 658	26 653	8 436	3 882	23 592	31 282	7 615
River Cess	8 491	4 500	1 138	717	3 167	4 619	951
Sinoe	9 874	3 594	1 679	2 202	3 476	4 542	2 083
River Gee	5 741	3 370	660	2 124	2 113	3 255	1 424
Gbarpolu	7 459	4 050	1 417	955	1 604	4 572	977
Total	**312 314**	**125 611**	**42 321**	**33 634**	**89 324**	**142 400**	**35 997**

Table 0.6: Number of farming households engaged in cash crops production by county

County	Total number of farming households	Cocoa	Coffee	Oil Palm	Rubber	Sugar Cane
Bomi	12 498	137	-	307	1 187	204
Bong	53 885	1 304	-	164	8 083	5 265
Grand Bassa	22 294	829	-	-	2 631	3 567
Grand Cape Mount	23 444	237	86	1 620	1 744	326
Grand Gedeh	8 956	1 281	39	76	134	18
Grand Kru	7 725	96	-	18	462	125
Lofa	38 883	10 421	10 965	1 485	278	1 170
Margibi	15 668	-	-	-	1 141	1 598
Maryland	5 677	-	-	36	642	999
Montserrado	17 061	363	-	998	-	2 423
Nimba	74 658	17 097	3 151	7 690	21 875	8 660
River Cess	8 491	276	-	132	709	194
Sinoe	9 874	-	-	115	101	227
River Gee	5 741	855	-	41	185	175
Gbarpolu	7 459	454	-	38	449	174
Total	**312 314**	**33 350**	**14 240**	**12 719**	**39 620**	**25 125**

APPENDIX D – PERSONS INVOLVED IN THE HIES 2016

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Germue Gbawoquiya	Research Officer
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Thomas David	GIS Expert
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Kay Joe	Questionnaire Tracker
George Mahn	Questionnaire Tracker
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Guido Pieraccini, **Consultant / CSPro Specialist**
Sayan Kundu, **Consultant/ Data cleaning**
Clare Winton, **Communication Specialist**
Ka-Rufus Morris, **Local Consultant/Procurement Specialist 1**
Billy Tahirou, **Local Consultant/Procurement Specialist 2**
Nana Aseidu, **Local Consultant/Procurement Specialist 3**
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6	James K. Kpadeh
7	John C. Katakpah
8	Josiah N. Vourjolo
9	Mohammed Beavogi
10	Moses H. Doebo
11	Prince M. Kilbah
12	Samoe G. Gbahn
13	Samuel S. Johnson
14	Wilkins H. Tyler

First Data Entry Clerks	
No.	**Name**
1	Andrew Kpadeh
2	Audrey Dunbar
3	Benjamin Everett
4	Boakai Sandimanie
5	Catherine Snorweah
6	Euodia T. Gbatoe

7	John M. White
8	Joseph T. Ballah
9	Josiah W. Mulbah
10	Prince M. Waylee
11	S. Yarlor Saywon, Jr.
12	Sandy V. Roberts
13	Simeon S. Willie
14	Sulaimon F. Cephas

7	Fatu O.P. Toh
8	Foday Samuel Johns
9	Getrude Weah
10	Jedweh Sanyeneh
11	Morris Mulbah
12	Paxton D. Miamen
13	Salome Dangan
14	Sielay A. Dorleh

Enumerators

No.	Name
1	Abraham G. Zeigeay
2	Adolpher B. Wallace
3	Albert A. K. Ashong, III
4	Alester N. Tukpei
5	Alfred K. Barsah
6	Aminata Sidibey
7	Bertha D. Roberts
8	Bobby P. Wozee
9	Bobby T. Roberts
10	Calvin P. Kun
11	Comfort Lewis
12	Daniel M. Fatorma
13	Dix-C-N. Reeves
14	Edwin Paasewe
15	Elijah S. Wreh, Jr.
16	Emmanuel L. Tyler
17	Euphemia Bahway
18	Fayiah S. Tamba
19	Francis G. Piah
20	Frederic Foboi
21	Gabriel Wreh
22	George N. Williams Jr.
23	H. Lawrence M. Darkollie
24	Hawa Sandimanie
25	Henryton G. Brewer
26	J. Eisenhower Mentee
27	J. Emmanuel Tokao
28	Jack I. Zinnah
29	Jartu Adams
30	Joe F. Molubah
31	John K. Borzie
32	Joseph N. Kabay
33	Joseph S. Piah
34	Kerper Kei
35	Larry T. Smith
36	Mabutu M. Dulleh

37	Martin M. Gray
38	Mercy Jacobs
39	Morris F. Manobah
40	Morris R. Dennis
41	Othello G. Duo
42	Patrick J. Foday
43	Philip N. Neoh
44	Robert Gibson
45	Rose M. Ezike
46	S. Omasco Sren
47	Samuel G. Darming
48	Solomon D. Dioh
49	Sonny T.A. Fumbah
50	T. Yvette Sayon
51	Teah Blamo
52	Thomas C. Williams
53	Tonia C. Kparteh
54	Varney G. Kawah
55	Velma V. Holt
56	Wright V. Sola

Office Data Entry Clerks

No.	Name
1	Adolphus Nyan
2	Aquavee Johnson
3	Cyprian Sarplah
4	Florence Somwarbi
5	Francois David
6	Isata Tuider
7	Leona Waiki
8	Maidea Tarr
9	Mardia Massaquoi
10	Meko Johnny
11	Saylay Barnes
12	Tutu Kamara

APPENDIX E – REFERENCES

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