ASSESSING THE IMPACT OF FISCAL POLICIES ON POVERTY ALLEVIATION AND INCOME DISTRIBUTION: THE CASE OF MALAWI

MASTER OF ARTS (ECONOMICS) THESIS

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MA(Economics) Thesis

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DECLARATION

I, the undersigned, hereby declare that this thesis is my own original work and it has never been submitted for similar purposes to this or any other university or institution of higher learning. Where other people's work has been used acknowledgements have been made. All errors contained herein are the author's sole responsibility

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CERTIFICATE OF APPROVAL

The undersigned certify that this thesis represents the student's own work and effort, and it makes acknowledgements where other sources of information are used. The thesis is submitted with my approval.

Signature: _____ Date: _____

Patrick Kambewa, (Ph.D), (Associate Professor)

Supervisor

DEDICATION

To My parents Jaston Silumbu and Florence Kyando.

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ABSTRACT

Malawi continues to face poverty and income inequality despite efforts in government's spending and tax policies. A substantial portion of the population remains impoverished, and income disparities persist. This study examines the impact of government fiscal policies on poverty and income distribution. It analyzes how budget allocations and taxation affect poverty levels and income distribution, offering insights and recommendations for policymakers to balance fiscal responsibility with social development. The study develops "Income Concepts" to measure income with and without fiscal policy elements, using a Commitment to Equity approach. To measure the impact of fiscal policy and establish causal attribution, it employs Propensity Score Matching (PSM). The analysis reveals that while fiscal systems slightly reduce inequality, their net effect on poverty is mixed. Income differences with and without fiscal policies show a mean increase of MWK 12,368.40, indicating a limited impact. The Gini coefficient slightly increases from 0.428 to 0.434, suggesting that fiscal policies alone do not significantly reduce inequality. The SCTP positively impacts welfare, increasing beneficiaries' per capita consumption by 13.4%. Conversely, FISP does not significantly affect per capita consumption, raising questions about its effectiveness. Educational expenditures positively impact welfare, while health expenditures show no significant effect. Overall, the findings suggest that fiscal policies have some positive effects, particularly in reducing inequality and supporting poor households. However, there is a need for restructuring and more targeted approaches. Eliminating less effective subsidies and reallocating resources towards direct support for poorer households could enhance the overall impact of fiscal policies on poverty and inequality reduction in Malawi.

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ABBREVIATIONS

ATET	Average Treatment Effect on the Treated
CEQ	Commitment to Equity
FISP	Fertilizer Input Subsidy Program
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
GoM	Government of Malawi
IHS	Integrated Household Survey.
MK	Malawian Kwacha
MRA	Malawi Revenue Authority.
OLS	Ordinary Least Squares
PAYE	Pay as You Earn
PSM	Propensity Score Matching
SCTP	Social Cash Transfer Program
SDGs	Sustainable Development Goals
VAT	Value-Added Tax
SBCC	Social and Behavior Change Communications

CHAPTER ONE

INTRODUCTION

1.1 Background

Fiscal policy plays a pivotal role in shaping the economic landscape of a nation. It has significant implications for the citizens' well-being by addressing inequality in the society. One of the paramount objectives of fiscal policy is poverty reduction. This study aims at exploring the multifaceted relationship between government fiscal policy and its impact on poverty reduction, (Lustig, 2017). Governments can either ameliorate or exacerbate poverty levels within their jurisdiction by allocating resources, implementing taxation strategies, and executing public spending programs. This study delves into the empirical evidence and theoretical frameworks to elucidate the intricate dynamics involved in this relationship.

The theoretical foundation of the impact of government fiscal policy on poverty reduction stems from classical and Keynesian economic theories. Classical economists argue that minimal government intervention is essential for fostering economic growth. They also contend that reducing fiscal deficits through austerity measures, can lead to poverty reduction through trickle-down effects, (Mankiw, 2016). Conversely, Keynesian economists assert that active government involvement, especially during economic downturns, is vital to stimulate demand, create jobs, and alleviate poverty, (Krugman, 2015).

Empirical studies on the relationship between government fiscal policy and poverty reduction have provided mixed findings, contingent on the specific policies implemented and the economic context of each study. For instance, it was found that a reduction in budget deficits, often pursued through austerity measures, can indeed lead to poverty reduction in some circumstances, primarily by fostering a favorable environment for

private investment, (Alesina, 1996). However, the same study acknowledges that austerity measures can also exacerbate poverty if implemented without adequate social safety nets or job creation programs. The contradictions pause a question of whether fiscal policies in developing nations such as Malawi have an impact on poverty reduction and income distribution.

Conversely, studies examining the impact of expansionary fiscal policies, such as public spending on infrastructure, education, health and social programs, consistently indicate their positive effect on poverty reduction. A notable example is the research conducted by Bhattarai (2015), which demonstrates that increased government spending on education and healthcare significantly contributes to reducing poverty rates by improving human capital and overall well-being. This study leaves a great number of unanswered questions. It fails to state whether this is always true in undeveloped nations such as Malawi.

Furthermore, progressive taxation policies aimed at wealth redistribution have been proven to play a pivotal role in poverty reduction. Research by Saez (2019), illustrates that progressive taxation can effectively reduce income inequality, thereby lifting many individuals and families out of poverty. Since independence, the tax system of Malawi has undergone a number of reforms and individual tax adjustments in response to the need for more revenue and for improving fiscal incentives for economic development (Chipeta, 1998). Although several tax reforms have been undertaken, especially since the 1983/84 fiscal year, taxation has failed to generate sufficient revenue to meet the needs of the government. From two perspectives above, there is a need to unpack if fiscal policies reduce income inequality in countries like Malawi.

Malawi is an extremely poor country facing considerable development challenges, (Oxfam, 2015). It is in serious need of investment in its social and economic infrastructure in order to drive growth and share growth's gains among all Malawians, lift them out of poverty and close the inequality divide. However, socio-economic development of any nation is intrinsically linked to its fiscal policies which encompass revenue collection, public expenditure, and resource allocation. In the context of developing countries like Malawi, a

question of what is the impact of Fiscal policies on poverty reduction and income distribution, still stands. Do fiscal policies have impact on addressing poverty reduction and income distribution?

The impact of government fiscal policy on poverty reduction is a complex and multifaceted relationship that is influenced by various economic theories and empirical findings. While the debate between austerity and expansionary fiscal policies continues, the evidence consistently supports the notion that well-designed and targeted government interventions such as increased public spending on social programs, progressive taxation policies and job creation initiatives, can have a positive impact on poverty reduction. Therefore, policymakers should carefully consider the consequences of their fiscal decisions on poverty levels, aiming at striking a balance between fiscal responsibility and the welfare of their citizens.

1.2 Problem statement

From the background above, Malawi like many other developing nations, faces persistent challenges related to poverty and income inequality. Despite efforts to allocate government expenditures, design tax policies and provision of safety nets, a substantial portion of its population continues to live in poverty and income disparities. To address these issues effectively, it is imperative to investigate the impact of fiscal policies on poverty alleviation and income distribution within the country.

Considering this backdrop, this study aims at analysing the impact of fiscal policies on poverty alleviation and income distribution in Malawi. This research provides insights and recommendations to help policymakers strike a balance between fiscal responsibility and social development by examining the fiscal decisions, their implications on poverty alleviation and their effects on income distribution.

1.3 Objectives

1.3.1 Main Objective

- To analyze the impact of fiscal policies on poverty alleviation and income distribution in Malawi.

1.3.2 Specific Objectives

- To determine the extent to which government's spending influences poverty rates in Malawi by particularly, looking at key sectors like healthcare, education and social welfare.
- To examine the effects of the current tax policy framework on income distribution and assess whether it contributes to reduction of income inequality or not.

1.4 Justification

In line with Malawi Vision 2063, these study's findings inform policy makers on the attainment of an inclusively wealthy country that ensures equitable distribution of national income. The insights from this study inform policy makers on the realization of Sustainable Development Goals (SDGs) that center on "leaving no one behind". Furthermore, the study contributes on the necessity of fiscal policy in Malawi in relation to SDG 1 of ending poverty in all its forms everywhere. The paper contributes to comparative fiscal incident analysis by (Lusting, 2016) which found out that Success in fiscal redistribution is driven primarily by redistributive efforts (sharing of social spending to GDP in each country) and the extent to which transfers are targeted to the poor and direct taxes are targeted to the rich.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Government fiscal policies play a pivotal role in shaping the economic landscape of any nation. In the case of developing countries like Malawi, where poverty and income inequality are pressing issues, the impact of these policies on the welfare of the population is of paramount importance. This literature review seeks to explore and synthesize the existing body of research on the effects of government fiscal policies on poverty and income distribution in Malawi. By examining numerous studies, we aim to gain insights into the challenges faced by policymakers in balancing the budget while addressing the needs of the most vulnerable segments of the population.

2.2 Government Fiscal Policies in Malawi

Malawi, a landlocked country in southeastern Africa, has faced persistent challenges related to poverty and income inequality. The government's fiscal policies play a crucial role in addressing these issues. According to Chirwa, 2016, taxation policies, public expenditure and social safety nets, are key components of government fiscal policies that directly impact the welfare of citizens. Balancing the budget is often a complex task particularly in a country like Malawi where resource constraints and external pressures can limit policy options.

2.3Theoretical Review

The study conducts critical examination and synthesis of existing theories, concepts, and frameworks related to the impact of fiscal policies on poverty and income distribution. It involves identifying, analyzing, comparing, and integrating various theoretical perspectives to provide a comprehensive understanding of the subject matter. The primary goals of a theoretical review are to organize and synthesize theoretical knowledge by offering a critical perspective on how well existing theories explain the impact of fiscal policies on poverty and income distribution.

2.3.1 Musgrave's Theory of Public Expenditures

Musgrave theory is based on three essential roles of the government in an economy: that is allocation, distribution and stabilization. According to Musgrave, the allocative aspect of public expenditure ensures efficient resources for the optimal production of the public good, which would not be provided efficiently by the private players in a society. In line with the allocative aspect, public expenditure is enacted to ensure the optimal distribution of income and wealth which might not be in market provision.

Fiscal policy which encompasses government revenue and expenditure decisions, plays a crucial role in shaping economic outcomes, including poverty levels and income distribution, (Musgrave, 1989). "Fiscal policy is a powerful tool for governments to influence income distribution and reduce poverty through taxation, public spending and social programs," (Atkinson, 1980).

From the above premises, Musgrave suggests that an increase in public expenditure is likely to reduce both income inequalities and poverty in the economy. Furthermore, Musgrave also states that public expenditure is directed towards the attainment of macroeconomic stability. Public expenditure for stabilization of macroeconomic fundamentals of employment, output and prices are being produced and maintained at a stable rate. Thus, the public theory deals with the allocation and distributive roles of the government.

In this regard, Musgrave's theory on government expenditures is central in adjusting inter-individual national income and wealth in order to reduce both inequality and poverty.

2.3.2 Wagner's Law (Law of Increasing Public Expenditure)

Wagner postulated that public expenditure is an endogenous variable and that there exist long-run tendencies for public expenditure to grow relatively to some national income aggregates such as the gross domestic product (GDP).

Wagner designed three focal bases for the increased in state expenditure. Firstly, during industrialization process, public sector activity will replace private sector activity. State functions like administrative and protective functions will increase. Secondly, governments needed to provide cultural and welfare services like education, public health, old age pension or retirement insurance, food subsidy, natural disaster aid, environmental protection programs and other welfare functions. Thirdly, increased industrialization will bring out technological change and large firms that tend to monopolize. Governments will have to offset these effects by providing social and merit goods through budgetary means. More importantly, in Wagner's Law, there are drivers of increasing government expenditure and their consequences on income distribution and poverty in a country. The Wagner law is based on the welfare functions of the states which is likely to reduce income inequalities and poverty levels through the development process.

2.3.3 The Principle of Maximum Social Advantage

The principle of maximum social advantage was proposed in 1920's by H Dalton. It suggests that the limit of government expenditure should be set so as to derive 'maximum social advantage'. Holding that entire expenditure is met by taxation, the limit of taxation should coincide with that of public expenditure.

According to Dalton, "public expenditure in every direction must be carried just so far that the advantage to the community of a further small increase in any direction is just balance by the disadvantage of a corresponding small increase in taxation and in receipts from any other source of public income. This is ideal to both public expenditure and public income".

As a result, there will be a cycle where money collected from the public, directly or indirectly, will go back to them in the form of public expenditure programs.

2.4 Mathematical frameworks

In evaluating the impact of policies and programs, it is essential to establish a causal relationship between the intervention (treatment) and the observed outcomes. This process involves employing statistical models and methods designed to isolate and measure these effects accurately. Two commonly used approaches in this context are the treatment effect model and propensity score matching (PSM). This document explores these methods, their underlying principles and their applications in policy evaluation.

2.4.1 Treatment effect model

The term 'treatment effect' refers to the causal effect of a binary (0–1) variable on an outcome variable of policy interest, (Kasy, 2016). Economic examples include the effects of government programmes and policies such as those that subsidize training for disadvantaged workers and the effects of individual choices l. Treatment assignment is D = 1, if the individual receives treatment, 0, otherwise. Potential outcomes are Y (0), the outcome that would be observed if the individual did not receive the treatment. Y (1), the outcome that would be observed if the individual received the treatment. Outcome of interest is Y = DY (1) + (1 − D) Y (0). A vector of covariates is X. Treatment Effect for the Whole Population is the causal effect of programs or policies. The Interest is in the relation between D(Y (1)) and D(Y (0)), where D(·) is a functional of random variables. Average treatment effects will be D[Y (1)] − D[Y (0)], where D(Y) = D[Y].

2.4.2 Propensity score matching

The propensity score is the probability of treatment assignment conditional on observed baseline covariates: $e_i = Pr(Z_i = 1|X_i)$ (Rubin, 2006). The propensity score is a balancing score: For a stronger case for causal attribution, there is a need for propensity score matching (PSM). It helps researchers to determine whether the program was actually responsible for the changes in knowledge, attitudes and behaviors that occurred. Artificial

control group are constructed by matching each treated unit with a non-treated unit of similar characteristic match on the basis of the propensity score.

$$P(X) = Pr(d=1|X)$$

- D indicates participation in policy
- Instead of attempting to create a match for each household with exactly the same value of X, we can instead match on the probability of participation.

Key assumption: participation is independent of outcomes conditional on X

$$E(y_0 \, IX,d=1) = E(y_0 IX,d=0)$$

- This is false if there are unobserved outcomes affecting participation

2.5 Empirical literature review

The study conducts a comprehensive summary and critical analysis of existing research studies and empirical evidence on the impact of fiscal policies on poverty and income distribution. Unlike a theoretical review, which focuses on theories and conceptual frameworks, an empirical literature review focuses on actual data, findings, and experiments conducted by researchers on the impact of fiscal policies on poverty and income distribution. In essence, this aims to provide a detailed and critical assessment of what is known from empirical research, helping to build a solid foundation for future studies and practical applications.

2.5.1 Empirical Literature on the role of Fiscal Policies on poverty reduction and Income distribution outside Malawi

To begin with Kraay (2002) using a large cross-country dataset from East Asia and Pacific, Latin America, Sub-Saharan Africa and the Middle East, North Africa, Western Europe, Canada and the United States found no evidence of a statistically significant 4 relationships between government spending on health and education and the share of the poorest 20 percent of households in national income, which is one common measure of income inequality. This study used OLS and single-equation two-stage least squares (2SLS) while pooling all of the country-year observations. Furthermore, this study adopted the standard generalized method of moments (GMM) estimation procedure. A recent update of this study, by Dollar (2013), found similar results.

However, other recent studies have found evidence that certain types of government spending, for example on social welfare, education and health, have a negative and statistically significant effect on income inequality. For instance, Claus (2012), assessed the impact of government fiscal policies on income inequality in Asia using panel estimation for 150 countries with data between 1970 and 2009. The results suggest some distinctive differential distributive effect for government expenditure on social protection in Asia. Social protection spending appears to increase income inequality where it reduces the inequality in the rest of the world.

Similarly, it assessed the potential role that taxation and public expenditure policies play in general in affecting income distribution using panel and GMM estimation approach. The results indicate that progressive personal income taxes and corporate income taxes reduce income inequality. On the expenditure side, the study revealed that higher shares of GDP on social welfare, education, health and housing public expenditures have a positive impact on income distribution.

Fan (2000), studied the effect of government expenditure on rural poverty in India using state-level panel data for 1970–93. It adopted a simultaneous equation model which was developed to estimate the direct and indirect effects of different types of government expenditure on rural poverty and productivity growth in India. The results reveal that in order to reduce rural poverty, the Indian government should give highest priority to additional investments in rural roads and agricultural research. These types of investment not only have much larger poverty impacts per rupee spent than any other government investment, but also generate higher productivity growth.

Standard tax and benefit incidence analysis is used to estimate the effects of fiscal policy on poverty and inequality in Peru, (Jaramillo, 2014). The paper results suggest that the extent of inequality and poverty reduction inducted by Peru's fiscal policy is small. This result is associated with low social spending rather than with inefficient spending. Most social spending components are progressive, so too is overall social spending. We find that direct cash transfers are well targeted and are especially effective in reducing extreme

poverty in rural areas. We also find that in-kind transfers are effective in reducing inequality. Finally, direct taxes slightly reduce inequality while countering intuition. On the other hand, indirect taxes are neutral once informality is incorporated in the estimates. Comparative analysis with international counterparts, especially countries in the sub-Saharan African region, can offer a broader perspective on effective strategies for addressing poverty and inequality. Poverty in China has long been highly political. Boullenois (2020), argued that poverty alleviation in rural China focuses on infrastructure investment and support to the local economy, rather than on social insurance, education and household subsidies. Chinese leaders fear that poverty contributes to social instability and reduces the regime's legitimacy, (Duckett, 2015). Nevertheless, the Chinese discourse on poverty has been increasingly framed as a scientific, rather than a political issue. As a case in point, the Third Plenary Session of the 18th CCP Central Committee in 2013 proposed the formation of a scientific and effective social governance system that would scientifically implement poverty alleviation management.

Using time series data from 1965 to 2014, Yahaya (2020), examines the relationship between total government expenditure and the effects of specific sectoral expenditures on the level of poverty in Nigeria. The study's data was analyzed using (OLS) multiple regression technique after using Wilhlems and Fiestas model and ADF Co-integration test to ensure stationarity and cogency of the data. The result also reveals that there is an existing significant negative relationship between poverty trend and the education, health and agriculture expenditures in Nigeria. Research by Lusting (2017), demonstrated that targeted social programs, such as cash transfer schemes, have contributed positively to the income distribution of vulnerable populations in case of Zambia.

Another study conducted by Anderson (2018), using a meta-regression analysis to establish relationship between government spending and income poverty, with a focus on low and middle income countries, the results show that the size and direction of the estimated relationship are affected by a range of factors. For example, the composition of the sample used for estimation, the control variables included in the regression model and the type of government spending. Overall, the study found no clear evidence that higher government

spending has played a significant role in reducing income poverty in low- and middle-income countries.

Using comparative fiscal incidence analysis, Lusting (2018), examines the impact of fiscal policy on inequality and poverty in twenty-nine low-and middle-income countries for circa in the year 2010. It was found that Success in fiscal redistribution is driven primarily by redistributive efforts (share of social spending to GDP in each country) and the extent to which transfers are targeted to the poor and direct taxes are targeted to the rich. While fiscal policy always reduces inequality, this is not the case with poverty. While spending on preschool and primary school is pro-poor (the per capita transfer declines with income) in almost all countries, pro-poor secondary school spending is less prevalent and tertiary education spending tends to be progressive only in relative terms (equalizing, but not pro-poor). Health spending is always equalizing except in Jordan. Malawi was not among the countries discussed.

Bucheli (2014), had the following questions in Uruguay context. How much redistribution does Uruguay accomplish through social spending and taxes? How progressive are revenue collection and social spending? What could be done to further increase redistribution and improve redistribution effectiveness? A standard fiscal incidence analysis shows that Uruguay achieves a nontrivial reduction in inequality and poverty when all taxes and transfers are combined. Direct taxes are progressive and indirect taxes are practically neutral. Social spending on direct transfers, contributory pensions, education, and health is quite progressive in absolute terms except for tertiary education which is almost neutral in relative terms.

Sahn and Younger (2016), considers options for the governments of Sudan and South Sudan to use tax and expenditure policy to reduce poverty and inequality. The study focuses on who benefits when government spends money on services such as paying teachers, building clinics and subsidizing food or petrol as well as the redistributive consequences of some standard taxes. From the findings, it makes sense for South Sudan to concentrate on providing a few public services. For instance, expanding primary and secondary

schooling and primary health care units. This is done by looking at broad coverage rather than trying to provide a wide range of public services with more limited coverage especially given the limits of South Sudan's young bureaucracy. Taxing transport and communication would be strongly progressive. In the case of Sudan, we suggest that policy-makers focus on expanding schooling services at both the primary and secondary levels. We further suggest that food aid, in kind and in cash, is highly pro-poor. It would make sense to expand the electricity grid to rural areas but the cost of doing so may be prohibitive.

The study by Ambel (2024), investigates the effects of public transfers and taxes on the wellbeing of children in Ethiopia. It applies the Commitment to Equity for Children (CEQ), the methodology to examine the burdens of taxation and the benefits from government transfers and spending against their differential wellbeing impacts on children. The study integrates data from the Ethiopia Socioeconomic Survey 2018/19, which also collected data on taxes and transfers with administrative data. Measuring its distribution by child monetary and multidimensional wellbeing, the study finds, on average, a progressive poverty-reducing and equalizing fiscal system. However, there are important differences in the distribution of some of its elements. Indirect taxes, comprising VAT and excise taxes are regressive. Similarly, primary education, spending the largest of in-kind transfers, is only progressive in urban areas. With regards to poverty and inequality, the fiscal system reduced the monetary child poverty headcount by 21% and the poverty gap by 33%. The effect is stronger for girls and children in rural areas than for boys and children in urban areas therefore, reducing inequalities in poverty rates. However, this is only the case when in-kind transfers for education and health are considered. Without the inclusion of in-kind transfers, the study finds that the fiscal system is not well calibrated to reduce poverty. This highlights the essential role of public services not only in delivering fundamental child rights, but also in reducing poverty amongst children.

According to Krueger (1995), economic growth is believed as a main policy to achieve significant reduction in poverty. However, to emphasize growth effect over poverty reduction, it is important that the poor have access to social and economic services that

enable them to become more productive. Furthermore, it also entails concentration on policies that will enable most citizens of society to become more productive (pro growth). Pro-growth policies are undertaken with attention to poverty alleviation through education, health care and provision of means for increasing productivity.

Fan (2000), explained poverty reduction and growth in their study by exploring three related issues: composition of government spending, determinant of government expenditure and the impact of government expenditure to growth. They employed cross countries analysis involving 1980 to 1998 data from 43 developing countries across Asia, Africa and Latin America. Rather than analyzing the impact of total government expenditure and overall growth, the authors attempt to analyze the impact at the sector level of government spending and overall GDP. They estimate a production function with national GDP as the dependent variable while labour, capital investment and various government expenditures are estimated as independent variables. Results show that the labour and capital coefficients are positive and statistically significant for all regions. For government expenditures on agriculture, coefficients are positive and statistically significant in Africa and Asia. For Latin America, the coefficient is insignificant although positive. For education expenditure, the coefficients are positive and statistically significant only in Asia. This indicates that continued education investment in Asia will contribute greatly to GDP growth. Coefficients for Africa and Latin America are negative. Younger (2016), used the Commitment to Equity and data from the 2011/12 Household Budget Survey to assess the effects of government taxation, social spending and indirect subsidies on poverty and inequality in Tanzania. The paper also simulates several policy reforms to assess their distributional consequences. It was found that Tanzania redistributes more than expected given its relatively low income and inequality, largely because both direct and indirect taxes are more excellent targeting mechanism. If the programs were expanded to a size that is typical for lower middle-income countries, it could reduce poverty significantly. On the other hand, electricity subsidies are regressive despite attempts to make them more pro-poor with a lifeline tariff.

Younger (2015), with the use Commitment to Equity approach, assessed the effects of government taxation, social spending and indirect subsidies on poverty and inequality in Ghana. Results show that, although the country has some progressive taxes and well-targeted expenditures, the extent of fiscal redistribution is small. The results for poverty reduction are less encouraging: if it were not for the in-kind benefits from health and education spending, the fiscal would actually increase poverty in Ghana. Eliminating energy subsidies and at the same time reallocating part of the savings to well- targeted transfer programs, could not only lower the fiscal deficit but also reduce inequality and protect the poor from the negative impact of reduced energy subsidies.

2.5.2 The Impact of Fiscal Policies on Poverty and Income Distribution in Malawi

Several studies within Malawi have explored the impact of taxation policies on poverty reduction. For instance, Chirwa (2016), conducted a study revealing that progressive tax reforms have the potential to reduce poverty by redistributing wealth. Conversely, Munthali (2019), found that regressive tax policies can exacerbate income inequality. Nothing was analyzed on combined impact of tax reforms on poverty reduction and income distribution. Government spending on social programs and infrastructure development has been a focal point in addressing poverty and income inequality. Numerous studies have explored the relationship between government fiscal policies and poverty reduction in Malawi. Chirwa, (2016), found that fiscal policies that prioritize pro-poor spending, such as investments in healthcare and education, have a positive impact on reducing poverty levels. Additionally, targeted cash transfer programs have been shown to lift vulnerable households out of poverty, (Munthali, 2019).

On the contrary, tax policies in Malawi have faced criticism for being regressive and disproportionately affecting low-income households. Kandoole (2018), argues that indirect taxes, such as value-added tax (VAT), place a heavier burden on the poor. Therefore, there is a need for progressive taxation reforms to address this issue and ensure that fiscal policies do not exacerbate income inequality.

Government expenditure patterns also have significant implications for income distribution in Malawi. Maganga (2017), contend that public investments in infrastructure such as roads and electricity, can stimulate economic growth and create job opportunities contributing to a more equitable distribution of income. However, they emphasize the importance of targeting these investments to benefit marginalized regions and populations. Using data from the third integrated household survey, Musa (2017), performed conditional and unconditional policy simulations. Results from the unconditional simulations revealed that Malawi's exclusively focus on growth while ignoring inequality, would have little or no impact on poverty reduction. The two studies do not specifically analyze the impact of single fiscal policy.

In contrast, a study by Betcherman (2015), suggests that public sector wage policies have contributed to income inequality by disproportionately benefiting public sector employees who tend to be better-off than those in the private sector. This highlights the need for a careful consideration of public sector wage policies in fiscal planning.

2.6 Chapter Summary

Theoretically and empirically, it has been shown that increase in government spending is negatively related to income inequality and poverty in many countries. However, in some instances, government spending does not influence income inequality and poverty. With regards to the theories reviewed above, Musgrave, Wagner and Dalton Principle assume a welfare state such that government expenditure is meant to improve the welfare of people. Most studies that have been conducted use panel data and evaluate the effect of government expenditure on poverty and income inequalities across different states over time. Few studies have used cross section data and time series to examine the same. Regarding the sectors expenditures influence on poverty and inequality, education and Social protection expenditures have higher marginal propensity to reduce both inequality and poverty.

CHAPTER THREE

METHODOLOGY

3.1 Methodology and Data

The study estimates the impact of fiscal policy on micro-level welfare indicators by assigning fiscal policy elements, programs, expenditures or revenue collections to individuals and households identified in the 2019 Malawi Integrated Household Survey (IHS5). The framework for these allocations and subsequent analysis, follows the methodology developed by the Commitment to Equity (CEQ) Institute, as outlined by Lusting (2022). To assess the degree of redistribution achieved among other factors like the impact of the fiscal system on poverty and inequality, the study develops measures of income: termed "Income Concepts" which either exclude ("without fiscal") or include ("with fiscal") these fiscal policy elements.

3.2 Methodology

The impact of fiscal policies on income, purchasing power or welfare is quantified as follows. Taxes, transfers and fiscal policies are potent instruments for ameliorating extreme material deprivation and reducing disparities between economic strata. They can also foster equal opportunities, for instance, through public education, thereby, enhancing social mobility and the productivity of marginalized segments of society. Evaluating the effectiveness of governments in utilizing these tools, necessitates quantifying changes in inequality and poverty with and without application of fiscal policies. To quantify this impact, the study initially estimates a counterfactual income state, for instance, the income state without the transfers, benefits and burdens generated by the fiscal system. This state, denoted as without-fiscal income (I_h), comprises cumulative income from wages, capital gains, private transfers and gifts. Subsequently, the study identifies a set of taxes and transfers (T_i) for analysis, such as the Pay-as-You-Earn (PAYE) tax and the Farmer Input Support Program (FISP). Utilizing micro-data from the Integrated Household Survey

(IHS5), the study allocates shares (S_{ih}) of each program in T_i to each household h. With these estimated shares, the with-fiscal income at the household level (Y_h) is determined as follows:

$$Y_h = I_h - \sum_i T_i \; S_{ih} + \sum_i B_i \, S_{ih} \quad (1)$$

Here,

Y_h is with-fiscal income for a household.

I_h is without-fiscal income for a household.

T_i is set tax for household in form of PAYE, VAT, fees on education and health.

S_{ih} represents the share of tax received by household h.

B_i is set of Subsidies and in-kind transfers.

S_{jh} represents the share of transfer received by household h.

Figure 1, illustrates this equation by depicting one without -fiscal income concept (Market Income) and several with -fiscal income concepts, Disposable Income, Consumable Income and Final Income. Disposable income as cumulative income received from wages and salaries (that is, from labour market transactions) plus the market value of auto-production and auto-consumption; from capital (including real estate); and from private transfers (such as remittances from family members working abroad). Consumable income is disposable income plus indirect subsidies such as Agricultural Inputs (FISP) less indirect taxes such as Excise taxes (alcohol and tobacco). Final income is consumable income plus in-Kind Transfers (Monetized value of education and health services) less copayments and user fees for education and health services.

To evaluate the fiscal system's impact on poverty or inequality, the study estimates the difference in a given measure of poverty or inequality across various policy stages. Specifically, direct taxes and contributions are analysed using without-fiscal income while subsidies are analysed with net market income and in-kind transfers are analysed using disposable income. The impact of a single tax or transfer (or a subset thereof), is determined by comparing inequality (or poverty) in the with-fiscal income concept excluding the item in question to that including the item.

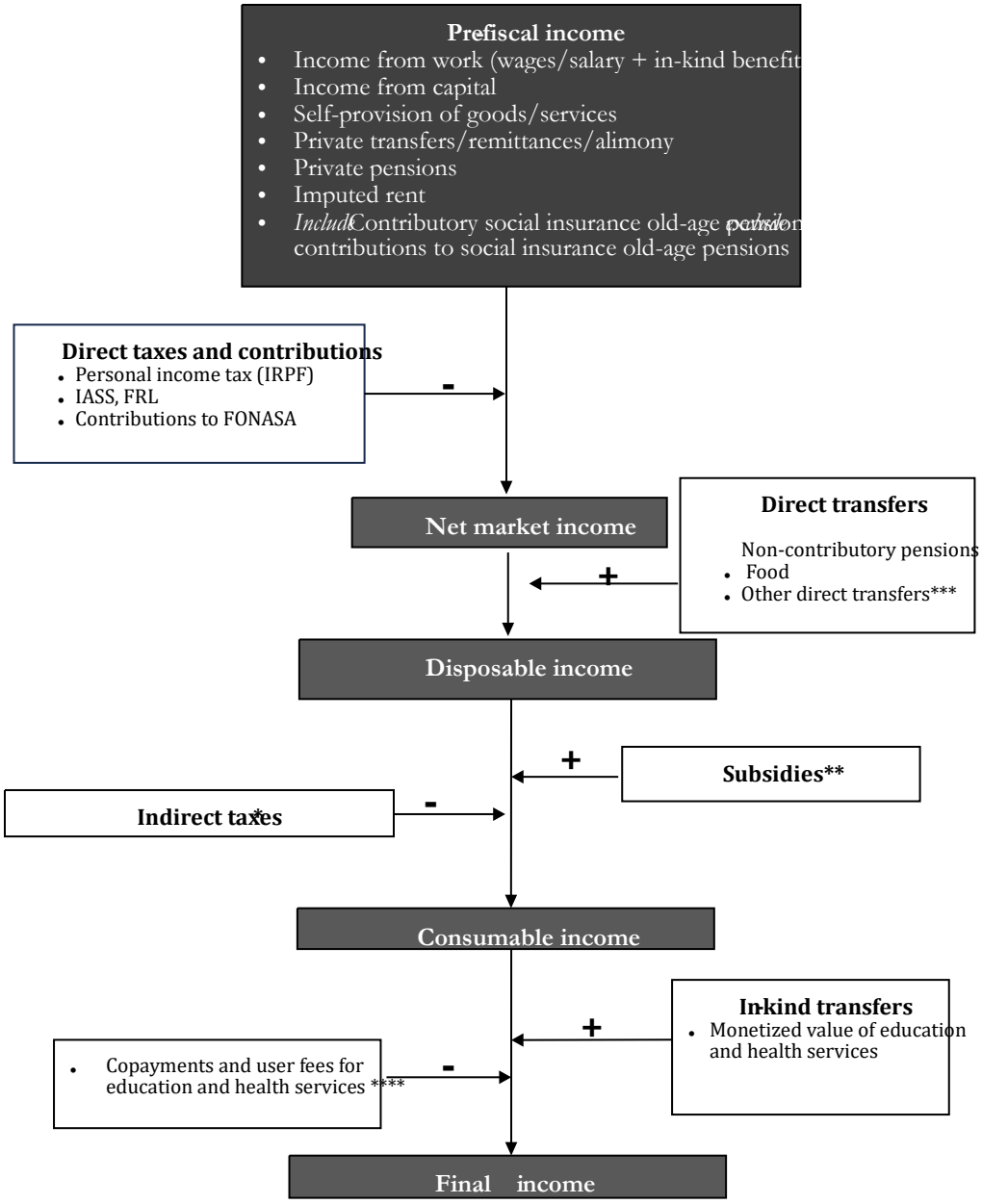
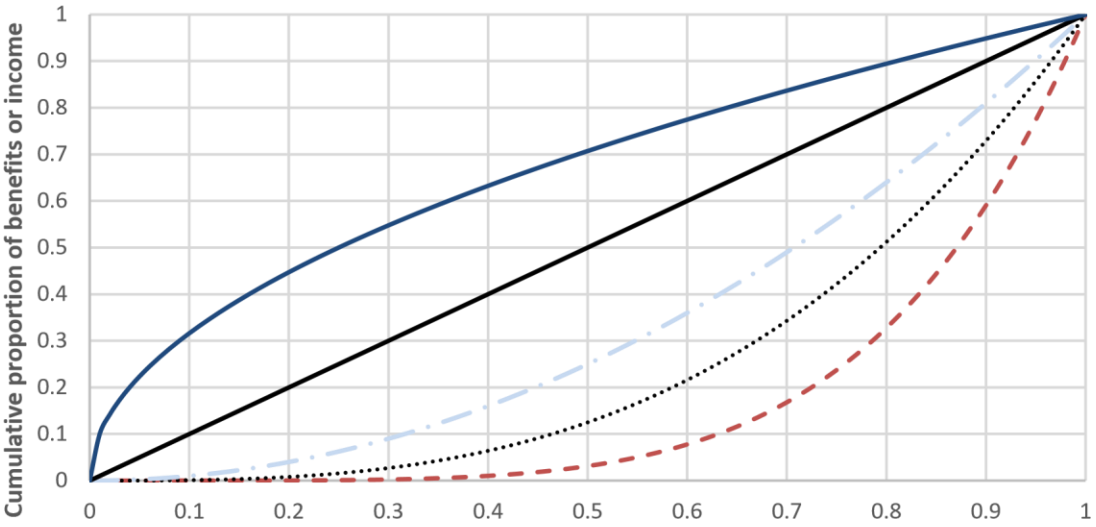


Figure 1: Definition of CEQ Income Concepts

Source: Adapted from Lusting 2022.

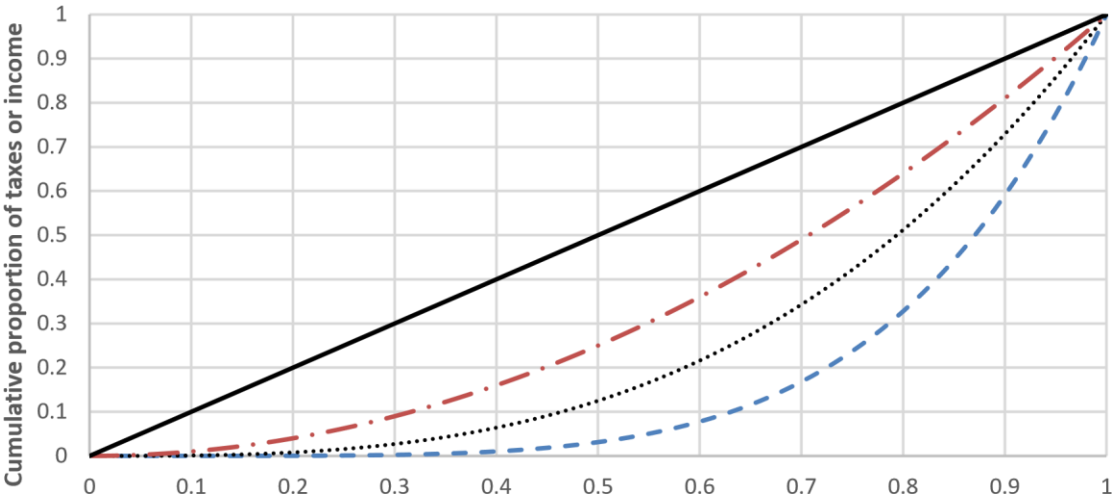


Regressive

without-transfer Income Lorenz curve. Neutral in relative terms if on this line

Progressive in relative terms

Figure 2: Cumulative proportion of population (ordered by without-transfer income)



Relatively progressive

without-tax Income Lorenz curve. Neutral in relative terms if on this line

Regressive

Figure 3: Cumulative proportion of population (ordered by without-tax income)

Source: Adapted from Lusting (2022)

A graphical representation of these characterizations is provided in graph 1 representing transfers and Figure 3 representing taxes. The methodology offers two indicators for understanding the progressivity or progressivity of a fiscal policy: concentration shares, indicating the share of the fiscal policy's value captured (or imposed) on a subset of the population and the incidence of a fiscal policy element, calculating the value of a benefit captured (or tax imposed) relative to income before the benefit was received or the tax was imposed.

The study also adopts treatment effect model to determine the causal effect of a fiscal policy on welfare and inequality.

$$\mathbf{Y=Y_0 + D\ (Y_1 - Y_0)} \qquad \mathbf{(2)}$$

Y_1 denotes the potential earnings of Household if it was to benefit a certain fiscal policy and let Y_0 denotes the potential earnings of a household if not. Fiscal policy is denoted by a dummy variable, D.

To allow this study to accurately measure social and behavioural change communication (SBCC) and fiscal policy impact, it uses propensity score matching (PSM). The study will also make a strong case for causal attribution. Furthermore, it will help researchers determine whether the program was actually responsible for the changes in knowledge, attitudes and behaviours that occurred.

The paper constructs an artificial control group by matching each treated unit with a non-treated unit of similar characteristics.

Match on the basis of the **propensity score**

$$\mathbf{P(X) = Pr\ (d=1|X)} \qquad \mathbf{(3)}$$

- D indicates participation in policy.
- Instead of attempting to create a match for each household with exactly the same value of X, we can instead match on the probability of participation.
-

Key assumption: participation is independent of outcomes conditional on X.

$$\mathbf{E(y_0\ IX,d=1) = E(y_0 IX,d=0)} \qquad \mathbf{(4)}$$

- This is false if there are unobserved outcomes affecting participation.

One crucial aspect of the methodology warrant attention is factored in. This includes: the starting point, without-fiscal income, representing income before any transfers, including public expenditures on healthcare and education as well as cash transfers or taxes such as personal income taxes. In the case of contributory pensions, pension contributions are treated as deferred income while received pension income is considered market income. Consequently, the without-fiscal income encompasses both pensions and contributions.

Kakwani measures was also considered. The Kakwani index is a measure of the progressivity of a social intervention. The Kakwani index is also equal to the concentration index for payments minus the Gini coefficient for income. The higher the Kakwani index the higher the inequality.

3.3 Data Sources

The primary dataset providing necessary individual and household-level information for allocating fiscal policy elements, uses the 2019/2020 Malawi Integrated Household Survey (IHS5). This study focuses exclusively on the fiscal year 2020 due to the availability of Integrated Household Survey (IHS5) data for that year. The Integrated Household Survey (IHS5) (2019) includes modules covering various aspects such as health, education, economic and labour market activities, household consumption expenditure, agricultural production and rent. It also provides a household roster containing individual, demographic and dwelling characteristics. The 2019 Integrated Household Survey (IHS5), employed the 2018 Census of Population and Housing as its sampling frame and was a national representative by region across urban and rural areas. The survey was administered to approximately 11,434 households.

The study utilizes the 2015-16 Integrated Household Survey (IHS5), healthcare utilization module which recalls illness or medical conditions over the past two weeks. It also aims at estimating the propensity to visit public healthcare providers and calculate shares of all recorded visits by household type. The study employs propensity scores and shares of total

clinic and hospital-level visits estimated within the household expected public healthcare benefit received within the Integrated Household Survey (IHS5).

Total revenues collected by the government from households, including personal income tax and VAT, are sourced from the 2020 Annual Economic Report published by the Ministry of Finance, Economic Planning and Development. To estimate the "effective" or actual prevailing rates, the study scales down the expected tax take from Integrated Household Survey (IHS5) households. Scaling is performed to ensure equivalence between the ratio of tax revenues in final budget reports to Private Final Household Consumption Expenditure in Malawi National Accounts data and the ratio of VAT collections from Integrated Household Survey (IHS5) households to the cumulative IHS5 household consumption expenditure value.

The study also extracts from the 2020 Annual Economic Report the government's expenditures on electricity, the Farmer Input Support Program (FISP), and in-kind healthcare and education transfers. These subsidies and in-kind transfers are scaled equivalently to taxes. The Social Cash Transfer (SCT) program's 2020 expenditures and beneficiary total are provided by the Ministry of Community Development and Social Welfare. The study estimates the total SCT expenditures allocated among Integrated Household Survey (IHS5), households approximately to confirmed expenditures with the average transfer per household being approximately equal to the number of confirmed SCT expenditures divided by the number of confirmed SCT recipients. Consequently, the total amount of direct transfer expenditures allocated are scaled in the same manner as the other fiscal policy elements described above.

3.3.1 Allocation Overview

Where possible, the study allocates fiscal policy elements to individuals or households based on direct observation. For instance, when an individual in an Integrated Household Survey (IHS5), recalls the VAT paid on purchases or provides receipts detailing VAT payments, the study was supposed to directly observe the total VAT collection. However, in the Malawi Integrated Household Survey (IHS5), very few fiscal policy elements could

be allocated via direct observation. Hence, the study resorted to imputation and simulation, sometimes combining both. Imputation occurs when a survey unit's beneficiary (taxpayer) status must be inferred or the amount received (paid) is retrieved from administrative records or program (tax) rules rather than directly recorded in the survey. Simulation is utilized when neither direct identification nor imputation can be applied. Thus, beneficiaries (taxpayers) and the amount received (paid) are simulated based on the program (tax).

The subsequent sections provide a summary of allocation assumptions and decisions for various fiscal policy elements in this study.

3.3.2 Personal Income Taxes

Direct taxpayer status (personal income tax) is imputed based on indicators describing the level of formality in an individual's labour market participation and social security contributions. Thus, for households with at least one imputed taxpayer in the Integrated Household Survey (IHS5), the household tax burden is simulated according to the statutory marginal personal income tax rate schedule. The individual's total personal income tax burden is then scaled down to ensure equivalence between total personal income taxes collected from Integrated Household Survey (IHS5) households and total consumption expenditure value in the Integrated Household Survey (IHS5) in relation to respective ratios in budget documents and national accounts. Within the set of likely taxpayers in the Integrated Household Survey (IHS5), the distribution of concentration shares of PAYE taxes paid is replicated based on administrative records from the Malawi Revenue Authority (MRA). This replication of the concentration shares is enhanced PAYE's overall progressivity.

3.3.3 Direct Transfers

SCT beneficiary households is directly identified in the Integrated Household Survey (IHS5). Instead, the study simulates SCT eligibility based on household characteristics informing actual SCT targeting and selection. Eligible households are those residing in regions where SCT is available and meet specific criteria related to disability, dependency

ratio or female household headship. The study then employs a mixed approach of poverty-targeted and random allocation among eligible households within each SCT region. These SCT regions are represented in the Integrated Household Survey (IHS5) resulting in an overall "leakage" rate of approximately 25 percent wherein 25 percent of available SCT benefits is received by non-poor households.

The number of SCT beneficiaries in 2020, totaling to 283,000 households with 1,195,000 individuals and the corresponding benefit amounts transferred, are simulated according to program rules. Each beneficiary was getting 9000 Malawi Kwacha. The regional SCT beneficiary quotas are replicated within the Integrated Household Survey (IHS5) to match the actual SCT beneficiaries and benefits by the region.

3.3.4 Farmer Input Support Program (FISP) Subsidies

FISP provide subsidized agricultural inputs through authorized resellers. Integrated Household Survey (IHS5) households involved in agriculture that purchase fertilizer at farmer cooperatives are imputed to be FISP recipients. Approximately 900,000 households received FISP in the growing season spanning 2019-2020 based on Integrated Household Survey (IHS5) estimations. The subsidy value of a FISP purchase was 4,495 Kwacha.

3.3.5 Indirect Taxes

VAT is imputed based on household consumption expenditure records. The imputation reflects the subsidy or indirect tax payment implicit in recorded purchases. The study captures estimated impacts of energy subsidies and indirect tax policies as implemented rather than as described statutorily.

3.3.6 In-Kind Transfers

Receipt of in-kind benefits is based on directly identified utilization of public education or healthcare. The monetized value of the in-kind transfer is determined using the "government cost" approach. That is to say, total education or healthcare expenditures are divided by the total number of users in order to derive a uniform per-user cost thereby representing the value of the transfer received.

It is important to note that the estimate of the value of the benefit allocated is constrained by available information particularly, by regarding the variation in the value of services provided. Therefore, certain assumptions are made to determine average values of in-kind transfers, such as public healthcare services at the clinic level.

3.4 Conclusion

The mixed-method research design adopted for this study provides a comprehensive understanding of the impact of government fiscal policies on poverty and income distribution in Malawi. The study, offers valuable insights and policy recommendations to address the challenges faced by policymakers in balancing the budget while improving the welfare of the population.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Impact of fiscal policy using income categories

To address the impact of fiscal policies, this study adopted Commitment to equity, treatment effect model and propensity score matching. In case of high Income inequality and poverty, efforts to reduce these two critical issues remain adequate and critical. Even though there is progress in addressing these two, timely provision of support through soundly fiscal policy instrument (mechanisms) is crucial.

Table 1: Summary of Income Category used in the study

Income category	Observation	Mean	St.dev
Income without tax and transfers	11,434	235,815.20	306252.10
Income with Tax	11,434	229,836.50	255,381.40
Income with Transfers	11,434	242,204.80	313,333.60
Final income	11,434	248,143.60	375,402.00

Table 1 discusses the summary of income category in terms of Mean used in coming up with final income. The difference of income without and with fiscal policies is only 12368.40. Income categories considered include income without tax and transfers, income with tax, income with transfers and Final income (income with tax and transfers).

Table 2: Gini coefficient and Kakwani Measure of inequality across income Categories

Income category	Gini coefficient	Kakwani Measures
Income without tax and transfers	0.42083123	0.15397214
Income with Tax	0.40623056	0.14345857
Income with Transfers	0.42059411	0.15399113
Final income	0.43428769	0.16431116

The study finds out that the fiscal system reduces inequality. Table 2 summarizes inequality at different income measures and demonstrates that inequality (as measured by the Gini coefficient and Kwankwani measures) is reduced between Market Income and taxation. The reason is that non-poor households (especially the top 40 percent) observe reductions in their Market Income through the subtraction of direct personal income taxes. At the same time, everyone (including the poorest) sees his or her incomes grow through direct transfers and subsidies (somewhat attenuated by indirect taxes). Overall, using mean fin income fiscal policy does not reduce inequality. This is shown by increase of gin coefficient from 0.428 to 0.434. This attributed to the total numebr of households which affect PAYE and the amount of Transfers and benefits received by households.

Most fiscal programs are inequality-reducing. Kakwani coefficients (Table 2) compare the inequality in the shares of fiscal policy elements such as transfers or indirect taxes with the inequality in the distribution of Market Income (or any measure of without fiscal income). When a benefit (tax) is more unequally distributed than without-benefit (without-tax) income, the Kakwani coefficient takes on a negative (positive) value.

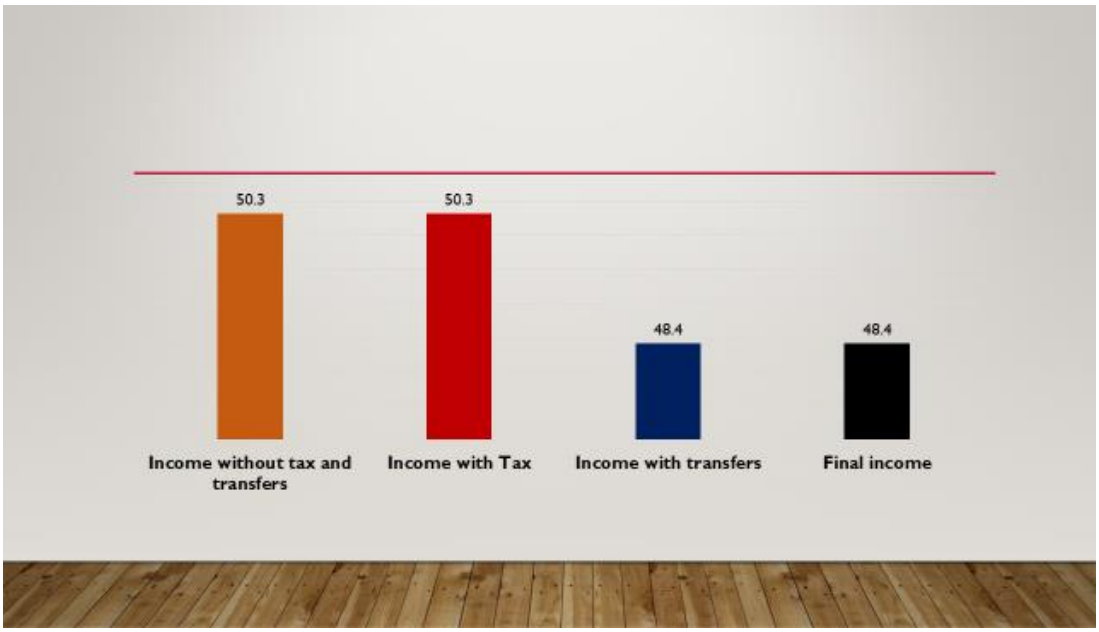


Figure 4: Poverty Status by Income Category

This study finds out that Fiscal policies especially Transfers and Benefits reduce poverty as shown in Figure 4. Calculating the poverty headcount using without and with fiscal policy, elements are applied giving a broad indication of the advantage or disadvantage created by this policy. If the poverty headcount is higher after the policy has been applied, the policy has disadvantaged some individuals. However, any individual receiving (as benefits) a fiscal expenditure sees his or her income increase. On the other hand, any person paying a tax (or other revenue collection) sees her or his income decrease. Overall, the fiscal system adds less income to fewer of the pre-fiscal poor and takes away more income from more of the post-fiscal poor. By now, the result is familiar: on net, the poverty headcount increases between Market Income and Consumable Income.

4.2 Social Cash Transfer Program (SCTP)

To address the impact of social cash transfer Program (SCTP) on poverty, a treatment effect model was adopted and the propensity score matching (PSM) method was used. In this study, 22,868 observations were matched out of which 536 were in the treated and untreated groups (as shown in the Appendix 1). The standardized differences of the matched data

were approaching zero and the variation ratios were approaching 1 which is considered a sign of covariate balance.

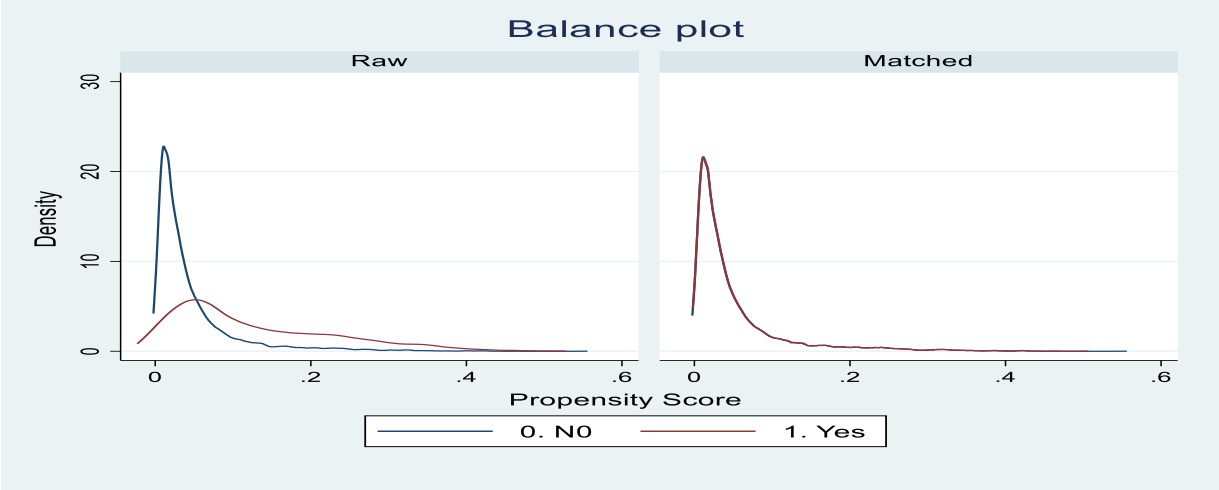


Figure 5: Propensity Distribution graph on SCTPS

Source: Author's own calculation using IHS5 dataset and STATA program.

Secondly, the overlap condition was verified, and a common support of the treatment group was identified. Figure 5 shows the overlap condition where the observations in the treated group and untreated groups were plotted given their corresponding propensity score. The existence of common support is seen by the overlapping of the two curves.

Table 3: Average Treatment Effect on the Treated on SCTP

log expenditure of Social Cash Transfer Program	**Coefficient**	**P-value**
Average Treatment Effect on Treated ATE		
SCTP beneficiary	0.1345378***	0.003
	(-0.0459253)	

Source: Author's own calculation using IHS5 dataset and STATA program.

Table 3 shows that the estimated Average Treatment Effect on the Treated (ATET) was 0.1345 with a standard error of -0.045 and this result was statistically significant. This means that Social Cash Transfer Program on average increases the consumption per capita of those that have benefited from it by 13.4 %. Thus, implying a positive impact of Social Cash Transfer Program on welfare.

4.3 The Impact of Social Cash Transfer Program on Welfare Inequality

The main objective of this study was to examine the impact of social cash Transfer Program on welfare inequality among Malawian households. To assess the impact of Social Cash Transfer Program on welfare inequality, the Generalized Lorenz curve as well as the Theil Indexes and the Gini coefficient were used. Finally, the decomposition of the Theil Indexes was used to examine whether the disparities in welfare were Social Cash Transfer Program driven (between-group dominated Inequality) or were due to other factors unrelated to access to credit (within group dominated inequality) as shown in graph 4.

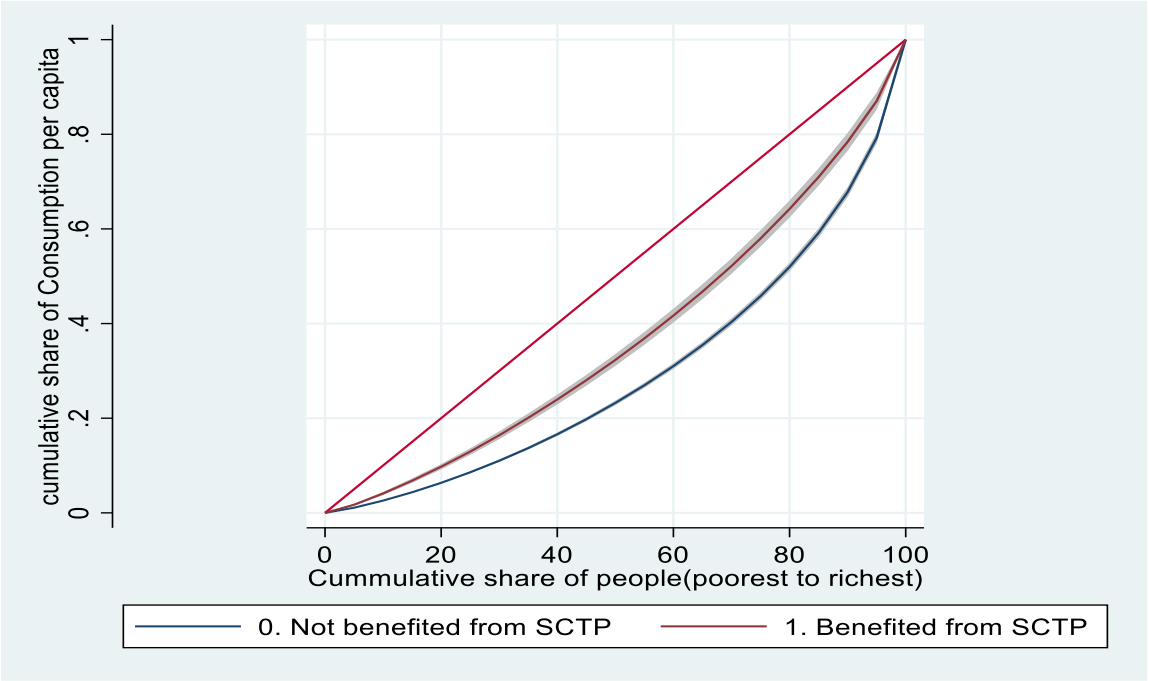


Figure 6: The Generalized Lorenz Curve for people who benefited from Social Cash transfer program and those who did not

Source: Author's own calculation using IHS5 dataset and STATA program.

Figure 6 depicts the Generalized Lorenz curve for those that had benefited from social cash Transfer Program and those that did not along side with the line of equality. The curve shows a gap between the line of equality and the Lorenz curves of those that benefited from social cash transfer program and those that did not. Both Lorenz curves lie below the

equality depicting that the rich have much larger consumption shares than the poor. However, inequality is more prominent among the households that did not benefit from social cash transfer program. This is shown by the Lorenz curve of those that benefited from social cash transfer program being much closer to the equality line. Thus, implying that social cash transfer program places people much closer to a state of equality.

To further assess the viability of the implications made above, Theil Indexes were computed and compared among the two groups. Table 4 below presents the Theil indexes and the Gini index of households that benefited from social cash transfer program and those who did not.

Table 4: Theil Indexes and The Gini Coefficient on SCTP

Observations	Theil's L Index	Theil's T Index	Gini
SCTP beneficiary	0.11765	0.14539	0.25967
Non-beneficiary	0.31888	0.62344	0.4083

The results show that the Gini coefficient and Theil indexes are much higher among households that do not benefit from Social Cash Transfer Program. This implies that inequality is much higher among households that do not benefit from social cash Transfer program which is consistent with the results shown by the generalized Lorenz curve.

4.4 Impact of Farm Input Subsidy Program (FISP) on welfare and inequality

FISP was implemented with the primary purpose of supporting the poor smallholder farmers to achieve food security at household level and increase income through enhanced maize and legume production, (Joseph P. Messina, Re-evaluating the Malawian Farm Input Subsidy Programme, 2017). Soon after deploying the program, it received several praises due to its impact on maize harvest and involvement of the private sector. Furthermore, maize production almost doubled compared to the previous year which led to an improved food security and nutritional status of Malawian citizens (Lipper, 2018). However,

overtime the program has been criticized on its financial, social and environmental sustainability. This has prompted policy makers to contentiously debate or opt for other programs or modification of FISP, (Joseph P. Messina, Re-evaluating the Malawian Farm Input Subsidy Programme, 2017).

4.5 Average Treatment on Treated (ATE) of FISP

This stage involves the estimation of the impact of Farm Input program (FISP) using the selected outcome which is expenditure per capita as a result of subsidy intervention. Thus, after estimating the ATE, we can safely conclude that any significant difference between the beneficiaries and the non-beneficiaries can only be attributed to benefiting from FISP alone.

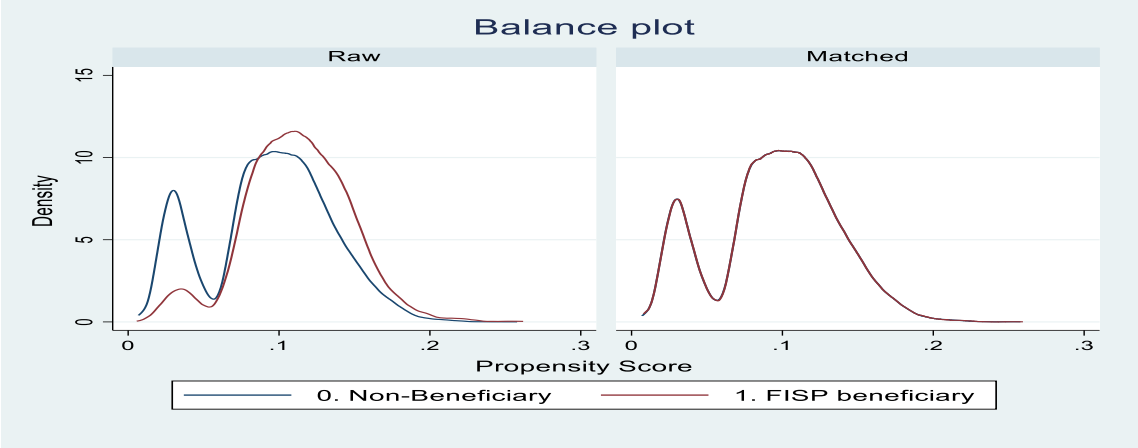


Figure 7: Propensity distribution graph on FISP

Source: Author's own calculation using IHS5 dataset and STATA program

As shown in Figure 7, the significant differences were analyzed based on one outcome variable which is the log of real annual household expenditure per capita as a result of FISP that was a proxy for household income. Secondly, the overlap condition was verified, and a common support of the treatment group was identified. Graph 5 shows the overlap condition where the observations in the treated group and untreated groups were plotted given their corresponding propensity score. The existence of common support is seen by the overlapping of the two curves in Figure 7 and appendix 7 where the propensity score

histogram shows the existence of observations in the treated and untreated groups with similar propensity scores.

Table 5: Average Treatment Effect on the Treated on FISP

log expenditure of Farm Input Subsidy Programme (FISP)	Coefficient	P-value
Average Treatment Effect on Treated ATE		
FISP beneficiary	-0.0124	0.603
	(0.0240)	

Source: Author's own calculation using IHS5 dataset and STATA program.

The estimated Average Treatment Effect on the Treated (ATET) was -0.0124 with a standard error of 0.0240 and this result was not statistically significant. This means that Farm Input Subsidy Programme (FISP), on average, does not have any effect on the consumption per capita. Thus, implying no impact of Farm Input Subsidy Programme (FISP) on welfare as shown in Table 5.

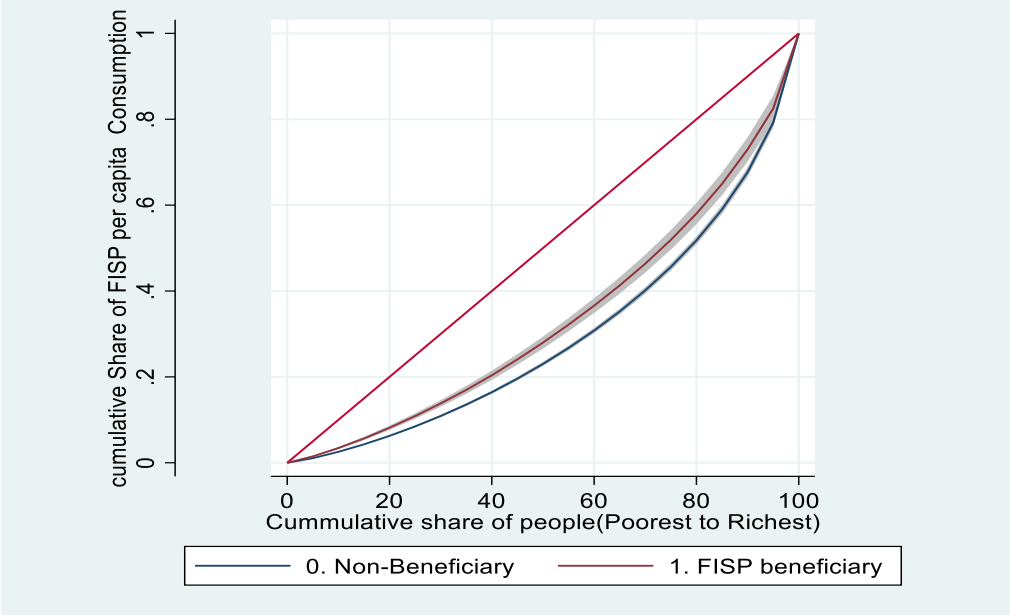


Figure 8: The Generalized Lorenz Curve for people who benefited from Farm Input Subsidy Programme (FISP) and those who did not

Source: Author's own calculation using IHS5 dataset and STATA program.

Figure 7 depicts the Generalized Lorenz curve for those that had benefited from Farm Input Subsidy Programme (FISP) and those that did not along with the line of equality. The curve shows a gap between the line of equality and the Lorenz curves of those that benefited from Farm Input Subsidy Programme (FISP) and those that do not. Both Lorenz curves lie below the equality depicting that the rich have much larger consumption shares than the poor, however inequality is more prominent among the households that did not benefit from Farm Input Subsidy Programme (FISP). This is shown by the Lorenz curve of those that benefited from Farm Input Subsidy Programme (FISP) being much closer to the equality line. Thus, implying that Farm Input Subsidy Programme (FISP) places people much closer to a state of equality.

Table 6: Theil indexes and the Gini coefficient

Observations	Theil's L Index	Theil's T Index	Gini
FISP beneficiary	0.21697	0.39350	0.33318
Non-beneficiary	0.32204	0.62876	0.41098

Source: Author's own calculation using IHS5 dataset and STATA program.

To further assess the viability of the implications made above, Theil Indexes were computed and compared among the two groups. Table 6 above presents the Theil indexes and the Gini index of households that benefited from Farm Input Subsidy Programme (FISP) and those who did not.

The results show that the Gini coefficient and Theil indexes are much higher among households that do not benefit from Farm Input Subsidy Programme (FISP). This implies that inequality is much higher among households that do not benefit from Farm Input Subsidy Programme (FISP) which is consistent with the results shown by the generalized Lorenz curve in graph 6 as well as Gini and Theil index in Table 6.

4.6 Impact of educational expenditure on welfare and inequality

Malawi recognizes that education is the heart of the Sustainable Development Goals (SDGs) and African Union Agenda 2030 and education is essential for the success of all the other goals stipulated in the SDGs. As such, each and every year, most governments, particularly in emerging economies, Malawi inclusive, are spending significant resources to educational services with the primary objective of enhancing the level, quantity, and quality of their human capital (Nuru, 2020). These expenditures can take into account the salaries, operational costs, bursaries and students' loans. Inadequate investment in this critical sector of society leads to low output and quality. Countries having high percentage of their total population uneducated or with a low level of quality education find it difficult to considerably increase their economic growth and improve their standard of living (Zahid, 2013). As such, financial contribution towards education sector remains very imperative. Despite government efforts in contributing towards education attainment, much have not been done on understanding the impact of the share of government expenditure on education in Malawian context. As such, the results below show such contribution in monetary terms. In order to assess the impact of education expenditure on welfare, PSM approach was used.one of the condition is to make sure that overlapping condition of the treatment group is satisfied.

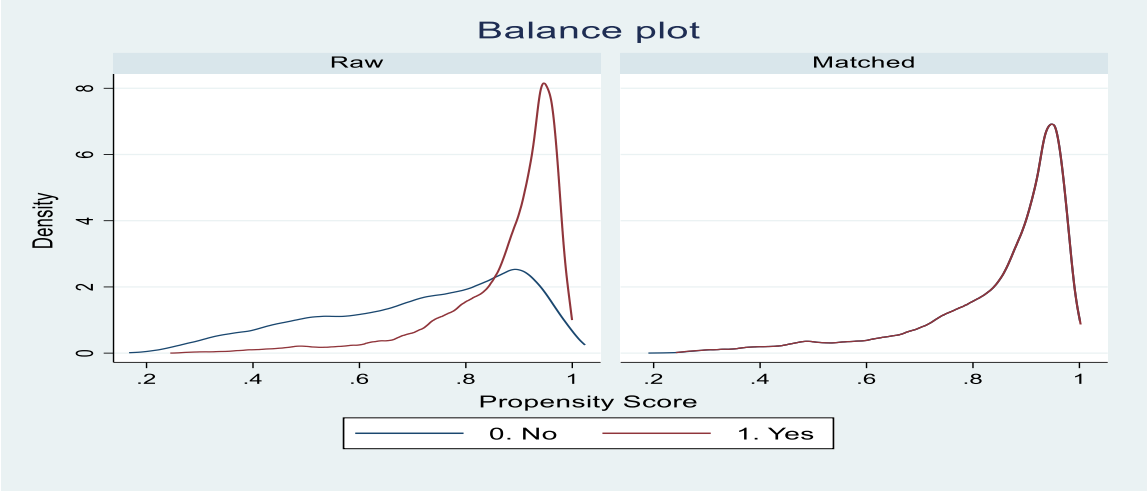


Figure 9: Propensity distribution graph on Education

Figure 9 shows the overlap condition where the observations in the treated group and untreated groups were plotted given their corresponding propensity score. The existence of common support is seen by the overlapping of the two curves in graph 7 which shows the existence of observations in the treated and untreated groups with similar propensity scores.

Table 7: Average Treatment Effect on the Treated Education Expenditure

log expenditure of Education expenditure	Coefficient	P-value
Average Treatment Effect on Treated ATE		
Education attainment	0.1786***	0.000
	(0.0171)	

Source: Author's own calculation using IHS5 dataset and STATA program.

As shown in Table 7, the estimated Average Treatment Effect on the Treated (ATET) was 0.1786 with a standard error of 0.0171 and this result was statistically significant. This means that government educational expenditure on average increases the consumption per capita of those that have benefited from it by 1.7 %. Thus, implying a positive impact of government educational expenditure on welfare.

4.7 The Impact of Educational expenditure on Welfare Inequality

The other main objective of this study was to examine the impact of government expenditure's share on education on welfare inequality among Malawian households. To assess the impact of share of government expenditure on education on welfare inequality, the Generalized Lorenz curve as well as the Theil Indexes and the Gini coefficient were used.

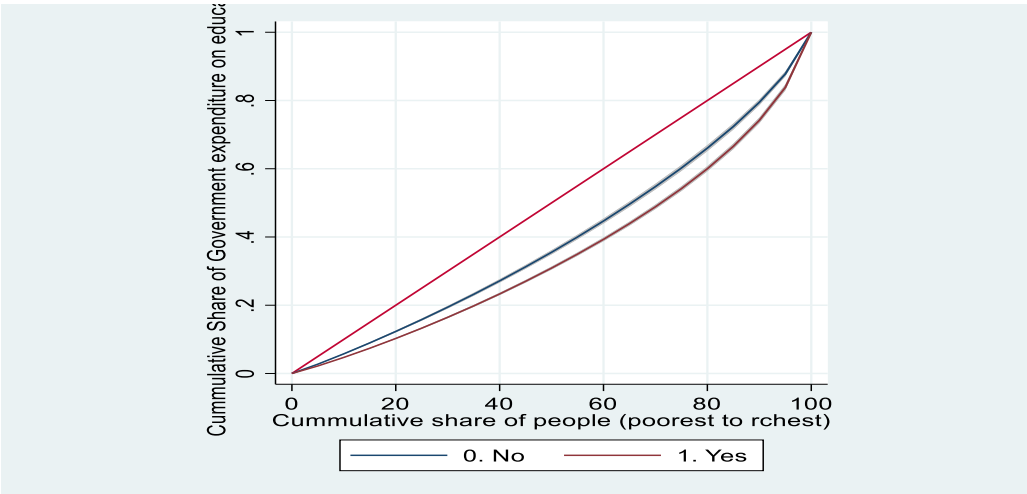


Figure 10: Lorenz curve on education expenditure

Figure 10 depicts the Generalized Lorenz curve for those that had benefited from share of government expenditure on education and those that did not along with the line of equality. The curve shows a gap between the line of equality and the Lorenz curves of those that benefited from share of government expenditure on education and those that did not. Both Lorenz curves lie below the equality depicting that those who benefited from share of government expenditure on education have much larger consumption shares than those who did not benefit. However, inequality is more prominent among the households that benefited from share of government expenditure on education. This is shown by the Lorenz curve of those that households that did not benefit from share of government expenditure on education being much closer to the equality line. Thus, implying that the share of government expenditure on education brings inequality.

Table 8: Theil Indexes and The Gini Coefficient on Education

Observations	**Theil's L Index**	**Theil's T Index**	**Gini**
Education attainment	0.17257	0.31870	0.29129
No education attainment	0.08320	0.10363	0.21434

Finally, as in Table 8, the decomposition of the Theil Indexes was used to examine whether the disparities in welfare were benefiting from government expenditure through education support driven (between-group dominated Inequality) or were due to other factors unrelated to expenditure share on education by government (within group dominated inequality).

To further analyze the magnitude of variability as a result of benefiting from share of government expenditure on education, Theil Indexes were computed and compared among the two groups. Table 8 below presents the Theil indexes and the Gini index of households that benefited from government bursaries and those who did not.

The results show that the Gini coefficient and Theil indexes are much higher among households that benefit from government expenditure on education. This implies that inequality is much higher among households that benefit from education sponsorship programs which is consistent with the results shown by the generalized Lorenz curve.

4.8 Impact of health expenditure on welfare and inequality

Quality health access remains the greatest issue developing countries are striving to achieve by 2030. Government plays a mojor role in trying to provide the health care through infrustructure development and huma capital. Investing in health care is quite high in countries where poverty and inequality is high. This requires enough capital to address inequaitties in the health sector.

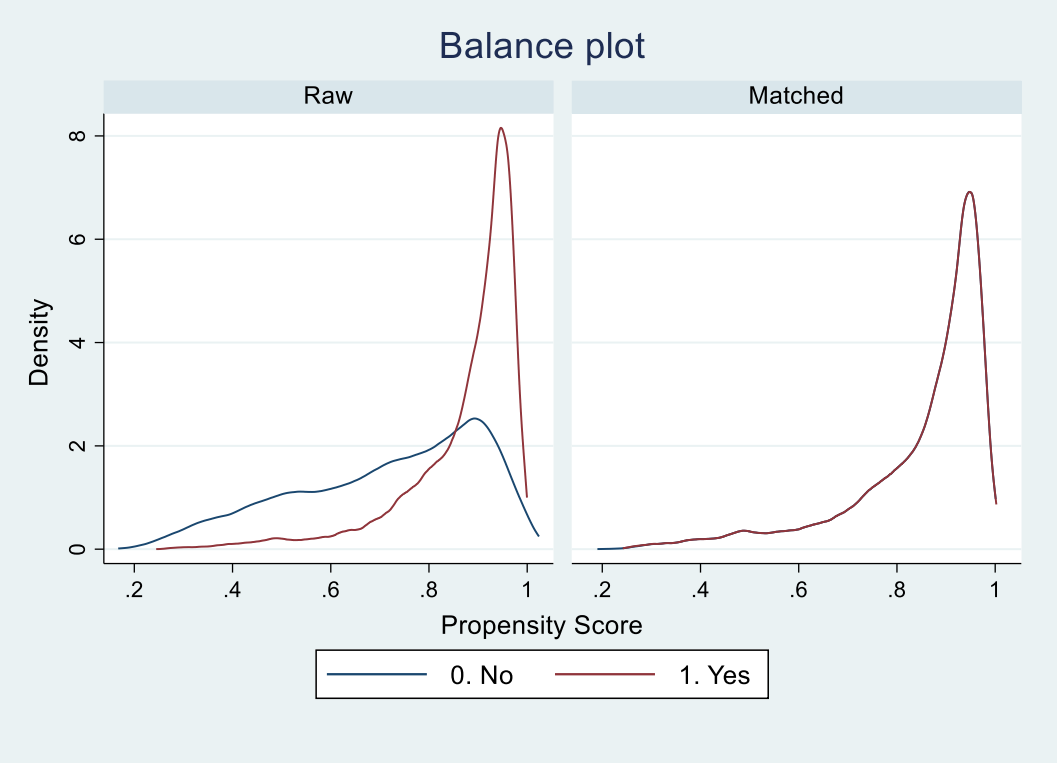


Figure 11: Propensity distribution graph on Health

Source: Author's own calculation using IHS5 dataset and STATA program.

The study adopted the Propensity Score Matching (PSM) method to assess the impact of health expenditure on household welfare(per capita income). To ensure that the PSM approach is sufficient, overlappimng condition must be satisfied to have common support where analysis can be done as shown in Figure 11.

Table 9: Average Treatment Effect on the Treated on Health Expenditures

log expenditure of Health expenditure	**Coefficient**	**P-value**
Average Treatment Effect on Treated ATE		
Visit clinic	-0.0086	0.403
	(0.0103)	

Source: Author's own calculation using IHS5 dataset and STATA program.

The estimated Average Treatment Effect on the Treated (ATET) was -0.0086 with a standard error of 0.0103 and this result was not statistically significant. This means that government expenditure on health, on average, does not have any effect on the

consumption per capita. Thus, implying no impact of health expenditure on welfare as shown in Table 9.

4.9 The Impact of Educational expenditure on Welfare Inequality

The other main objective of this study was to examine the impact of government expenditure's share on health on welfare inequality among Malawian households. To assess the impact of share of government expenditure on health on welfare inequality, the Generalized Lorenz curve, the Theil Indexes and the Gini coefficient were used. Finally, the decomposition of the Theil Indexes was used to examine whether the disparities in welfare were benefiting from government expenditure through health driven (between-group dominated Inequality) or due to other factors unrelated to expenditure share on health by government (within group dominated inequality).

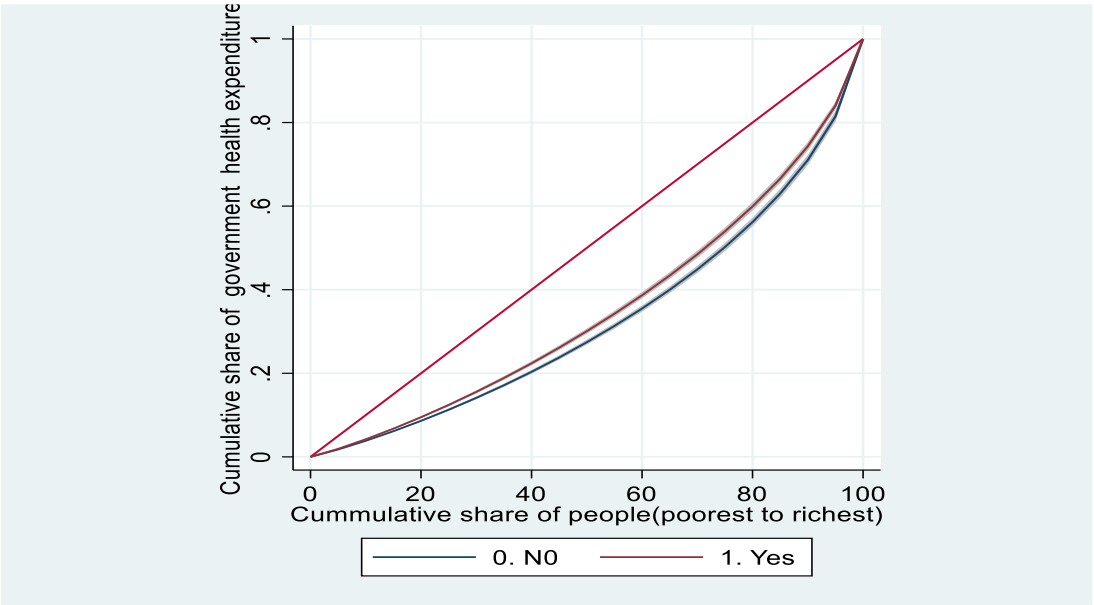


Figure 12: The Generalized Lorenz Curve for people who benefited from share of government health expenditure and those who did not

Source: Author's own calculation using IHS5 dataset and STATA program.

Figure 12 depicts the Generalized Lorenz curve for those that had benefited from health expenditure and those that did not along with the line of equality. The curve shows a gap between the line of equality and the Lorenz curves of those that benefited from health

expenditure and those that did not. Both Lorenz curves lie below the equality depicting that the rich have much larger consumption shares than the poor, however inequality is more prominent among the households that did not benefit from health expenditure from government. This is shown by the Lorenz curve of those that benefited from health expenditure being much closer to the equality line. Thus, implying that health expenditure on government places people much closer to a state of equality.

To further the extent of variability as a result of benefiting from share of government expenditure on health, Theil Indexes were computed and compared among the two groups. Table 10 below presents the Theil indexes and the Gini index of households that benefited from government health share and those who did not.

Table 10: Theil Indexes and The Gini Coefficient on Health expenditures

Observations	Theil's L Index	Theil's T Index	Gini
Visited clinic	0.16672	0.23906	0.30074
Not visited clinic	0.23915	0.47868	0.34499

Source: Author's own calculation using IHS5 dataset and STATA program.

The results show that the Gini coefficient and Theil indexes are much higher among households that do not benefit from health expenditure. This implies that inequality is much higher among households that do not benefit from share of government health expenditure which is consistent with the results shown by the generalized Lorenz curve.

4.10 Conclusion

The analysis indicates that fiscal systems have a modest impact on reducing inequality, with mixed results on poverty alleviation. Income disparities before and after the implementation of fiscal policies show an average increase of MWK 12,368.40, highlighting their limited effect. The Gini coefficient rises slightly from 0.428 to 0.434,

suggesting that fiscal measures alone are not sufficient to significantly address inequality. The SCTP contributes positively to welfare by increasing beneficiaries' per capita consumption by 13.4%. In contrast, FISP demonstrates no notable impact on per capita consumption, raising concerns about its effectiveness. Educational expenditures enhance welfare, whereas health expenditures show no significant influence. In summary, the findings suggest that while fiscal policies have certain benefits, particularly in reducing inequality and supporting vulnerable households, their overall impact is constrained.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Recommendations

The paper recommends Enhancing Fiscal Policies. That is to say, there is a need to strengthen the design and implementation of fiscal policies to ensure broader and equitable coverage, particularly, for the poorest households. There is also a need to Increase direct transfers to marginalized groups while minimizing indirect tax burdens to address inequality and poverty effectively.

The paper also recommends Improving SCTP and reforming FISP. There is a need to Expand SCTP coverage and enhance targeting mechanisms to include more vulnerable households. This will ensure timely disbursements and integration of complementary services such as financial literacy and livelihood training thereby, amplifying welfare impacts. There is also a need to Conduct a comprehensive review of FISP to address sustainability concerns and improve efficiency. It is also worth-noting that transition to more inclusive agricultural policies such as universal input vouchers or alternative support systems, will strongly benefit a broader base of smallholder farmers.

The paper recommend Optimizing Educational Expenditure and Strengthening Healthcare Investments. There is a need to address disparities in education access by prioritizing investments in underprivileged areas. Increase public health expenditure to improve access and quality of healthcare services, particularly, in rural areas. It is also of paramount importance to focus on preventive care and the development of community-based health programs to reduce long-term costs and improve outcomes.

5.2 Future Research Suggestions

To address gaps from this research future studies can provide deeper insights and practical solutions to enhance the effectiveness of fiscal policies and government expenditure programs in Malawi. Some of the suggested topics include but not limited to:

- Evaluate how SCTP and FISP targeting can better include the most vulnerable, such as geographically isolated or landless households.
- Study the sustainability of welfare improvements from programs like SCTP and FISP on poverty and inequality reduction over time.
- Investigate structural disparities causing increased inequality despite educational expenditure.
- Assess the integration of SCTP, FISP and other fiscal policies for comprehensive welfare improvement.
- Examine variations in program impacts across regions and demographics to design tailored interventions.

5.3 Conclusion Summary

The study assessed the impacts of fiscal policies and government expenditure programs on welfare and inequality among Malawian households. Key findings reveal that while fiscal policies like taxation and transfers aim at reducing inequality, limitations in targeting and coverage hinder their overall effectiveness. Poverty reduction is noted through targeted transfers like SCTP but the poverty headcount paradoxically increases, thereby, necessitating more equitable measures. The Social Cash Transfer Program (SCTP) demonstrated positive effects on welfare by increasing consumption and reducing inequality. However, disparities in coverage and targeting persist requiring improvements to maximize its benefits for vulnerable households.

The Farm Input Subsidy Program (FISP) has a modest redistribution effect thus, reducing inequality among beneficiaries but showing minimal welfare impact overall. Concerns about its sustainability and cost-effectiveness indicate an urgent need for reform to benefit a broader base of smallholder farmers. Spending on education improves welfare by increasing consumption among beneficiaries but paradoxically exacerbates inequality due

to disparities in access. Health expenditure, on the other hand, shows no significant welfare improvement by highlighting inefficiencies in healthcare delivery systems.

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APPENDICES

Appendix 1: Covariate balance summary SCTP

	Raw	Matched
Number of observations	11,434	22,868
Treated observations	563	11,434
Control observations	10,871 11,434	11,434

Appendix 2: Standardized Differences and Variance Ratio SCTP

	Standardized differences		Variance Ratio	
	Raw	Matched	Raw	Matched
Sex_HH	-0.656	0.027	1.184	0.976
Age_hh	0.902	0.028	1.363	0.996
Maritalstatus~h	0.674	-0.067	1.290	0.887
household_size	-0.027	0.045	1.430	0.816
location	-0.497	0.004	0.233	1.007

Appendix 3: Covariate balance summary on FISP

	Raw	Matched
Number of observations	11,434	22,868
Treated observations	1,092	11,434
Control observations	10,342	11,434

Appendix 4: Standardized Differences and Variance Ratio on FISP

	Standardized	Differences	Variance	Ratio
	Raw	Matched	Raw	Matched
Age_hh	0.283766	0.0225373	1.097864	.9979889
Sex_HH	-0.13578	0.0833458	1.107133	.9218868
Maritalstatus~h	0.013749	-0.0694041	.9059224	.9418388
household_size	0.127236	0.1193566	1.033033	1.005783
location	-0.41375	0.0259697	.3607921	1.042371

Appendix 5: Covariate balance summary on Health Expenditure

	Raw	Matched
Number of obs	11,434	22,868
Treated obs	3,694	11,434
Control obs	7,740	11,434

Appendix 6: Standardized Differences and Variance Ratio on health

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
Age_hh	0.2776243	0.0003549	1.410872	1.034646
Sex_HH	-0.2413416	0.0105352	1.206668	0.990637
Maritalstatus~h	0.1867561	-0.0337928	1.123371	0.924357
household_size	-0.0562713	0.0106906	1.131733	1.030466
location	-0.2258287	-0.0153805	0.66439	0.97419

Appendix 7: Histogram graph on FISP