Benefit Incidence Analysis for Maternal Newborn and Child Health Services in Kenya

Geofrey Mwalo

(X53/76481/2012)

Research Project Submitted in Partial Fulfilment of the Requirements for the award of the Degree of Master of Science in Health Economics and Policy, University of Nairobi

Declaration

I declare that this research project is my original work and has not been presented in whole or in part to any university/ institution for award of any degree. This research project has been complemented with referenced sources which have been duly acknowledged.

Signature Date

Geofrey Mwalo: (X53/76481/2012)

0723 741 402

This research project has been submitted with our approval as the university supervisors.

Signature: .....Date: .....

Dr. Urbanus Kioko

School of Economics

University of Nairobi

Signature: Date: .....

Dr. Julius Korir

School of Economics

Kenyatta University

Table of Contents

List of Tables

List of Figures

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Treatment
AWP	Annual Work Plan
BIA	Benefit Incidence Analysis
CBS	Central Bureau of Statistics
CHVs	Community Health Volunteers
DPHK	Development Partners for Health in Kenya
ERS	Economic Recovery Strategy
FBOs	Faith Based Organizations
FY	Financial Year
GDP	Gross Domestic Product
GoK	Government of Kenya
HHEUS	Household Health Expenditure and Utilization Survey
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
KAIS	Kenya AIDS Indicator Survey
KDHS	Kenya Demographic Health Survey
KNBS	Kenya National Bureau of Statistics
MDGs	Millennium Development Goals
MIPs	Medical Insurance Providers
MoH	Ministry of Health
MNCH	Maternal Newborn and Child Health
KNHA	Kenya National Health Account
NHIF	National Hospital Insurance Fund
OOPs	Out-of- Pocket
THE	Total Health Expenditure
WHO	World Health Organization

Abstract

Mother and child health services financing is a key government priority objective in most countries and the delivery of this strategic direction usually lies fundamentally on the distributional issues aimed at addressing the health sector equity objectives geared towards ensuring that the benefits equal the healthcare need of the target population. The health subsidies provided by the governments should therefore be target efficient such that only the population segments in higher need for the subsidies actually receives them. This study sought to address the questions in public policy strategies, such as, how well public resources are spent on healthcare, to assess if the benefits ultimately reach the poorest segment of the population and whether the government expenditure on maternal, newborn and child health services are focused to address the needs of the poor populations to protect them from the financial risks of paying for the services. The goal of this current study was to establish if these benefits from the government subsidies for mother and child health services actually addresses the needs of the intended socio-economic groups in Kenya. Benefit incidence analysis approach was utilized to assess the accrued benefits of the subsidies for providing and utilization of maternal, newborn and child health services by different socio-economic groups in Kenya. The Kenya demographic health survey data (2013/14) and the national health account data (2013/14) were utilized to establish the per capita subsidy of mother and child health services utilization across the population with reference to their different socio-economic levels based on their wealth indices. The study outcome demonstrated inequality in utilization of these services in relation to individuals or households' income status and the patterns were varied across the wealth quintiles in different areas of residence i.e. rural or urban. The total subsidy was pro-poor however when these results were further examined by looking at benefits received by individual households across the wealth indices, the outcome demonstrated that the wealthier households actually received high proportions of the subsidies than the poor. In urban areas and the private facilities, there were notable inequality in targeting the subsidies to the poor, this demonstrated that more effective focusing of maternal and child health is paramount. The observed pro-rich inequality in maternal child healthcare utilization in this study could be reduced by ensuring social inclusion and eliminating barriers to access to the services by the poor rural women.

CHAPTER ONE

STUDY BACKGROUND

1.1 Introduction

Governments more often subsidize healthcare services that most markets would not want to render or inadequately provide such as the pure public goods. (Svensson, J. and Bjorkman, M., 2009). For example, the treatment of tuberculosis would benefit the patients as well as the contacts who might in some way or another contract the disease. The providers would insufficiently offer that kind of treatment, and an administration subsidy would be justified on efficiency basis. Subsidization can as well be supported as a result of collapse in related markets, for example, health subsidies in the form of health insurance failure. These healthcare services would be under provided if left to the markets and this will lead to inadequate resource allocation towards the provision of these services. (Rosario *et al.,* 2007). Governments are, consequently, required to subsidize some of these services for effectiveness cause (Filmer *et al.,* 1998).

The macroeconomic impacts of public spending influence the population in many ways, for instance, the pace of the overall economic growth which in turn defines the living standards of a population are affected by the rate of inflation and the fiscal and trade deficits. Government social protection expenditures on its people such as the in-kind transfers improves the overall well-being of the beneficiaries who are in turn able to engage in income generating activities thus enhancing their livelihood. The ability to engage in income generating activities to a larger extent enables the population to alleviate poverty and also improve their purchasing power. According to Davoodi *et al.,* 2003, these expenditures such as the cash transfers to the population in need are the benefit incidence of public spending.

Expenditures addressing the health of the greater populations in sub-Saharan Africa has been greatly inadequately focused and less progressive to poor households and more often favors those who are better off (Chu *et al.,* 2000). The scenario has generated pertinent issues around delivery of effective services targeting women of reproductive age and the neonates. For example, the health services coverage has been reduced, thus affecting the level of access to these services, additionally, the quality of care and safety for the mother and child has been compromised. The above key service delivery issues has resulted to higher numbers of deaths among the women of child bearing age and their children among the poor rural populations. (Davoodi *et al*., 2010). According to KNHA, 2013/14 the richest who accounted for 20% of the population received more public subsidies on primary health care at 22% compared to the poorest who received 14% of the subsidies (Table 1.1). Consumer behaviors usually influences how the public subsidies are directed, however, with the declining countries budgets on social expenditures, it is thus imperative to examine if the public spending on these services are effective.

Table 1.1: Benefit incidence from public health subsidy by socioeconomic group

Country	**Quintiles Share**									
	General Health		**Primary Health**		**Hospital Service**		**Hospital Outpatient**		**Hospital Inpatient**	
	Rich	**Poor**	**Rich**	**Poor**	**Rich**	**Poor**	**Rich**	**Poor**	**Rich**	**Poor**
Africa										
Malawi (2014-15)	16%	21%	18%	15%	14%	25%				
Cote d'lvoire (2015)	11%	32%	14%	22%	8%	39%				
Ghana (2012)	12%	33%	10%	31%			13%	35%	11%	32%
Guinea (2014)	4%	48%	10%	36%	1%	55%				
Kenya (2012)	14%	24%	22%	14%	13%	26%				
Madagascar (2013)	12%	30%	10%	29%	14%	30%				
Tanzania (2012-13)	17%	29%	18%	21%			11%	37%	20%	36%

The current global health conversations focus on how the health of the population should be improved in a manner that responds to their needs and taking into account cushioning the population against the financial catastrophe of paying for the ill health. The universal health coverage (UHC) goal stipulates that health systems are required to provide "key promotive, preventive, curative and rehabilitative health interventions for all at an affordable cost, thereby achieving equity in access". Within most societies there exist, in some form or another, a concern about distribution of health resources in some just way, this is true in Kenya too due to substantial poverty hindering access to health care services (KDHS, 2013/14). The economic growth experienced in Kenya in earlier years had significant income inequality and great difference in the levels of access to basic healthcare services which have broadened considerably increasing the dimension of poverty in Kenya notwithstanding the past policies put in place to correct this defect (Alabi, 2008).

Universal health coverage (UHC) addresses key elements in health care provision such as, how every person should be able to access the health services they need and also being able to cushion the population from the financial risk of paying for the services. This is in realization that the out-of-pocket payments mostly utilized by the poor populations has further plunged them into poverty thus reducing their purchasing power for the needed health care. The poor more often have greater need for health care due to the fact that more often their health indicators are undesirable and they are less likely to disclose sickness because they consider them as normal life features (Chuma *et al.,* 2012). Government subsidies can therefore provide financial risk protection in accessing health services. It is therefore an imperative policy aspect to understand the scope of distribution of these government benefits.

Benefit Incidence Analysis (BIA) approach in health care addresses the question of who gains more from public health expenditure. It analyzes the impact of financial policies to the population based on their socio-economic status. The users and the government behaviors are usually demonstrated by the estimates of the benefits. The knowledge of benefit incidence by income and other variables can be useful in reallocating public resources towards programs that benefit the poor. With the continued emphasis on promoting universal health coverage, BIA has increasingly become important.

Health service provision in Kenya is segmented in both public sector who are the main providers, the private sector and the faith based facilities. The public sector has the highest market segment of health facilities estimated at 50%, private sector at around 35% while the faith based have the lowest market segment estimated at around 15% (MoH 2015). The funding sources for healthcare services in Kenya are generated from wider sources including the donor funding, households' out-of-pocket payments and government expenditure in public healthcare. The resource allocation for public healthcare from the government have been hindered by various setbacks in executing the government strategies hindering the optimum functioning of the public healthcare systems which is the major service provider in the country.

National Health Accounts (NHA) 2013/2014 estimated the total recurrent expenditure allocated towards reproductive health mainly maternal, newborn and child health (MNCH) care provision to be approximately Ksh. 26,018,950,451. From the institutional units providing financing revenues towards providing this type of health care, out of pocket accounted for 40.32%, public expenditure was at 27.33% and donors accounted for 18.92% (Figure 1.1). Contribution by private employers accounted for 7.86% of the total financing of the recurrent expenditure with

parastatals contributed the least at 2.37% in provision of maternal and child healthcare in year 2013/2014.

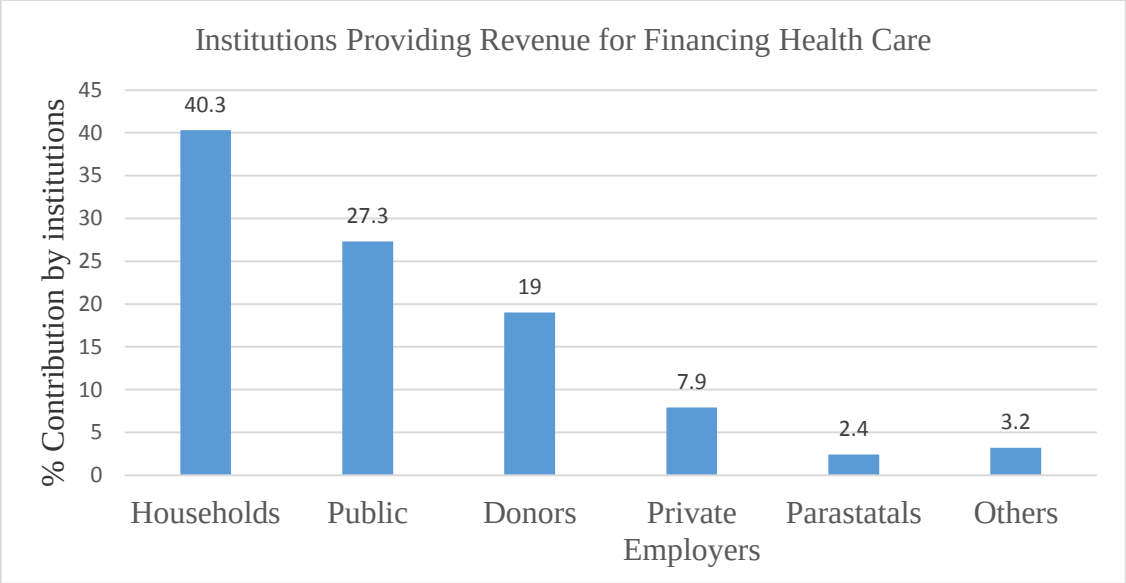

Figure 1.1: Contributions by Institutional Units Providing Revenues for Financing Schemes for Current Health Expenditure.

The household out of pocket expenditures (OOPs) on health remains the biggest contributors of healthcare financing at 40.32% (NHA, 2014). The dependency on donor funding particularly for the priority disease interventions and the high out of pocket expenditure by families' raises concerns in supporting the investments in the health sector and improvement of healthcare outcomes in Kenya.

Table 1.2: Budget Trends for Maternal Newborn and Child Health Services

	Budget	Budget	Budget	Budget	Budget
	2009/10	**2010/11**	**2011/12**	**2012/13**	**2013/14**
Recurrent	105,493,057	107,029,760	122,373,037	124,880,551	141,458,570
Development	1,107,841,937	1,115,095,000	2,234,515,740	1,148,550,000	1,148,550,000
Total	1,213,334,994	1,222,124,760	2,356,888,777	1,273,430,551	1,290,008,570
Total Health Budget	47,721,023,650	51,273,627,351	49,715,126,230	54,123,112,000	57,134,244,000
MNCH as % of total health budget	2.69	2.56	4.74	2.35	2.26
MNCH Budget	1,283,695,536	1,312,604,860	2,356,496,983	1,271,893,132	1,291,233,914
Out of Pocket Contribution	517,329,301	528,979,759	949,668,284	512,572,932	520,367,267

Data Source: Kenya National Health Account 2014

Direct out-of-pocket payments by individuals and households usually contributes more than 30% of the above expenditure in healthcare.

Individual and households' out-of-pocket (OOPs) expenditures are more often regressive in the sense that the poor as compared to the rich pay in excess shares of their income. The out of pocket expenditures are inequitable and contributes to households' poverty and impoverishment (KDHS 2014). However, from the NHA 2013/14, households' out-of-pocket expenditures on MNCH services contributed way over 30% of the total health expenditure on MNCH services. Kenya government has taken deliberate efforts to increase the proportion of funding for primary healthcare including MNCH, these are great efforts to cushion the rural poor from the financial risk of paying for the services, however, the government allocations are still low compared to the global standards (World Bank, 2016).

Health care spending on MNCH services in Kenya faces efficiency challenges due to high levels of OOPs which in turns has increased the burden to poor households (Chuma *et al* 2012). OOPs presents an inequitable, inefficient and access barrier to poor population in the sense that the poor pays higher proportions of their income as compared to the rich to access the healthcare services (Chuma *et al* 2012). The high proportions of donor funding also undermine strategic prioritization since donor funding is disease condition centered and in most cases donor funding does not support building of resilient healthcare systems. In most cases when the donor funding declines, the financial risk protection to the population also declines. Reliance on donor funding and OOPs are not sustainable therefore undermines Kenya progress towards UHC (WHO 2017).

1.2 Statement of the Problem

The effectiveness of public spending is an elusive empirical issue and it has direct bearings on accountability. There is a growing need to analyze the distributional impacts of public spending for the provision of basic services which rests primarily on both efficacy and equity grounds. Pure public goods usually call for full public financing, however, merit goods such as healthcare which may be subject to significant external benefits or costs also merit some form of public interventions. Health care expenditures are expected to achieve greater social equity, therefore, analyzing if the expenditures are progressive is very important (Lekha *et al.*, 2012).

Equity in health care provision requires that individual and households' health care needs are taken into consideration to protect the poor from financial catastrophes associated with ill health. Health care delivery in Kenya often leans towards the high end curative services which benefits the rich more as opposed to primary health care which benefits the poor. According to the NHA 2013/14, 48% of the subsidy accrued to referral hospitals benefited the rich compared to a meagre 8% which benefited the poor. These trends in subsidy allocation does not protect the poor financially leading to poor health seeking behaviors. Equitable allocation of health care resources should strive at increasing allocation towards primary health care and less spending towards curative care to drive the sustainable development goals and the global health agenda.

Kenya's reproductive healthcare financing has experienced little considerations. The health sector budget has been increasing overtime from about US$ 964.3 million in 2005/06 to about US$ 1,620 million in 2011/12 (KNHA, 2014). However, allocation towards maternal and child health component has been low compared to other intervention overtime, for example, the 2009/10 financial year MNCH received 2.69% of the total health budget compared to 13% allocated to the preventive and promotive health services. Of worth to note is that in the financial

year 2010/11, the allocation of other interventions in preventive and promotive health moved from 13% to 16% while the allocation to MNCH activities further reduced from 2.69% in the previous year to 2.56%, this demonstrates a retrogressive allocation of funds towards MNCH services delivery in Kenya and further frustrates progress towards UHC.

Although maternal mortality rate in Kenya has declined from 545 deaths per 100,000 live births in 2007 to 342 deaths per 100,000 live births in 2017 and even child mortality rate falling from 56.5 per 1,000 live births in 2008 to 41.1 per 1,000 live births in 2018, there is still slow progress in attaining maternal, newborn and child health goals in Kenya. The health expenditure as a share of gross domestic product (GDP) in Kenya declined from 6.1% in 2010 to 4.8% in 2017. Financing health care provision in Kenya is still largely donor dependent and from the OOPs. Donor funding is usually unstable, this poses a risk of sustainability of the healthcare investment and the overall outcome of health. It is therefore very important to analyze the effectiveness on public spending on merit goods to ensure that the resources geared towards provision of priority health services such as MNCH addressed the need of the population by protecting them from the financial risk of paying for the health services and at the same time ensuring that quality services are accessible to the population in need in a safe manner.

1.3 Research Objectives

1.3.1 General Objective

To demonstrate whether benefit incidence of maternal, newborn and child health services subsidies across wealth quintiles in Kenya is pro-poor or pro-rich

1.3.2 Specific Objectives

i. To illustrate the level of utilization of subsidies directed towards maternal, newborn and child health services across different socio-economic groups in Kenya

ii. To demonstrate the extent of distribution of benefits from subsidies directed towards maternal, newborn and child health services relative to need across various socio-economic segments in Kenya

iii. To recommend policy options for promoting progressive targeting of maternal, newborn and child health services subsidies towards addressing the needs of the poor population in Kenya

1.4 Justification of the Research

The poor segments of the population usually have the greatest health needs, however, more often, they receive the least proportion of the total benefits from the health systems. Kenyan health sector demonstrates inequitable systems where the benefits are not administered on need basis (Chuma *et al.*, 2012). Health reforms in Kenya has more often focused on health financing and not much emphasis has been placed in addressing the other key pillars of health care systems making access to reproductive health services a concern. It is important to be cognizant of the degree of efficiency in health sector because increasing public expenditure allocation alone on maternal, newborn and child health services is not a guarantee for attaining better outcomes (Davoodi *et al* 2010). The level of the public expenditure allocation, efficiency of the expenditure and targeting of the expenditures to the low income groups are all important in equal measures (Manasan *et al.*, 2007).

Benefit incidence analysis has the capacity to look at how successful constrained public resources can be organized towards the needs of the poor and help inform on the efficiency of services delivery, and to justify the need to improve public resource utilization to drive the Kenya health policy agenda of achieving UHC and sustainable development goals at large.

CHAPTER TWO

STUDY LITERATURE REVIEW

2.1 Theoretical Review of Literature

Health care provision to citizens is a key government objective in countries world-wide. In Kenya, the constitution provides for the right to highest attainable standards of health in article 43 (1) (a) for all the citizens. It is thus imperative for the governments to subsidize health care services which will improve the health status of its population by either preventing diseases of curing the diseases when they occur. These subsidies are most often geared towards improving the health of the poor rural populations who have a higher need, however, in most cases, this is not usually achieved due to various factors. The governments usually have a desired outcome from the subsidies and the links between public expenditure in health vis-a-vis the desired results can be demonstrated by a framework provided by Filmer *et al.*, (1998)

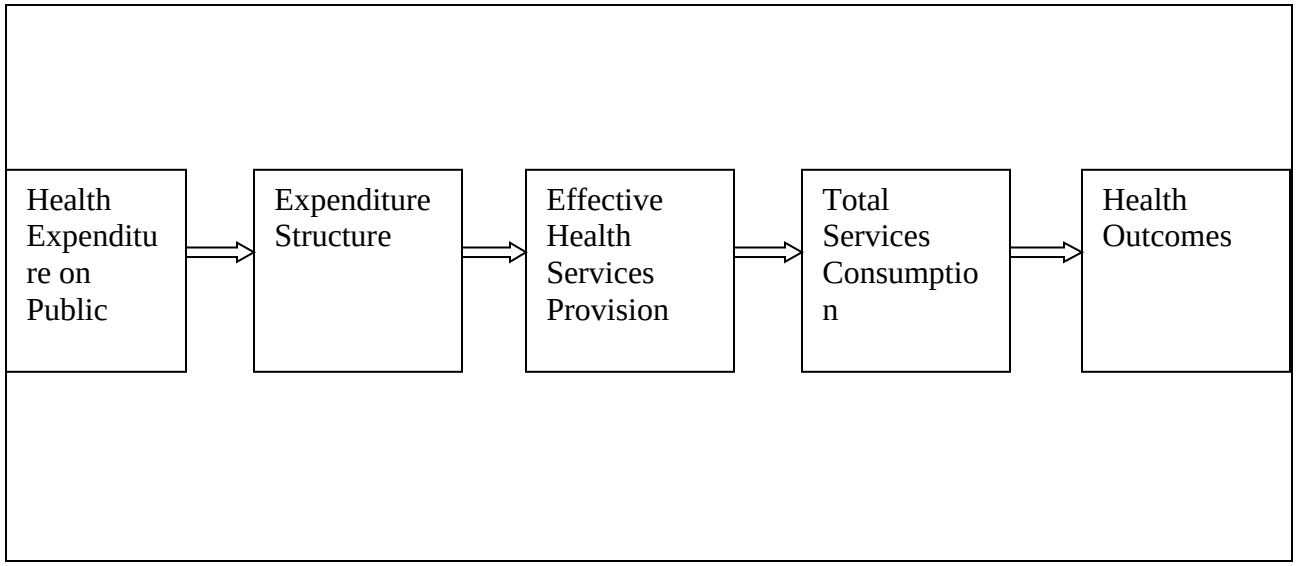

Figure 2.1 Links between public health spending and the desired outcomes. Adopted and modified from Filmer, Hammer, and Pritchett (1998)

The above model represents the relationships between different levels of healthcare expenditure, the first outlines the connection between the total health expenditure and its components. Most government expenditures are geared towards efforts to prevent the ill health and cure diseases when they occur to the general population, the expenditures will therefore often focus on primary preventive and promotive health services as opposed to high end curative services which will benefit a few individuals who in most cases are better off. The link between health care expenditure and the components will be strong if the expenditure address the health of the general population at large.

Secondly, transforming health budgets and resources into effective and efficient services is very key as illustrated in the next link. According to Reinikka and Ablo (1998), the amount of expenditure on public healthcare does not reflect the degree of service provision if the health sector is perceived to be wasteful, regardless of the possibility that the expenditures are conceivably pertinent. The third connection indicates how public spending influences provision of healthcare services; public spending also relies upon the reaction of the private sector. Dispensation of freely given health care if in any event outweighs the private providers, the net impact on add up to healthcare services arrangement becomes less.

The link between service provision and attaining desired result is very important if strengthened. Outcomes from health care provision to the general population is affected by many elements such as sanitation, education, water, nutrition etc. Health outcomes are dependent on this other factors, it is thus important to assess the extent of public expenditure to the poor population since these spending will improve the general well-being of the poor holistically and thus improving the desired health outcomes.

There are various ways to assess whether government expenditure in healthcare is effective or not. Such techniques include assessing either individuals' behavior towards the service or by benefit incidence studies. Behavioral methodologies have limitation in demonstrating impacts of public expenditure in health service provision because the value of the provided service will depend on the individuals own valuation and preference on whether to consume or not to consume the service. Patients have rights to choose which services to consume, right to choose a provider and even a facility. This makes behavioral methodologies limited in assessing the impact of public expenditure on health.

Benefit incidence analysis however, has the potential to explore distributional effect of government expenditure on health services across different wealth quintiles and across different geographical set up such as urban or rural. Benefit incidence analysis can illustrate how the scarce public resources are targeted to address the needs of the populations. It involves assessment of household utilization behaviors and the trends in public expenditure for essential health services across different health sectors. It also involves assessment of whether public spending is progressive or regressive.

2.2 Empirical Review of Literature

Studies of benefit incidence have been carried out in sub Saharan Africa for a wider social services including health, most of the studies have pointed out that most of the government expenditures on essential health services often do benefit the higher income group as opposed to the lower income groups who are more in need. This illustrates poor targeting of government expenditure in health in mos sub Saharan Africa countries. These studies such as Davoodi *et al.*, (2010) demonstrated that countries with pro-poor public expenditures on health had better health

outcomes which translated to better individuals earning potentials, good governance and extensive access to information.

Manasan *et al.,* (2007) used BIA approach to understand the extent of health benefits administration across different socio-economic groups in Philippines. The study established progressive administration of healthcare spending at primary and secondary levels using the national averages, However, it was regressive for tertiary levels. On further analysis using local publics units, the study illustrated that more benefits were directed to the urban areas as compared to the level of benefits accounted for in the rural areas. A study in India by *Mahal et al.,* in 2001 demonstrated a good model for ensuring a pro-poor health expenditure for essential health services by their sub national public health providers.

There have been studies conducted to assess how well the resources geared towards public healthcare are distributed sub Saharan Africa. Such studies like the one done by Lanjouw and Ravallion (1999) tried to assess the marginal benefit of expenditure on public health, the study revealed that the marginal benefit of expenditure on health was high if the services were utilized by the poor more than the rich. This revelation provides a vital policy argument in that, to demonstrate the distributional impact of spending on a public good, marginal benefit is a better indicator as compared to average benefit incidence because marginal benefit demonstrates how the money was actually spent.

Lassibille and Tan (2007) show that the standard BIA estimates of the maternal child health administration benefits tend to be biased. This occurs when patients from low income and high-income households attend health care facilities with different per patient subsidy. Combining public spending per patient and geographical disaggregated hospital level data removes the bias.

Some studies such as Catro-Leal *et al.,* 2000 demonstrated that health care subsidies in some African countries were progressive, however, they were poorly targeted, a scenario demonstrated by other studies in countries such as Nepal and Vietnam where the rich who were 20% of the population received more than 30% of all the public expenditure on healthcare.

BIA Studies have reported regressive public expenditures towards reproductive health services in many countries across the world, for example, Ajwad and Wodon (2007) demonstrated that marginal benefit of maternal and child health spending in Bolivia and Paraguay was lower for the poor than for the rich. That is, the poor tend to gain access to the services once the rich have gained higher levels of access. The authors put a strong case for targeted pro-poor policies if the poor are to benefit from pubic spending on these services. Targeting of these subsidies are sometimes a major challenge, for example, Johannes and Noula (2011) found that the subsidies in Cameroon were poorly targeted. Public spending was of benefit to the rich population as compared to the poor. Further, it illustrated the fact that increasing subsidies in such scenarios would benefit the high income groups more than the poor.

There are studies that have reported mixed scenarios where public spending on the general population tends to be directed to the poor population while it is actually pro-rich. For instance, a study by Demery (2000) revealed that in most cases, these results are influenced by the supply side determinants such as the public spending on health across all levels, the demand side factors such as household behaviors at different level of health care and also the way the quintiles are computed either individual or households. In such circumstances, the poor tend to have more individuals in their households than the rich and this will distort the overall benefit incidence results to make it appear to be pro-poor while they are actually pro-rich. It is therefore important to take into consideration how the wealth quintiles are computed, the supply and demand side

factors before arriving at the results of the distributional impact of a public expenditure on healthcare.

Lindsay (2006) undertook a study in Malawi to establish which category of the population benefited from the public healthcare expenditures. Specifically, the study examined the extent to which government had been successful in achieving pro-poor spending. The analysis established that the distribution of the benefits was extensive across the different socio-economic groups due to the difference in utilization of care, rather than the distribution of the subsidy. There were also lower reported incidences of ill health among the poor socio-economic groups. The benefit incidence analysis of the overall curative health spending found that there was a minimal bias in favor of rich individuals: 15.8% of the benefits were accrued to the poorest 20% of the population compared to 21.2% of the benefits received by the richest 20% received. While the distribution of benefits between urban and rural populations was proportionate: the urban population represented 11.3% of the population and received 11.0% of the benefits.

The present study utilized nationally representative household survey data in Kenya collected in 2013/14 to demonstrate how the benefit incidence of maternal, newborn and child health services subsidies are distributed across the different wealth quintiles and to examine whether the distribution is targeted in relation to the population need. The study provides new estimates of marginal BIA for Kenya and establishes the factors that constrain potential beneficiaries from accessing these services despite the government interventions towards increasing access.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study interest was to demonstrate the level of benefits accrued by individuals or households from using maternal, newborn and child health services subsidies within different wealth quintiles in different residential areas. Data on service utilization, wealth quintiles, area of residence and levels of health care facilities providing these services was generated from the Kenya demographic health survey (KDHS) 2013/14, while the data on public expenditure on these services were obtained from the national health accounts (NHA) 2013/14. The two data sets from a similar period of 2013/14 were adopted for easier comparability of services utilization and the cost of providing that service.

3.2 Research Design

This was a descriptive cross sectional study, where BIA involved estimating the benefits accrued by individuals of households from utilizing the maternal, newborn and child health subsidies in Kenya in 2013/14 financial year. The results enabled us determine the adequacy of focusing public resources and the equity implications of the utilization of services which address the mother and child healthcare needs in Kenya.

3.3 Benefit Incidence Analysis

BIA approach combined the mean subsidy of providing the services and information on the individuals' utilization of each type of service. The following procedure was utilized to measure the maternal and child healthcare service benefits accruing to individuals. First, the distribution of utilization in relation to the wealth indices was evaluated. Per capita consumption expenditure was utilized to generate quintiles of households as per socio-economic status. Secondly, the unit expenditure of each maternal and child health service was estimated. The unit subsidy attributed

to each services was multiplied by the number of persons utilizing that service to determine the total benefits accrued from using that service. The final step involved assessing how these benefits from utilizing the maternal, newborn and child health services were distributed in relation to individuals'/households wealth quintile and the area of residence such as rural or urban. Benefit incidence was computed as the product of mean subsidy and the utilization of these services.

3.4 Nature and Type of Data

The study utilized the data from KDHS 2013/14 and NHA 2013/14. The KDHS 2013/14 provided information on individuals'/households socio-economic status, five categories of wealth quintiles were developed from this data. Further, the data provided the information on utilization of the services by providers where six groups of providers were identified namely: public hospital, public health center, public dispensary, private hospital/clinic, faith-based / church facility and nursing / maternity home. The data also provided information on utilization of the services by the individuals'/households, either outpatient services or inpatient services and finally the area of residence (urban or rural) of the population utilizing these services. The extent of public expenditure in provision of these services was obtained from the Kenya National Health Accounts 2013/2014.

3.5 Data Analysis

The study utilized three basic steps towards calculating the benefit incidence. The initial step was estimating unit expenditure, identifying the service beneficiaries and lastly, the benefit incidence was calculated as a product of unit expenditure and unit utilization. BIA combined the cost of providing maternal child health service which was acquired from the national health accounts

with the data on the utilization of the services which was obtained from the KDHS 2013/14 to establish how the benefits were distributed across the population.

3.5.1 Estimating Unit Expenditure

Unit expenditure was estimated by taking the total public expenditure on providing the maternal, newborn and child health services against the number of individuals'/household who utilized these services. To refine this further, the out-of-pocket expenditure by individuals/households were netted out from the total expenditure to get the total subsidy. In order to convert the inpatient visits into out-patient visit measures, 4 outpatient visits per month equaled 1 inpatient care as used in most of the costing studies.

3.5.2 Identification of Users

Users were classified by the area of residence whether rural or urban, the level of health facility and the income quintiles to establish the individuals who used the services.

3.5.3 Computing Benefit Incidence

The national health account data for 2013/14 indicated that the total subsidy for MNCH services was approximately Ksh 15,528,341,956. Contribution of different institutions to the total subsidy was then computed. In this case, the government was the largest contributor to the total subsidy at 45.80 percent. To obtain the subsidy per household, the total subsidy was divided by 83,591 households as per the demographic health survey information which illustrated that as the number of households utilizing MNCH services in the financial year 2013/14.

The following formula was used to estimate benefit incidence of providing maternal, newborn and child health services in Kenya in the financial year 2013/14;

$X_j=\sum_i U_{ij}\ (S_i/U_i) =\sum_i\ (U_{ij}/U_i)\ S_i = =\sum_i e_{ij}S_i$

Where

X_j = MNCH subsidy enjoyed by women of reproductive age and under 5 children (group j;)

U_{ij} = utilization of MNCH service i by group j;

U_i = utilization of MNCH service i by all groups combined;

S_i = public net expenditure on MNCH service i; and

e_{ij} = group j's share of utilization of MNCH service i

CHAPTER FOUR

STUDY FINDINGS AND INTERPRETATIONS

4.1 Introduction

This chapter demonstrates the benefit incidence of MNCH services in Kenya in the financial year 2013/14. It shows the level of distribution of these subsidies in relation to individuals'/households socio-economic status, there area of residence, service utilization i.e. outpatient or inpatient and the providers either public or private sectors is demonstrated in this section. Concentration indices and concentration curves were used in this study to demonstrate the association between socio-economic status of individuals'/households and their behaviors towards the use of MNCH services in Kenya in the financial year 2013/14.

4.2 Summary of Statistics

The poorest household were the majority accounting for about 31 of the respondents in the sample while the richest accounted for the least at 12.29 percent.

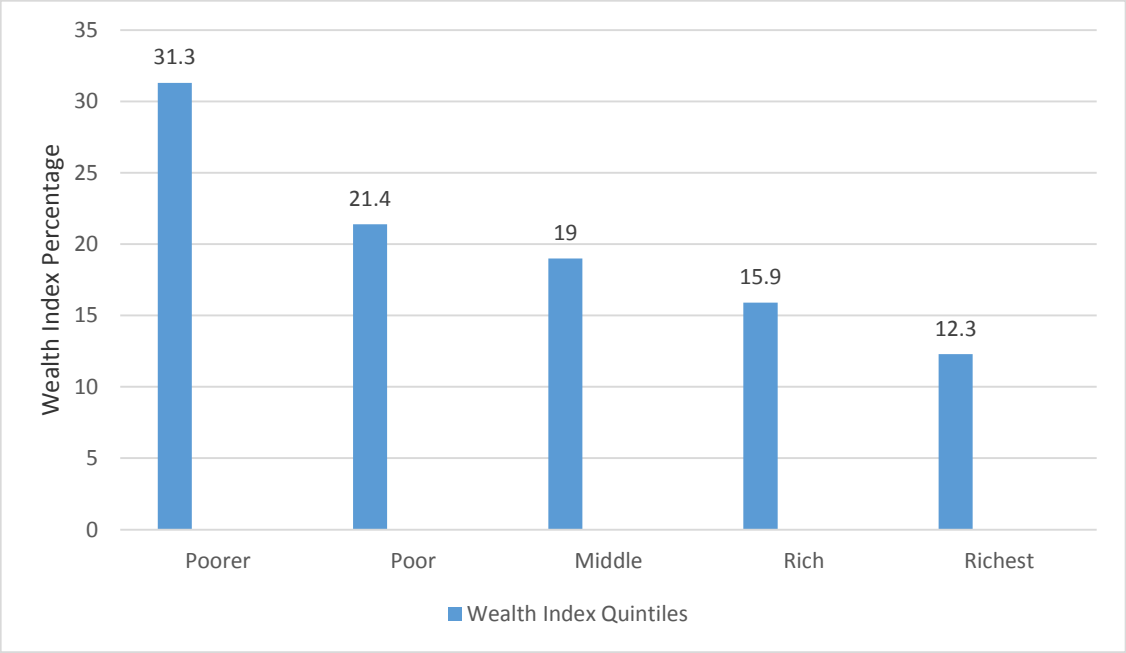

Figure 4.1 Population Wealth Index Quintiles

The above results are further supported by the results presented in Table 4.1 below which shows proportion of wealth quintiles from the total household sampled as per the KDHS database of 2014.

Table 4.1 Summary of the wealth quintiles

Wealth Quintile	**Frequency**	**Percentage Frequency**
Poorest	26,170	31.3
Poorer	17,926	21.4
Middle	15,908	19.1
Richer	13,316	15.9
Richest	10,271	12.3
Total	**83,591**	**100.00**

With regard to the types of the health care providers, public facilities were the majority; 34 percent were public hospitals, while public dispensaries accounted for 30 percent of the total facilities. Public health centers account for 23.05 percent with private hospitals /clinic accounting for 8.48 percent while faith-based organizations/church facilities accounted for 3.63 percent. Nursing homes/ maternity homes accounted for 0.46 percent of the total health facilities. This distribution of service providers is summarized as below

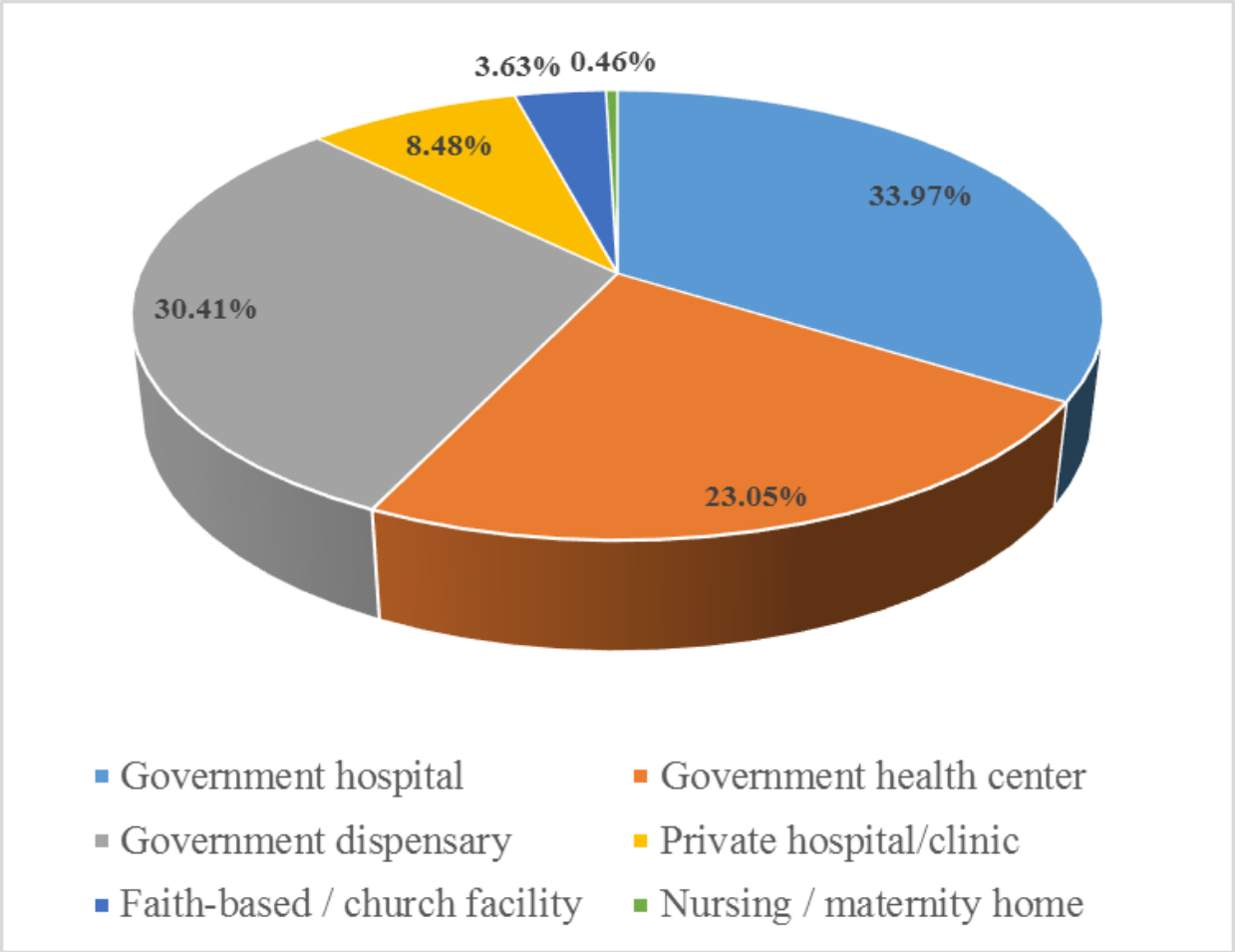

Figure.4.2 Summary of health care providers by facility level

Further analysis indicated that the rural population accounted for 69.8% compared with 30.2% of the urban population. This is a pointer to the fact that in the financial year 2013/14, 69.8% of the women of reproductive age who sought MNCH services were from the rural areas.

4.3 Mean Health Subsidy across Wealth Quintiles

Analysis of the mean health subsidy across wealth quintiles indicated that the general mean maternal, newborn and child health services were pro-poor, and the difference of benefit incidence across socio-economic status was statistically significant (p=0.960). Outpatient services indicated a pro-rich benefit incidence while inpatient services were pro-poor. The above

Table 4.2: Mean maternal and child healthcare benefits distribution (percentage share)

Wealth Quintiles	**Outpatient**	**Inpatient**	**Total Subsidy**
Poorest	11.2	23.1	23.5
Poorer	12.8	21.7	19.8
Middle	20.2	20.1	19.5
Richer	27.3	19.4	19.4
Richest	28.5	15.7	17.8
CI	0.176	0.031	-0.001
p-Value	0.000	0.430	0.960

Additionally, the difference in the share of benefits received across the different wealth quintiles were statistically significant (p<0.001).

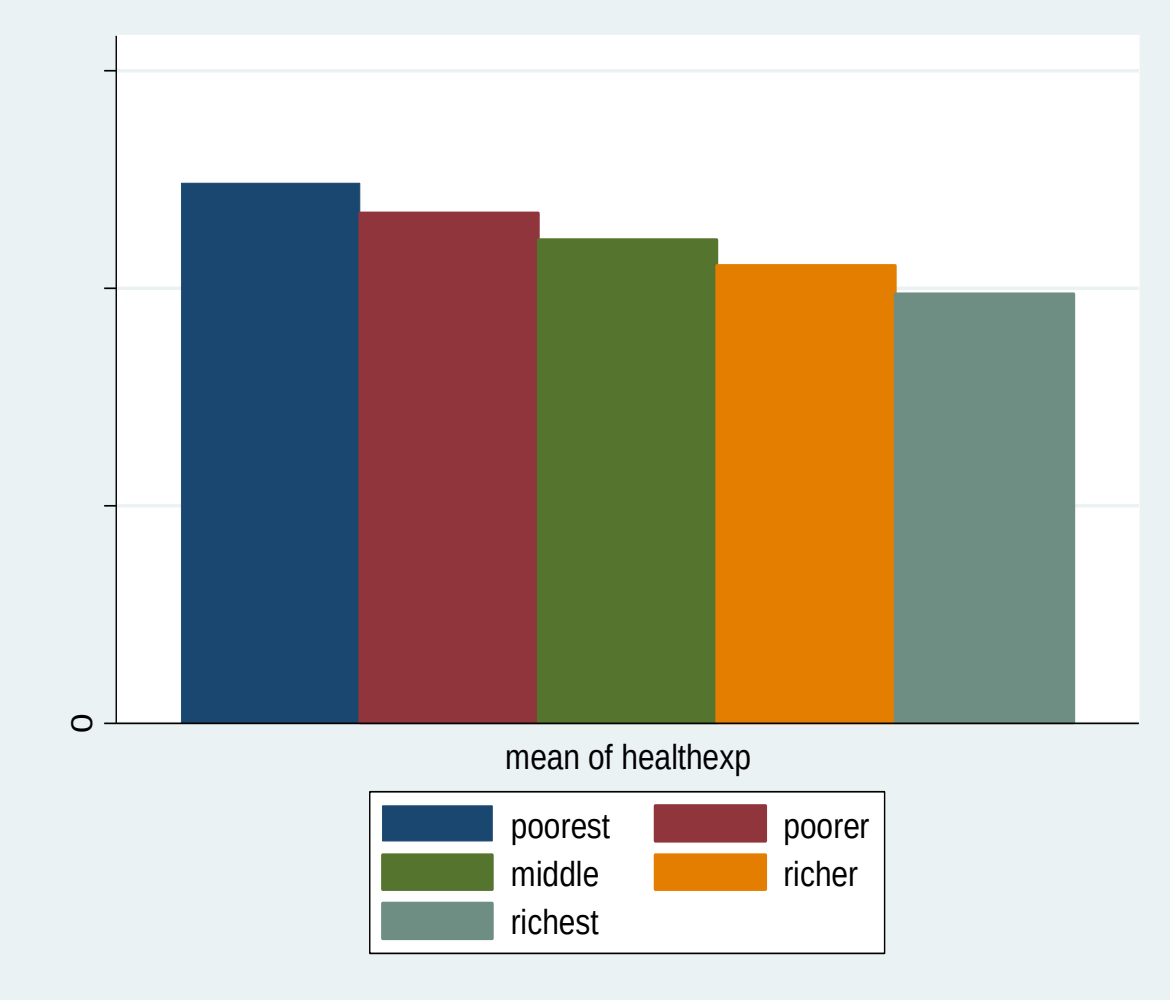

Figure 4.3 Summary of the Mean health subsidy by wealth quintiles

Further analysis of the mean subsidy for the inpatient services indicated that the poorest had the largest share of the mean inpatient services across the wealth quintiles with the richest quintile having the least mean subsidy (Figure 4.4).

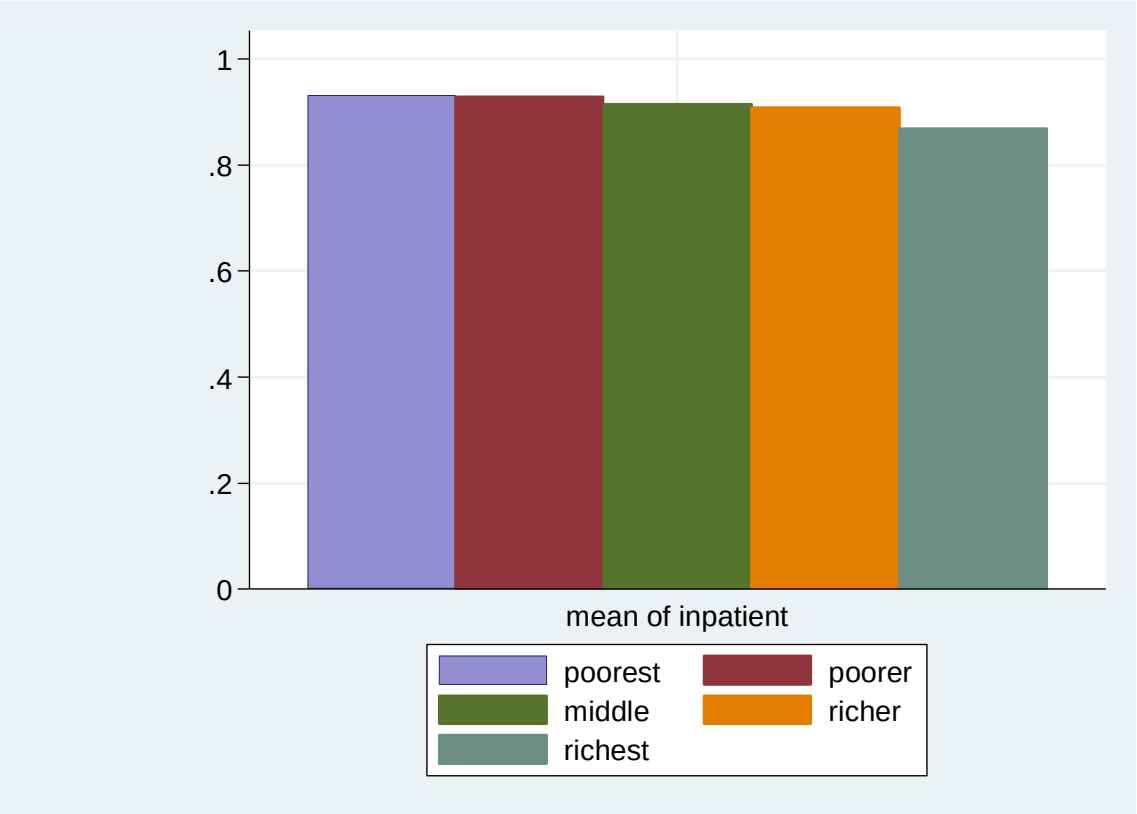

Figure 4.4 Mean inpatient visits across the wealth quintiles

An analysis was also carried out to demonstrate the distribution of mean outpatient services subsidy across the different wealth quintiles which were earlier generated. The results indicated that the subsidy proportion for the outpatient services was high for the wealthier quintile as compared to that received by the lower income population. The above results are highlighted in the Figure 4.5 below.

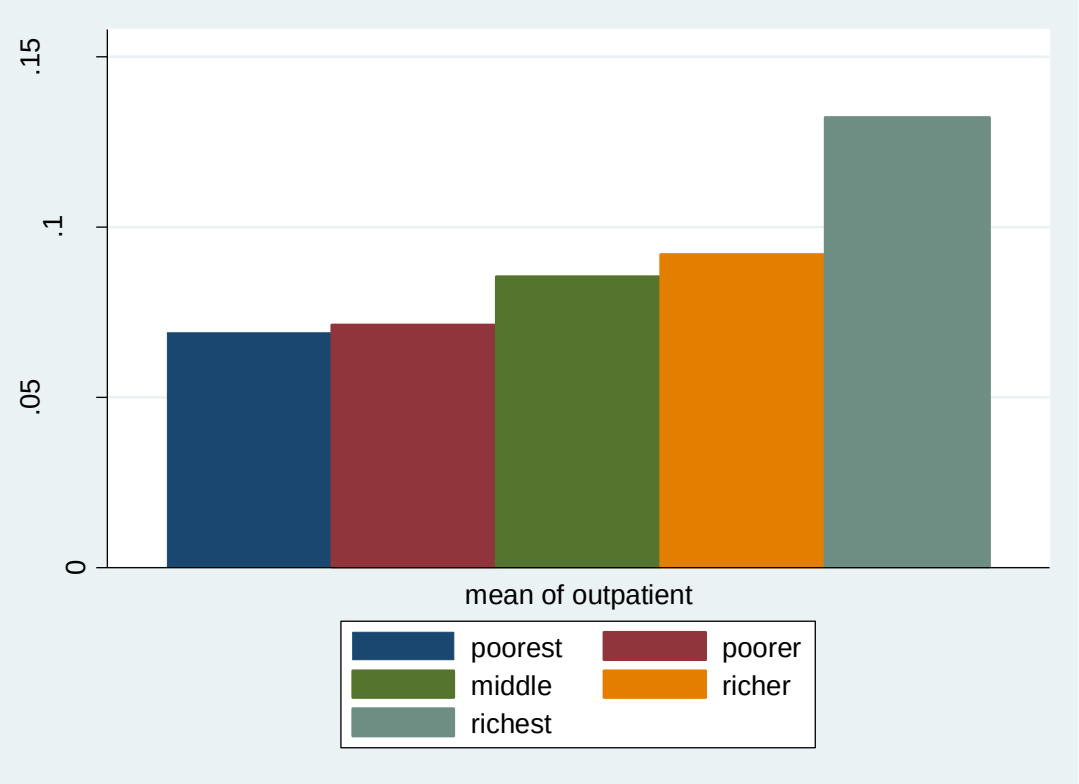

Figure 4.5 Mean outpatient visits subsidy across wealth quintiles

4.4 Mean Health Subsidy across Areas of Residence

Further, the distribution of the mean maternal and child health subsidy was obtained at different area of residence. The mean maternal and child health subsidy was higher for the rural residence as compared to the urban residents (Figure 4.6).

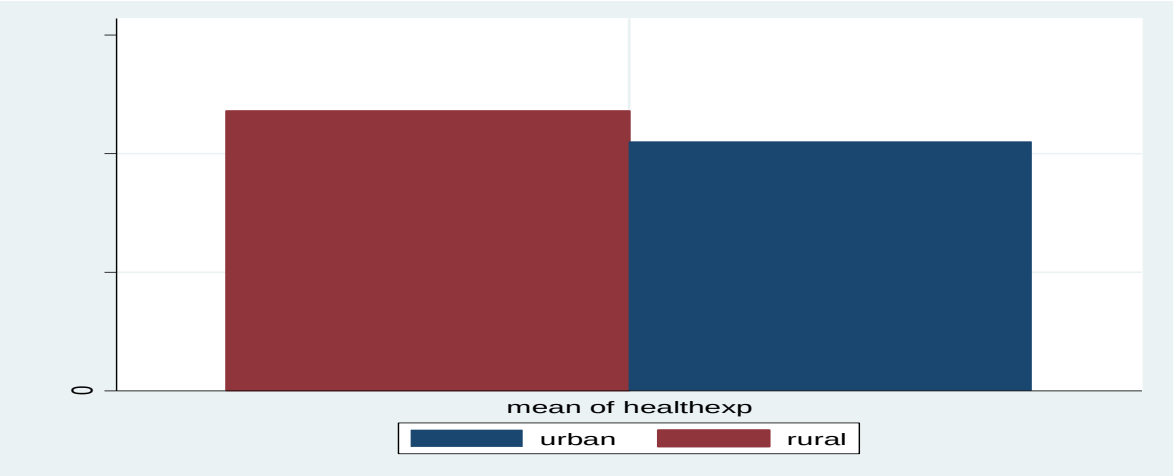

Figure 4.6 Summary of the Mean health subsidy by area of residence

The distribution of the inpatient services was higher for the rural residence as compared to the urban residents (Figure 4.7).

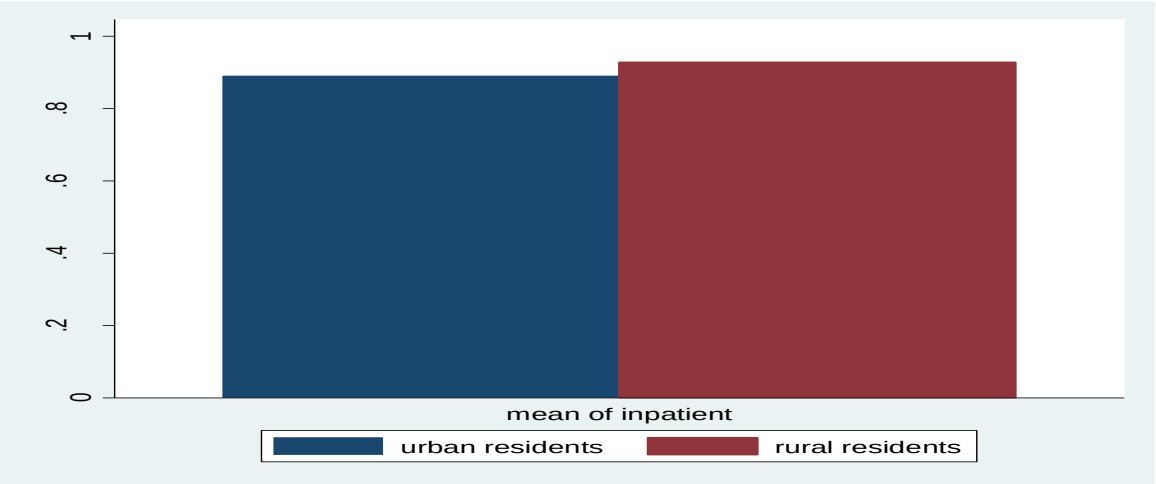

Figure 4.7 Mean inpatient visits across areas of residence

However, the distribution of the outpatient services was higher for the urban residence as compared to the rural residents (Figure 4.8).

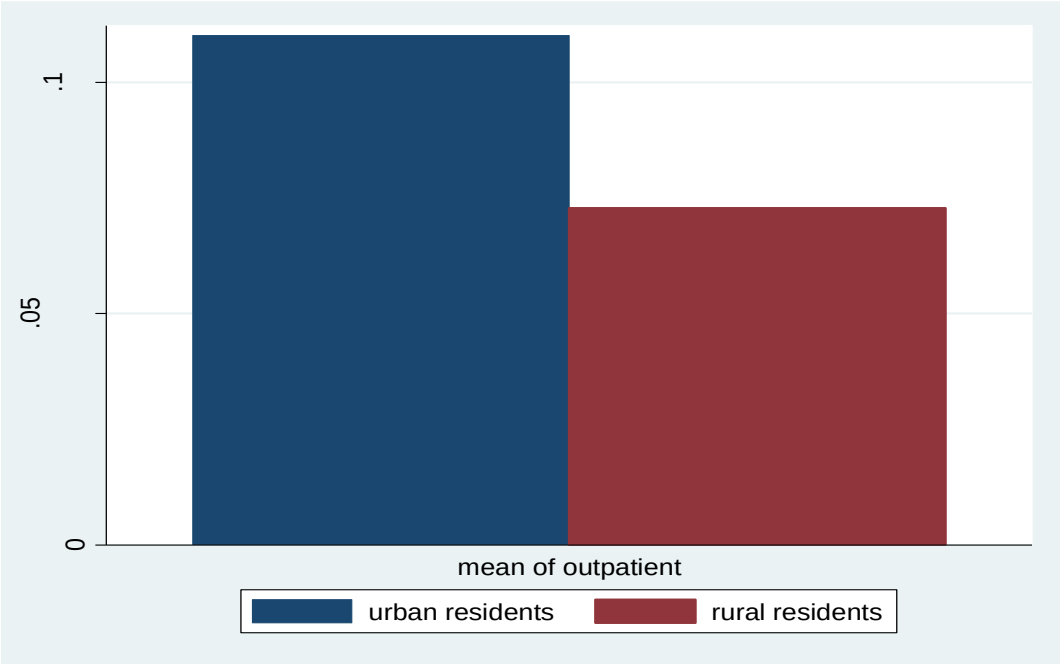

Figure 4.8 Mean outpatient visits across areas of residence

4.5 Concentration Indices

The cumulative shares by inpatient and outpatient services were analyzed within the wealth index. The concertation index for inpatient services had a negative sign for test of dominance. This result demonstrated pro-poor inpatient services. However, the analysis of outpatients services using concentration indices demonstrated pro-rich outpatient services because the concentration index was positive and had a positive sign for test of dominance against the 45^0 line of equality. This is elucidated in the Table 4.3 below.

Table 4.3: MNCH service utilization by type of services offered across wealth quintiles

	Health care utilization by type of services offered	
Cumulative Shares	Inpatients	Outpatients
Poorest 20% (Standard errors)	**31.8%** (0.4658)	**25.7%** (0.4370)
Poorer 40%	**53.6%** (0.4125)	**43.9%** (0.3857)
Middle 60%	**72.6%** (0.3923)	**63.2%** (0.3952)
Richer 80%	**88.4%** (0.3647)	**80.7%** (0.3795)
Richest 100%	**100.0%** (0.3207)	**100.0%** (0.3948)
Test of dominance against 45^0 Line	-	+
Concentration index (Robust Standard error)	-0.0106 [0.0025]	0.1152 [0.0035]

Comparative analysis between the level of access of the MNCH services and utilization from public sector facilities and private sector facilities was done. The results demonstrated that public sector offered a pro-poor services, while the private sector facilities were pro-rich as illustrated in Table 4.4 below which indicates a negative sign of the test of dominance for services

utilization from the public facilities and a positive sign of the test of dominance against the 45^0 line for the services utilization from the public facilities.

Table 4.4: MNCH services utilization by sector across wealth quintiles

	MNCH services utilization by sector					
Cumulative Shares	Public hospital	Public health center	Public dispensary	Private hospital/clinic	FBO	Nursing / maternity home
Poorest 20%	**18.0%**	**29.9%**	**38.4%**	**11.5%**	**27.2%**	**3.2%**
(Standard errors)	(0.3839)	0.4581	0.4865	0.3195	0.4455	0.1796
Poorer 40%	**34.6%**	**54.0%**	**64.5%**	**26.4%**	**39.6%**	**9.8%**
	(0.3730)	0.4273	0.4390	0.3557	0.3308	0.2497
Middle 60%	**53.1%**	**73.6%**	**83.2%**	**41.0%**	**56.6%**	**25.9%**
	(0.3878)	0.3975	0.3902	0.3540	0.3756	0.3739
Richer 80%	**76.0%**	**89.5%**	**95.4%**	**62.0%**	**75.4%**	**45.3%**
	(0.4201)	0.3661	0.3270	0.4073	0.3917	0.4016
Richest 100%	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
	(0.4275)	0.3063	0.2105	0.4859	0.4314	0.5059
Test of dominance against 45^0 Line	-	-	-	+	+	+
Concentration index	0.1729	0.0793	0.2150	0.3264	0.0985	0.5423
(Robust Standard error)	[0.0139]	[0.0293]	[0.0299]	[0.0921]	[0.0668]	[0.1859]

Analysis of the distribution of the utilization by region of residence clearly demonstrated that inpatient services were pro – rural given the negative test of dominance against 45^0 line. However, outpatient services utilization was pro – urban residence (Table 4.5).

Table 4.5: Analysis of service utilization by type across areas of residence

	MNCH service utilization by type	
Cumulative Shares	Inpatients	Outpatients
Rural residence (Standard errors)	**70.6%** (0.4554)	**60.4%** (0.4891)
Urban residence	**100.00%** (0.4554)	**100.00%** (0.4891)
Test of dominance against 45^0 Line	-	+
Concentration index (Robust Standard error)	0.0086 [8.986e-13]	0.0937 2.079e-12

The results of utilization of health care providers by area of residence indicated that the utilization of the health cares from public hospitals, public health centers, public dispensaries are pro – rural (Table 4.6). This is evidenced by the negative sign of the test of dominance against the 45-degree line. However, results indicated that utilization of care from private clinics/ hospital, faith-based organizations and nursing / maternity facilities are pro – urban. This is evidenced by the positive sign of the respective of the test of dominance against the 45-degree line.

Table 4.6: analysis of MNCH services provision by providers across areas of residence

	Health care utilization by health care Provider					
Cumulative Shares	Public hospital	Public health center	Public dispensary	Private hospital/clinic	FBO	Nursing / maternity home
Rural residence	**43.8%**	**73.7%**	**83.0%**	**46.3%**	**57.5%**	**29.0%**
(Standard errors)	(0.4962)	(0.4402)	(0.3757)	(0.4990)	(0.4951)	(0.4614)
Urban residence	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
	(0.4962)	0.4402	(0.3757)	(0.4990)	(0.4990)	(0.4614)
Test of dominance against 45^0 Line	-	-	-	+	+	+
Concentration index	0.1992	0.1006	0.1933	-0.1742	-0.0616	-0.3464
(Robust Standard error)	2.210e-15	5.133e-14	3.509e-14	2.174e-14	1.375e-14	1.490e-14

4.6 Concentration Curves

In order to demonstrate the inequality in subsidy in the provision of care, a comparison of the concentration curve against Lorenz curve was made. The individual concentration curves for the respective wealth quintile were generated, the concentration curves were further combined in one graph for comparison purposes. The results indicated that the concentration curves for the poorest and the poorer had the least dispersion from the line of equality and concentration curves for the richest had the largest dispersion from the line of equality compared to all other concentration curve. This implied that the subsidies were pro – poor and less pro – rich.

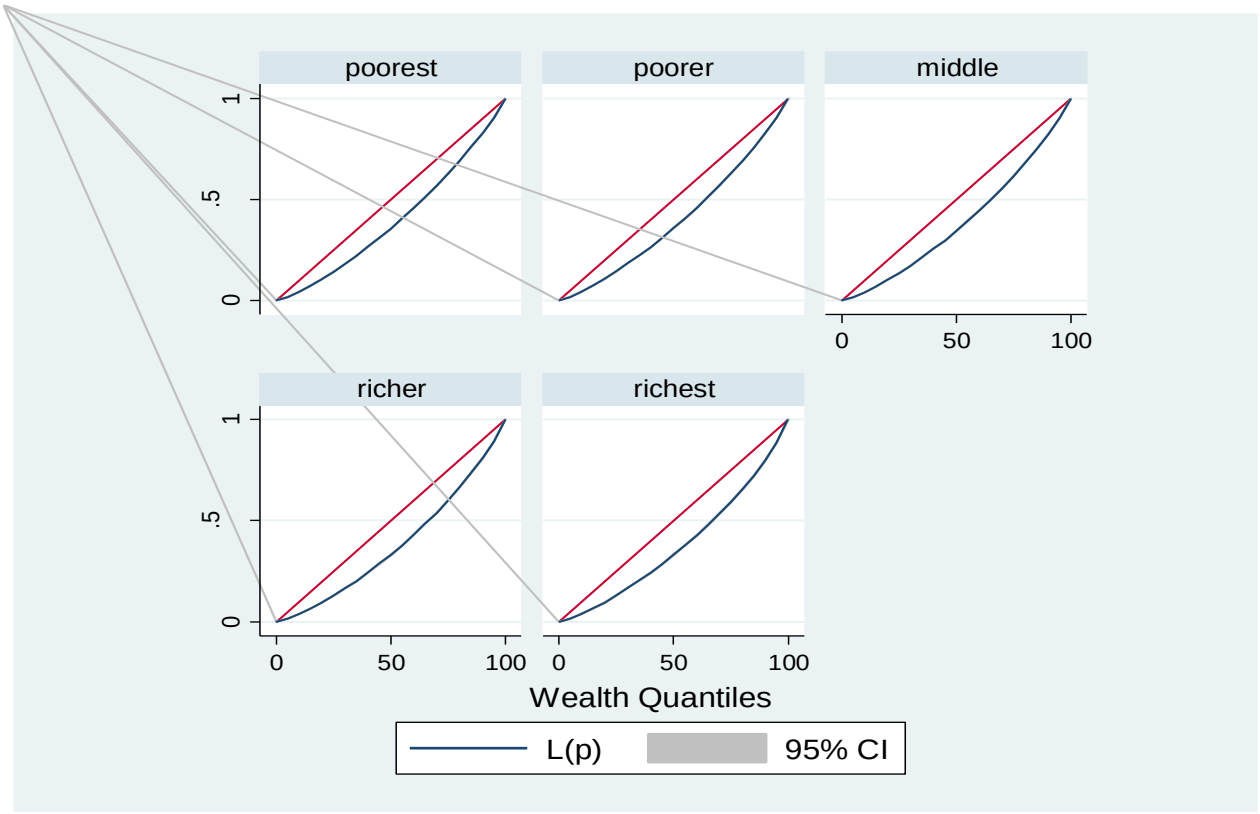

Figure 4.9: Concertation curves for distribution of health subsidy across the wealth index

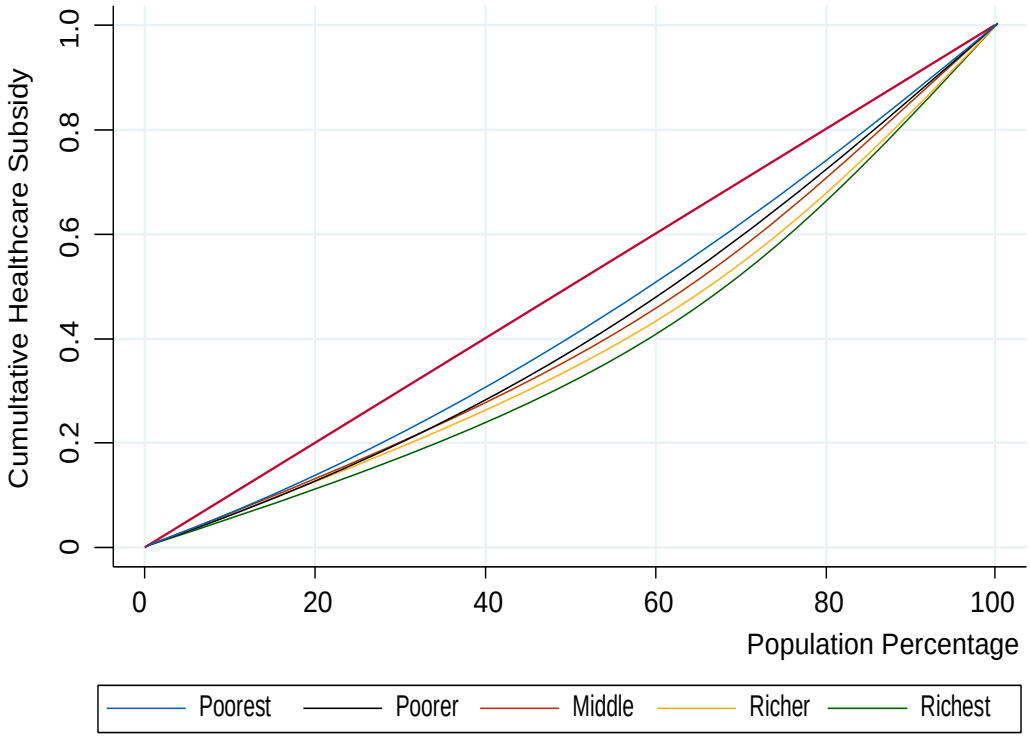

Figure 4.10: Composite concertation curves for distribution of health subsidy across the wealth index

The concentration curves for urban residences as well as for the rural residences were generated separately to demonstrate the distribution of subsidy based on area of residence, the curves were further combined for comparison purposes. From the two graphs, results indicated that the concentration curves for the rural residence had the least dispersion from the line of equality, this finding illustrates that the benefit incidence of maternal, newborn and child health services were pro-rural and less pro-urban because the concentration curves for the urban residences had largest dispersion when compared to the concentration curve for the rural residence as shown in Figure 4.12

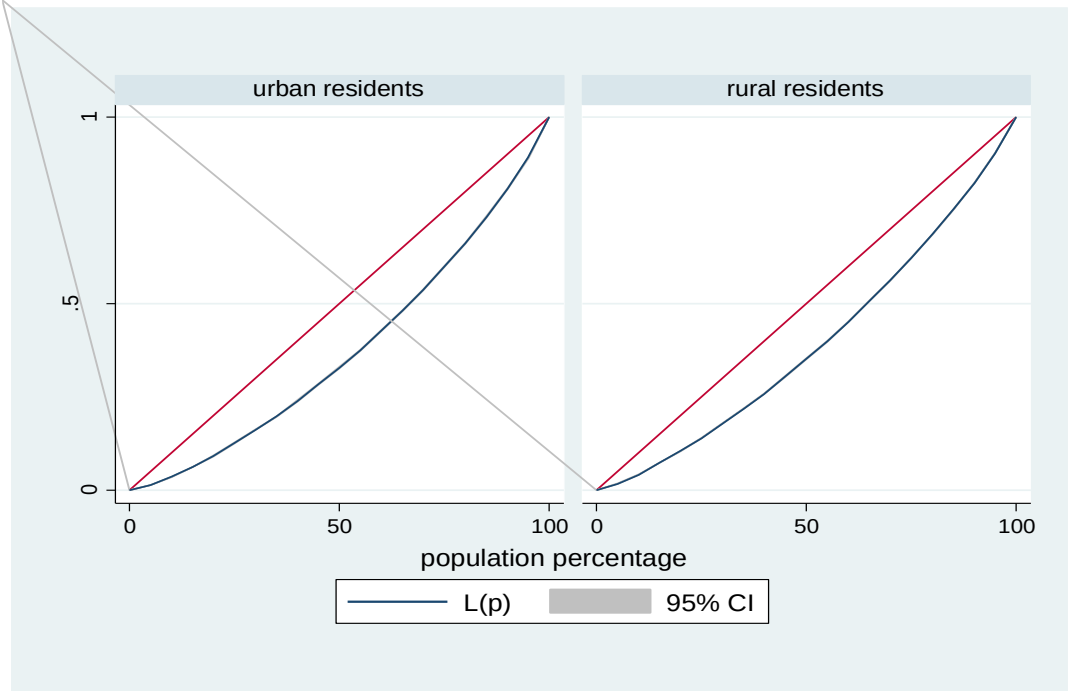

Figure 4.11: Concertation curves for distribution of health subsidy across the area of residence

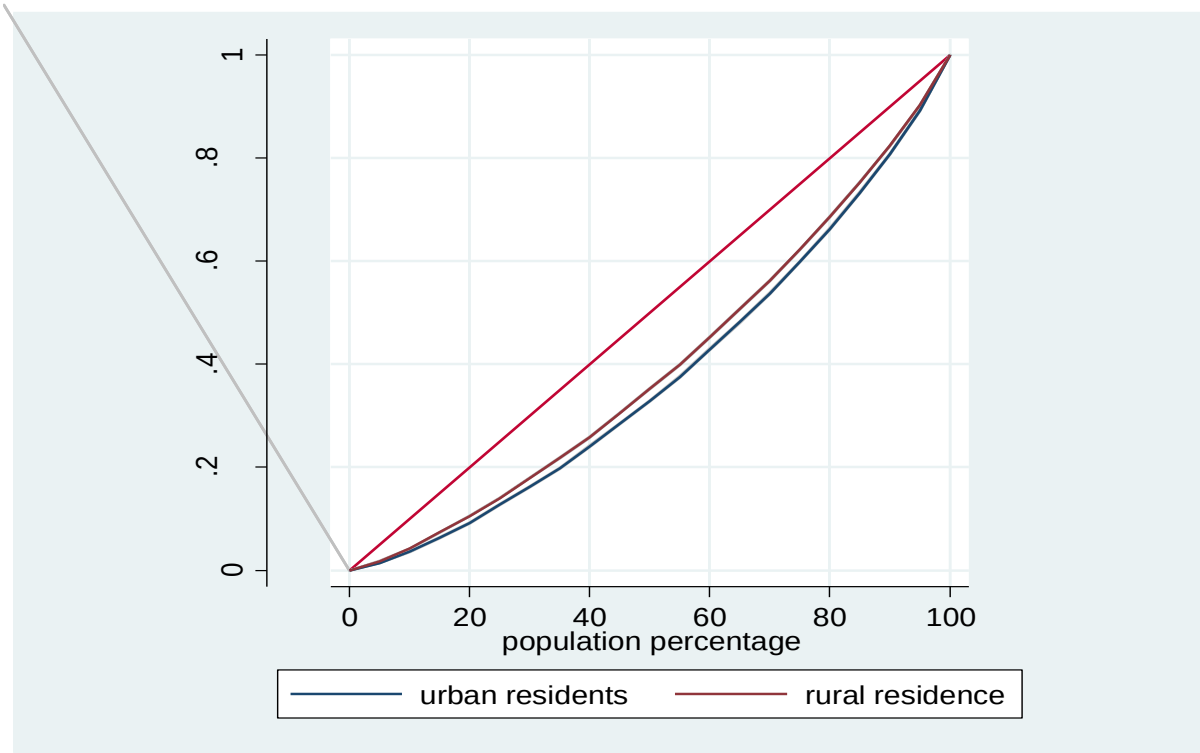

Figure 4.12: Composite concertation curves for distribution of health subsidy across the area of residence

CHAPTER FIVE

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study had a broad objective of demonstrating whether the public health expenditure on MNCH services in Kenya are targeted to address the needs of the poor who need these subsidies most or if they are directed towards services utilized by the rich. This section therefore brings together the key findings from the analysis directed by the broad objectives of the study to illustrate the level of inequity and targeting of public expenditure in MNCH services provision, to highlight new learning areas and to also provide recommendation for policy to address any level of inequity in public spending geared towards MNCH service provision in Kenya.

5.2 Discussions

5.2.1 Utilization of the subsidies across wealth quintiles

This study exhibited varied scenarios, for instance, utilization of inpatient services was greater in rural population as opposed to the urban population, however, the outpatient services utilization had an inverse scenario where the urban had greater utilization of these services than the rural population. The above scenario brings into play the dynamics of individuals'/households being able to pay for the health care services. For example, the outpatient services utilization was more in urban areas because the urban population have a higher purchasing power and able to pay for their outpatient visits, while the rural areas have less purchasing power and might not be able to make frequent visits to the facility, hence their visits are limited to inpatient services which are more often during skilled deliveries.

Ability to pay also influence which type of provider to visit, the study indicates that MNCH services from the public sector were more concentrated in the rural areas while the private sector

services were concentrated in the urban areas. The poor rural population preferred the public facilities due to minimal or no user fees, as opposed to the private facilities which had higher user fees. It is therefore important to ensure that the public expenditure on MNCH services are focused on the poor population who are most of the times unable to meet the cost of these services, therefore protecting them from the financial risk of paying for the services.

Another key aspect from the above analysis illustrates the level of access to the MNCH services in different residential areas, for example, in most urban areas, the distribution of health facilities is even compared to the rural areas. The urban population can therefore easily access MNCH services from the many facilities within their reach hence high number of outpatient services. In rural areas, the facilities are spatially populated. This brings into play other indirect factors like cost of access hence fewer outpatient visits. These study results are consistent with a study carried out by Chuma *et al.,* (2012) who assessed health care benefits distribution in Kenya, her results indicated wide disparities in inpatient services compared with the outpatient services in hospital level, while at the lower levels, the results were pro-poor. O'Donnell et al., 2007 also learnt in their study that in middle income countries, the poorest population more often use primary healthcare facilities more than the rich.

5.2.2 Distribution of the subsidies across wealth quintiles

The results in this paper demonstrated mixed scenarios, for example, the inpatient services in public facilities were pro-poor and pro-rural while in private facilities they were pro-rich and pro-urban. The outpatient services were however largely pro-rich and pro-urban. The poorest populations usually have the greatest health needs in a society and should ideally receive the largest proportion of the benefits from public health subsidies. The benefit incidence in this study indicated that the public expenditure on MNCH services in Kenya were generally pro-poor, but

on further analysis, 69.8% of user in the financial year 2013/14 were from the rural poor as compared to 30.2% from the urban areas. Poor households usually have more individuals than wealthier household. When the proportion of benefits to individuals' households was evaluated, it was realized that the wealthier population received larger proportion of the subsidies compared to what received by the poor segment of the population. This results indicates bias in using average benefit incidence in driving conclusion, rather, the marginal benefit incidence should be utilized to assess those who actually benefit from these public subsidies. Since a bigger proportion of the health care resources in Kenya are directed to the hospitals and tertiary level healthcare which benefits the higher income class as compared to the poor as demonstrated by these findings, the government therefore needs to target their subsidies towards primary health care which benefits the rural poor.

5.3 Conclusion

There were mixed results derived from this study, superficially, the study demonstrated a general picture that the public expenditure on maternal, newborn and child health services in Kenya in the financial year 2013/14 was pro-poor, but on further analysis by wealth quintiles, the results indicated that the wealthier segments of the population received larger proportions of benefits from the subsidies. The higher socio-economic group in this study accounted for 30.2% of the population, while they received higher proportions of the benefits at the expense of the poor who were 69.8%. this demonstrates inequality in targeting the public expenditure on healthcare in Kenya.

Additionally, outpatient services were pro-rich and pro-urban. This illustrates inequality in access of the maternal, newborn and child health services by the poor segments of the population. Outpatient MNCH services such as antenatal visits are very key in monitoring

progress towards achieving health for all agenda, if these services are not accessible to the majority of the poor in rural settings, then achieving the above targets becomes a tall order. The services were pro-poor in primary healthcare public facilities and pro-rich in the private facilities, this demonstrates that the services were distributed based on the ability to pay. The poor would only access services in public facilities which had little or no user fees compared to private facilities which attracted higher user fees. These compromised the quality of care because the services were not offered with regard to what the patient needed, the basis of service provision was anchored on whether the patient was able to pay for the services or not. This demonstrates that the subsidies were not progressive.

Achieving UHC requires more focus on the primary healthcare structure in the healthcare system. The primary health care facilities in most cases addresses the needs of the poor segments of the population, more attention on funding should be given to the primary care facilities to improve equity in access and reduce the burden of paying for the healthcare services. The poor population usually have the greatest burden of diseases, having programs which could ensure that they access services whenever they need them without bearing the financial risk of paying for the care is therefore an important policy issue which the health system should address to accelerate the journey towards achieving the sustainable development goals.

5.4 Recommendations

Governments usually subsidize health services to cushion the vulnerable poor populations from financial catastrophes of paying for the services. The poor population usually have the highest disease burdens, it is therefore imperatively important to ensure the public expenditure on health care are targeted to help the poor population achieve their health needs and the funding should aim at improving services at the lower level facilities which are more often used by the vulnerable poor. BIA is a strong tool for evaluating whether the government have targeted their funds effectively to achieve equity in access, it is therefore important for the government to entrench benefit incidence studies into the demographic health surveys conducted periodically to enable the government monitor these critical elements geared towards achieving universal health coverage and the overall sustainable development goals.

REFERENCES

Abed, George, and Sanjeev Gupta, 2002, Governance, Corruption & Economic Performance (Washington: International Monetary Fund).

Atkinson, Anthony B., 2000, "Increased Income Inequality in OECD Countries and the Redistributive Impact of the Public Budget," WIDER Working Paper No. 202 (Helsinki: World Institute for Development Economic Research, United Nations University).

Bearce, P., G. Glomm, and E. Janeb, 2000, "Why Poor Countries Rely Mostly on Redistributive In-kind?" Journal of Public Economics, Vol. 75, pp. 463–81

Castro-Leal, F Dayton J, Demery, L Mehra K. Public Spending on health care in Africa: do the poor benefit? Bull WHO 2000; 78:66-78.

Chakraborty Achin and Subrata Mukherjee, 2005. Health Care in West Bengal: Confused Policy for Public-Private Partnership. Economic and Political Weekly, XL(5), (January).

Chu, K., Davoodi, H. and Gupta, S. (2000) 'Income distribution and tax and public social spending policies in developing countries', Working paper Fiscal Affairs Department, Washington DC: International Monetary Fund.

Coady, Grosh, and Hoddinott, 2004. Coady, David, Margaret Grosh, and John Hoddinott, 2004b, The Targeting of Transfers in Developing Countries: Review of Lessons and Experiences. IFPRI and World Bank: Washington DC.

Collins, David, and Zina Jarrah. 2009. Costing study of basic package of health services (BPHS) for performance-based contracts under USAID's RBHS project.

Davoodi, Hamid R.; Tiongson, Erwin R.; and Asawanuchit, Sawitree Sachjapinan (2010) "Benefit Incidence of Public Education and Health Spending Worldwide: Evidence From A New Database," Poverty & Public Policy: Vol. 2: Iss. 2, Article 2.

Davoodi, Hamid; Edwin Tiongson and Sawitree Asawanuchit, 2003. "How useful are benefit incidence analysis of public education and health spending?". IMF Working Paper 03/22733, International Monetary Fund, Washington D.C.

Deaton, Angus, and John Muellbauer (1986) 'On Measuring Child Costs: with Applications to Poor Countries.' Journal of Political Economy Vol. 94 (720-744).

Demery, Lionel. 2000. Benefit Incidence: A Practitioner's Guide. TheWorld Bank. Washington, D.C.

Demery, Lionel, and Micheal Walton. 1998. "Are Poverty Reduction and Other Twenty-first Century Social Goals Attainable?" World Bank, Washington, D.C

Devarajan, Shantayanan and Shaikh I. Hossain (1995) The Combined Incidence of Taxes and Public Expenditures in the Philippines. Policy Research Working Paper No. 1543, World Bank Policy Research Department, Washington D.C. (November).

Filmer, Deon, Jeffrey Hammer and Lant Pritchett (1998) Health Policy in Poor Countries: Weak Links in the Chain World Bank Policy Research Working Paper Number 1874 (January)

Glenngard AH, Maina TM: Reversing the trend of weak policy implementation in the Kenyan health sector?-a study of budget allocation and spending of health resources versus set priorities. Health Res Policy Syst 2007, 5:3.

Government of Kenya, Health Systems 2020 Project: Kenya National Health Accounts 2005/2006. Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc; 2009.

Jane Chuma, Thomas Maina and John Ataguba (2012): Does the distribution of health care benefits in Kenya meets the principles of universal coverage? BMC Public Health

Griffin, C., J. Briscoe, B. Singh, R. Ramasubban, and R. Bhatia, (1995) 'Contingent Valuation and Actual Behavior: Predicting Connections to New Water Systems in the State of Kerala, India.' The World Bank Economic Review, vol. 9, no. 1. Washington DC, The World Bank.

Kenya National Bureau of Statistics, "Economic Survey 2014," Nairobi, Kenya, 2014.

Kenya National Health Accounts 2012/2013

Kenya Demographic and Health Survey (KHDS) 2013-2014

Lanjouw, P. and Ravallion, M.,1999. 'Benefit Incidence, Public Spending Reforms, and the Timing of Program Capture', World Bank Economic Review 13 (2): 257-273

Lanjouw, Peter, and Martin Ravallion 'Benefit Incidence, public spending reforms, and the timing of program capture' World Bank Economic Review Vol. 13 257-73 (May 1999)

Lekha Chakraborty, Yadawendra Singh, Jannet Farida Jacob (2012), Public Expenditure Benefit Incidence on Health: Selective Evidence from India. Working Paper No. 2012-111

Levels and Trends in Child Mortality (2011): Estimates developed by the Interagency Group for Child Mortality Estimation (ICGE)

Mahal, A., 2005, Policy implications of the distribution of public subsidies on health and education: The case of Karnataka, India, Comparative Education Review [P], vol 49, issue 4, University of Chicago Press, United States, pp. 552-574.

Mahal, Ajay Janmejaya Singh, Farzana Afridi, Vikram Lamba, V. Selvaraju, and Anil Gumber, 2001, Who Benefits from Public Sector Health Spending in India?, New Delhi: National Council for Applied Economic Research.

Manasan, Rosario G., Janet S. Cuenca and Eden C. Villanueva 2007. Benefit Incidence of Public Spending on Education in the Philippines, Philippine Institute for Development Studies, Discussion paper. 2007-09

McLure, Charles E. "On the Theory and Methodology of Estimating Benefit and Expenditure Incidence," mimeo, Workshop on Income Distribution, Rice University

Ministry of Medical services: Facts and figures on health and health related indicators. 2008.

Ministry of Medical services, Ministry of Public health and sanitation: Public expenditure review 2009. 2010.

O'Donnell, Owen, Eddy van Doorslaer, Adam Wagstaff, and Magnus Lindelow. 2007. Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and their Implementation. Washington, DC: The World Bank.

Pitt, Mark, Mark R. Rosenzweig and Donna M. Gibbons (1995) 'The Determinants and Consequences of the Placement of Public Programs in Indonesia.' Chapter 6 in Van de Walle and Nead (1995).

Ravallion, Martin (1994) Poverty Comparisons. Fundamentals of Pure and Applied Economics Volume 56, Chur, Switzerland: Harwood Academic Publishers.

Reinikka, Ritva and Jacob Svensson, 2001, "Explaining Leakage of Public Funds" World Bank Discussion Paper No. 2709 (Washington: World Bank)

Reynolds, Morgan, and Eugene Smolensky (1977) Public Expenditures, Taxes, and the Distribution of Income: The United States, 1950, 1961 and 1970. New York: Academic Press.

Sahn David E. & Stephen D. Younger, 2000. "Expenditure incidence in Africa: microeconomic evidence," Fiscal Studies, Institute for Fiscal Studies, vol. 21(3), pages 329-347, September.

Svensson, J. & Bjorkman, M. (2009). Efficiency and Demand for Health Services: Survey Evidence on Public and Private Providers of Primary Health Care in Uganda. The World Bank.

Van de Walle, Dominique (1998) 'Assessing the welfare impacts of public spending.' World Development, March 1998

Wagstaff, Adam. 2010. Benefit Incidence Analysis, Are Public Health Expenditures More Pro-rich Than We Think? Policy Research Working Paper 5234, Washington, DC: The World Bank

Wang, Hong, Darwin Young, and Catherine Connor. 2009. Synthesis of Health Financing Studies and the Alternatives for Health Financing Policy in Liberia. Bethesda, MD: Health Systems 20/20, Abt Associates Inc.

Withanachchi, N., Uchida, Y., Nanayakkara, S., Samaranayake, D. & Okitsu, A. (2007). Resource allocation in public hospitals: is it effective? Health Policy and Planning, 80(2), 308-13.

Younger, Stephen, 2002. Public social sector expenditures and poverty in Peru. In (ed.) Christian Morrisson, Education and Health Expenditure, and Development: The Cases of Indonesia and Peru. Organization for Economic Co-operation and Development, Paris.