BENEFIT INCIDENCE OF PUBLIC HEALTH EXPENDITURE IN BHUTAN

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FOREWORD

The Ministry of Health, Royal Government of Bhutan has always placed pre-eminent priority on Universal Health Coverage and people-centered health services. While the framework of health system in Bhutan is universal in scope and services are provided free of charge at the point of use, it is important for us to ensure that the different socio-economic groups benefit fairly from government spending on healthcare.

This study uncovers some important insights on how our services are distributed and used. It is important to highlight that this work is first of its kind in Bhutan's health sector and there are a number of important limitation in the data. Most importantly, the analysis bases data for 2010 and 2012 surveys and situation could have substantially altered since then. We will continue to strengthen this perspective and improve the datasets.

The study reveals important insights into the benefits and utilization of government health services. I am confident that the findings will provide important inputs into our health policy, planning and resource allocation decisions.

I wish to thank the Asian Development Bank for supporting this study as an important component of the Health Sector Development Project.

Dr. Ugen Dophu
Secretary

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CONTENTS

ACRONYMS AND SYNONYMS

ANC	Antenatal Care
BHU	Basic Health Unit
BIA	Benefit Incidence Analysis
BLSS	Bhutan Living Standard Survey
BMIS	Bhutan Multi Indicator Cluster Survey
DH	District Hospital
GDP	Gross Domestic Product
GGE	General Government Expenditure
GGHE	General Government Health Expenditure
HHC	Health Help Centre
ICT	Information and Communication Technology
IMR	Infant Mortality Rate
JDWNRH	Jigme Dorji Wangchuck National Referral Hospital
MMR	Maternal Mortality Ratio
NHS	National Health Survey
NMR	Neonatal Mortality Rate
NRH	National Referral Hospital
NSB	National Statistical Bureau
Nu	Ngultrum (Bhutanese Currency)
OOP	Out Of Pocket
OPD	Outpatient Department
ORC	Out Reach Clinic
PNC	Post Natal Care
RRH	Regional Referral Hospital
THE	Total Health Expenditure
U5MR	Under Five Mortality Rate
UHC	Universal Health Coverage
USD	United States Dollars
WHO	World Health Organization

EXECUTIVE SUMMARY

The framework of health system in Bhutan, universal in scope with services provided free of charge at the point of use, has ensured high level of equity and financial protection to the population.

In line with this, it is important to ensure that the predominantly public investments in health care is benefiting the people equitably. The study, therefore, aims to determine the extent to which different socio-economic groups benefit from government spending on healthcare. To do this, a benefit incidence analysis (BIA), an analytical technique used to estimate the shares of public benefits that are obtained by different population groups, is used.

The study reveals that the distributions of public benefits for all types of outpatient, inpatient, and obstetric delivery care, although with variations in utilization rates, are mildly progressive, i.e., distributed more equally than household income levels but less equally than the respective population. In particular, it validates the success of primary health care approach in Bhutan and justifies continuous investment in peripheral health units to enhance and sustain gains.

However, it should concern the policy makers that the poor and residents of hard to reach rural areas have been availing substantially lower shares of benefits for all types of health care than their respective population shares. This particularly concerns the services of the national referral hospital (NRH).

Considering this, the study identifies that a more equitable approach would be to redistribute public health expenditure, as much as is possible, away from the referral hospitals and toward the district hospitals and the BHUs. It would be beneficial to revisit the standard set of services (benefit package) to upscale the range of services in the districts and review the referral (gatekeeping) mechanism to streamline the referral mechanism and provide disincentives in view of people bypassing the lower level facilities and neighbouring districts crowding services at the NRH. A strong case for strengthening services at the district level has been made along with the use of ICT tools such as e-health and electronic record systems.

The study bases its data on surveys conducted in 2010 and 2012, and a number of initiatives have been launched since then to improve access to remote and unreached population groups. Besides, a large number of socio-economic activities and poverty alleviation programs in the last 6 years could have contributed significantly to improving access and utilization of health services. It is, therefore, important to carry out a fresh round of analysis with more recent sets of data to determine trends and newer policy inputs.

BACKGROUND

Health system and financing in Bhutan

The Royal Government of Bhutan (RGoB) plays the predominant role in provision and financing of health care in Bhutan. As mandated by the Constitution of the Kingdom of Bhutan, provision of health services is State's prerogative. Article 9, paragraph 21 of the Constitution provides that "The State shall provide free access to basic public health services in both modern and traditional medicines." The basic public health service does not include services such as private cabin facility at the government hospitals, cosmetic (high-end) dental care, and cost for obtaining medical certificates and drugs outside the national essential drug list. Patients requiring specialized health services, which are not available in the country are referred to empaneled hospitals in India at the cost of the government. The traditional medicine services is provided through the national traditional medicine hospital and traditional medicine units which are integrated in the health system. Currently, private provider participation in the health care system is limited to a few pharmacies and selective diagnostic centers.

Health care is delivered through a three-tiered network of health facilities based on the service standard of each level. In 2017, 49 sub posts, 185 Basic Health Units (BHU) II, 25 BHU I, and 30 hospitals constituted the network of health facilities of the Bhutanese health system. Around 95% of the Bhutanese population live within the 3 hours distance to the nearest health facility. Bhutan has made significant investment to develop its health system and achieved remarkable progress in key health outcomes over the past several decades.

Health financing is overwhelmingly public, sourced through the general government revenue and organized through a single payer mechanism.Bhutan's total health expenditure (THE) is at 3.6% of GDP, which is predominantly government financed.

Exhibit 1: Trends in health Expenditure

	1995	2005	2015
Total Health Expenditure (THE) % Gross Domestic Product (GDP)	4.0	5.3	3.6
General Government Health Expenditure (GGHE) as % of Total Health Expenditure	67	79	73
General Government Health Expenditure (GGHE) as % of General government expenditure (GGE)	7	12	8
Out of Pocket Expenditure (OOPS) as % of Total Health Expenditure (THE)-Including transportation	33	21	25
Total Health Expenditure (THE) per Capita in US$	24	66	89

Source: Global Health Expenditure Database, WHO- 2016

Selected services such as private cabin at the government hospitals, cosmetic and high-end dental care, medical certificate, labour screening and drugs outside the national essential drug list are paid out-of-pocket or operate through a nascent private sector in the form of diagnostic centers, off-hour services of government hospitals and pharmaceutical retail shops. Household out-of-pocket expenditure is relatively lowin line with Bhutanese societal values and global commitment towards universal health coverage. The Bhutan Health Trust

Fund (BHTF), established as a legal entity under the Royal Charter in 2000, is an increasingly important health financing mechanism. The trust fund is fully operational now and is gradually delivering its mandate to sustainably finance the recurrent costs of vaccines, essential drugs and essential maternal and child health services.

Purpose and Objectives

Health system in Bhutan is universal and pro-poor in design with the health financing framework offering a relatively high level of financial protection to the population. However, it is yet to be assessed whether the overwhelming public investments in health care is benefiting the people equitably.

The general objective of this study is to determine the extent to which different socio-economic groups benefit from government spending on healthcare.

Specific objectives include:

1. Assess distributional impact of government spending on health care;
2. Assess inequalities in healthcare utilization across socioeconomic groups; and,
3. Determine technical and allocative efficiency in health sector investments.

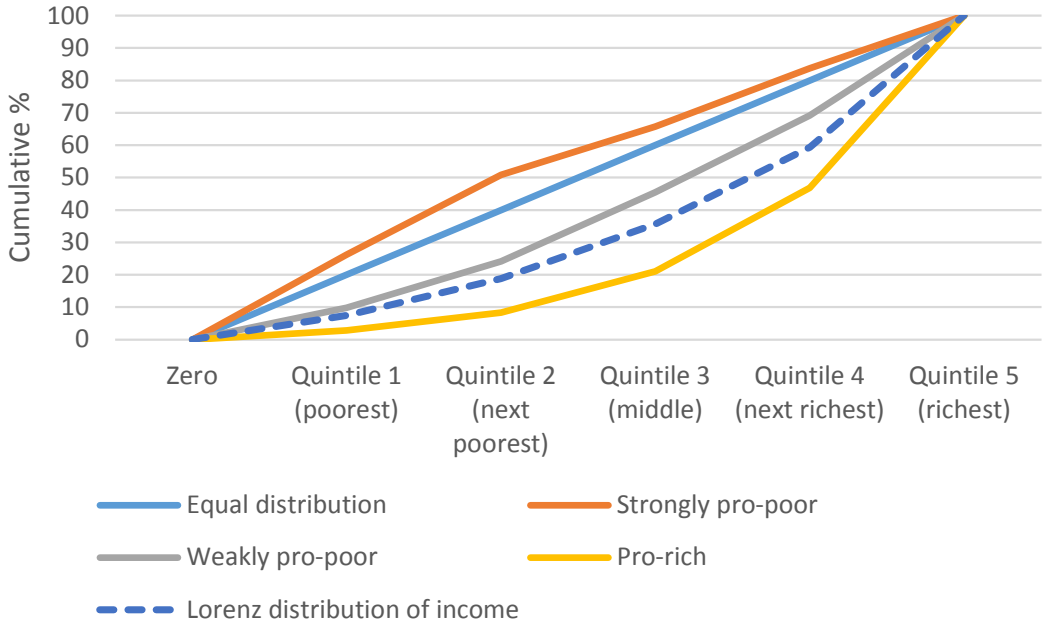
This study is expected to inform policymakers in designing appropriate policies and programmes to accelerate Bhutan's progress towards Universal Health Coverage.

METHODOLOGY

Overview of BIA Approach

Benefit incidence analysis (BIA) is an analytical technique used to estimate the shares of public benefits provided to services such as health care and education that are obtained by different population groups.[1] BIA most often focuses on the shares received by different income groups, but the technique can be equally applied to groups defined according to characteristics such as gender, geographical location, or occupation. The shares received by different groups are typically compared to certain benchmark distributions, for example, the population shares themselves (equal distribution) or, in the case of income groups, to the distribution of income. When the cumulative shares of benefits received is greater than the cumulative shares of the population at lower income levels, the benefit incidence is considered to be "strongly pro-poor" (or simply "strongly progressive"). In this case, the distribution of public health benefits decreases income inequality both relatively and absolutely. If the cumulative shares are lower than the cumulative shares of the population but greater than the cumulative shares of income, the benefit incidence is said to be "weakly pro-poor" (or "weakly progressive"). In this case, the distribution of public health benefits decreases relative income inequality, while increasing absolute income inequality. However, if the cumulative shares are lower even than the cumulative shares of income, benefit incidence is said to be "pro-rich" (or "regressive"), in which case the distribution of public health benefits increases income inequality, both relatively and absolutely. Figure 1 illustrates these ideas using hypothetical data.

Figure 1. Illustrative results of benefit incidence analysis



Source: hypothetical data.

1 Di McIntyre and John E. Ataguba. 2011. "How to do (or not to do)…a benefit incidence analysis." *Health Policy and Planning* 26:174-182.

Scope of the study

Benefit-incidence estimates are obtained in this study for (i) outpatient curative care, (ii) inpatient curative care, and (iii) obstetric delivery care. The estimates for inpatient care are based on admissions. The population groups for which separate benefit-incidence estimates are obtained include: (i) males and females (curative care only), (ii) urban and rural residents (including separate estimates for rural residents of accessible or very accessible locations and hard or very hard to reach locations), (iii) regular paid employees and other workers aged 15+, and (iv) population quintiles based on economic status. Given the data limitations, the study does not attempt to estimate the benefit incidence of public health expenditure on referral abroad.

Data Sources and analysis

Benefit incidence analysis requires (i) data on the utilization of different types of public health services by different groups and (ii) estimates of unit public "benefits" (i.e., unit cost net of out-of-pocket payments)[2] received by the same groups when using the same public health services. In this study, data on the utilization of public health services are obtained from two household surveys: the 2012 Bhutan Living Standards Survey (2012 BLSS) and the 2010 Bhutan Multiple Indicator Survey (2010 BMIS). The 2012 BLSS provides data on the utilization of outpatient and inpatient curative care and obstetric delivery care.[3] The 2010 BMIS provides additional data on the utilization of obstetric delivery care.[4] Estimates of unit costs are obtained directly from a study of the costs of public health services based on 2009/2010 data,[5] while data on OOP payments are obtained from the 2012 BLSS.

The 2012 BLSS is a nationally representative survey (8,968 households and 39,825 individuals) providing detailed data on the sources of up to six outpatient and inpatient contacts (visits or admissions) during the given reference periods (last 4 weeks for outpatient care and the last 12 months for inpatient care).[6] Domestic public providers include: the National Referral Hospital (NRH), Regional Referral Hospitals (RRH), District Hospitals (DH), and Basic Health Units (BHU), including outreach clinics. Less detailed data are available on the type of public health facility in which obstetric deliveries occurred, i.e., a single category of hospital/polyclinic/maternity in the 2012 BLSS and a hospital, BHU or satellite clinic in the case of the 2010 BMIS.[7]

The 2012 BLSS also provides the data needed to identify all of the relevant population groups (i.e., gender, urban-rural residence, employment status and per capita expenditure quintiles),

2 The "benefits" in benefit incidence analyze are limited to financial benefits of public health expenditure, which may not correctly reflect the health benefits of public health expenditure.

3 Asian Development Bank, National Statistics Bureau of Bhutan. 2013. *Bhutan Living Standards Survey 2012 Report*. Manila and Thimphu.

4 National Statistics Bureau, Royal Government of Bhutan. 2011. *Bhutan Multiple Indicator Survey, 2010*. Thimpu.

5 Royal Government of Bhutan, Ministry of Health. 2011. *The Cost of your Healthcare: A Costing of Healthcare Services in Bhutan*. Thimphu.

6 Most household surveys in lower and lower middle income countries do not provide information on the source of care for multiple patient contacts during the reference period (footnote 1).

7 The relatively greater detail on place of delivery in the 2010 BMIS is possible because of its larger sample size (15,400 households and 16,823 women aged 15-49) and because data were collected on deliveries occurring during the past two years (N=2,465), whereas data on obstetric deliveries were collected only for those occurring during the last 12 months in the 2012 BLSS (N=710).

including separate categories of rural residents of "accessible/very accessible" and "hard/very hard to reach" locations (based on a classification of localities developed by the National Statistical Bureau). Regular paid employees account for 26% of the employed and are roughly equivalent to wage and salary workers. The BLSS quintiles are population-weighted per capita expenditure quintiles.[8] The 2010 BMIS provides the data needed to identify only some of the same population groups, i.e., gender, urban-rural residence, and socioeconomic quintiles. The BMIS quintiles are population-weighted quintiles based on an asset index.

The available estimates of the unit costs of public health services are more complete, detailed and carefully documented than in most cost studies. Although data were collected for only 13 facilities out of a total of 213 facilities at the time of the survey (i.e., the NRH, both RRHs, 4 DHs, 3 BHU-Is and 3 BHU-IIs), the sampled facilities account for an estimated 60% and 57% respectively of all outpatient and inpatient contacts in Bhutan. The cost estimates are based on data for the financial year 2009/10. A standard cost model was used in all facilities, making the estimates comparable across facilities. The unit cost estimates include both capital and recurrent costs, with the cost of capital annualized to a yearly depreciation cost. Estimates of the unit costs of outpatient and inpatient services by type of facility are provided in Table 1.[9] They indicate that unit costs vary sharply with the level of provider, with unit costs for both outpatient and inpatient services at referral hospitals being about twice those at district hospitals, which are in turn about twice as high as those at BHUs.[10]The estimates of the unit costs of obstetric delivery care in column 3 are based on the estimated inpatient costs of pregnancy-related conditions (there are no disease-specific estimates of outpatient care).

Table 1. Estimated unit costs of outpatient, inpatient and obstetric delivery care by source of care (Nu)

Facility type	Outpatient visit	Inpatient admission	Obstetric delivery care
	(1)	*(2)*	*(3)*
National Referral Hospital	597	17,848	8,594
Regional Referral Hospitals	832	16,534	13,941
District Hospitals	307	10,116	5,468
BHU-I (including ORCs)	163	5,657	3,458
BHU-II (including ORCs)	161	NA	NA

Source: columns (1) and (2): see footnote 5; column (3) (see text).
NA: There are no inpatients in BHU-II facilities

There are some features of the cost estimates that may affect the benefit-incidence estimates, including:

- The data on the volume of reported services in the available service statistics (BHMIS) are not reliable in all cases (e.g., evidence of some duplicate reporting is cited in the cost study);
- The cost of medicines and supplies actually consumed were available only at the NRH. Estimates of the cost of medicines and supplies at other facilities is based on the reported

8 It is unclear whether the per capita consumption measure was adjusted for spatial price variation.
9 The estimates of unit costs are weighted means of the estimates for individual sample facilities in a given category, weighted by their reported activity levels.
10 In this report, the unit public benefits for all types of BHU care are based on the unit costs of BHU-I facilities.

values delivered to the facilities during the year; and

- Purchase prices were not available for all capital equipment

Unit public benefits are equal to unit costs less out-of-pocket (OOP) payments made by patients. The data on OOP payments for outpatient, inpatient and obstetric delivery care are reported in the 2012 BLSS. However, they are reported only for all visits or admissions combined during the reference period, including those made to non-public providers. OOP payments for obstetric delivery care are reported only for the most recent delivery in the last 12 months, with no information about the type of public health in which they occurred (e.g., NRH versus BHU).[11] The estimates of unit OOP payments for outpatient and inpatient care reported in Table 2 (columns 1-8) are the weighted sample mean values for the sub-sample of individuals who reported using the same public health facility for all contacts divided by the number of reported contacts during the reference period.[12] These data indicate that females, rural residents of hard or very hard to reach rural areas and the poor generally report lower OOP payments than males or rural residents of accessible or very accessible locations. However, regular paid employees generally report lower OOP payments than other workers. The reported OOP payments for obstetric delivery care reported in column 9 of Table 2 refer to the reported OOP payment for the most recent delivery during the last 12 months occurring at an unspecified public health facility. Although the number of reported deliveries in the 2012 BLSS is small (N=710), these data indicate that "other workers" (i.e., non-wage and salary workers) and the poor report lower OOP payments for obstetric delivery care than the rich (with only small differences observed by location of residence). Comparing the data in Tables 1 and 2, reported OOP payments per inpatient admission or per obstetric delivery are much smaller percentages of the corresponding unit costs than the reported OOP payments per outpatient visit.

Table 2. Mean out-of-pocket (OOP) payments per public health contact by type of care and type of provider (Nu)

	Outpatient visit				Inpatient admission				Delivery
Group	NRH	RRH	DH	BHU	NRH	RRH	DH	BHU	Any public health facility
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Male	191	152	96	17	473	428	613	267	NA
Female	104	54	56	93	447	192	352	184	NA
Bhutan	138	94	72	62	456	292	460	221	NA
Urban	131	65	120	42	407	198	430	500	195
Rural	148	109	54	64	486	319	469	181	181
Accessible/very accessible	159	124	51	69	427	355	548	102	167
Hard/very hard to access	98	45	65	57	748	215	196	261	227
Bhutan	138	94	72	62	456	292	460	221	187
Regular paid employees	78	67	52	14	655	281	364	186	504
Other workers	193	200	66	63	526	217	658	296	115
All employed	144	165	63	57	575	228	607	281	252

11 No data on OOP payments are reported in the 2010 BMIS.

12 In fact, most patient contacts reported in the BLSS were made to a public health facility (outpatient: 95.9%, inpatient: 95.6%), and most patient contacts were to a single public health facility (outpatient: 88.6%, inpatient: 82.4%). By comparison, 25.7% of respondents in one South African survey who reported that they visited an outpatient provider during the indicated reference period reported that they visited more than one provider (footnote 1).

	Outpatient visit				Inpatient admission				Delivery
Group	NRH	RRH	DH	BHU	NRH	RRH	DH	BHU	Any public health facility
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Quintile 1	10	17	22	3	121	19	256	41	51
Quintile 2	138	28	27	13	225	85	156	62	88
Quintile 3	81	36	46	31	176	582	838	168	199
Quintile 4	135	227	66	20	316	127	250	182	233
Quintile 5	147	74	127	302	806	391	655	897	271
Bhutan	138	94	72	62	456	292	460	221	187

Source: 2012 BLSS (special tabulations)
NA=not applicable

Limitations

Some limitations of this study that may affect the conclusions include:

(i) The "benefits" in benefit incidence analyze are limited to financial benefits of public health expenditure, which may not correctly reflect the health benefits of public health expenditure;

(ii) The data on outpatient health care utilization are conditional on the reporting of illness, which may be biased;

(iii) The estimates of unit costs at DHs and BHUs are based on small samples that provide no information on possibly varying location costs;

(iv) The data on OOP payments are not separately available for each patient contact.The analysis implicitly assumes that all groups receive the same standard of care independent of the level of their OOP payments;[13]

(v) The samples of obstetric deliveries are relatively small, and detailed information on the place of delivery is not reported. In addition, it is noted that the OOP payments included in the study do not include substantial expenses on health care-related transportation. Although this is typically the case in benefit-incidence analyses, inclusion of transportation expenses in OOP could lead to different conclusions in some cases;[14]and,

(vi) Lastly, and perhaps most importantly, the findings in this study are based on data for the period 2010-2012, and the situation may well have changed since then. Accordingly, it is important to repeat this study when the 2017 BLSS data become available.

13 This is a very strong assumption in some settings (e.g., Vietnam), as discussed in A. Wagstaff. 2010. "Benefit Incidence Analysis: Are Government Health Expenditures More Pro-rich Than We Think." Policy Research Working Paper 5234, The World Bank, Washington, DC.

14 Whether transportation and other health-care related expenses are included in a benefit-incidence analysis should in principle depend on the purpose of the analysis, i.e., whether its objective is to assess the equity of public expenditure or the effect of public expenditure on economic welfare. With the latter objective, it would be reasonable to include transportation expenses (including an estimate of the opportunity cost of patient's and care-givers' time, if possible).

FINDINGS

Findings are presented individually for (1) outpatient care, (2) inpatient care and (3) obstetric care, and jointly together as the (4) total benefit incidence.

1. Outpatient care

Table 3 presents tabulations of the 2012 BLSS data on the utilization of outpatient care. The estimated 2012 population in each population group (based on the 2012 BLSS sampling weights) is reported in column 1. The data in rows 9-11 refer to the numbers of workers aged 15 and above. The data in column 2 indicate that 17.1% of the population reported that they were ill during the past 4 weeks. This indicator of recent morbidity varies from 12.6% (regular paid employees) to 22.1% (richest quintile).[15] The percentages of those reported ill who sought care during the past 4 weeks are reported in column 3 and vary between 52.6% (the poorest quintile) to 74.2% (richest quintile). According to the data in columns 2 and 3, females are more likely to report illness during the past 4 weeks (19.5% versus 14.6% of males) and are also more likely to seek care (69.6% versus 66.5% of males). The reported mean numbers of outpatient visits per capita to all types of public health facilities during the 4-week reference period (based on the full sample, including individuals who were not ill or who did not seek care) are reported in column 4 and vary between 0.1038 visits (poorest quintile) to 0.2798 (richest quintile).[16] The percentages of visits to each type of public facility are reported in columns 5-9 and indicate that there is considerable variation in the types of outpatient facilities used by different population groups. For example, only 3.7% of the visits made by persons in the poorest quintile were to the NRH, compared to 66.7% of visits to a BHU. In contrast, 32.2% of the visits of those in the richest quintile were to the NRH, compared to only 19.7% to a BHU. Similarly sharp differences are observed across urban-rural locations of residence and by employment status, whereas the corresponding gender differences are relatively small.

15 It is not unusual for higher-income (and better-educated) individuals to report higher levels of morbidity than lower income individuals in household surveys (see, for example, the discussion of this point in footnote 1). It is generally believed that this tendency reflects in part reduced access to health care and/or less awareness of true health status among poorer groups (an interpretation that is consistent with the utilization data reported in columns 3 and 4 of Table 3).

16 The data in column 4 are based on the up to six visits for which information is provided on the type of facility visited. Visits in excess of six visits during the 4-week reference period amount to 2.25% of all outpatient visits.

Table 3. Data on utilization: Outpatient care (N=39,367 individuals)

Group	Population	Ill during past 4 weeks (%)	Sought care (%)	Number of visits to public health facilities per capita	Type of facility visited (%)				
					NRH	RRH	DH	BHU	Total
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Male	289,096	14.6	66.5	0.1494	17.2	12.8	30.6	39.4	100.0
Female	297,263	19.5	69.6	0.2125	18.7	11.7	32.0	37.7	100.0
Bhutan	586,359	17.1	68.3	0.1815	18.1	12.1	31.4	38.4	100.0
Urban	182,562	13.9	73.2	0.1579	36.3	14.7	34.7	14.3	100.0
Rural	403,797	18.6	66.7	0.1920	11.4	11.2	30.2	47.2	100.0
Accessible/very accessible	263,288	19.6	70.6	0.2144	12.7	12.4	33.9	40.9	100.0
Hard/very hard to access	140,509	16.7	58.1	0.1502	7.8	8.0	20.2	64.0	100.0
Bhutan	586,359	17.1	68.3	0.1815	18.1	12.1	31.4	38.4	100.0
Regular paid employees	62,872	12.6	69.9	0.1412	28.3	13.8	31.3	26.6	100.0
Other workers	176,212	19.0	67.2	0.2035	10.8	11.2	33.2	44.8	100.0
All employed	239,084	17.3	67.7	0.1871	14.3	11.7	32.8	41.2	100.0
Quintile 1	116,660	13.5	52.6	0.1038	3.7	6.8	22.8	66.7	100.0
Quintile 2	116,505	15.6	64.8	0.1414	6.5	8.5	30.6	54.4	100.0
Quintile 3	117,198	16.6	71.9	0.1779	10.7	15.0	30.7	43.6	100.0
Quintile 4	117,403	18.0	72.9	0.2068	20.8	12.6	33.1	33.6	100.0
Quintile 5	118,592	22.1	74.2	0.2798	32.2	13.8	34.2	19.7	100.0
Bhutan	586,358	17.1	68.3	0.1815	18.1	12.1	31.4	38.4	100.0

Source: 2012 BLSS

Note: the sample mean numbers of visits of visits reported in column 4 are based on the full sample (including those not reporting illness or not seeking care) and include up to six reported outpatient visits to any type of facility.

Table 4 presents the results of the benefit incidence analysis of outpatient care.

Table 4. Benefit incidence analysis: Outpatient care

	Shares of public benefits received by various groups (%)					Corresponding population shares (%)
Group	NRH	RRH	DH	BHU	All outpatient services	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Gender						
Male	34.1	39.7	35.5	59.8	39.8	49.3
Female	65.9	60.3	64.5	40.2	60.2	50.7
Urban-rural residence						
Urban	55.1	34.0	24.0	12.2	34.6	31.1
Rural	44.9	66.0	76.0	87.8	65.4	68.9
Accessible/very accessible	35.6	52.1	62.8	52.8	50.1	44.9
Hard/very hard to access	9.3	13.9	13.2	35.0	15.2	24.0
Employment status						
Regular paid employees	45.3	27.0	19.8	18.0	27.8	26.3
Other workers	54.7	73.0	80.2	82.0	72.2	73.7
Per capita expenditure quintile						
Quintile 1	2.9	7.0	10.0	31.7	9.9	20.0
Quintile 2	5.4	11.7	18.0	32.8	14.3	20.0

Group	Shares of public benefits received by various groups (%)					Corresponding population shares (%)
	NRH	RRH	DH	BHU	All outpatient services	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Quintile 3	12.7	25.9	21.3	29.3	21.3	20.0
Quintile 4	25.8	19.2	24.7	28.5	23.8	20.0
Quintile 5	53.2	36.2	26.0	-22.3*	30.8	20.0

Source: 2012 BLSS

The benefit incidence estimates in Table 4 indicate that:

- Females receive a higher share of public benefits for all outpatient services (column 5) than their share of the population (60.2% versus 50.7%). Their share of public benefits is highest for NRH services (65.9%), closely followed by that for DH services (64.5%). However, males receive a substantially higher share of public benefits for BHU services than their population share (59.8% versus 49.3%).

- Urban residents receive a higher share of public benefits for all outpatient services combined (column 5) than their share of the population (34.6% versus 31.1%). The urban share is highest for NRH services (55.1%), whereas the urban shares of public benefits are relatively low for DH and BHU services (24.0% and 12.2% respectively). Like urban residents, rural residents of accessible or very accessible locations receive higher shares of public benefits for all outpatient services (column 5) than their shares of the population (50.1% versus 44.9%). In contrast, rural residents of hard or very hard to reach locations receive a substantially lower share of public benefits for all outpatient services than their share of the population (15.2% versus 24.0%) and an even lower share of benefits for NRH services (9.3%).

- Both regular paid employees and other workers aged 15+ receive shares of public benefits for all outpatient services combined that are similar to their respective shares of the population (27.8% versus 26.3% and 72.2% versus 73.7% respectively). However, regular paid employees receive a substantially higher share of public benefits for NRH services (45.3%), while other workers receive higher shares of public benefits for RRH, DH and BHU services (73.0%, 80.2% and 82.0% respectively).

- The poorest two quintiles receive smaller shares of public benefits for outpatient services than their respective 20% shares of the population (9.6% and 14.3% respectively), whereas the two richest quintiles receive larger shares than their share of the population (23.8% and 30.8% respectively). These differences are even larger for NRH and RRH services. In the case of BHU services, the richest quintile cross-subsidizes BHU outpatient users in other quintiles).[17]

Table 5 compares the cumulative shares of outpatient benefits received by per capita consumption quintiles to the cumulative shares of each quintile's population as well as to the cumulative shares of total household expenditure and household income. According to these data, the distribution of public benefits for all outpatient services (column 5 and Figure 2) is progressive, i.e.,more equally distributed than both household expenditure and household

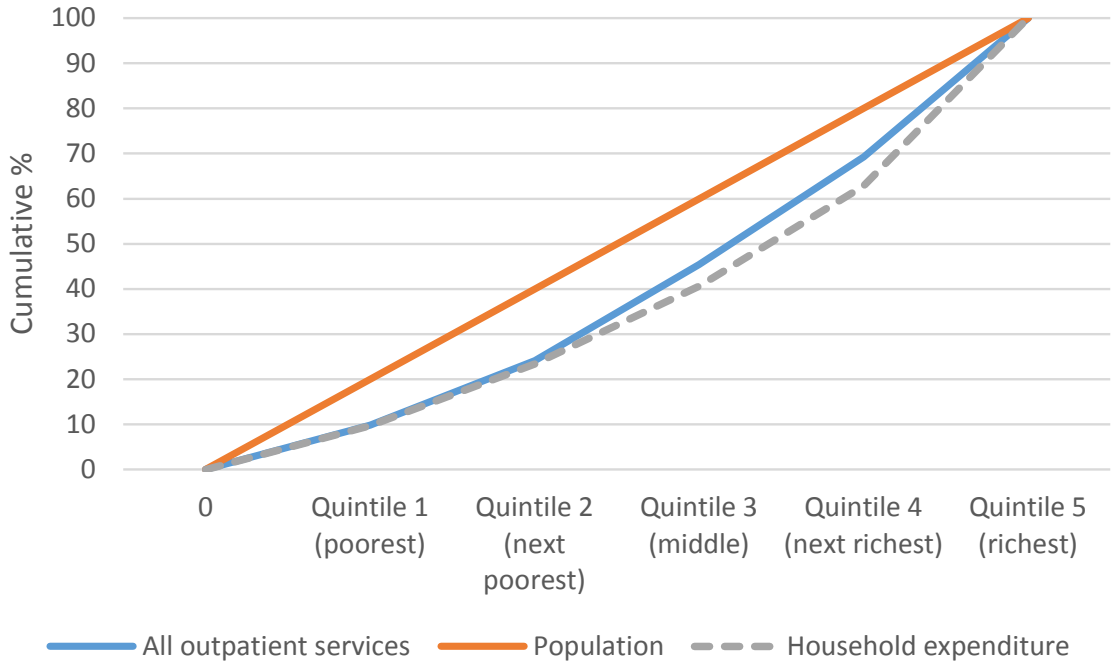
17 This is not an unusual finding in benefit-incidence studies. Some analysts assume a zero unit subsidy in such cases. See discussion of this point in van de Walle (footnote 24), p. 171.

income, but less equally distributed than the population.[18]Breaking down by the type of health facility, the distribution of public benefits for outpatient services at DH and BHU (column 3 and 4) are progressive i.e. more equally distributed than the population, the distributions of public benefits for both NRH and RRH services (columns 1 and 2) are less equally distributed than either household expenditure or household income.

Table 5. Comparison of the cumulative quintile shares of public outpatient benefits to the cumulative shares of the population, household expenditure and household income (%)

	Cumulative quintile shares (%)							
Per capita consumption quintile	NRH	RRH	DH	BHU	Total outpatient	Population	Household expenditure	Household income
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
Quintile 1	2.9	7.0	10.0	31.7	9.9	20.0	9.7	7.4
Quintile 2	8.3	18.7	28.0	64.5	24.1	40.0	23.3	18.8
Quintile 3	21.0	44.6	49.3	93.8	45.4	60.0	40.6	35.7
Quintile 4	46.8	63.8	74.0	122.3	69.2	80.0	62.8	59.4
Quintile 5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 2. Cumulative distribution of benefits for all outpatient care compared to the cumulative distributions of the population and household expenditure



18 Different benefit incidence studies define these categories differently. For example, weakly pro-poor distributions are sometimes referred to as "progressive."

2. Inpatient care

Table 6 presents special tabulations of the 2012 BLSS data on the utilization of inpatient care. The estimated percentages of the population who were inpatients in any type of facility (column 2) and in a public health facility (column 3) during the past 12 months indicate that 4.73% of the population was an inpatient during the past 12 months while 4.55% of the population were inpatients in a public health facility (i.e., 96.0% of all inpatients). The percentage hospitalized varies from 3.25% (poorest quintile) to 6.33% (richest quintile). However, the percentage of the rural population hospitalized is substantially higher than that of the urban population (5.17% versus 3.76%), although the percentage of the rural population in accessible or very accessible areas hospitalized is higher than that of the rural population in hard or very hard to reach areas (5.67% versus 4.23%). The percentage of females hospitalized is also higher (5.53% versus 3.91% male). Columns 4 and 5 show the total number of admissions and total number of public health facility admissions respectively in each population group during the 12-month reference period.

Table 6. Data on utilization: Inpatient care (N=39,367 individuals)

						Type of hospital in which admitted (%)				
Group	Population	Inpatient (%)	Inpatient in public health facility (%)	Number of Inpatient admissions per capita	Number of public health facility admissions per capita	NRH	RRH	DH	BHU-I	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10
Male	289,096	3.91	3.75	0.0570	0.0545	24.5	23.2	34.0	18.3	100.0
Female	297,263	5.53	5.32	0.0794	0.0751	25.2	21.7	36.0	17.1	100.0
Bhutan	586,359	4.73	4.55	0.0684	0.0650	24.9	22.3	35.1	17.6	100.0
Urban	182,562	3.76	3.55	0.0559	0.0518	38.9	18.7	34.0	8.3	100.0
Rural	403,797	5.17	4.99	0.0740	0.0708	20.4	23.5	35.5	20.6	100.0
Accessible/very accessible	263,288	5.67	5.43	0.0820	0.0778	22.8	24.4	37.7	15.1	100.0
Hard/very hard to access	140,509	4.23	4.16	0.0591	0.0580	14.3	21.2	30.1	34.3	100.0
Bhutan	586,359	4.73	4.55	0.0684	0.0650	24.9	22.3	35.1	17.6	100.0
Regular paid employees	62,872	4.03	3.85	0.0553	0.0515	37.8	23.3	27.2	11.7	100.0
Other workers	176,212	5.32	5.07	0.0723	0.0683	18.3	23.8	36.0	21.9	100.0
All employed	239,084	4.98	4.75	0.0678	0.0639	22.5	23.7	34.1	19.7	100.0
Quintile 1	116,660	3.25	3.17	0.0443	0.0428	12.4	22.5	31.3	33.8	100.0
Quintile 2	116,505	4.10	3.99	0.0563	0.0543	15.6	18.1	41.1	25.2	100.0
Quintile 3	117,198	4.81	4.67	0.0706	0.0669	23.6	30.6	33.2	12.5	100.0
Quintile 4	117,403	5.21	5.06	0.0740	0.0716	29.1	23.0	33.7	14.2	100.0
Quintile 5	118,592	6.33	5.87	0.0974	0.0898	34.3	18.1	36.0	11.6	100.0
Bhutan	586,358	4.73	4.55	0.0684	0.0650	24.9	22.3	35.1	17.6	100.0

Source: 2012 BLSS (special tabulations).

Note: the sample mean numbers of inpatient admissions reported in columns 4 and 5 are based on the full sample (including those not reporting any inpatient care) and include up to six reported inpatient admissions in any type of facility.

Table 7 shows the results of the benefit incidence analysis of inpatient care. The results are presented separately for each of five population groups and for each of four types of facility and show the percentages of annual public benefits (benefits) received and can be compared to the corresponding population shares of each group (column 6).

Table 7. Benefit incidence analysis: Inpatient care

	Shares of public benefits received by various groups (%)					
Group	NRH	RRH	DH	BHU	All inpatient care	Corresponding population shares (%)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Gender						
Male	40.7	42.7	39.4	42.6	41.1	49.3
Female	59.3	57.3	60.6	57.4	58.9	50.7
Urban-rural residence						
Urban	38.8	21.0	24.1	11.2	27.4	31.1
Rural	61.2	79.0	75.9	88.8	72.6	68.9
Accessible/very accessible	49.1	58.6	57.1	47.3	54.0	44.9
Hard/very hard to access	12.1	20.5	18.8	41.5	18.7	24.0
Employment status						
Regular paid employees	35.5	20.8	17.3	12.8	23.9	26.3
Other workers	64.5	79.2	82.7	87.2	76.1	73.7
Per capita expenditure quintile	100.0	100.0	100.0	100.0	100.0	100.0
Quintile 1	6.6	13.4	11.9	26.2	11.6	20.0
Quintile 2	10.5	13.6	20.0	24.6	15.1	20.0
Quintile 3	19.7	27.7	18.6	14.9	21.4	20.0
Quintile 4	25.8	22.9	21.5	18.0	23.2	20.0
Quintile 5	37.4	22.5	28.0	16.3	28.8	20.0

Source: 2012 BLSS

The benefit incidence estimates in Table 7 indicate that:

- Females receive a substantially higher share of public benefits for all inpatient services combined (column 5) than their share of the population (58.0% versus 50.7%), while their shares of public benefits are similar for all types of facilities.
- Rural residents receive a slightly higher share of public benefits for all inpatient services than their share of the population (72.6% versus 68.9%). However, rural residents' share of public benefits for NRH services is substantially lower than their share of the population (61.2%), while their shares of public benefits for RRH, DH and BHU services are substantially higher (79.0%, 75.9% and 88.8% respectively), with utilization higher for rural residents of accessible or very accessible locations.
- For regular paid employees, their share of public benefits for NRH services is substantially higher (35.5%), while their shares of RRH, DH and BHU services are substantially lower (20.8%, 17.3% and 12.8% respectively).
- The two richest quintiles (quintiles 4 and 5) receive slightly higher shares of public benefits for all types of inpatient care combined (column 4) than their respective 20% shares of the population (23.2% and 28.8% respectively), while the two poorest quintiles (quintiles 1 and 2) receive lower shares than their 20% shares of the population (11.6% and 15.1%

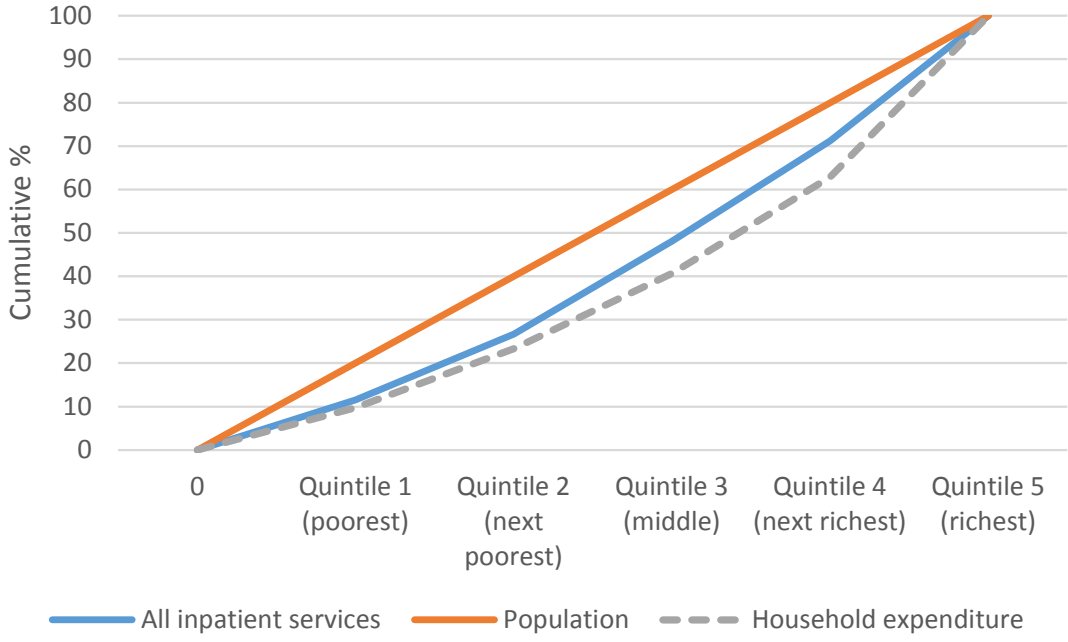
respectively). This disparity is larger for NRH services.

Table 5 compares the cumulative shares of public inpatient benefits received by per capita consumption quintiles to the cumulative shares of each quintile's population as well as to their cumulative shares of total household expenditure and household income. According to these data, the distribution of public benefits for all inpatient services combined (column 5 and Figure 3) is progressive, i.e., more equally distributed than both household expenditure and household income, but less equally distributed than the population. Breaking down by the type of health facility, the distribution of public benefits for inpatient care at RRH, DH and BHU services (columns2, 3 and 4) are progressive i.e. more equally distributed than the population, the distributions of public benefits for NRH is less equally distributed than either household expenditure or household income.

Table 8. Comparison of the cumulative quintile shares of public inpatient benefits to the cumulative shares of the population, household expenditure and household income (%)

	Cumulative quintile shares (%)							
	NRH	RRH	DH	BHU	Total inpatient benefits	Population	Household expenditure	Household income
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
Quintile 1	6.6	13.4	11.9	26.2	11.6	20.0	9.7	7.4
Quintile 2	17.1	27.0	31.8	50.8	26.7	40.0	23.3	18.8
Quintile 3	36.8	54.6	50.5	65.7	48.0	60.0	40.6	35.7
Quintile 4	62.6	77.5	72.0	83.7	71.2	80.0	62.8	59.4
Quintile 5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 3. Cumulative distribution of benefits for all types of inpatient care compared to the cumulative distributions of the population and household expenditure



3. Obstetric care

Table 9 presents special tabulations of the 2012 BLSS data on the utilization of obstetric care for the most recent delivery occurring during the last 12 months. The estimates of the population of women aged 15-49 in column 1 are based on the 2012 BLSS sampling weights. The data in rows 6-8 refer to the number of employed women aged 15-49. The data in column 2 indicate that 10.4% of women aged 15-49 gave birth during the 12 months preceding the survey, with the percentage varying from 7.9% (other workers) to 13.3% (regular paid employees). The data in column 3 indicate that 76.8% of women delivering during the last 12 months delivered in a public health facility, with the percentage varying from 48.9% (rural residents of hard or very hard to reach locations) to 96.5% (regular paid employees). The estimated number of deliveries of each group (obtained as the product of columns 1-3) are reported in column 4. Columns 5-9 report the estimated percentages of deliveries occurring in each type of public health facility (assumed to be the same as the corresponding inpatient percentages in Table 6, columns 6-10).

Table 9. BLSS data on the utilization of obstetric care (N=6,833 women aged 15-49)

					Type of facility in which delivered (%)				
Group	Female population aged 15-49	Gave birth in last 12 months (%)	Delivered in a public health facility (%)	Number of deliveries in public health facilities	NRH	RRH	DH	BHU	Total
	(1)	(2)	(3)	(4)=(1)*(2)*(3)	(5)	(6)	(7)	(8)	(9)
Urban	57,268	10.7	92.1	5,619	38.9	18.7	34.0	8.3	100.0
Rural	105,999	10.2	68.9	7,466	20.4	23.5	35.5	20.6	100.0
Accessible/very accessible	69,837	10.2	80.0	5,694	22.8	24.4	37.7	15.1	100.0
Hard/very hard to reach	36,162	10.3	46.9	1,751	14.3	21.2	30.1	34.3	100.0
Bhutan	163,267	10.4	76.8	7,445	24.9	22.3	35.1	17.6	100.0
Regular paid employees	15,175	13.3	96.5	1,952	37.8	23.3	27.2	11.7	100.0
Other workers	63,475	7.9	58.9	2,966	18.3	23.8	36.0	21.9	100.0
All employed	78,650	9.0	76.8	4,918	22.5	23.7	34.1	19.7	100.0
Quintile 1	29,026	11.8	48.9	1,682	12.4	22.5	31.3	33.8	100.0
Quintile 2	30,363	9.9	69.4	2,096	15.6	18.1	41.1	25.2	100.0
Quintile 3	31,968	9.8	81.0	2,542	23.6	30.6	33.2	12.5	100.0
Quintile 4	33,981	10.7	89.4	3,247	29.1	23.0	33.7	14.2	100.0
Quintile 5	37,930	9.7	94.8	3,493	34.3	18.1	36.0	11.6	100.0
Bhutan	163,267	10.4	76.8	13,059	24.9	22.3	35.1	17.6	100.0

Source: 2012 BLSS (special tabulations)

Note: the percentages in columns 5-9 are assumed to be the same as in columns 6-10 of Table 6.

Table 10 shows the results of the benefit incidence analysis of obstetric delivery care based on the 2012 BLSS data and 2010 BMIS data.

Table 10: Benefit-incidence analysis: Obstetric care (based on BLSS data)

	Shares of public benefits received by various groups (%)					
Group	NRH	RRH	DH	BHU	All obstetric delivery benefits	Corresponding population shares (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Gender						
Male	0.0	0.0	0.0	0.0	0.0	0.0
Female	100.0	100.0	100.0	100.0	100.0	100.0
Urban-rural residence						
Urban	58.9	37.5	41.8	23.2	44.3	35.1
Rural	41.1	62.5	58.2	76.8	55.7	64.9
Accessible/very accessible	34.8	49.4	47.0	45.0	44.0	42.8
Hard/very hard to reach	6.7	13.2	11.4	30.8	11.8	22.1
Employment status						
Regular paid employees	56.4	38.5	31.6	23.7	40.9	19.3
Other workers	43.6	61.5	68.4	76.3	59.1	80.7
Per capita expenditure quintile						
Quintile 1	6.5	13.1	11.8	25.7	11.9	17.8
Quintile 2	10.1	13.1	19.2	23.6	14.5	18.6
Quintile 3	18.3	26.7	18.4	13.8	21.4	19.6
Quintile 4	28.8	25.5	23.7	19.7	25.5	20.8
Quintile 5	36.3	21.6	27.0	17.1	26.6	23.2

Source: 2012 BLSS (based on estimates in Tables 1, 2 and 9).
Note: some sub-groups may not add up to the group total exactly due to the effect of survey weights.

Table 11. Benefit-incidence analysis: Obstetric care (based on BMIS data)

	Shares of public benefits received by various groups (%)					
Group	NRH	RRH	DH	BHU	All obstetric delivery benefits	Corresponding population shares (%)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	(6)
Gender						
Male	0.0	0.0	0.0	0.0	0.0	0.0
Female	100.0	100.0	100.0	100.0	100.0	100.0
Residence						
Urban	52.2	31.3	35.4	14.1	37.8	35.1
Rural	47.8	68.7	64.6	85.9	62.2	64.9
Asset index quintile						
Quintile 1	5.1	10.5	9.6	30.9	9.7	17.8
Quintile 2	7.6	10.1	14.9	24.5	11.3	18.6
Quintile 3	18.7	28.1	19.6	18.9	22.8	19.6
Quintile 4	30.3	27.8	26.1	17.8	27.6	20.8
Quintile 5	38.3	23.5	29.8	7.9	28.6	23.2

The benefit incidence estimates in Table 10 and Table 11 indicate that:

- Urban women receive higher share of public benefits for all obstetric care services combined (column 5) than their share of the population. The share of public benefits received by urban women is particularly large in the case of NRH serviceswhile their share of public benefits for BHU care is substantially lower.
- Rural women residing in accessible or very accessible locations fare much better than those residing in residing in hard or very hard to reach locations.
- Regular paid employees receive substantially higher share of public benefits for all obstetric care services than the other workers.
- Women in the poorest two quintiles receive lower share of public benefits for all types of obstetric care services combined than their respective shares of the population (11.9% versus 17.8%, and 14.5% versus 18.6% respectively) with the disparity greatest for NRH services.

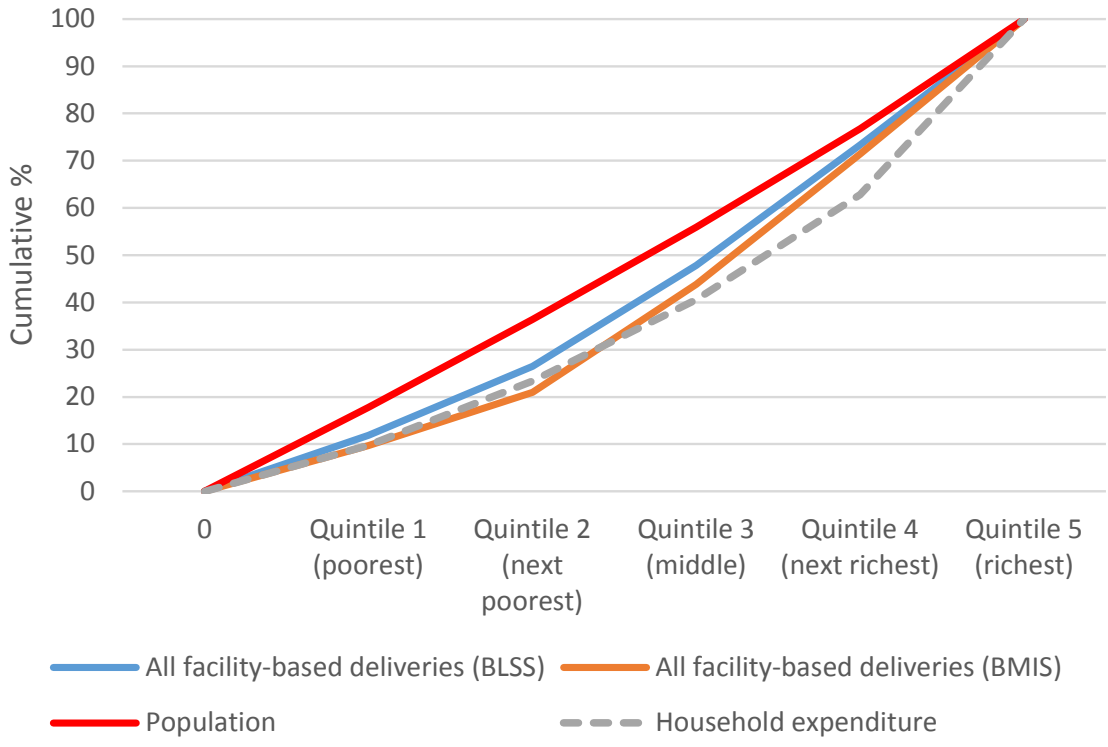
Table 12 compares the cumulative shares of public benefits for obstetric care received by women aged 15-49 in per capita consumption quintiles to the cumulative shares of each quintile's population of women aged 15-49 and to the cumulative shares of household expenditure and household income. According to these data, the distribution of public benefits for all obstetric care services combined (column 5 and Figure 4) is progressive, i.e., more equally distributed than both household expenditure and household income, but less equally distributed than the population. Differentiated by types of health facility, the distribution of overall public benefits at RRH, DH and BHU services (columns2, 3 and 4) is progressive i.e. more equally distributed than the population. The distributions of public benefits for NRH is less equally distributed than either household expenditure or household income.

Table 12. Comparison of the cumulative quintile shares of public benefits for obstetric care (by type of facility) to the cumulative shares of the population of women aged 15-49, household expenditure and household income

	Cumulative quintile shares (%)-BLSS							
Quintile	NRH	RRH	DH	BHU	All obstetric delivery benefits	Population shares	Household expenditure	Household income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quintile 1	6.5	13.1	11.8	25.7	11.9	17.8	9.7	7.4
Quintile 2	16.6	26.2	30.9	49.3	26.5	36.4	23.3	18.8
Quintile 3	35.0	52.9	49.3	63.1	47.8	56.0	40.6	35.7
Quintile 4	63.7	78.4	73.0	82.9	73.4	76.8	62.8	59.4
Quintile 5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

	Cumulative quintile shares (%)-BMIS							
Asset index quintile	NRH	RRH	DH	BHU	All obstetric delivery care	Population of women 15-49	Household expenditure	Household income
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
Quintile 1	5.1	10.5	9.6	30.9	9.7	17.8	9.7	7.4
Quintile 2	12.6	20.6	24.5	55.4	21.0	36.4	23.3	18.8
Quintile 3	31.4	48.7	44.1	74.3	43.8	56.0	40.6	35.7
Quintile 4	61.7	76.5	70.2	92.1	71.4	76.8	62.8	59.4
Quintile 5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 4. Cumulative distribution of benefits for facility-based obstetric care compared to the cumulative distributions of the population of women aged 15-49 years and household expenditure



4. Total benefit incidence

Table 13 reports estimates of benefit-incidence by type of facility for all types of care combined, i.e., outpatient care, inpatient care, and obstetric delivery care. The estimates were obtained by summing across the estimates of public benefits for outpatient, inpatient and obstetric care services. The aggregate benefit-incidence estimates in Table 13 indicate that:

- Females receive a substantially higher share of total public benefits (column 5) than their share of the population (63.8%, compared to their population share of 50.7%) as well as for care obtained at every type of facility.
- Rural residents receive 67.9% of total public benefits (column 5), compared to their population share of 68.9%. However, rural residents receive a substantially lower share of NRH total benefits (53.1%), while receiving higher shares of RRH, DH and BHU benefits (71.5%, 74.2% and 87.4% respectively). The situation favours rural residents of accessible or very accessible locations than those of hard or very hard to access locations.
- Regular paid employees receive a slightly higher share of total public benefits (column 5) than their share of population (27.2% versus 26.3%). However, their share of the total benefits from NRH services is substantially higher (41.0%).
- The population in the poorest quintile receives lower share of total public benefits compared to their share of the population, with even lower share of the NRH services.

Table 13. Benefit incidence for all types of care combined by source of care

	Shares of public benefits received by different groups (%)					
Group	NRH	RRH	DH	BHU	All types of care combined	Corresponding population shares (%)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Gender						
Male	34.2	36.0	34.1	49.3	36.2	49.3
Female	65.8	64.0	65.9	50.7	63.8	50.7
Urban-rural residence						
Urban	46.9	28.5	25.8	12.6	32.1	31.1
Rural	53.1	71.5	74.2	87.4	67.9	68.9
Accessible/very accessible	42.7	54.7	58.4	50.2	51.4	44.9
Hard/very hard to access	10.5	16.8	15.9	37.2	16.6	24.0
Employment status						
Regular paid employees	41.0	25.5	19.6	16.5	27.2	26.3
Other workers	59.0	74.5	80.4	83.5	72.8	73.7
Per capita expenditure quintile						
Quintile 1	5.2	10.7	11.1	29.2	10.9	20.0
Quintile 2	8.5	12.7	19.1	29.0	14.7	20.0
Quintile 3	16.9	26.8	19.7	22.7	21.3	20.0
Quintile 4	26.0	21.7	23.0	23.9	23.7	20.0
Quintile 5	43.3	28.0	27.1	-4.8	29.4	20.0

Source: 2012 BLSS (see text)

Table 14 compares the cumulative shares of public benefits from all types of services by per capita consumption quintile to the cumulative shares of each quintile's population, household expenditure and household income. According to these data, the distribution of public benefits for all services from all facilities is progressive (i.e., more equally distributed than both household expenditure and household income, but less equally distributed than the population). Differentiated by types of health facility, the distribution of overall public benefits at RRH, DH and BHU services (columns2, 3 and 4) is progressive i.e. more equally distributed than the population. The distributions of public benefits for NRH is less equally distributed than either household expenditure or household income.

Table 14. Cumulative quintile shares of public benefits for all types of services by type of facility compared to the cumulative shares of the population, household expenditure and household income (BLSS data)

	Cumulative quintile shares (%)							
Quintile	NRH	RRH	DH	BHU	All services combined	Population	Household expenditure	Household income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quintile 1	5.2	10.7	11.1	29.2	10.9	20.0	9.7	7.4
Quintile 2	13.7	23.5	30.2	58.2	25.6	40.0	23.3	18.8
Quintile 3	30.7	50.3	49.9	80.9	46.9	60.0	40.6	35.7
Quintile 4	56.7	72.0	72.9	104.8	70.6	80.0	62.8	59.4
Quintile 5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 5. Cumulative distribution of benefits for all types of services combined compared to the cumulative distributions of the population and household expenditure

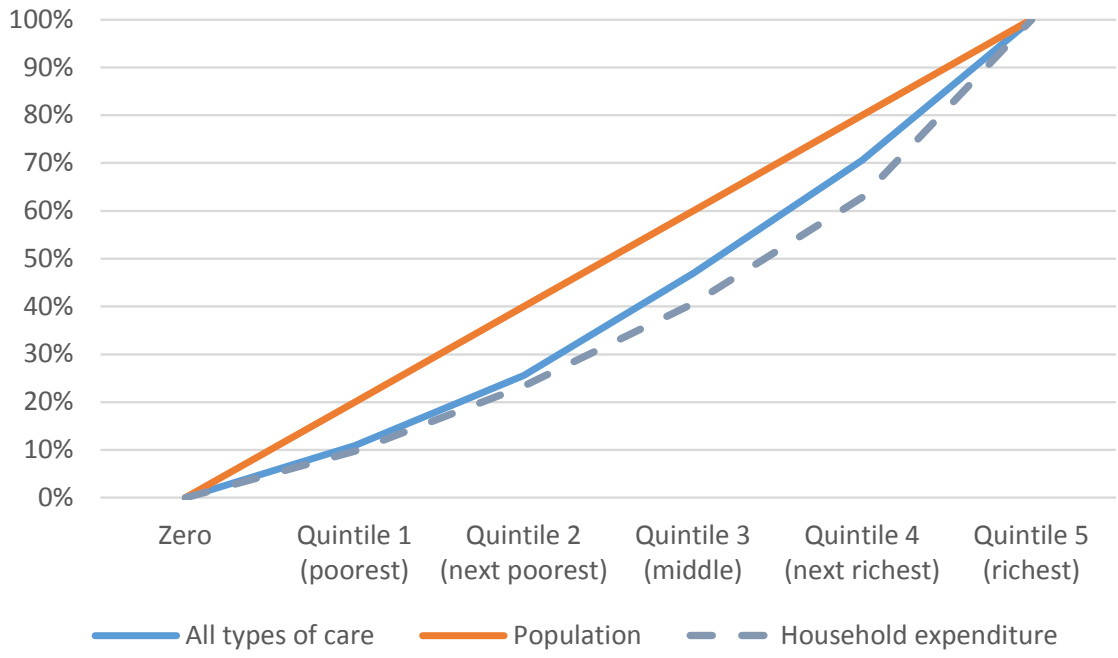


Table 15 reports estimates of benefit incidence for the following aggregate categories: hospital outpatient care, hospital inpatient care, non-hospital care, and for all types of care combined. The two hospital care categories are combined estimates for all NRH, RRH and DH services (i.e., outpatient, inpatient and obstetric delivery care), while the non-hospital care category include estimates for all BHU services. The aggregate benefit incidence estimates in Table 15 indicate that:

- Females receive higher shares of the benefits from both hospital outpatient and hospital inpatient care than their share of the population (63.4% and 66.4% respectively versus 50.7%), while receiving exactly the same share of benefits from non-hospital care as their share of the population (50.7%).
- Rural residents receive a lower share of the benefits from hospital outpatient services than their share of the population (61.8% versus 68.9%), a share of the benefits from hospital inpatient care about equal to their share of the population (68.2%), and a substantially higher share of the benefits of non-hospital services (87.4%).
- Rural residents of accessible or very accessible locations receive similar shares of the benefits of all three aggregate services categories in Table 17 (49.7%, 52.6% and 50.2% respectively), all of which are higher than their share of the population (44.9%). In contrast, rural residents of hard or very hard to reach locations receive substantially lower shares of the benefits of hospital outpatient and hospital inpatient services than their share of the population (12.1% and 15.7% respectively versus 24.0%), while receiving a substantially larger share of the benefits of non-hospital services (37.2%).
- Regular wage employees receive shares of the benefits of both hospital services categories in Table 16 (29.7% outpatient and 27.9% inpatient) that are similar to their share of the employed population aged 15+ (26.3%), while receiving a substantially lower share of the benefits of non-hospital services (16.5%).
- The poorest quintile receives substantially lower shares of the benefits of both hospital services categories (6.5% outpatient and 10.4% inpatient) than their share of the population (20%), while receiving a higher share of the benefits of non-hospital services (29.2%). In contrast, the richest quintile receives substantially higher shares of the benefits of both hospital services categories (39.0% outpatient and 29.4% inpatient), while it pays 4.8% more in OOP than the cost of the non-hospital services it receives (i.e., the population of the richest quintile effectively subsidizes other patients receiving these services).

Table 15. Benefit incidence for all sources of care combined by type of care

	Shares of public benefits received by different groups (%)				
Group	Hospital outpatient care	Hospital inpatient care	BHUS and below	All types of care combined	Corresponding population shares (%)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Gender					
Male	36.6	33.6	49.3	36.2	49.3
Female	63.4	66.4	50.7	63.8	50.7
Urban-rural residence					
Urban	38.2	31.8	12.6	32.1	31.1
Rural	61.8	68.2	87.4	67.9	68.9

	Shares of public benefits received by different groups (%)				
Group	Hospital outpatient care	Hospital inpatient care	BHUS and below	All types of care combined	Corresponding population shares (%)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Accessible/very accessible	49.7	52.6	50.2	51.4	44.9
Hard/very hard to access	12.1	15.7	37.2	16.6	24.0
Employment status					
Regular paid employees	29.7	27.9	16.5	27.2	26.3
Other workers	70.3	72.1	83.5	72.8	73.7
Per capita expenditure quintile					
Quintile 1	6.5	10.4	29.2	10.9	20.0
Quintile 2	11.4	14.2	29.0	14.7	20.0
Quintile 3	20.0	21.9	22.7	21.3	20.0
Quintile 4	23.1	24.0	23.9	23.7	20.0
Quintile 5	39.0	29.4	-4.8	29.4	20.0

Source: 2012 BLSS

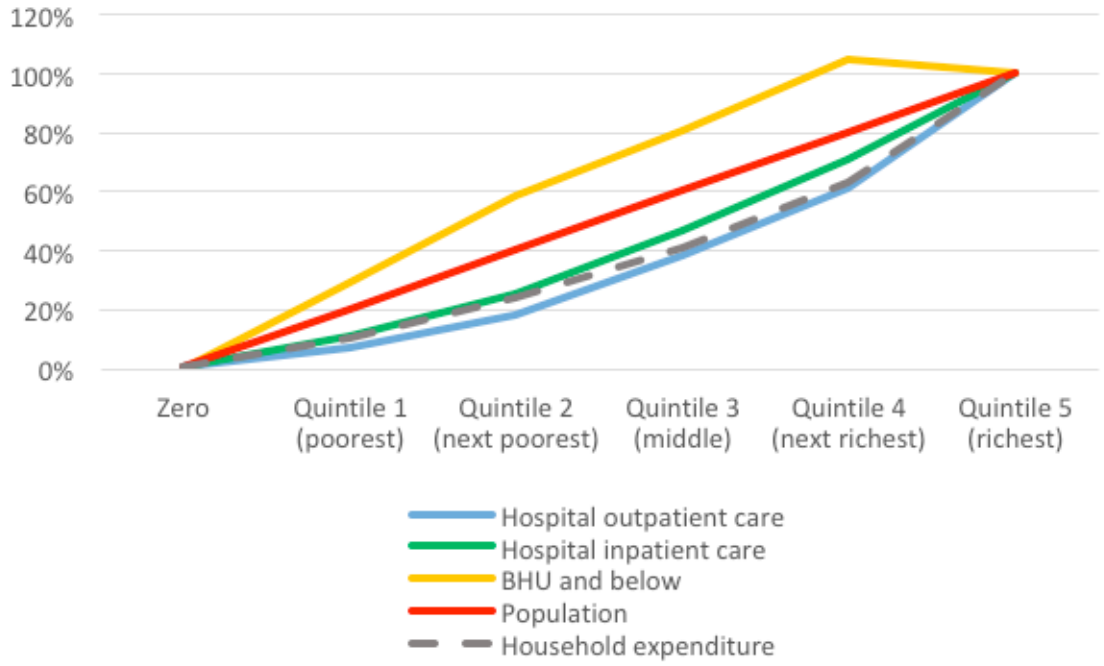
Note: All BHU care (outpatient, inpatient and obstetric delivery care)

Table 16 compares the cumulative shares of public benefits for aggregate categories of services by per capita consumption quintile to the cumulative shares of each quintile's population, household expenditure and household income. According to these data (and Figure 6), the distribution of public benefits for hospital inpatient services is progressive, services of BHU and below strongly progressive (i.e., more equally distributed than the population) while the distribution of public benefits for hospital outpatient services (column 1) is less equally distributed than either household expenditure or household income.

Table 16. Cumulative quintile shares of public benefits for aggregate categories of services compared to the cumulative shares of the population, household expenditure and household income (BLSS data)

	Cumulative quintile shares (%)						
Quintile	Hospital outpatient care	Hospital inpatient care	Non-hospital care	All types of care	Population shares	Household expenditure	Household income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Quintile 1 (poorest)	6.5	10.4	29.2	10.9	20.0	9.7	7.4
Quintile 2 (next poorest)	17.9	24.6	58.2	25.6	40.0	23.3	18.8
Quintile 3 (middle)	38.0	46.6	80.9	46.9	60.0	40.6	35.7
Quintile 4 (next richest)	61.0	70.6	104.8	70.6	80.0	62.8	59.4
Quintile 5 (richest)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 6. Cumulative quintile shares of public benefits for aggregate categories of services compared to the cumulative shares of the population and household expenditure (BLSS data)



CONCLUSIONS AND POLICY OPTIONS

The framework of health system in Bhutan, universal in scope with services provided free of charge at the point of use, has ensured high level of equity and financial protection to the population.

The distributions of public benefits from primary health care units like BHUs for all service components (outpatient, inpatient and obstetric care) are strongly progressive and pro-poor. This validates the success of primary health care approach in Bhutan and justifies continuous investment in peripheral health units to enhance and sustain gains.Similarly, Bhutanese females receive substantially higher shares of public benefits for all types of both outpatient and inpatient curative care than their share of the population.

The distributions of public benefits for all types of outpatient, inpatient, and obstetric delivery care, although with variations in utilization rates, are mildly progressive, i.e., distributed more equally than household income levels but less equally than the respective population. However, it should concern the policy makers that the poor and residents of hard to reach rural areas avail substantially lower shares of benefits for all types of health care than their respective population shares.

More concerning are the findings which reveal the unequal distributions of public benefits for NRH (outpatient, inpatient and obstetric care services) in favour of the urban and richer population. This may be attributed to the location of the NRH in the capital city and host to a fifth of the total Bhutanese population, all major business and government offices and comprising mostly affluent households. The NRH also provides daily walk in outpatient services for the capital city population besides its mandate as the apex referral center.

There are still issues in terms of optimum distribution of the benefits of public investments in health services to the remote and poorer population groups. One recent study based on the 2012 BLSS data concludes that both the decision to seek care at all when ill and the choice of provider, conditional on seeking care, are largely driven by location (i.e., distance to facilities).[19] The study also concludes that household income also plays an important role. In fact, the most important constraint to equitable utilization may be distance interacting with household income so that distance is mainly a barrier to poorer households unable to pay the necessary transportation cost (including the imputed value of the patient's and any accompanying caregiver's travel and waiting time). Considering this, more equitable approach would be to redistribute public health expenditure, as much as is possible, away from the referral hospitals and toward the district hospitals and the BHUs. It would be beneficial to revisit the standard set of services (benefit package) to upscale the range of services in the districts and review the referral (gatekeeping) mechanism to streamline the referral mechanism and provide disincentives in view of people bypassing the lower level facilities and neighbouring districts crowding services at the NRH.

District health services needs to be further strengthened. Besides the revisiting the package

19 K. Damrongplasit and T. Wangdi. 2017. "Healthcare utilization, bypass, and multiple visits: the case of Bhutan." *International Journal of Health Economics and Management*. 17:51-81.

(standard) of services, use of ICT in services delivery could accelerate efficiency and access to care. E-health and electronic record systems could contribute significantly to this process.

The study bases its data on surveys conducted in 2010 and 2012. Over the last 6 years since these surveys were conducted, several new initiatives were launched by the Ministry of Health to benefit the remote and poorer population groups. Mobile camps for unreached groups and Post Natal Care (PNC) home visit services were instituted. Expansion of diagnostic facilities at regional and district hospitals were carried out along with helicopter services for patient referral introduced. Besides, the high level of socio-economic activities including the road connectivity and poverty alleviation programs could have contributed significantly to improving access and utilization of health services. It is therefore important to carry out a fresh round of analysis with more recent sets of data to determine trends and newer policy inputs.

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