ESTIMATING THE EXTRA COST OF LIVING WITH DISABILITY IN MALAWI

MASTER OF ARTS (ECONOMICS) THESIS

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By

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DECLARATION

I, hereby declare that this thesis is my original work and has not been submitted to any other institution for similar purposes. Acknowledgements have been duly made where other people's work has been used. I bear responsibility for the content of this paper.

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Signature

22nd December 2024

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Date

CERTIFICATE OF APPROVAL

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

Signature: _____ Date: _____

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Supervisor

DEDICATION

To my beloved wife and son who gave me full support during the making of this thesis. This paper is for you.

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ABSTRACT

Disability-related costs remain an underexplored topic in Malawi, with few studies addressing the economic burden faced by individuals with disabilities. These individuals often incur additional living expenses to participate in social and economic activities at the same level as those without disabilities. Ignoring these extra costs can adversely affect their financial stability and well-being. This study aims to estimate the additional costs of living associated with disabilities in Malawi, using nationally representative data. The study employed the standard of living technique, which compares the income levels of households with and without persons with disabilities against a standard measure of living conditions. Using data from the Malawi Integrated Household Survey (IHS5), conducted across the Southern, Central, and Northern regions of Malawi, the analysis applied Ordinary Least Squares regression to estimate disability-related costs. The results indicated that households with a member who has a disability spend 8% less income compared to households without a person with a disability. The findings showed that being a person with a disability decreases the standard of living by 0.056. However, no significant "disability penalty" or measurable extra cost related to disability was identified in this study. These findings suggest that households with persons with disabilities may rely on coping strategies, social protection programs, or other support systems to mitigate their financial burdens. The study highlights the need for further research to understand the complex dynamics of disability-related costs in Malawi, informing inclusive policies and interventions.

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ABBREVIATIONS

CBR	Community-Based Rehabilitation
CRC	Committee on the Rights of a Child
CRPD	Convention on the Rights of Persons with Disabilities
FEDOMA	Federation of Disability Organizations in Malawi
GoM	Government of Malawi
ICF	International Classification of Functioning, Disability and Health
ICIDH	Classification of Impairments, Disabilities and Handicaps
IHS	Integrated Household Survey
MACOHA	Malawi Council for the Handicapped
MGDS	Millennium Development Goals
MPHC	Malawi Population and Housing Census
NSO	National Statistics Office
PWD	Persons with Disabilities
SDG	Sustainable Development Goals
SoL	Standard of Living
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WHS	World Health Survey

CHAPTER ONE

INTRODUCTION

1.1 Chapter overview

This chapter provides an overview of the foundational elements of the study. Section 1.2 presents the background, highlighting the broader global, regional, and local context that frames the study. Section 1.3 details the problem statement, identifying the key issues and gaps this research seeks to address. Section 1.4 explains the significance of the study, emphasizing its relevance and potential contributions. Section 1.5 outlines the objectives of the study, providing clear direction for the research. Section 1.6 introduces the hypotheses that guide the investigation, and finally, Section 1.7 explains the organization of the thesis, summarizing the structure and content of the subsequent chapters.

1.2 Background

Addressing the additional costs associated with disability is a crucial step towards reducing social exclusion and fostering greater inclusion for individuals with disabilities. The Sustainable Development Goals (SDGs), particularly Goal 10, emphasize empowering and promoting the social, economic, and political inclusion of all people, including those with disabilities, by 2030 (Cullinan et al., 2011). Disability, intertwined with poverty and well-being, has become a focal issue in global efforts to address inequality. Notably, references to disability are embedded throughout the SDGs, underscoring its critical role in the discourse on equity and development.

Globally, the financial implications of living with a disability extend beyond direct medical expenses. Mitra et al. (2017) underscore that households with individuals living with disabilities often face higher costs to maintain a standard of living comparable to their counterparts without disabilities. Such expenses are compounded by the additional financial burdens of accessing goods, services, and opportunities for equal participation in society.

Studies employing the Standard of Living (SoL) approach demonstrate that individuals with disabilities require significantly more income to achieve similar well-being metrics to those without disabilities (Mont et al., 2022). Furthermore, Goodman et al. (2017) report that adults with disabilities are disproportionately affected by financial instability, with higher incidences of overdue medical bills, reliance on alternative financial services, and limited long-term financial planning.

Amartya Sen (2004) categorizes the disadvantages faced by individuals with disabilities into two primary dimensions: earnings disadvantages and conversion disadvantages. The former refers to systemic barriers such as limited access to education, discrimination, and inadequate accommodations, which hinder employment and income-earning potential. The latter involves the challenges in translating income into equivalent outcomes due to the additional expenses tied to disability-related needs, such as assistive devices or specialized care. Current research largely focuses on quantifying these conversion disadvantages to better understand and address the economic impacts of disability (Morris et al., 2022).

From a regional perspective, Africa exhibits some of the highest prevalence rates of disability, influenced by factors such as infectious diseases, injuries, and limited healthcare infrastructure. Bickenbach (2011) highlights that young people under 60 years old are disproportionately affected by severe and moderate disabilities in the region. In countries like Sierra Leone, disability prevalence can reach as high as 17.1%, although varying methodologies across studies complicate direct comparisons (Cannata et al., 2022). Malawi, as a case study, offers insights into the lived experiences of individuals with disabilities in sub-Saharan Africa. National surveys and reports suggest a growing recognition of the socio-economic challenges faced by this demographic.

In Malawi, disability prevalence rates have fluctuated based on survey methodologies and definitions. The World Health Survey (2003) estimated that 13% of Malawians aged 15–65 live with a disability, while the Living Conditions of Persons with Activity Limitations survey pegged the prevalence at 4.2% (Loeb & Eide, 2004). These findings indicate that individuals with disabilities face systemic inequities in employment, education, and access to resources.

For example, Eide and Munthali (2017) found that 58% of Malawians with disabilities were unemployed compared to 53% of those without disabilities, with gender disparities further exacerbating the situation. Women with disabilities experience lower levels of education, employment, and social engagement compared to their male counterparts, reflecting broader patterns of intersectional inequality.

At the household level, families with persons living with disabilities tend to exhibit lower living standards across key indicators, including dietary diversity, socio-economic status, and access to information. Dependency ratios, which are higher in these households, further underscore the economic pressures they face (Eide & Munthali, 2017). Additionally, rural households with persons living with disabilities experience heightened disparities in income, infrastructure, and access to basic services compared to urban counterparts. These findings align with broader regional trends that point to the need for targeted interventions.

In conclusion, addressing the disparities faced by individuals with disabilities requires a multifaceted approach that accounts for their unique economic and social challenges. Bridging the gaps in employment, education, and resource access necessitates collaborative efforts at the global, regional, and local levels. By understanding the systemic barriers and additional costs borne by this marginalized group, policymakers can develop targeted strategies to promote inclusion and equity.

1.3 Problem Statement

An increasing body of research has highlighted the intricate relationship between poverty and disability, with evidence suggesting a bidirectional link where poverty exacerbates disability and disability perpetuates poverty (Minh et al., 2015; Palmer, 2011). Globally, individuals with disabilities face substantial additional costs of living. Studies from developed nations, such as Martin and White (1988), Berthoud et al. (1993), Zaidi and Burchardt (2003), Saunders (2006), Cullinan et al. (2011), and Parodi and Sciulli (2012), have consistently demonstrated that living with a disability imposes significant economic burdens on households. These costs include direct expenses such as healthcare, assistive devices, and home modifications, as well as indirect costs such as loss of income due to limited employment opportunities and the burden of caregiving responsibilities (Mitra et al., 2017; Braithwaite and Mont, 2009). Furthermore,

recent studies in developed countries reveal that these additional costs often exceed the financial resources provided by social protection mechanisms, leading to worsening inequality (Morris and Zaidi, 2020).

Regionally, research from low- and middle-income countries, including sub-Saharan Africa, corroborates these findings. For instance, Mitra et al. (2013) and Hanass-Hancock and McKenzie (2017) demonstrated that households with persons with disabilities experience higher financial burdens and are more likely to fall into poverty. Similarly, Groce et al. (2011) emphasized that disability-related expenses in resource-constrained settings often go unaddressed due to weak social safety nets and limited access to public services. Banks et al. (2017) highlighted that persons with disabilities in the Global South face compounded economic challenges stemming from systemic discrimination, inaccessible infrastructure, and inadequate healthcare systems. Although some studies in sub-Saharan Africa (e.g., Mactaggart et al., 2018) have attempted to estimate the economic implications of disability, these efforts often lack disaggregated data to capture the full spectrum of costs at the household level. This literature underscores a significant knowledge gap in the economic burden borne by households with disabilities, particularly in Malawi.

In Malawi, despite visible efforts to enhance the well-being of persons with disabilities, a fundamental obstacle remains the absence of thorough data on the costs associated with disabilities borne by individuals and their households. These costs encompass a broad spectrum of direct expenses such as medical treatment, assistive tools, and rehabilitation services, as well as indirect costs like employment discrimination, inaccessible workplaces, and transportation difficulties. Research by Mactaggart et al. (2018) and Mbewe et al. (2021) highlights that persons with disabilities in Malawi often face significant barriers to accessing education and employment opportunities, exacerbating their economic challenges. For example, individuals with mobility impairments may face added expenses due to their dependence on specialized transportation services, while those with sensory disabilities often require costly assistive technologies for communication and education (Groce et al., 2011; Palmer et al., 2021).

Furthermore, Chirwa et al. (2016) identified that families with disabled persons with disabilities frequently incur additional costs related to caregiving, which can strain household finances and limit resources available for other essential needs. The United Nations Convention on the Rights of Persons with Disabilities (CRPD) highlights the need for data-driven strategies to mitigate such barriers; yet, Malawi continues to lack detailed evidence on these economic challenges. Recent assessments by the World Bank (2020) indicate that without targeted interventions, the economic disparities faced by individuals with disabilities are likely to persist, further entrenching cycles of poverty and exclusion.

Despite increasing awareness of these issues, there has not been a systematic study conducted in Malawi to estimate the additional living costs associated with disability. This absence of data poses a significant obstacle to developing evidence-based policies and targeted interventions aimed at alleviating the economic burden on individuals with disabilities. By addressing this gap, this study aims to offer crucial insights into the economic challenges encountered by Malawians with disabilities. These findings will emphasize the necessity of creating inclusive policies and frameworks aligned with global goals of equity and social inclusion, such as the Sustainable Development Goals (SDG 1, 3, and 10), to ensure that no one is left behind.

1.4 Significance of the study

This study makes a significant academic contribution by addressing critical theoretical gaps in disability studies, particularly in the context of Malawi. The growing population of individuals with disabilities, coupled with their deteriorating living conditions, necessitates a more nuanced understanding of the socio-economic challenges they face. While existing literature, such as the work of Eide and Munthali (2017), highlights the disparities between households with and without persons living with disabilities, there remains a gap in research specifically quantifying the economic costs associated with disability. This study aims to fill that gap by developing a framework for estimating the additional expenses incurred by individuals with disabilities, contributing to the broader academic discourse on disability and well-being.

The academic value of this research extends beyond addressing empirical gaps. Through the utilization of the Standard of Living (SoL) approach and regression-based methodologies, this study contributes to the development of new methodologies for assessing the economic impact of disability. Previous research has frequently overlooked the particular financial burdens faced by persons with disabilities in developing countries such as Malawi, where economic resources are limited, and social protection systems may be underdeveloped. The use of quantitative methods in this study to evaluate these costs establishes a groundwork for future research, allowing scholars to implement and enhance similar methodologies in other regional and global contexts.

Furthermore, the findings of this research have important implications for existing theoretical frameworks in disability studies. By incorporating variables such as gender, rural/urban residency, and socio-economic position, the study offers a more comprehensive understanding of how disability interacts with broader socio-economic factors. It builds on the work of Sen (2004), who identified the disadvantages faced by individuals with disabilities, especially in converting income into a desirable standard of living. This study will advance those theoretical models by introducing new dimensions, such as the specific costs of disability-related needs (e.g., healthcare, transportation), which are often omitted in policy and economic studies.

While the study is grounded in academic theory, it also offers practical insights for policy development. Understanding the financial implications of disability is crucial for crafting effective policies that address the unique needs of persons with disabilities in Malawi. Given the high poverty rates in the country, persons with disabilities are often excluded from the socio-economic mainstream, further exacerbating their marginalization. By quantifying these additional costs, this study provides critical data that can inform resource allocation decisions and enhance social protection programs. The findings will help policymakers design more inclusive and targeted interventions, particularly in areas like healthcare access, transportation, and employment, which directly affect the quality of life for individuals with disabilities.

In addition, this study plays a vital role in raising awareness and promoting inclusivity in Malawian society. Individuals with disabilities frequently face social exclusion, particularly in

the realms of education and employment, due to systemic barriers such as discrimination and lack of accessibility. The research will highlight the importance of inclusive policies that prioritize universal design and equal participation in all aspects of society. By addressing these issues, the study contributes to the broader goal of achieving social, economic, and political inclusion for all, in alignment with the United Nations' Sustainable Development Goals (SDGs), particularly Goal 10, which aims to reduce inequality and promote inclusivity for marginalized populations. In conclusion, this study is both a theoretical and practical contribution to the field of disability studies, bridging gaps in the literature while offering actionable recommendations for improving the lives of individuals with disabilities in Malawi.

1.5 Objectives

1.5.1 Main Objectives

Estimate and analyze the additional costs faced by individuals with disabilities in Malawi.

1.5.2 Specific Objectives

1) To estimate the relationship between disability status, income and standard of living.
2) To estimate the additional cost of living with disability.

1.6 Hypothesis

1) There is no relationship between disability status, income, and standard of living.
2) There is no additional cost associated with living with a disability.

1.7 Organization of the study

The remaining portion of the study is divided into six chapters. An introduction and justification for the study are given in Chapter 1. An overview of the well-being of Malawi's population of persons with disabilities is provided in Chapter 2. The third chapter examines the pertinent literature, discussing the theoretical and empirical works pertaining to the topic. The methodology for this study has been covered in Chapter 4. In Chapter 5, the empirical results are discussed along with an interpretation of the results of the statistical test that was performed and the outcomes of the econometric model that was described. Chapter six of the

study presents the policy implications of the findings along with the study's limitations and concluding remarks.

CHAPTER TWO

OVERVIEW OF DISABILITY IN MALAWI

2.1 Introduction

This chapter provides an overview of the country context regarding disability, household income, and standard of living. It discusses the background and prevalence of people with disabilities in Malawi, as well as their standard of living and the relationship between standard of living and household income.

2.2 Prevalence of disability in Malawi

The government and other relevant parties in Malawi prioritize the well-being of the population of persons with disabilities. The National Statistical Office (NSO) conducts nationwide surveys, housing and population counts, and other data collection activities to gather information on disabilities and related indicators. During the finalization of the study by Eide & Munthali (2017), the NSO had just completed data collection for the 2018 National Population and Housing Census. Subsequently, the office released statistics on the number of individuals with various disabilities in Malawi. Fresh disability data is made available every ten years through the inclusion of individuals with impairments in national population and housing censuses. Noteworthy data collection efforts include the Malawi Demographic and Health Survey 2015–2016, which incorporates the Child Functioning and Disability Module (NSO, 2017). Eide & Munthali, (2017) emphasize the importance of using disability screening questions developed by the Washington Group on Disability Statistics in these national surveys.

The Malawi Population and Housing Census was conducted by the National Statistical Office in 2008 (Eide & Munthali, 2017). Some questions on disabilities were included in the questionnaire for the first time since Malawi began conducting the census. A total of 498,122

people with various disabilities were identified in the 2008 census, representing 4% of Malawi's population at the time (National Statistical Office, 2010). In comparison, rural areas had a higher percentage of people with disabilities (4.1%) than urban regions (2.3%). The northern region had the highest prevalence of disability at 5.4%, followed by the central and southern regions at 3.9% and 3.3% respectively. There was no significant difference between males (3.8%) and females (3.8%), both groups being at 3.8%. The frequency of disability was found to increase with age, with rates of 4.3% among children under five, 2.5% among those aged five to fourteen, 15.6% among individuals aged fifteen to sixty-four, and 17.6% among those aged sixty-six and over (National Statistical Office, 2010). Estimates from the government of Malawi and UNICEF (2013) indicate an overall prevalence of impairment among children under the age of 18 at 2.4%.

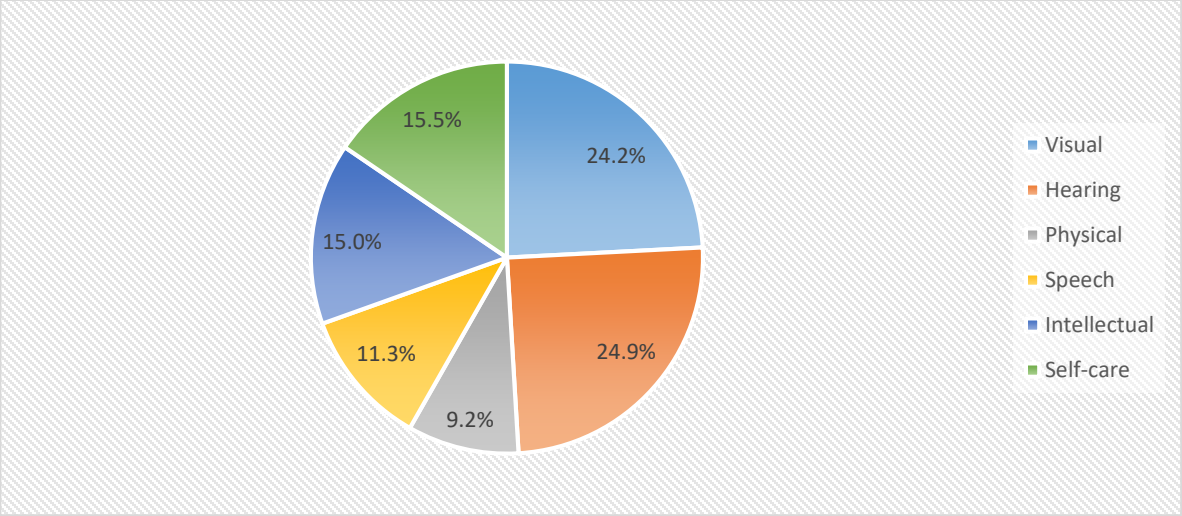

Figure 1: Proportion of children aged 0-17 who had specific types of disability (MPHC, 2018)

Figure 1 illustrates that the most prevalent types of disabilities among children aged 0-17 were vision impairments (24%) and hearing impairments (25%). These were followed by intellectual impairments at 15% and self-care at 16%. Several studies have been conducted in recent years to determine the prevalence of disabilities, including among children aged 0 to 17. The 2018 MPHC examined disabilities related to vision, hearing, body, and speech, as well as other issues like intellectual, self-care, albinism, and epilepsy (Eide & Munthali, 2017).

2.3 Disability and living conditions

Living conditions research is inherently comparative. The very purposes for conducting such research often involve group comparisons or tracking changes over time within groups and populations. Therefore, the goal is frequently to identify population groupings with particular features and investigate whether living conditions within groups vary from group to group in a systematic way, or to examine how living conditions within groups change over time and compare how each group develops over time. These studies often utilize factors like geography, gender, age, or the current research focus, such as persons with disabilities versus persons without disabilities, to establish population sub-groups. Studies conducted in affluent nations have shown that individuals with impairments have lower quality of life across the board, and that this disparity has persisted even during periods when overall living standards have steadily improved (Hem & Eide, 1998).

Planning and resource allocation, as well as advocacy, education, and population attitude modification, have all greatly benefited from this research-based information. Research in other nations in the region has shown that similar systematic disparities exist in low-income countries as well. When the research aims to examine the living conditions of persons with disabilities, establishing a clear definition of disability is crucial to differentiate between those with disabilities and those without disabilities. Choosing between a 'medical model" and a "social model" is just one aspect of this complex debate. The interpretation and implementation of this choice will significantly impact the research outcomes and, consequently, how those findings are utilized. The ICF can be viewed as an effort to encompass a broad range of factors influencing the "disability phenomenon."

The authors of the research report support the theory that an individual's disability or experience of being a person with disability is manifested through interactions with others and their surroundings. As such, a person is deemed have a disability if their daily activities are (severely) restricted due to a discrepancy between their functional abilities and societal norms. Over the past decade or two, the World Bank (WHO 2001), the UN World Programme of Action (1993), the UN Standard Rules (1994), and more recently, the UN CRPD (2006) have emphasized the significance of the physical and social environment for individuals with disabilities. Given this progression, investigating the mechanisms that contribute to disability within the context of the individual's relationship with their environment is logical.

Nonetheless, research on the living circumstances of persons with disabilities in affluent nations has not progressed beyond an individualistic viewpoint. Individual data and functional restrictions continue to be the main focus of attention. The fact that the relational and relative perspective on disability that the majority of academics in this field would now embrace cannot yet be fully reflected in this research tradition presents a difficulty. Even if we accept these points of view, we contend that a "traditional" study is required in low-income nations in order to describe the reality and enable comparisons across groups and across time. Such studies have shown to be effective instruments in the ongoing fight for better living conditions for those with disabilities in high-income nations. The results can still be utilized in a critical

perspective on environmental and relational features that represent significant processes in the disablement process, notwithstanding the individualism bias in the study design.

2.4 Challenges being experienced by persons with disabilities

2.4.1 Livelihood and related issues

The majority of people in Malawi heavily rely on farming for their livelihood, a trend that also applies to individuals with disabilities. A study shows that a higher proportion of individuals without disabilities consider pay or salary labor as their main source of income, while a slightly larger percentage of those with disabilities are engaged in subsistence farming. The high unemployment rates in Malawi are evident, with 58% of individuals with disabilities and 53% of those without disabilities being unemployed at the time of the survey. Moreover, the 2003 Living Conditions Survey highlighted that 47% of women with disabilities and 41% of men with disabilities were unemployed (Loeb and Eide, 2004). People with disabilities encounter numerous challenges in securing employment, such as lacking the necessary skills, limited job opportunities, transportation barriers, lack of access to credit for small businesses, and employers' unfamiliarity with their rights (International Labour Organization, 2007).

Additionally, individuals with disabilities face challenges in finding employment due to persistent discrimination, starting from the job application process to the workplace environment. Discriminatory practices include online job applications that can be inaccessible to those with visual impairments, print media job advertisements disadvantaging individuals with visual impairments, phone interviews posing obstacles for candidates with hearing impairments, and inaccessible interview locations for people with disabilities. Structural barriers within workplaces hinder the mobility and access of employees with disabilities even after they commence work. A 2013 study revealed that certain disabilities restrict the job opportunities available to individuals, leading to lower pay compared to their counterparts without disabilities (GoM and UNICEF, 2013).

Persons with disabilities must possess the necessary vocational skills to work as independent contractors or employees. However, people with disabilities often lack the required skills for employment: in 2003, 41.2 percent of individuals with disabilities had acquired some skills,

compared to 38.7% of those without disabilities (Loeb and Eide, 2004). Additionally, fifty percent of participants in vocational skills training in 2007 were able to secure employment. Challenges such as the inability to afford training fees due to poverty, difficulties in accessing vocational training facilities, being sent home due to disabilities, and the scarcity of training materials in Braille are some of the barriers individuals with disabilities encounter when seeking access to vocational training opportunities (ILO, 2007).

A 2013 study found that there are very few opportunities for children with disabilities to attend vocational schools, that these opportunities are not well-known, and that some of the children with disabilities do not meet the requirements to be enrolled in vocational schools (GoM and UNICEF, 2013 & MoGCDSW, 2018). A multitude of CBR programs have been and are being conducted in Malawi with the goal of improving the lives of PWDs. Through these programs, people with impairments have acquired the skills necessary to support themselves (Makoko, 2002). Certain groups of people are given access to microloans, often known as soft loans. But it can be difficult for people with disabilities, especially women, to obtain micro-lending (MoGCDSW, 2018). Many believe that people with impairments are unproductive and unable to repay loans. Nonetheless, some CBR programs offer loans to people with disabilities at reduced interest rates.

2.5 Access to facilities and services for people with disabilities

In some instances, individuals with disabilities often encounter obstacles when trying to access vital services like employment, healthcare, and education. Their restricted involvement in development projects is a result of being left out of local development frameworks such as village and area development committees. Despite the rights to development, access to appropriate and cost-effective social services, and social protection outlined in section 30 of the Malawian Constitution and sections 15 and 21 of the Disability Act, numerous individuals with disabilities do not benefit fully from social programs. The main challenges arise from community leaders tasked with implementing social welfare schemes.

The majority of individuals with disabilities in Malawi are unable to access social support and protection programs, including cash transfers, affordable housing, malata subsidies, public works initiatives, and farm input subsidies. There are no specific social security programs for

people with disabilities, such as childcare grants or disability grants. The exclusion of individuals with disabilities from these programs is a result of negative attitudes and perceptions towards them, leading to lower living standards. This situation is exacerbated by the fact that many persons with disabilities live in remote areas and do not have adequate access to social assistance programs and services. Even when individuals with disabilities are eligible for these services, their caregivers are often the ones registered, leading to further discrimination and stigmatization. These social assistance programs fail to provide appropriate accommodations tailored to the specific needs of individuals with disabilities.

2.6 Legislation and policy context on disability

Malawi is party the UN Convention on the Rights of Persons with Disabilities (CRPD). As a result, the nation must compel the UN to receive reports on the situation of people with disabilities and must ensure that its laws and policies are in line with these international agreements. The Malawian government (GoM) has tried to make sure that the CRC and the CRPD are reflected in its laws and policies. The Republic of Malawi's Constitution forbids discrimination against anyone in any way, and everyone is entitled to equal and effective protection from discrimination on the grounds of race, sex, religion, nationality, and handicap (GoM, 1994). The Disability Act, which the Malawian Parliament passed in 2012, was a significant development in the country's history because it upholds the rights of people with disabilities to access health care, education, employment, rehabilitation, the physical environment, economic empowerment, and facilities for sports and recreation, among other services (GoM, 2012).

The GoM introduced the new Malawi Growth and Development Strategy (MGDS) in 2017, a national development strategy for the period 2017–2022, complementing existing legislative measures. Unlike the previous MGDS 2011-2016, the new strategy acknowledges the vulnerabilities of individuals with disabilities and includes interventions to address their challenges. Enhancing access to education, technical and vocational training, employment opportunities, healthcare, and other essential resources is among the key initiatives aimed at empowering people with disabilities. The MGDS places significant emphasis on the

construction and modernization of schools, ensuring they are accessible to individuals with disabilities (GoM, 2017).

In terms of regulations, Malawi established the National Policy on the Parity of Individuals with Disability, which was approved by the Cabinet in 2006. This policy aims to ensure that people with disabilities have the opportunity to actively participate in the development of their country, advocating for their rights. Similar to the MGDS, this policy recognizes the importance of education, training, and employment for individuals with impairments (GoM, 2006). However, this policy is currently undergoing a review process as it is outdated. The rights of individuals with disabilities are supported by the Republic of Malawi's Constitution, the Disability Act, the MGDS 2017–2022, and the National Policy on the Equalization of Persons with Disabilities. Nevertheless, as will be discussed later in this chapter, the current legislative and policy environment has not fully aligned with the CRC and the CRPD.

2.7 Conclusion

The chapter has offered a succinct summary of disability, the prevalence of disability in Malawi, disability and living conditions, the challenges encountered by individuals with disabilities, and the legislative and policy framework concerning disabilities. The analysis noted a rise in the population of people living with disabilities in Malawi in recent years and identified worsening living conditions for individuals with disabilities.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

This chapter delves into the theoretical review and empirical studies on the additional costs faced by individuals with disabilities, exploring its theory and methodology. Section 3.2 provides a theoretical literature review that outlines the foundational theory and methodology for estimating the extra expenses associated with living with a disability. In section 3.3, the empirical literature is examined, showcasing various studies on the estimation and results of the additional costs incurred by individuals with disabilities. Lastly, section 3.4 offers a chapter summary, identifies literature gaps, and discusses this paper's contribution to the existing body of research.

3.2 Theoretical literature review

The capability approach theory of Amartya Sen, which emphasizes functionings and welfare, serves as the foundation for this study despite the existence of other ideas pertaining to significant costs associated with disabilities. One of the opposing theories is the Human Capital Theory, as defined by Fleischhauer K. J. (2007), which refers to the knowledge, abilities, attitudes, aptitudes, and other learned characteristics that contribute to production.

3.3 Amartya Sen's Capability Approach

Amartya Sen's capability approach (1999) offers a comprehensive framework for comprehending well-being, centering on the relationship between functionings—what a person can accomplish—and the freedoms or capabilities to attain those functionings. The approach underscores not just the resources an individual has but also the capacity to transform these

resources into significant outcomes, underscoring that well-being is influenced by both potential functionings and realized functionings (Sen, 1999; Nussbaum, 2000).

The capability approach is particularly relevant to the study of disability because it shifts the focus from mere resource distribution to the actual opportunities available to individuals. This is critical in understanding the challenges faced by people with disabilities, as it accounts for the diverse ways in which impairments limit their ability to transform resources into desired outcomes. Sen (2004) argues that major social justice theories often neglect the concept of disability, which has contributed to insufficient political and policy attention in this area (Nussbaum, 2006; Sen, 2009). By addressing these conversion handicaps, the approach offers a more inclusive perspective on well-being and social justice.

Despite its strengths, the capability approach faces practical limitations. Critics argue that it lacks precise metrics for quantifying capabilities, making its application in empirical studies challenging (Burchardt, 2004). Furthermore, while the theory acknowledges individual differences, it does not fully address systemic barriers, such as discrimination or institutional inefficiencies, that exacerbate the disadvantages faced by people with disabilities. These gaps underscore the need for complementary frameworks to capture the broader socio-political dimensions of disability.

This study builds on Sen's (2004) classification of impairments associated with disability, which he describes as "conversion handicap" and "earning handicap." Conversion handicap refers to the additional effort or resources required by individuals with disabilities to achieve the same functionings as those without disabilities. Earning handicap, on the other hand, highlights the economic disadvantages—such as reduced employment opportunities and lower wages—that people with disabilities often face. These concepts are pivotal in understanding the extra costs of living with a disability, forming the basis for the methodological approach in this study.

While the capability approach effectively captures individual-level disparities in resource conversion, its application to disability studies can be enriched by integrating insights from other frameworks, such as the Human Capital Theory or systemic analyses of social barriers.

For example, the theory does not explicitly address how labor market discrimination or inadequate social protection systems compound earning handicaps. This study aims to bridge these gaps by incorporating both individual and systemic perspectives in analyzing the extra costs of disability. By building on the capability approach and addressing its limitations, this study contributes to a more nuanced understanding of disability-related costs and offers evidence-based recommendations for inclusive social protection policies.

3.4 The Human Capital Theory

Human capital theory conceptualizes individuals' health, knowledge, abilities, and overall well-being as forms of capital that contribute to productivity and economic outcomes. Becker (2002, p. 3) defines human capital as the stock of skills, information, and attributes that individuals possess, influencing their capacity to produce and achieve. In the context of disabilities, the significance of physical health and perceived health—individuals' self-assessment of their health status—becomes evident, as these factors directly affect their ability to participate in economic and social activities (Goldberg et al., 2001; Harms et al., 2016; Smith et al., 1995; Parkerson, Broadhead, & Tse, 1990).

The theory provides a useful framework for understanding how investments in education, health, and skills development enhance individual productivity and earnings. Blundell, Dearden, Meghir, and Sianesi (1999) emphasize the complementary relationship between early abilities (innate or learned) and skills acquired through education or training, highlighting the role of human capital in driving economic growth. Additionally, Ishikawa and Ryan (2002) and Cahuc and Zylberberg (2004) underscore the critical link between human capital accumulation and individual earnings potential, particularly in labor markets where health and skills determine employability and income.

Despite its strengths, human capital theory has limitations when applied to disability studies. Critics argue that the theory’s focus on economic productivity undervalues non-market contributions and fails to account for systemic barriers that disproportionately affect people with disabilities. For instance, labor market discrimination, inadequate workplace accommodations, and societal biases are often overlooked, even though they significantly

hinder individuals with disabilities from realizing their full potential. Moreover, the theory's emphasis on health and skills as economic assets risks framing individuals primarily as producers, which can marginalize those unable to participate in traditional labor markets.

This study leverages human capital theory to examine the impact of disability on individuals' capacity to acquire skills and generate income. Disabilities frequently impede access to education, training, and job prospects, leading to disparities in human capital development. For example, individuals with disabilities may encounter heightened obstacles in acquiring skills or maintaining employment because of physical, social, or institutional limitations. These obstacles resonate with Sen's (2004) notion of the "earning handicap," emphasizing the economic hardships confronted by individuals with disabilities.

While human capital theory provides insights into the economic implications of disability, its limitations necessitate integration with other frameworks, such as the Capability Approach, to address broader dimensions of well-being and social inclusion. By combining these perspectives, this study aims to capture both the individual and systemic factors influencing the extra costs incurred by people with disabilities, offering a more holistic understanding of the challenges they face. By critically engaging with human capital theory and its application to disability, this study also seeks to contribute to more inclusive policies that account for both economic and non-economic dimensions of human well-being.

3.4 International Classification of Functioning, Disability and Health (ICF)

The adoption of the International Classification of Functioning, Disability and Health (ICF) by the World Health Organization (WHO, 2001) marked a transformative shift in the conceptualization of disability (see figure 2). Unlike its predecessor, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH) (WHO, 1980), which was rooted in a predominantly medical model, the ICF places greater emphasis on the interaction between an individual's health conditions and their environmental and personal contexts. This broader framework highlights how societal barriers and facilitators influence participation and activity, thus offering a more inclusive and holistic understanding of disability.

One of the ICF's key strengths lies in its dual focus on both individual impairments and the broader social factors that limit or enable participation. By integrating elements of the medical and social models, the ICF recognizes that disability is not solely a result of physical or mental impairments but also stems from external factors, such as inaccessible infrastructure or discriminatory attitudes. This interactive model provides a practical tool for assessing and addressing the multi-dimensional nature of disability, making it especially valuable for designing inclusive policies and interventions.

Despite its strengths, the ICF has faced criticism for its broad scope, which can make its application in empirical research and policy design challenging. Critics argue that the framework's integration of multiple perspectives risks diluting its focus, particularly when translating theoretical principles into actionable measures. Furthermore, while the ICF's emphasis on participation and activity is commendable, it does not fully address systemic inequities, such as labor market discrimination or inadequate social protection systems, which exacerbate the challenges faced by individuals with disabilities. This study aims to address these gaps by integrating the ICF with complementary frameworks, thereby providing a more comprehensive analysis of the extra costs incurred by people with disabilities.

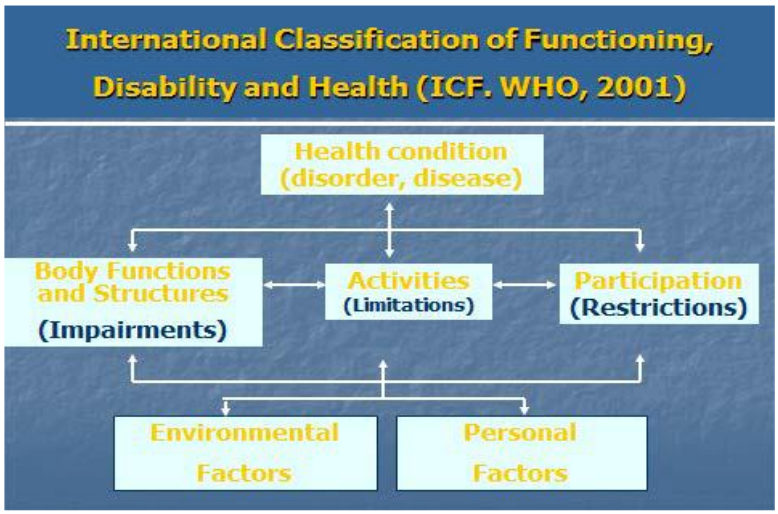

Figure 2: The ICF Model

3.5 Empirical Literature

3.5.1 Approaches to estimating the extra cost of living with disability

The estimation of extra costs associated with disability has been extensively explored through various methodologies. Cullinan (2011) identifies four principal approaches: budget standards, expenditure diary, direct survey, and indirect methods such as the Standard of Living (SoL) approach. These methodologies have been widely applied across different contexts, providing a range of estimates for the financial burden of disability.

The subjective-direct approach, as discussed by Zaidi and Burchardt (2005), relies on self-reported data from individuals with disabilities or expert opinions about their additional expenses. While straightforward, this method often lacks accuracy, as respondents struggle to estimate hypothetical costs they might incur without disabilities. Studies employing this method include Indecon (2004) for Ireland and Wilkinson-Meyers et al. (2010) for New Zealand, which reported a wide variation in costs depending on the disability type and level of need. However, these studies are often constrained by methodological challenges, such as small sample sizes and low response rates, leading to limitations in generalizability (Zaidi & Burchardt, 2005).

The comparative approach evaluates differences in expenditure patterns between households with and without persons with disabilities to estimate additional costs. This method has been widely utilized to analyze medical and living expenses in various contexts, including studies by Matthews and Truscott (1990) and Mitra et al. (2009) in the United States and the United Kingdom. While this approach reduces some of the subjectivity inherent in the direct method, its reliance on reported spending may underestimate unmet needs, as individuals with disabilities often adjust their expenditures to align with constrained incomes (Cullinan et al., 2011).

The Standard of Living (SoL) approach compares income levels required by households with and without individuals living with disabilities to achieve equivalent welfare levels. This method is particularly praised for its ability to consider variations in income and consumption patterns (Zaidi & Burchardt, 2005; Tibble, 2005). Studies such as those by Indecon (2004) and

Tibble (2005) showcase its effectiveness in capturing reliable estimates of the financial impact of disability, cementing its status as one of the most commonly employed methodologies for policy-oriented research.

Recent developments suggest a hybrid approach, which integrates elements of multiple methodologies to enhance accuracy. Wilkinson-Meyers et al. (2010) advocate for combining expert panels, focus groups with individuals with disabilities, and large-scale surveys to address limitations inherent in single-method approaches. Mont (2023) further classifies these methods into two broad categories: (1) calculating costs for goods and services tailored to disability needs and (2) determining resources necessary for full participation in society. This nuanced perspective underscores the importance of tailoring methods to the specific goals and contexts of each study.

3.6 Standard of living and disability

The SoL approach has been widely employed to examine the economic ramifications of disability on a global scale, consistently uncovering substantial financial challenges for households with persons with disabilities. For example, in Malawi, national surveys carried out by Eide and Munthali (2017b) evaluated the living situations of people with disabilities compared to the general populace. Their results underscored notable discrepancies in welfare measures, with households with persons with disabilities facing diminished living standards attributed to increased expenses and decreased earning potential.

Munthali et al. (2019) delved deeper into the obstacles encountered by individuals with disabilities in Malawi, pinpointing issues like exorbitant healthcare expenses, lack of accessible transportation, and unsupportive healthcare services. These factors intensify the economic burden on households, magnifying the difficulties in attaining a satisfactory standard of living.

In a multi-country analysis, Mont et al. (2022) applied the SoL method to seven African nations, estimating the additional costs incurred by households with persons living with disabilities. While their findings suggested lower extra costs in low-income settings compared

to high-income countries, they also highlighted significant unmet needs for disability-related goods and services. The study cautioned against relying solely on SoL estimates in designing social protection systems, as these estimates often fail to account for the broader socio-economic barriers faced by individuals with disabilities.

In Asia, Carraro et al. (2023) combined survey data and qualitative interviews in the Philippines to estimate disability-related costs for families with children with disabilities. Their findings showed that such households faced additional costs ranging from 40% to 80% of their regular expenditures to achieve comparable living standards with households without persons with disabilities. This burden was exacerbated by a lack of inclusive services, particularly in health and education.

In Europe, Antón et al. (2016) analyzed disability costs across 31 countries using data from the European Union Statistics on Income and Living Conditions. Their study revealed substantial variation in costs, with Scandinavian countries exhibiting higher expenses due to comprehensive social welfare systems, while Eastern European countries reported lower costs due to limited support services. These disparities underscore the influence of social policy and economic development on the financial implications of disability.

3.7 Challenges and Gaps in the Literature

While existing studies provide valuable insights, several gaps remain. First, much of the literature focuses on high-income countries, with limited research in low-income settings. Studies like Asuman et al. (2021) for Ghana and Banks et al. (2022) for Kenya and Bangladesh highlight unique challenges in these contexts, such as inadequate social protection and unmet needs for disability-related goods and services. These findings call for more context-specific research to inform inclusive policy design.

Second, there is a growing recognition of the need for multidimensional approaches to capture the broader social and economic impacts of disability. For example, Palmer et al. (2015) in Vietnam emphasize the long-term consequences of financial coping strategies, such as

borrowing and cutting essential expenses, on the well-being of persons with disabilities and their families.

Lastly, cross-national comparisons remain challenging due to variations in disability indicators and living standards metrics. Mont et al. (2022) emphasize the importance of standardized methodologies to enable meaningful comparisons and enhance the generalizability of findings.

3.8 Summary of the empirical literature

The empirical literature highlights the substantial financial costs linked to disability, with methodologies like the SoL approach providing valuable insights. Nevertheless, gaps in coverage, especially in low-income settings, and methodological limitations call for additional research. Tackling these gaps will be crucial for designing inclusive social protection systems that not only alleviate the financial impact of disability but also foster broader social and economic inclusion.

3.9 Contribution to literature

This study significantly contributes to the existing literature by examining the financial challenges faced by households that include at least one person with a disability. It underscores that these households bear higher financial expenses compared to those without a person with a disability, primarily due to the additional costs associated with disability. By focusing on cost estimation, this study provides valuable insights into the economic disadvantages experienced by people with disabilities.

The theoretical foundation of this research is grounded in Sen's capability approach, which emphasizes the unique resources required by individuals with disabilities to achieve a standard of living that prevents poverty. This approach moves beyond income measures to consider the conversion of resources into meaningful outcomes, highlighting the diversity in human needs and circumstances (Burchardt, 2004). The study critically engages with this theoretical framework, acknowledging its strengths in capturing individual disparities while addressing its limitations in quantifying systemic barriers such as discrimination and inadequate social support systems.

Empirically, this research extends prior studies by integrating methodologies beyond the standard-of-living approach to estimate disability-related costs. It builds on previous work by offering a nuanced perspective that includes not only the financial costs of living with a disability but also the broader socio-economic implications. This study's key contribution lies in estimating the proportion of income individuals with disabilities require to fully and equitably participate in social and economic life. By addressing a critical gap in understanding disability-related costs in low-income settings, particularly in Malawi, this research supports efforts to design inclusive policies aimed at social and economic integration.

3.10 Summary

This chapter has provided an in-depth exploration of the theoretical and empirical literature on the additional costs incurred by individuals living with disabilities. Among the theoretical perspectives reviewed, we adopt Sen's capability approach, which conceptualizes well-being in terms of individuals' abilities to achieve valuable "beings and doings." This framework underscores the unique requirements of individuals with disabilities, emphasizing the need for additional resources to ensure a life of dignity and to avoid poverty.

The chapter also critically assessed gaps in the existing literature, particularly concerning the estimation of disability-related costs in Malawi. While global research has made significant progress in quantifying these costs, localized evidence remains scarce. Through a review of empirical studies, the chapter highlighted methodological advancements and limitations, including the reliance on income-based measures that may underestimate the broader implications of disability-related expenses.

By addressing these gaps, this study seeks to contribute localized and context-specific evidence on the financial implications of living with a disability in Malawi. Its methodological approach builds on existing literature while tailoring the analysis to the unique socio-economic challenges of the region. In doing so, the research aims to support the development of inclusive policies and practices that promote equity and social inclusion for individuals with disabilities.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter describes the study's methodological approaches. Section 4.2 introduces the conceptual framework using Zaidi and Burchardt's (2005) model. Section 4.3 details the analytical framework, focusing on the SoL methodology and multivariate regression to estimate disability costs and where the study indicated how the issues of self-selection bias and endogeneity through Heckman models and instrumental variables were addressed. Section 4.4 discusses the estimation of extra costs via a regression model and an asset index as a SoL proxy. Section 4.5 highlights the Fifth Integrated Household Survey (IHS5) as the primary dataset, while Section 4.6 covers diagnostic tests for result validity, including heteroskedasticity correction and multicollinearity assessment.

4.2 Conceptual Framework

Figure 3 illustrates the methodology that Zaidi and Burchardt (2005) developed for their study. The relationship between income and standard of living for households without persons living with disabilities is represented by the higher line, while for households with persons living with disabilities, the lower line depicts the relationship. The line for households with people with disabilities is lower by the amount of those additional costs, which are considered fixed, even though the standard of living improves for both types of households at the same rate as income increases. In order to reach the same level of well-being as a household without a person with disability with income I1, a household with a person with disability must have an income of I2. The additional cost associated with disability is reflected in line segment AB.

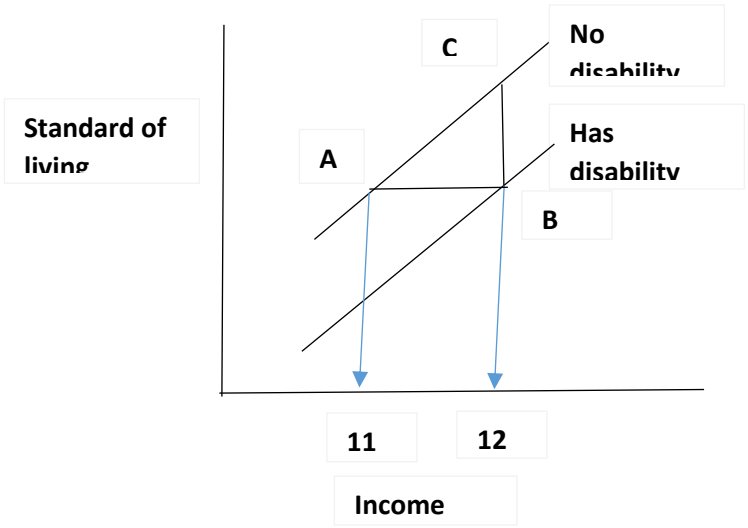

Figure 3: Conceptual framework (Standard of living, income and disability)

4.3 Analytical framework

4.3.1 Approaches to Estimating the Extra Costs of Disability

The standard of living (SoL) methodology developed by Zaidi & Burchardt (2005) has been widely used to assess the additional expenses related to disability, and we utilized it in our research. Mitra et al. (2017) highlighted that most quantitative studies on the extra costs of disability employ the SoL technique, which indirectly evaluates these costs. Under the SoL approach, the additional expenses of disability refer to the extra financial resources needed to elevate the standard of living (SoL) of a household with a person with disability to that of a similar household without a person with disability. Through multivariate regression, the SoL methodology explores the relationship between a SoL indicator, income, and disability. As depicted in Figure 3, the ability to attain a certain living standard is expected to increase with income for all households, with diminishing returns as income rises. However, a household headed by a person with disability maintains a lower standard of living at the same income level. Therefore, in Figure 1, income B for a household with a person with disability is equivalent to income A for a household without a disability, and the estimated additional expenses associated with the disability are represented by B minus A (Morris et al., 2022).

The ability to attain a certain living standard is expected to increase with income for all households, with diminishing returns as income rises, as illustrated in Figure 4-1. However, a

household headed by a person with disability maintains a lower standard of living at the same income level. Therefore, in Figure 3, income B for a household with a person with disability is equivalent to income A for a household without a disability, and the estimated additional expenses associated with the disability are represented by B minus A (Morris et al., 2022). Following adjustment for other sources of variation through regression analysis, the additional expenses related to disability are calculated as the extra income required to uphold the same standard of living as a comparable household without a disability. This assessment of costs aims to account for variations in expenditure influenced by factors such as the severity of impairment, life cycle, and family composition.

4.4 Model Justification

The standard of living approach was selected for its robustness in capturing additional costs without solely relying on reported expenditures, which can be limited by the income levels of households with disabilities. The utilization of the asset index as a non-monetary indicator of the standard of living is in line with the methodologies proposed by Zaidi and Burchardt (2005), Tibble (2005), and Mont (2023). Principal component analysis (PCA) was utilized to create the asset index, incorporating variables such as dwelling characteristics (e.g., durable walls, roofing, and access to clean water) and ownership of household assets (e.g., car, motorcycle, washing machine, and refrigerator). This comprehensive index offers a more precise measure of a household's material well-being.

4.5 Estimation of Extra Costs

The study estimated the additional costs by utilizing a regression model incorporating non-monetary indices of standard of living, household expenditure (as a proxy for income), a disability measure, and other control variables. Control variables included age, gender, marital status, level of education, availability of healthcare, and size of the home. The Ordinary Least Squares (OLS) regression model is specified as follows:

$$SOL_i = \beta_0 + \beta_1 Log(Income_i) + \beta_2 Disability_i + \beta_3 \text{age}_i + \beta_4 \text{Gender}_i + \beta_5 \text{Education}_i + \beta_6 \text{HH Size}_i + \beta_6 \text{Acc. Healthcare}_i + K_i \quad \ldots\ldots\ldots\ldots (1)$$

Where:

SOL_i is the standard of living for $i$the household.
$Log(Income_i)$ is the natural logarithm of household income,
$Disability_i$ is the disability status of the household,

The control variables include age, gender, education level of the household head, household size, and access to healthcare.

The parameter β_2 represents the impact of disability on the standard of living. K, as defined by Zaidi and Burchardt, denotes the minimum quality of life required for a household to sustain itself. The standard of living (SoL) metric was used as the dependent variable. Household consumption expenditures were subjected to a logarithmic transformation, denoted as income (log). The term "disability status" referred to the specific type of disability, indicating whether a household member reported a functional impairment. An asset index, a non-monetary indicator of the standard of living, was utilized in the research. Principal component analysis was employed to calculate the asset index, taking into account dwelling characteristics (e.g., durable walls, roof, cooking equipment, lighting sources, flooring, clean water) and assets (e.g., car, motorcycle, washing machine, refrigerator, sewing machine, television, bicycle, bed, table, chair, fan).

The additional disability cost, E, is estimated by

$$E = \frac{dY}{dX} = -\frac{\beta_2}{\beta_1} \quad \text{..... (2)}$$

4.6 Addressing Self-Selection Bias and Endogeneity

As part of the robustness checks for this study, both a Heckman selection model and an Instrumental Variable (IV) regression were run separately to address concerns about selection bias and endogeneity in estimating the extra costs of living with disabilities.

To address potential selection bias in the analysis, a Heckman two-step model was employed, allowing for simultaneous estimation of the outcome equation (SoL) and the selection equation (disability status). The selection equation modeled the likelihood of selection into the sample based on household age, gender, and education level. Results from the selection equation

revealed that higher education significantly increased the likelihood of selection ($\beta = 0.0797$, $p < 0.001$), while household age significantly decreased it ($\beta = -0.0246$, $p < 0.001$). Household gender was not a significant factor in the selection process. These findings highlight the systematic differences between selected and non-selected groups, justifying the need to adjust for selection bias.

The significance of the inverse Mills ratio ($\lambda = 7.7547$, $p = 0.005$) confirmed the presence of selection bias, validating the use of the Heckman model. By accounting for this bias, the model provided adjusted estimates for the outcome equation, ensuring that the relationships between independent variables and SoL were not confounded by unobserved factors influencing selection. This underscores the importance of correcting for selection bias when analyzing socioeconomic outcomes, as failing to do so could lead to biased and unreliable conclusions.
Similarly, to address potential endogeneity in the relationship between logged household income (ln_income) and the standard of living (SoL), an instrumental variable (IV) regression was conducted. The selected instruments were healthcare access (healthcare_acces) and residential area (reside), based on their theoretical relevance and presumed exogeneity. These instruments are hypothesized to influence income without directly affecting the unobserved factors driving SoL.

The results of the IV regression revealed that household income had a statistically significant and negative relationship with SoL, even after addressing endogeneity concerns (coefficient: -3.319; $p < 0.001$). This finding contrasts with the expected positive relationship and suggests that other factors, potentially tied to income disparities or measurement issues, may be influencing the results. The first-stage regression confirmed the strength of the instruments, with an F-statistic of 295.98, well above the threshold of 10 for weak instrument detection. Additionally, the Sargan and Basmann overidentification tests yielded non-significant results ($p = 0.3218$ and $p = 0.3221$, respectively), supporting the validity of the instruments used in the model.

It is important to note that the IV model was run separately from the main analysis to test for potential endogeneity in the income variable. While the results provide valuable insights into

the robustness of the findings, the main conclusions of the study rely on models that do not require instrumented regressions, as the potential biases from endogeneity were found to be minimal based on the diagnostics. This approach reinforces the credibility of the analysis while acknowledging the limitations of observational data.

4.8 Contributions of the Model

This model is grounded in established theoretical frameworks, such as Sen's capability approach, which emphasizes the need for additional resources to address the unique requirements of individuals with disabilities. Furthermore, it incorporates methodological insights from previous studies while tailoring the approach to the Malawian context. By bridging these theoretical and empirical frameworks, this study aims to provide a robust and localized estimate of the extra costs associated with disability.

4.9 Definition of variables

4.9.1 Dependent Variable

As indicated in table 1 below, the dependent variable is the standard of living, with its proxy indicator being the asset index. This index was created using non-monetary measures, incorporating dwelling characteristics such as durable walls, roof, cooking facilities, lighting sources, flooring quality, and access to clean water. Additionally, ownership of assets like cars, motorbikes, washing machines, refrigerators, sewing machines, televisions, bicycles, beds, tables, chairs, and fans was considered in the asset index calculation, which was determined through principal component analysis.

4.9.2 Independent variables

Income. The study utilized the natural logarithm of real annual per capita consumption as a proxy indicator for income, following the recommendation of Zaidi and Burchardt (2003), where household income is not adjusted for household size or composition.

Disability status. The study employed the definition of the ICF, which focuses on individuals' ability to engage in activities within their current environment (World Health Organization, 2011). Respondents in the IHS5 were asked about challenges they might encounter in six

activity domains: (1) vision impairment even with glasses; (2) hearing difficulties despite using a hearing aid; (3) mobility issues like climbing stairs or walking; (4) memory or concentration issues; (5) self-care difficulties such as dressing; (6) communication challenges in understanding or being understood in their usual language. Response options included: (1) No difficulty; (2) some difficulty; (3) A lot of difficulty; (4) Cannot do at all. Individuals were categorized as having a disability if they reported 'some difficulty' for at least one question. The variables were then dichotomized, with 0 indicating no difficulty and 1 indicating some difficulty, a lot of difficulty, or inability to perform the task. Subsequently, these variables were combined to form a disability status variable.

Other independent variables. Other independent variables were chosen based on their hypothesized importance in the relationship between standard of living, income, and disability. These variables include age, gender, location, region, education level of the household head, marital status of the household head, and household size.

Table 1: Variables used in OLS Regression

VARIABLE	Variable definition	The expected direction of the effect
DEPENDENT VARIABLE		
STANDARD OF LIVING	Asset Index constructed from household characteristics and assets	
EXPLANATORY VARIABLES		
INCOME (LOG)	Natural log of real per capita annual household expenditure	Positive (+ve)
DISABILITY STATUS	1 if disabled, 0 not disabled	Negative (-ve)
AGE	Age of the household head in years	Positive (+ve)
GENDER	1 if male, 0 if female	Positive (+ve)
MARITAL STATUS	1 if married, 0 if not married	Positive (+ve)
EDUCATION	1 if no education, 2 if primary, 3 if secondary and 4 if tertiary	Positive (+ve)
HEALTHCARE ACCESS	1 has access to healthcare, 0 has no access	Positive (+ve)
HOUSEHOLD SIZE	Number of members in a household	Negative (-ve)

4.10 Data Sources

Fifth Integrated Household Survey (IHS5) data were utilized in this study. The Integrated Household Survey (IHS), a nationally representative survey administered to randomly selected households in Malawi's southern, central, and northern regions, provided the data. The National Statistical Office (NSO) collected the information between 2019 and 2020.

The Integrated Household Survey is one of the main tools used by the Malawi Government, through the National Statistical Office (NSO), every three to five years to track and assess the situations of Malawian households as they change. Among other insights, IHS data have provided benchmark indicators of poverty and vulnerability to inform evidence-based policies and monitor progress towards the Millennium Development Goals (MDGs), the objectives outlined in the Malawi Growth and Development Strategy (MGDS), and currently the Sustainable Development Goals (SDGs).

The IHS5 includes a health module that is conducted with all individuals and gathers data on various aspects, such as chronic difficulties and interruptions to regular activities, including disability-related questions asked in 2019. In this research, we focus solely on pertinent variables chosen and extracted from the IHS5 datasets to calculate the extra expenses associated with having a disability.

4.11 Diagnostic Tests for Survey Data

To ensure the robustness and validity of the regression analysis, diagnostic tests were conducted in Stata to check for heteroskedasticity and assess multicollinearity, and evaluate the appropriateness of applying survey weights. These steps are essential for handling survey data and ensuring reliable statistical inferences.

4.12 Heteroskedasticity Diagnosis and Correction

As indicated in table 2, the Breusch-Pagan test was performed in Stata to test for heteroskedasticity, which occurs when the variance of residuals is not constant across observations. The test results showed a $\chi^2(1) = 801.89$ with a p-value of 0.0000, indicating that the null hypothesis of homoscedasticity (constant variance of residuals) is rejected. This suggests the presence of heteroskedasticity in the model. To address this issue, robust standard errors were used in the regression analysis, as implemented in Stata using the vce(robust) option, to correct for heteroskedasticity and provide more reliable coefficient estimates.

To account for the presence of heteroskedasticity and adjust the standard errors accordingly, a robust regression was conducted in Stata. The results of the robust regression test revealed an

F-statistic of 236.31 with a p-value of 0.0000, indicating that the regression model is statistically significant. The adjusted standard errors provide more accurate and trustworthy inferences about the model's coefficients. The model yielded an R-squared value of 0.2480 and a Root MSE of 0.80451, reflecting the model's goodness of fit and predictive accuracy while accounting for heteroskedasticity.

4.13 Multicolinearity Assessment

The Variance Inflation Factor (VIF) was calculated in Stata to assess multicollinearity, which occurs when predictor variables in the regression model are highly correlated with each other, potentially distorting the regression results. The mean VIF was 1.12, with individual VIF values ranging from 1.01 to 1.29 for all predictor variables. Since VIF values below 10 indicate that multicollinearity is not a concern, the results suggest that there is no significant multicollinearity in the model. As such, no corrective action was needed for multicollinearity.

Table 2: Heteroskedasticity and Multicolinearity tests and results

Diagnostic Test	Purpose	Test Results	Implication	Corrective Action
Breusch-Pagan Test for Heteroskedasticity	To test for heteroskedasticity (constant variance of residuals).	$\chi 2(1)$ = 801.89, p-value = 0.0000	The null hypothesis of homoscedasticity is rejected, indicating that heteroskedasticity is present.	Use robust standard errors to correct for heteroskedasticity.
Robust Regression	To account for heteroskedasticity by adjusting standard errors.	F(8, 6992) = 236.31, p-value = 0.0000	Adjusted p-values and standard errors provide more reliable and accurate inference for the regression model.	Applied robust regression using vce(robust) in Stata, achieving R-squared = 0.2480 and Root MSE = 0.80451.
Variance Inflation Factor (VIF)	To check for multicollinearity by examining correlations among predictor variables.	Mean VIF = 1.12, individual VIF values range from 1.01 to 1.29.	VIF values below 10 indicate that multicollinearity is not a significant issue, suggesting that predictor variables are not highly correlated.	No corrective action needed since VIF values are all within acceptable limits.

4.14 Application of Survey Weights

Survey weights were applied in the analysis to account for the complex sampling design and ensure the representativeness of the target population. The survey design was declared using ea_id as the primary sampling unit (PSU), region as the strata, and location as the sampling weight. The survey-weighted regression model (svy: regress) examined the relationship

between the dependent variable, SoL, and predictors such as household age, gender, marital status, household size, and access to healthcare. Significant findings showed that household age ($\beta = -0.0018$, $p = 0.003$) and household size ($\beta = -0.0445$, $p < 0.001$) were negatively associated with SoL, while access to healthcare ($\beta = -0.2414$, $p < 0.001$) also had a significant negative effect. Variables such as gender and marital status were not significant predictors. The model was statistically significant overall ($F(5, 703) = 25.06$, $p < 0.001$), though the R-squared value (0.0296) indicated modest explanatory power.

A survey-weighted mean estimation of SoL showed an average of 0.1593 (95% CI: 0.1238–0.1948), providing a more accurate and representative estimate of living conditions across the population. These results highlight the importance of considering household-level factors, such as age, size, and healthcare access, when addressing disparities in social and living standards. By applying survey weights, the analysis produced robust, population-representative estimates, underscoring the value of survey-weighted methods in policy-relevant research.

4.15 Summary

The methodology chapter, systematically describes the approaches used to achieve the study's objectives. Section 4.1: Introduction explains the chapter's focus on assessing the extra costs of disability and their relationship with income and standard of living (SoL). Section 4.2: Conceptual Framework employs Zaidi and Burchardt's (2005) model, illustrating how households with persons with disabilities require additional income to achieve equivalent living standards. Section 4.3: Analytical Framework introduces the SoL methodology, employing multivariate regression to estimate disability costs and separately addressed self-selection bias and endogeneity using Heckman selection models and instrumental variable techniques. Section 4.4: Estimation of Extra Costs details the regression model and explains the asset index used as a proxy for SoL. Section 4.5: Data Sources highlights the Fifth Integrated Household Survey (IHS5) as the study's primary dataset. Finally, Section 4.6: Diagnostic Tests ensures the validity of the results through heteroskedasticity correction, multicollinearity assessment, and survey weights, concluding with a justification of the methodological framework's robustness and its contribution to understanding the extra costs of living with disabilities in Malawi.

CHAPTER FIVE

RESULTS AND DISCUSSION

5.1 Introduction

This chapter presents the study results obtained by employing the methodology suggested in chapter three. The section includes the multivariate analysis. Section 5.2 presents and discusses the descriptive analysis of key variables by disability status, utilizing various t-tests and tabulations to highlight patterns and differences. Section 5.3 presents and discusses the OLS regression results to address both the first and second objectives. Section 5.4 presents the key findings and contextual relevance, while section 5.5 provides the discussion of the results. The chapter concludes with section 5.6, which summarizes the entire chapter.

5.2 Descriptive statistics

This section presents a descriptive analysis of key variables by disability status, utilizing various t-tests and tabulations to highlight patterns and differences as indicated from tables 3 to 8. A two-sample t-test comparing the mean income between households with and without disabilities (see table 3) reveals a statistically significant distinction. Households with disabilities exhibit a slightly higher mean income of 12.24895 (log-transformed) compared to 12.19721 for those without disabilities. The difference of -0.05173 (No – Yes) is statistically significant, with a p-value of 0.0001, indicating that households without disabilities earn slightly less on average in log-transformed terms. Nonetheless, the magnitude of this difference is small, prompting further exploration into its practical significance.

The average age of household members significantly differs by disability status as indicated in table 4. Households with disabilities have a mean age of 40.27 years, whereas households without disabilities have a mean age of 51.06 years. The difference of 10.79 years is substantial and statistically significant ($p < 0.0001$). This finding suggests that households with disabilities

tend to be younger, on average, which may reflect variations in life stages or other demographic characteristics.

A comparison of household sizes shows that households with disabilities are smaller on average, with a mean size of 4.24 compared to 4.59 for households without disabilities. The difference of 0.35 is statistically significant ($p < 0.0001$). Smaller household sizes in households with disabilities could have implications for caregiving and resource distribution within these households (see table 5).

Tabulation of marital status in table 6 reveals significant differences between households with and without disabilities ($\chi2 = 60.04$, $p < 0.0001$). Among households with disabilities, a higher proportion are not married (57.46%) compared to those without disabilities (42.54%). Similarly, married households are less prevalent among those with disabilities (33.55%) compared to those without disabilities (66.45%). These patterns suggest that disability status may influence or be associated with marital dynamics.

Educational attainment as indicated in table 7, also exhibits significant disparities based on disability status ($\chi2 = 48.44$, $p < 0.0001$). In households with disabilities, there is a higher percentage of individuals with either no education or primary education compared to households without disabilities. Particularly striking is the finding that 72.82% of individuals with disabilities in households have only attained secondary education, suggesting potential obstacles in educational achievement linked to disability.

Table 8 shows that healthcare access does not significantly differ by disability status ($\chi2 = 0.14$, $p = 0.7105$). The proportion of households reporting access to healthcare is nearly identical between those with and without disabilities (62.10% vs. 62.59%). This finding suggests that disability status does not necessarily impede healthcare access in the studied population, although further investigation may be required to explore the quality and affordability of care.

Overall, this descriptive analysis highlights statistically significant differences in income, age, household size, marital status, and education by disability status. These disparities underscore the complex socioeconomic dynamics experienced by households with disabilities. The absence of a significant difference in healthcare access suggests the need for additional investigation to evaluate potential barriers beyond mere availability.

Table 3: ttest table of income by disability status

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Yes	4356	12.24895	.0080313	.5300668	12.2332	12.26469
No	2645	12.19721	.0099308	.5107352	12.17774	12.21668
Combined	7001	12.2294	.0062555	.5234121	12.21714	12.24166
Diff.		-.0517347	.0128884		-.0769998	-.0264695

Diff = mean (No) – mean(Yes) t = -4.0141

H0: diff = 0 Degrees of freedom = 6999

Ha: diff < 0 Ha: diff! =0 Ha: diff > 0

Pr (T < t) = 0.0000 Pr (|T| > |t|) = 0.0001 Pr (T < t) = 1.0000

Table 4: ttest table of age by disability status

Two-sample t-test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Yes	4356	40.26538	.2193849	14.4794	39.83528	40.69549
No	2645	51.0552	.3438864	17.68593	50.38088	51.72951
Combined	7001	44.34181	.1985344	16.61176	43.95262	44.731
Diff.		10.78982	.3886758		10.0279	11.55174

Diff = mean (No) – mean(Yes) t = 27.7605

H0: diff = 0 Degrees of freedom = 6999

Ha: diff < 0 Ha: diff! = 0 Ha: diff > 0

Pr (T < t) = 1.0000 Pr (|T| > |t|) = 0.0000 Pr (T < t) = 0.0000

Table 5: ttest table of household size by disability status

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Yes	4356	4.238522	.02895	1.910703	4.181765	4.295278
No	2645	4.586767	.0419574	2.157853	4.504495	4.66904
Combined	7001	4.37009	.0240773	2.014593	4.322891	4.417289
Diff.		.3482459	.0494892		.251232	.4452598

Diff = mean(No) – mean(Yes) t = 7.0368

H0: diff = 0 Degrees of freedom = 6999

Ha: diff < 0 Ha: diff! =0 Ha: diff > 0

Pr (T < t) = 1.000 Pr (|T| > |t|) = 0.0000 Pr (T < t) = 0.0000

Table 6: Tabulation of marital status by disability status

Marital status	Household disability status		
	No disability	Disability	Total
Not married	42.54	57.46	100.00
Married	33.55	66.45	100.00
Total	37.78	62.22	100.00

Pearson Chi2 = 60.04 Prob = 0.0000

Table 7: Tabulation of education by disability status

Education level of HH	Household disability status		
	No disability	Disability	Total
None	39.58	60.42	100.00

Primary	37.56	62.44	100.00
Secondary	27.18	72.82	100.00
Tertiary	36.36	63.64	100.00
Total	37.78	62.22	100.00

Pearson Chi2 = 48.44 Prob = 0.0000

Table 8: Tabulation of healthcare access by disability status

Healthcare access	Household disability status		
	No disability	Disability	Total
No	37.90	62.10	100.00
Yes	37.41	62.59	100.00
Total	37.78	62.22	100.00

Pearson Chi2 = 0.14 Prob = 0.7105

5.3 Econometric Results

As outlined in the methodology, we employed an Ordinary Least Squares (OLS) regression model to estimate the additional costs of living with disabilities in Malawi. The dependent variable was the Asset Index, a proxy for the standard of living. Independent variables included household income (log), disability status, age, gender, marital status, education, access to healthcare, and household size. The results of the OLS regression are presented in Table 9. These findings capture the relationship between disability and the standard of living as well as the additional costs associated with disabilities.

Table 9: OLS Regression results

Standard of living	**Coef.**	**St.Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**
Extra cost= $-\frac{\beta}{\alpha}$	**-8% (-0.056/-0.719)**					
Income (log)	-.719 ***	.021	-34.48	0	-.76	-.679
Disability status	-.056 ***	.021	-2.69	.007	-.097	-.015
Age	-.002 ***	.001	-3.56	0	-.003	-.001
Gender	.023	.019	1.19	.232	-.015	.061
Marital status	.038 *	.02	1.91	.057	-.001	.077
Education						
Primary	-.162 ***	.03	-5.36	0	-.222	-.103
Secondary	-.458 ***	.031	-14.76	0	-.519	-.397
Tertiary	-.983 ***	.101	-9.73	0	-1.181	-.785
Healthcare access	-.165 ***	.022	-7.38	0	-.209	-.121
Household size	-.12 ***	.005	-23.15	0	-.13	-.11
Constant	9.615 ***	.265	36.31	0	9.096	10.134

Mean dependent var	0.063	SD dependent var	0.927
R-squared	0.250	Number of obs	7001
F-test	232.414	Prob > F	0.000
Akaike crit. (AIC)	16821.060	Bayesian crit. (BIC)	16896.452

**** p<.01, ** p<.05, * p<.1*

5.4 Key Findings and Contextual Relevance

Household income (log) was statistically significant at the 1% level with a negative coefficient of -0.719. Contrary to typical expectations, the findings suggest that as household income

increases, the standard of living decreases. This inverse relationship could reflect the unique economic challenges in Malawi, such as income being spent on non-asset-generating expenses (e.g., healthcare or disability-related costs). This result contrasts with findings from studies in high-income countries where higher income typically leads to an improved standard of living. The disability status variable was negative and statistically significant, with a coefficient of -0.056, indicating that households with at least one person with a disability have lower standards of living than those without. These results are consistent with existing literature, such as Zaidi and Burchardt (2005), which emphasize the economic challenges faced by individuals with disabilities. In the context of Malawi, this finding highlights how disability exacerbates poverty by necessitating the allocation of household resources towards disability-related expenses.

Using equation (2), the additional cost associated with living with disabilities was estimated at -8% (-0.056/-0.719). These results suggest that households with a person with disability require approximately 8% less income to maintain a comparable standard of living. While this is counterintuitive and contrasts with findings from other studies (e.g., Cullinan et al., 2011), it may reflect the limited resources and coping strategies of households in Malawi, where poverty and limited access to welfare mechanisms prevail.

5.5 Covariates

Age: A one-year increase in the age of the household head corresponded to a decrease in the standard of living by 0.002. This could be attributed to declining productivity and income-generating capacity as individuals age, particularly in a predominantly informal economy like Malawi's.

Marital Status: Married household heads were associated with a decrease in the standard of living by 0.038. This could be attributed to increased responsibilities, such as childcare and extended family obligations.

Education: Surprisingly, higher levels of education corresponded to lower standards of living, with coefficients of -0.162, -0.458, and -0.983 for primary, secondary, and tertiary education, respectively. This result contradicts conventional expectations but aligns with the Malawian context, where high unemployment rates among educated individuals may lead to financial struggles despite their qualifications.

Access to Healthcare: Households with healthcare access experienced a decrease in standard of living by 0.165. This inverse relationship may stem from high out-of-pocket expenses for medical care, which deplete household resources without directly contributing to asset accumulation.

Household Size: A larger household size reduced the standard of living by 0.12, which aligns with the concept that additional household members bring about higher consumption demands without corresponding increases in income.

5.6 Discussion of Results

The results of this study provide critical insights into the relationship between disability, household income, and the standard of living in Malawi. The findings are both consistent with broader literature on the economic impact of disability and uniquely reflective of the specific socio-economic context in Malawi. This section discusses the implications of the key results, their alignment or divergence from existing studies, and the broader policy and societal relevance.

5.7 Disability and Standard of Living

The study reveals that households with at least one individual with a disability face significantly lower standards of living, as evidenced by the negative coefficient of the disability status variable (-0.056). This aligns with global research, exemplified by Zaidi and Burchardt (2005), illustrating the economic challenges linked to disability. The results emphasize the added financial strain on household resources, where income that could otherwise be saved or invested is redirected to support the requirements of persons with disabilities in the family, such as healthcare or assistive devices. In Malawi, where support systems for persons with disabilities are limited, this economic impact is likely magnified, emphasizing the necessity for tailored interventions.

5.8 Additional Costs of Disability

Contrary to expectations, the study estimates a negative additional cost of living associated with disability (-8%). This result is puzzling, as existing studies (e.g., Cullinan et al., 2011) typically report a positive disability cost, reflecting the extra resources needed to maintain an

equivalent standard of living for households with individuals living with disabilities. The discrepancy may stem from the limitations of the methodology, the context of widespread poverty, or the coping mechanisms employed by households in Malawi. For instance, households may adapt by reducing non-essential expenditures or relying on informal support systems, leading to lower reported costs. Alternatively, the negative cost estimate could reflect a measurement issue, such as the inability of the asset index to fully capture the trade-offs households make to manage disability-related expenses. This finding warrants further exploration using alternative measures of living standards and more nuanced methods, such as longitudinal data or qualitative approaches.

5.9 Income and Standard of Living

The negative and statistically significant relationship between household income (log) and the standard of living (-0.719) is counterintuitive and diverges from conventional economic theories, which posit that higher income is associated with improved living standards. One plausible explanation is the allocation of income toward non-asset-generating expenditures, such as healthcare, education, or debt repayment. In the Malawian context, households may face structural constraints, such as high healthcare costs or a lack of investment opportunities, that prevent income from translating directly into higher asset ownership. Additionally, this finding could reflect reverse causality, where households with lower living standards disproportionately report higher income due to the need to fund urgent consumption needs.

5.10 Education and Standard of Living

The negative impact of higher education levels on the standard of living is another counterintuitive finding. Households with heads who attained primary, secondary, or tertiary education experienced progressively lower living standards compared to those with no education. This result contrasts sharply with global evidence, which typically associates higher education with improved economic outcomes. In Malawi, however, the high unemployment rate among educated individuals, along with limited skilled job opportunities, may account for this outcome. Educated household heads may also face increased costs related to job searches, urban migration, or professional development, which may not immediately lead to asset

accumulation. This underscores the necessity for structural reforms to generate employment opportunities for educated individuals and align education with labor market demands.

5.11 Healthcare Access and Household Size

Healthcare access was linked to a substantial reduction in the standard of living (-0.165), contrary to initial expectations. This outcome may be indicative of the significant out-of-pocket healthcare expenses that households face, particularly in relation to disability-related care, leading to a depletion of resources and a decrease in the capacity to invest in assets. The inverse correlation between household size and standard of living (-0.12) is consistent with existing literature and economic principles, suggesting that larger households encounter higher consumption demands, placing a strain on limited resources. These results underscore the necessity of addressing structural factors, such as the affordability of healthcare and household dependency ratios, to enhance living standards.

5.12 Comparison with Existing Literature

The results align with studies that emphasize the economic vulnerability of households with disabilities but diverge in key areas, such as the extra cost of disability and the role of income and education in determining living standards. For instance, while Zaidi and Burchardt (2005) and Cullinan et al. (2011) report positive disability costs, this study's findings highlight the unique context of Malawi, where poverty and limited access to welfare programs may alter expected patterns. Similarly, the negative impact of education on living standards reflects structural mismatches in Malawi's labor market, which are less prevalent in high-income countries.

5.13 Conclusion

The results of the study reveal that households with a person with disability experience a significant decrease in their standard of living. Moreover, in Malawi, an increase in household income is paradoxically linked to a reduction in the household's living standards. Contrary to expectations, the study did not identify any additional costs borne by households with persons with disabilities compared to those without. The subsequent chapter will offer a comprehensive

overview of the study, delve into policy implications, address limitations, and propose directions for future research.

CHAPTER SIX

CONCLUSION AND POLICY IMPLICATIONS

6.1 Introduction

This chapter provides a comprehensive summary of the findings and draws conclusions based on the results presented in the preceding chapter. The discussion highlights the key insights derived from the analysis, situates them within the broader context of disability studies and policy in Malawi, and underscores their implications for the development of inclusive social protection strategies.

6.2 Summary of the study

The primary aim of this study was to contribute to the development of disability-inclusive social protection policies in Malawi by estimating the additional costs associated with living with a disability. In doing so, the study aimed to establish an evidence base to guarantee appropriate financial assistance for individuals with disabilities. Rooted in Sen's Capability Approach theory, the research employed the Ordinary Least Squares (OLS) regression method to accomplish its goals. The analysis was based on data from the Integrated Household Survey (IHS5), a nationally representative survey carried out by Malawi's National Statistical Office.

The findings indicate that disability status negatively and significantly affects the standard of living in Malawi. Households with a person with a disability are associated with lower standards of living, which can be attributed to the economic and social challenges they face. However, contrary to expectations and existing literature, the study did not find any measurable additional cost of living associated with disability. This finding suggests that households with a person with disability may adopt cost-cutting measures or rely on informal support systems to manage their economic burdens.

Additionally, we found that other variables, such as age, marital status, education, healthcare access, and household size, also have significant effects on the standard of living. Age and household size are associated with declining living standards, likely due to reduced earning potential and increased dependency ratios in larger families. Surprisingly, higher levels of education were linked to lower living standards, potentially reflecting high unemployment rates and a mismatch between educational attainment and job opportunities in Malawi. Access to healthcare also had a negative impact on living standards, possibly due to high out-of-pocket costs for medical services.

In addressing the study's specific objectives:

Disability and Standard of Living: The analysis confirmed a statistically significant and negative relationship, underscoring the economic disadvantage experienced by households with a person with a disability.

Extra Costs of Disability: Contrary to expectations, the study found no evidence of additional costs associated with disability in Malawi, raising questions about the applicability of conventional measurement approaches in low-income settings.

6.5 Conclusion

The findings from this study underscore the economic vulnerability of households with a person with disability in Malawi. Disability significantly reduces the standard of living, reinforcing the need for targeted interventions to improve economic inclusion. However, the lack of evidence for additional disability costs challenges conventional assumptions and points to the unique economic adaptations of Malawian households.

Other socioeconomic factors, such as age, marital status, household size, healthcare access, and education levels, also play significant roles in determining living standards. Larger household sizes, advanced age, and access to healthcare services negatively impact living standards, reflecting structural challenges such as limited income redistribution mechanisms and high healthcare expenditures. Surprisingly, higher education levels were found to be

associated with lower living standards, highlighting the structural disconnection between education and employment opportunities in Malawi's economy.

These findings warrant comprehensive policy reforms to tackle the economic vulnerabilities of households with disabilities, enhance access to affordable healthcare, and establish employment opportunities that match educational qualifications. Furthermore, the results underscore the significance of integrating disability concerns into the country's poverty alleviation and social protection frameworks to guarantee inclusivity for all.

6.3 Study limitations

While the findings of this study provide valuable insights, several limitations must be acknowledged that could affect the interpretation and generalizability of the results.

First, the data cleaning and preparation process was notably challenging and time-consuming. The dataset utilized in this study necessitated thorough adjustments to guarantee consistency and precision. Despite our best endeavors, this process might have inadvertently introduced minor inaccuracies or oversights that could impact the outcomes. Moreover, using the asset index as a stand-in for the standard of living might not entirely encapsulate the intricacies of living standards, especially for households with individuals living with disabilities who encounter distinct and multifaceted hurdles.

Second, the study was conducted within a limited time frame, which restricted opportunities for a more in-depth exploration of alternative modeling approaches or sensitivity analyses. This constraint may have limited the robustness of the results, as additional testing could have provided a more nuanced understanding of the data and its implications.

Third, the cultural and contextual factors specific to Malawi were not directly incorporated into the quantitative analysis. Disability impacts living standards in ways that are deeply embedded in social and community dynamics, such as reliance on informal support systems. These aspects were beyond the scope of the current study and remain an area for future research to complement the quantitative findings.

Finally, the use of cross-sectional data limits our ability to establish causality or capture dynamic changes over time. Cross-sectional analyses offer a snapshot of the relationship between variables, but they cannot account for how living standards and disability-related costs evolve across different stages of life or in response to policy changes. Longitudinal data would offer a richer and more comprehensive perspective on these relationships.

Despite these limitations, the study offers valuable insights into the relationship between disability and living standards in Malawi. It provides a foundation for future research and policy formulation aimed at promoting disability-inclusive development and social protection.

6.4 Recommendations and policy implications

The findings of this study have significant implications for policy formulation and implementation aimed at improving the welfare of individuals with disabilities in Malawi. These insights provide an evidence-based foundation for addressing gaps in social protection and developing targeted interventions for households with individuals living with disabilities. The government, through its Ministries, Departments, and Agencies, should prioritize the formulation and implementation of disability-inclusive policies. Existing social protection initiatives, such as the Malawi Social Cash Transfer Program, play a critical role in providing financial assistance to ultra-poor and vulnerable households. However, these programs must include specific provisions that directly address the needs of households with members who have disabilities. Although the study found no significant extra costs associated with disability, integrating a disability-focused component into these programs would ensure equitable access and improved living standards for households with individuals living with disabilities. This would help alleviate the economic vulnerabilities these households face, particularly in light of their reduced living standards.

Healthcare access emerged as a significant factor negatively affecting the standard of living, suggesting that health-related expenses continue to burden households. The government should enhance the provision of healthcare services specifically tailored to the needs of individuals with disabilities. This can be achieved by strengthening public healthcare facilities to provide free or subsidized services, including physiotherapy, assistive devices, and

specialized treatments. Collaboration with non-governmental organizations (NGOs) and private entities, such as Kachere Rehabilitation and Beit Cure, can further amplify these efforts. These organizations already offer vital healthcare services for individuals with disabilities, and partnerships can ensure expanded reach and sustained service delivery.

The government and stakeholders should also invest in disability advocacy and awareness campaigns to challenge societal stigmas and misconceptions. Efforts should focus on promoting the inclusion of individuals with disabilities in economic, educational, and social activities. Raising awareness about the challenges faced by people with disabilities can mobilize community support and foster an inclusive environment.

The study revealed a negative correlation between education and the standard of living, potentially due to the high costs of attaining higher education without corresponding job opportunities. Policymakers should address this disconnect by investing in vocational training programs, scholarships, and job creation initiatives tailored to individuals with disabilities. These efforts can enhance employability and provide sustainable livelihood options, thereby improving living standards.

6.5 Further research

While this study provides valuable insights into the relationship between disability and standard of living in Malawi, several areas warrant further exploration.

This study approached disability as a general concept without accounting for specific categories of disabilities. Future research should disaggregate the analysis by disability type, such as physical, sensory, or cognitive disabilities. For instance, individuals with limb disabilities may face different financial challenges compared to those with visual or hearing impairments. Such an approach would provide more precise estimates of the extra costs associated with different types of disabilities, enabling targeted policy responses.

The study estimated disability-related costs in terms of the percentage of income required to ensure equal participation in social and economic life. However, it did not quantify these costs in monetary terms. Future research should focus on the actual financial expenditures incurred

by individuals with disabilities, including healthcare, transportation, assistive devices, and caregiving. This would offer a more detailed understanding of the economic impact of disability on households.

The use of cross-sectional data in this study limits our ability to capture how disability-related costs and their impact on living standards evolve over time. Longitudinal studies would provide valuable insights into the long-term economic challenges faced by households with individuals living with disabilities, particularly as they age or experience changes in their disability status.

Lastly, future studies should delve deeper into the cultural and societal factors influencing the relationship between disability and living standards. Understanding the role of informal support systems, community dynamics, and cultural attitudes toward disability could enrich the policy recommendations and improve the effectiveness of interventions. By addressing these research gaps, future studies can provide a more comprehensive understanding of the economic and social dimensions of living with a disability in Malawi, thereby advancing the development of inclusive policies and programs.

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