PROGRESSIVITY AND EQUITY OF HEALTHCARE FINANCING IN MALAWI

MASTER OF ARTS (ECONOMICS) THESIS

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PROGRESSIVITY AND EQUITY OF HEALTHCARE FINANCING IN MALAWI

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DECLARATION

I, the undersigned, at this moment, declare that this thesis/dissertation is my original work which has not been submitted to any other institution for similar purposes. Where other people's work has been used, acknowledgements have been made.

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CERTIFICATE OF APPROVAL

The undersigned certifies that this thesis represents the student's work and effort and has been submitted with our approval.

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To dad,

Though you never got to see this, you are in every page.

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ABSTRACT

At the fifty-eighth World Health Assembly in 2005, the member states of the World Health Organisation (WHO) committed themselves to attaining Universal Health Coverage (UHC) for their citizens. The WHO Regional Committee of Africa reiterated this in its fifty-sixth session in 2006. The framework for implementing the Ouagadougou Declaration on Primary Health Care and Health Systems recommends that countries develop comprehensive health system financing policies and strategic plans to chart the direction of their health financing systems toward achieving universal coverage with prepayment schemes. The primary purpose of this study was to assess the equity of healthcare financing in Malawi through various policies whose goals were to achieve high-quality, equitable, affordable UHC. The specific objectives were to evaluate the relative progressivity of health financing of health financing mechanisms in Malawi and to assess the redistributive effect of health financing mechanisms in Malawi. The paper evaluated three financing sources (direct taxes, private health insurance, and out-of-pocket payments (OOP)) independently and as a whole using the Kakwani progressivity index. Secondary data from the Integrated Household Surveys (IHS 2, 3, 4, and 5) were used to achieve this. The results for direct taxes were positive (0.2779, 0.2841, 0.3122, and 0.5208) which shows that they were progressive and got more progressive from IHS2 to IHS5. A question worth considering was whether the taxes redistribute the burden of finance towards the lower income quintile if only taxpayers were considered. The findings showed that IHS 2, 3, and 4 were regressive and only 5 was found to be progressive. A high level of progressiveness was found in insurance (0.602, 0.5419, 0.5784, and 0.596) because only the rich who could afford to pay for insurance paid for it. OOP payments were found to be regressive except for IHS4 which was mildly progressive (-0.0533, -0.0483, 0.0213, and -0.1035). The overall health financing was progressive because of direct taxes and insurance which cancelled out the regressiveness of OOP payments. The total redistributive effect of direct tax and private insurance shows a decrease in income inequality whilst OOOP showed the opposite. As such, the government should expand the user fee exemption to more eligible Christian Health Association of Malawi (CHAM) facilities, include more diseases in the essential health package, and increase its coverage to reduce the incidence of OOP payments.

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LIST OF ACRONYMS AND ABBREVIATIONS

ATP	Ability-to-pay
CHAM	Christian Health Association
EHP	Essential Health Packages
GDP	Gross Domestic Product
HICs	High-income countries
HSSP	Health Sector Strategic Plan
LICs	Low-Income Countries
LMICs	Low- and middle-income countries
NHA	National Health Accounts
NGOs	Non-Governmental Organisations
NHIS	National Health Insurance Scheme
OOP	Out-of-pocket
PHC	Primary Health Care
POW	Program of Works
SDGs	Sustainable Development Goals
SHI	Social Health Insurance
SSA	Sb-Saharan Africa
THE	Total Health Expenditure
UHC	Universal Health Coverage
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background

It is generally recognized worldwide that poverty is directly correlated with poor health outcomes. Financial barriers are deemed to be a key limitation to accessing health services in low- and middle-income countries (LMICs) where out-of-pocket (OOP) payments finance a significant proportion of health expenditure compared to prepayment mechanisms, such as tax and health insurance (Asante *et al*., 2016; Bilger *et al.*, 2011). As a result, households, particularly those poor, must make the difficult intertemporal decision between devoting resources to medical care now or foregoing treatment at the cost of losing human capital (Mussa, 2014). Hailemichael *et al*., (2019), assert that many households in LMICs are forced into poverty when faced with high medical costs as the impoverished spend more on healthcare as a percentage of income than the wealthy. Compared to high-income countries (HICs), the household financial burden of healthcare in LMICs is substantially higher, with more than 150 million people suffering from catastrophic and unanticipated OOP expenditures for pricey services every year (Kazibwe *et al.*, 2021). Mulaga *et al*. (2022) state that 89.7 million people became poor in 2015 due to OOP health spending, mainly in LMICs.

It is from this background that in 2005, the World Health Organization's (WHO) member states committed to achieving universal health coverage (UHC) for their citizens at the 58th World Health Assembly (Myint *et al*., 2019). By definition, UHC implies equity of access and protection from financial risk. Later, in 2015, the inclusion of UHC as target 3.8 of the Sustainable Development Goals (SDGs), solidified its standing as a top international priority (Mchenga *et al.*, 2022). The goals of the concept were to ensure that all people can access quality health services, to safeguard all people from public health risks, and to protect all people from impoverishment due to illness, whether from OOP payments for health care or loss of income when a household member falls sick (Maeda *et al*., 2014). UHC-achieved nations such as Brazil, France, Japan, Thailand, and Turkey demonstrate how this initiative may be essential

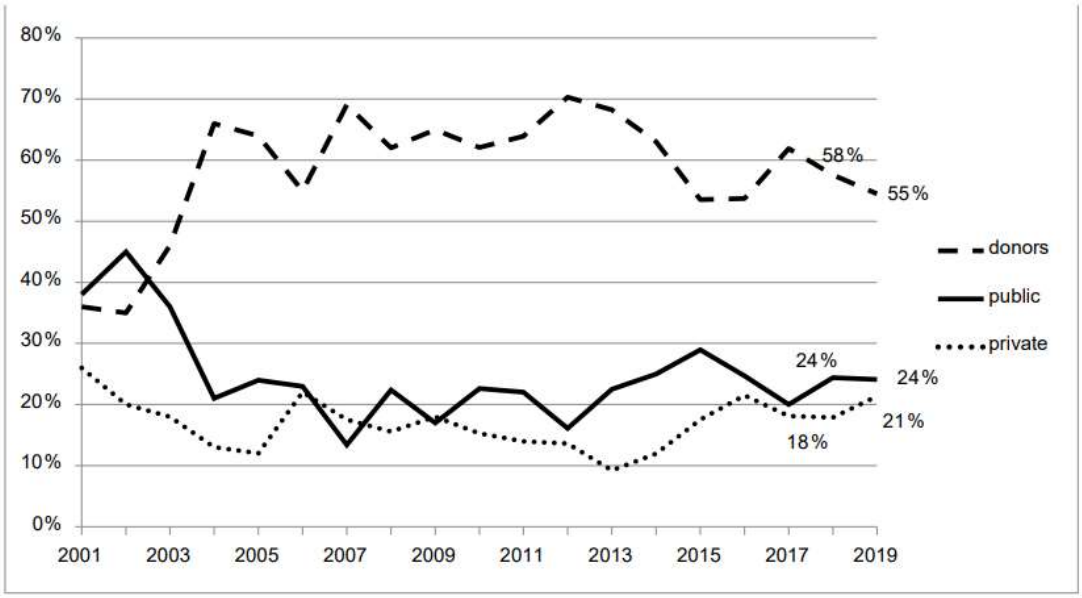
for enhancing citizen health and welfare and laying the groundwork for economic growth and competitiveness based on sustainability and equitable principles (Maeda *et al*., 2014).

However, effective implementation of UHC requires a robust health financing system which guarantees a fair distribution of the burden of paying for health care according to ability-to-pay (ATP) (Asante *et al*., 2016). The primary goal of health financing systems is to collect enough revenue to cover healthcare costs, which can be generated from a variety of sources, including general taxation (including direct and indirect taxes), social insurance contributions, OOP payments, and grants or donations (Mejía, 2013). Therefore, the problem is reorganising and managing health funding that effectively preserves UHC's agenda and an equitable health system.

The United Nations (UN) in 2012 resolved that member states should evolve health systems to avoid significant direct payments at the point of delivery and include a method for prepayment of financial contributions (taxes and insurance) for healthcare and services (Wiysonge *et al.*, 2017). However, studies have shown that the removal of user fees and implementation of insurance showed no increase in usage of health services even though free care drastically reduced medical expenses (Lépine *et al.,* 2018). Health experts agree that labour taxes are a problematic way to fund health systems since most LMICs have a narrow tax base because of their high levels of unregistered and untaxable share of employment. Africa's share of unregistered and untaxable employment is as high as 86 per cent, 68 per cent for Asia, and 53 per cent for Latin America and the Caribbean (Yazbeck *et al*., 2020). A key problem with labour-tax social health insurance is that it can redistribute resources towards the wealthy, not the poor.

Malawi currently employs a mixed-user fee system. Since 1964, all medical services in public facilities have been free. However, services are not free in non-governmental organisations (NGOs) or the private sector, which accounts for a sizeable portion of primary care in Malawi, notably the Christian Health Association of Malawi (CHAM), which provides about 35% of all healthcare services (Zeng *et al.*, 2019). Donors contribute to most resources in the health sector, followed by the public and, finally, the private sector. Donors provided up to 54.5 per cent of total health expenditure (THE) in 2019, with the public sector contributing 24.1 per cent and the private sector 21 per cent, as provided in figure 1 below (GoM, 2023). Although the budgetary allocation to the Ministry of Health approved by Parliament has been rising,

partly due to the Abuja Declaration, where countries pledged to set a target of allocating at least 15% of their annual budget to improve the health sector, this has not met the increasing needs of the health sector (African Development Fund, 2005; World Health Organization, 2010).



Source: National Health Accounts for Malawi (2022)

Figure 1: Trend Analysis of Sources of Health Financing in Malawi

1.2 Problem Statement

Despite the wide range of financing options, not all of them support equity and, as a result, do not aid the transition to UHC. Multiple studies have shown that there remain barriers to attaining universal financial protection due to transport and high medical costs (Abiiro *et al.,* 2014; Mchenga *et al*., 2017). The introduction of a National Health Insurance Scheme (NHIS) doesn't particularly seem feasible as resources would only be pooled from the formal sector and would unlikely be able to cover the funding gap (Gheorghe *et al*., 2019). Having a narrow tax base, the burden of finance in the country falls on the few who are employed in the formal sector.

The Government of Malawi over the years has undertaken health sector reforms to ensure its commitment to financial protection for its citizenry (Mulaga *et al.,* 2022). Most notable of the reforms are the Program of Works (POW) and its successors Health Sector Strategic Plans (HSSP) I, II, and III, which have been made over the past two decades to move toward a more efficient, effective, and pro-poor system the critical policy question is whether the planned

outcome, for equitable health financing, was achieved (African Development Fund, 2005; Asante *et al*., 2016; Ministry of Health, 2016; Ministry of Health, 2022; Ministry of Health, 2011). This paper aims to provide evidence of advancement in health financing equity in Malawi due to policy reforms by determining the progressiveness of multiple sources of financing (taxes, health insurance and OOP payments). This study will use a finance incidence analysis to measure the equity of financing mechanisms to assess their progressivity (pro-poor), in the country (Ataguba, 2021a).

1.3 Justification of the Study

Despite the strides made by Malawi in the UHC goal of financial risk protection through various policies, the progressivity of multiple sources of finance has yet to be determined. Most studies on the subject of equity, in Malawi, focus on OOP payments, (Abiiro *et al.,* 2014; Borghi *et al*., 2018; Mchenga *et al.,* 2017; Mulaga *et al*., 2022b; Mwale *et al.,* 2022), with no focus on the other forms of financing. This paper provides evidence of the advancement of equity in health financing answering whether equitable health financing has been achieved since the advent of POW and HSSP I through III to inform the policy debate on UHC. Insights from this paper will help assess the performance of health systems and help policymakers further strengthen the existing structures of health financing or switch to other systems.

1.4 Objectives of the Study

1.4.1 Main objective

To determine the equity of healthcare financing mechanisms in Malawi.

1.4.2 Specific objectives

- To evaluate the relative progressivity of health financing mechanisms in Malawi.
- To assess the redistributive effect of health financing mechanisms in Malawi.

1.5 Hypotheses

The study is based on the following hypotheses:

- There is no relative progressivity in health financing mechanisms in Malawi.
- There is no redistributive effect of health financing mechanisms in Malawi.

1.6 Organization of the Paper

Chapter One sufficiently introduces the topic under study by providing the background, problem statement, justification, and objectives. Chapter Two will provide an overview of Malawi's health system profile and related policies. Chapter Three will continue with a review of literature, both theoretical and empirical, related to equity in health care financing. Chapter Four describes the methodology employed in the study, including data sources and analysis methods. Chapter Five contains the results and discussion obtained after analysing the available data. Chapter Six concludes the paper on the subject of progressivity and equity of healthcare financing in Malawi and it also provides recommendations on the subject matter.

CHAPTER TWO

OVERVIEW OF MALAWI HEALTH PROFILE

2.1 Introduction

This section is an overview of the Malawian health profile. It is divided into six sub-sections: demography, the health sector, the macroeconomic situation, healthcare financing mechanisms, the health financing policies, and the health status of Malawians. These six sub-sections are issues that directly or indirectly affect the equity dimension of the healthcare financing system in the country.

2.2 Demography

The 2018 Malawi Population and Housing Census reported that Malawi had a total population of about 18 million in the year, with an average growth rate of 2.9 per cent as shown in table 1. This was an addition of about 5 million people from the previous census in 2008 and more than quadruple the amount it was in 1966, 4 million. The population distribution by region indicates that 44 per cent of the total is in the Southern Region, 43 per cent in the Central Region, and 13 per cent in the Northern Region. The country's Urban Areas refer to the four major cities of Blantyre, Lilongwe, Mzuzu, Zomba, and other towns and Bomas and gazette town planning areas. The census showed that 16 per cent of the total population lives in these Urban Areas, of which 12 per cent resided in the four major cities, and 4 per cent lived in the other towns and Bomas. Malawi's population structure is almost dominated by those aged below 18, which is about 8.7 million (National Statistics Office, 2019).

Table 1: Total Population 1966-2018

Year of Census	Total Population	Average Annual Growth Rate
1966	4,039,583	3.3
1977	5,547,460	2.9
1987	7,988,507	3.7
1998	9,933,868	2
2008	13,077,160	2.8
2018	17,563,749	2.9

(National Statistics Office, 2019)

2.3 Health Sector

The health service delivery system in Malawi is organised at three levels which are linked by a referral system: 1) Primary (community and facility), 2) Secondary, and 3) Tertiary. The services are delivered through a network of public, NGOs, Private-not-for-Profit, and Private-for-Profit providers. Table 2 shows the distribution of health facilities by type and ownership. The Government owns 49 major hospitals followed by CHAM facilities which own 41, Private for Profit owns 9, Private Non-Profit own a single hospital and NGOs do not own any. Overall, the Government owns the most significant number of all health facility categories, 571, next Private for Profit own 248, CHAM 164, Private Non-Profit 62 and NGOs own 53 (Ministry of Health, 2023).

Table 2: Distribution of Health Facilities by Type and Ownership

FACILITY	FACILITY OWNER					Total
	Govt	Private for Profit	CHAM	Private non-Profit	NGO	
Clinic	20	233	7	46	46	**352**
Dispensary	49	2	2	8	1	**62**
Health Centre	364	4	109	7	5	**489**
Health Post	89		5		1	**95**
Hospital	49	9	41	1		**100**
Grand Total	**571**	**248**	**164**	**62**	**53**	**1098**

The Ministry of Health in Malawi oversees the health sector by its role, as outlined in the 1998 National Decentralization Policy. Strategic planning, policy-making, standards-setting, technical support, monitoring and evaluation, quality assurance, resource mobilization, and international representation are among the specialized responsibilities of the Ministry of Health. The Ministry is also in charge of overseeing tertiary hospitals, including Queen Elizabeth Central Hospital in Blantyre, Zomba Central Hospital in Zomba City, Zomba Mental Hospital in Zomba City, Kamuzu Central Hospital in Lilongwe City, and Mzuzu Central Hospital in Mzuzu City. Although the Cabinet approved a proposal to fully decentralize these hospitals' management to independent hospital boards in 2018, it still needs to be fully implemented (Ministry of Health, 2023).

Primary Health Care (PHC) refers to essential health care made universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of development in the spirit of self-reliance and self-determination. In 1978, PHC was endorsed as a critical strategy for attaining equitable access to primary healthcare, including treating and preventing endemic diseases. Malawi has no PHC policy but implements PHC services through the Essential Health Package (EHP) program. The EHP program was instituted in 2004 following the realization that PHC as a strategy for achieving health for all needed to be clarified, not focused, and too general to be attained.

Malawi has reasonable PHC structures, theoretically. However, the health system is characterized by a need for more funds, inequitable staffing, and financial allocation across rural and urban areas and among service tiers. Additionally, task shifting, unsatisfactory multidisciplinary work models, and demotivated employees impede implementation progress. The staffing arrangements demonstrate the maldistribution of resources, where 50% of the physicians and nurses are assigned to the four core hospitals. This reveals a need for more equality in deployment practices. In addition, all levels experience high vacancy rates (up to 80%), but senior medical officer positions are particularly affected. These issues hinder the provision of primary healthcare models that "would have been good." (Makwero, 2018).

2.4 Macroeconomic situation

Malawi is a low-income country with an estimated gross national income (GNI) per capita of US$630 in 2021(MacroTrends, 2023). The Gross Domestic Product (GDP) growth rate was

2.75 per cent in 2021, which is a 1.95 per cent increase from 2020 (MacroTrends, 2023) (MacroTrends, 2023). The country's Human Development Index increased from 0.36 in 2002 to 0.51 in 2021, growing at an average annual rate of 1.96 per cent (World Data Atlas, 2021). The Malawi multidimensional poverty index report indicated that 61.7 per cent of the country's population is multidimensionally poor, and the incidence of multidimensional poverty is highest in rural areas at 70 per cent compared to 25.7 per cent in urban areas. The intensity of poverty is 54 per cent, meaning that nationally poor people experience, on average, more than half of the weighted deprivations (National Statistics Office, 2021).

The economy of Malawi is predominantly agriculture-based. Agriculture accounts for 30% of GDP and over 80% of national export earnings. The agriculture sector employs 64 per cent of the country's workforce and contributes to food and nutrition security (JICA, 2022). The economy depends on substantial inflows of economic assistance from the International Monetary Fund, the World Bank, and individual donor nations (Economy of Malawi, 2022).

2.5 Healthcare Financing Mechanisms

Malawi's health system is funded by three prominent sectors namely donors, the public (direct and indirect taxes), and the private sector (which consists of OOP expenditure, medical insurance, and other corporate funds) (Ministry of Health, 2020). A brief overview of each financing strategy about equity has been presented, drawing from related literature. Figure 2, shows the overall health financing by source in the year 2017/2018. The Government only contributed to about 25 per cent of the overall sector financing, multilateral partners about 41 per cent, bilateral partners about 28 percent, private households and companies both 1 per cent respectively. Based off figure 1, the situation has been the same since 2003, where donors have dominated the contribution to health financing followed by the government.

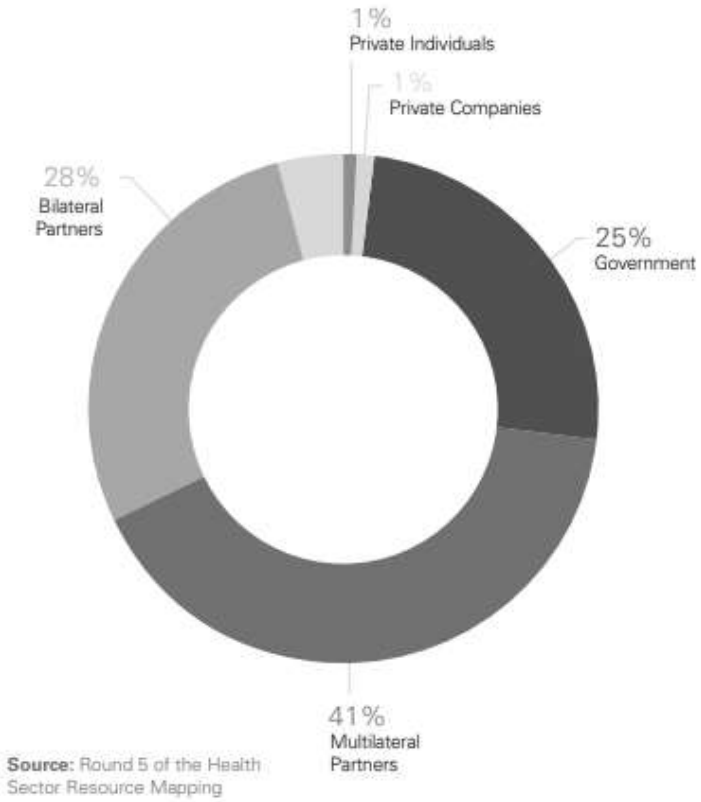


Figure 2: Overall Health Sector Financing by Source and Type, Average 2017/18

2.6 Policies in Health Financing

Malawi resisted the push towards the Bamako Initiative in the 1980s, which suggested that people pay for goods and services in healthcare, in favour of covering the total healthcare costs for the citizenry. The initiative was put in place in order to make health financing more sustainable but ended up excluding those who could not afford to access care (Ridde, 2011).

National leaders reaffirmed their political commitment to putting health at the forefront of development through initiatives like the Abuja Declaration of 2001 on increasing government funding for health (Nabyonga-Orem, 2014). African Union member states committed to allocating 15 per cent of their government budgets to health because more resources were required to address the pressing health challenges including Human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS), Malaria and Tuberculosis (Nkechi et al., 2020). So far, the country has not reached the Abuja declaration's target (Nakovics *et al*., 2020).

Malawi developed a sector-wide approach (SWAp), 2004-2010, to improve the efficiency and equity of available resources. A POW would then be developed and implemented in the SWAp to enhance the health status in Malawi. The primary strategy is implementing an EHP to address the primary cause of morbidity and mortality (African Development Fund, 2005). Another intervention in the POW was that all services within the EHP would be delivered free of charge in CHAM facilities; in turn, the government would reimburse them for their services (Manthalu *et al.*, 2016).

The Malawi HSSP (2011-2016) succeeded the POW covering 2004-2010. The EHP has been expanded to include non-communicable diseases, and its main priority will be cost-effective interventions and expanding services to the underserved (Ministry of Health, 2011). During the period, 12 new health facilities (1 district hospital and 11 health centres) were constructed. The proportion of the population living within an 8 km radius of a health facility declined from 81 per cent to 76 per cent in 2016 (Ministry of Health, 2017). The HSSP II, 2017-2022, built on the successes achieved under the previous plan while addressing areas where targets were not met, and progress was slow (Ministry of Health, 2017). The HSSP III was implemented in 2023, which is outside the scope of this study as its outcomes still need to be estimated.

2.7 Health Status of Malawians

Over the past ten years, Malawi's population health and service delivery outcomes have improved, but specific gaps still need to be filled. For instance, between 2010 and 2020, the life expectancy rose from 55.6 to 64.7 years. This is primarily because the maternal mortality rate has decreased from 444 deaths per 100,000 live births in 2010 to 349 deaths per 100,000 live births in 2017, the under-five mortality rate has dropped from 84.2 deaths per 1,000 live births in 2010 to 38.6 deaths per 1,000 live births in 2020, the infant mortality rate has decreased from 52.4 deaths per 1,000 live births in 2010 to 29 deaths per 1,000 live births in 2020, and the neonatal mortality rate has decreased from 27.9 deaths per 1,000 live births in 2010 to 19.1 deaths per 1,000 in 2020 (Ministry of Health, 2023).

HIV and AIDS, respiratory infections, malaria, diarrheal diseases, and prenatal disorders are the leading causes of disability-adjusted life years. With 32% and 5.8% of Malawians suffering from hypertension and diabetes, respectively, Malawi is currently dealing with a twin burden of communicable and non-communicable diseases (Makwero, 2018).

Table 3: Health Indicators

Indicators	2000	2010	2016	2018	Avg LIC	Avg SSA
life expectancy at birth, total (years)	45.1	55.6	62.7	63.8	63.5	61.3
adolescent fertility rate (births per 1000 women ages 15-19)	158	148	135	132	94	101
Maternal mortality ratio (per 100,000 live births)	749	444	358	349	462	534
Mortality rate, infant (per 1000 live births)	99.8	53.2	35.3	32.1	49.2	53
Mortality rate, neonatal (per 1000 live births)	38.7	28.2	21.9	20.4	27.2	28
Mortality rate, under-5 (per 1000 live births)	172.6	84.9	50	43.9	69.9	78.1
Prevalence of stunting, height for age (% of children under 5)	54.7	47.3	38.3	39	34.8	33.5
Prevalence of HIV, total (% of the population ages 14-49)	14.4	10.6	9.7	9.2	2	3.8
Prevalence of anaemia among children (% of children under 5)	74.4	64.8	59.2		59.2	59.9
Incidence of tuberculosis (per 100,000 people)	386	310	193	181	206	231
Incidence of malaria (per 1000 people at risk)	427	386	211	214	191	219

2.8 Summary

This chapter provided a brief profile of the health sector in Malawi. It has given an overview of the country's demography. A quick summary of the health sector was then provided. It then discussed the macroeconomic situation of the country. A further discussion was provided on health financing mechanisms and policies in health financing. Lastly, this chapter covered the health status of Malawians.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

Since equity in health financing is an intermediate UHC goal, tracking resources can help direct plans to improve resource usage and allocation within nations as well as assessments of progress towards health-related goals (Binyaruka *et al*., 2024). The UN SDGs are a reflection of the rising recognition that measures to promote financial protection through UHC are important components of global efforts to end poverty (Tangcharoensathien *et al.*, 2015). UHC-achieved nations such as Brazil, France, Japan, Thailand, and Turkey demonstrate how this initiative may be essential for enhancing citizen health and welfare and laying the groundwork for economic growth and competitiveness based on sustainability and equitable principles (Maeda *et al*., 2014).

This section reviews the relevant literature, both theoretical and empirical, to explain equity in healthcare financing with a critical focus on equity and financing mechanisms. This review will give a general perspective and context to the study.

3.2 Equity

Why are equity and equity in health so significant? Living in an inequitable society could harm health through many economic, social, psychological, and physiological pathways. Income disparities may be primarily linked with deleterious health effects as they reflect varying degrees of investment in human development, e.g., public education, health care, or other social services, rather than through a direct causal link (Braveman & Tarimo, 2002). Inequities in access to quality health services is one of the main drivers of inequality in Malawi as the rich have better access to health services in the country. The rich are driven to high-quality private clinics whilst the poor can only access low-quality public healthcare systems mostly characterized by inadequate and unreliable funding (Mussa & Masanjala, 2015).

3.2.1 Theories of Equity

Fairness lies at the heart of discussions about financing UHC (Dale *et al*., 2023). The terms equity and equality are widely confused, even if they have philological and phonetic similarities, they are fairly different. Equality is a condition of being equal, while equity can be reviewed as a moral or ethical principle that refers to fairness and justice in distributing resources, welfare, and opportunities among different sub-groups of a population (Akazili, 2010). By definition, then, equity is concerned with justice. Since the interpretation of fairness and justice in any given society is influenced to a large extent by the ideology of that society, it would be helpful to consider briefly some theories of justice and fairness which often shape a society's ideological perspectives (Akazili, 2010). A summary of various theories of justice and fairness is given below.

"Egalitarianism is a trend of thought in political philosophy. An egalitarian favours equality of some sort: People should get the same, or be treated as equals, in some respect" (Arneson, 2013). Aristotle identified two types of equality of treatment: numerical and proportional. Numerical equality (simple equality) treats individuals equally by "granting them the same quantity of a good per capita." In contrast, proportional equality "treats all relevant persons about their due" (Lewis *et al*., 2021).

In one application of moral and proportional equality, Adam Smith laid out the theory of supply and demand in his 1776 book Wealth of Nations (Fleischacker, 2020). Smith presents the user-fee paradigm in which he asserts that if carriages pay exactly the amount of roadway maintenance they generate based on their weight and distance travelled (i.e., a proportional amount), roadway funding would be inherently fair (Smith, 1789). Informed in part by the theories of Smith, Libertarianism is an ideology that a wide range of thinkers have developed in recent centuries. Libertarianism posits that "agents initially fully own themselves and have certain moral powers to acquire property rights in external thing." Libertarianism focuses on individual rights and processes and insists that "justice poses stringent limits to coercion. While people can be justifiably forced to do certain things (most obviously, to refrain from violating the rights of others)" (van de Vossen, 2019). This theory epitomizes a capitalist system and may mean that those who have it are under no obligation to give to the less fortunate in society. Regarding health, the Libertarians advocate the distribution of health care based on the ATP, with the state's involvement limited to a minimum (Akazili, 2010).

Marxist ideologies share the libertarian interpretation of moral equality as a right to life, but the similarities essentially end there. Initially published in 1875, Marx popularized the slogan "from each according to his ability, to each according to his own needs" (Marx, 2008). He suggests that under individualist, capitalist systems, those in power tend to monopolize and hoard resources. The inevitable response to this is a popular uprising to establish state ownership and distribution of resources, beginning with a transactional socialist state and eventually leading to a communist state. According to Marx, all individuals have an equal right to meet their basic needs, and societal resource distributions that do not accomplish this are unacceptable. In terms of health, too, Marxian ideology favours health systems that distribute healthcare services according to need and are financed according to the ability to pay (Akazili, 2010).

3.3 Equity in health

In this sense, equity in health relates to the value of fairness and just health distribution and incorporates elements of ethics and human rights (Chua & Cheah, 2012). Therefore, equity in health implies that all people with similar health needs should have the same effective opportunity to receive appropriate treatment (Nunes, 2022). Inequities exist in almost all sectors, but inequity in the health sector has more negative effects than in any other sector.

Among the various theories and definitions of distributive justice and fairness that might be brought on equity in health, it is generally agreed that some have greater applicability and acceptability than others (Akazili, 2010). The egalitarian theory better suits the parameters of this study as the theory hierarchically follows these principles: every citizen must have access to the most complete system of basic freedoms; this must be carried out based on a fair equality of opportunity basis; further the allocation of resources and the distribution of social-goods should benefit the worse-off in society (Nunes, 2022). The egalitarian theory recognizes the importance of addressing disparities and creating conditions where individuals have equal opportunities to thrive. This directly relates to the UHC goals of equity to access and financial risk protection.

Similar to other definitions of equity, equity in health contains two aspects: vertical equity and horizontal equity. Horizontal equity refers to the idea that people in the same circumstances should be treated similarly. In contrast, vertical equity refers to the notion that higher-income people should take on a more significant share of responsibility for paying for public services

(GoCardless, 2021). Horizontal equity in health implies that persons in equal need of care ought, on average, to be treated the same, irrespective of their income. Vertical equity in kind is how persons with more significant medical needs are treated more favourably (Wagstaff & Van Doorslaer, 2000). Studies of equity in health care have focused on analyzing these two aspects of equity to inform policies, especially in establishing the reform agenda in LMICs (Cissé *et al*., 2007).

3.3 Equity in Healthcare financing

To maintain an agenda for universal coverage and an equitable health system, the challenge is to develop effective structuring and management of health financing (Chua & Cheah, 2012). Equitable financing is a crucial objective of healthcare systems. Its importance is evident in policy documents, policy statements, and the work of health economists and policy analysts. Equity in health care financing is assessed by the degree of inequality in paying for health care between households of unequal ability to pay (Yu *et al*., 2008).

Equitable financing is based on: *financial protection* (no one in need of health services should be denied access due to inability to pay, and the costs of health care should not threaten households' livelihoods); *progressive financing* (contributions should be made according to the ability to pay, and those with greater ability to pay should contribute a higher proportion of their income than those with lower incomes), many poor remain vulnerable to health spending shocks as health spending patterns differ by income quintile, and the poor are much more burdened when faced with hospitalization and illness requiring drugs (Government of Malawi, 2013); *cross-subsidies* (from healthy to the ill and from wealthy to the poor) (Zikusooka *et al*., 2009). Public subsidies slightly benefit people experiencing poverty over the non-poor. Malawi Government subsidy in health (curative care) is progressive in each area- the poorest households capture a more significant share. It is observed that the equitable distribution of benefits is due to the increased emphasis on the free EHP rolled out by the MOH (Government of Malawi, 2013). The construct of the ability to pay is directly related to vertical equity.

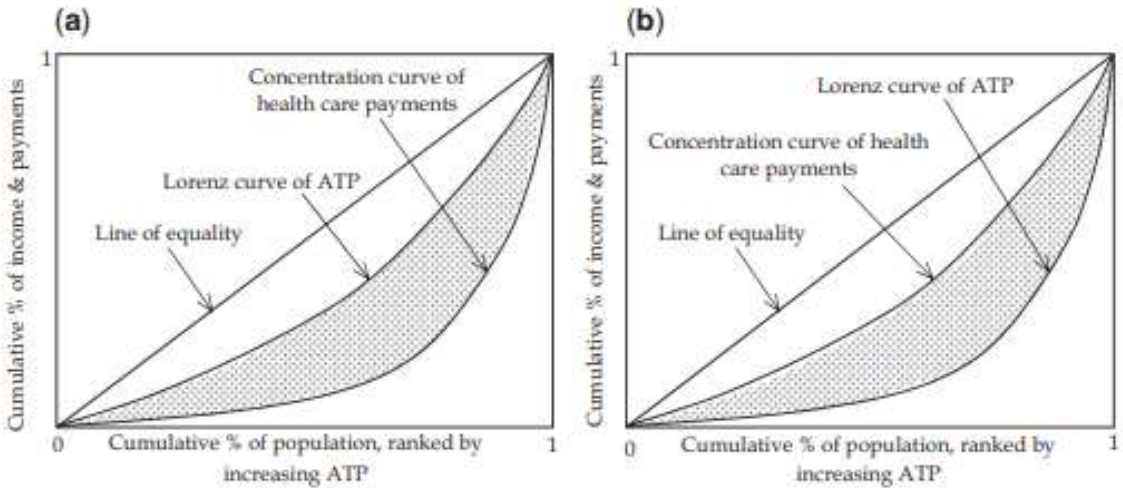
One generally accepted way of examining equity in healthcare financing is to investigate the relative progressivity of healthcare financing mechanisms (general tax, social health insurance, private insurance, out-of-pocket, and community-based health insurance) individually and collectively (Akazili, 2010). Progressivity measures the deviation from proportionality in the

relationship between health payment and the ability to pay; it reveals the inequality in paying for health care services between households of unequal ATP (Yu *et al*., 2008).

3.4 Measurement of Equity of Healthcare Financing

There are several ways of measuring equity in healthcare financing, of which two are discussed, the concentration and Kakwani indices. The concentration index is obtained from the concentration curve that plots the cumulative percentage of healthcare payments against the cumulative percentage of the population, ranked by ATP. The concentration index corresponds to twice the area between the line of equality (i.e., the 45-degree line) and the concentration curve of healthcare payments. The concentration index ranges from -1 (where the poorest household contributes all healthcare payments) to +1 (where the wealthiest households make all healthcare payments). A negative concentration index means that the concentration of healthcare payments lies above the line of equality. In contrast, a positive value means that the concentration curve lies below the line of equality (Ataguba *et al*., 2018). Figure 3, shows progressive and regressive health financing systems. Part a show the concentration curve falling below the Lorenz curve of ATP showing a progressive system whilst part b, shows a situation where the concentration curve lies above the Lorenz curve which indicates a regressive system.

For any healthcare financing mechanism, the Kakwani progressivity index is the difference between the index of healthcare payments and the Gini index of ATP inequality. The Kakwani index is twice the area between the Lorenz curve of ATP and the concentration curve of healthcare payments. Its values lie between -2 (the most regressive financing) and +1 (the most progressive financing). Theoretically, the case of funding proportional corresponds to 0. A positive value means the health financing mechanism is progressive as more affluent households contribute proportionately more than their share of ATP. A negative value implies that the health financing mechanism is regressive as the proportion of healthcare payments contributed by poorer households is more significant than their share of ATP (Ataguba, 2017). An advantage of using the Kakwani index is that it controls the distribution of income or consumption expenditure, which is a crucial variable when defining how regressive or progressive a financing mechanism is (Akazili, 2010).



(Ataguba et al., 2018).
Figure 3: An Illustration of a Progressive and Regressive Health Financing System

3.5 Health Financing Mechanisms and Equity

3.5.1 General Tax Revenue and Equity

Historically, most LMICs opted to set up tax-financed government schemes in the mid-to-late 20th century. They were attracted to the potential that such a scheme offers to the whole population, raising revenue from a broad base of tax and non-tax sources (as opposed to member contributions) and containing costs through vertical integration (Barasa *et al.*, 2021). In tax-based health systems, whole populations can access health services, irrespective of their socio-economic status, as the government collects healthcare finances from tax revenues (Morris, 2007). General tax revenue is made up of direct and indirect taxes.

Tax incidence analysis is required because Malawi's healthcare system is significantly financed by direct and indirect tax revenue. Direct tax is a tax that a person or organization pays directly to the entity that imposed it; this includes income tax, real property tax, personal property tax, and taxes on assets, all of which are paid by an individual taxpayer directly to the government (Kagan, 2022). Due to the unreliability of reported tax incidence, analysts often use data obtained from tax authorities to estimate tax incidence.

Direct taxes are evidenced to be more progressive in the case of Malaysia (Yu *et al.,* 2008); in Uganda, income tax was found to be reasonably progressive, but some components (e.g., tax on goods and services) were regressive (Zikusooka *et al.,* 2009), in Estonia, social tax (a significant source of financing) and personal income tax were found to be progressive.

Indirect taxes are collected by one entity in the supply chain, such as a manufacturer or retailer, and paid to the government; however, the tax is passed onto the consumer by the manufacturer or retailer as part of the purchase price of a good or service. The consumer ultimately pays more tax for the product (Kagan, 2022). Indirect taxes include value added tax (VAT), import duty, and excise tax; these tend to be regressive as they are levied on the taxpayer regardless of their income (Kagan, 2022). The cases of Estonia (Zikusooka *et al.,* 2009), South Africa (Ataguba, 2021b), and other LMICs, (Asante et al., 2016) support the fact that indirect taxes are regressive.

3.5.2 Social and Private Health Insurance and Equity

Social health insurance (SHI), a compulsory system that deducts contribution payments directly from employee payroll taxes, is another health financing mechanism. However, in LMICs in Sub-Saharan Africa (SSA), where the formal financing sector is relatively small, and most of the population is in the informal sector, this approach is less suitable and sustainable (Ifeagwu et al., 2021). Private health insurance refers to health insurance plans marketed by the private health insurance industry instead of government-run insurance programs (Garrow, 2022). The level of health insurance coverage in SSA is low, with 8 of 36 countries having a mean insurance coverage above 10 per cent, while 4 average above 20 per cent (Barasa *et al*., 2021).

The final burden of private health insurance (whether it is financed by the employer or the employee) is, by assumption, borne by the household (Ataguba *et al.,* 2018). Malawi does not have a NHIS; private companies provide most health insurance services. The insurance contribution mechanism is viewed as regressive, as evidenced by the case of Iran (Rad & Khodaparast, 2016); SSA showed that private health insurance is regressive as it is predominantly affordable by the wealthier segment of the population (Ifeagwu *et al*., 2021), in South Africa, private health insurance was found to significantly reduce income inequality although it enrolled a small minority, mainly the rich (Ataguba, 2021b), in LMICs private health insurance was found to be regressive while social health insurance was progressive (Asante *et al*., 2016b).

3.5.3 Donor funding

Another common health financing mechanism throughout SSA is external donor funding (Ifeagwu *et al.,* 2021). Donors fund a high proportion of the total health expenditure in SSA countries. Since 2004, the Malawian government has undertaken a sector-wide approach (SWAp)to coordinate donor funding better. The SWAp also encompasses delivering an essential health package (EHP) comprised of 55 interventions for 11 priority diseases (Ranchod *et al*., 2016). Since the Cashgate scandal, most donors have opted to provide funding to the health sector in Malawi through vertical programs and projects. By 2017/18, about 74 per cent of donor funding to the health sector was off-budget, and 24 per cent was pooled under the Government budget. The off-budget support is managed by NGOs and agencies that use planning, financing, procurement, and monitoring systems to manage donor funds (Government of Malawi, 2020). The large number of implemented partners implies a high level of resource fragmentation in the sector (Adhikari *et al*., 2019).

3.5.4 Out-of-pocket (user fees) payments and Equity

OOP payments are expenditures borne directly by a patient when insurance does not cover the total cost of the health good or service. In contrast to publicly funded care, OOP payments rely on the ATP (OECD, 2019). Suppose healthcare financing becomes more dependent on OOP payment. In that case, its burden is, in theory, shifted toward who uses the services more, possibly from high to low-income earners, where healthcare needs are higher (OECD, 2019). The experience of OOP for healthcare in the WHO African region has shown adverse effects in the form of, among other things, decreased utilization of services and impoverishment of households as a result of payment for healthcare (Zere *et al*., 2010).

OOP spending includes payments for all types of healthcare included in the National Health Accounts (NHA). This provides for payments to government providers (which includes informal payments) as well as payments to providers (including pharmacies) (Bilger *et al*., 2011). The IHS dataset provides annual aggregates for OOP payments for each household, including every OOP expenditure associated with access to healthcare.

OOP payments were found to be mildly regressive in the case of Malaysia (Yu *et al.,* 2008); in the case of Uganda, OOP, even though it was the most significant financing mechanism, was the most regressive; in Iran, OOP was progressive as a result of the inability of the poor to pay

for their health (Rad & Khodaparast, 2016) and another study of the LMICs found OOP to be regressive (Asante *et al*., 2016).

3.6 Empirical Literature on Malawi

Literature on health financing in Malawi is minimal (Borghi *et al*., 2018; Manthalu *et al*., 2016; Mchenga *et al.,* 2017; Mulaga *et al.,* 2022; Mussa, 2014; Mwale *et al*., 2022; Nakovics *et al.,* 2020). Mchenga *et al*., (2017), discuss the impoverishing effects of catastrophic health expenditures in Malawi using the poverty headcount ratio and poverty gap on IHS 3 dataset. It was concluded that catastrophic health expenditure increases the incidence and depth of poverty in Malawi (Mchenga *et al*., 2017).

Mulaga *et al*., (2022), went further to quantify the role of districts' spatial effects using the Bayesian spatial multi-level model, on the IHS 4 dataset, to estimate the spatial differences in impoverishing OOP health payments in the country. The study found that 1.6 per cent of Malawians are pushed below the poverty line due to health payments and that there are significant spatial variations in impoverishment across districts with higher spatial residual effects clustering in the central region districts. Therefore, there is a need to plan financial protection programs according to district-specific needs (Mulaga *et al.,* 2022).

Mwale *et al.,* (2022), employed the Spatial Durbin Model on IHS 4 to investigate the existence of geographical correlations in OOP expenditures in Malawi. the results revealed that Malawian communities face geographical spillovers of OOP health expenditures and that household size, education and geographical location are important drivers of the OOP health expenditure's spatial dependency. Since certain locations are hotspots for OOP expenditures, resource flows to health should be investigated. Borghi *et al.,* (2018), explored the process of receiving and allocating different resources at the district level. The research showed that funding sources were concentrated among wealthier districts, with OOP being the most pro-rich, followed by domestic expenditure and external funding (Borghi *et al.,* 2018).

(Mchenga *et al*., 2017), recommended that the introduction of a social insurance system to minimize the incidence of catastrophic health expenditure especially to the rural and middle-income population would help reduce the incidence of poverty due to catastrophic expenses. Gheorghe *et al.,* (2019), assessed the appropriateness and feasibility of introducing a National Health Insurance in Malawi. A key finding of this study was that introducing NHIS in Malawi

would increase revenues for health, but these would mostly come from the formal sector and would unlikely cover the health sector funding. Incentives to enroll in NHIS are insufficient to reach scale unless service fees are introduced, which would then negatively affect equity and financial risk protection (Gheorghe *et al*., 2019).

Chansa *et al.*, (2018), used the Delphi forecasting method to estimate the potential tax revenue that could be generated from fuel and motor vehicle insurance. Results showed that an annual average of 0.30 USD, 0.46 USD, and 0.63 USD could be generated from taxes from 2016 through 2022 under the low, medium, and high scenarios. The study confirmed the revenue generation potential of innovative financing for health mechanisms in Malawi is limited.

3.7 Healthcare financing mix

In most countries in the SSA, for instance, South Africa, health services are financed through a combination of taxes (direct and indirect), private health insurance contributions (called medical schemes), and direct OOP payments (Ataguba, 2021). The healthcare financing triangle illustrates the healthcare financing arrangements applicable to both high and low-income countries (Akazili, 2010). Figure 4, shows a health financing mix model for various countries which shows the spread between OOP and Tax as a percentage of total expenditure on health. For instance, 40 per cent of total expenditure on health in the Philippines is provided for by Taxes and 50 per cent by OOP payments, 80 per cent of the total expenditure on health in Nepal is from OOP payments and 20 per cent from taxes.

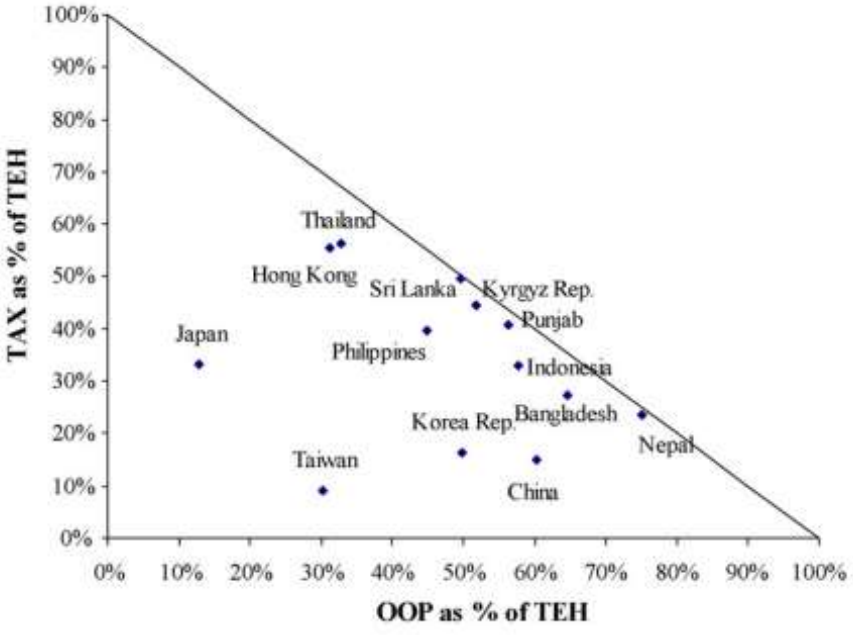


Figure 4: Healthcare Financing Mix (O'Donell, 2018)

3.8 Summary of the literature review

Section 3.1 defined equity as justice and linked it to existing theories of justice and fairness. In section 3.2, the Egalitarian notion is generally agreed to have greater applicability and acceptability by health professionals, policymakers, and the public, and has been adopted to explain equity in the concept of health financing in Malawi. The notion of UHC closely resembles the Egalitarian concept of proportional equality which treats everyone about their due or in this instance, making health systems more progressive (the poor should not pay proportionately more than the wealthy). Within section 3.3, the concept of equity in financing was divided into progressivity and regressivity. Section 3.4 describes acceptable methods of examining equity in healthcare financing through the relative progressivity of financing mechanisms. The Concentration and Kakwani indices are two such methods of measuring equity used in the study. From the literature, the variables extended to this study to measure progressivity are the household's ATP, direct taxes (indirect taxes are used), private health insurance, OOP payments, and health financing mix. These constitute the sources of funds for health financing in the country, except donor funding. Section 3.5 discussed different health financing mechanisms concerning equity using studies from around the world to address the relative progressivity and regressivity of these mechanisms. Section 3.6 takes a special focus on the studies done in Malawi on health financing. Finally, section 3.7, introduces the health financing mix.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter outlines the empirical analyses adopted in this study to attempt to measure the relative progressivity of healthcare financing mechanisms in Malawi. It also gives a detailed description of the variables that were used in the study and the data sources.

4.2 Data Sources

Most countries implement Household surveys regularly and are probably the most essential data source for health equity analysis; for Malawi, these are Integrated Household Surveys (IHS) (O'Donnell *et al.,* 2007). The IHS is one of the primary instruments implemented by the Government of Malawi through the National Statistics Office (NSO; http://www.nsomalawi.mw/) to monitor and evaluate the changing conditions of Malawian households. The IHS data have, among other insights, provided benchmark poverty and vulnerability indicators to foster evidence-based policy formulation and monitor the progress of the Millennium Development Goals (MDGs) and SDGs as well as part of the Malawi Growth Development Strategy (MGDS) (World Bank Microdata, 2021).

The study used cross-sectional data collected at different intervals starting with IHS2 (2004-2005), IHS3 (2010-2011), IHS4 (2016-2017), and IHS5 (2019-2020). NSO collected the data with technical and financial assistance from several partners including the International Food Policy Research Institute (IFPRI), the World Bank, the Government of Malawi (GoM), and the Millennium Challenge Corporation (MCC) (World Bank Microdata, 2021). Surveys sample the population and are representative of the population as a whole (O'Donnell *et al*., 2007). The IHS sampling frame is based on the listing information and cartography from the Malawi Population and Housing Census (MPHC). The sampling frame further excludes the population living in institutions, such as hospitals, prisons, and military barracks (World Bank Microdata, 2021). IHS 2 was used as a benchmark for comparison, since its before the implementation of

the various policies that this paper wants to study. The data will be cleaned using stata and then later on analysed using ADePT as recommended.

4.3 Conceptual Framework

Figure 5 is the conceptual framework that reflects the key elements of the analysis (emerging from the literature review) undertaken in this study. The figure provides a breakdown of how much donors, the Government, OOP, and voluntary health insurance (VHI) contribute to the total health expenditure. It shows where the financing comes from (households, government budget, insurance, etc.) and to what services it finances.

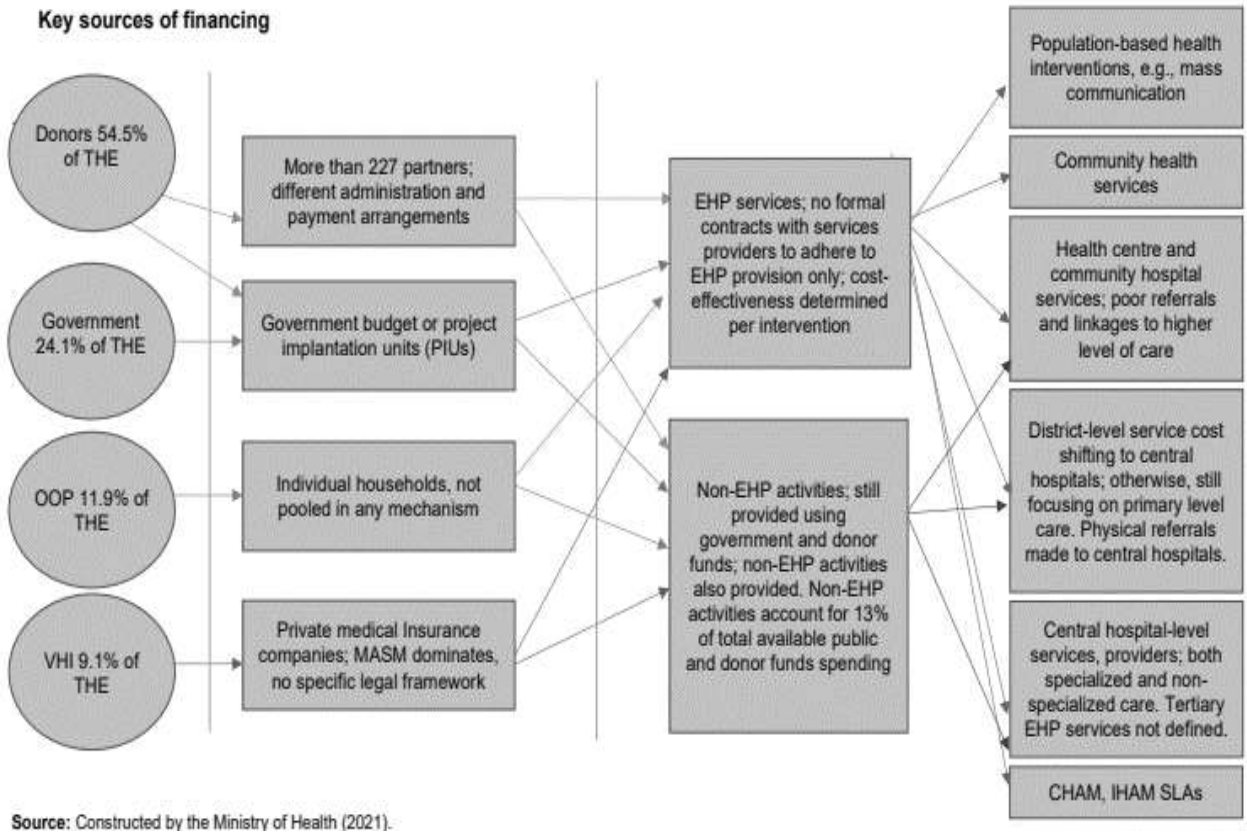


Figure 5: Conceptual Framework for Health Financing System

4.4 Empirical Model

4.4.1 Progressivity

O'Donnell *et al.*, (2007) state that there are two distinct stages to an analysis of progressivity: establish the progressivity of each source of finance, and establish the overall progressivity of the system by weighting the progressivity of the separate sources. The most direct means of assessing the progressivity of health payments is to examine how their share of ATP varies by quantiles of ATP (Akazili, 2010; Ataguba *et al*., 2018; O'Donnell *et al*., 2007). Households are

categorized into quantiles of ATP, and each household's share of ATP spent on healthcare via each mechanism is computed (Ataguba *et al.,* 2018). This method of measuring progressivity is called structural progressivity, and it usually does not show a holistic picture of how healthcare payments to ATP ratio vary across the entire distribution of ATP (Ataguba *et al*., 2018).

To measure the magnitude of progressivity, summary indices have been developed most widely used is the Kakwani index literature (O'Donnell *et al.,* 2007). This index is based on two underlying curves – the Lorenz curve of ATP distribution and the concentration curve of healthcare payments (Ataguba *et al.,* 2018).

The Kakwani Index of Progressivity (KPI), denoted π_T^K, is defined by twice the area between the Lorenz curve for gross income, $L_{X(P)}$, and the concentration curve for health care payments, $L_{T(P)}$, (the p in the parentheses indicates the person's or household's rank in the gross income distribution) (Cissé *et al.,* 2007). $L_{X(P)}$ shows the relationship between the cumulative percentage of income and the cumulative percentage of the population, where the individuals (or households) are ranked according to their income, while $L_{T(P)}$ is formed by plotting the cumulative proportion of the population (ranked by income) against the cumulative share of payments. Thus, the KIP

$$\pi_T^K = 2\int_0^1 \left[L_{X(P)} - L_{T(P)}\right] dp$$

$$\pi_T^K = 2\int_0^1 \left[p - L_{T(P)}\right] dp - 2\int_0^1 \left[p - L_{X(P)}\right] dpe$$

$$\pi_T^K = C_T - G_T$$

The degree of progressivity of the health care financing system can be assessed by calculating the difference between the concentration coefficient of health care payments, C_T, and the Gini coefficient of gross income, G_T. Data used was from the IHS 2, 3, 4, and 5 and the variables of focus were household expenditure and healthcare expenditures. ATP was measured using per adult equivalent.

The overall progressivity of a healthcare financing system depends on the progressivity of different sources of finance and on the proportion of revenue collected from each of these sources, as presented below.

$$Overall\ progressivity = \sum (Kakwani\ Index\ \times Share\ of\ financing\ source\ (NHA))$$

4.4.2 Redistribution Effect

Traditionally, income redistribution associated with taxes or health financing (RE) can be written as:

$$RE\ = I_X - I_N$$

Where I_X, a non-negative measure, is income inequality gross of taxes and health care payments (i.e., prepayment income) and I_N, also a non-negative measure, is the same measure of income inequality but net of taxes and health care payments (i.e., post-payment income) (Ataguba, 2021). Aronson et al. (1994) provided the following decomposition of the RE of health financing:

$$RE = I_X - I_N = V - H - R$$
$$= \left(\frac{g}{1-g}\right)\pi_T^K - \sum \alpha_x G_{x-p} - \left[G_{x-p} - C_{x-p}\right]$$

where V, measures vertical equity or the progressivity or regressivity of the health financing system. H measures horizontal inequity, while R measures reranking (i.e., the extent to which households change ranks after paying for health services) (Aronson et al., 1994). The g is the average share of ATP, α_x, weight is equal to the product of the square of population, G_{x-p} is the Gini coefficient of those with prepayment ability ATP x, C_{x-p} is the concentration index (Amporfu, 2013).

4.5 Variables

The data requirements for the various analyses that ADePT Health Financing can do are summarized in table 4.

Table 4: Data Requirements for ADePT

Analysis	Ability to pay (consumption)	Out-of-pocket payments	Prepayments for healthcare	National Health Account data on health financing mix
Progressivity	✓	✓	✓	✓
Redistributive effect	✓	✓	✓	✓

4.5.1 Ability to pay

Finance Incidence Analysis assesses the distribution of the 'burden' of health financing in a population stratified by household ability-to-pay (ATP) (Ataguba *et al*., 2018). ATP is the total

household consumption, gross all payments toward healthcare (Bilger *et al*., 2011). In the context of a developing country, given the lack of organized labor markets and the high variability of incomes over time, household expenditure is generally considered a better measure of welfare and ATP. The data for consumption is already aggregated annually for all households in the IHS. Per adult equivalent estimates were also applied to this study using the adult equivalent calculation given as follows:

$AE = (A + 0.5K)^{0.75}$,

where A is the number of adults in the household, and K is the number of children (O'Donnell *et al*., 2007).

4.5.2 Out-of-Pocket Payments

Out-of-pocket spending includes payments for all types of healthcare included in the NHA. This includes payments to government providers (which includes informal payments) as well as payments to providers (including pharmacies) (Bilger *et al*., 2011). The IHS dataset provides annual aggregates for OOP payments for each household, including every OOP expenditure associated with access to healthcare. OOP payments were obtained from the annual household IHS consumption aggregate data *"Health, real… annual consumption."*

4.5.3 Prepayments for Health Care

This study used IHS data to extract and estimate the incidence of personal income tax. The survey had data on "*How much was y[NAME]'s last payment for wages/salary?*" for both the first and second jobs. From this, pay-as-you-earn (PAYE) or income tax can be calculated by estimating how much each household pays using legal tax brackets.

Direct taxes are formed of income tax payments and property taxes. Income taxes are not explicitly defined in the IHS dataset; they are estimated from gross incomes by applying tax schedules (PAYE). The tax schedules for Malawi in the years 2004-2005, 2010-2011, 2016-2017, and 2019-2020 were applied to the primary and secondary income for each individual in the household and then added up to form the tax paid by a household.

Table 5: Tax Schedules for PAYE

2004-2005		2010-2011		2016-2017		2019-2020	
Income Group	**PAYE**	**Income Group**	**PAYE**	**Income Group**	**PAYE**	**Income Group**	**PAYE**
Less 84,000	0	Less 108,000	0	Less 240,000	0	Less 1,200,000	0
84,000-120,000	15%	108,000-144,000	15%	240,000-300,000	15%	1,200,000-5,400,000	25%
120,000-240,000	30%	144,000 Above	30%	300000 Above	25%	5,400,000-12,000,000	30%
240,000 Above	35%					12,000,000 above	35%

The IHS estimates health insurance by asking, *"How much in total did [NAME] spend. for medical insurance?"* Even though not many people are insured medically, the equity of this financing source had to be measured since it is considered to be a significant source of health finance.

4.5.4 NHA Data on Health Financing Mix

Adept allows users to reweight the sources of financing using "macro weights"-that is, financing shares as recorded in the NHA table on the financing mix. For example, suppose the NHA data indicate that 20 per cent of health expenditure is financed OOP, but the household data reveal that only 10 per cent of the computed total comes from OOP. In that case, users can scale the OOP payments up to mirror the NHA aggregate figures (Bilger *et al.,* 2011).

Table 6: Share of total finance (NHA)

	Share of total finance %			
Finance Source	**IHS 2**	**IHS 3**	**IHS 4**	**IHS 5**
General government revenue	25.4	22	28.6	24.1
Private Insurance	2.7	3.2	7.07	9.1
Out-of-Pocket Payments	9	11	10.83	11.9
Donor	60	62	53.5	54.5

4.6 Summary of the Chapter

This chapter provides the data source for analysis, the conceptual and empirical framework adopted for the study, and further defines the variables of interest.

CHAPTER FIVE

PROGRESSIVITY OF HEALTH FINANCING AND REDISTRIBUTION EFFECT

5.1 Introduction

This chapter critically analyses the incidence of the three healthcare financing mechanisms in the country based on integrated household surveys (IHS) per adult equivalent consumption expenditure. The chapter also discusses the redistributive effect of the financing mechanisms from 2005 to 2020 in great detail.

5.2 Descriptive Statistics

Table 7 shows the descriptive statistics of the study. The sample size for the IHS datasets was 11,280, 12,271, 12,447, and 11,434 for IHS 2, 3, 4, and 5 respectively. The mean for the adult equivalence ranged between 3.7 and 3.8 for the years of study, with a minimum of 0.7 for IHS 2 and 3 and a maximum value of 22 for IHS 2. The consumption patterns of the samples show that a larger part of the sample consumes below the mean which is evidenced by the values of the 50^{th} percentile which are all below the mean of the total consumption.

The values for direct tax, insurance and OOP payments have been rescaled using the NHA financing mix. All household payments are scaled up and down by the same percentage to mirror the NHA aggregate figures and leave the progressivity of each source unaffected. The prepayment mechanism of direct tax and private insurance values are concentrated in the 99^{th} percentile and above, the medians (50^{th} percentile) of these variables are lesser than the mean which indicates that the distribution of health expenditure variables is right-skewed. The OOP payments are also right skewed as the median is lesser than the mean.

Table 7: Original Data Report

ORIGINAL DATA REPORT							
	N	**Mean**	**Min**	**p1**	**p50**	**p99**	**Max**
Adult Equivalence							
IHS 2	11,280	3.8	0.7	0.7	3.4	9.6	22
IHS 3	12,271	3.8	0.7	0.7	3.6	9.0	13.4
IHS 4	12,447	3.7	1.0	1.0	3.6	8.5	13.6
IHS 5	11,434	3.8	1.0	1.0	3.6	9.0	20.5
Total Consumption							
IHS 2	11,280	94,902.1	9,949.7	18,837.6	70,396.9	494,724.8	1,377,856.9
IHS 3	12,271	244,505.0	19,356.0	34,431.2	167,797.0	1,485,130.6	3,760,987.0
IHS 4	12,447	775,744.8	72,665.0	144,108.8	581,703.8	3,694,205.3	12,157,817.0
IHS 5	11,434	1,023,906.3	133,839.8	208,726.8	791,276.4	4,486,965.5	11,803,097.0
Direct Tax							
IHS 2	11,280	1,777.0	0.0	0.0	0.0	69,600.0	132,600.0
Rescaled	11,280	637.7	0.0	0.0	0.0	21,523.2	191,166.3
IHS 3	12,271	14,039.5	0.0	0.0	0.0	295,200.0	1,413,000.0
Rescaled	12,271	3,038.4	0.0	0.0	0.0	63,354.0	562,563.1
IHS 4	12,447	61,207.0	0.0	0.0	0.0	2,268,000.0	2,268,000.0
Rescaled	12,447	16,258.7	0.0	0.0	0.0	369,803.2	1,810,673.4
IHS 5	11,434	24,379.8	0.0	0.0	0.0	540,000.0	8,020,000.0
Rescaled	11,434	8,133.8	0.0	0.0	0.0	149,675.8	4,982,754.5
Private Insurance							
IHS 2	11,280	202.9	0.0	0.0	0.0	0.0	250,000.0
Rescaled	11,280	46.3	0.0	0.0	0.0	0.0	56,150.0
IHS 3	12,271	245.9	0.0	0.0	0.0	0.0	90,000.0
Rescaled	12,271	474.5	0.0	0.0	0.0	0.0	421,030.8
IHS 4	12,447	543.7	0.0	0.0	0.0	100.0	204,000.0
Rescaled	12,447	2,619.5	0.0	0.0	0.0	259.4	1,640,131.6
IHS 5	11,434	1,242.9	0.0	0.0	0.0	100.0	800,000.0
Rescaled	11,434	2,973.2	0.0	0.0	0.0	212.3	4,075,339.3
OOP Payments							
IHS 2	11,280	1,254.4	0.0	0.0	268.3	14,565.4	67,080.8
Rescaled	11,280	230.5	0.0	0.0	51.6	2,723.7	19,417.8
IHS 3	12,271	2,786.2	0.0	0.0	133.1	40,051.2	122,921.1
Rescaled	12,271	1,165.8	0.0	0.0	45.2	16,782.4	117,314.8
IHS 4	12,447	14,656.4	0.0	0.0	1,706.7	206,036.2	754,682.6
Rescaled	12,447	4,286.3	0.0	0.0	501.0	58,269.5	334,813.9
IHS 5	11,434	14,339.7	0.0	0.0	2,339.2	157,823.5	411,030.9
Rescaled	11,434	2,479.8	0.0	0.0	372.6	27,717.1	111,180.3

Table 8: Shares of Total Financing

	Shares of Total Financing					
	Per capita consumption, gross	**Direct Tax**	**Private Insurance**	**OOP Payments**	**Total payments**	**Per capita consumption, net of payments**
Quintiles of per capita consumption, gross						
IHS 2						
Lowest quintile	7.1	4.7	0.0	8.0	5.2	7.2
2	11.0	6.7	0.0	11.9	7.5	11.2
3	15.0	5.8	0.2	16.6	8.0	15.2
4	20.9	8.3	0.3	22.5	11.1	21.2
Highest quintile	46.0	74.5	99.4	41.1	68.2	45.2
IHS 3						
Lowest quintile	5.8	1.1	0.0	6.1	2.5	6.1
2	9.8	4.6	0.0	9.9	5.8	10.1
3	14.1	6.0	0.0	17.0	8.8	14.5
4	20.7	13.7	1.3	22.9	15.4	21.2
Highest quintile	49.5	74.6	98.7	44.1	67.4	48.2
IHS 4						
Lowest quintile	7.6	1.4	0.0	5.9	2.2	8.1
2	11.5	4.8	0.6	10.5	5.5	12.1
3	15.3	8.3	0.2	16.1	8.9	16.0
4	21.4	14.3	0.2	23.1	14.2	22.1
Highest quintile	44.2	71.3	98.9	44.4	69.2	41.7
IHS 5						
Lowest quintile	7.2	0.5	0.0	8.2	2.5	7.3
2	11.4	0.9	0.1	14.3	4.3	11.6
3	15.3	1.8	0.5	18.5	5.9	15.6
4	21.4	4.0	0.6	25.2	8.9	21.8
Highest quintile	44.8	92.8	98.7	33.9	78.4	43.7

Table 8 gives the progressivity of health financing sources. The table gives the average consumption and financing share, by quintile, with households ranked in ascending order of gross consumption for each IHS dataset. The spread across the financing shares gives a picture of income inequality. For Insurance, it seems that the richest income quintile takes the biggest share of financing with values like 99.4, 98.7, 98.9, and 98.7 for IHS 2, 3, 4, and 5 respectively. Taxes also show that the share of financing is more concentrated on the rich with 74.5, 74.6, 71.3, and 92.8 per cent of the share borne by the highest quintile in IHS 2, 3, 4, and 5 respectively. For OOP payments, the distribution of the income quintile is more even. The highest income quintile still takes the larger share with 41.1, 44.1, 44.4, and 33.9 per cent for IHS 2, 3, 4, and 5 per cent respectively. Direct taxes and insurance therefore seem to be progressive as the burden of financing falls on the rich.

5.3 Direct taxes

Figures 6, 7, 8, and 9, show concentration curves for direct taxes and the Lorenz curves for household total expenditure gross health payments. The curves provide household inequality with a visual representation: the greater the inequality, the farther the curve is from the 45^{o} line (Bilger et al., 2011). It can be observed that the Lorenz curves dominate the concentration curves of direct taxes in the figures 6, 7, 8, and 9, which confirms the progressivity of direct taxes in Malawi and that the rich bear more of the burden of financing.

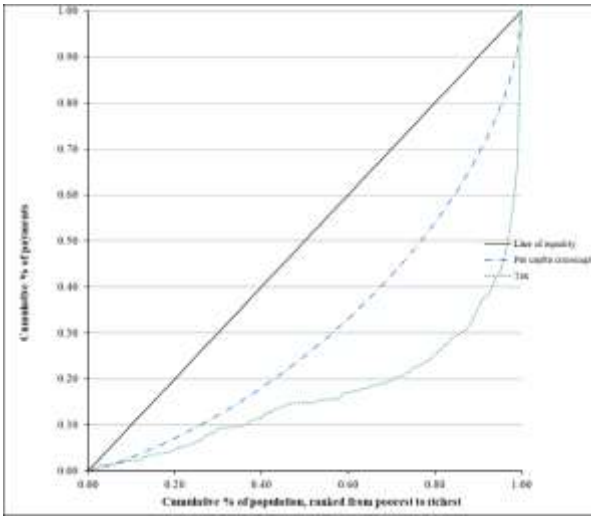


Figure 6: Direct Taxes IHS 2

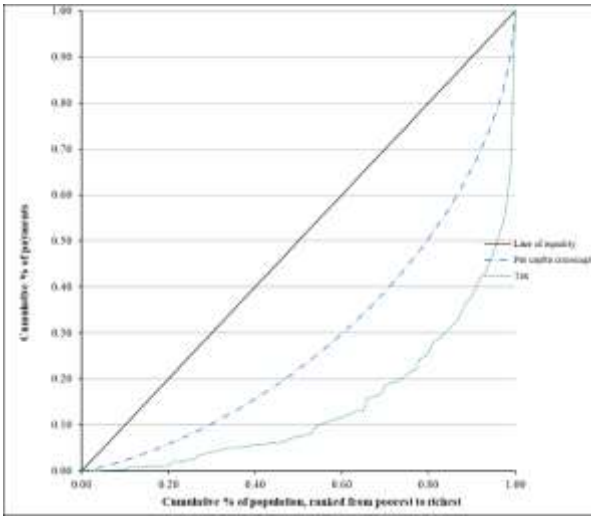


Figure 7: Direct Taxes IHS 3

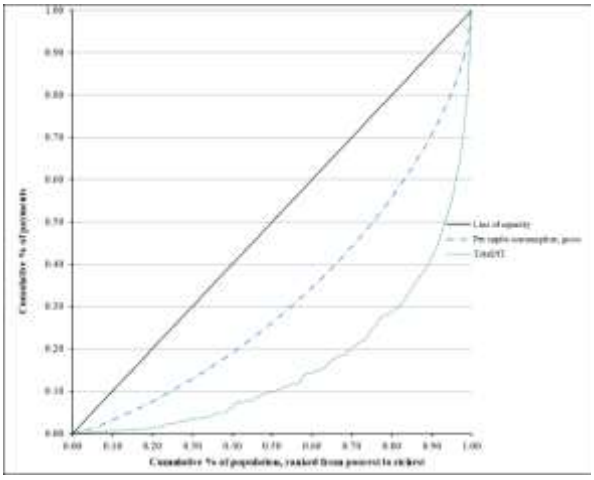


Figure 8 Direct Taxes IHS4

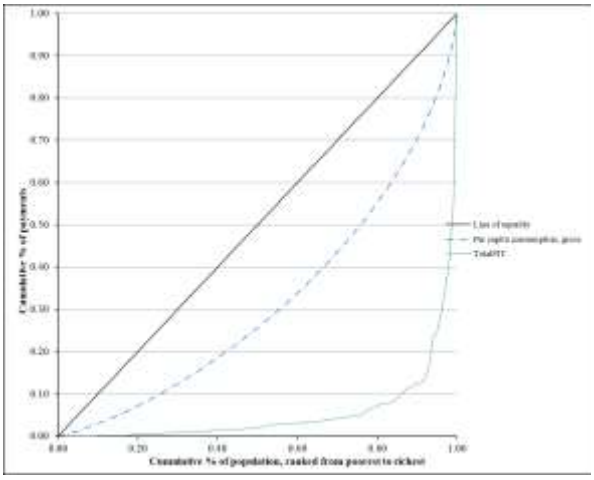


Figure 9 Direct Taxes IHS 5

Most LMICs have a narrow tax base because of high levels of unregistered and untaxable share of employment which makes labour taxes a problematic way to fund health systems (Yazbeck

et al., 2020). A question worth considering would be whether these taxes redistribute the burden of finance towards the lower income quintile if only taxpayers are considered. The findings show that in the figures 10, 11, 12, amongst those who pay direct taxes the financing source is regressive. Only figure 13, shows a measure of progressivity in direct taxes.

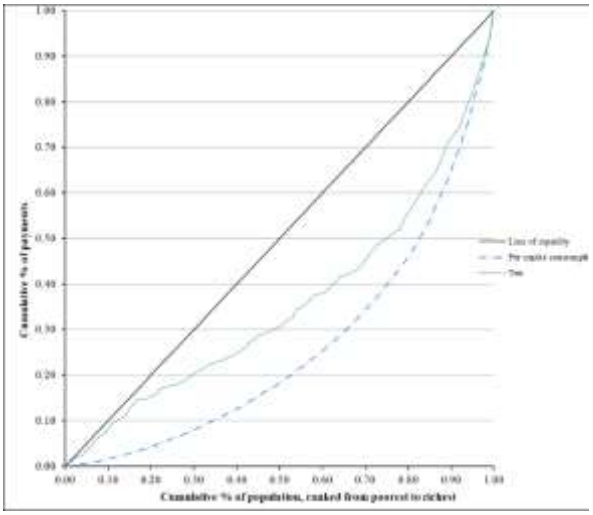


Figure 10 Direct Taxes (Taxpayers) IHS 2

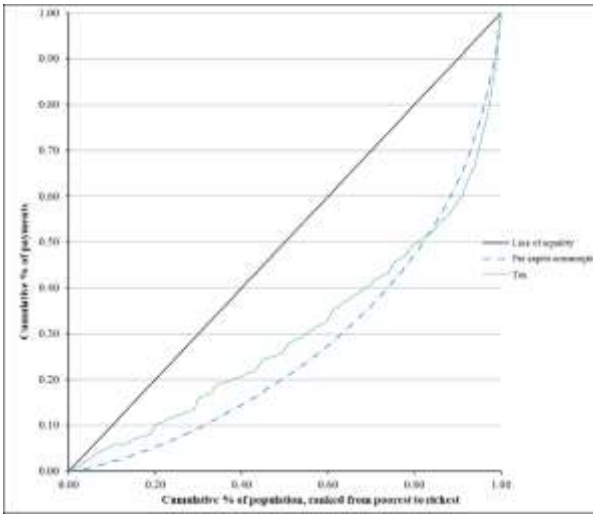


Figure 11 Direct Taxes (Taxpayers) IHS 3

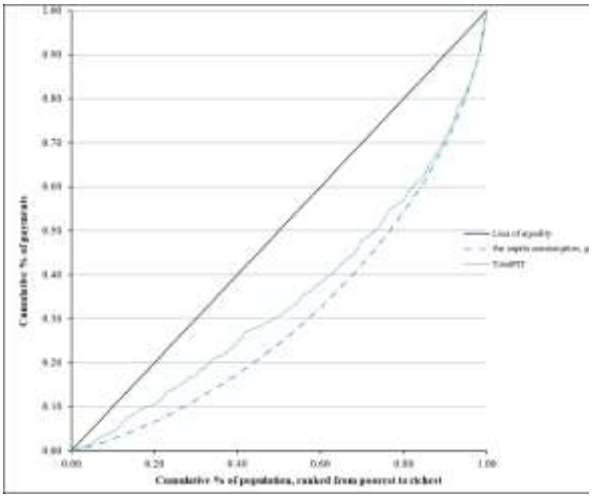


Figure 10Direct Taxes (Taxpayers) IHS 4

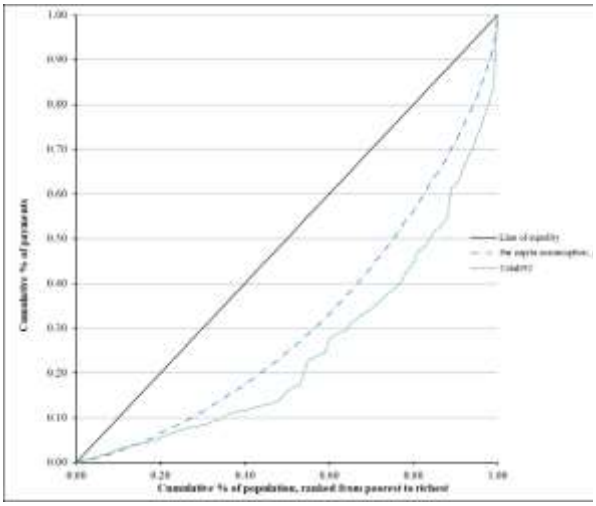


Figure 13 Direct Taxes (Taxpayers) IHS 5

Table 9 below shows the concentration indices, gini coefficients and Kakwani indices of the direct taxes for IHS 2, 3, 4, and 5. All the concentration indices are positive, indicating that the better off contribute more to the financing of healthcare than the poor do. The concentration index was highest in 2010/11 (IHS 3) and smallest in 2015/16 (IHS 4). The Kakwani indices for direct taxes are positive indicating progressivity. The results show that the Kakwani indices get more progressive from the years 2004/5 to 2019/20.

Table 9: Kakwani Indices (Direct Taxes)

	Index			
	IHS 2	**IHS 3**	**IHS 4**	**IHS 5**
Concentration Index	0.3837	0.43	0.3618	0.3695
Gini Coefficient	0.6617	0.7141	0.674	0.8903
Kakwani Index	0.2779	0.2841	0.3122	0.5208

5.4 Private Insurance

The concentration curves confirm the progressivity of private health insurance as it lies completely outside the Lorenz curve. This also confirms the results in table 5.2 which shows that above 98 per cent of the financing share comes from the highest quintile. The progressivity of health insurance does not vary so much over the years showcased by figures 14, 15, 16, and 17.

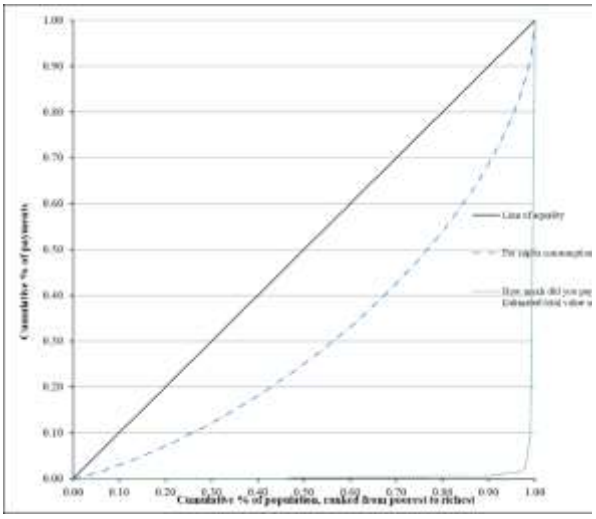


Figure 114 Health Insurance IHS 2

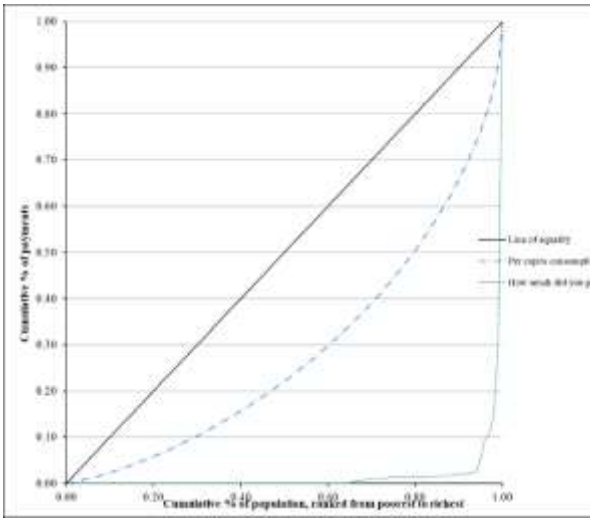


Figure 15 Health Insurance IHS 3

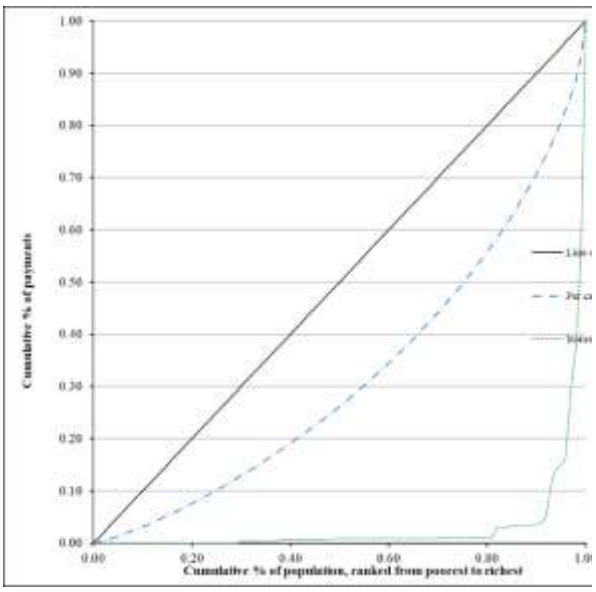


Figure 16 Health Insurance IHS 4

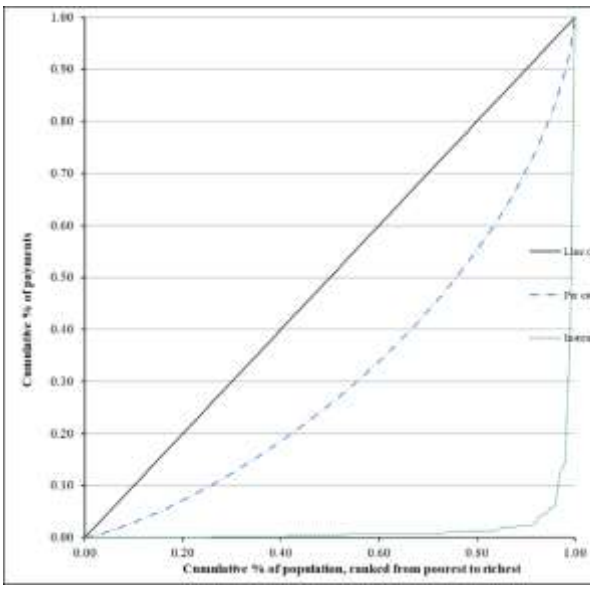


Figure 17 Health Insurance IHS 5

Further confirmation of the progressivity of health insurance is shown in table 10. The Kakwani indices of 0.6020, 0.5429, 0.5784, and 0.5960 for IHS 2, 3, 4, and 5, respectively, are much closer to 1 which indicates that they are very progressive.

Table 10: Kakwani Indices (Health Insurance)

	Index			
	IHS 2	**IHS 3**	**IHS 4**	**IHS 5**
Concentration Index	0.3837	0.43	0.3618	0.3695
Gini Coefficient	0.9858	0.9719	0.9402	0.9655
Kakwani Index	0.6020	0.5419	0.5784	0.5960

5.5 OOP Payments

Table 5.2 above shows that the distribution of the share of financing amongst the income quintiles is more proportionate compared to the other financing sources. Graphically, the concentration curves for IHS 2 and 5, figures 18 and 21 respectively, show that OOP payments are regressive. This is because the curve of OOP payments dominates the Lorenz curve throughout the distribution. The OOP payments for IHS 3, figure 19, are proportional in the earlier sections as the two curves, concentration and Lorenz curves, coincide but become regressive in the latter sections. The OOP payments for IHS 4, figure 20, are progressive in the earlier sections then become more proportional.

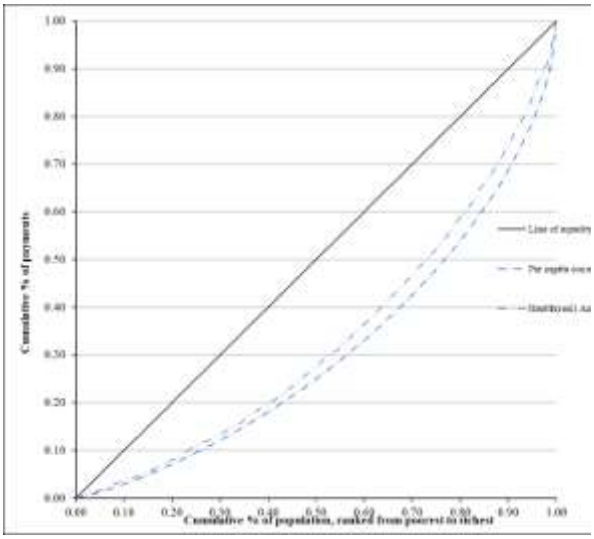


Figure 18 OOP Payments IHS 2

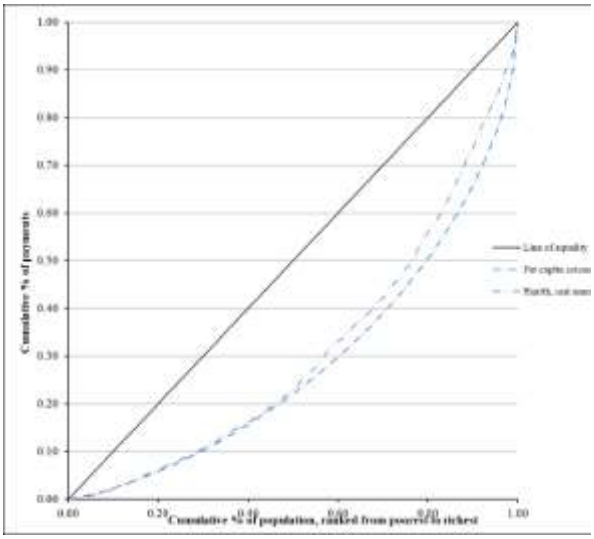


Figure 19 OOP Payments IHS 3

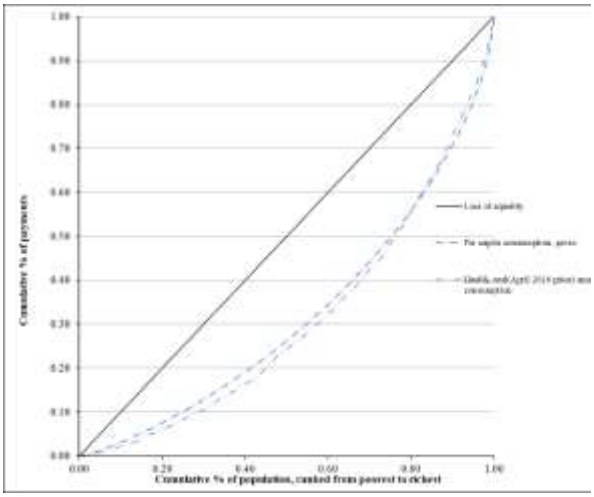


Figure 120 OOP Payments IHS 4

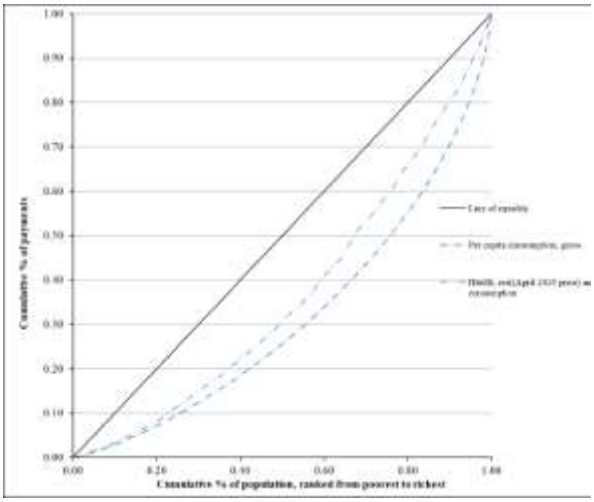


Figure 2113 OOP Payments IHS 5

To show who bears the burden of finance in Malawi further analysis needs to be done using the Kakwani indices. In table 11 the Kakwani indices of IHS 2 and 3 have a lower degree of regressivity as the values are negative and closer to 0. The Kakwani index for IHS 4 are mildly progressive as the index is positive and closer to 0. The index of Kakwani for IHS 5 is regressive as well.

Table 11: Kakwani Indices (OOP Payments)

	Index			
	IHS 2	**IHS 3**	**IHS 4**	**IHS 5**
Concentration Index	0.3837	0.43	0.3618	0.3695
Gini Coefficient	0.3305	0.3817	0.3830	0.2660
Kakwani Index	-0.0533	-0.0483	0.0213	-0.1035

5.6 Overall Health Financing

The overall progressivity of the health financing system calculation is presented as below:

Table 12: Calculating Overall Kakwani Indices

	IHS 2		**IHS 3**		**IHS 4**		**IHS 5**	
	NHA	**KE**	**NHA**	**KE**	**NHA**	**KE**	**NHA**	**KE**
Direct Tax	0.254	0.2779	0.22	0.2841	0.286	0.3122	0.241	0.5208
Insurance	0.027	0.6020	0.032	0.5419	0.071	0.5784	0.091	0.5960
OOP payments	0.09	-0.0533	0.11	-0.0483	0.108	0.0213	0.119	-0.1035

Table 12 shows the share of financing for all the healthcare finance mechanisms provided by the NHA and their corresponding Kakwani Indices. Table 13 shows the calculations for the overall progressivity of the entire health system in Malawi. The healthcare financing in the country is mildly progressive, as evidenced by the positive progressivity values, which means the burden of the funding is mainly borne by the rich. The results also show evidence that the overall progressivity of financing sources is increasing in the country from 0.038 to 0.0745 to 0.1327 and finally 0.1674. The positive contributors to the overall progressivity are direct taxes and private health insurance, while only one negative contributor is OOP payments.

Table 13: Overall Progressivity

	IHS 2	IHS 3	IHS 4	IHS 5
Direct Tax	0.0706	0.0625	0.0893	0.1255
Insurance	0.0163	0.0173	0.0411	0.0542
OOP payments	-0.0048	-0.0053	0.0023	-0.0123
Overall Progressivity	0.0389	0.0745	0.1327	0.1674

These results imply that since the inception of the POW and HSSP I through II, the general progressivity of the overall financing system has increased from the point of inception to the current stage. Even though these results cannot be fully attributed to the said policies from this study but improvement in the overall progressivity shows that these policies have a bearing on the outcome. OOP payments seem to not be influenced by the policies set in place which warrants another look at how policies should be structured to handle this problem so that the country's financing system should be even more progressive.

5.7 Decomposing Redistributive Effect

The total redistributive effect measures the overall change in income inequality resulting from financing. The total redistributive effect of direct tax and private insurance shows a decrease in income inequality by the resulting positive figures of the financing source for every IHS dataset. The redistributive effect of OOP payments has the opposite effect compared to the other financing sources.

Table 14: Redistributive Effect

Total Redistributive Effect	Per capita consumption, gross	Direct Tax	Private Insurance	OOP Payments	Total Payments
IHS 2	0.3837	0.0073	0.0016	-0.0006	0.0084
IHS 3	0.4300	0.0097	0.0032	-0.0020	0.0112
IHS 4	0.3618	0.0134	0.0061	-0.0006	0.0184
IHS 5	0.3695	0.0081	0.0036	-0.0011	0.0098

5.8 Discussion

Determining the equity of healthcare financing mechanisms is crucial to providing evidence to the policy question of whether health reforms in Malawi have achieved the planned outcome

of an equitable health financing system. The overall equity of the financing sources in Malawi is progressive which means that the burden of financing is mainly borne by the rich.

The findings show that direct taxes have been progressive, meaning the burden of financing healthcare is borne by the rich. The results are consistent with findings from other studies in other countries (Akazili, 2010; Asante *et al*., 2016; Ataguba, 2021; Cissé *et al*., 2007; Molla & Chi, 2017; Yu *et al*., 2008). Since only formally employed individuals pay these taxes, an analysis of only taxpayers was done to check if the financing source is progressive. The findings show that only in IHS 5 were the direct taxes progressive whilst in the previous years they were regressive. This regressivity in direct taxes amongst taxpayers supports a study that evaluated a case against labor-tax financed social health insurance for LMICs which found very little evidence to justify labor-tax financing as it leads to increased inequality and fragmentation of the health system (Yazbeck *et al*., 2020).

Private health insurance since 2005 has been very progressive because the poor make little to no contribution, and membership is concentrated amongst rich Malawians. These results are similar to most literature in developing countries (Akazili, 2010; Ataguba & McIntyre, 2017; Barasa *et al*., 2021; Odeyemi & Nixon, 2013; O'Donnell *et al.,* 2008). According to Gheorghe *et al.* (2019), enrolling a NHIS in Malawi is not feasible as the performance of incentives is insufficient to reach the scale needed unless service fees are introduced which would negatively affect equity and financial risk protection (Gheorghe *et al*., 2019).

OOP payments are regressive for the years 2004/5, 2010/11, and 2019/20 and proportional for 2015/16. This means that OOP payments are regressive in Malawi; the burden of healthcare financing is borne by people experiencing poverty. This may mean the waiver on OOP payments in the essential healthcare package is not far-reaching in other areas. The findings are again consistent with those of other countries for instance Bangladesh, Uganda, and South Africa (Ataguba & McIntyre, 2017; Zikusooka *et al.,* 2009; Molla & Chi, 2017). Studies done in Malawi confirm that OOP payments are still high (Mwale *et al.,* 2022), and that Malawians are pushed below the national and international poverty line due to health payments (Mulaga *et al.*, 2022). In a study to see how effective and fair user fee removal is in Zambia, no evidence was found that user fee removal increased health care utilization, even amongst the poorest group (Lépine *et al*., 2018).

The results from the study show that the total redistributive effect of direct tax and private insurance shows a decrease in income inequality by the resulting positive figures of the financing source for every IHS dataset. The redistributive effect of OOP payments has the opposite effect compared to the other financing sources. The findings are in line with the results from a case in South Africa (Ataguba, 2021).

CHAPTER SIX

CONCLUSION AND POLICY IMPLICATIONS

6.1 Introduction

This chapter provides the conclusions and policy implications. Section 6.2 gives the study's findings and recommendations, while section 6.3 provides the limitations.

6.2 Conclusions and Recommendations

The findings substantially add to the evidence of the progressivity of health system financing in Malawi. The system's progressiveness results from a combined effect of progressive direct taxes, progressive insurance, and regressive OOP payments. Direct taxes are the most significant contributor to progressivity. The concentration of households enrolled in insurance schemes is in the highest income quintile, contributing to more than 99% of the total insurance in all the datasets. International experience highlights that private health insurance is generally regressive when it is expanded to cover a large section of the population. Over the years, it seems that OOP payment has remained regressive even with the various policies trying to reduce the burden of healthcare financing on people experiencing poverty. Barasa *et al.* (2021) state that financing arrangements featuring prepayment (tax-financed government scheme and health insurance) instead of OOP payments are preferable for ensuring financial risk protection, and this study shows why that is so.

The overall health financing is progressive due to the progressivity of direct taxes as they contribute to a higher percentage of total health expenditure than the other sources. From the study's findings, the government should include more diseases in the essential health package and increase its coverage to reduce the incidence of OOP payments. This can be done by identifying which diseases are more prevalent and not included in the EHP. The government can expand the user fee exemption to more eligible CHAM facilities to increase the utilization of price-elastic services (Manthalu *et al*., 2016).

6.3 Study Limitations and Recommendations

The study's primary shortcoming is related to the secondary data used to calculate the incidence of health financing. The IHS does not offer all the data required to examine the incidence of various mechanisms (Akazili, 2010). For instance, no direct inquiries regarding tax payments were made. The absence of data on indirect tax incidence made it impossible to compute the study's overall tax incidence, which is another restriction. The participants may be subject to recall bias regarding how much was spent on OOP payments.

An analysis was made during the study to check whether direct taxes were indeed progressive if only taxpayers were examined and it showed that to a larger extent, they were regressive, therefore a study should be conducted to check if labor-tax financing lead to equity amongst those in the formal sector.

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