HEALTH IN LIBERIA:
BASIC DIAGNOSTIC USING THE 2007 CWIQ SURVEY

As for education, little has been written on the health system in Liberia since the start of the conflict in large part because of lack of good data. This paper provides a diagnostic of Liberia's health system as seen from the point of view of households using the new nationally representative Core Welfare Questionnaire Indicator survey implemented in 2007. The analysis covers rates of illness and injuries in the population, as well as the reasons for not seeking care, and the degree of satisfaction of households with the services received when they do seek care, in each case looking at various age groups and women and men separately, as well as at different types of facilities providing care. Data are also presented on household private spending for health, as well as on distances to facilities. A benefit incidence analysis of public spending for health is conducted, and regression analysis is used to assess the determinants of the demand for care.

1.   Introduction

Improving the access to, quality of, and affordability of health care is a key priority in a post-conflict and poor country such as Liberia. According to a recent presentation by Liberia's Ministry of Health and Social Welfare (2007), the conflict has led to the destruction or poor maintenance of a number of health facilities. Out of 521 facilities, only 389 are functional, and among these, 300 are currently being supported by NGOs, some of which may reduce their support in a year or two (see for example Médecins sans Frontières, 2007). Many health facilities, even when they are operational, lack potable water supply, lighting, equipment, refrigeration, and emergency facilities. Public spending for health is very low, at $3.4 per person per year. The country currently has a total of 4,000 health workers, as compared to 13,000 recommended by the World Health Organization. There is a lack of capacity at the central and county levels to implement health policies and programs. Health indicators used for monitoring the Millennium development Goals such as infant and child malnutrition, infant and child mortality, and maternal mortality are low (see UNDP, 2006, and Humphreys and Richards, 2005, for a broader discussion related to the Millennium Development Goals in Liberia).

The delivery of basic services is one of four key areas of emphasis in the country's Interim Poverty Reduction Strategy (Republic of Liberia, 2006) adopted in 2006. A national health plan has been approved for the period 2007-2011, focusing in part on expanding the ability of providing a basic package of health care for at least 70 percent of the population by 2009. Immunization campaigns are implemented to boost vaccination rates for children. Renovations are being implemented to improve the quality of public hospitals.

In order to monitor progress in the delivery of health services, it is important to have good data, among others for establishing a baseline. Although the recent completion of a Demographic and Health Survey has helped to fill many gaps, today there is still a lack of good information on many aspects of the health system and health outcomes in Liberia in part because of the limited data available. In order to help inform the preparation of Liberia's full Poverty Reduction Strategy, the objective of this paper is to provide a basic diagnostic of health services as seen from the point of view of users. The diagnostic is based on the newly available nationally representative CWIQ (Core Welfare Questionnaire Indicator) survey that was implemented in 2007 by the Liberia Institute of Statistics. The survey includes detailed data on the incidence of illnesses and sickness, the use of various types of health care facilities by households, as well as the reasons for not seeking care when sick and the degree of satisfaction of households with the services received. Data are also available on private spending for health, as well as on distances to health facilities.

The paper is structured as follows. Section 2 provides descriptive statistics on morbidity (incidence of illnesses and sickness), the likelihood for household to seek care and the types of facilities used, as well as the reasons for not seeking care and satisfaction with health services. Section 3 is devoted to a benefit incidence analysis of public spending for health, with a comparison with private spending. Section 4 discusses the determinants of the demand for care. A brief conclusion follows.

## 2. Patterns of Morbidity, Likelihood of Seeking Care and Reason for not Seeking Care

2.1. Patterns of Morbidity and Likelihood of Seeking Care

Table 1 and Figure 1 provide measures of the share of the population that has been sick or injured during the last four weeks preceding the survey. The rates of morbidity are very high, with slightly more than half of the population reporting an incident. At the national level, 42.9 percent of the population declares having suffered from an illness, with the proportions being higher for women than for men, and higher in rural than in urban areas. Morbidity rates are apparently lower among poorer households identified here according to five quintiles of consumption per equivalent adult (for an analysis of poverty in Liberia based on the 2007 CWIQ survey, see Backiny-Yetna et al., 2008). The first quintile "Q1" represents thus the poorest 20 percent of the population, and the top quintile "Q5" the richest 20 percent. However, it is well known in the health literature that the poor tend to underreport episodes of sickness.

The main illness cited is fever/malaria, which accounts for more than 60 percent of the episodes of illness. Next is pain in a person's back, limbs, or joints, accounting for 15.8 percent of episodes. Diarrhea and abdominal pain accounts for 13.5 percent of episodes, followed by cough and breathing difficulties, for 9.8 percent of episodes. Other symptoms each account for less than five percent of episodes (except for the "other" category, which accounts for 9.2 percent of all episodes. There are relatively few differences by gender, location, or quintile in the types of illnesses that people suffer from.

The data by age group reveals as expected that infants and young children (below five years of age) and the elderly (above 60 years of age) are the most likely to be sick, followed by other children (between five and fifteen years of age) and then the adult population aged 15 to 59. This is clearly visible in Figure 1 which plots the incidence of illnesses by age group and sex. In terms of types of illnesses, children of all ages are the most likely to be affected by malaria, while pain in the back, limbs or joints is much more frequent for the adult and elderly population.

Figure 1: Share of population sick or injured in last four weeks
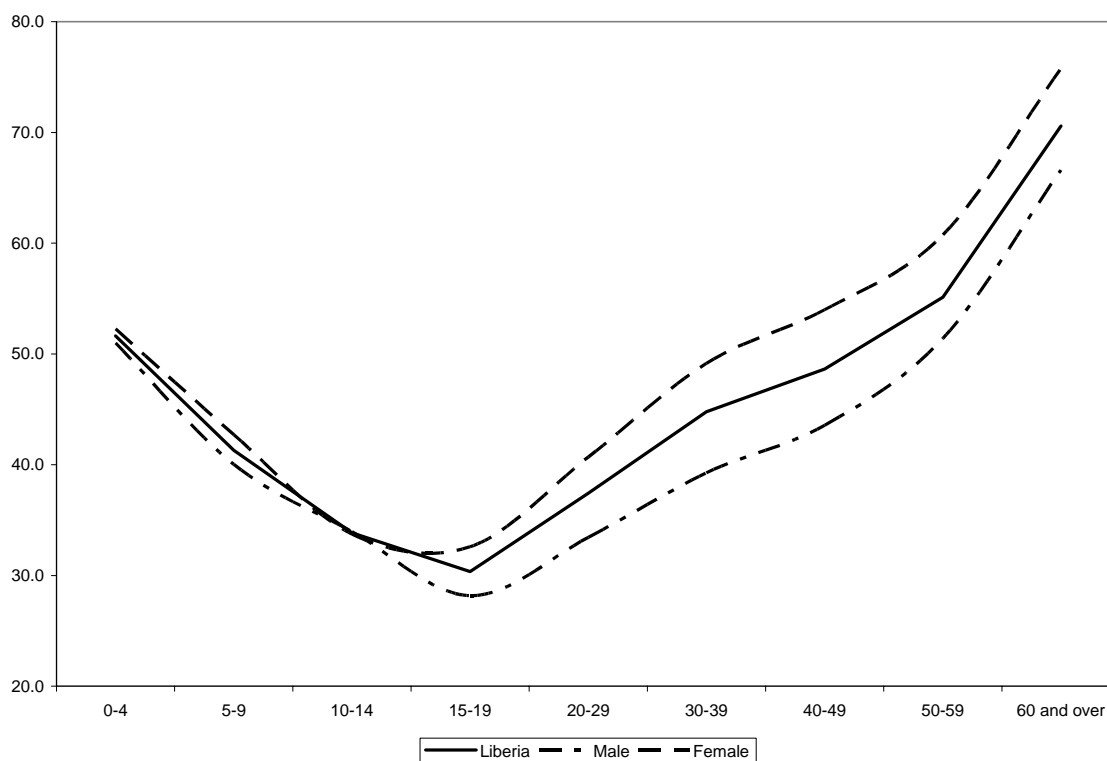
Source: Authors' estimates based on 2007 CWIQ survey.

Figure 2: Share of sick/injured persons who have requested care
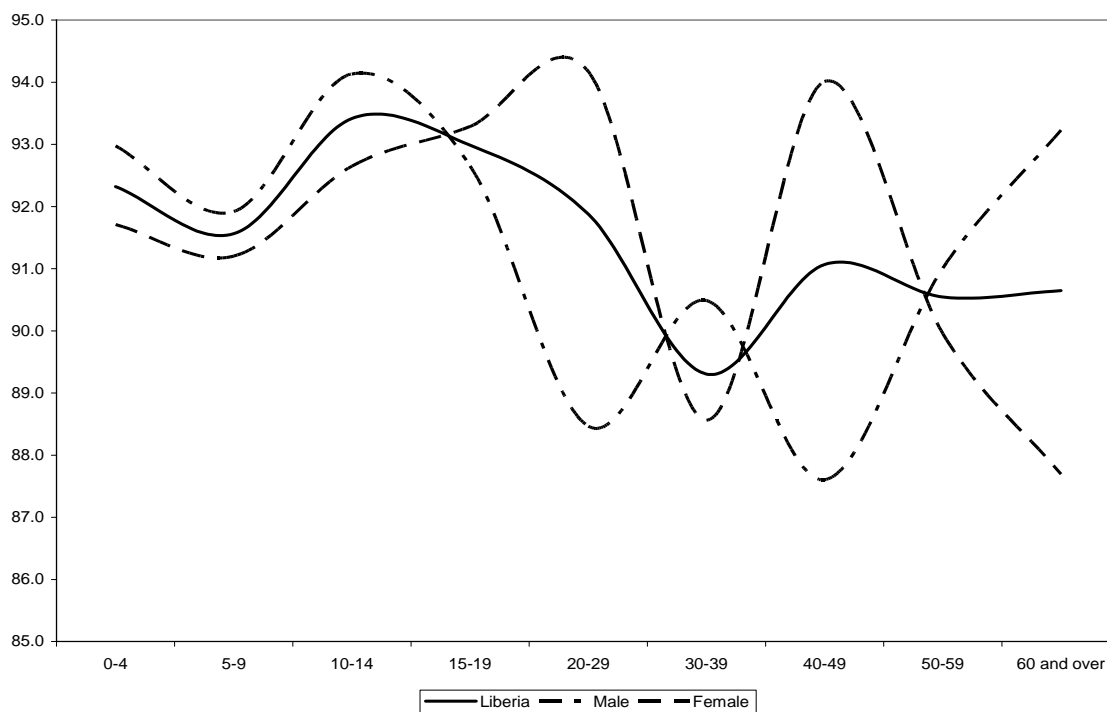
Source: Authors' estimates based on 2007 CWIQ survey.

Table 1: Patterns of Morbidity During the Last 4 Weeks, Liberia 2007

	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
	Total population									
% of population that has been sick or injured	40.5	45.3	36.2	45.9	39.6	42.0	45.0	42.2	45.7	42.9
Type of sickness/injury										
Fever/malaria	60.3	62.4	64.7	60.3	62.4	55.1	62.5	65.2	62.0	61.4
Diarrhea/abdominal pains	12.9	14.0	11.0	14.3	13.1	15.9	13.8	11.2	13.2	13.5
Pain in back, limbs or joints	15.4	16.3	12.7	17.0	16.8	19.1	15.0	15.9	12.8	15.8
Cough/breathing difficulties	9.5	10.1	9.0	10.1	11.2	8.9	9.7	10.1	9.3	9.8
Skin problems	4.2	3.9	3.3	4.3	4.2	4.4	3.3	4.5	3.8	4.0
Ear, nose or throat	1.4	1.6	1.2	1.6	1.7	1.3	1.7	0.5	2.2	1.5
Eye	2.3	2.5	2.4	2.4	2.6	2.8	2.8	1.9	1.7	2.4
Dental	1.0	1.2	1.5	1.0	1.1	1.2	1.3	0.7	1.3	1.1
Accident	2.1	0.5	0.9	1.4	0.7	1.3	1.5	2.2	0.6	1.3
Other	9.3	9.0	12.2	8.1	6.6	9.3	8.7	10.1	11.0	9.2

Source: Authors' estimates based on 2007 CWIQ survey.

Table 1 (continued): Patterns of Morbidity During the Last 4 Weeks by Age Group, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Aged 0-4										
% of population that has been sick or injured	51.0	52.3	50.2	52.1	47.8	44.9	55.5	53.8	55.7	51.6
Type of sickness/injury										
Fever/malaria	71.3	76.8	72.3	74.7	70.4	77.6	79.2	74.0	70.2	74.2
Diarrhea/abdominal pains	12.2	11.9	11.5	12.3	7.3	11.4	10.0	11.5	18.3	12.1
Pain in back, limbs or joints	1.5	3.8	2.2	2.8	1.8	5.6	1.4	3.8	1.3	2.7
Cough/breathing difficulties	15.1	15.1	15.4	15.0	14.8	12.5	16.7	16.0	15.0	15.1
Skin problems	4.3	4.9	4.5	4.6	6.3	5.8	2.6	4.7	4.2	4.6
Ear, nose or throat	1.0	1.2	0.9	1.2	0.6	0.4	3.1	0.4	0.8	1.1
Eye	0.5	1.6	0.7	1.1	1.7	2.7	0.2	0.1	1.0	1.0
Dental	0.0	0.2	0.1	0.1	0.2			0.4		0.1
Accident	0.2	0.3	0.7	0.2	0.4			0.6	0.3	0.3
Other	7.6	6.0	10.0	5.8	7.0	5.6	4.8	7.2	8.7	6.8
Aged 5-14										
% of population that has been sick or injured	37.3	38.6	30.8	41.1	33.8	37.1	41.1	37.3	40.8	37.9
Type of sickness/injury										
Fever/malaria	67.3	73.9	74.0	69.3	76.8	65.5	69.5	71.2	70.2	70.5
Diarrhea/abdominal pains	11.5	11.0	10.4	11.6	9.9	10.6	12.6	10.7	12.3	11.3
Pain in back, limbs or joints	5.0	4.7	3.5	5.3	3.5	6.9	5.8	3.9	3.8	4.8
Cough/breathing difficulties	11.5	12.9	10.0	12.9	13.4	9.8	10.5	12.9	14.8	12.2
Skin problems	4.9	6.1	5.0	5.7	4.8	6.8	4.4	6.4	5.2	5.5
Ear, nose or throat	1.9	1.5	0.8	2.0	2.0	1.0	2.7	0.7	2.0	1.7
Eye	1.5	1.9	1.0	1.9	2.7	1.5	1.2	2.0	1.1	1.7
Dental	1.3	1.0	1.0	1.2	1.3	2.0	1.3	0.4	0.6	1.1
Accident	1.7	0.4	1.1	1.0		0.9	2.1	0.9	1.1	1.1
Other	7.1	4.3	5.5	5.8	2.8	7.5	5.1	7.0	6.0	5.7

Source: Authors' estimates based on 2007 CWIQ survey.

Table 1 (continued): Patterns of Morbidity During the Last 4 Weeks, Liberia 2007

	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
	Aged 15-59									
% of population that has been sick or injured	37.3	44.7	34.6	44.4	38.2	41.3	42.6	39.7	43.8	41.1
Type of sickness/injury										
Fever/malaria	56.3	56.0	60.9	54.3	57.3	46.3	57.6	61.3	57.9	56.1
Diarrhea/abdominal pains	13.4	16.2	11.3	16.4	16.0	19.1	15.5	12.2	12.3	15.0
Pain in back, limbs or joints	22.5	21.4	17.0	23.7	24.1	25.7	19.8	22.2	18.3	21.9
Cough/breathing difficulties	5.9	7.6	6.1	7.1	8.4	6.6	6.6	7.2	5.7	6.8
Skin problems	4.0	2.9	2.5	3.7	3.5	3.2	3.2	4.0	3.0	3.4
Ear, nose or throat	1.6	1.7	1.5	1.7	1.9	2.0	1.0	0.4	2.7	1.6
Eye	1.7	2.2	2.1	2.0	1.7	2.4	2.6	2.0	1.4	2.0
Dental	1.1	1.7	2.1	1.2	1.3	1.2	1.8	0.7	2.2	1.5
Accident	2.8	0.6	0.9	1.9	1.1	1.8	1.7	3.0	0.5	1.6
Other	10.2	10.4	14.3	8.7	6.5	10.2	10.7	11.3	12.3	10.3
	Aged 60 and over									
% of population that has been sick or injured	66.6	75.8	66.6	71.8	68.9	73.9	73.4	70.4	66.1	70.6
Type of sickness/injury										
Fever/malaria	38.6	40.4	43.9	38.2	36.4	39.0	31.1	49.1	42.7	39.4
Diarrhea/abdominal pains	15.6	10.9	9.2	14.6	15.4	19.9	15.1	5.3	9.3	13.4
Pain in back, limbs or joints	36.3	45.5	35.2	42.0	38.9	39.0	47.7	45.5	32.0	40.6
Cough/breathing difficulties	12.9	9.9	16.6	10.1	15.4	14.7	14.1	6.6	4.5	11.5
Skin problems	2.8	1.9	1.1	2.7	3.4	1.7	0.8	1.2	5.1	2.4
Ear, nose or throat	0.1	1.9	0.1	1.2	2.0			0.0	2.8	0.9
Eye	12.2	9.4	14.9	9.8	9.9	10.3	18.3	5.7	10.3	10.9
Dental	1.3	0.5	1.1	0.9	0.5	1.6		2.4		0.9
Accident	3.1	0.4	0.5	2.2	0.9	1.9	0.6	5.2	0.7	1.8
Other	15.4	22.2	25.5	16.7	17.2	15.4	17.1	20.0	24.7	18.6

Source: Authors' estimates based on 2007 CWIQ survey.

Table 2: Demand for Health Care and Type of Provider, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
	Total population									
% of person who have been consulted	38.0	42.7	34.2	43.1	35.8	39.5	41.7	40.6	44.2	40.4
% of sick/injure person who have been consulted	91.4	91.7	91.7	91.5	88.9	91.2	90.6	92.8	94.0	91.6
Type of health provider										
Government hospital	26.1	25.3	35.7	22.1	32.4	23.5	25.4	22.6	25.4	25.7
Government health center	7.1	8.2	4.4	8.8	8.0	11.8	7.4	6.1	5.4	7.7
Government health clinic	17.7	18.4	5.8	22.4	23.6	20.8	16.2	18.3	12.7	18.1
Other public facility	3.6	3.8	2.2	4.2	2.2	5.2	3.8	4.9	2.5	3.7
Private hospital/clinic	19.2	21.9	35.7	15.3	10.9	15.4	22.6	23.6	28.5	20.6
Pharmacy	5.9	5.9	9.1	4.7	4.4	5.3	5.8	5.9	7.6	5.9
Private doctor/dentist	1.3	1.1	1.7	1.0	0.9	1.3	1.1	0.8	1.7	1.2
Mobile clinic/black bagger/drug peddler	10.5	8.5	2.0	12.1	8.6	8.4	10.5	10.4	9.1	9.4
Other private facility	1.6	0.9	1.3	1.2	0.7	0.8	0.8	2.5	1.2	1.2
Traditional healer	7.1	6.0	2.0	8.1	8.2	7.5	6.5	4.9	5.7	6.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

Table 2 (continued): Demand for Health Care and Type of Provider, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
	Aged 0-4									
% of person who have been consulted	49.1	48.6	47.5	49.3	42.6	43.6	51.2	52.5	53.5	48.9
% of sick/injure person who have been consulted	93.0	91.7	92.6	92.2	87.9	92.8	90.7	94.4	94.7	92.3
Type of health provider										
Government hospital	27.5	22.8	38.1	21.1	36.4	21.6	20.5	18.4	30.0	25.1
Government health center	4.9	8.3	2.0	8.1	5.7	12.9	7.1	5.1	3.8	6.7
Government health clinic	20.6	19.6	6.9	24.1	21.3	22.8	24.4	21.0	12.9	20.1
Other public facility	4.7	5.1	3.3	5.4	1.5	7.8	4.5	6.4	4.2	4.9
Private hospital/clinic	19.3	22.3	37.1	15.8	9.8	15.1	22.5	23.3	28.6	20.8
Pharmacy	4.7	7.9	6.1	6.4	3.0	6.1	6.0	8.3	7.2	6.3
Private doctor/dentist	1.3	0.4	0.8	0.9	1.8	0.0	0.6	0.7	1.1	0.8
Mobile clinic/black bagger/drug peddler	11.1	10.5	2.8	13.3	11.9	9.4	11.6	11.6	9.8	10.8
Other private facility	2.0	1.0	1.4	1.5	0.5	1.6	0.5	3.1	1.3	1.5
Traditional healer	3.9	2.1	1.5	3.4	8.0	2.7	2.3	2.1	1.2	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Aged 5-14									
% of person who have been consulted	35.0	36.2	28.8	38.6	31.2	34.1	38.3	36.2	38.7	35.6
% of sick/injure person who have been consulted	92.8	91.8	93.0	92.1	91.2	89.6	91.9	94.8	94.2	92.3
Type of health provider										
Government hospital	24.9	24.2	33.1	21.7	29.3	23.6	22.6	24.9	23.0	24.6
Government health center	6.1	9.7	4.5	8.9	10.3	10.7	7.7	4.9	5.9	7.8
Government health clinic	17.5	17.7	5.9	21.5	26.7	17.5	15.2	14.5	15.1	17.6
Other public facility	3.6	3.1	1.4	4.0	4.0	5.2	2.5	4.7	0.5	3.4
Private hospital/clinic	20.2	21.4	36.3	15.6	8.5	16.6	25.8	22.0	29.6	20.8
Pharmacy	6.6	7.3	11.0	5.6	7.1	3.3	6.5	8.3	9.4	6.9
Private doctor/dentist	0.9	1.0	1.1	0.9	0.9	0.9	1.0	1.1	0.7	0.9
Mobile clinic/black bagger/drug peddler	11.9	8.8	3.1	12.8	6.8	12.9	11.6	12.4	7.6	10.4
Other private facility	2.0	0.6	1.8	1.1	0.9	1.3	0.1	3.0	1.1	1.3
Traditional healer	6.3	6.3	1.7	7.8	5.5	7.8	7.0	4.2	6.9	6.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

Table 2 (continued): Demand for Health Care and Type of Provider, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Aged 15-59										
% of person who have been consulted	34.6	42.7	33.0	41.7	34.0	39.0	39.7	38.2	42.8	38.8
% of sick/injure person who have been consulted	89.8	92.1	91.1	91.1	87.3	91.8	90.4	91.9	93.5	91.1
Type of health provider										
Government hospital	26.0	25.9	35.6	22.2	32.1	24.4	27.4	22.2	24.5	26.0
Government health center	8.1	7.7	5.0	9.0	7.6	12.3	7.1	6.7	6.0	7.9
Government health clinic	16.7	18.0	5.6	22.1	22.9	21.0	15.1	18.8	11.2	17.5
Other public facility	3.3	3.9	2.4	4.1	1.8	4.6	4.2	5.0	2.6	3.7
Private hospital/clinic	19.1	22.5	35.2	15.5	12.4	15.0	21.1	25.9	28.4	21.0
Pharmacy	6.5	5.1	9.4	4.2	3.7	6.6	5.6	4.5	7.5	5.7
Private doctor/dentist	1.2	1.3	2.3	0.9	0.7	1.1	1.1	0.6	2.5	1.3
Mobile clinic/black bagger/drug peddler	9.8	7.8	1.4	11.5	8.9	6.0	9.5	9.1	9.5	8.7
Other private facility	1.2	1.0	0.8	1.2	0.8	0.4	1.2	1.8	1.2	1.1
Traditional healer	8.0	6.9	2.3	9.3	8.9	8.4	7.7	5.4	6.6	7.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Aged 60 and over										
% of person who have been consulted	62.8	67.1	59.8	66.1	64.5	67.9	63.6	62.2	64.6	64.7
% of sick/injure person who have been consulted	93.2	87.7	89.7	90.9	93.7	89.9	86.3	87.4	95.9	90.6
Type of health provider										
Government hospital	27.7	31.1	42.1	25.8	36.9	20.4	33.1	28.8	27.7	29.3
Government health center	8.8	6.5	4.3	8.7	7.1	9.2	9.7	9.2	3.5	7.8
Government health clinic	17.8	21.5	5.0	23.4	22.2	26.0	7.8	21.4	17.4	19.5
Other public facility	2.4	2.1		2.9	0.4	4.0	3.5	0.4	3.0	2.3
Private hospital/clinic	15.9	17.0	34.1	11.7	11.5	14.3	21.2	11.9	25.0	16.4
Pharmacy	2.5	3.0	6.1	1.8	2.6	2.1	3.2	1.8	3.9	2.7
Private doctor/dentist	2.5	2.4	1.7	2.6		6.6	3.1	0.9	1.0	2.4
Mobile clinic/black bagger/drug peddler	9.0	8.3	1.2	10.7	6.8	7.6	11.4	8.9	9.5	8.7
Other private facility	2.2	0.5	3.3	1.0		0.3	1.1	5.0	1.6	1.5
Traditional healer	11.2	7.5	2.3	11.4	12.5	9.4	5.9	11.5	7.4	9.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

Table 2 and Figure 2 provide data on the demand for care among individuals who have been sick or injured (as well as among the population as a whole). A few important findings emerge. First, a surprisingly high proportion of individuals who were sick did seek care (we will discuss below the reasons for not seeking care). For the sample as a whole, this proportion is 91.6 percent. Second, individuals from richer households are more likely to seek care, as expected. Differences are by contrast negligible between men and women, and between urban and rural areas. The main types of facilities consulted are government hospitals (25.7 percent of the consultations), private hospitals and clinics (20.6 percent), government health clinics (18.1 percent), mobile clinics, black baggers and drug peddlers (9.4 percent), government health centers (7.7 percent) and traditional healers (6.5 percent). As is the case for education, and as expected, private facilities tend to be used comparatively more by richer and urban households, while public facilities are used comparatively more by poorer and rural households. As for education, due in part to the inability of the state to provide services during the civil war, NGOs currently play a very important role in Liberia's health system, but this is not as apparent in the CWIQ survey data as was the case for education, probably because households assimilate NGO-run centers to government facilities (that is, most NGOs operate public facilities).

Data by age group on the demand for care and the type of facilities used are provided for the sake of completeness, but the patterns are very similar across all age groups. One key difference is the fact that older individuals are slightly less likely to seek care than younger individuals, probably because illnesses for small children are potentially more life threatening.

The CWIQ survey also has an interesting question on measures taken by households to prevent malaria. The answers are provided in table 3. Some 41.7 percent of the population does not take any measures, and the proportion is above 50 percent among the bottom two quintiles. Bed nets are the most common preventive measure, for a third of the sample, but the likelihood that they will be used by the poor is lower. Anti-malaria drugs are used by 11.1 percent of the population, with some differences across quintiles. Measures to maintain good sanitation are taken by a tenth of the population as well, again with even more limited differences between quintiles. The use of insecticides is of a similar order of magnitude at the national level, but only three percent of the population in the bottom two quintiles uses them, as this is a strategy mostly used in urban areas. Overall, it is clear from the data that additional efforts could be made to help the population protect itself from malaria, which is the first cause of illness in the country.

Table 3: Measures taken by the household to prevent malaria, Liberia 2007

	Residence Area		Quintile					
	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
None	30.4	46.8	52.4	51.1	44.0	35.0	31.6	41.7
Bed net	37.3	32.8	28.6	30.3	29.8	40.1	39.2	34.2
Insecticide	21.4	3.5	2.8	3.5	9.1	10.7	16.1	9.1
Anti-malaria drug	14.6	9.4	10.2	8.1	8.5	12.5	14.3	11.1
Fumigation	0.5	0.1	0.6	0.2			0.2	0.2
Insecticide treated net	4.4	3.8	2.4	2.4	7.2	4.7	3.3	4.0
Maintain good drainage	2.0	2.6	4.7	4.0	1.3	1.1	1.6	2.4
Maintain good sanitation	8.1	11.0	7.8	9.1	9.7	11.4	11.5	10.1
Herbs	0.9	4.9	2.1	2.4	4.3	6.4	2.9	3.6
Burn leaf (tobacco, etc.)	1.4	1.8	3.5	1.5	0.6	1.9	1.3	1.7
Window/door net	11.6	2.8	5.3	3.7	3.4	6.7	8.0	5.6
Other	1.5	2.4	1.8	2.0	1.7	2.9	2.1	2.1

Source: Authors' estimates based on 2007 CWIQ survey.

2.2. *Mode of Payment for Care and Reasons for not Seeking Care*

The high share of sick individuals who seek care is probably due in part to the fact that in many instances, health care appears to be free in Liberia. Table 3 provides data on the modes of payment for care. In 43.4 percent of consultations, health care is free, while in 54.8 percent of cases, households do pay for care. Very few have insurance, or benefit from benefits so that their employer pays for care. In turn, the high proportion of visits that are free may be related to the important role played by NGOs in the administration of care. The use of free care services is higher among the poor than among better off households, but differences between urban and rural areas and between sexes are negligible. Similarly, the types of modes of payment are similar for the different age groups.

Even though health care can be obtained for free in many instances, and even though most individuals do seek care, cost may still be a barrier for care for some households. Table 4 provides the reasons invoked by individuals for not seeking care when sick (data are also provided for information for the population as a whole, but the responses are more informative when limited to the sample of individuals who experienced an episode of illness). For 11.0 percent of the population, there was no need to seek care, presumably because the illness was mild. Yet for 40.4 percent of those not seeking care, the reason was cost. Distance to facilities was an issue for 34.5 percent of those not seeking care. There is no clear pattern of differences between quintiles for either of the two main reasons not to seek care, but as expected, distance is more an issue in rural areas, while cost was more of a problem in urban areas where a higher share of individuals rely on private care providers and prices may generally be higher.

Table 4: Payment method for the consultation, Liberia 2007

	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
				Total population						
Free	43.2	43.5	40.4	44.4	51.6	46.3	43.7	40.9	36.2	43.4
Self/household paid	55.1	54.4	58.2	53.6	45.4	52.5	54.7	57.5	61.9	54.8
Employer	0.4	0.5	0.6	0.4	0.5	0.3	0.1	0.4	0.8	0.4
Insurance	0.6	0.6	0.2	0.8	0.3	0.6	0.7	0.8	0.6	0.6
Other	0.7	0.9	0.6	0.9	2.2	0.3	0.7	0.4	0.6	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

Table 4 (continued): Payment method for the consultation, Liberia 2007

	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
Aged 0-4										
Free	45.1	44.0	44.7	44.5	56.1	48.6	45.1	40.2	37.3	44.6
Self/household paid	52.8	54.3	54.3	53.3	39.6	50.8	52.6	59.2	60.6	53.5
Employer	0.3	0.0	0.5	0.1	0.2				0.5	0.2
Insurance	0.8	0.5		0.9	0.5	0.5	1.4	0.3	0.7	0.7
Other	1.0	1.1	0.4	1.3	3.6	0.2	0.8	0.3	0.9	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Aged 5-14										
Free	43.6	43.3	40.5	44.5	53.3	49.5	41.5	38.0	36.1	43.5
Self/household paid	55.5	54.7	58.9	53.9	44.3	49.4	56.6	61.0	63.3	55.1
Employer		0.1		0.0	0.1				0.1	0.0
Insurance	0.5	0.8		0.9	0.2	0.9	1.0	0.8	0.3	0.7
Other	0.4	1.1	0.6	0.7	2.1	0.2	0.9	0.2	0.3	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Aged 15-59										
Free	41.4	43.5	39.0	44.0	48.9	44.2	43.6	42.3	36.0	42.6
Self/household paid	56.6	54.6	59.4	53.9	48.3	54.4	55.4	55.8	61.7	55.5
Employer	0.7	0.8	0.9	0.7	0.8	0.7	0.3	0.8	1.2	0.8
Insurance	0.7	0.5	0.2	0.7	0.4	0.6	0.4	1.0	0.5	0.6
Other	0.7	0.5	0.5	0.6	1.7	0.2	0.3	0.2	0.6	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Aged 60 and over										
Free	48.3	43.3	43.7	46.7	54.2	45.6	50.9	43.2	34.6	46.1
Self/household paid	50.3	52.1	53.4	50.5	42.3	53.5	46.1	52.7	62.5	51.1
Employer	0.2			0.1	0.4					0.1
Insurance	0.2	1.4	0.3	0.8			0.8	1.0	2.2	0.7
Other	1.0	3.2	2.6	1.8	3.1	0.9	2.2	3.1	0.7	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

Table 5: Reason for not seeking medical care, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Overall population										
No need	92.3	91.0	92.8	91.1	91.1	91.6	90.7	91.3	93.8	91.7
Too expensive	3.3	3.9	4.5	3.1	3.3	3.0	4.0	4.5	3.2	3.6
Too far	2.8	3.6	0.3	4.7	3.6	3.7	2.6	4.1	1.8	3.2
Lack of confidence	0.6	0.7	1.0	0.5	0.4	0.5	1.0	0.9	0.6	0.7
Other	2.0	2.5	2.1	2.3	2.6	2.2	2.8	1.7	1.8	2.2
Sick and/or injured population										
No need	13.3	8.9	9.6	11.5	17.1	6.6	8.0	5.8	17.8	11.0
Too expensive	39.2	41.5	65.6	31.6	32.4	40.5	40.7	55.5	35.9	40.4
Too far	31.8	36.9	2.9	45.4	34.3	38.7	28.2	50.3	21.1	34.5
Lack of confidence	3.6	5.8	8.6	3.4	3.7	3.3	6.4	2.0	8.8	4.7
Other	23.0	27.4	27.1	24.7	22.9	24.3	28.0	23.6	28.2	25.3

Source: Authors' estimates based on 2007 CWIQ survey.

Table 5 (continued): Reason for not seeking medical care, Liberia 2007

	Gender		Residence Area		Quintile					
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Sick and/or injured population										
Aged 0-4										
No need	8.5	19.1		18.7	13.3	19.2		10.4	37.5	14.5
Too expensive	39.7	36.5	70.8	28.3	34.7	2.4	60.0	61.6	22.5	37.9
Too far	32.7	33.6	1.1	42.7	48.8	31.1	22.4	45.4	14.1	33.2
Lack of confidence	2.4	4.4	3.4	3.6	10.8		2.5			3.5
Other	25.8	26.6	44.3	20.9	3.4	49.7	33.5	30.4	26.1	26.3
Aged 5-14										
No need	19.6	7.9	12.8	13.7	16.5	3.2	22.9	5.6	20.6	13.5
Too expensive	28.1	37.8	69.7	22.3	24.0	35.8	30.4	49.9	30.6	33.2
Too far	25.2	35.3	0.6	39.4	30.0	36.9	13.3	57.7	21.9	30.5
Lack of confidence	1.4	3.5	7.4	1.0	2.6		1.0	3.1	8.8	2.5
Other	32.8	32.1	20.6	36.0	33.3	30.4	32.3	36.2	31.9	32.5
Aged 15-59										
No need	12.8	6.1	11.8	8.5	17.3	4.3	5.3	5.9	12.3	9.5
Too expensive	43.2	46.1	63.2	37.4	35.8	52.2	37.2	61.9	42.4	44.7
Too far	33.1	34.6	4.1	45.4	30.7	39.0	33.9	42.8	23.1	33.8
Lack of confidence	4.0	6.2	9.7	3.3	2.0	6.8	8.2	1.7	7.8	5.1
Other	19.9	26.5	26.2	22.1	25.2	16.2	24.7	21.4	27.9	23.2
Aged 60 and over										
No need	5.1	9.8		10.5	30.4	13.6				8.0
Too expensive	41.1	32.9	65.0	27.1	17.8	43.2	52.7	25.4	25.0	36.1
Too far	42.1	60.0	2.6	68.8	45.4	52.4	42.4	81.8	14.6	53.1
Lack of confidence	9.6	11.4	12.5	10.2	4.4		16.3	4.3	60.5	10.7
Other	8.8	22.3	21.9	15.6	19.2	14.3	27.3	6.7	19.9	17.1

Source: Authors' estimates based on 2007 CWIQ survey.

Table 6 provides data on private health care spending by households. The largest expenditure in terms of the share of total spending for health is for the purchase of drugs (39.2 percent of total spending). This is followed by spending for medical treatment (injections, bandages, etc.), at 25.8 percent of the total, and spending for consultations, at 22.3 percent. As a share of total consumption, table 5 shows that health spending has a higher cost for the poor, but in absolute value, better off households tend to spend significantly more on average.

Table 6: Structure of household's expenditure in health, Liberia 2007

| | Residence Area | | Quintile | | | | | |
	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Purchase of drugs	39.8	38.3	44.5	35.6	43.2	36.5	39.2	39.2
Consultation by traditional practitioner	4.2	0.8	2.9	1.6	5.3	2.4	2.0	2.7
Vaccination costs	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Medical consultation	20.9	24.1	18.9	24.5	18.1	24.6	22.7	22.3
Medical treatment (injection, bandages)	23.5	28.8	23.1	26.5	24.6	26.7	26.1	25.8
Purchase of traditional medications	6.6	1.6	5.4	5.6	5.6	4.3	3.3	4.4
Radiology, EKG, scanner, tests	0.8	1.3	1.6	0.7	0.9	1.1	1.1	1.0
Hospitalization	4.1	5.1	3.6	5.5	2.3	4.4	5.5	4.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Share of health in total consumption	1.9	1.9	2.1	2.3	2.0	2.0	1.6	1.9

Source: Authors' estimates based on 2007 CWIQ survey.

The data on total private spending for health is provided in levels in table 7. On a per capita basis, households in the top decile of the population (ranked according to consumption per equivalent adult) spend four times as much as households in the bottom decile. The total private spending for health is estimated at close to L$0.9 billion (about US$ 15 million), which is similar to the total budget of the Ministry of Health and Social Welfare.

Table 7: Households expenditure on health, Liberia 2007

Deciles	Total population	Total Expenditure (millions of L$)	Total expenditure in health (millions of L$)	Per capita Expenditure (L$)	Per capita expenditure in health (L$)	Share of health in total expenditures
1	270469	1233.8	27.5	4561.7	101.8	2.2
2	270582	2132.9	41.6	7882.7	153.6	1.9
3	270477	2764.9	61.1	10222.4	225.8	2.2
4	270761	3292.0	77.5	12158.4	286.4	2.4
5	269714	3801.9	74.1	14096.0	274.6	1.9
6	271127	4460.3	93.6	16450.9	345.3	2.1
7	270714	5020.2	95.8	18544.1	353.9	1.9
8	269729	5937.7	117.9	22013.4	437.2	2.0
9	271538	7286.5	124.3	26834.2	457.9	1.7
10	270273	13385.6	216.5	49526.4	801.1	1.6
Total	2705385	49315.8	930.0	18228.7	343.8	1.9

Source: Authors' estimates based on 2007 CWIQ survey.

As is the case for education, in part due to the legacy of the war, the government's health budget is only a fraction of total spending on the public health system. In many cases, NGOs are topping up salaries for health professionals, as well as providing other incentives and materials directly to health facilities. Unfortunately these aid flows are not being tracked well, so that the government does not have a clear idea of how much is currently spent on public health overall. It

has been suggested that total public health spending may be of the order of US$60 million for 2007, of which only $15 million is budgeted government expenditure.

In table 8, access is measured by the distance from the nearest health facility. Remember that in table 4, access is mentioned as one of the two main reasons for not seeking care, especially in rural areas. In table 8, we provide data on the average time it takes to reach various types of facilities. At the national level, health clinics are on average at about two hours from where households live, but in rural areas, it takes almost three hours to reach the nearest clinic or hospital. These distances to health facilities are high in comparison of what has been observed in other countries, which justifies an effort on the part of the Ministry of health and Social Welfare as well as donors not only of rehabilitating existing facilities, but also of building new facilities in order to improve access in rural areas.

Table 8: Time (in minutes) to the nearest infrastructure, Liberia 2007

| | Residence Area | | Quintile | | | | | |
	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Total
Supply of drinking water	9.7	8.4	11.4	8.4	8.9	7.5	8.4	8.8
Food market	23.2	179.1	162.8	161.0	167.6	113.5	71.0	129.8
Public transportation	12.8	161.7	145.7	140.4	152.0	77.2	77.5	114.6
Primary school	15.5	46.5	33.4	46.1	46.6	27.3	32.5	36.7
Secondary school	24.3	203.0	114.1	203.0	198.9	116.2	113.3	146.3
Health clinic/hospital	29.6	151.6	124.8	143.4	145.4	99.5	71.0	113.0
All season road	16.7	333.6	167.9	322.8	323.8	227.8	153.2	233.3
Any road (vehicle)	6.1	33.0	31.7	26.6	25.0	21.4	20.5	24.5

Source: Authors' estimates based on 2007 CWIQ survey.

2.3. *Satisfaction with health services and reasons for non-satisfaction*

Given the impact of the conflict on many facilities and the lack of resources to run some, one might expect satisfaction rates with health services to be low in Liberia. This is however not necessarily the case, as shown in table 9. Approximately 60 percent of the population is satisfied with the services received, which is not very high, but still above what has been obtained using the CWIQ survey for education. There are few differences in satisfaction rates between quintiles, apart from the fact that satisfaction seems to be lower for households in the middle quintile. Satisfaction rates are similar according to sexes, but they are higher in urban than in rural areas. The main reasons for not being satisfied are long waiting times (15.8 percent of those who have obtained care), distances to the facilities (12.3 percent), cost (11.3 percent), and lack of availability of drugs (10.4 percent). The issues of distances and lack of drugs are more prevalent in rural than in urban areas, but there is no obvious pattern of large differences in the reasons for non-satisfaction between quintiles or by age group.

Table 9: Satisfaction/Problem with health services, Liberia 2007

	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
Aged 0-4										
No problem (satisfied)	65.7	61.5	76.4	59.6	70.8	62.3	53.7	64.5	66.7	63.5
Facilities were not clean	1.8	1.1	2.3	1.2	0.0	1.2	2.3	2.9	0.7	1.5
Long waiting time	11.8	13.7	9.6	13.7	14.4	14.4	14.3	11.7	10.2	12.8
No trained professionals	2.2	0.7	1.3	1.5		1.9	2.2	2.0	0.9	1.4
Too expensive	8.3	13.9	8.6	12.0	12.3	7.9	13.6	13.2	8.9	11.2
No drugs available	11.9	12.2	5.3	14.2	10.9	10.0	18.6	6.3	14.2	12.1
Treatment unsuccessful	2.2	2.0	0.9	2.4	1.1	2.2	4.2	1.6	1.3	2.1
Long distance to health facility	11.2	14.9	2.6	16.4	4.0	11.6	22.5	14.0	11.8	13.1
Other	2.5	1.3	0.5	2.3	2.2	1.9	3.4	1.8	0.5	1.9
Aged 5-14										
No problem (satisfied)	63.0	59.9	62.0	61.3	63.8	61.7	59.3	62.5	60.4	61.5
Facilities were not clean	1.6	3.0	1.9	2.4	2.1	0.6	2.6	1.4	4.8	2.3
Long waiting time	15.3	16.2	19.5	14.5	19.6	15.9	10.3	13.7	20.1	15.7
No trained professionals	1.6	2.0	1.3	2.0		1.7	3.3	2.4	1.3	1.8
Too expensive	11.2	12.0	12.4	11.3	8.4	12.6	11.7	13.7	11.2	11.6
No drugs available	9.1	11.5	6.4	11.5	10.3	6.1	12.2	8.2	14.4	10.3
Treatment unsuccessful	2.9	4.6	4.0	3.6	3.2	4.6	5.9	2.7	1.7	3.7
Long distance to health facility	11.1	9.7	4.7	12.3	15.2	8.2	13.6	6.7	8.5	10.4
Other	1.7	2.3	0.6	2.4	1.9	0.9	2.0	2.5	2.5	2.0
Aged 15-59										
No problem (satisfied)	58.8	58.2	63.4	56.5	59.1	53.6	58.1	62.1	59.3	58.5
Facilities were not clean	1.3	1.6	1.5	1.4	1.0	0.6	2.1	2.2	1.3	1.4
Long waiting time	17.0	16.0	16.5	16.4	18.7	21.1	13.4	15.5	14.2	16.4
No trained professionals	0.8	1.1	0.5	1.2	1.2	0.5	1.8	1.3	0.2	1.0
Too expensive	11.5	10.9	12.5	10.7	8.6	11.2	12.2	10.6	12.7	11.2
No drugs available	11.1	9.7	7.5	11.5	10.1	9.3	11.1	8.3	12.6	10.3
Treatment unsuccessful	4.7	5.8	4.8	5.6	3.1	7.0	5.7	5.6	5.2	5.4
Long distance to health facility	13.2	12.7	4.9	16.1	13.5	17.5	15.4	11.5	7.6	13.0
Other	2.6	2.2	1.1	2.9	1.5	1.9	3.3	2.5	2.6	2.4

Source: Authors' estimates based on 2007 CWIQ survey.

Table 9 (continued): Satisfaction/Problem with health services, Liberia 2007

|	Gender		Residence Area		Quintile					Total
	Male	Female	Urban	Rural	Q1	Q2	Q3	Q4	Q5	
					Aged 60 and over					
No problem (satisfied)	58.2	55.4	58.0	56.7	57.5	58.5	49.2	63.1	56.0	57.0
Facilities were not clean	1.8			1.3		2.2			2.7	1.0
Long waiting time	18.1	20.4	22.7	18.2	21.5	17.2	18.9	19.8	18.1	19.1
No trained professionals		0.8		0.5			0.6	1.5		0.4
Too expensive	11.0	11.1	12.4	10.6	6.8	11.9	20.8	8.9	7.6	11.0
No drugs available	6.7	9.2	7.8	7.9	7.4	6.3	4.9	6.8	14.2	7.8
Treatment unsuccessful	11.3	13.3	9.1	13.0	9.3	12.8	17.4	11.9	10.3	12.2
Long distance to health facility	12.0	11.0	4.1	13.6	10.3	8.1	29.6	5.2	6.3	11.6
Other	1.1	1.9	4.4	0.7	2.5	2.2	0.8	0.1	1.4	1.5
					Overall population					
No problem (satisfied)	61.1	58.9	64.7	58.3	62.0	57.3	57.2	62.7	60.7	59.9
Facilities were not clean	1.5	1.7	1.6	1.6	1.0	0.8	2.1	2.0	2.1	1.6
Long waiting time	15.7	15.9	16.5	15.6	18.5	18.5	13.0	14.6	15.0	15.8
No trained professionals	1.2	1.2	0.8	1.4	0.6	1.0	2.2	1.7	0.6	1.2
Too expensive	10.8	11.7	11.9	11.1	9.0	11.1	12.8	11.7	11.4	11.3
No drugs available	10.3	10.5	6.9	11.7	10.0	8.3	12.2	7.8	13.4	10.4
Treatment unsuccessful	4.3	5.4	4.3	5.1	3.4	6.1	6.2	4.5	4.0	4.9
Long distance to health facility	12.2	12.3	4.4	15.0	12.2	13.6	16.9	10.4	8.5	12.3
Other	2.2	2.1	1.1	2.5	1.8	1.7	2.8	2.2	2.1	2.2

Source: Authors' estimates based on 2007 CWIQ survey.

3.   Benefit incidence of public spending for health

        In this section, we provide an analysis of the benefit incidence of public spending for health. The key data are provided in table 10, and visualized in Figure 1 in the case of public facilities and Figure 2 in the case of private facilities. Table 10 provides estimates of the number of individuals from households belonging to various deciles of per equivalent adult consumption that have obtained care in various types of facilities. For the benefit incidence analysis, we rely on the simplifying assumption that the unit costs of care are similar for all individuals seeking care in a given type of facility. Then the estimates of the number of individuals seeking care gives us the shares of total spending per type of facility that are allocated to the various deciles.

        It can be seen that for most public facilities, public spending for health seems to be allocated in roughly similar proportions to the various household groups ranked by consumption decile. For private service providers, traditional healers tend to be used more by the poor, while other types of providers tend to be used more by the better off. The fact that public spending for health does not appears to be regressive is probably related to the fact that in Liberia a large share of health services are provided by private institutions, which tend to be used more by better off households. Note that the columns "total" in table 10 is not weighted by the shares of public spending allocated to the various levels of spending.

Figure 1: Concentration curves for use of public health facilities, 2007
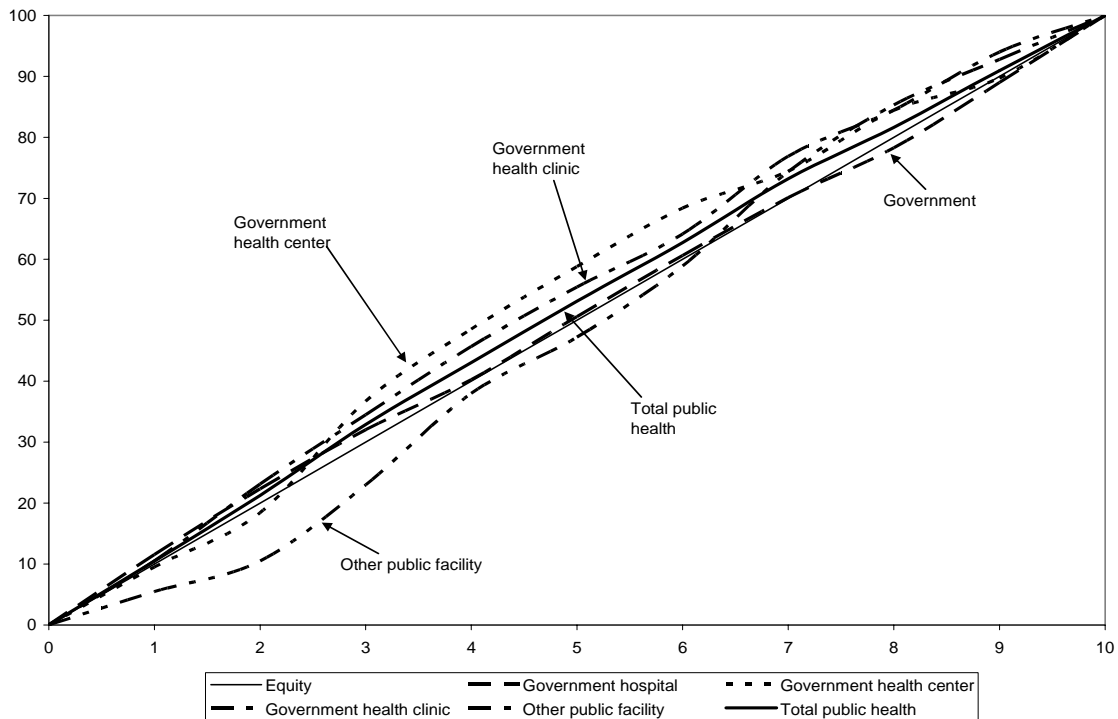
Source: Authors' estimates based on 2007 CWIQ survey.

Figure 2: Concentration curves for use of private health facilities, 2007
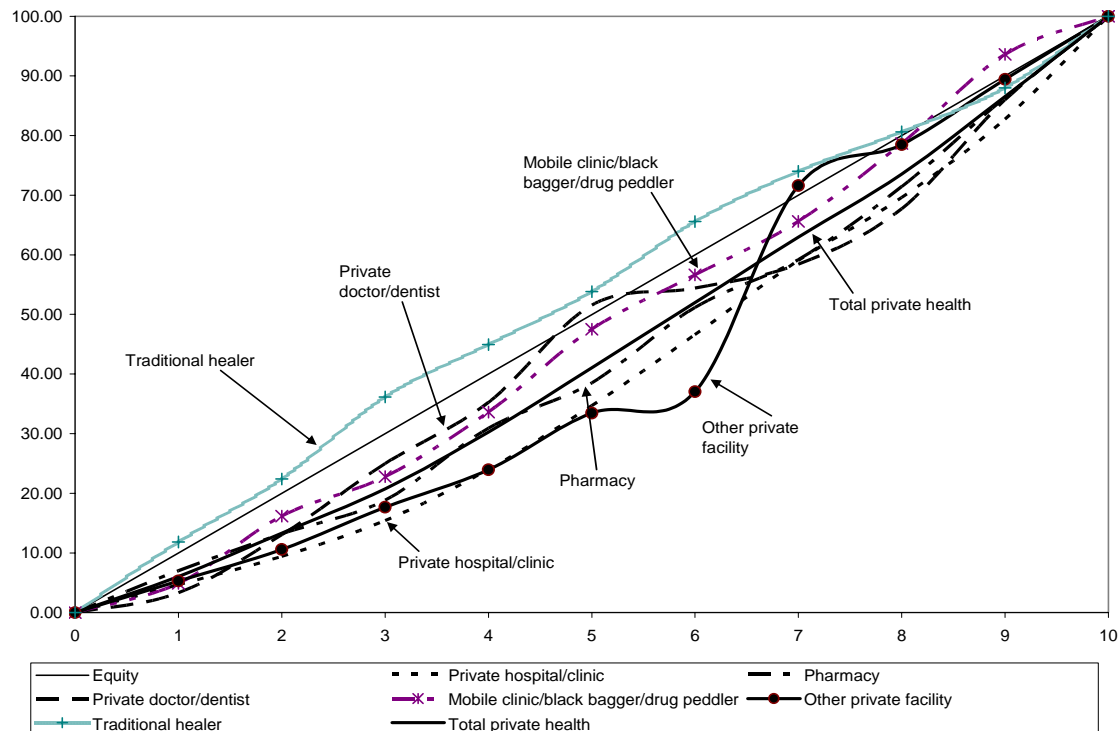
Source: Authors' estimates based on 2007 CWIQ survey.

Table 10: Benefit incidence analysis for the use of health care facilities, Liberia 2007

Deciles	Gvt hospital	Gvt health center	Gvt health clinic	Other public facility	Private Hospital or clinic	Pharmacy	Private Doctor or dentist	Mobile clinic, black bagger, drug peddler	Other private facility	Traditional healer	Total public health	Total
						Number of consultations						
1	32236	7925	20622	2200	10483	4497	428	5033	712	8399	62983	92535
2	30248	7449	24861	2037	10611	3948	1252	11594	707	7479	64595	100186
3	27101	15236	22375	5027	13579	3644	1540	6814	948	9742	69739	106006
4	22988	9857	22012	6039	19253	7725	1323	11102	844	6230	60896	107373
5	28974	8568	19258	3715	23905	4883	2108	14287	1276	6285	60515	113259
6	28003	8005	17100	4707	26742	8094	369	9353	479	8334	57815	111186
7	26506	5040	25059	6231	27913	5142	511	9216	4634	5976	62836	116228
8	22886	8313	14938	4414	23689	7848	1202	13435	921	4687	50551	102333
9	29880	4412	18687	3002	29559	9570	2353	15344	1466	5213	55981	119486
10	30841	8583	11828	2910	38713	8720	1809	6554	1418	8508	54162	119884
Total	279663	83388	196740	40282	224447	64071	12895	102732	13405	70853	600073	1088476
						Share						
1	11.5	9.5	10.5	5.5	4.7	7.0	3.3	4.9	5.3	11.9	10.5	8.5
2	10.8	8.9	12.6	5.1	4.7	6.2	9.7	11.3	5.3	10.6	10.8	9.2
3	9.7	18.3	11.4	12.5	6.0	5.7	11.9	6.6	7.1	13.7	11.6	9.7
4	8.2	11.8	11.2	15.0	8.6	12.1	10.3	10.8	6.3	8.8	10.1	9.9
5	10.4	10.3	9.8	9.2	10.7	7.6	16.3	13.9	9.5	8.9	10.1	10.4
6	10.0	9.6	8.7	11.7	11.9	12.6	2.9	9.1	3.6	11.8	9.6	10.2
7	9.5	6.0	12.7	15.5	12.4	8.0	4.0	9.0	34.6	8.4	10.5	10.7
8	8.2	10.0	7.6	11.0	10.6	12.2	9.3	13.1	6.9	6.6	8.4	9.4
9	10.7	5.3	9.5	7.5	13.2	14.9	18.2	14.9	10.9	7.4	9.3	11.0
10	11.0	10.3	6.0	7.2	17.2	13.6	14.0	6.4	10.6	12.0	9.0	11.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2007 CWIQ survey.

4.   Determinants of the demand for care

In this last section, we look at the determinants of the demand for care using standard (probit) regression techniques. The analysis is conducted for the population that was sick over the last four weeks, separately in Monrovia, other urban areas and rural areas as well as at the national level. The dependent variable is whether the individual is seeking care or not.

The explanatory variables include the following: (a) Characteristic of the individual - the age of the individual and his/her sex; (b) geographic location variables, including urban versus rural areas in the national regression and a set of dummy variables for various regions (Greater Monrovia, North Central, North Western, South Central, South Eastern A, and South Eastern B); (c) household demographic variables – the number of children aged 0 to 5, the number of children aged 6 to 14, the number of male adults aged 15 to 60, the number of female adults aged 15 to 60, the number of seniors aged over 60, the age of the household head, and whether the household head is male or female; (d) the education level of the head (none, some primary, primary completed, some secondary, secondary completed, post-secondary); (e) the socio-economic group of the head of household (employment in the public, private formal or private informal sector, self-employment in agriculture or another sector, or inactivity and unemployment, as well as whether the head has a second job), (f) whether the household has migrated due to the war and has been displaced, and whether the household has returned to its place of origin or never moved); (g) the quintile of consumption per equivalent adult of the household; and finally (h) a variables indicating access to facilities (time to nearest health clinic or hospital).

Only the coefficient estimates are provided to save space, with indication as to their level of statistical significance. The results form the estimations are mostly as expected. First, there is an inverse relationship between the age of the individual and the probability of seeking care, but the impact is small, albeit statistically significant in most cases. When running the regression on the sample as a whole, there is a statistically significant difference in the probability of seeking care between urban and rural areas (higher probability in urban areas by 3.6 percentage points). Surprisingly, there is a negative association between living in the Greater Monrovia area and seeking care, but this is partly offset by the positive impact of being in urban areas. Overall, the geographic location effects, when they are present, are of a limited order of magnitude (three to six percentage point difference in the probability of seeking care). Many of the demographic variables for the composition of the household are not significant, although having a higher number of female adults in the household does seem in some cases to improve the likelihood for an individual to seek care, while having a large number of children between 5 and 14 years of age reduces this likelihood. Having a female household head does not lead to an increase in the probability to seek care.

The impact of the socio-economic group of the head is present. When the head is involved in wage work (whether in the public, private formal, or private informal sector), household members have a higher probability of seeking care than otherwise. There is also some indication that if a household has been displaced, the probability of seeking care is lower. Individuals from richer households (who belong to higher quintiles) are more likely to seek care. Individuals who suffer from fever or malaria or who had an accident are also more likely to seek care than if they have been suffering from another illness. There is some indication that in Monrovia, individuals affected by a cough or skin problems are less likely to seek care. Finally, as expected, the longer it takes to go to the nearest facility, the less likely it is that a child will seek care, at least in rural areas.

Table 11: Determinants of the demand of health services, Liberia 2007

	National	Monrovia	Other urban	Rural
Individual Characteristics				
Age	-0.001***	-0.001***	-0.001***	0.000
Female	-0.002	0.001	-0.003	-0.002
Residence area				
Urban	0.036***	-	-	-
Rural	Ref.	-	-	-
Region				
Greater Monrovia	-0.042***	-	-	-
North Central	0.037***	-	-0.062**	0.052***
North Western	0.011	-	0.003	0.013
South Central	0.014	-	-0.058**	0.028**
South Eastern A	Ref.	-	Ref.	Ref.
South Eastern B	-0.012	-	-0.036**	-0.005
Household composition				
Children aged 0 to 5	-0.001	-0.007	-0.005	0.002
Children aged 6 to 14	-0.009***	-0.005	-0.005	-0.013***
Male adults aged 15 to 60	-0.001	0.009	0.009	-0.009**
Female adults aged 15 to 59	0.008***	0.013**	0.002	0.010***
Seniors aged over 60	-0.004	0.000	-0.011	-0.008
Age of head of household	0.001**	0.001	0.001	0.001**
Female household head	-0.001	0.004	0.008	-0.010
Education level of head				
None	Ref.	Ref.	Ref.	Ref.
Some primary	0.003	0.024	-0.009	0.000
Completed primary	-0.007	-0.024	0.018	-0.005
Some secondary	0.006	0.035*	-0.005	-0.003
Completed secondary	-0.004	-0.018	0.018	0.016
Post secondary	0.024*	0.021	0.022	0.023
Socio-economic group of head of household				
Public	0.040***	0.060*	0.000	0.044***
Private formal	0.033**	0.010	-0.021	0.052***
Private informal	0.047***	0.073***	-0.007	0.036*
Self-agriculture	Ref.	Ref.	Ref.	Ref.
Self-other	-0.005	0.034	-0.010	-0.002
Unemployed	-0.001	0.033	-0.032	0.011

Inactive, other	0.021**	0.050	0.013	0.016
The head has a second job	0.005	0.037	-0.046*	0.015
Migration status due to the war				
Displaced	-0.031*	-0.064**	0.004	-0.045*
Displaced and has returned to origin	-0.008	-0.036**	0.021	-0.007
Never move	Ref.	Ref.	Ref.	Ref.
Time to health clinic/hospital (in 1000 minutes)	-0.092***	0.132	0.030	-0.106***

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 11 (continued): Determinants of the demand of health services, Liberia 2007

	National	Monrovia	Other urban	Rural
Type of sickness/injury				
Fever/malaria	0.025***	0.010	-0.006	0.039***
Diarrhea/abdominal pains	0.014	-0.001	-0.025	0.027**
Pain in back, limbs or joints	-0.013	-0.018	0.005	-0.014
Cough/breathing difficulties	0.000	-0.086***	-0.008	0.024*
Skin problems	-0.007	-0.103**	0.018	0.008
Ear, nose or throat	0.000	-0.024	-0.040	0.013
Eye	-0.023	-0.039	-0.046	-0.015
Dental	0.022	-0.016	-0.074	0.072**
Accident	0.061**	-	-	0.061*
Other	0.008	0.003	-0.013	0.013
Welfare quintiles				
Q1	Ref.	Ref.	Ref.	Ref.
Q2	0.024***	0.040**	0.011	0.023**
Q3	0.013	0.037**	-0.021	0.016
Q4	0.034***	0.065***	0.014	0.028**
Q5	0.036***	0.075***	0.005	0.027**
Observations	8287	1617	1086	5554

* significant at 10%; ** significant at 5%; *** significant at 1%

These regressions provide some useful insights into the determinants of the demand for care. For policy purposes, the main use of the regressions lies in assessing the potential impact of the construction of new health facilities on the demand for care. For example, the coefficient for the pooled sample of the distance to health facilities is -0.106 in rural areas. Given that the explanatory variable is expressed in 1,000 minutes, this means that a 100 minutes reduction in the time to go reach a health clinic would increase the decision to seek health care by about 0.0106 percentage point. It was mentioned that in rural areas, the average time needed to reach the nearest health facility was almost three hours. If this distance were cut in half, we would obtain an increase in the demand for care of about one percentage point. This is a small value, and not as large as one is often led to believe, which suggests that policies to increase the demand for care further need to go beyond the simple provision of new health facilities, even if this is necessary of course in some areas.

5.   Conclusion

This paper has provided a basic diagnostic of the health system in Liberia on the basis of the analysis of the 2007 CWIQ survey. Several findings show that Liberia stands out in comparison with other countries. First, the incidence of illnesses seems to be higher than in other countries, and at the same time the probability to seek care when ill is also very high. This may be due to the fact that many consultations appear

to be free. Second, non-government facilities play a major role in the provision of care, which is again in part a legacy of the conflict. Third, while the cost of care is not necessarily high, and many individuals receive free care provided in most likelihood by NGOs, costs remain an issue for some individuals, as it is the main reason for not seeking care when sick. Distance is the second main reason for not seeking care, and is mentioned mostly by rural households.

Public spending for health appears to be neither pro-poor, nor pro-rich, at least as measured on the basis of simple statistics on the number of consultations made by various groups of households. The use of private facilities is typically more prevalent among better off households, while the poor rely more than the better off on traditional healers. While overall public spending seems to be less biased against the poor in Liberia than in other countries due in part to the fact that better off households rely in part on private facilities, satisfaction rates, while not very low, are limited, with about 6-0 percent of care seekers being satisfied. The main complaints are related to long waiting times, distances to the facilities, cost, and lack of availability of drugs. The issues of distances and lack of drugs are more prevalent in rural than in urban areas.

The fact that the quality of health services is limited is not surprising given the fact that in terms of budget, the Ministry of Health and Social Welfare does not have adequate resources to provide a basic package of health care to all. NGOs and other groups have stepped in, and are providing valuable services, but as the country completes its transition out of post-conflict stage, several important NGOs have indicated that they would reduce their presence in Liberia. In other words, while today a large share of the health system costs are borne by NGOs and donors, budgetary pressures on the government are expected to increase in future.

Finally, the paper has provided an analysis of the determinants of the demand for care. Many findings are as expected, with older individuals less likely to seek care, and better off households, as well as households whose head is a wage earner more likely to seek care. One interesting result to inform policy is that the distances to health facilities have an impact on the probability to seek care, as expected, but even a substantial reduction in these distances that could be obtained through a program of building new health facilities would apparently not lead to a dramatic increase in the demand for care, perhaps because it is already high in Liberia. This type of results underscores the complexity of designing a strategy for progress in the health sector in Liberia that is both ambitious, and affordable for the government and its partners.

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