Hope and Household Poverty in Tanzania: Does Intergenerational Transmission of Hope Matter?

by

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ABSTRACT

Development economists increasingly recognize the significance of hope in poverty alleviation efforts. However, there is still a paucity of research examining the relationship between hope and household poverty, and in particular, the role of hope that is transmitted across generations. This study aims to address these knowledge gaps by investigating the relationship between hope and household poverty status by analyzing primary data from 2,816 rural households in Tanzania. The study encompasses two main objectives. Firstly, it seeks to identify the causal effect of hope levels on the poverty status of households. Using an instrumental variable regression model, the study reveals that a household's higher level of hope significantly reduces the likelihood of a household being in poverty. Secondly, the study examines the transmission of hope across generations and its subsequent effect on household poverty. To address this objective, a nonparametric regression model is utilized to construct a mean hope curve for children, predicted based on their parents' hope levels. The findings show that the predicted hope level of a child increases as the parent's hope level rises within the household, although with significant nonlinearities in the transmission process. Relating the predicted hope level of the child to household poverty status, the study discovers that overall, a higher level of transmitted hope from parents to their children significantly reduces the likelihood of a household being in poverty. We conclude that hope matters for poverty, particularly when it is endogenously created within households by parents and transmitted to children may inoculate households against poverty to a significant extent. Overall, this research highlights the importance of enhancing individuals' hope levels as a means to alleviate poverty and provides valuable insights for policymakers and practitioners in this field.

Preface

This thesis is an original work by Tamanna Begom. No part of this thesis has been previously published.

To my daughter Maryam Amatullah

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Improving the economic conditions of the poor has been a long-standing goal of researchers in the field of economics. It is also a central component of the Millennium Development Goals (MDGs) (United Nations, 2015) and is considered a top priority by policymakers, governments, and international institutions. While progress has been made in reducing poverty, with the global rate of absolute poverty decreasing from 10.1% in 2015 to 8.6% in 2018, various factors have hindered further advancements. The COVID-19 pandemic, Russia's war on Ukraine, and climate-related events have impeded efforts to combat poverty (Sustainable Development Goals (SDG) Report, 2022). In 2020, the global rate of absolute poverty increased to 9.2%, up from 8.3% in 2019 (SDG Report, 2022). Furthermore, the World Bank reported that 120 million people fell into poverty in 2021 (World Bank, 2021). As of November 2022, more than 609 million people still lived in extreme poverty. Hence, it is crucial for researchers to continue addressing the persistent challenge of ending poverty to provide the evidence that policymakers need to implement effective strategies.

Development economists have identified various determinants of poverty, including economic, social, and psychological factors. Studies have linked poverty to macroeconomic variables such as GDP, inflation, access to credit, education, and inequality (Akhtar et al., 2015; Nuruddeen et al.,2014; Cheema et al., 2012; Bratanova et al., 2016). Meanwhile, behavioral economists have highlighted the role of social and psychological determinants.

For instance, Barrett et al. (2018) discuss poverty as related to a psychological feedback loop whereby a negative economic shock leads to psychological depression, reducing aspirations

and ultimately affecting economic status. Lybbert and Wydick (2018) have developed theoretical models linking the psychological concept of hope to economic outcomes and human development. Using empirical data, Lybbert and Wydick (2017) show that indigenous women in Oaxaca, Mexico, improved their business output after receiving an intervention that raise their hope, highlighting the importance of addressing behavioral aspects in poverty alleviation projects. An emerging field of study on the economics of hope examines the impact of hope on human well-being, including investment decisions (Pleeging & Burger, 2020). Blöser (2022) notes that philosopher Immanuel Kant (1781) viewed hope as the driving force for action against poverty. More broadly, researchers emphasize the significance of internal constraints[1], such as hopelessness, which, along with economic constraints, can trap people in poverty. Furthermore, psychologists have examined how hope may be passed down from parents to children (Grusec et al 2014).

These works underscore the importance of jointly considering economic and psychological factors when designing poverty alleviation projects. The limited impact of policy interventions on reducing poverty could potentially be related to a focus on economic variables alone. Scholars argue that when people fall into poverty, they may hesitate to escape their current situation even if it is economically feasible to do so. According to this view, a lack of hope can decrease the motivation and creativity needed to efficiently use available resources (Lybbert & Wydick, 2017; Sen, 1999; Duflo, 2012). However, few studies have explored causal linkages between hope and the probability of a household living in poverty. There is also a lack of research about the association between the intergenerational transmission of hope and household poverty. Our goal

[1] the internal constraint of poverty refers to the psychological and behavioral factors that fall individuals and families into poverty, even when external circumstances or opportunities change. There are several internal constraints, such as hopelessness, anxiety, etc.

is to fill these knowledge gaps by providing empirical evidence on how measures of hope impact household poverty status and how the transmission of hope across generations within families impacts household poverty.

The thesis has two main objectives. The first objective is to identify the causal effect of hope levels on the poverty status of households. To achieve this, an instrumental variable approach is employed, utilizing a sample of 1300 households located in the Kigoma and Iringa regions of Tanzania. The second objective is to investigate the link between the intergenerational transmission of hope and household poverty status. For this purpose, nonparametric methods are utilized, using a sample of 2465 households. These methods involve constructing a mean hope function for children based on their parents' hope levels and examining how this intergenerational hope relationship relates to the likelihood of a household falling into poverty. Furthermore, the study investigates the influence of children's predicted hope on a household's poverty status using parametric instrumental variable regressions. This analysis involves a sample size of 899. Additionally, the paper seeks to investigate how the transmission of hope across generations affects the poverty status of households among different age groups of children. To accomplish this, two sets of nonparametric regression methods are employed—one for children under the age of 18 and another for children aged 18 and above. All the sample data used in the study are derived from the primary data collected for World Vision (WV) in 2020, which encompasses a total of 2816 households. As a quantitative study, this research aims to reveal more clearly the connection between hope and poverty at the household level. This will enable policymakers and planners to take steps to improve people's hope and address other economic factors that contribute to poverty.

The thesis is organized into seven chapters. The first includes the definitions and concepts of “poverty” and “hope”, literature review, objectives, and a discussion of the significance of the

study. The second chapter focuses on the study area, which is the regions of Kigoma and Iringa, Tanzania. The third and fourth chapters detail the conceptual framework and data sources used in the research, respectively. Chapter Five includes the empirical analysis while the sixth chapter discusses the results of the analysis. Chapter seven presents the conclusion, future research, and limitations.

1.2 THE CONCEPTUAL LINKS BETWEEN POVERTY AND HOPE

There are various definitions of poverty, including absolute and relative poverty. Absolute poverty holds when people are deprived of basic needs such as food, shelter, and clothing to levels below the sustenance level. Relative poverty compares the income level of the poorest individuals in a population (Lok-Dessallien, 1999). Absolute poverty is assessed using an exogenous line or threshold to measure individual incomes or consumption levels relative to the line (Haughton & Khandker, 2009, p. 2). The World Bank defines the national poverty line as the minimum amount of money required for basic needs such as food, clothing, and housing in a specific country. The International Poverty Line (IPL) is currently set at US$1.90/day per person in 2011 purchasing power parity (PPP)-adjusted terms. Those who live below this line are considered to be "extremely" poor. In addition to this monetary poverty line, the World Bank (2022) has introduced the Multidimensional Poverty Measure (MPM), the indicators of which include lack of access to education and infrastructure, and income less than US$2.15/day per person. Households are regarded as poor when the total weight of MPM parameters becomes one-third or more. However, since many families experience non-monetary deprivation, 39% of multidimensionally poor individuals are considered non-poor based on the monetary poverty line (World Bank, 2022).

Laderchi et al. (2003) summarize conceptualizations of poverty under four approaches: monetary, capability, social exclusion, and participatory. The monetary approach uses personal

income and consumption to measure poverty. This approach has been criticized for not considering dimensions of poverty beyond income. The capability approach focuses on an individual's ability to achieve certain capabilities or functioning, such as access to education, healthcare, and other basic needs. This approach recognizes that poverty is not only about a lack of income but also about a lack of opportunities and resources needed to live a fulfilling life. Social exclusion includes justice, diversification, human rights, and more (Clert, 1999). This approach focuses on the importance of social inclusion as a means to alleviate poverty. The participatory approach focuses on how poor people are involved in decision-making processes that affect their lives.

Poverty can also be categorized as voluntary, transitory, and persistent. Liu et al. (2019) define voluntary poverty as a condition that exists when a household consumes below the threshold despite having income above the poverty line. In this case, the household's income may be higher than expected, and the family may save money. Transitory poverty is a temporary income drop that drives people below the poverty line threshold for a comparatively short period (Barrett & Swallow, 2006). People can emerge from this situation over time by hard work and by building their capabilities (Bowles et al., 2011). However, individuals may not escape persistent poverty without external assistance (Carter & Barrett, 2006). This persistent poverty is also known as a poverty trap (i.e., multiple equilibria poverty traps).

The poverty trap refers to the idea that people remain in poverty because they are stuck in self-reinforcing cycles of low asset levels, inferior production technologies, risk exposure, and low savings (Banerjee et al., 2019; Kraay & McKenzie, 2014). These cycles can generate multiple equilibria in the presence of locally increasing returns. Azariadis and Stachurski (2005) explain how deviations from the neoclassical benchmark can lead to market failures that result in persistent poverty or the poverty trap. Some sources of market failure include externalities, imperfect

information, and credit constraints. For example, impoverished households may have limited access to credit, which hinders them from expanding a business and traps them in a lower equilibrium (Carter & Barrett, 2006). Access to credit as an external positive shock can help families reach a higher stable equilibrium (Barrett & Swallow, 2006). Without access to such economic opportunities, poor families remain in poverty, which perpetuates the poverty trap (Azariadis & Stachurski, 2005).

Although economic factors have traditionally been the primary focus of poverty-related research, there is growing interest among scholars in examining the psychological factors and internal constraints that may contribute to poverty. This interest can be traced back to the work of Adam Smith, who emphasized the psychological aspects of human behavior in his book "The Theory of Moral Sentiments" published in 1759. Smith argued that people possess an innate sense of empathy and a desire for social connections, which shape their decision-making and moral judgments. Recent research by Pleeging and Burger (2020) has highlighted the importance of psychological factors like hope and aspiration in explaining economic outcomes among individuals. Low levels of these internal attributes can create psychological or internal constraints such as hopelessness, lack of aspirations, and depression. Haushofer and Fehr (2014) highlight that psychological factors can limit individuals from breaking out of poverty and that psychological states such as hope can play a causal role in determining the likelihood of a household being poor.

In the economics of hope, hope refers to a high standard or goal and the belief that the goal is achievable. Lybbert and Wydick (2018) also describe hope as thoughts and views that motivate individuals to take action, invest resources, and pursue goals. Hence, hope is considered a vital factor in promoting economic growth and development since it can encourage innovation, risk-taking, and entrepreneurship. Lybbert and Wydick (2018) refer to two types of hope: aspirational

and wishful. Aspirational hope requires a high level of agency, meaning that the individual has the power to think and act for themselves. In contrast, wishful hope involves low levels of agency, where the outcome is determined by outsiders and not controlled by the individual. These two types of hope can be experienced daily, either separately or mixed together. For instance, hoping for an effective treatment for covid-19 is an example of wishful hope since the outcome is not controlled by the individual. However, hoping to submit a thesis by the end of the month is an example of aspirational hope because the outcome is determined by the individual's efforts. Both types of hope can work together, such as hoping for a 100% guaranteed vaccine and 100% compliance with public health guidelines to eradicate covid-19.

Snyder (1994) disscussed four channels of hope: mastery, attachment, survival, and spiritual systems. The mastery channel of hope known as a process and goal when people tend to feel skilled and proficient. For example, an aspiring architect will focus on developing proficiency in the skills needed to become an architect. Attachment pertains to empathetic and caring relationship with others, which can help individuals foster hope. Survival involves the ability to overcome difficulties and move forward. Lastly, spirituality is related to the sense of belief and connection with something more powerful, which can make one feel more hopeful. This paper will address all four of these channels.

The above theoretical linkages are the foundation for our empirical models that relate hope levels to household poverty. The study uses cross-sectional data from Tanzania to explore the relationship between hope and the poverty status of a household. Our research focuses on causal effects of hope on the likelihood of a household being poor as measured by the international poverty line (first objective).

An understudied aspect of the linkage between hope and poverty concerns the Intergenerational Transmission (IGT)[2] of hope. Nevertheless, previous research, including Snyder et al. (2015), has revealed that hope can be passed down from parents to children through various means, such as parenting practices, leading by example, and socialization. Grusec (2006) and Ribeiro et al. (2007) suggest that parents who are depressed tend to disrupt parenting and negatively affect their child's emotions. Thus, our thesis intends to examine the systematic relationship between parent's hope and child's hope within a household. Furthermore, the study aims to investigate whether the transmission of hope from parents to children has an impact on household poverty (second objective).

1.3 ANALYTICAL STUDIES OF HOPE-POVERTY LINKAGES

This section will discuss different theoretical and empirical literatures on psychological assets and poverty. Development economists are formulating theoretical frameworks to assess the effect of psychological variables on economic well-being. Amartya Sen introduced the Capabilities Framework (Sen, 1992, 1999), in which capability is defined as the opportunities and availabilities that people acquire to become what they value. Researchers studying an individual's well-being should examine their ability, which includes social, environmental, psychological, and other factors, particularly psychological constraints that may prevent them from escaping poverty. Duflo (2012) identifies hope as an essential capability in Sen's model as hope has an impact on the lives of the poor. She talks about how hopelessness restricts people from escaping poverty and that hope makes people more capable of achieving their goals.

[2] The IGT is defined as the passing down of different assets, personality traits, characteristics, monetary resources, etc., from one generation to another (Bird, 2013; Lochner, 2008).

Lybbert and Wydick (2018) developed an economic framework by utilizing a reference-dependent utility model to establish a link between hope and economic output. They demonstrate how an individual's financial result is impacted by hope that encompasses goals, agency, and pathways. Goals refer to the desired outcome level, agency is the effort made to achieve this goal, and pathways are the available avenues to achieve goals. They extend their model by adding self-efficacy, which is an individual's perception of their agency. Lower self-efficacy reduces an individual's agency to reach a higher outcome, which can trap them in poverty. Increased effort and outcome can be realized by external interventions that improve the perception of self-agency. Thus, this model helps researchers to analyze data and establish the empirical link between hope and economic outcome.

Dalton et al. (2016) developed a theoretical framework that explains the relationship between poverty and internal constraints, such as aspiration failure. They propose that if two people with equal initial aspiration levels make decisions, the less wealthy person will have a lower optimal effort than the wealthier person, leading to a lower outcome which deviates from the wealthier individual's aspiration level. The authors suggest that poverty leads to aspiration failure and propose two strategies to eliminate poverty. The first is to increase the aspiration level by considering internal limitations alongside external constraints[3], and the second is to reduce internal constraints without relaxing external constraints to change behavior and cut poverty levels.

Empirically, many researchers have also found evidence of relationships between poverty and different psychological aspects of a human being. Chivers (2017) conducted a study using

[3]External constraints encompass a range of factors, including economic, social, political, and infrastructural aspects, among others. These constraints may involve aspects like limited employment prospects, restricted access to financial resources, instances of corruption, the impact of pandemics, and more.

44,466 observations in 86 countries over a 10-year period and identified two types of poverty traps: one for those below the poverty line and another for those just above it. The study revealed that individuals just above the poverty line tend to avoid investing in risky projects due to the fear of falling into poverty and aspire only to survive. However, those already below the poverty line tend to have a stronger aspiration to escape poverty and are more likely to invest in wealth-increasing risky projects. This suggests that the level of aspiration varies based on the distance from the poverty line, which in turn affects poverty.

Similarly, Siddique (2020) investigated the impact of aspirations on well-being and how aspirational failure can lead to poverty. He suggested that aspirations guide individuals' preferences and actions towards achieving desired outcomes, and having the ability to aspire is crucial in breaking the cycle of poverty. According to their findings, individuals with higher aspirations tend to have a better chance of achieving their goals and improving their well-being. Therefore, increasing individuals' capacity to aspire is necessary for reducing poverty.

BRAC, a non-governmental organization based in Bangladesh, conducted a project to provide assets (such as cows and goats) and business training to impoverished individuals. An external assessment found that this intervention had a positive impact on the mental health of the recipients and ultimately led to increased profitability for them, as reported by Duflo (2012). Likewise, Mumtaz et al. (2019) found a negative relationship between income and psychological variables (such as risk aversion and mistrust) in Pakistan through a simple regression model. While there may be endogeneity issues with their study, it suggests that these psychological factors can influence income.

Bernard et al. (2014) carried out a research study in Ethiopia where they selected 18 households from each of 64 villages and divided them into three groups. One of the groups watched

four 15-minute long videos featuring successful individuals from similar communities who had achieved accomplishments in agriculture or small business without assistance from governmental or non-governmental organizations (NGOs) . Another group, known as the placebo group, watched an Ethiopian comedy program, while a control group only participated in surveys. It is notable that exposure to videos was very minimal in the study area such that 61 percent of the respondents either watched TV once a year or did not watch it at all. As a result, the screenings could potentially influence aspirations and behavior. After a period of six months, Bernard et al. observed that the group that had watched the documentaries displayed significant positive changes compared to the other groups. They had higher savings, invested more in education, and showed a greater inclination towards taking actions to escape poverty, as evidenced by improvements in the aspiration index. This indicates that the motivational videos had inspired the participants to set goals and take actions towards escaping poverty.

Lybbert and Wydick (2017), in collaboration with a non-profit organization called "Fuentes Libres," conducted the Oaxaca Hope Project in Mexico. The study used stratified cluster randomization to divide 601 community bank members into a treatment group and a control group. The treatment group watched a 35-minute documentary featuring four women who successfully used microloans to expand their businesses. Participants received a magnet with Snyder's hope components and a motivational verse from scripture to set personal goals. The intervention also included a four-week hope curriculum to build aspirations, develop soft skills, and ideas for local conventional businesses. This study considers two types of hope indices, one encompasses seven variables associated with hope (aspirations, agency, avenues, happiness, optimism, future orientation, and risk aversion reduction) and other one consisting of only Snyder's three components (aspirations, agency, and pathways). After one month, a short-term survey was

performed where the treatment group showed an overall increase in both hope indices due to significant improvements in aspirations and almost all factors related to hope carried out positive estimations. Rojas Valdes et al. (2022) followed up after one year and found that the critical elements of hope, agency, and pathways increased and enhanced overall business performance in the long run. Specifically, among the participants in the treatment group, eight women hired a new employee, whereas the control group did not recruit any new workers. As a result, the Oaxaca Hope Project provided evidence that an external intervention focused on fostering hope could lead to positive economic outcomes.

A number of studies have examined the Intergenerational Transmission (IGT) of psychological assets, land, livestock, financial capital, human capital, etc., and their relationship to poverty. Bermant (2008) presents different studies on the allocation of assets within households and the intergenerational transmission of poverty. He addressed inadequate nutrition, limited educational opportunity, etc. as the elements of the IGT of poverty. Castañeda et al. (1999) indicated that factors such as family background and educational attainment can reduce the likelihood of intergenerational poverty. While many studies have focused on physical and human assets, Bird (2007) emphasized the importance of context-specific determinants in understanding the IGT of the poverty. To effectively prevent intergenerational poverty, further research should also examine psychological factors, including aspirations. Westburg and Martin (2003) investigated the IGT of psychological assets but found no significant correlation between parental and children's hope levels.

Maclay and Marsden (2013) found that multidimensional poverty could also be intergenerational, leading to low self-efficacy and aspirations. This psychological situation of poor people makes them under-emphasize the future and exhibit a lack of motivation or passion to invest

in long-term strategies for improvement. Consequently, this perpetuates their poverty across generations, as the lack of investment and focus on long-term goals hinders their ability to escape poverty. Impoverished families also tend to borrow from Micro Finance Institutions (MFIs) and use the money for necessities such as food instead of using it to create a source of income (Banerjee et al., 2019). This also prolongs poverty for generations.

While studies have not directly explored the relationship between intergenerational poverty and psychological factors such as hope, aspiration and self-efficacy, some literature has indirectly addressed this topic. Grusec and Danyliuk (2007) observed a bidirectional relationship between parents' attitudes and their children's future development. Pasquier-Doumer et al. (2015) investigated intergenerational poverty mechanisms among indigenous people in Peru and found that aspirations influence educational success and achievement of high-status professions. Additionally, the study indicated that higher parental aspirations positively impacted children's academic progress between the ages of 12 and 15. In a similar study, Yi et al. (2016) found that there was a negative correlation between poverty and parental hope among adolescents aged 10-19, in contrast to children below the age of 10.This difference in attitudes may be due to adolescents' proximity to entering the labor market, which motivates them to rise out of poverty.

These observations guide us towards more research to understand how and under what conditions psychological factors can play an essential role in explaining and facilitating an escape from household poverty. This thesis focuses particularly on hope as a psychological asset and its relationship with the poverty probability of the households. The upcoming section outlines the research questions and study objectives.

1.4. RESEARCH QUESTIONS AND OBJECTIVES

The objectives of the thesis are two-fold. First, it aims to investigate the causal effect of hope as a psychological asset on a household's Poverty Probability Index (PPI). The study seeks to identify whether hope plays a role in helping families escape poverty or whether hopelessness exacerbates their likelihood of living below the poverty line. Therefore the research question is:

1. *Does the hope level have any causal effect on the likelihood of a household being below the $1.90/day international poverty line?* The study aims to gather quantitative evidence on how the level of hope impacts the probability of a household being below the poverty line by utilizing instrumental regression analysis.

Second, the paper seeks to examine the intergenerational transmission of hope and its relationship with household poverty. The specific objectives with related research questions are as follows:

2 *Is there any "traps" in the way hope is transmitted from parents to children?* The research aims to identify the possibility of a hope trap that could keep multiple generations of a family at a low level of hope. The study utilizes nonparametric local regression analysis to look for multiple equilibria and identify if there is an S-shaped hope curve between hope and poverty that would be consistent with a poverty trap. The research analyzes data from the same households and examine the hope levels of both parents and children.

3 *Can a systematic relationship be observed between levels of hope of parents and their children?* This question aims to explore if there are any other connections beyond the hope trap between the hope levels of parents and their children.

4 *Do hope levels transmitted from parents to children affect household poverty status?* By conducting nonparametric regressions and parametric instrumental regression, the study seeks to explore the impact of intergenerational transmission of hope on household poverty.

5 *Does predicted child's hope impact household poverty at different age categories?* The study aims to distinguish how predicted hope in two different age groups of children (younger than 18 and older than or equal to 18) affects the poverty probability of their households. The following section explains the significance of the study and how it can add value to the literature.

1.5. SIGNIFICANCE OF THE STUDY

In the field of development economics, addressing poverty is always a crucial matter. According to Haughton et al. (2009), there are four reasons why measuring poverty is important. Firstly, it allows for the inclusion of impoverished individuals in development projects. Secondly, it enables appropriate measures to be taken by identifying those in greatest need. Thirdly, it facilitates the monitoring and evaluation of poverty reduction interventions for specific groups. Fourthly, it helps in assessing the effectiveness of organizations aimed at poverty reduction. By quantifying the likelihood of a household being poor and examining one of its internal determinants (hope), this study aims to address poverty eradication, which aligns with the second reason mentioned above.

This study is comprehensive due to its utilization of the asset-based approach, the Poverty Probability Index, to estimate household poverty. The notable aspect of this approach is its efficiency and simplicity, as it only requires 10 context-specific indicators to measure poverty levels within households. Therefore, this research makes a substantial contribution to the framework of asset-based research into household poverty.

This study contributes to the field of behavioral economics by investigating the connection between a particular mindset variable and well-being, specifically by examining the causal impact of hope on household poverty. The identification of internal assets as a means of poverty reduction is a relatively novel concept in development economics. The outcomes of our study can serve as a framework for policymakers and future researchers.

This research is a valuable addition to the limited body of knowledge on the IGT of hope. The significance of psychological assets between parents and children has been acknowledged by some scholars, such as Banerjee et al. (2012), whose book "Poor Economics" demonstrates that children of pessimistic parents may have reduced aspirations, which can impact their economic decisions and lead to a higher likelihood of poverty. Similarly, this thesis delves into the concept of the IGT of hope in the basis of the economics of hope.

This thesis also contributes to the examination of how the transmission of hope from parents to children influences household poverty, which has not been directly investigated empirically before. Nonetheless, some scholars have studied other psychological factors like aspirations and their link to poverty. For instance, Flechtner (2014) discovered that if parents have low aspirations for their children's education, they transfer this attitude to their offspring, which results in lower income levels. These kinds of investigations highlight the importance of exploring similar psychological factors and their correlation with poverty.

CHAPTER 2
STUDY AREA

This section provides an overview of our study area, The United Republic of Tanzania, located in East Africa within the African Great Lakes region. Describing the study area is crucial for understanding the specific geographical location and settings in which our research is conducted. It also offers valuable details that enable others to replicate or conduct similar studies in comparable settings. Furthermore, it helps establish the relevance and suitability of the study area for investigating the causal effect of hope on household poverty. While Tanzania consists of 20 regions, our focus is on two specific regions, namely Iringa and Kigoma, which represent the diverse characteristics of Tanzania as a whole. The following section examines Tanzania's geographical, social, and economic situation.

2.1 TANZANIA

Tanzania is ranked as the world's 31st largest country and is classified as a developing nation with a substantial population living in poverty (Gupta, 2020). It is situated in East Africa and shares borders with several countries, including Uganda, Kenya, Mozambique, Malawi, Zambia, the Democratic Republic of the Congo, Burundi and Rwanda. World Data Lab (2022) reports that 39% of Tanzania's 66.1 million inhabitants live below the international poverty line of $1.90 per day. The country experienced an annual average GDP growth of 6.5% between 2013 and 2018, making it one of the leading performers in East Africa (World Bank, "Economic Update of Tanzania, 2020"). However, it is also regarded as one of the poorest countries globally, exhibiting traits of struggling economies with high levels of poverty (Mandalu, 2016).

Tanzania has been implementing policies and strategies to address its economic situation. Tanzania inherited a market economy from Britain at independence in 1961, and initially focused

on a foreign investment-dependent economic program for industrialization and agricultural development (Boesen et al., 1977; Ngowi, 2009). The government implemented development plans in agriculture and industry to increase production, including the Three-Year Development Plan and the First Five-Year Development Plan (Sansa, 2010). However, in 1967, Tanzania adopted a new development strategy known as Ujamaa, which aimed at nationalization and villagization (Ngowi, 2009; Shivji, 1974; Mandalu et al., 2018).

Nationalization involves converting privately owned companies into publicly owned ones with the aim of increasing the nation's productivity and meeting societal needs by utilizing the surplus resources generated by public enterprises. The goal was to reduce reliance on foreign markets and distribute social welfare more equitably (Sansa, 2010). While the government's plans were initially successful, Shivji (1974) observed the emergence of a class of "state bureaucratic capitalists" who enriched themselves by utilizing state resources, leading to the decline of the Ujamaa system.

Villagization refers to the establishment of collective villages where residents live and work together and have access to necessary public services, functioning as a single society, as described by Mandalu et al. (2018). However, many people were reluctant to join these Ujamaa villages due to the fear that their inherited assets would become state-owned. In 1973, the government compelled all Tanzanians to join, leading to farmers producing only what they needed to consume. Even if they had surplus output, they preferred to sell it on the black market rather than to the cooperative union's official market (Boesen et al., 1999). As a result, Tanzania shifted from being a food exporter to a food importer (Policy Forum & Twaweza, 2009). While Mandalu et al. (2018) acknowledge that the Ujamaa strategy had some success in improving non-income

poverty indicators such as literacy rates, access to medical services, and water supply, it was unsuccessful in reducing poverty indicators.

To address the worsening economic conditions, Tanzania introduced the Economic Recovery Program (ERP) in 1986 aimed at restoring economic stability and accelerating structural reforms, according to Nord et al. (2009). Economic reform in Tanzania occurred in two phases: from 1986 to 1995 and 1996 to 2006. While the first phase showed some progress, many state-owned organizations and banks incurred losses, and there were significant budget deficits and slow economic growth. However, during the second stage of the program (1996-2006), there were visible improvements, including a 7% economic growth rate and lower inflation rates (Nord et al., 2009). In addition, the government introduced the MKUKUTA I and II programs to reduce poverty. Overall developments were part of a shift towards a capitalist economic system, with a focus on private sector-led growth (Ngowi, 2009).

The Tanzania Human Development Report (United Nations Development Programme, 2014) highlights that in the 21st century, Tanzania has placed more emphasis on reducing poverty. The development agenda includes the Tanzania Development Vision (TDV) 2025, National Strategy for Growth and Reduction of Poverty (NSGRP) (also known as MKUKUTA in Kiswahili), and Kilimo Kwanza (Agriculture First). The aim of TDV 2025 is to elevate Tanzania to a medium human development country status by 2025. MKUKUTA is designed to achieve the targets of TDV 2025 and the Millennium Development Goals, with a focus on reducing poverty. Kilimo Kwanza focuses on investment in smallholder agriculture as the engine for economic transformation.

According to Wineman et al. (2020), Tanzania's government has implemented various programs to improve agricultural development, including the Agricultural Sector Development Program (ASDP) I and II, and the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) initiative. These programs have contributed to a 58% increase in Tanzania's agricultural output between 2008 and 2014, as well as expansion in cropped areas and an increase in off-farm work hours. As a result, poverty rates have decreased, and the country is making progress towards structural change. These developments align with the notion that agricultural growth is essential to structural transformation, enabling individuals to exit agriculture in a secure and sustainable manner (Johnston & Mellor, 1961; Jayne et al., 2018).

The World Bank report (2020) reveals that although Tanzania experienced significant economic growth from 2011 to 2018, the country's progress toward reducing the poverty headcount ratio was poor, as indicated by a poverty-to-growth elasticity of -0.26, that is, a 0.26% reduction in poverty rates associated with a 1% increase in mean per capita income (Kakwani, 1990). The COVID-19 pandemic has caused a considerable decline in Tanzania's GDP, from 5.8% in 2019 to 2% in 2020, affecting the tourism sector due to travel bans, reduced external demand, and fall in non-traditional exports.

Therefore, addressing poverty is one of the main challenges for Tanzania now. In this research, we will utilize data from Iringa and Kigoma to assess the impact of hope on household poverty. The following sections shed light on particularly Iringa and Kigoma.

2.2 IRINGA

Iringa Socio-Economic Profile (2013) indicates that Iringa is a region located in the southern highlands of Tanzania, covering an area of 35,743 sq. km. The region consists of three

districts, namely Iringa, Mufindi, and Kilolo, and has a population of 1,122,100, making it the fourth least populous region in Tanzania. Its population growth rate is 2.4%, and it experiences a negative net migration as people move to cities outside of the region like Dar es Salaam. About 40% of people in Iringa rely on agriculture, which has shown a steady increase in output, making it the leading region in Tanzania in terms of agricultural production (Madenge, 2021).

Based on FinScope Tanzania (2017) data, Iringa region has access to water resources from its rivers and the Mtera Dam, as well as fertile land in the flatlands and midlands. The majority of people residing in Iringa are located in rural areas. The literacy rate in Iringa is consistent with the national average, with 85% of the population being literate. Primary education is completed by 63% of people in the region, while 14% have secondary education, and 7% have tertiary education. This suggests that educational resources are unequally distributed between urban and rural areas, with rural areas often having lower literacy rates.

Unequal distribution of wealth is also prevalent in Iringa. More than 66% of Iringa residents belong to the two lowest quintiles, which is higher than the national average of 58%. Iringa is strategically located with fertile land, making it one of the regions participating in the SAGCOT. Agriculture comprises a significant share of the regional GDP at 85% (2013). The majority of people (56%) in Iringa generate income through trade, followed by 22% performing occasional jobs, 8% receiving regular salaries, and 1.4% living off pensions. The region's geographic position grants manufacturers access to nearby markets, particularly in the capital city of Dar es Salaam, as well as markets in cities of Dodoma, Morogoro, and Mbeya. The TANZAM road that passes through the region provides efficient transportation of products and connects Tanzania to neighboring Zambia, enabling the export of various consumable goods such as avocados.

In summary, Iringa region has a strong agricultural sector and has diversified its income sources beyond this industry. It has favorable socio-economic conditions compared to other regions in Tanzania, partly due to its geographic location and infrastructure development.

2.3 KIGOMA

The Kigoma region is located in the western part of Tanzania and covers an area of 45,075 square kilometers. It is made up of six districts, six district councils, one town council (Kasulu), and one municipal council. The total population of the Kigoma region, according to the 2012 census, was 2,127,930. The majority of the population (more than 70%) is employed in the agricultural sector. Although the region's GDP increased significantly from 2006 to 2015, it still needs to contribute more to the national GDP compared to other regions in Tanzania's mainland (Kigoma Socio-Economic Profile, 2016).

Kigoma region has been hosting refugees from Burundi and Congo since 1972 (Masabo et al., 2018). There are three camps in the region where these refugees reside: Nyarugusu, Nduta, and Mtendeli. As per the UN Refugee Agency (UNHCR) reports of January 2018, June 2021, and April 2023, Kigoma had a total of 318,480, 212,241, and 126,471 refugees, respectively.

The presence of refugee camps in Kigoma has a significant impact on the region's socio-economic situation. The study by Masabo et al. (2018) indicates that the refugees have had a positive effect on the economy of the host community. Farming is the main occupation for most residents in the area, and a common market has been established where farmers sell their surplus to both refugees and locals. The refugee camps have provided additional consumers and a source of cheap labor. Furthermore, international organizations such as the UNHCR and IOM have created job opportunities for both refugees and the host community.

In contrast to the increasing trend of refugees in Tanzania since 1994, there was a decrease in their number in 2000, with only 113,180 migrants remaining by January 2011 compared to 883,300 in 1994 (UNHCR 2011; Betts & Milner, 2006). The closure of the Mtabila camp in 2012 resulted in a decline in job opportunities as the international organizations associated with the camp ceased their operations. Moreover, agricultural production was also affected as there were no more refugees to provide cheap labor. This closure also impacted the host communities who lost access to services like schooling and medical care that were originally established for refugees (Lupala, 2015).

Our study covers two distinct locations: Iringa and Kigoma. Iringa is located in one of the regions of SAGCOT, making it geographically advantageous, while Kigoma is significantly influenced by its refugee populations. According to 2020 data from the Statista (2020), the per capita GDP of Iringa and Kigoma is 1740 USD and 850.22 USD, respectively. Kigoma had the highest poverty headcount ratio in 2011 at 49% (Kilama, 2016), despite having larger households than Iringa. However, household income in Iringa is six times higher than in Kigoma (Tanzania National Panel Survey, 2019).

Despite these differences, both regions have offered economic opportunities to their residents. Iringa's inclusion in the SAGCOT and proximity to highways connecting neighboring countries has facilitated growth in the agriculture sector and provided new market access and fertile land, leading to an increase in the regional GDP. On the other hand, the influx of refugees in Kigoma has created new markets for local products and job opportunities (Lupala, 2015), while return of refugees to their homes in neighboring countries has reduced these opportunities. Thus, these two regions represent contrasts in the diversification of Tanzania's rural economy.

CHAPTER 3
CONCEPTUAL FRAMEWORK

This section discusses the conceptual framework for our research, which serves two main purposes. First, we hypothesize the causal effect of hope on household poverty. Second, we discuss the theoretical context to explore the relationship between IGT of hope and PPI.

3.1 RELATIONSHIP BETWEEN HOPE LEVEL AND HOUSEHOLD'S POVERTY STATUS

In order to examine the causal connection between household poverty and the level of hope, we utilize the Poverty Probability Index (PPI) as a measure to assess the probability of a household falling below the poverty line of $1.90 per day. In a validity assessment of the PPI conducted by Desiere et al. (2015), it was determined that it is a cost-effective, easy-to-measure, timely, and location-specific tool for assessing poverty. To minimize the influence of factors other than the level of hope on household poverty, we include different socioeconomic factors as control variables. These variables include different demographic characteristics, and whether the household has experienced any disasters or conflicts within the past 12 months.

Numerous studies have established that poverty is influenced by factors such as family size, gender of the household head, and geographical location. For instance, Yusuf et al. (2015) conducted a study in the Mkinga district of rural Tanzania and discovered that larger households tend to be poorer, despite having more people to contribute to the labor force. Additionally, female-headed households are more likely to be impoverished, mainly because of limited income-generating opportunities in rural areas like Tanzania (Apata et al., 2010). According to Munoz Boudet et al. (2018) from the World Bank Group, the level of poverty in households varies based

on their demographic characteristics. Specifically, households that include non-earning adults and children are more prone to experiencing poverty. Geographical location is another determinant of poverty, as it influences the availability of economic opportunities in a region (Fofack, 2002; Nolan, 2017). Besides, areas with high population density are more likely to experience poverty (Minot, 2006).

Several studies have showed the detrimental impact of disaster in human well-being. Particularly, natural disasters like floods, droughts, and hurricanes can cause increase in poverty levels, particularly in developing nations (Munir and Malik, 2018; Renaud et al., 2016). For instance, poverty levels in Nepal rose by 3.5 percent after the 2015 earthquake, with the poorest households being the most affected. Research conducted by Brouwer et al. (2016) also indicated that households in drought-stricken areas in Ethiopia experienced a significant decline in their economic well-being.

Conflict is another determinant that can have a significant impact on poverty. For instance, many countries in sub-Saharan Africa have had detrimental economic effects because of ongoing conflicts over the last two decades (Luckham et al., 2013). Conversely, chronic poverty can also lead to conflicts if there is a lack of political representation and governance, as noted by Goodhand (2001). Thereafter, Figure 1 depicts the causal effect of a household's hope level on their PPI while accounting for control variables. The next section provides more details on how hope as a psychological asset affects poverty.

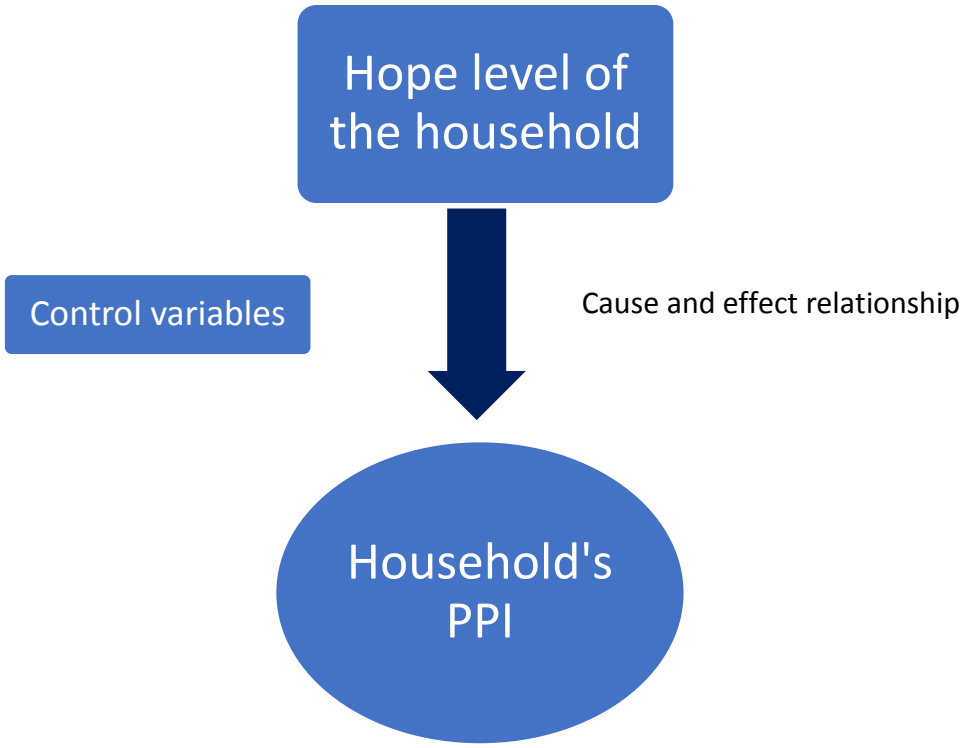


Figure 1: Conceptual Framework Of The Causal Relationship Of Hope Level On Household's Poverty Probability Index.

3.2 PSYCHOLOGICAL POVERTY

Understanding the psychological aspect of economics is crucial to maximizing its anti-poverty benefits (Lybbert & Wydick, 2018). De et al. (2018) describe how economic shocks can cause depression, which can negatively impact a person's ability to function, reducing investment and labor market participation and trapping individuals in a lower standard of living. Such shocks can affect a person's psychological and physical condition, which, in turn, affects future productivity and optimal levels of investment (Barrett et al., 2018). In this thesis, the focus is on hope as a psychological asset that can impact household poverty.

Lybbert and Wydick (2018) present an economic framework that proposes how hope, comprising three components (goal, agency, and pathways), can impact an individual's overall well-being. In this model, the targeted outcome is represented as Y, and the aspiration or goal is denoted by the exogenous variable G. The model suggests that individuals strive to attain a specific outcome level, known as the goal or reference point, which reflects their aspirations. The level of aspiration affects the individual's utility[4], which is represented by the shape of the utility curve[5] shown in Figure 2. As long as the individual achieves their aspiration or goal (G), the utility curve will rise, but beyond that point the overall utility does not increase[6].

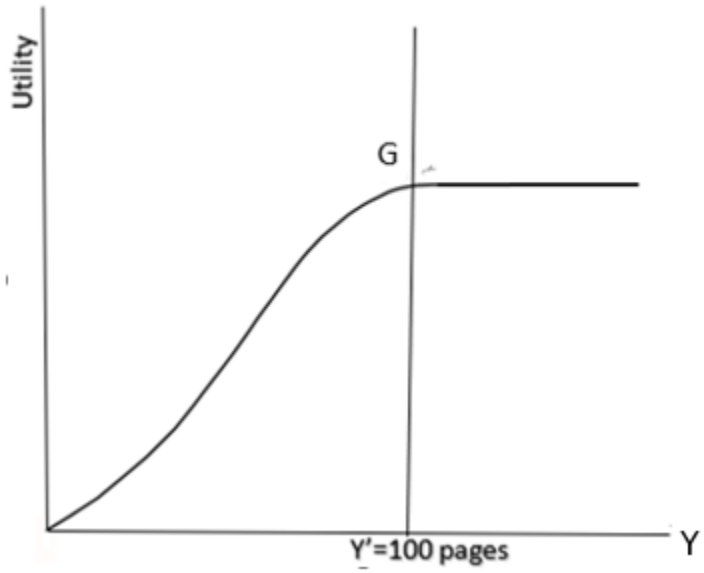


Figure 2 : Individual's hope-based utility curve.

[4] In economics, utility refers to the level of satisfaction or happiness a consumer derives from achieving or consuming a particular good or service.

[5] A utility curve shows the maximum level of satisfaction, or utility, that a consumer can obtain from consuming different combinations of goods and services, given their budget constraint.

[6] We can relate this to satiation, which refers to maximum satisfaction or fulfillment, where the further outcome does not increase overall utility.

If we consider another element of hope, which is agency, it can be explained by the productivity of an individual's effort to attain their goal or targeted outcome. When individuals aim for higher outcomes, they exert more effort, and the incremental level of effort increases until they achieve their desired outcome (G). After achieving the goal, the incremental level of effort decreases, leading to a nonincreasing level of utility from additional output, which then reduces motivation for the individual to maintain the same level of effort as before.

Imagine a student who is working on her master's thesis and aims to write 100 pages (Y') because she believes it is the standard length. In figure 2, the target outcome of 100 pages is represented by "G". As the student approaches this goal, her incremental effort and utility increase. This effort is driven by the hopeful expectation of achieving the desired output. However, if the professor demands the student to write more pages beyond 100, her motivation and productivity decrease as the utility of writing more pages does not increase. The student may put in less effort because she feels that 100 pages are enough for a standard thesis, as illustrated in figure 2. To address this situation, one possible solution is to alter the individual's perception of what constitutes a sufficient length for the thesis. This would involve increasing the goal or aspiration beyond the current 100-page target and thereby elevating the overall level of hope.

3.3 TRANSMISSION OF HOPE FROM PARENTS TO CHILDREN

This part of the study focuses on how hope levels in households transfer across generations. Firstly, we investigate the possibility of an autoregressive psychological trap known as the "hope trap" between the hope levels of parents and their children. Additionally, we investigate how the predicted hope level of a child can affect the probability of being poor for a household. To fully understand this Intergenerational Transmission (IGT) of hope, we must first explain the poverty

trap in the context of hope, as well as other possible systematic relationships between parent's hope and child's hope and their relationship with PPI.

3.3.1 POVERTY TRAP

According to Barrett et al. (2018), poverty traps can be found at different levels, including the macro, meso, and micro levels. While some areas have experienced sustained economic growth and reduced poverty levels, other areas, such as sub-Saharan Africa, continue to face persistent poverty at the macro level. At the meso level, asset accumulation, transformation, and distribution are influenced by synchronization, collaboration, and competition among communities, groups, networks, and local jurisdictions. The connections among these units play a crucial role in determining the economic equilibrium of the community (Barrett & Swallow, 2006). While some researchers have focused on the existence of a micro-level poverty trap at the individual and household level, this thesis paper specifically examines the poverty trap at the household level.

By following the dynamic form of Azariadis and Stachurski (2005), Mohapatra (2021) describes a poverty trap using mathematical terminology as shown in equation (1).

$$A_t = \mathrm{f}\,(A_{t-1}, T_t(.); \mathrm{b}, \xi_t) \qquad (1)$$

Here, A_t is the current level of a household asset which depends on the past level of a household asset denoted by A_{t-1}, the productivity of asset production (T_t), and an independent and identically distributed ability shock (ξ_t). The parameter b indicates the autoregression parameters that connect the current and past assets while f refers to the asset production function. By incorporating the individual ability level of each household member, the asset trajectory of a household depends on its past assets and unobserved ability levels that vary across households.

Furthermore, the shock affects the welfare dynamic of households at different points of the asset distribution, helping to identify the distinction between transient and persistent poverty.

In this thesis, we consider hope as a psychological asset of a household, and this asset is transferred from parent to child. Therefore, we can rewrite equation (1) as:

$$H_C = \mathrm{f}\,(H_P, T_t(.); \mathrm{b}, \xi_t) \qquad (2)$$

In equation (2), the child's hope level (H_c) is our current asset and the parent's hope (H_p) is a past asset. And other parameters are same as equation 1.

We can experience different situations due to the negative shock[7] of identical households. Graph 1, below, shows the following:[8]

1. A negative shock will have a temporary effect on the welfare dynamic of the household if the household asset accumulation path follows a stationary linear autoregressive process[9] (Jalan & Ravallion, 2004). This implies that the child's hope is a linear function of the parent's hope and the time it takes for the household to recover from the shock.
2. If we analyze a neoclassical production function that can produce nonlinear household hope dynamics, the thin line in figure 3 indicates that the welfare dynamic eventually converges to the stable equilibrium E2 according to the standard economic growth model (e.g., Solow model[10]). However, convergence can also rely on specific attributes or factors.

[7] Negative shock refers to an unexpected shock that has an adverse effect on a household's economic condition.
[8] The graph and the explanation of the graph are taken from Mohapatra (2021).
[9] A stationary linear autoregressive process is a statistical model used to describe time series data where the current value of a variable is a linear function of its past values. This process is stationary, meaning that the statistical properties of the series do not change over time.
[10] Solow model is an exogenous growth model that explains how labor and capital accumulation increase economic growth. And diminishing returns keep growth temporary.

In this scenario, groups of households with similar observable characteristics can attain their unique stable equilibrium. Thus, regardless of where the household is when the shock hits, the household will always return to E2, given the aggregate asset path.

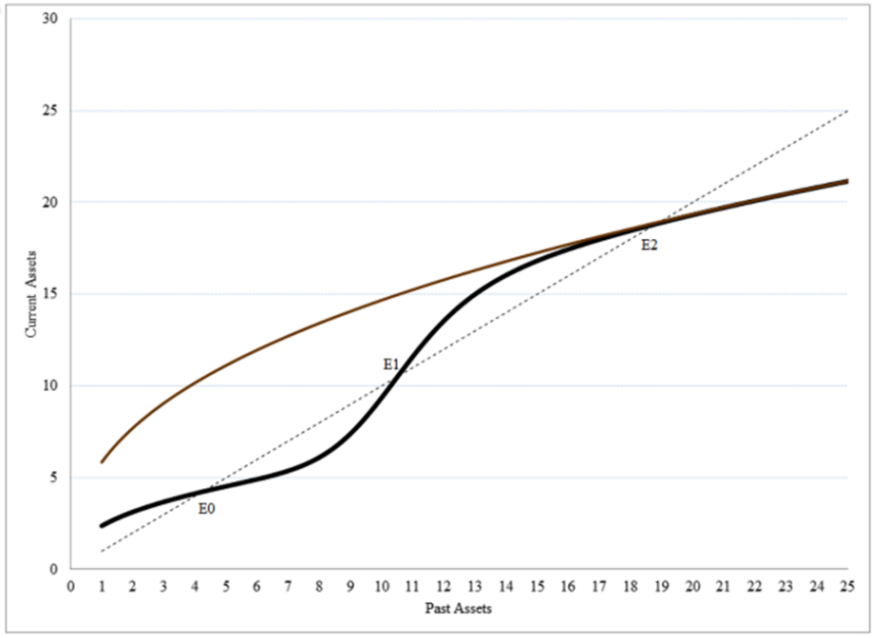


Figure 3: Asset paths of two different economies (Mohapatra, 2021).

3. In another case, the dynamic household equilibrium could be non-convex,[11] where production technology shifts across lower and higher initial asset levels (Azariadis & Stachurski, 2005). The thick curve of the S-shaped pattern shows non-convexity and multiple equilibria and indicates the nonlinear relationship between parent's and child's hope levels (assets). This means that households with parent's hope above the threshold level, E1 are pushed up to the high equilibrium while households with hope levels below

[11] Nonconvexity is a property of a production function or welfare function where the shape of the function is not strictly convex, meaning that the function does not increase at an increasing rate for all levels of the input variables.

E1 are pulled back to the low equilibrium. The hope dynamics of the poor and rich diverge to different equilibria. E0 and E2 are stable equilibria, with households below the threshold converging to E0 and those above converging to E2. Therefore, the household whose post-shock hope level is below the threshold level will be trapped in a low equilibrium. Factors like household characteristics, environment, time, and geography determine the threshold level, as mentioned in Jensen et al. (2017).

3.3.2 SYSTEMATIC RELATIONSHIP BETWEEN PARENT'S AND CHILD'S HOPE AND THEIR EFFECT ON PPI

One of our specific research objectives is to investigate any systematic IGT of hope. Figure 4 depicts how hope is passed down from parents to their children. There is a positive gap between parents and children until the hope level reaches point X, suggesting that hope is being accumulated from parents to their children. Conversely, when the hope level exceeds threshold X, it denotes that children have a lower level of hope than their parents, indicating a negative accumulation of hope from parents to children.

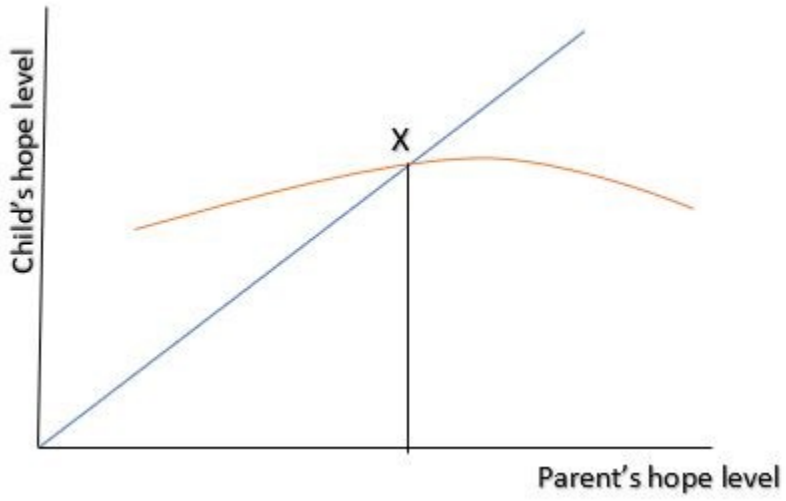


Figure 4: Systematic Relationship Between Parents and Child's Hope Level.

In addition, we hypothesize that the transmission of hope from parents to children has an effect on the household's PPI. As depicted in Figure 5, the predicted hope of a child is determined by the hope of their parents, which in turn impacts the PPI of the household. This association helps us to accomplish the second aim of the thesis.

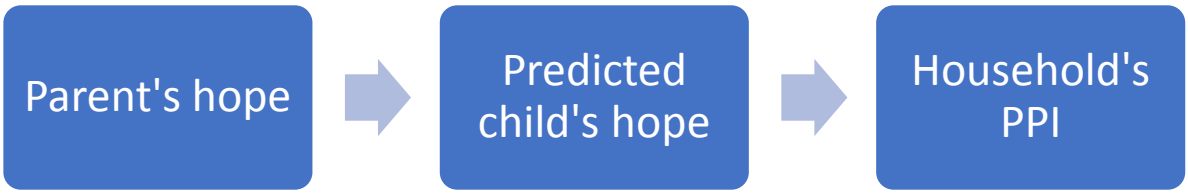


Figure 5: Transmission of Hope From Parents to Children And Their Impact on Household's PPI.

CHAPTER 4
DATA

4. DATA

The data utilized in this thesis was acquired through an assessment of Empowered World View (EWV), a project model initiated by World Vision (WV), a Christian non-profit organization. The EWV model aims to enhance child well-being by encouraging changes in people's behavior and understanding how people's mindsets and actions affect their families and communities. Starting in 2019, WV Tanzania and WV International have collaborated with the Ifakara Health Institute and the University of Alberta to assess the impacts of the EWV model in the Iringa and Kigoma regions of Tanzania. This involved collection of qualitative data through focus groups and key informants and quantitative data through surveys.

This research used quantitative information that was gathered between July and August 2020 from four World Vision area programs (APs) in Tanzania. Two APs were in Kigoma and two in Iringa, two regions with distinct characteristics as described in chapter 2. A two-stage cluster sampling method was used to collect the data, whereby specific villages were selected in the first stage, and a sample of households was chosen in the second stage. The survey was conducted by six teams of experienced enumerators who were supervised by team leaders. WV Tanzania provided a list of villages, and village leaders assisted in identifying heads of households from families that were randomly selected. The data comprised comprehensive information about demographic, anthropometric, socioeconomic, and mindset variables.

This study focuses on households as the primary unit of analysis. The data was collected from a representative of each household, who was usually the head of the household. A total of 14,273 respondents from 2,816 households were surveyed, including 3,032 young children under

the age of five, 3,391 adolescents, 3,116 adult females, and 2,667 adult males. In this study, children are defined as the sons or daughters of the household's head and the total number of such children is 7918. Among them, there are 6817 children who are below 18 years old, and 1101 children who are 18 years old and above. The parents in the analysis are considered to be the household head and their spouses, resulting in a total of 4974 parents. The questions relating to hope were asked to all members of the household aged between 10 and 49 years old.

From the baseline report (2021) of EWV, we obtained the following table regarding characteristics of interviewed households from Iringa and Kigoma.

Household characteristics	Study region	
	Iringa N=1,414	Kigoma N=1,400
Religion	**% (95% CI)**	**% (95% CI)**
Christian	99.1 (98.5-99.5)	87.8 (84.9-90.2)
Muslim	0.6 (0.3-1.2)	4.64 (3.0-7.0)
No religion	0.2 (0-0.6)	0.2 (0-0.6)
Household wealth		
Lowest	17.7 (14.7-21.1)	50.6 (41.4-59.8)
Second	19.1(17.0-21.4)	36.8 (29.2-45.3)
Middle	29.9 (25.6-34.7)	8.7 (5.7-13.2)
Fourth	33.2 (29.1-37.5)	3.8 (2.1-6.9)
HH with at least one adult earning a regular income	36.5 (28.7-44.9)	44.5 (41.7-47.4)
Access to water source		
Protected source*	68.5 (63.1-73.6)	50.3 (42.0-58.6)
Household has its own water tap	11.4 (7.7-16.4)	6.2 (3.9-9.4)
Unprotected source**	20.1 (14.5-27.1)	43.6 (34.1-53.5)
Access to sanitation facilities		
Improved	56.1 (51.4-60.7)	8.7 (6.0-12.4)
Not improved	43.4 (38.9-47.9)	88.2 (84.8-90.9)
No service	0.5 (0.2-1.0)	3.1 (2.1-4.4)

*Public piped water, public fountain, protected borehole, protected hand-dug well, and protected spring)
*Open well, river, pond, lake, canal, unprotected spring, dam, unprotected rainwater)

Table 1: Household's Characteristics of Iringa and Kigoma (Table is taken from WV Tanzania (2021))

Table 1 shows that Christianity is the predominant religion in both Iringa and Kigoma regions. Nevertheless, there are notable differences in household characteristics between the two regions. Iringa has a lower percentage of households in the lowest level of wealth compared to Kigoma. Despite having a greater proportion of impoverished households, Kigoma has more households with at least one regular earner. Access to safe water and improved sanitary facilities are also more prevalent in Iringa than in Kigoma.

To precisely evaluate the economic status and poverty levels of each household, the survey gathered thorough data on household assets and composition. This information encompassed building materials, water and fuel sources, and possession of items like televisions, radios, tables, cattle, and crops. The survey also collected data on household composition, such as the number of children, the marital status of the household head, and gender composition. As a possible factor that may contribute to poverty, the data also inquired if households had experienced any disasters or conflicts within the previous 12 months.

The data also included questions to measure the mindset of individuals, with a specific focus on hope. The researchers first selected a set of validated hope questions from the literature by Scioli et al. (2011) and refined the mindset questionnaire through ethical clearances. The survey categorized hope into four basic channels: mastery, attachment, survival, and spiritual systems, all of which are influenced by biological motives, family, culture, and spiritual beliefs. Based on these categories, the data focused on eight positive hope statements to obtain a hope measurement for the study. Respondents were asked to rate their agreement with each statement using a Likert scale from 1 to 4 (ranging from strongly disagree to strongly agree). The attachment channel of hope

was measured by asking respondents if they had people they could trust and if they felt loved by someone. The survey measured the mastery channel of hope by asking respondents about their sense of progress and the purpose of their life. To assess the survival aspect of hope, respondents were asked how they could handle difficulties and their perception of future opportunities. The survey also evaluated the spiritual channel of hope by asking respondents if their faith in a higher power made them feel stronger and empowered them to succeed.

CHAPTER 5
EMPIRICAL ANALYSIS

This section delivers an analysis of the descriptive statistics, variable definitions, and an econometric model of the study. At first, paper discusses the variables that we used in our model. After that, we describe our empirical method to explore causal effect of the hope on household poverty, and then we go through the analysis of IGT of the hope.

5.1 VARIABLE DEFINITIONS AND DESCRIPTIVE STATISTICS

In this section, we go into the model specification and define variables and descriptive statistics of our 2SLS instrumental regression analysis and IGT of hope.

The Poverty Probability Index (PPI) is our key dependent variable. The PPI is an established statistical technique for estimating poverty on the basis of a selective group of 10 asset indicators from the country's National Household Income and Expenditure Survey or country-specific World Bank Living Standard Measurement Survey (Progress out of Poverty Index, 2008). According to Schreiner (2016), to measure a country's poverty, the asset-based approach is more accessible, less costly, and verifiable compared to the consumption survey-based approach. Our data is derived from asking respondents about 10 household-asset-related questions (for instance, house construction materials, whether the families have a table, television, cattle) from the 2011/12 Household Budget Survey administered by Tanzania's National Bureau of Statistics (NBS). Households received a score based on the answers they choose. Afterwards, we converted the score to determine the likelihood that a household lives below the poverty line and expressed the likelihood as a percent. Thus, we obtained the PPI, which denotes the probability that the households were living below the international poverty line ($1.90 per day, 2011 PPP) at the time of the survey.

In our 2SLS instrumental regression model, the primary variable of interest is a household's hope level. To calculate the hope score, eight positive survey questions were designed to elicit responses from household members between the ages of 10 and 49. The respondents used a 4-point Likert scale ranging from strongly disagree to strongly agree. The Likert scale responses were later converted into a binary scale, resulting in two types of categorical variables. In this binary scale, the category of "more hopeful" only included responses of strongly agree, while the category of "less hopeful" encompassed all other responses. To calculate the hope score for each household, the eight hope measures for each respondent within the household were averaged. Then the average across household members was calculated to obtain a household average. This average represents the hope level of the household. Since the study hypothesizes that a higher hope level would reduce the probability of a household falling below the international poverty line, we expect the sign of the hope variable in our model to be negative.

The poverty level of a household is influenced by various demographic characteristics besides hope. To eliminate confounding variables that may lead to an inaccurate estimation of the relationship between PPI and a household's hope level, we included different demographic variables such as the gender of the household head, family composition, and marital status. In Tanzania, females tend to earn less than males (Apata et al., 2010), so that a female-headed household where the woman works outside the home may have a higher likelihood of being poor. On the other hand, a male-headed household could be less likely to be poor. Therefore, we expect a negative correlation between PPI and male-headed households. A higher proportion of females in a household could also lead to an increased probability of being poor, and the "female-male ratio" variable is expected to be positively correlated with PPI. However, the relationship between family size and poverty is ambiguous. Although larger families with more dependent children may

have a higher likelihood of being in poverty, having more members with earning capacity could reduce the probability of being in poverty. The number of children and adolescents per adult member in a household could also affect poverty in either direction. In this study, we also considered whether the household head is married or living together as a control variable, but the expected sign for this variable is unclear as a married person may have higher expenses as well as more people to earn income.

According to the descriptive analysis, the socio-economic condition in Kigoma is worse than in Iringa. Therefore, we hypothesize that there is a positive correlation between PPI and Kigoma. We also anticipate that households that have experienced disaster and conflict are more vulnerable to being below the poverty line, and therefore, we expect a positive correlation between those variables and poverty.

Table 2 presents an overview of the variables at household level analyzed in this study. Our outcome variable, PPI, represents the probability of a household being below the poverty line, with an average of 43.42% among the 2816 households surveyed. the average hope level of households is measured to be 0.13 on a scale ranging from 0 to 1. This indicates that, overall, the households tend to have a relatively low level of hope as indicated by the proportion of members strongly agreeing with the positive hope questions. Considering this statistical finding, it can be assumed that there is room for improvement in raising the hope level. In our study sites, 78% of responding households were headed by males, with an average household size of five people and 58% of households living with a partner. The female-male ratio is 1.3, and there are 1.6 young people per adult member, on average. About 27% of households experienced a disaster in the past 12 months, while 11% experienced conflict. Approximately 27% of households encountered a disaster within the previous year, whereas 11% experienced conflict. It is worth mentioning that

VARIABLES	VARIABLES DEFINITIONS	Total Number	MEAN	STD. DEV.
PPI	The likelihood of households living below the international poverty line ($1.90 per day, 2011 PPP)	2816	43.42	20.27
Hope level	Average of binary hope of all members (10<=age=<49) of the household. (0=least hopeful, 1=most hopeful)	2816	.127	.157
Gender of household head	Gender of the household head. Male=1 and female=0	2803	.785	.411
Region	Name of the region. Kigoma=1 and Iringa=0	2816	.497	.5
Female-male ratio	Female-male ratio = (total number of females/ total number of males).	2679	1.312	1.031
Youth-adult-ratio	Youth-adult ratio = (sum of kid + adolescent)/total number of adults. This implies the sum of kids and adolescents per adult in a household. Kid=less than or equal to 9. 9< adolescent<20; 19<adult	2811	1.604	1.118
Married/live together	1= if the household head is married or living together with a partner. 0=otherwise.	2603	.583	.408
Disaster	If a household has faced any disaster/shock or stress in the past 12 months. Yes=1, No=0	2814	.274	.446
Family size	Total number of family members.	2814	5.07	2.159
Conflict	If respondents experience any community conflicts, e.g., farmers vs. pastoralist conflicts or others like armed which threaten peace? 1 = Yes and 0 = No.	1361	.114	.29
Access to disaster Inf.	An instrumental variable of our model that refers to whether households have access to formal early warning information about disasters for early action. Yes = 1 and No = 0.	2814	.45	.5

Parents' hope	Average of categorical hope variable of parents at household level. (1=least hopeful, 4=most hopeful)	2,067	3.22	.39
Children hope	Average of categorical hope variable of children at household level. (1=least hopeful, 4=most hopeful)	1266	3.18	.38
Predicted child hope	Expected child hope which is derived by regressing children hope on parents' hope.	1,958	3.15	.20

Table 2: Variable Definitions and Descriptive Statistics at Household Level.

the variable "conflict" had a total of 1361 responses, which is notably lower compared to the number of observations for other variables. We also include an instrumental variable, "access of disaster Inf.", to avoid endogeneity in the regression model, which indirectly affects PPI through the hope level of a household. Almost 45% of households have access to formal early warning information about disasters.

To explore the intergenerational transfer of hope, we focus on the hope levels of parents and children residing in the same household. Here, household's heads and their spouses are considered as parents and son/daughter of household's head are taken as children. Initially, we divide the dataset into two groups: one for parents' hope and another for children's hope within each household. We then calculate the average values of the eight categorical hope variables for both groups, which were measured on a 4-point Likert scale ranging from strongly disagree to strongly agree. This process results in separate datasets for parents' hope and children's hope. Table 2 shows that mean of parents' hope (3.22) is higher than the mean children's hope (3.18). However, we expect a positive association between the hope levels of parents and their children.

5.2 CAUSAL EFFECTS ON POVERTY LIKELIHOOD OF HOPE LEVEL OF THE HOUSEHOLD

The empirical model to explore causal relationship of hope on household's PPI is as follows:

$$PPI_i = ß_0 + ß'H_i + ß_1 gender_i + ß_2 region_i + ß_3 familysize_i + ß_4 femalemale\ ratio_i + ß_5 Youth\_adult\_ratio_i + ß_6 disaster_i + ß_7 conflict_i + ß_8 married_i + \mu_i \quad (3)$$

Equation (3) represents a multivariate regression where Poverty Probability Index of the ith household (PPI_i) is the dependent variable and the hope level of the ith household (H_i) is the main variable of interest. The error term μ_i is assumed to be independently and identically distributed and captures the unobserved factors that may affect PPI but are not included in the model. $ß_0$ can be interpreted as the predicted value of the PPI when all the independent variables in the model are set to zero. In other words, it represents household's probability of being below the poverty line when there are no explanatory variables influencing it. The coefficient $ß'$ represents the amount of change in PPI per unit change in the hope level, all else being equal.

Additionally, the coefficient $ß_1$ in the regression model quantifies the difference in the PPI between male-headed households and female-headed households, holding all other variables constant. A positive value of $ß_1$ implies that male-headed households have a higher PPI compared to female-headed households, while a negative value suggests that female-headed households have a higher PPI compared to male-headed households. Similarly, $ß_2$ represents the amount of change in mean value of PPI when the study area changes from Iringa to Kigoma. The coefficients $ß_3$, $ß_4$, and $ß_5$ denote the changes in average value of PPI per unit change in size of the family, female-male ratio, and youth-adult ratio respectively. The coefficients $ß_6$ and $ß_7$ capture the effect of any disaster and conflict respectively that occurred in the last twelve months on the mean value of PPI. Lastly, $ß_8$ reflects the average value of PPI when the household's head is married or living together with their partner.

For causal inference, the main empirical challenge is the endogeneity of hope. Here, apart from the hope level and control variables, the error term (μ_i) encompasses all other factors, such as income level. It suggests that there could be a correlation between the hope variable and the error term (μ_i) through income because higher income levels may positively affect hope levels. Consequently, it is possible that the error term may not have a zero covariance with the hope variable, i.e. Cov(H_i, μ_i) $\neq 0$. This can result in a biased and inconsistent estimation.

To overcome the endogeneity issue, we looked for an instrumental variable (IV) that will be associated with the endogenous predictor H_i and not correlated with the error term. Besides, IV has an indirect association with the output variable PPI through the hope variable, which ultimately determines PPI. The paper employs getting an early warning about the disaster as an instrumental variable that fits our model the best.

In order to establish the validity of this as an instrumental variable, we checked if it satisfied the two conditions for an acceptable IV. First, the IV is not correlated with the error term, i.e.; Cov(IV, μ_i) $= 0$. In this model, one of the control variables used is whether people experienced any disaster in the last year, which minimizes the chances that the disaster-related variable will be absorbed in the error term. Thus, we hypothesize that our chosen instrumental variable of getting an early warning about the disaster has no correlation with the error term.

Second, IV is correlated with the endogenous hope variable, i.e.; Cov(IV, H_i) $\neq 0$. Prior research has indicated a correlation between disasters and individuals' psychological state, including anxiety, depression, and hopelessness (Makwana, 2019). According to Zulch (2019), receiving early warning about disasters can help to prepare, improve skills and confidence, and manage emotions better, ultimately reducing the psychological impact of the disaster. Therefore,

we hypothesize that our instrumental variable also has a direct relationship with the psychological state of hope. Besides to assess the validity of our instrument and to test the overall significance of the instrument variable in explaining the variation in the endogenous variable, we conduct the F-test. In this case, the F-statistic is 42.4909, indicating a significant relationship between the instrument and the endogenous variable.

In addition, it is important to note that the Instrumental variable should not have a direct impact on the outcome variable, PPI. Instead, its influence should only be mediated through the endogenous variable, which is the hope level. Therefore, the accessibility of respondents to an early warning system concerning the disaster process should be exogenous.

In our research area, The United Republic of Tanzania has a Disaster Management (DM) Committee structure that operates at both the village and national levels. This structure ensures that individuals and households have access to information pertaining to potential disasters. Such information is crucial in enabling people to prepare coping mechanisms and strategies in the event of a disaster. Access to this information is facilitated through various channels, including the Disaster Management Committees and Extension Officers/Government officials. In rural areas, some households could obtain meteorological conditions through television, cellphone and then share this information with others. For instance, farmers can obtain early indications of impending drought from their committee or Agricultural Extension Officers allowing them to make informed decisions such as cultivating drought-resistant crops like sweet potatoes, cassava, or using tolerant seeds.

To explore whether the hope level has a causal effect on PPI, we conduct a two-stage least square (2SLS) instrumental variable regression. The equations of the 2SLS regression are as follows:

First stage regression: $H_i = \gamma_0 + \gamma_1 X + \gamma_2 Z + \varepsilon$ or, $\widehat{H} = \widehat{\gamma_0} + \widehat{\gamma_1} X + \widehat{\gamma_2} Z$ (4)

Second stage regression: $PPI_i = \alpha_0 + \alpha_1 X + \alpha_2 \widehat{H} + \varepsilon 1$ (5)

In the model, H_i is the endogenous variable hope level for individual i, PPI_i represents PPI of the ith household, and the expected hope level is denoted by $\widehat{H}$. Besides, X refers to all the control variables that are mentioned in equation (3), while ε and ε1 are error terms that are assumed to be independent and identically distributed. Z is the instrumental variable, which represents getting an early warning about the disaster. In the first stage, we obtain estimated coefficients denoted by $\widehat{\gamma_0}$, $\widehat{\gamma_1}$, and $\widehat{\gamma_2}$ which are not influenced by error term, ε, the source of the endogeneity. In the second stage, we replace the endogenous variable with the expected hope level of the household, $\widehat{H}$ to measure the causal effect on PPI.

5.3 INTERGENERATIONAL TRANSFER OF HOPE

To examine the impact of a parent's hope level on their child's hope level, as well as the potential influence of the child's predicted hope on household poverty, this study utilizes local polynomial non-parametric regressions. Nonparametric regression is employed in this case to capture the non-linear relationship between variables, specifically allowing the incorporation of S-shaped functions instead of imposing a predetermined functional form. First, we regress the child's hope on the parent's hope level to establish the conditional mean function. This function represents the predicted hope level of the child and can be expressed as:

$$E(H_C|H_P) = \widehat{H}_c \quad (6)$$

Where, parent's hope level is Hp, child's hope level is H_C and $\widehat{H}_c$ reflects the predicted hope level of children. Equation (6) specifies the predicted value of a child's hope conditional on the parent's hope. Therefore, the local polynomial regression can be expressed as follows:

$$H_c = ßH_p + \upsilon_i \quad (7)$$

Here, H_c represents the dependent variable, children's hope and H_p is the only explanatory variable, parent's hope. υ_i is the error term assumed to be independently and identically distributed. ß represents the amount of change in children's hope per unit change in parent's hope. To identify any hope poverty trap across generations, we seek to explore if there is any S-shape in the graph produced by above local polynomial nonparametric regression.

Second, to estimate the relationship between the predicted hope level of a child (derived from equation 6) and the PPI of the household in which he or she lives, we conduct another local polynomial nonparametric regression. Now we regress household's PPI on predicted child hope. The equation is as follows:

$$PPI_i = \alpha'\widehat{H}_c + \varepsilon' \quad (8)$$

Here, PPI_i represents the poverty probability index of the ith household and $\widehat{H}_c$ is the predicted child's hope. Additionally, ε' is the error term assumed to be independently and identically distributed. The coefficient α' quantifies to what extent the per unit changes in the predicted child's hope affects the PPI of the household.

5.3.1 PREDICTED CHILD HOPE AND PPI USING 2SLS INSTRUMENTAL REGRESSION

The study analyzes another 2SLS instrumental regression to identify the causal effect of predicted child's hope on household's PPI. We estimate the parameters of equation (9), where the

dependent variable is PPI and determined by predicted child's hope (derived from the equation 6) and similar control variables that are used in equation (3). We can write the equation as follows:

$$PPI_i = \phi_0 + \phi' \widehat{H}_c + \phi_1 \text{gender}_i + \phi_2 \text{region}_i + \phi_3 \text{familysize}_i + \phi_4 \text{femalemale ratio}_i + \phi_5 \text{youth\_adult\_ratio}_i + \phi_6 \text{disaster}_i + \phi_7 \text{conflict}_i + \phi_8 \text{married}_i + \nu_i \quad (9)$$

Equation (9) shows a multivariate regression to estimate the effect of the predicted child's hope ($\widehat{H}_c$) on household's poverty status (PPI_i) over household (i=1, 2…, n) and ν_i is the error term assumed to be independent and identically distributed (i.i.d). The coefficients ϕ_0 shows the value of PPI when there is zero effect of any explanatory variables. Furthermore, ϕ'reflects the amount of change in the PPI per unit change in the predicted hope level of children. However, coefficients of all the control variables, ϕ_1-ϕ_8 are similar as explained above for equation (3).

The predicted child's hope ($\widehat{H}_c$) in equation (9) has a similar endogeneity issue as discussed in section 5.2. To address this issue, we require instruments for both parents and children, as well as for the interaction between the parent-child variable. However, developing such instruments is beyond the scope of our current research and could be explored in future studies. Therefore, in this paper, we utilize the same instrument for both parents' hope and child's hope, which is access to early warning in the disaster system. This instrument is not expected to be correlated with the error term but is directly associated with the endogenous predictor ($\widehat{H}_c$) and indirectly related to the output variable (PPI_i). In section 5.2, we have already discussed the validity of this instrumental variable in detail.

CHAPTER 6
RESULTS AND DISCUSSION

This section includes our findings and discussion of the results. First, we present findings on the causal effect of household hope level on household's poverty status. After that, we look at the pattern how parents and children are linked through IGT of hope and the subsequent impacts on household's PPI.

6.1 FINDINGS OF THE CAUSAL EFFECT OF HOPE ON HOUSEHOLD POVERTY

Table 3 displays two models of 2SLS instrumental variable (IV) regressions and model 1 also includes regression outcome of first stage. Here, dependent variable is PPI and main variable of interest is hope level of the household and instrumental variable is getting an early warning about the disaster for the both models. The coefficients of the overall regression models are statistically significant and null hypothesis of no relationship can be rejected (Prob > chi2 is 0.00).

Regarding Model 1, the first stage regression analysis demonstrates a highly significant coefficient for our instrumental variable. This suggests that access to early warning is a valid instrument as it exhibits a significant relationship with the endogenous variable, hope level. However, due to the limited number of observations at the household level for the variable 'conflict', the total number of observations in the original data reduced to 1300. Nevertheless, considering the importance of conflict as a determinant of household poverty status, we decided to retain this control variable in our analysis. There are some expected results as follows:

(PPI) = 78.69 - 106.64*Hope level - 4.26*Gender of HH + 7.19*Region - 3.02*Family size + 0.31*Femalemale ratio - 1.08 *Youth_adult_ratio + 3.43*Disaster + 3.13*Married or live together + 0.52*conflict (10)

Model 1				Model 2
Dependent variable: the probability of a household being poor/PPI	**Coefficients**	**Std. Err.**	**First Stage Coefficients**	**2SLS-IV without 'conflict' variable**
Hope level	-106.64***	25.41		-125.891***
Gender of HH	-4.26*	2.30	-.06	1.8
Region	7.19***	1.60	.001	8.794***
Family size	-3.02***	0.50	-.01***	-2.683***
female male ratio	0.31	0.69	-.003	.403
Youth_adult_ratio	-1.08	0.82	-.005	1.838***
Disaster	3.43**	1.74	.022**	3.02**
Married or live together	3.13	3.31	.06***	-5.818***
Conflict	0.52	2.55	.021	
Instrumental variable			.058***	
Constant	78.69***	5.86	.176***	68.771***
Number of obs	1300			No. of obs 2492
Prob > chi2	0.000			

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

Table 3: Results From 2SLS Instrumental Regression to Identify The Causal Effect of Hope on PPI.

The outcomes of Equation (10) demonstrate that a household's hope level has an inverse relationship with poverty. To be specific, an average decrease of 106.64% in the probability of being poor occurs for every unit increase in the hope level of a household. In other words, increase

in one standard deviation of hope decrease the probability of poverty by 16.74%[12]. This finding suggests a causal connection, indicating that internal factors, like the level of hope among household members, can decrease poverty without the requirement to address external constraints such as education, access to credit, or job opportunities. Consequently, raising the level of hope in households could potentially be an effective approach to enhance their economic situation.

Apart from the hope level, our analysis incorporates several control variables. One such variable is the gender of the household head, which is a crucial factor in reducing poverty and has statistical significance as a control variable. The findings suggest that, on average, male-headed households are 4.26% less likely to be poor than female-headed households. This finding aligns with previous research, which documented that women are often offered less work opportunities, despite having the same skills and abilities as men (Malkiel et al., 1973).

Another significant predictor of PPI is the region where the household is located. As previously mentioned, our study took place in two regions, Kigoma and Iringa. Kigoma is an agriculture-dominated region that has been hosting refugees for years, leading to a less favorable socio-economic situation compared to Iringa, which benefits from better income opportunities due to its favorable geographical position. As expected, our regression output shows that households located in Kigoma are 7.19% more likely to be poor compared to those in Iringa.

Additionally, family size is also an essential control variable for the PPI. Our analysis indicates that a larger number of individuals in a household is associated with a lower likelihood of falling below the poverty line. This relationship can be explained by the fact that a larger family

[12] Coefficient of the hope level is converted into standard deviation by multiplying as follows: coefficient (106.64) *SD(0.157)=16.74

may have more members who are able to contribute to the household income through work, thus improving their financial situation.

The variable “disaster,” which specifies whether the household experienced any disaster, is another critical factor in predicting the outcome variable. If a household has experienced any psychological, financial, or natural disaster within the last 12 months, they are, on average, 3.43% more likely to fall below the poverty line. This suggests that the occurrence of a disaster can negatively impact the economic situation of a household, leading to a higher likelihood of poverty.

In conclusion, the regression model 1 shows that a higher average hope level in a household has a negative causal relationship with the likelihood of being below the poverty line. On the other hand, when the region is Kigoma, larger family sizes, disasters, and female-headed households are associated with a higher probability of being below the poverty line.

Moreover, in Model 2, we conducted another 2SLS instrumental regression analysis excluding the variable "conflict," resulting in a total of 2492 observations. Notably, the coefficient of hope level remains negative and highly significant in this analysis suggesting higher level hope reduces the poverty at the household level.

6.2 RESULTS OF INTERGENERATIONAL TRANSMISSION OF HOPE

Figure 6 presents the results of a nonparametric regression analysis with a sample size of 2465 at household level. The graph depicts the level of hope in children (y-axis) against the level of hope in their parents (x-axis) and includes a 45-degree line to depict equal hope levels. The fact that the expected child-hope line intersects only once with the 45-degree line indicates that there are no multiple equilibria present. Additionally, the expected child-hope curve does not display an S-shape, which eliminates the possibility of a hope trap.

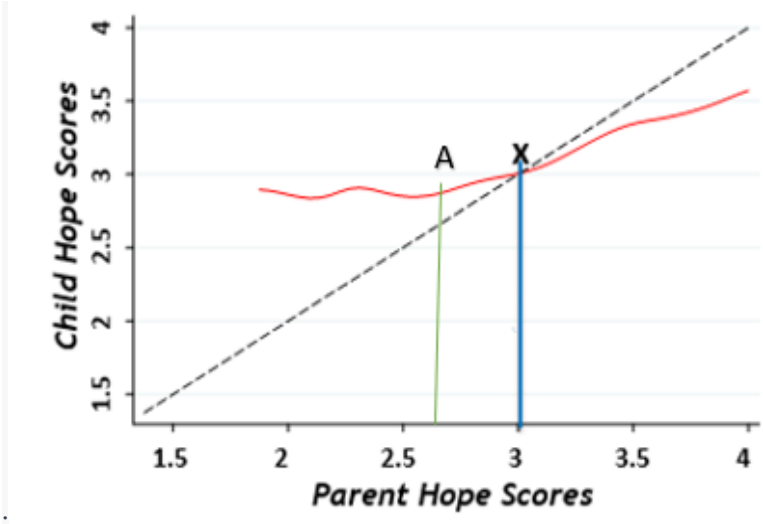


Figure 6: Intergenerational Transmission of Hope From Parent to Children.

However, Figure 6 does illustrate some notable characteristics of intergenerational hope transmission. Specifically, the hope curve shows that when a parent's hope level is above 2.6 (indicated by 'A' in the figure), the expected child's hope increases concurrently with that of the parent`s.

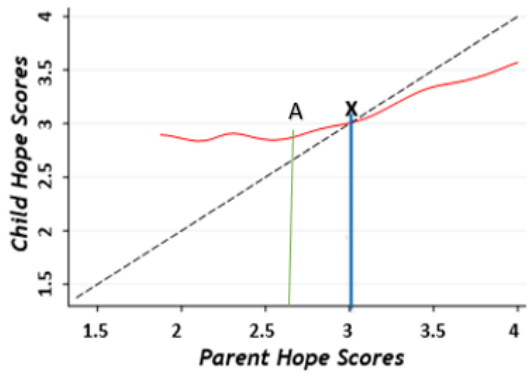
In addition, the sole equilibrium, represented by the intersection of the expected child-hope curve and the 45-degree line, divides hope curve into two distinct sections. To the left of the threshold A, the gap between the hope levels of children and parents is consistently positive, whereas to the right of the threshold, the gap is always negative. This pattern indicates that children of parents with moderate levels of hope exhibit greater levels of hope than their parents. However, when parents' hope levels exceed X, their children's hope levels become lower than those of their parents. Assuming that the hope curve depicted in Figure 6 are typical of all households, the positive gap suggests a potential mechanism for the intergenerational transmission of hope, which breaks down at the threshold A. Furthermore, the negative child-parent hope gap suggests that

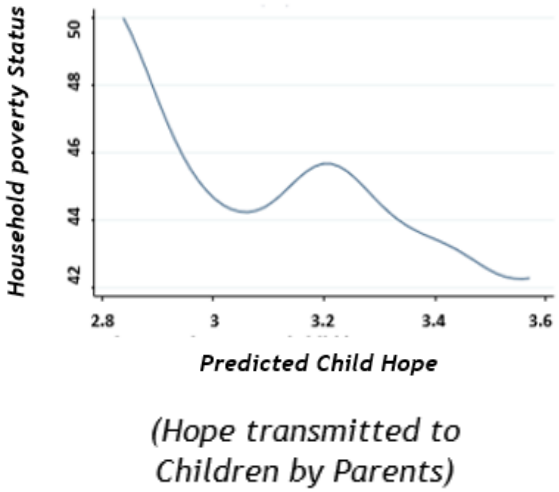
children of highly hopeful parents are unlikely to attain the same level of hope as their parents. However, within the negative segment, the expected level of hope in children still increases as their parents' level of hope increases.

To conclude, although this analysis did not find evidence of an intergenerational hope-trap, there exists a systematic relationship between parents' and children's hope.

6.3 RELATIONSHIP BETWEEN PREDICTED CHILD'S HOPE AND THE POVERTY LIKELIHOOD

In this section, we delve into the consequences of the IGT of hope on household poverty. Figure 7a replicates the preceding hope dynamics graph found in Figure 6. Additionally, we perform another local nonparametric regression, in which we regress the PPI on the predicted hope of the child (7b). Here, x-axis represents predicted child hope and y-axis denotes PPI which indicates household's poverty status. The right panel (7b) displays that as the predicted child's hope rises, the probability of household being poor decreases. However, there is a sharp reversal when the child's hope moves from 3 to 3.2.





7a **7b**

Figure 7: (7a) Nonparametric Regression of Children's Hope on Parents' Hope. (7b) Nonparametric Regression of PPI on Predicted Child's Hope.

The two graphs, analyzed jointly, reveal a noteworthy pattern. In the segment with a positive gap in child and parent hope levels (left panel, figure 7a), the predicted child's hopes are associated with an almost monotonic decline in household poverty (right panel, figure 7b). This implies that the children of moderately hopeful parents are even more hopeful, leading to a sharp decrease in poverty. This negative relationship remains within the range between the child's predicted hope level of 2.8 and 3 (figure 7b) until the positive hope gap in the left panel shrinks to zero (Figure 7a). Afterward, the PPI rises primarily when children are not as hopeful as their parents (while a child's hope level is between 3 to 3.2). However, a sharp decrease in poverty likelihood starts again when the child's expected hope level exceeds 3.2. It suggests that negative gap does not matter once the children are highly hopeful.

6.4 CAUSAL EFFECT OF PREDICTED HOPE OF THE CHILDREN ON PPI (IV REGRESSION)

Here we analyze the results of another two-stage instrumental regression model to show the causal effect of predicted child's hope on PPI. Table 4 shows that the overall regression model is significant (i.e., Prob > chi2 is 0). The unit of analysis is household, and the number of observations is 899 indicating a notable shrinkage in sample size. The reason behind this reduction is primarily due to a limited number of responses regarding the variable 'conflict' and the exclusion of households without children from this analysis.

Dependent variable: PPI	Coefficients	Standard Error
Child's predicted hope	- 104.35***	35.90
Gender of HH	- 4.99	3.99
Region	9.66***	2.19
Family size	- 2.69***	. 66
female male ratio	.51	.92
Youth_adult_ratio	- 3.14***	1.2
Disaster	.45	2.21
Married or live together	- 12.64**	5.46
Conflict	-.45	3.38
Constant	403.29***	112.92
Number of obs	899	
Prob > chi2	0.000	

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

Table 4: Result of Causal Effect of Predicted Hope of The Children on PPI by Using 2SLS Regression Analysis

The main variable of interest, "predicted child's hope," shows a significant negative relationship with the likelihood of poverty in a household. It denotes that per unit, more transmission of hope from a parent to child decreases the mean value of PPI by 104.35%. This emphasizes the causal effect of the predicted child hope on household poverty and is consistent with our graphical result from the local polynomial regression (Figure 7b). Thus, this regression

output reinforces the result of our nonparametric regression, confirming our finding that higher transmitted hope from parent to child leads to a decrease the probability of being below the poverty line.

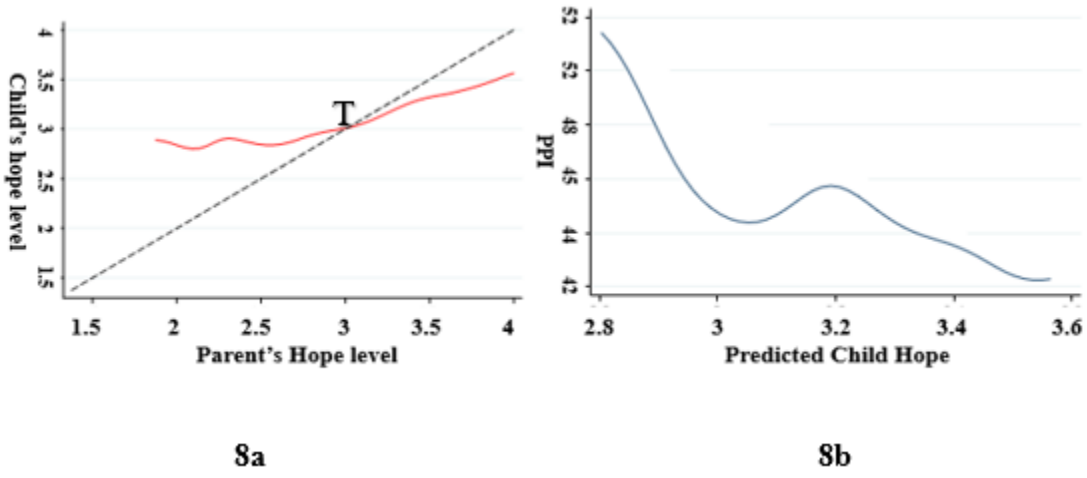
Table 4 also demonstrates some significant control variables that predict the poverty probability of households. As in our previous regression model (Table 3), households in Kigoma are more likely to be poor than those in Iringa. Furthermore, having an extra member in a household lead to a mean of 2.69% less likelihood of falling into poverty. Likewise, a higher number of young people per adult in a household reduce the PPI. Some adolescents may contribute financially to their households and help families escape poverty. However, unlike the earlier regression model (Table 3), a partnered or married household head has a significantly lower poverty level. It is possible that both members of the couple work and this helps to decrease their household level of poverty.

In summary, increased transmission of hope across generations is associated with a decreased probability of being poor. Moreover, having a larger family size, a higher number of children and adolescents per adult, a partnered or married household head, and residing in the Iringa region are all factors that decrease the household's PPI.

6.5 NONPARAMETRIC REGRESSION IN DIFFERENT AGE CATEGORIES

In this section, we divide the household's children into two categories according to their ages. The first group included children under 18 years old, the second group, children 18 and older. To separately explore the IGT of hope of youth and adult children, we run two sets of nonparametric local polynomial regressions for each age group. First, we regress the average hope of children on their parents' hope (Figures 8a and 9a) to explore how hope is transmitted across

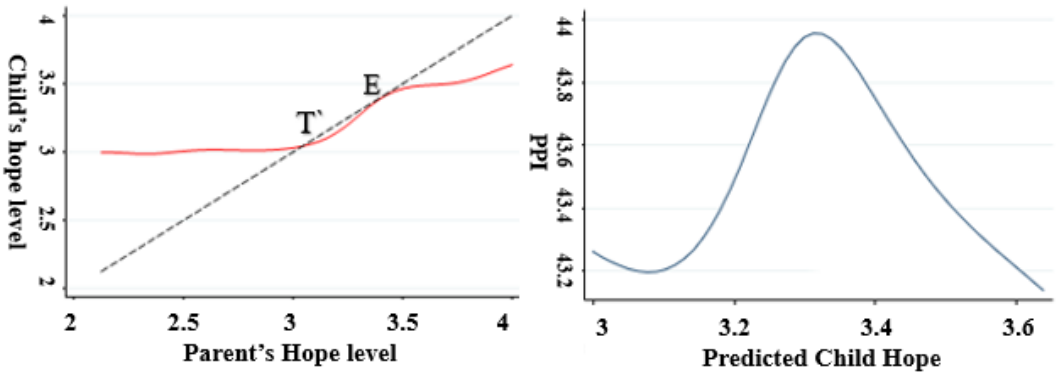
generations among different age groups and to obtain two sets of the predicted hope of the children. Afterward, we regress the PPI on predicted child hope for each age group (8b and 9b).



8a 8b

Figure 8: 8a) Nonparametric Regression of Younger Children's Hope on Parents' Hope 8b) Nonparametric Regression of Household's PPI on Predicted Younger Child's Hope.

Figure 8 illustrates the nonparametric regressions for children under the age of 18 (referred to as "young"). In particular, the graph depicted in Figure 8a indicates a strong correlation between a parent's hope and their child's hope - as a parent's hope increases, their child's hope tends to increase as well. Additionally, there is a positive child-parent hope gap to the left of the threshold T, and a negative child-parent hope gap to the right. Furthermore, figure 8b demonstrates overall declines in PPI as a predicted child's hope goes up.



9a 9b

Figure 9: 9a) Nonparametric Regression of Adult Children's Hope on Parents' Hope 9b) Nonparametric Regression of Household's PPI on Predicted Adult Child's Hope.

Again, figure 9 portrays the IGT of hope among the older children. Here figure 9a displays a constant hope line to the left of the threshold, T` indicating a nearly identical level of predicted hope for older children within a positive child-parent hope gap. However, when there is a negative child-parent hope gap, we can once again observe that the predicted hope curve for the child intersects with the 45-degree line at point E. This implies that when a parent's hope level is around 3.4, adult children can adopt the same level of hope as their parent's, and after that a negative child-parent hope gap holds. Overall, as the level of hope for a parent increases, the level of hope for their child tends to increase as well.

We can make more observations if we look at figure 9a and 9b together. The positive gap between child hope and parent hope shown in Figure 9a keeps the PPI low in Figure 9b. However, once this gap becomes negative, there is a large increase in the PPI during the hope level of older children ranging from 3.1 to 3.3. Nevertheless, when the predicted child hope is beyond 3.3, we notice a steep drop in the probability of the household being poor.

After analyzing Figure 8 and Figure 9, there are some noteworthy findings to consider. For instance, it is evident that the lowest predicted level of hope for older children is 3, which is higher

than the minimum level of predicted hope for younger children (2.8). This suggests that adult children may be more inclined than younger ones to internalize greater hope from their moderately hopeful parents, and as a result, maintain a higher minimum level of hope. Another important observation is that, unlike the younger children, the predicted hope curve for older children in Figure 9a exhibits multiple equilibria, indicating the possibility of a hope-poverty trap. It is worth noting that out of the entire population, most of the children are under 18 years old (6,817), while fewer are adult children (1,101). As a result, the conclusions drawn from the younger children group (Figure 8) align with the overall impact of the IGT of hope (Figure 6), while the older group of children presents a different pattern.

CHAPTER 7

CONCLUSION

7.1. CONCLUSION

Development economists are recognizing that poverty is not solely determined by material resources but is also influenced by factors such as an individual's sense of self-worth, agency, and ability to plan for the future. As a result, economists are increasingly focusing on psychological assets such as hope to better understand how to mitigate poverty. However, to establish a clear relationship between hope and poverty, more empirical research is necessary. This thesis seeks to contribute to the growing interest in the psychological aspects of economics by investigating the causal effect of hope on the probability of poverty index of the household.

Can poverty be reduced by increasing psychological assets such as hope without relaxing any external limitations (access to credit, education, infrastructure, etc.)? Is there any hope trap or systematic pattern across the generations? Does the transfer of hope from parents to children affect the likelihood of the household being poor? To address those questions this study utilized various sample datasets derived from a comprehensive primary dataset. The primary dataset included a range of psychological and socio-economic variables for both adults and children above the age of 10. It encompassed a total of 2816 households from the Kigoma and Iringa Regions in Tanzania and was collected by World Vision (WV) in 2020 as part of the Empowered World View (EWV) project. Kigoma is an agriculture-dominated region which has been hosting refugees for years, while Iringa is in a favourable geographical position to conduct business and reap a better socioeconomic status. These regions were chosen as part of an assessment of a development model that seeks to enhance psychological assets.

First, to investigate the causal effect on the Poverty Probability Index (PPI) of the hope level of the households, we conducted a 2SLS instrumental regression model using a sample size of 1300 households. We used the PPI as our key variable to measure household's poverty status, and the hope level of households as our main independent variable of interest, which is represented by the average hope scale across all household members over 10 years of age. We employed getting an early warning about the disaster as an instrumental variable and controlled for various demographic characteristics as well as whether a household had experienced any disaster or conflict. Our study yielded significant findings of the hope – poverty relationship, which are discussed in detail.

In particular, we find that the hope level of the household negatively predicts the likelihood of being poor. Specifically, for each standard deviation increase in the hope level of a household, there is a significant decrease of 16.74% in the mean value of the probability of being poor. Additionally, we found that male-headed households are less likely to be poor compared to female-headed households. Moreover, the results suggest that households located in Kigoma have a 7.19% higher likelihood of being poor compared to those in Iringa. Furthermore, having a larger family size is associated with a decreased probability of poverty. Conversely, households that have experienced a natural disaster, financial shock, or psychological stress in the past 12 months are 3.43% more likely to be poor.

Second, the thesis paper conducted non-parametric local polynomial regressions on a sample of 2465 households to examine the Intergenerational Transmission (IGT) of hope across generations. The study initially utilized a local polynomial non-parametric regression to obtain a hope curve. This regression involved regressing the child's hope level on the parent's hope level, allowing for the identification of a hope-poverty trap and the estimation of the conditional mean

function. This enabled the prediction of the child's hope level based on the parent's hope. Subsequently, another local polynomial non-parametric regression was conducted to examine whether the predicted child's hope level had an impact on the household's PPI. Furthermore, an instrumental 2SLS regression was employed to determine the causal effect of the predicted child's hope level on the household's PPI. Finally, two separate sets of non-parametric regressions were conducted for different age groups to investigate the IGT of hope and it's influence on PPI.

The findings of IGT of hope were discussed in section 5.2. Although the study did not detect evidence of a "hope trap" between overall parents and children's hope, there exists a systematic transmission of hope from parents to children. Figure 6 reveals an upward hope curve, indicating that when the hope level of a parent increases, overall, the predicted hope level of their child also increases. Besides, the intersection of the predicted child-hope curve and the 45-degree line represents the only equilibrium, dividing the hope curve into two distinct sections. To the left of threshold, there is a consistently positive gap between the hope levels of children and parents. On the other hand, to the right of the threshold, the gap is always negative. This pattern indicates that children of parents with moderate hope levels tend to have higher levels of hope than their parents.

The study reveals a significant correlation between the IGT of hope from parents to their children and the PPI of that households. The second nonparametric regression demonstrates that when the predicted hope of a child increases, the overall PPI of the household decreases (figure 7b). In summary, the study found that in the segment where there is a positive gap between child and parent hope levels, the predicted hope levels of children are associated with a consistent decline in household's PPI. When the positive hope gap diminishes, the PPI primarily increases. However, there is a significant decrease in the PPI again when the child's predicted hope exceeds

a certain level of hope, which in this case is 3.2. This indicates that the negative gap between child and parent hope levels becomes less influential when the children themselves possess high levels of hope.

To further investigate the causal impact of the predicted hope of a child on PPI, another parametric instrumental regression analysis was conducted using a sample size of 899 at the household level. The results, presented in table 3, reveal a significant negative causal relationship between the predicted hope of a child and PPI. Specifically, the analysis shows that for each unit increase in the transmission of hope from a parent to a child, the mean value of the PPI decreases by 104.35%. This finding aligns with the results obtained from the nonparametric regressions.

Finally, in order to examine the impact of predicted hope on household's PPI in two distinct age groups of children (those younger than 18 and those older than or equal to 18), two separate sets of nonparametric local polynomial regressions were conducted. The findings from IGT of hope for young children (defined as less than 18 years old) are consistent with the overall IGT of hope. It suggests that, as predicted child's hope increases, the PPI of the households decreases. On the other hand, the relationship between PPI and predicted hope for older children followed an inverse-U shaped curve, indicating a sharp decrease in the probability of being poor at higher levels of predicted child hope. It is important to highlight that the majority of the population consists of children under 18 years old, with a count of 6,817, while there are fewer adult children, totaling 1,101. Therefore, the findings derived from the younger children group (Figure 8) consistent with the overall impact of the IGT of hope (Figure 6) unlike the older group of children.

7.1 FUTURE RESEARCH AND LIMITATIONS

The study is not without its limitations. One of these limitations is the absence of certain control variables, such as the parents' highest level of education, which were not included in the instrumental regression analysis due to their absence in the dataset. This could have affected the dependent variable, PPI, and therefore, should be controlled. Additionally, there may be more effective instrumental variables that could have been used in the analysis. Another limitation concerns the study's investigation of the hope trap in the transmission of hope from parents to children. As the study used only cross-sectional data, it was not possible to investigate the impact of time dynamics on the detection of the hope trap. Moreover, the study solely relied on positive statements to measure the hope level of a household, and the findings may differ if negative hope variables were also taken into account.

Despite its limitations, this study holds significance in examining the impact of psychological factors, specifically hope, in reducing poverty. Our findings establish a significant causal connection between hope and the probability of poverty of households. Further research can be conducted using panel data to evaluate the causal impact of various interventions. Our study examines the general effect of hope on household poverty without distinguishing between two different regions (Kigoma and Iringa). Thus, the next step could be to investigate the effect of these two regions separately. Future studies could also compare urban and rural areas as individuals in rural areas may have different mindsets and livelihood diversification compared to those in urban areas.

Future studies could explore different approaches, such as income-based or consumption-based measurements, to evaluate household poverty rather than solely relying on asset-based measurements. This would help to determine the consistency of our findings. In our study, the

primary variable of interest is the "hope level," which is the average level of hope in a household. This variable can be further redefined using various hope indices to re-establish its relationship with household poverty. Furthermore, it is important to investigate the impact of other psychological assets, such as self-efficacy, social cohesion, and educational aspiration, on poverty to better comprehend how mindset variables influence household well-being. This will aid in developing more effective strategies for policymakers to reduce poverty.

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