

**EFFECTS OF CASH TRANSFERS ON HOUSEHOLD LIVELIHOODS AND
RESILIENCE TO CLIMATE SHOCKS IN THE ARID AND SEMI-ARID COUNTIES
OF NORTHERN KENYA**

MICHAEL JOSEPH MATATA

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the Master of Science Degree in Agricultural and Applied Economics of Egerton University**

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DECLARATION AND RECOMMENDATION

Declaration

I declare that this thesis is my original work and has not been presented in this or any other university for the award of any Degree or Diploma.

Signature: 

Date 07/12/2022

Michael Joseph Matata

KM17/14544/18

Recommendation

This thesis has been submitted to the graduate school of Egerton University with our approval as university supervisors.

Signature: 

Date: 27/12/2022

Prof Margaret Ngigi, PhD

Department of Agricultural Economics and Agribusiness Management Egerton University Njoro

Signature: 

Date: 27/12/2022

Prof. Hillary Kiplangat Bett, PhD

Department of Agricultural Economics and Agribusiness Management Egerton University Njoro

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DEDICATION

This thesis is dedicated to my dear brother Dr Philip Musyoka I owe you much brother.

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ABSTRACT

Climatic events and other natural-related disasters experienced in the arid and semi-arid counties of northern Kenya negatively affect livestock-based livelihoods. The effects of unfavourable climatic conditions expose households to poverty and increase their vulnerability to weather-related shocks. Addressing vulnerability to climate shocks among pastoral communities of Kenya's Arid and Semi-lands (ASALs) presents a persistent challenge. This has motivated the national government of Kenya to invest in the provision of unconditional cash transfers and in-kind transfers targeting poor and vulnerable households. This study contributes towards understanding the role of cash transfers in household resilience and building sustainable livelihoods in arid and semi-arid counties. This study targeted Mandera Turkana Wajir and Marsabit counties under the cash transfer program (the hunger safety net program). The study was guided by three specific objectives: To determine the effects of cash transfers on household food expenditure patterns, to determine the effects of cash transfers on household resilience, and to examine household preference between cash transfers and in-kind transfers. The study utilized panel data for 2346 households collected between 2009 and 2012. The study used panel fixed effects to determine the effects of cash transfers on household food expenditure. The Working Lesser model was used to determine the effects of cash transfers on food expenditure patterns. The study adopted the RIMA-II framework to construct a resilience index, after which panel fixed effects was used to analyse the effects of cash transfer on household resilience. The findings indicated that households increased their food expenditure significantly. The findings show that cash transfers had a positive influence on household food spending patterns. The results also revealed that cash transfers have significant effects on household resilience. Majority of the households preferred cash transfers to other modalities about 72% of the beneficiaries. This study recommends cash transfers provided to improve household resilience to climate shocks should have some requirements that are geared towards improving the pillars of resilience. This study recommends that the choice of transfer modality should be informed by beneficiary preferences, program implementers' objectives, needs assessment and the effectiveness of the transfer modality.

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LIST OF ABBREVIATIONS AND ACRONYMS

ASAL	Arid and semi-arid lands
ATE	Average Treatment Effect
GOK	Government of Kenya
HIV	Human Immuno-deficiency Virus
HSNP	Hunger safety net program
MPI	Multidimensional Poverty Index
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Co-operation and Development
PIH	Permanent income hypothesis
PPS	Probability Proportional to Size
SDGs	Sustainable Development Goals
UN	United Nation

CHAPTER ONE

INTRODUCTION

1.1 Background information

The communities in the arid and semi-arid counties areas are highly vulnerable to natural and human-made calamities such as drought, floods, and conflict. The key contributing factor to the high vulnerability of communities affected by disasters in arid and semi-arid counties is their low ability to engage in other sources of livelihood apart from pastoralism (UNDP, 2018). Households and communities around the world are at risk from climate and other natural hazard-related disasters, which exacerbate poverty and vulnerability while hindering long-term development and transformation (Weingärtner *et al.*, 2019). Climate change and its consequences on people's lives are regarded as one of the most pressing issues confronting human societies. It is widely agreed that human activities such as colonization, urban growth, and inappropriate exploitation of natural resources have increased the frequency and intensity of natural disasters (Sina *et al.*, 2019). Improving the livelihood of households affected by climate shocks, allows them to continue their prior economic and social activities, facilitating long-term rebuilding and development (Régnier *et al.*, 2008).

Pastoralism, a dominant livelihood activity which represents a considerable percentage of a household's productive capital and wealth for the ASALs communities of northern Kenya is very sensitive to climate shocks (Jensen *et al.*, 2017). Frequent occurrence of drought in the ASALs is a daily threat with negative significant impacts on pastoral livelihoods and increased vulnerabilities (Mureithi, 2018; USAID, 2018). Drought effects compel households to take negative coping strategies such as skipping meals and children dropping from school which have long-term impacts on the household welfare and households can be trapped in a cycle of poverty. High levels of poverty and low human development increase vulnerability in the Kenya's arid and semi-arid counties, meaning climate shocks and stresses, particularly drought, normally have more severe repercussions in these areas, such as severe food scarcities (Njoka *et al.*, 2016). Poor people especially those with smaller livestock holdings and less established social support networks are severely affected by drought (Ouma *et al.*, 2012). According to O'Brien *et al.* (2014) high levels of poverty, vulnerability, and climate change are key threats to livelihoods in the arid and semi-arid counties that have seen social protection become a priority In response to the livelihood threats

humanitarian organizations, donors, and the national government provide cash transfers and in-kind transfers to the poor and vulnerable households.

In many African countries, poverty reduction and tackling the core causes of vulnerability have become part of government policy. Cash transfers, in particular, are popular, and they frequently target people who are below certain poverty levels (Opalo, 2021). Cash transfers in many parts of the developing world form a crucial and growing part of social protection programming. Cash transfers advance differently in several parts of the world and their objectives and design vary significantly in different countries and regions. Developing and developed countries over the last decade have promoted different forms of cash transfers as an important social protection tool for dealing with poverty (Slater, 2011). Cash transfer programs are designed to accomplish social protection goals by distributing cash to the poor and vulnerable, ensuring a minimal degree of income stability. Regular payments, in theory, can assist sustain basic consumption levels, limit the usage of harmful risk mitigation measures, reduce reliance on destructive short-term coping mechanisms, and ultimately preserve or grow investments in human and productive capital (Jensen *et al.*, 2017).

Cash transfer programs vary in very specific ways. The main differences in cash transfer programs include the way they relate to the institutional and legal context, the presence of complementary programs, the linkages between the transfer program and the rest of the social protection system, their funding settings, their enforcement of conditionality, and their exit strategies. The amount and structure of cash transfers as well as their coverage differ at a more basic level. Cash transfers vary in terms of the total of money transferred, the restrictions attached to the transfer, whether they are directed to specific families and household members, and their order, frequency, regularity, and timing of the payments. Transfers can also be made digitally in household accounts, or through cash payments to a household representative if financial inclusion is limited (Agrawal *et al.*, 2020; Amarante & Brun, 2018).

The Kenya government has implemented several cash transfer programs for different groups. These include the Hunger Safety Net Program, Cash Transfer Program for the Elderly, The Orphans and Vulnerable Children (OVC) Cash Transfer Program, Persons with Severe Disability Cash Transfer, and Urban Food Subsidy Program. The largest of these cash transfer programs is the Hunger Safety Net Program (HSNP) which targeted poor people in ASALs of

northern Kenya including the counties of Turkana, Wajir, Marsabit, and Mandera. The hunger safety net program intended to support the livelihoods of vulnerable households in targeted areas by improving their capacity to meet immediate essential needs, as well as encourage beneficiary households to accumulate and retain assets. The program designers expected that the program would even have positive impacts on a broader spectrum of wellbeing and wealth indicators (Merttens *et al.*, 2013).

The HSNP program was implemented in two phases. Phase one started in 2009 and ended in 2012 and transferred KES 2,150 to each beneficiary household once every two months. The beneficiaries collected their cash using a biometric smartcard from various pay points. The pilot phase targeted about 60,000 households (Merttens *et al.*, 2013). Phase two, funded by DFID and the government of Kenya, began in 2013 and ended in 2018. It aimed to reach the poorest 100,000 households with a monthly cash transfer of KES 2700 and 180,000 households with periodic emergency transfers to help mitigate the effects of shocks such as drought (Merttens *et al.*, 2018).

The main goal of most social assistance programs is to transfer income to low-income families. These transfers are motivated by a desire to maintain a basic standard of living, avert the establishment of longer-term poverty traps, and overcome temporary negative income shocks. However, there is considerable interest in determining if social protection may go beyond this and serve a promotive role, addressing poverty's core causes. Given such a goal, policymakers must consider whether social protection initiatives are sufficient to achieve such transformations (Hoddinott *et al.*, 2012). The contribution of social protection through the provision of cash transfers to household resilience is given little attention. This forms a major knowledge gap that needs to be addressed to enhance successful policymaking and social protection programming (Ulrichs *et al.*, 2019).

This study, therefore, provided empirical evidence on cash transfer effects on household resilience and household food expenditure patterns. This study answered the question; how do cash transfer interventions affect household resilience? To what extent are the cash transfer interventions having positive or negative impacts on food expenditure? Do cash transfer interventions change household food expenditure patterns?

1.2 Statement of the problem

Pastoralism, the dominant livelihood activity and a major source of food and income in the ASALs of northern Kenya is very sensitive to shocks. Climatic events and other natural-related disasters experienced in the arid and semi-arid counties of northern Kenya negatively affect livestock-based livelihoods. The effects of unfavorable climatic conditions expose households to poverty and increase their vulnerability to weather-related shocks. Addressing vulnerability to climate shocks among pastoral communities of Kenya's Arid and Semi-lands (ASALs) presents a persistent challenge. This has motivated the national government of Kenya to invest in the provision of unconditional cash transfers and in-kind transfers targeting poor and vulnerable households. How these cash transfers affect household climate resilience and to what extent they affect household food spending patterns remains unevaluated. There is little attention given to the contribution of cash transfers to household resilience. For effective social protection programming and the development of arid and semi-arid counties, this knowledge gap needs to be addressed. Thus, the motivation of this study was to fill the gap by providing empirical evidence on the effects of cash transfers on household resilience to climate shocks and food expenditure patterns.

1.3 Objectives

1.3.1 General objective

The general objective of this study was to contribute towards building household resilience and food security in arid and semi-arid counties by determining effects of cash transfers on household resilience and food expenditure patterns.

1.3.2 Specific objectives

- i. To determine the effect of cash transfers on household food expenditure patterns
- ii. To determine the effect of cash transfers on household resilience to climate shocks
- iii. To examine household preference between cash transfers and in-kind transfers

1.4 Research questions

- i. Do cash transfers have any effect on food expenditure patterns?
- ii. Do cash transfers affect household resilience to shocks?
- iii. Do households prefer cash transfers or in-kind transfers?

1.5 Justification of the study

The study determined the effects of cash transfers on household resilience and household food expenditure patterns. Policymakers may use the findings of the study to improve the existing cash transfer programs. The study also contributes to the existing literature on cash transfers and builds knowledge of cash transfers on household resilience and household food expenditure patterns. This study also explained conditions under which cash transfers can be given and guide the donors on household preferences, whether they prefer in-kind transfers or cash transfers. The findings from this study intended to inform humanitarian organizations, international organizations, and donors intending to fund cash transfer programs. The results of the study might help the national and county governments in planning and budgeting cash transfer programs. It would also benefit researchers interested in the study of cash transfer programs and household resilience. This study is in line with Sustainable development goal (SDG) one (End poverty in all its forms everywhere) and SDG two (End hunger, achieve food security and improved nutrition, and promote sustainable agriculture). The study is also in line with Kenya's vision 2030 social pillar specifically the objective on Gender, Youth, and Vulnerable groups, which aims at improving the livelihood of all vulnerable groups. Since there is a desperate need for research on social protection this study will help other researchers who are interested in doing rigorous research on social protection programs and improve the effectiveness of the program.

1.6 Scope and limitation of the study

The study focused on the households covered by or benefiting from the Hunger and Safety Net Program (HSNP) which is a social protection program. The Hunger and Safety Net Program provides unconditional cash transfers to poor and vulnerable households in the arid and semi-arid counties of the northern Kenya region. The HSNP covers four arid and semi-arid counties in northern Kenya which are Marsabit, Turkana, Wajir, and Mandera. The study provided empirical evidence on cash transfer effects on household resilience and household food expenditure patterns. The study used the hunger safety net program panel data from 2009-2012. The data captured responses from both beneficiaries and non-beneficiaries of cash transfers. The major limitation of the study was that the fourth wave of data collected in 2016 was not used in this study because there was no proper household-to-household link with the other three waves.

1.7 Definition of terms

Cash transfers	Regular money payments to poor and vulnerable households
In-kind transfers	Transfer of food items to poor and vulnerable households
Livelihoods	Resources and activities which households need for living.
Unconditional cash transfers	Cash transfers, in which the recipients are not required to meet any condition.
Conditional cash transfers	Cash transfer programs that require the household to meet some set conditions.
Treated household	Household that has received the cash transfers.
The Control household	Household that has not received cash transfers.
Resilience	Ability of a household or community to bounce back when in face of shocks.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives a review of the literature on cash transfers and food consumption, resilience and household livelihoods, cash transfers and in-kind transfers, climate shocks and cash transfers, cash transfers and vulnerability and beneficiary preference. The chapter includes a theoretical and conceptual framework.

2.2 Cash transfers and food consumption

Cash transfers are safety net programs within which poor and vulnerable families are given cash by government or non-governmental organizations to meet fundamental consumption needs. In developing countries, cash transfer programs are a well-known policy tool. Cash transfers are increasingly being considered as a potential avenue for generating or supporting household spending, particularly in the context of adopting broader policy reforms or coping with financial downturns, in addition to enhancing human capital investment. Understanding how household spending responds to transfer incomes is crucial for policymakers. In industrialized countries, a large body of research examines this subject through the lens of the life-cycle/permanent income theory (PIH) (Bazzi *et al.*, 2015).

The theoretical rationale for cash transfer programs is that regularity and consistency of cash transfers allow poor households to smooth consumption throughout the year and create human and physical resources to withstand shocks (Arnold *et al.*, 2011; McGuire *et al.*, 2015). According to Bailey and Harvey (2015) people prefer to use the additional income from cash transfers on the goods and services that they need most, which varies among individuals and contexts. Cash is often spent on a wide range of goods and services. However, cash transfers may be prone to leakages in the sense that only a portion of the transfer may be used to support food consumption with the remainder going to less desirable or nutritious commodities like alcohol and tobacco (Skoufias *et al.*, 2013).

According to Arnold *et al.* (2011), cash transfer impacts differ depending on the length of time the payment is received, the recipient's age, and the size of the transfer. Cash transfers are

linked to improvements in the quantity and quality of food, thus improving beneficiaries' nutritional status (Devereux, 2006).

2.3 Resilience and household livelihoods

Unifying themes, and different approaches to promoting the concept of 'resilience' are increasingly structuring debates around climate change, social protection, sustainable development, macro-economic development, and humanitarian responses to emergencies (Pain & Levine, 2012). The concept has been widely adopted by international development organizations and industries, including finance, health and infrastructure, to mention a few. Because the resilience concept emphasizes a positive ability for a unit of analysis to manage obstacles for detailed synopses, the concept has gained traction, significance, and influence (Béné *et al.*, 2012; De Weijer, 2013). The concept captures the fundamental abilities of individuals, communities, or states, and their associated institutions, to withstand and recover from shocks (OECD, 2013). In general, the idea of resilience is a viable tool for investigating adaptive changes toward sustainability since it gives a framework for assessing how to preserve stability in the face of change (Berkes, 2003). It is widely accepted that to avoid costs and hardships associated with climate change and shocks, strong emphasis needs to be on building resilience (Levine *et al.*, 2012).

According to Walker *et al.* (2002) building resilience has two major broad objectives: The first objective aims at averting the system from moving to an undesired, alternative regime in the face of change, and the second building resilience aims at nurturing and preserving the mechanisms of the system that build resilience and allow the system to renew and reorganize after a disturbance. Households are better prepared to cope and manage the impacts of shocks, navigate uncertainty, and adapt to changing conditions given their livelihood strategies and activities (Marschke & Berkes, 2006).

Livelihood strategies can be defined as programmatic initiatives that increase an individual's income-generating capacity by expanding their assets base, and by providing cash transfers, infrastructure, support services, market expansion activities, and training (Twigg & Calderone, 2019). Resilience provides a solution to the complexity and uncertainty presented by climate change, providing a system perspective and an approach that champions flexibility (Nelson *et al.*, 2007). Resilience is more than just a wide development strategy for reducing poverty. In

essence, it seeks to comprehend people's exposure to systemic shocks and stressors, as well as the systems in place in their communities to help them cope. Although shocks, whether artificial or natural, cannot always be predicted or avoided. Translating the idea of resilience into an actionable analytical framework can provide governments and societies with the tools they need to respond to shocks, hence reducing communities' vulnerability in the long run (Shah, 2012).

In theory, a more resilient household will have three interconnected capacities that help to mitigate and resist the negative effects of a shock. The resilience capacities are divided into three absorptive capacities, adaptive capacity and transformative capacity. Adaptive capacity is the ability to make changes in expectation of or in response to change, to increase future flexibility (Jeans *et al.*, 2017). The capability of systems to adjust the structure and adopt new response mechanisms to allow recovery from shocks that surpass previous vulnerability thresholds is referred to as transformative resilience (Carr, 2019). The ability to absorb and cope with climate-related shocks and stresses both during and after they occur is referred to as absorptive capacity. It allows people to lessen the immediate impact on their livelihoods and fundamental needs (Ulrichs *et al.*, 2019). According to Schipper and Langston (2015) the higher the household's ability to prepare, cope, and adapt, the less the shock's impact on well-being and the more likely the household would "bounce back faster".

Chronic poverty contributes to a lack of adaptive capacity to drought endangering the lives and livelihoods of the deprived more than other social groups (Hellmuth *et al.*, 2007). The majority of the world's poorest people live in rural areas, where they struggle to sustain their livelihoods in the face of issues including climate change, falling cash crop prices, limited access to land, and dwindling work opportunities (Hajdu *et al.*, 2020). Regarding covariate shocks, the pronounced potential of safety net programs in particular to improve the resilience of poor and vulnerable households can be exploited and enhanced. Non-poor households are frequently impoverished as a result of shocks that overwhelm their ability to prepare, cope, and adjust (Bowen *et al.*, 2020). Unemployment insurance and social insurance programs are widely recognized as tools that can assist households in coping with the effects of a shock if they have access to them (Bowen *et al.*, 2020).

To understand sustainable livelihoods, the resilience perspective is important, particularly in analyzing how livelihood systems respond to insecurities and options and how they reorganize

in response to stresses and shocks (Huong, 2010). A sustainable livelihood is defined as the ability to successfully respond to diverse shocks and the process of recovering and strengthening capacities and assets to provide future generations with sustainable living possibilities (Chambers & Conway, 1992). A sustainable livelihood can be utilized to help integrate development strategies, manage sustainable resources, and eradicate poverty all at the same time (Krantz, 2001). As a result, offering a livelihood approach for rural poor empowerment and capacity building is one of the most basic and essential approaches to achieving sustainable development (Pandey *et al.*, 2018). When preventative efforts fail, a household's resilience is determined by its ability to foresee and manage negative livelihood shocks, as well as its ability to tolerate shocks without resorting to negative coping methods.

The concept of resilience is based on the premise that more resilient households are better equipped to either avoid shocks or respond to shocks with positive coping methods that do not permanently reduce their productive potential (The Malawi Cash Transfer Evaluation Team, 2017). There is a clear link between resilience and livelihood; mechanisms for adapting and bouncing back when challenges arise must be incorporated into a fruitful livelihood technique (Twigg & Calderone, 2019). As indicated by Ellis (2000) livelihood strategy highlights the role of household resources as determinants of activity and highlights the relation between assets, activities, and incomes. Households assign resources to tasks subject to household external factors that produce results that meet the objectives. Alinovi *et al.* (2008) claimed that the household's capability to adjust to new circumstances relies on the alternative available to the household to make a living, such as access to assets, revenue-generating activities, public services, formal and informal social safety nets, institutional climate and capacity resistance.

2.3.1 Resilience measurement

Measurement of household resilience is a promising approach for a better understanding of how households cope with shocks and stress. The understanding of how the combined effects of climate change, economic factors, and social conditions have increased the frequency and severity of risk exposure among vulnerable people is one of the most appealing elements of a resilience strategy (Wakjira, 2018). According to Wakjira (2018), it has become critical to measure, understand, and enhance the resilience of affected people, based on a growing consensus that focused solutions are needed to enable vulnerable populations to absorb shocks and boost their

ability to adapt to changing conditions. However, measuring resilience is challenging, and long-term or high-frequency panel data sets are preferred (Béné *et al.*, 2017; Cissé & Barrett, 2018; Upton *et al.* 2016). Most of the current methods and tools available for measuring resilience reflect the wide range of disciplines and industries that have used the term (Wakjira, 2018). Technological capacity, skills and education levels, economic status and growth prospects, environmental quality, natural resource management institutions, livelihood assets, political structures and processes, infrastructure, knowledge and information flow, and the speed and breadth of innovation and communication have all been assessed in cross-disciplinary attempts to develop ways to measure resilience (Mitchell & Harris, 2012).

Resilience is a multidimensional latent variable that resilience cannot be observed directly from the field (Alinovi *et al.*, 2008). Since resilience is not directly measurable, most studies make use of quantifiable proxies or indicators of resilience (Jones & Tanner, 2015). Nevertheless, Quandt (2018) noted that there is no standard procedure for defining resilience indicators which then should not be necessary. Resilience is determined by several pillars; these pillars include social safety nets, access to public services, assets, income, food access, stability, and adaptive capacity (Alinovi *et al.*, 2010; FAO, 2016).

In their study, Alinovi *et al.* (2010) and FAO (2016) discuss various variables which can be used to determine the resilience pillars. Social safety net pillar is constructed using cash transfers (other cash transfers from relatives, and friends), cash for work and food aid. Adaptive capacity which is the ability of a household to adapt once it faces a given shock is explained by education level, average daily consumption and dependency ratio. Access to the basic services pillar is explained by access to education access to health services, access to the nearest water point and access to the nearest market. The asset pillar which is a key pillar to households is explained by land ownership and livestock ownership. Income and food access is explained by education level average daily consumption and dependency ratio. Stability is explained by Job loss, income change, expenditure change, capacity to maintain stability in the future, education system stability and livestock loss.

FAO (2016) provides a framework to quantify resilience, the resilience index measurement and analysis two (RIMA-II). The RIMA-II framework describes how shocks interact with each other and how they affect households, with resilience accounting for the differences in outcomes

between two identical households that have experienced the same shock (FAO,2016). RIMA-II has been proven to be a good predictor of food security over time, making it a promising approach that optimizes an important and long-term foundation for building food-secure, resilient lifestyles (Wakjira, 2018).In the RIMA-II framework resilience is estimated from four aggregated pillars: Access to Basic Services (ABS), Assets (AST), Social Safety Nets (SSN) and Adaptive Capacity (AC). RIMA-II is a data-driven approach that collects and analyzes information at the household level (Wakjira, 2018). RIMA-II is a two-stage procedure as explained in chapter three.

2.3.2 Sustainable livelihood approach

The Sustainable Livelihood (SL) concept is an attempt to move beyond the traditional poverty eradication concepts and approaches. These were deemed overly to be narrow because they looked only at certain characteristics or symptoms of poverty, such as low income, or ignored other important features of destitution such as vulnerability and social exclusion (Krantz, 2001). The concept of sustainable livelihood approaches developed as a form of livelihood analysis that has been used by several development organizations which include DFID CARE and OXFAM (Adato & Meizen–Dick, 2002). The concept was first introduced by the Brundtland Commission on Environment and Development, promoting sustainable livelihoods as a broad goal for poverty eradication. The concept offers the prospects of a more coherent and integrated approach to poverty reduction. The sustainable livelihood approach prevailing aim for poverty eradication was affirmed by DFID in 1997. As a result of this affirmation, rural development departments have expressed an interest in incorporating the sustainable livelihood strategy into their poverty reduction programs (Krantz, 2001). Advocates of the sustainable livelihood approach indicate that the framework provides conceptual tools such as assets, capabilities and capital that enable people to make a sustainable living (Chambers & Conway, 1992).

The sustainable livelihoods approach provides a framework for livelihood analysis, in this approach, there are five fundamental assets that individuals own to build their livelihoods which consist of human, natural, physical, social, and financial assets (Ashley & Carney, 1999). According to Farrington *et al.* (2002), the five fundamental assets are defined as follows: Financial capital is defined as the economic resources of the individual, which is regularly provided by labour to access cash and this is one of the most important assets. Physical capitals refer to the capital of buildings, tools, public infrastructure that the people have access to and other physical

resources in the community. Natural capitals are described as the capital of natural resources for example agriculture land and water that households and the community can access (Farrington *et al.*, 2002). Social capital is defined as the capital of the individual's social network, for example, family, friends, and community from which poor households receive aid during emergencies or in their day-to-day living. Human capital is described as the capital of the individual's capital and health (Farrington *et al.*, 2002).

According to Krantz (2001), the strength of the sustainable livelihoods approach is that it emphasizes the variety of assets that individuals use to develop their livelihoods. People, whether poor or not, are recognized as actors with assets and capabilities who act in pursuit of their own livelihood goals under the sustainable livelihoods approach (Hall & Midgley, 2004). According to Quandt (2018), one innovative strategy for determining indices of resilience is the sustainable livelihoods approach. The five fundamental assets can be used to categorize resilience indicators into different groups. Using the sustainable livelihoods approach to measure resilience means that a variety of indicators, rather than only financial capital, are utilized to assess livelihood resilience. As a result, accumulating livelihood capital assets may aid households' ability to adapt to shocks with a wider range of viable decisions and actions (Quandt, 2018). The sustainable livelihoods approach recognizes that livelihood resilience is influenced by nonmonetary factors. Resilience is an important component of long-term livelihoods, as it reflects the ability to cope with external stresses and shocks (Thulstrup, 2015). A livelihood approach to resilience theory also enriches resilience theory by recognizing that people's circumstances, cultures, values, and perceptions all influence their ability to adapt (Enns & Bersaglio, 2015).

Cash transfers affect the fundamental assets of livelihoods. When cash transfers are regular and predictable, households may use them to meet their basic needs. Households may use cash transfers to invest in productive activities. Cash transfers may affect the resilience indicators which might enhance the ability of beneficiary households to adapt and cope when they face shocks. Advocates of cash transfers expect that beneficiary households will not engage in negative coping strategies that may weaken the sustainability of livelihoods in the long term.

2.4 Cash and in-kind transfers

Humanitarian aid modalities such as cash transfers and in-kind aid are well-established (Castillo, 2021). Cash transfers and in-kind transfers are two common ways to meet the

fundamental needs of those who have been affected by disasters. However, there are growing uncertainties over whether of the two modalities is the most effective alternative for relief on its own (OECD, 2017; Oxfam, 2005). Cash transfers aim at addressing needs that beneficiaries can meet on their own through working markets. Cash-based programming is a pull-based approach that reduces assumptions about the exact services to be supplied and generates the least amount of money overhead. In-kind assistance, on the other hand, can be thought of as a push tactic to meet the needs of those in need. Not all beneficiaries require the same amount or type of food provided by humanitarian groups, which reduces the efficiency of the humanitarian purpose. Furthermore, the nature of humanitarian actions has exogenous market impacts that must be examined alongside demand fulfilment to avoid ongoing disruptions once the emergency has ended (Castillo, 2021).

An enduring debate that surrounds the public policy design is over the modes of distribution that can deliver desired outcomes. Redistributive initiatives all over the world entail cash or in-kind transfers. In other circumstances, the former turns out to be conditional, in which the money is transferred subject to the fulfilment of predetermined conditions (Satapathy *et al.*, 2021). Although the discussions have centered on the mode of delivery, the timing of the transfers is becoming increasingly important (Venton *et al.*, 2012).

The debate on cash or in-kind transfer has a long history in both humanitarian relief and social protection settings. The technical discussion during the 1990s rotated around recognizing the merits and demerits of cash versus food transfers, and the conditions under which one ought to be picked over the other (Sabates-Wheeler & Devereux, 2010).

The tools used by major humanitarian actors treat aid modality selection as a static process, involving feasibility characteristics such as security, logistics readiness, market readiness, and cost-effectiveness considerations. These factors change as a disaster unfolds, and assistance agencies may be unable to adjust their response without the proper preparedness frameworks. In an emergency, qualitative tools such as decision trees are common options for selecting the modality response (Barrett *et al.*, 2009). It is important to consider carefully whether a program should provide cash or food transfers, as many factors play into the effectiveness of each type of transfer (Garcia & Moore, 2012).

According to Devereux (2006), the conceptualization and structure of social protection program should be informed by a context-specific assessment of the program's needs and

objectives. The context and objectives are what determine the choice. In some circumstances, cash transfers might be chosen and in-kind transfers in others. The debate on the relative advantages of cash transfers as compared with in-kind transfers has been predominantly vigorous in developing countries' contexts. Economists have generally been uncertain about in-kind transfers, viewing cash as superior in terms of the recipient's utility. In-kind transfers restrict recipients' behaviour while cash transfers do not (Currie & Gahvari, 2008). An important characteristic of many cash transfer programs, which is common with in-kind transfers, is that they are targeted towards poor and vulnerable people. This reflects the programs' goals of reducing poverty and promoting social security, and it is commonly stated in the literature that more may be accomplished within a given budget if more resources are allocated to those who need it most (Villanger, 2008).

Cash transfer recipients have the freedom to choose anything they want to consume, either food or other necessities such as schooling and health-related expenses (Barrientos *et al.*, 2010). Cash transfers may stimulate both local agricultural and non-agricultural activities. The distribution of cash transfers is less expensive than the distribution of food or other commodities (Ahmed *et al.*, 2009; Jayachandran *et al.*, 2015). Where markets are working proficiently, cash transfers are argued to be the best option. They leave almost all the logistic and security functions to compete with the private sector and state entities specializing in those functions (Garcia & Moore, 2012).

Governmental or non-governmental organizations may want to encourage program recipients to buy and consume specific food or non-food items, in this case, in-kind transfers are most convenient (Currie & Gahvari, 2008). In-kind transfer programs usually monitor the recipient's behaviour to ensure that the intended consumption takes place and that the recipient does not trade the assistance to get other goods or services (Villanger, 2008). In-kind transfers are used to supply goods not available in local markets (Aker, 2017). According to Currie and Gahvari, (2008) paternalism, intra-household distribution, self-targeting, monetary impacts, agents' asymmetric information, investment roles, labour supply distortion reduction, and political economy concerns all provide strong theoretical support for in-kind transfer. In-kind transfers may be preferred because it is based on paternalism, in which the granting authority supervises the recipients' consuming behaviour. Paternalism can be interpreted in a variety of ways. To begin with, the amount of some products tends to enter the social utility function, which then becomes

non-individualistic, justifying in-kind distribution of an essential benefit. The second step is to account for interdependent preferences, which result in consumption externalities (Currie & Gahvari, 2008).

Devereux (2006) argues that cash transfers cannot be generalized to be better than in-kind transfers; it depends on the responsiveness of markets and the elasticity of food supplies. Markets need to be working so that an injection of cash will provoke shopkeepers and dealers to make products available (Harvey & Bailey, 2011). There is no consensus on the preferred modality because theories and actual evidence differ. While in-kind transfer necessitates effective and open government machinery as well as proactive public administration, there are numerous flaws in its implementation, including documented leakages, corruption, and unaccountable government machinery (Kotwal *et al.*, 2011).

2.5 Beneficiary preferences

The preferences for cash or in-kind transfers by beneficiaries cannot be generalized for they are too context-specific. Social protection programs must reflect the diversity of beneficiary preferences for they vary with time and place. However, evidence shows that the preferences of beneficiaries are spatially disaggregated, temporarily, and by gender (Gentilini, 2007). On welfare considerations, cash is superior to in-kind payments in theory: it allows beneficiaries to make the best spending decisions possible. Therefore, cash does not affect individual consumption or production decisions, and it has lower administrative costs. Cash recipients don't have to pay any transaction costs to convert an in-kind transfer to the desired consumption composition, but they may have to pay a lot to go to markets where they can buy things (Peterman *et al.*, 2015). According to Devereux (2006), people close to the market places tend to spend cash on goods they desire while those living in rural areas far from primary markets generally prefer in-kind transfers. Cash resource management within households makes women more likely to prefer in-kind transfers, as their male counterparts tend to control the cash (Devereux, 2002).

In-kind food transfers may be greatly controlled by women whereas cash transfers may be greatly controlled by men. In this case because of differences in the preferences between men and women the cash and in-kind transfer impacts may be different. A greater social stigma is attached to in-kind transfers than cash transfers. In-kind transfers influence household preferences because they create a social obligation to consume the benefit received (Skoufias *et al.*, 2013). Preference

for one type of transfer over another can be influenced by the perceived value of the assistance, market volatility and bias towards the type of transfer people are used to receiving (Bailey & Harvey, 2015).

2.6 Climate shocks and cash transfers

Climate-related shocks, such as disasters, are often regarded as one of the most serious challenges to social and economic progress, with disproportionately negative consequences for poverty and inequality (Hallegatte, 2016). Climate change can exacerbate poverty by lowering agricultural productivity and production, as well as limiting asset accumulation and returns. Climate change has an indirect impact on poverty by affecting output pricing, worker productivity, and the availability of off-farm employment possibilities (Ngoma *et al.*, 2021).

Poor households are disproportionately affected by climate change because they have fewer means to adjust to or recover rapidly from shocks. Because they are the cheapest, poor households frequently reside in climate-risk-prone places (Hallegatte, 2016). Because many poor households lack sufficient assets, and capacities, and are socially excluded, their ability to bounce back to a pre-shock state of well-being is severely limited. This makes them more vulnerable to livelihood shocks and threats, which can lead to chronic poverty and, at a societal level, undermine poverty reduction (UNISDR, 2015; Zhou, 2019). Poverty can inhibit the adoption of livelihood methods and higher-risk investments that are necessary for greater readiness and long-term adaptation, resulting in a state of chronic shock susceptibility (Bahadur *et al.*, 2015).

Droughts and floods, food price spikes, and uncertainty are likely to become more common as a result of increased climate change and variability. As a result, humanitarian and development practitioners' programming approaches are geared toward enhancing the resilience of communities, particularly those in areas that are prone to climate change coupled with high levels of chronic vulnerability (Tumusiime, 2015). In most developing countries, cash transfers which are meant to protect low-level adaptive capacity households from weather-related shocks are still observed to be poorly understood. However, in recent years, there is growing interest among national governments to incorporate climate risk management strategies in social protection programs to lessen the impact of climate change on the most vulnerable (Kohlitz *et al.*, 2019; Kuriakose *et al.*, 2013). Climate extremes can occur suddenly and for a short time (shocks), such as flooding, disease outbreaks, and so on, or gradually and over time, such as drought (Sagara,

2018). Climate change shocks may be expected, but their effects on specific assets, livelihoods, households, and other factors may not be (Zselezky & Yosef, 2014).

Understanding the many types of shocks that households suffer, where particular shocks are intense, and what tactics households adopt to cope with shocks has significant consequences for reducing vulnerability and influencing the design and growth of social protection programs (World Bank, 2018). Shocks can be classified as exogenous (covariate) or endogenous (idiosyncratic). Exogenous shocks, such as drought or price rises, are shocks that are not impacted by the family or individual's characteristics. Sickness, death, injury, and unemployment are examples of endogenous shocks that are influenced by the family or individual's characteristics (Vaitla *et al.*, 2012). The difference between exogenous and endogenous shocks and stressors is foundational to the notion of livelihoods and socio-ecological systems as tending toward stability unless disturbed (Carr, 2020). Households in developing countries are regularly hit by severe endogenous shocks and exogenous resulting in high-income volatility (Günther & Harttgen, 2009).

Shocks are short-term external departures from long-term trends that have a significant negative impact on people's immediate well-being, assets, livelihoods, or safety, as well as their ability to resist future shocks (Choularton *et al.*, 2015). Impacts of shocks to the economy can have disastrous consequences for household resources, and they are significant predictors of poverty dynamics (Dercon, 2004).

As a result of climate change, the balance will move toward more covariate shocks (as opposed to idiosyncratic ones). Given that the physical effects of climate change (as well as many livelihoods) are locally concentrated, covariate risks are anticipated to rise, resulting in overlapping risks at the local level (Moser *et al.*, 2010). Each form of covariate shock has a different manner of affecting households: economic shocks largely, if not completely, through the labour market, drought primarily through food insecurity, and destructive shocks such as earthquakes mostly through asset loss (Bowen *et al.*, 2020).

Shocks, stressors, and instability characterize the lives and livelihoods of impoverished and vulnerable people in Sub-Saharan Africa. Shocks can have devastating repercussions for families and people in a place where poverty and chronic food insecurity lead to substantial vulnerability (Fisher *et al.*, 2017). Communities deal with hardship in a variety of ways, but their options are limited by poverty and capacity restrictions (Nikoloski *et al.*, 2018). Many stresses or shocks are

periodic, such as floods, pest outbreaks, and unemployment. The inability to cope with seasonal shocks or stresses might render already disadvantaged households even more susceptible to disaster by raising the probability of future hazard exposure (Pasteur, 2011).

According to Eriksen *et al.* (2005), shocks can exacerbate already-stressed livelihoods, making income access critical. Shocks have large indirect negative impacts forcing people into necessary but destructive coping strategies, which diminish their adaptive capacity in the long run. Given that the poor are frequently threatened by a variety of climatic and non-climate-related risks, cash transfers can be used to respond to shocks, whether or not they are caused by climate change. Even if the poor are not forced to use extreme coping techniques, the heightened threat of shocks may force them to use low-risk coping mechanisms (Wood, 2011). Households, on average, respond to negative income shocks by utilizing measures that allow them to maintain their usual spending level (World bank, 2013). When shocks do occur, they not only lessen household income but can induce coping mechanisms with negative long-term implications, such as distress sale of livestock or other productive assets, withdrawal of children from school, or reduced nutrient intake by skipping meals. Such risk management approaches have the potential to trap families in poverty (Jensen *et al.*, 2017).

2.7 Cash transfers and vulnerability

Vulnerability is a condition in which a household's ability to meet basic needs is limited, as well as its ability to cope with dangers that could jeopardize meeting those needs (Cuevas *et al.*, 2019). Vulnerability is a term that combines the notions of risk and poverty to describe the likelihood of a household becoming impoverished in the future. It's a foresight metric that considers the likelihood of a household encountering a shock that would force it into poverty in the future (World bank, 2018). According to World bank (2018), vulnerable households are those who are likely to stay poor in the near future, even if they do not encounter shocks. A non-poor household may be vulnerable to poverty if it faces a high likelihood of experiencing future shocks. Depending on the structure of hazards and the resources available to cope with shocks, vulnerability might vary geographically and among households. Effective risk management minimizes poverty vulnerability (World bank, 2018). Poor people's livelihoods are generally affected by external variables beyond their direct control and are dependent on broader policies, institutions, and procedures. Individuals can become more resilient to the negative effects of

trends, shocks, and seasonality if development policymakers and practitioners help them obtain assets and ensure that important policies, institutions, and procedures are responsive to their needs (Alinovi *et al.*, 2010)

The development of cash transfers has benefited greatly from research on the multifaceted characteristics of poverty and vulnerability. In low and middle-income nations, poor and near-poor households confront a variety of risks that make it difficult, if not impossible, to improve and maintain their level of living over time (Barrientos, 2010). Households' ability to limit or prevent susceptibility is determined by three factors. The first concern is the intensity and frequency of household dangers. The second factor is the degree of household resources, which can include both financial and physical assets like land and cattle. The third is public social protection programs and access to social networks (family, friends, neighbours, neighbourhood associations, marketplaces, and so on) (Kozel *et al.*, 2008). According to Tossou (2021), Cash transfers are a valuable instrument for policymakers who want to help vulnerable groups recover from shocks. It's also a popular mechanism in humanitarian action, where it's utilized to respond to people's various needs with better respect.

Cash transfers for decreasing poverty or vulnerabilities are classified as unconditional or conditional cash transfers, depending on the degree of conditionality. Unconditional cash transfers have no strings attached beyond a widely defined eligibility category that identifies a population segment as eligible, such as the impoverished or orphans (Garcia *et al.*, 2012). The primary economic reason for cash transfers is that additional income from these interventions protects recipients' standard of life by allowing them to keep their expenditure on vital items during financially difficult times without having to sell their assets or get indebted (Arnold *et al.*, 2011).

In Africa, social protection measures are increasingly aimed at institutionalizing institutions that provide aid to the poor and safeguard the vulnerable from threats to their livelihoods (Ellis *et al.*, 2009). Climate change vulnerability of countries and societies is determined not only by the level of climatic stress but also by the sensitivity and capacity of impacted societies to adapt to or cope with such stress (Tesso *et al.*, 2012). Understanding people's drought susceptibility is difficult since the capacity to cope with drought is determined by both biophysical and socioeconomic determinants of drought impact (Naumann *et al.*, 2013). Vulnerability is defined by the risks or a series of risky events that families face in the search of

their livelihoods, the sensitivity of livelihood to these risks, the reaction or alternatives that households have for handling these hazards, and finally, the outcomes that reflect the loss of wellbeing (Turner *et al.*, 2003). According to Twigg (2009), disaster preparedness and planning can meaningfully lessen exposure to shocks: good risk analysis, including disaggregation by gender, socio-economic status, or other groupings; contingency planning; early warning systems and awareness; and improved disaster risk prevention and protection strategies reduce communities exposure to shocks and thus reduce their vulnerability to shocks.

2.8 Empirical literature

Research over the last decade has documented various impacts of cash transfers on welfare measures. These include impacts on health, education, social cohesion, poverty, labour, and the local economy. Accepting variations in society while maintaining equity so that inequalities and inequities do not undermine stability and cause conflict is what social cohesiveness requires (Idris, 2017). Valli *et al.* (2019) used a cluster randomized control trial that included four arms and 145 clusters randomized to cash, food, food vouchers, and control to find out if a short-term transfer program targeted Colombian refugees and poor Ecuadorians in urban and peri-urban areas of northern Ecuador led to changes in social cohesion measures. They found that transfers have added to the integration of Colombians in host communities through increased personal agency, positive attitudes that accept diversity, institutional confidence, and social participation.

A study by De Milliano *et al.* (2021) used a difference-in-differences approach to assess the impact of the LEAP 1000 unconditional cash transfer program on household and community support among women in rural Ghana. Their findings indicate that LEAP 1000 appears to boost total social support, as well as emotional and instrumental support. In addition, beneficiaries of the program were more likely to join community groups.

Pavanello *et al.* (2016) found that while social transfers have positive effects on strengthening 'bonding' social capital and breaking patterns of exclusion, they also have negative effects, particularly in fueling intra-community tensions and generating feelings of unfairness, which are primarily due to targeting-related issues.

A systematic survey of 35 assessments carried out by Baird *et al.* (2013) found that cash transfers of any type brought about a 36% more possibility of school enrolment and a 59% increase in the likelihood of school participation within households receiving the transfer. The investigation

additionally uncovered that the effect on chances of enrolment was more at the secondary level (31%) than at the primary level (4%), and girls' turnout was more influenced by conditional cash transfers than boys' turnout.

Behrman *et al.* (2011) noted that the impacts of cash transfer on schooling from the program had lasting effects among children who had stronger exposure to *Progressa* cash transfers 10 years later using experimental and non-experimental estimators based on groups with a different program.

Mostert and Vall Castello (2020) investigated the impact of an unconditional cash transfer policy on children's education outcomes focusing on both the primary and secondary phases of education. Mostert and Vall Castello's (2020) results indicate that the cash transfer policy improves reading and writing capabilities at both the primary (by 3.7% and 3.3% respectively) and secondary education levels (by 10.2% and 10.1%, respectively) but it fosters school attendance only in secondary education. Their results so indicate that the effects were only significant for boys among primary education children.

A study by Churchill *et al.* (2021) used a regression discontinuity design to examine the impact of unconditional cash transfers on child labour and educational outcomes. Their findings indicate that in the short run unconditional cash transfers have a positive and statistically significant effect on school enrolment and grade promotion, but no impact on school dropout rates. With regards to child labour, they found that the BISP policy intervention had no effect on child labour in the short run; but in the medium to long run. They concluded that cash transfers can help lessen child labour among boys as well as girls

The study by Kilburn *et al.* (2017) used a differences-in-differences model to analyze the impact of a positive income shock on child schooling outcomes. They find that the Malawi social cash transfer program both improves enrollment rates and decreases dropouts.

Miller and Tsoka (2012) investigated the impact of monthly cash transfers on children's education and labour-targeted ultra-poor households with the goal of reducing destitution and allowing families to invest in human development. In comparison with the non-beneficiaries, Miller and Tsoka (2012) found that cash transfer beneficiary children experienced a 5-percentage point difference in enrolment, higher educational expenditures, fewer absences, and a 10-percentage point decrease in labour outside the home.

A study by Macours *et al.* (2012) analyzed the impact of a cash transfer program on early childhood cognitive development. They found that nine months after the program began, children in households that were randomly assigned to receive assistance had significantly higher levels of development. Two years after the program stopped, there was no fade-out of program effects.

A study by Giang and Nguyen (2017) estimated how cash transfers to children could help increase access to education, and health services and reduce their poverty. To achieve these goals, they used panel data from the Vietnam Household Living Standard Survey (VHLSS) between 2010 and 2012 to run fixed effect regression models, then used the anticipated results to simulate how welfare indicators would have changed if children were given varying levels of benefits. Cash transfers, according to Giang and Nguyen (2017) would increase school enrollment and reduce poverty. Cash transfers, on the other hand, would have no substantial impact on hospital admissions and outpatient visits, as well as out-of-pocket health-care spending, but would have a considerable impact on the likelihood of having health insurance. From their results, Giang and Nguyen (2017) argued that promoting a cash transfer program for more susceptible children will allow them to improve access to education and health, and minimize their poverty levels. More importantly, they highlighted the importance of ensuring the quality of services given in conjunction with cash transfers in order to ensure that present gains are completely transformed into socio-economic development.

The effect of cash transfer depends on the size. Miller *et al.* (2011) conducted a longitudinal, randomized community control study of the pilot Social Cash Transfer Scheme in Mchinji, Malawi with a panel of treatment and control households from March 2007 to April 2008. Miller *et al.* (2011) found that large effect sizes are statistically significant in food expenditure, intake, food adequacy, and a variety of diet diversity. Such effects are partly explained by the size of the cash transfer, which accounted for 60% of the overall household expenditure *per capita* on average. Hidrobo *et al.* (2014) used randomized evaluation to assess the impacts and cost-effectiveness of cash, food vouchers, and food transfer they found that randomly assigned cash, food, and voucher transfers all lead to improvements in the quantity and quality of the food consumed. Differences arise, however, in the types of food consumed; food transfers resulted in significantly greater increases in calories consumed, and vouchers result in significantly greater increases in dietary diversity.

In their study, MacAuslan and Schofield (2011) observed that the food consumption of the beneficiaries of a Concern Worldwide Cash Transfer program in the Korogocho informal settlement increased by at least one meal per day during the transfer period, while dietary diversity also improved. However, this was more noticeable for small households since the transfer was uniform.

Attanasio *et al.* (2005) found that the *Familia en Accion (FA)* program in Colombia significantly increased overall household consumption in rural areas by 19.5 per cent and urban areas by 9.3 per cent. Most of the increase in consumption due to the FA program was dedicated to food, with consumption of protein-rich foods (meat, chicken, and milk) increasing in both rural and urban areas. The program was also found to have a significant effect on the consumption of clothes and footwear for children but none for adults meaning the program benefits children more than other members of the household.

A study carried out by Gertler *et al.* (2012) examined the long-term cash transfer impacts on consumption and the relationship between this increase in consumption to investment in productive activities. Using data from a randomized experiment they found that for every peso transferred to a low-income household in Mexico, about 74 centavos are consumed and 26 are invested in the income-generating activity. They demonstrate how this investment in income-generating activity from the transfers appears to yield long-run increases in consumption.

Kronebusch and Damon (2019) studied the effect of *Progresa*, a conditional cash transfer program in Mexico, on the micronutrient and macronutrient consumption levels of program participants. Their findings suggest that *Progresa* has a dual effect on the nutrition outcomes of *Progresa*-eligible households, likely improving macro- and micronutrient consumption levels, while also increasing the consumption of food categories that are likely to result in increased prevalence of overweight and obesity.

Angelucci *et al.* (2012) estimated the effect of the Mexican conditional cash transfer program on savings and consumption for beneficiary households. According to Angelucci *et al.* (2012), cash transfers led to an increase in consumption of non-durable and durable goods, an increase in savings coupled with a drop in the number and values of loans, and a reduction of in-kind transfers received by households in treatment areas.

Lebihan and Takongmo (2019) evaluated the impact of unconditional family cash transfers on the body mass index (BMI) and obesity of parents. They show that cash transfers caused decreases in BMI and the prevalence of overweight and obesity in mothers with young children. They also report larger changes in the distribution of BMI in both mothers with lower literacy levels and single mothers.

Fenn *et al.* (2015) assessed the effect of an unconditional cash transfer (CT) implemented as part of an emergency response to food insecurity during a declared state of emergency. According to Fenn *et al.* (2015), unconditional cash transfers improved the living standards of ‘poor’ and ‘very poor’ households, reduced poverty levels, improved the food security status of the household and anthropometric outcomes for children aged 6–36 months.

A study by Kurdi (2021) used a differences-in-differences estimator to provide rigorous evidence of the potential for long-term nutritional benefits of cash transfers in humanitarian crisis situations. The findings indicated that cash transfers significantly increased purchases of non-staple foods which resulted in large positive impacts on child dietary diversity scores. The finds also showed that cash transfer impacts on consumption patterns and dietary diversity are significant for the full sample and strongest among the poorest tercile of households. Kurdi (2021) also found large and statistically significant cash transfer program impacts on height-for-age z-scores of 0.3. Kurdi (2021) results support the increased use of cash transfers and offer a standard for assessment with more traditional food distribution and supplementation approaches for helping child nutrition in prolonged disaster settings.

Pellerano *et al.* (2014) evaluated the Lesotho child grant program and found that the program reduced the number of months in which families suffered food shortages and the proportion of households that did not have enough food to meet their needs for at least one month in the last one year.

Evans *et al.* (2019) exploring the long-term effects of a conditional cash transfer program in rural Tanzania, found that while the program significantly increased clinic visits in the first 1.5 years after transfers, this impact vanished by 2.5 years, though they did find increases in preventive health investments and health insurance at that point.

Sarah *et al.* (2017) examined whether significant reductions in HIV prevalence, teen pregnancy, and marriage as well as a rise in school involvement and test scores, were realized

during the early stages of unconditional and conditional cash transfer programs in Malawi. Sarah *et al.* (2017) found that at the end of the program, girls who had received the unconditional cash transfers were no better off than the non-beneficiaries, the beneficiary girls had HIV and pregnancy rates unaffected by having received cash transfers. Sarah *et al.* (2017) found potential evidence of the long-term effects of cash transfers among a group of girls who left school and were given conditional cash transfers as a motivation to go back to school.

A study by Kilburn *et al.* (2016) used logistic regression to investigate the effect of Kenya's unconditional cash transfer program on the mental health outcomes of young people. They found that the cash transfer program reduced the odds of depressive signs by 24 per cent among young persons living in beneficiary households.

Using the instrumental variable fixed effects model to determine the effect of cash transfers on mental health in South Africa, Ohrnberger *et al.* (2020) found that receiving the Child Support Grant improves mental health by 0.822 points a 4.1% of the sample mean.

Okeke and Abubakar (2020) in their study on the effects of a cash transfer program in Nigeria in which households were offered a payment of \$14 conditioned on the uptake of health services. Their findings indicate that the transfer led to a large increase in uptake and a substantial increase in child survival driven by a decrease in in-utero child deaths.

A study carried out by Vaidya (2021) used the difference-in-differences method to determine who responds to the incentives set by in-kind as opposed to cash transfers. They evaluated the impact of in-kind subsidy transfers on deductible choice and the choice of a cost-saving health plan to know the effect heterogeneity based on individual background features. Their findings indicate that qualified individuals from in-kind transfer areas in general are incentivized to choose a low deductible plan compared to qualified individuals from cash transfer areas. Additionally, Vaidya (2021) found that eligible individuals were less likely to select a cost-saving health plan compared to a cash transfer area.

Chaaban *et al.* (2020) studied the impact of multi-purpose cash assistance on Syrian refugees in Lebanon provided by the World Food Program and the United Nations High Commissioner for Refugees in the short-term and the long-term after it was terminated. They employed a fuzzy regression discontinuity design (RDD) on a three-wave repeated cross-section data collected from 11,457 Syrian refugee households in 2018 and 2019 over three waves of data

collection, at 6-month intervals. Their results reveal that the impact of multi-purpose cash assistance materialized across most dimensions of welfare in the long-run, where the cash transfers are found to result in growth in entire household spending, reduced food insecurity among beneficiaries, an increase in access to sufficient drinking water, an increase in formal school enrolment, an increase in access to primary health care and an improvement in respondent mental health. Additionally, Chaaban *et al.* (2020) indicated that the cash transfers led to a reduction in male employment joined by a rise in male job seekers, indicating that cash assistance may be increasing working males' ability to select work with better conditions.

Haushofer and Shapiro (2016) used randomized control trial to examine the impacts of the Give Directly unconditional cash transfer intervention on 1372 households in Kenya. They randomize the size of the unconditional cash transfer the timing of the transfer (one-month instalments over nine months vs. a one-time transfer), and whether the transfer was given to the wife or husband household. Haushofer and Shapiro found a US\$36 increase in monthly non-durable consumption over a baseline control mean of US\$158. Perhaps most importantly, they find asset holdings increased by US\$302 from US\$495, increasing the income stream from animal husbandry and agriculture by US\$16. The impact on consumption from the large transfer treatment was nearly 50% higher than the impact of small transfers; on asset accumulation, but the impact for large transfers was nearly double, making the marginal expenditure on investment greater as transfers increased.

Brugh *et al.* (2018) used panel data for 3290 households to analyze the effect of an unconditional cash transfer on food and nutrition security among ultra-poor and vulnerable households. They used difference-in-differences specification to estimate the average treatment effects of unconditional cash transfer on three components of food and nutrition security – current economic vulnerability, diet quantity, and diet quality. According to Brugh *et al.* (2018) cash transfer, beneficiaries are 11 percentage points more likely to consume multiple meals per day during the lean season and have a higher level of apparent caloric availability, further they noted that cash transfer beneficiaries are 10 percentage points less likely to be food-energy deficient, and have a reduced hunger depth. However, Brugh *et al.* (2018) indicate that after one year of program exposure beneficiary households experienced a slight improvement in diet quality as well as their present economic vulnerability to food insecurity.

Song and Imai (2019) evaluated the short-term impact and long-term sustainability of Kenya's Hunger Safety Net Program (HSNP). In determining the impact of participating in the program on the household Multidimensional Poverty Index (MPI) they used difference-in-difference and propensity score matching estimations. They found that participating in the program reduced the household Multidimensional Poverty Index significantly, which is mainly determined by the food insecurity dimension, and that the poverty reduction is due to the reduction in the incidence and intensity, the latter in particular, of poverty among the ultra-poor households.

Habimana *et al.* (2021) estimated the causal effect of Rwanda's unconditional cash transfer program (VUP-Direct Support) on the incidence of poverty, the poverty gap, and household food and non-food expenditure for direct support recipients. They applied four matching methods to data from the 2013/14 household survey to estimate the program impact on the treated. According to Habimana *et al.* (2021), involvement in the program had a positive and statistically significant impact on measured headcount poverty and the poverty gap. Further, they noted that the cash transfer program led to a minor rise in total food consumption, as well as a decrease in home-produced food consumption and no change in non-food consumption. The estimated treatment effects are generally unaffected by violations of the conditional independence assumption and subsample selection.

Nawaz and Iqbal (2021) evaluated the effects of the Benazir Income Support Program (BISP) cash transfers program on environmental poverty using a regression discontinuity design. They developed a multidimensional environmental poverty index (EPI), based on four dimensions of environmental services using the Alkire-Foster method. Their results indicate that BISP cash transfers have a negative and significant impact on environmental poverty. The implication of this evidence is that cash transfers increase the use of environmental services among BISP beneficiaries. They also found that the effects of cash transfers on environmental poverty vary from one province to another, which emphasizes the importance of regional differences and heterogeneities.

Özler *et al.* (2021) evaluated the impact of the Emergency Social Safety Net in Turkey, the largest cash transfer program for international refugees in the world. They found that the program triggered significant changes in household size and composition, with a net movement of primarily school-aged children from ineligible to eligible households. They observed a sharp decline in

destitution and inequality in the entire study population. Emergency Social Safety Net also caused a moderate increase in the diversity and frequency of food consumption among eligible households. According to Özler *et al.* (2021), policymakers should consider the likelihood that refugee populations might respond to their eligibility status by altering their household structure and living arrangements to strike the right balance between transfer size and coverage, which are key parameters in the design of any cash transfer program.

Boone *et al.* (2013) used a difference-in-difference model to analyze the impact of the Malawi Social Cash Transfer Scheme on agricultural production. They discovered significant increases in the ownership of productive agricultural assets, time devoted to household farms, and food types consumed from own production, all of which were accompanied by a sharp decline in *ganyu* labour, which is frequently used as a coping strategy once food stores have been depleted.

Covarrubias *et al.* (2012) evaluated the productive impacts of the Malawi Social Cash Transfer Scheme study which looks beyond the protective function of cash transfer programs, as well as analyzing their productive impacts. Taking advantage of an experimental impact evaluation design, their results indicate that the Malawi Social Cash Transfer creates agricultural asset investments, decreases adult participation in low-skilled labour, and restricts child labour outside the home while increasing child involvement in household farm activities. Covarrubias *et al.* (2012) dismiss the belief that cash assistance to Malawi ultra-poor households is charity or welfare and present suggestions for the program's economic development benefits.

By exploiting a randomized control trial for the evaluation of Lesotho's biggest transfer program Prifti *et al.* (2020) estimated the average treatment effect (ATE) of cash transfers on-farm profitability. Furthermore, their study unpacks the average treatment effect into group-specific factors to investigate impact heterogeneity. They calculate conditional average treatment effects to show how treatment effects differ with different covariates as well as quantile treatment effects to show how effects vary at different outcome levels. According to Prifti *et al.* (2020), the program had a significant impact on farm profitability, although the effects were unevenly distributed among the population. The initiative favoured individuals with a higher capacity for productivity and had significant distributional effects.

Garganta *et al.* (2017) estimated the impact of large-scale conditional cash transfer programs on female labour force participation. They identified the intention-to-treat effect by using

a difference-in-difference methodology to compare the eligible and non-eligible women over time. Their results suggest that the program has a negative and economically significant effect on female labour force participation.

Dietrich and Schmerzeck (2019) investigated the role of local food markets after weather shocks as a facilitating factor for program impacts on nutrition. Dietrich and Schmerzeck (2019) show that, in spite of some inspiring effects on proxy indicators, the program has no long-term significant impacts on nutrient availability. However, they observed significant positive impacts for drought-affected households in less remote communities.

Prifti *et al.* (2019) investigated whether unconditional cash transfers have an impact on farm production and the causal mechanisms through which government transfers produce productive impacts. They found that while cash transfers have a significant impact on farm production, they do not result from greater usage of family or hired labour on the farm, an implication that the productive impacts of cash transfers are channeled through other channels other than labour.

Handa *et al.* (2018) investigated the effects of cash transfer programs both on food security and consumption as well as on a variety of productive outcomes. Their results indicate that household expenditure on average was 67 per cent higher than the amount of the transfer received, showing a significant multiplier effect, which works through increasing non-farm activities and agricultural production.

Osei and Lambon-Quayefio (2021) employed the combined propensity score matching and difference-in-difference technique to obtain robust estimates in examining the effect of the cash transfer program on the labour shifts of beneficiaries. Their findings indicate that cash transfer programs can have productive impacts and refute the claim that such fundings lead to participants becoming permanently dependent.

Yiridomoh *et al.* (2021) in their study found that beneficiaries used cash transfers to engage in mixed off-farm and on-farm activities such as farm intensification, purchasing of early-maturing crop varieties, shea butter processing and livestock/poultry purchases in response to climate-induced events.

Mostafavi-Dehzooei and Heshmatpour (2021) used a large-scale cash transfer program in Sub-Saharan Africa to study if cash transfers affect input use by farmers through their impact on

intertemporal choice. Using the random assignment of treatment to identify the indirect and total effect of the program and to isolate the influence of the time discounting channel from other transmission channels, they find that a small part of the total effect of cash transfers on input use is mediated through the increase in the patience of recipients.

Crost *et al.* (2016) estimated the effect of conditional cash transfers on civil conflict in the Philippines by exploiting an experiment that randomly assigned eligibility for a CCT program at the village level. Their findings indicate that cash transfers resulted in a significant reduction in conflict-related occurrences in treated villages compared to control villages in the first nine months of the program.

Salehi-Isfahani and Mostafavi-Dehzooei (2018) studied the impact of a nationwide unconditional cash transfer program on labour supply in Iran. They used panel data and fixed effects to study the causal effect of cash transfers on labour supply using the exogenous variation in the intensity of treatment, which they defined as the value of cash transfers relative to household income in the year before transfers. They also used a difference-in-differences methodology that relies on exogenous variation in the time households first started receiving transfers. Except for youth, who have weak ties to the labour market, they find no evidence that cash transfers reduced labour supply, while service sector workers appear to have increased their hours of work, perhaps because some used transfers to expand their business.

Through a randomized controlled trial, Del Boca *et al.* (2021) evaluated the impact of a conditional cash transfer (CCT) program offered to low-income families with dependent children on household labour supply. As a condition of receiving the transfer, the recipients were required to attend labour-market-oriented mentoring courses. One year after admission to the program, fathers assigned to the conditional cash transfer program were more likely to work than fathers assigned to an unconditional cash transfer program or a pure control group. Del Boca *et al.* (2021) observed no effect on mothers. Results seem to be explained by improved family networks and increased investments, especially for fathers, in activities that enhance labour market opportunities.

Jayawardana *et al.* (2021) examined the impacts of an unconditional in-kind transfer on child labour and schooling using longitudinal household survey data from Indonesia. To identify the causal effect, Jayawardana *et al.* (2021) used coarsened exact matching with the difference in

differences estimator. Their results indicate that the cash transfer program is effective in reducing the likelihood of working for boys but it has no influence on the likelihood of boys attending school. However, as an unconditional in-kind transfer, its ability to reduce child labour for boys, particularly those who work and go to school has a substantial policy implication for how a food subsidy program can indirectly effect child wellbeing.

Garcia and Cuartas (2021) results suggest that public transfer did not crowd out private transfers, in the short-run or the medium-run. Instead, it increased the likelihood of receiving support in cash, in kind, and unpaid labour assistance from a variety of private sources by about 10%. Furthermore, they found that for treated households, the monetary value of private transfers increased by 32-38%.

Kattel and Mohan (2021) assessed the effectiveness of conditional cash transfers combined with a targeted extension on the adoption of improved goat shelter principles by earthquake-affected households. According to Kattel and Mohan (2021), based on the conditionality, 99 per cent of beneficiaries followed the project's hygienic shelter principles. In addition to the \$100 received from the project, beneficiaries co-invested an average of \$80–100. Most recipients reported a 20–30% increase in herd size after the repair of goat shelters due to the availability of safe space. The beneficiaries showed considerable ownership in the study, as seen by the goat shelters' upkeep and repair. Households that did not get financial assistance from the project have begun to embrace the design ideas, owing to their low cost and simplicity.

Analysis of Benazir Income Support Program (BISP) cash transfers impact on women's empowerment after two, five, and eight years of intervention using a fuzzy regression discontinuity design for cross-sectional data and a difference-in-difference approach for panel data by Iqbal *et al.* (2021) reveal that; after two years of intervention there was no significant impact on women's empowerment; but, after 5 and 8 years, there was a significant impact, particularly on women's mobility, involvement in decision-making, and voting behaviour. In addition, biometric payment enabled women to leave the house and manage their finances. Despite the positive impact on women's flexibility and political voice, women's bargaining power and gender norms, such as, including women in decision-making by their spouses and violence against women have minor impacts.

A qualitative study by Nnaeme *et al.* (2021) draws on the sustainable livelihoods approach and describes how beneficiaries acquire, mobilize and transform a variety of assets into livelihood strategies in face of high unemployment and poverty levels. According to Nnaeme *et al.* (2021) receiving cash transfers had a catalytic effect allowing people to pursue their livelihoods while also facilitating capital accrual and asset conversion.

Iqbal and Nawaz (2021) examined the causal impacts of the cash transfer program on residential demand for electricity and households' decision to acquire electrical appliances among the ultra-poor in Pakistan. Using fuzzy regression discontinuity design (RDD). Cash transfer has a significant positive impact on electricity demand among the target group, according to Iqbal and Nawaz (2021). Cash transfer positively affects the use of a few essential electric appliances, such as a washing machine and refrigerator, but not all electrical appliances (Iqbal & Nawaz, 2021).

Using a randomized control trial, Heath *et al.* (2020) investigated the intimate partner violence (IPV) impacts of Mali's national cash transfer program in male-headed households. Heath *et al.* (2020) reveal that physical violence dropped by 7.2 percentage points, emotional violence decreased by 12.6 percentage points, and controlling behaviours decreased by 16.1 percentage points in polygamous homes but has little impact in monogamous households.

2.9 Theoretical Framework

The theoretical framework of this study is centred on the capability approach, entitlement theory and theory of change by different scholars.

2.9.1 Capability approach

The capability approach, which is a comprehensive normative framework for assessing human well-being and social arrangements, designing policies, and proposing social change in society, can be used to investigate monetary transfers. The capability approach's defining element is its focus on what people can do and be effective, or on their capabilities (Sen, 1993).

The major constituents of the capability approach are functionings and capabilities. Functionings are the “beings and doings” of a person, whereas a person's capability is “the various combinations of functionings that a person can achieve. Capability is thus a set of vectors of functionings, reflecting the person's freedom to lead one type of life or another” (Sen, 1992).

Sen (2000) associates capacities with freedoms, which relate to the availability of valuable options, or possibilities, that are effectively available to an individual. He emphasizes the importance of freedom in assessing human well-being and societal situations since more freedoms provide us with more opportunities to fulfil our goals. This is due to the fact that freedom has intrinsic value. The degree of freedom is determined by the social context and the degree of variation available. Cash transfers may provide beneficiaries with freedom of choice. Beneficiaries of cash transfers may choose how to spend the transfer. However, some households may misuse this freedom of choice. The capability approach helps us to think about how the freedom cash transfers provide to the beneficiaries may be utilized to achieve household well-being. Robeyns (2003) indicates that two people with the same capability sets are likely to end up achieving different types and levels of functioning in real life since the choices they make from their effective options are different. Cash transfer beneficiaries may make different consumption choices hence the impact of the transfer may depend on the choice made.

Sen (1993) emphasized that in social assessments and policy design, the focus should be on what individuals can do and be, on the quality of their lives, and on removing barriers in their lives so that they have greater flexibility to live the kind of life that they value after contemplation.

To assess functionings and capabilities, multivariate analysis techniques are used in various empirical applications to detect and measure components of valuable functionings and capabilities. This set of multivariate analytic approaches assists researchers in consolidating data from multiple variables into a smaller number of variables that are produced as linear combinations of measured variables. The aggregate and weighting structure is developed directly from the data and is empirically based (Robeyns, 2003).

2.9.2 Entitlement theory

Entitlement theory and its application to the study of famine and poverty can provide a basis for the study of cash transfer interventions. This theory argues that famines occur due to many people within a community who at the same time suffer from entitlement failures. The theory emphasizes the importance of access to resources in improving rural livelihoods (Devereux, 2001). Loss of income or work, as well as high food prices and limited food supply, can all lead to entitlement failure. As a result, famines or food insecurity are caused by a decrease in total food availability or food production, and people's inability to buy food. People who have been affected

by a disaster or famine often look for jobs elsewhere or sell their assets to make ends meet. It is necessary to strike a balance between the requirement to maintain their present food consumption and the need to safeguard their future income-generating potential and livelihoods (Oxfam, 2006). Providing cash transfers to people affected by unfavourable climatic events may help avoid resorting to negative coping mechanisms that may damage their livelihoods or dignity. Entitlement theory recommends the expansive use of cash transfers to prevent starvation. Cash transfers may improve beneficiary lives and enhance their capacity to exploit their potential fully.

2.9.3 Theory of change

Cash transfers are part of a larger social protection plan aimed at addressing both current needs and building a better long-term social protection system. Social protection involves the provision of income or consumption transfers to the poor to protect the vulnerable from livelihood risks and improve the social status and rights of the disadvantaged (Devereux & Sabates-Wheeler, 2004). The approach to social protection is that cash transfers can help disadvantaged households manage risk and invest in human capital and physical assets to enhance resilience (Browne, 2013). In theory, cash transfers enable the beneficiaries to make their own decisions on critical needs and expenditures leading to satisfaction amongst beneficiaries (Rumble, 2007). Cash transfer programs mediate growth facilitating access to credit, providing more continuity and security, and helping overcome cost restrictions which can influence the household decision. Cash transfer programs intercede development encouraging access to credit, providing more certainty and security in consumption, and conquering cost limitations which can impact the family unit choice (Browne, 2013). When cash transfers are provided to households, it is expected that households will change their behaviour such as eliminating the frequent use of negative coping mechanisms. These mechanisms include borrowing food from households, reducing the number of meals eaten daily, and eating food of lower quality (Maxwell *et al.*, 2008).

2.10 Conceptual framework

The conceptual framework shows the sequence of events leading to the outcomes. It shows the possible pathways the cash transfer beneficiaries will follow. Cash transfers represent a large share of income for poor households. The provision of regular and predictable cash transfers is

expected to help the households meet their immediate basic needs. Cash transfers may also have long-term effects on household livelihood strategies.

Cash transfers are expected to improve household livelihoods, build household resilience as well as improve household food security. The moderating factors include shocks such as drought, and prices, other factors include transfer size, social protection policies targeting and conditions by cash transfer providers. The conceptual framework is shown in Figure 2:1

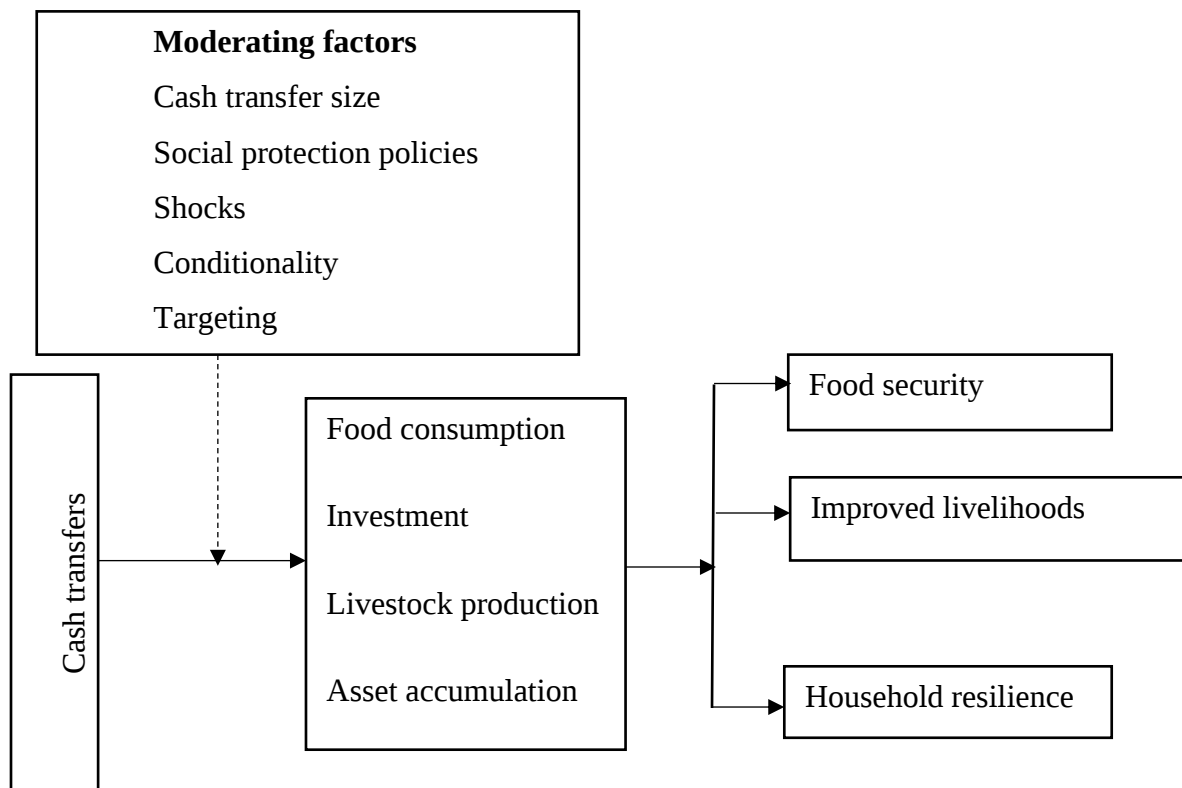


Figure 2:1 Conceptual framework

CHAPTER THREE

RESEARCH METHODS

3.1 Introduction

This chapter presents the area of study, target population, the research design, data source, sample size empirical approach, data analysis, outcome variables and table of variables.

3.2 Study area

The Hunger Safety Net Program (HSNP) targeted poor people in ASALs of northern Kenya including the counties of Turkana, Wajir, Marsabit, and Mandera. The ASALs are characterized by frequent vulnerability to food insecurity, mainly associated with low and erratic rainfall coupled with high rates of evapotranspiration. Average annual rainfall, in the ASALs, ranges between 150mm and 850mm, with evapotranspiration rates double the amount of precipitation (Mati *et al.*, 2006). Moreover, in the last two decades, the region has experienced extreme climatic conditions, which have affected the environment and livelihoods of the communities (Ibrahim & Abdulla, 2015). The study area map is shown in Figure 3:1

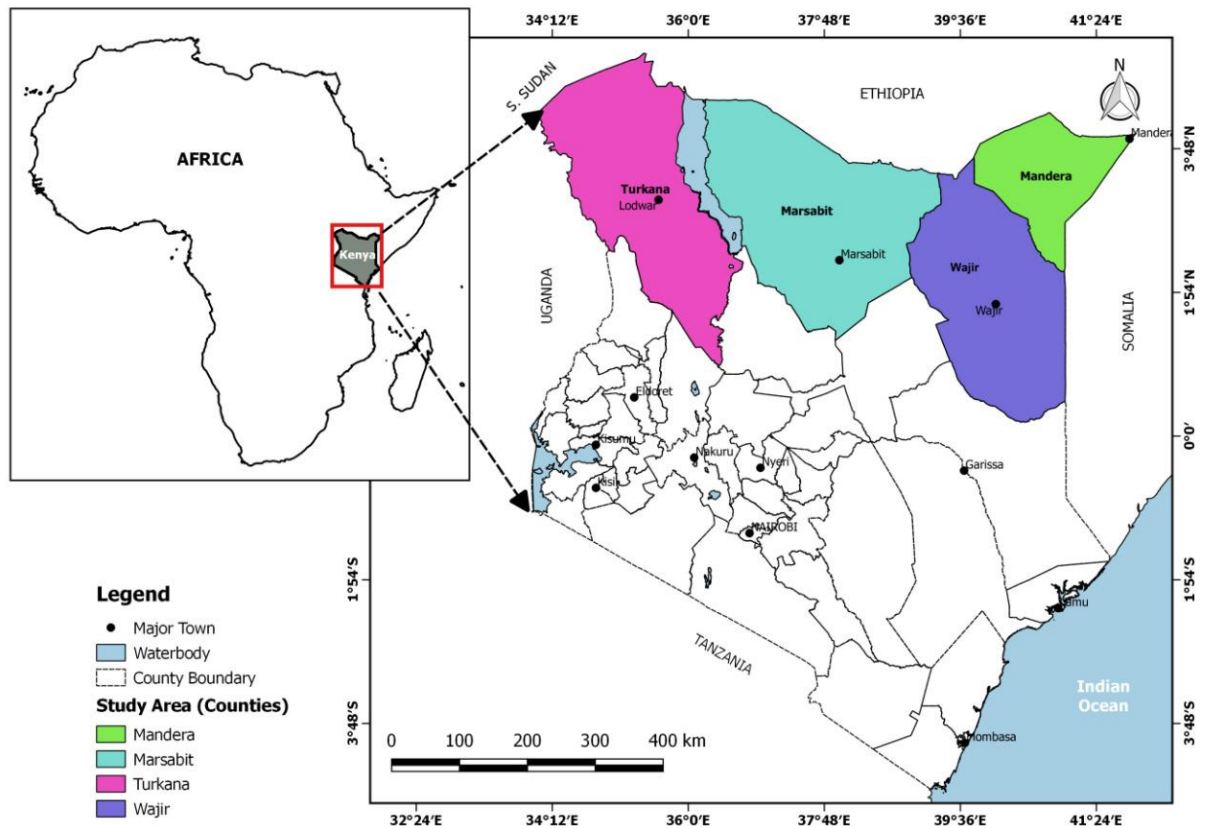


Figure 3:1 Study area map

Source: Geography Department, Egerton university (2021)

3.3 Target population and sampling unit

The target population for the study was the households under the hunger safety net program in Mandera, Turkana, Marsabit and Wajir counties of northern Kenya. The hunger safety net program is an unconditional cash transfer program that focused on poor and vulnerable households in the four counties. The study sampling unit was a sub-location.

3.4 Research design

The study utilized the randomized design of the hunger safety net program. Forty-eight sub-locations were selected from the pool of all hunger safety net program sub-locations. The sub-locations were selected using a probability proportional to size method (PPS). PPS is defined as a sampling technique in which the probability of a unit being selected is proportional to the size of the population unit, giving bigger clusters a higher probability of selection and smaller clusters a

lower probability. At a public lottery event, each pair of selected sublocations was randomly assigned to treatment or control from the designated sub-locations. In the selection of beneficiary households, three types of targeting mechanisms were implemented simultaneously within the treatment sub-locations: community-based targeting (The community is instructed to select those households that are most food insecure. Up to half of the community's households are to be selected this way), dependency ratio targeting (All households in which a certain percentage of the members are older than 55, younger than 18, disabled or chronically ill are eligible), and a social pension approach (All members in the community over the age of 54 years were eligible to receive transfers). A simple random sampling was followed to select the treatment and control households.

The procedure for selecting treatment households was repeated exactly in the same way as the selection of control households. This selection procedure when it is joined with the random allocation of treatment guarantees comparability between treated households and control households. The selection procedure is known as 'perfect mimicry' (Merttens *et al.*, 2013).

3.5 Sample size

This study compared the treatment and control households to estimate the effects of cash transfers. A household was referred to as 'treated' if it received a cash transfer. Control households did not receive cash transfers in the first two years. The control households are used as a counterfactual in the study. At the beginning of the hunger safety net program, a total of 5108 households were selected. In the midline and endline surveys, a decision by hunger safety net program stakeholders to reduce the sample size was made (Merttens *et al.*, 2013). The final sample size for the endline survey round was 2436 households among which 1,224 were in the treated group and 1,212 control group households. This study focused on 1,224 treatment group households and 1,212 control group households for which there were observations at both baseline and endline.

3.6 Data source

The HSNP panel data were obtained from the World Bank data catalogue (World Bank, 2020). The data were available in four waves and covered responses from the community and household levels. The first wave captured baseline data collected in 2009. The second and third covered midline and endline surveys conducted in 2010 and 2012, respectively. The fourth, for

data collected in 2016 was not used in this study because there was no proper household-to-household link with the other three waves.

3.7 Empirical approach

This study estimated cash transfer effects on household food expenditure and food expenditure patterns, the cash transfer effects on household resilience, and the beneficiary preference as far as transfer modality is of concern.

3.7.1 Determining the effects of cash transfers on household food expenditure

A panel fixed effects model was adopted to determine the effects of cash transfers on food expenditure. The choice between panel fixed effects and random effects was based on a Hausman test for endogeneity to find out the model which gives unbiased estimates (Wooldridge, 2016).

The model was specified as;

$$fdexp_{it} = \beta_0 + \beta_1 X_i + \beta_2 time_t + \beta_3 treat_{it} + \beta_5 cnty + a_i + u_{it} \quad 3.1$$

In this case, $fdexp_{it}$ represents total monthly food expenditure for household i at time t , $treat_{it}$ represents the treatment status of the household i at time t , $time_t$ represents time dummy, $cnty$ represents a vector of county dummies. The county dummy (county-specific effects) eliminates time variant systematic differences across counties, a_i is the household fixed effects, u_{it} is the error term. As for the coefficients, β_0 is a constant, β_1 is the coefficient of household characteristics, β_2 captures the time-invariant differences between the treatment and control, β_3 is the coefficient of interest that shows the effect of being in the program from the baseline to the endline period, Estimation of equation (3.1) produced the effect the cash transfer program has on food expenditure over the program period.

3.7.2 Determining the effect of cash transfers on food expenditure patterns

The study used the Working-Leser model developed by Leser (1963) and Working (1943) to establish how food expenditure changed in different food groups in different households. The working-Leser model relates budget shares to the log of total expenditure and other household characteristics. This model has been designed to allow the addition of other variables that affect the outcome of interest (Deaton & Muellbauer, 1980), in our case the treatment status was added.

From the Working- Leser specification, an expression of elasticity and marginal budget shares was derived. The model specification was given by equation 3.2;

$$w_i = \alpha + \beta_i X_i + \beta_2 \ln(exp) + \beta_3 D_{it} + \varepsilon_{it} \quad 3.2$$

where w_i represents the household budget share of food group i , X_i is a vector of household characteristics, $\ln(exp)$ is the logarithm of total household consumption expenditure. D_{it} is a dummy variable equal to one for the beneficiary household and zero for the non-beneficiaries and ε_{it} is the error term. α and β are values to be estimated. From equation (3.2) the marginal budget share and elasticity are given by equations 3.3 and 3.4 respectively;

$$MBS = \frac{\partial w_i}{\partial \ln(exp)} = \beta_2 \quad 3.3$$

$$E = 1 + \frac{\frac{\partial w_i}{\partial \ln(exp)}}{w_i} = 1 + \frac{\beta_2}{w_i} \quad 3.4$$

3.7.3 Determining the effects of cash transfers on household resilience

The study adopted the FAO (2016) Resilience Index Measurement and Analysis framework (RIMA-II). The framework starts from a premise that resilience is not directly measurable and is, therefore, captured through proxies. The framework distinguishes two types of proxies: one is descriptive and serves to rank or target households, while the other is inferential and assesses the determinants of resilience. Accordingly, the RIMA-II is a two-part procedure, descriptive and inferential analysis. The descriptive analysis stems from the conceptualization by Alinovi *et al.* (2008, 2010) that a household's resilience is a complex concept dependent on a combination of factors, referred to as pillars. These are social safety nets (SSN); access to basic services (ABS), adaptive capacity (AC), and Assets (A) (FAO, 2016). These pillars are considered observed endogenous variables in that they can cause and be influenced by resilience (FAO, 2016). This combination of factors requires construction of an index, the Resilience Capacity Index (RCI). The descriptive analysis is a two-step procedure. The first step applies factor analysis (FA) to estimate the pillars from a set of observed variables. In the second step, RCI is estimated using the Multiple Indicators Multiple Causes (MIMIC) model. The MIMIC model explains the relationship between unobservable variables, set of food security indicators and the observable variables (D'Errico *et al.*, 2020; FAO 2016). The food security indicators employed in the MIMIC model in

this study are food expenditure and coping strategy index. The main advantage of using the MIMIC model in the second step is that it allows the inclusion of the food security indicators in the measurement part of the estimation. Therefore, the RCI is properly linked to food security (Brück *et al.*, 2019). The conceptual model forming the basis of the analysis of RCI is shown in the stylized path diagram of a MIMIC model in Figure 3:2. The classical MIMIC model is as shown below (FAO, 2016).

$$y_1 = \beta_o + \beta_1\eta + \varepsilon_1 \quad 3.5$$

$$y_2 = \beta_o + \beta_2\eta + \varepsilon_2 \quad 3.6$$

$$y_3 = \beta_o + \beta_3\eta + \varepsilon_3 \quad 3.7$$

.....

$$y_n = \beta_o + \beta_n\eta + \varepsilon_n \quad 3.8$$

With

$$\eta = \alpha_o + \alpha_1 x_1 + \alpha_2 x_2 \dots \alpha_n x_k + v \quad 3.9$$

where:

η is the latent variable (resilience)

$y_1 y_2 y_3 \dots y_n$ are the multiple indicators linearly related to η (the food security outcomes).

$x_1 x_2 x_3 \dots x_k$ are the multiple causes linearly related to η (the pillars).

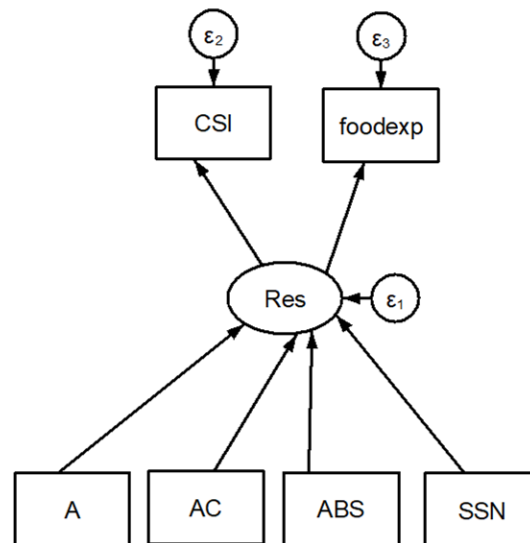
v is the Berkson error.

Once the household resilience score was determined, a min-max rescaling method was adopted to ensure that the resilience score lies between zero and one. Rescaling of resilience score serves three purposes that include, easier regression interpretation, easier setting the thresholds that are common and cross-country valid, and impact evaluation. When impact evaluation is run against the resilience score it is possible to assess whether the score has increased by x per cent (FAO, 2016). The panel fixed effects model was used to determine the effects of cash transfers on household resilience. The model was specified as shown by equation 3.10;

$$HRI_{it} = \beta_o + \beta_1 \text{time} + \beta_2 \text{transfer} + Z_{it}\delta + a_i + \mu_{it} \quad 3.10$$

where: HRI_{it} is the resilience index for household i at time t , β_o is a constant, β_1 , represents the effect of going from baseline to end line, β_2 represents the effects of cash transfers

on household resilience, $time$ is the time dummy, $transfer$ is a dummy variable equal to one for the beneficiary households and zero for the non-beneficiaries, $Z_{it}\delta$ represents a vector of household characteristics and their coefficients which affect household resilience. These factors control for other observable differences across the households that could affect household resilience. a_i , are the unobserved household effects and μ_{it} is the idiosyncratic error (time-varying error). The underlying assumption of the household fixed effects estimator is that the unobservable does not change at the household level and can therefore be differenced away (Tiwari *et al.*, 2016).



Key: Assets (A), Adaptive capacity (AC), Access to basic services (ABS) Social safety net (SSN), Coping strategy index (CSI), Food expenditure (foodexp), Resilience index (Res)

Figure 3:2. Resilience path diagram

Source: Adopted from FAO (2016)

3.7.4 Determining preference between cash transfers and in-kind transfers

To achieve the third objective, which aimed at examining, beneficiary preference between cash and in-kind transfer this study used descriptive statistics, which include means, frequencies, and percentages. The descriptive statistics were calculated for each county that is Mandera Wajir Marsabit and Turkana.

3.8 Data analysis

This study used secondary data from the World Bank catalogue which is both quantitative and qualitative. The study employed both qualitative and quantitative techniques of data analysis to achieve the objectives. The study used STATA version 14 for analysis and the results were presented in tables, charts, and figures for ease of understanding.

3.9 Outcome variables

Livelihood is defined as the capabilities, assets resources, and activities required for a means of living (Chambers & Conway, 1992). Cash transfers are likely to enable households to participate in new and productive livelihood activities. Livelihood indicators include human capital, natural assets, financial assets, and social capital. In this study asset retention and access to basic services are the indicators used to capture livelihoods. Food access is well-defined as access by people to enough resources for acquiring suitable foods for a nutritious diet (Wheeler & Von Braun, 2013). Food expenditure in this study was used as an indicator of food access. Dietary diversity is well-defined as the number of different foods or food groups consumed over a given reference period (Ruel, 2003). We used spending patterns of different food groups as a measure of dietary diversity.

3.10 Description of variables.

Table 3:1. Variables to define household characteristics

Household characteristics	Variable Type	Measurement
Dependency ratio	Continuous variable	The ratio between the total number of household members below 15 years or above 65 to the number of household members between 15 and 65 years.
Household size	Discrete variable	Total Number of the household members
Education level	Discrete variable	Highest level of education attained by the household 1=none 2=primary level 3 = secondary level 4 =tertiary level
Gender,	Dummy variable	Equals 1 if male, 0 if female
Household expenditure	Continuous variable	The total monthly expenditure of the household
Location	Discrete variable	Household location equals 1 if Mandera, 2 if Marsabit, 3 if Turkana, 4 if Wajir
Food aid	Discrete	Equals 1 if the household received food expenditure zero otherwise
Credit access	Discrete	Equals 1 if the household can buy food on credit and 0 otherwise
Age of household head	Discrete variable	The age of the household head
Disability	Discrete	Equals 1 if the household head has a disability and 0 otherwise
Access to basic services (ABS)		
Access to education	Continuous variable	Measured as the time in minutes taken to arrive at the nearest school
Access to health service	Continuous variable	Measured as the time in minutes taken to arrive at the nearest health facility

Access to the nearest water point	Continuous variable	Measured as the time in minutes taken to arrive at the nearest water point.
Access to the nearest market	Continuous variable	Measured as the time in minutes taken to arrive at the nearest market center.
Social safety net (SSN)		
Cash transfer (other cash transfers from relatives, friend)	Dummy variable	Equals to 1 if the household receives cash transfer and 0 otherwise;
Cash for work	Dummy variable	Equals to 1 if the household receives cash for work and 0 otherwise
Food aid	Dummy variable	Equals 1 if the household received food aid and 0 otherwise.
Adaptive capacity (AC)		
Education level	Discrete variable	Measured by the highest education grade the household head has attained.
Average daily consumption	Continuous variable	Average daily consumption is measured by taking the average food expenditure in seven days.
Dependency ratio	Continuous variable	The ratio between the total number of household members below 15 years or above 65 to the number of household members between 15 and 65years.
Assets (A)		
Land ownership	Continuous variable	Measured by the size of land in acres owned by the household.
Livestock owned	Continuous variable	Measured by the number of livestock owned by the household.

Table 3:2 Variables for different food groups

Food group	Measurement
Cereals and Cereal products	Amount in cash spent to purchase Cereals and Cereal products
Drinks	Amount in cash spent to purchase Drinks
Fruits	Amount in cash spent to purchase Fruits
Meat	Amount in cash spent to purchase Meat
Milk and milk products	Amount in cash spent to purchase Milk and milk products
Pulses	Amount in cash spent to purchase Pulses
Spices, Sugar, Salt	Amount in cash spent to purchase Spices Sugar and salt
Oils/fats	Amount in cash spent to purchase Oils/fats,
Vegetables	Amount in cash spent to purchase Vegetables

CHAPTER FOUR

RESULTS AND DISCUSSIONS

The first section of this chapter presents the descriptive statistics of the household demographics and the mean monthly household expenditure. The second section presents an analysis of the effects of cash transfers on household food expenditure and food expenditure patterns. The third section presents the descriptive statistics of the variables used to compute the resilience pillars and how they are relevant. The fourth section presents descriptive statistics of the resilience pillars. The fifth section presents the analysis of cash transfer effects on household resilience.

4.1 Descriptive statistics

The arid and semi-arid counties experience drought and climate variability which affect household livelihoods negatively and this leads to households depending on food assistance. The results in Table 4:1 indicate that majority of the households received food aid and only 4.63% participated in cash-for-work programs. This is an indicator of food aid dependency. The major source of livelihood in the arid and semi-arid counties is pastoralism, out of the sampled households 78.6% owned livestock. In pastoral areas land ownership in most cases, it is communal, from the results we find that only 13.83% of owned land can be the few agro-pastoralist. The majority of the household heads had basic education with few advancing to a higher level of education. The low levels of education can be attributed to marginalization, poverty and lack of great exposure to the importance of education. The low literacy level in the region may affect how households absorb or adapt to a given shock. Only 6.38% of the sampled households had the house head had a disability. The results indicate that the average household size in the four counties was about 6, this is a bit higher compared to Kenya's average household size which is 3.9 (KNBS, 2019). The large household size can be attributed to high poverty levels as the poor tend to have many children. The average age of the household head was 54.4 years and 69.5% were male-headed.

Table 4:1. Demographic characteristics of the household head

Variable	
Percentage of the male-headed household	69.50
Percentage of households that received food aid	81.62
Percentage of households that participated in cash for work	4.63
Percentage of households that owned Livestock	78.60
Percentage of households that owned Land	13.83
Percentage of the household heads with primary education	95.77
Percentage of household heads with secondary education	2.68
Percentage of household heads with tertiary education	1.18
Percentage of household heads with Disability	6.38
Mean household age	54.40
Mean household size	5.92

Results in Table 4:2 indicate that a large share of the household budget was allocated to food and less was spent on health in both controls and treated households. On average 79% of the budget was spent on food for the treated households and about 81% in the control households in the baseline. Households without children in school were not likely to report education expenditures. On average the treated households spent KES 246.66 and KES 218.78 on education in baseline and wave 2 respectively while the control households only spent KES 221.57 and KES 202.67 on education in baseline and wave 2 respectively.

For the food groups meat, drinks, vegetables and fruits have the lowest mean budget share this indicates that among the households they are the least consumed. A large share of the budget was spent on cereals followed by sugar, salt, oils and fats, and milk. Vegetables and fruits had the least expenditure share for the treated households. The trend is relatively the same for the control households. On average 34% of the budget was spent on cereals for the treated households in the baseline and wave 2. For the control households, about 36% of the budget was spent on cereal in the baseline and wave 2. Households get their proteins mainly from milk and meat which represent 17% and 7% respectively for the treatment households. The same trend is seen in the control households where the major source of protein is meat and milk where 17% and 6% of the budget

is spent on milk and meat respectively. Sugar, salts, oils and fats represent a significant share of the budget, about 29% was spent on sugar, salts, oils and fats for both the control households and treatment households. Sugar, salts, oils and fats are key to households hence they cannot avoid buying them.

Table 4:2. Mean monthly household expenditures and budget shares for the control and treated households

Expenditure category	<u>Control</u>			<u>Treated</u>		
	Baseline	Wave 1	Wave 2	Baseline	Wave 1	Wave 2
Education	221.568	207.363	202.6745	246.661	241.614	218.778
Health	124.346	114.617	125.970	149.528	161.200	143.223
Food	6356.046	6377.256	6468.893	7279.473	6704.728	6884.022
Rent	2.469	2.456	2.558	60.401	50.695	48.529
Food	80.671	80.659	80.968	78.673	79.021	78.581
Share (%)						
Cereals	2217.258	2176.437	2244.796	2327.892	2216.349	2240.755
Pulses	573.914	594.324	594.199	640.978	592.520	651.820
Milk	1100.957	1150.301	1162.035	1222.288	1071.020	1150.593
Meat	413.243	444.340	419.049	786.765	596.439	617.315
Sugar/Salt/ spices	1842.903	1797.794	1829.617	1956.665	1848.652	1884.713
Oils/fats						
Vegetables / fruits	54.803	59.567	65.036	167.177	214.228	174.419
Drinks	152.968	154.494	154.160	177.710	165.521	164.407
Budget shares						
Cereal share	0.36	0.36	0.36	0.34	0.34	0.34
Pulses share	0.10	0.10	0.10	0.10	0.10	0.10

Milk share	0.17	0.16	0.17	0.17	0.16	0.17
Meat share	0.06	0.06	0.06	0.07	0.07	0.07
Sugar/Salt/ Oils/fats share	0.29	0.29	0.29	0.28	0.28	0.28
Vegetables /fruits share	0.01	0.01	0.01	0.02	0.02	0.02
Drinks share	0.03	0.03	0.03	0.03	0.03	0.03

4.2 Effect of cash transfers on food expenditure and food expenditure patterns

The fixed effects model results in Table 4:3 indicate that cash transfers have a positive impact on household food expenditure. The results show that one unit increase in cash transfers will increase total food expenditure by 145.235, the results are consistent with The Kenya CT-OVC Evaluation Team (2012). The control variables age, household size, total household expenditure, and education level show a positive significant impact on household food expenditure. Male-headed households have a negative significant effect on food expenditure an indication that male-headed households had less spending on food. From Table 4:3 household size had a positive significant relationship with food expenditure, as household size increases so do food expenditure. Large households spend more on food than small households. These results are consistent with those (Sekhampu, 2012). Households with higher education levels are associated with high food spending since education provides households with helpful knowledge about efficiency in food spending (Meng *et al.*, 2013; Sekhampu, 2012). Location plays a key role in influencing food expenditures (Melo *et al.*, 2015). Households living in Mandera Turkana and Wajir had high food spending.

Table 4:3. Panel fixed effects model results for cash transfers effects on food expenditure

Food expenditure	Coef	p-values
Cash transfer	145.235***	0.001
Time	25.337	0.247
Location (1=turkana,0 otherwise)	312.001***	0.00
Location (1=wajir 0 otherwise)	314.571***	0.00
Location (1=mandera 0 otherwise)	284.131***	0.00
Location (1=marsabit 0 otherwise)	0	.
Household Age	3.791***	0.006
Household size	1145.111***	0.00
Gender of the Household head	-114.936***	0.016
Education level	497.164***	0.00
Cash for work	-98.934	.287
Log expenditure	6249.926***	0.00
_cons	-95431.571***	0.03
observations	7162.000	
R-squared within	0.731	
R-squared between	0.862	
Overall r-squared	0.807	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Working Lesser Model results are shown in Table 4:4 The last row of Table 4:4 shows estimated expenditure elasticities for the food groups. Expenditure elasticities show the responsiveness of expenditure to income changes. The expenditure elasticities of all food groups are positive as shown in Table 4:4 an implication that an increase in income will increase consumption, hence normal goods. From the results cereals, pulses, milk and sugar/salt/ oils and fats were found to be necessities while meat and vegetables/fruits were found to be luxuries. This is consistent with Musyoka (2013) where meat, vegetables and fruits were found to be luxuries. The results in Table 4:4 indicate that vegetables and fruits had the highest elasticity followed by meat. This finding indicates that an increase in income shifts demand from the consumption of cereals, and pulses to more meat, vegetables and fruits. For meat, it implies that a 10% increase in

income will lead to a 15.4 increase in total meat demand. Cereals and pulses are necessities for all samples, implying a 10% increase in income will increase demand by 9.7% and 9.2% respectively. The expenditure elasticities for both households are inelastic for all other food items apart from meat, vegetables and fruits.

Table 4:4 indicate that the program had a statistically significant effect on meat and vegetables and fruits at the $p < 0.01$. The effect is positive indicating increasing elasticities. The positive effect on the expenditure for meat and vegetables and fruits while only significant at the $p < 0.01$ level, suggests that this expenditure increased between baseline and endline as a result of the program. Therefore, an increase in cash transfers will lead to an increase in spending on meat and vegetables and fruits. While not statistically significant, coefficient signs for pulses and drinks were all in the expected directions, while that of milk was not. The (HSNP) program had negative significant effects on cereals and salt/ sugar/ oils and fats. This implies that an increase in cash transfer will lead to a decrease in spending on cereals and salt/ sugar/ oils and fats.

Table 4:4. Working Lesser Model results for cash transfers effects on food expenditure patterns

	Cereals	Pulses	Milk	Meat	Sugar/Salt/oils	Veg/fruits	Drinks
Treat	-0.0204	0.0018	-0.0003	0.0148	-0.0073	0.0113	0.0003
	(0.000)	(0.376)	(0.912)	(0.000)	(0.003)	(0.000)	(0.617)
Log expenditure	-0.0116	-0.0077	-0.0100	0.0350	-0.0224	0.0103	-0.0021
	(0.000)	(0.002)	(0.003)	(0.000)	(0.000)	(0.000)	(0.001)
R-squared	0.1094	0.2056	0.2615	0.1931	0.3760	0.1506	0.0716
Elasticity	0.9665	0.9214	0.9389	1.5386	0.9211	1.7203	0.9166

P values are in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Control variables are household size, food aid, gender, age, credit access, county dummies and education level

4.3 Factor loadings of variables determining resilience pillars

Resilience was computed using four pillars A, ABS, SSN, and AC. The factor loadings of the variables used to compute these variables are shown in the tables below and their contribution to influencing that factor is discussed. Factors with eigenvalues greater or equal to one are retained and their factor loadings are reported (Kaiser, 1960). The decision rule by Kaiser (1960) is common in most statistical packages and it is widely used to decide on factor retention (Henson and Roberts, 2006). In the discussion below the first factor was reported since it was more relevant in determining the pillars.

4.3.1 Access to basic services

Access to basic services was defined by four variables that is access to health services, access to the market access to water and access to education. These variables were measured based on the time in minutes taken to reach the destination of interest (school, market, health Centre and water source). Table 4:5 shows the factor loading of the four variables used to determine access to basic services. The first-factor loading was retained because it was more relevant in determining access to basic services. The results indicate that all the variables had a positive contribution to access to basic services. Access to education, access to the market and access to health influenced access to basic services to a similar degree this may reflect that households valued health, education and market services. Market access was more important for the control households. Access to water sources had the least contribution to the access to basic services latent variable.

Table 4:5. Factor loadings for access to basic services pillar

Variable	Control	Treated
Access to Health	0.6009	0.4904
Access to Education	0.5497	0.5478
Access to Market	0.5887	0.5711
Access to Water	0.0934	0.1341

4.3.2 Assets

Table 4:6 shows the factor loadings used to determine the asset pillar. The first factor was retained since it was more relevant in determining the assets pillar. The results indicate that livestock and land ownership had a positive impact on the household assets pillar and their relevance was similar for all treatment households. Land and livestock are more relevant in influencing assets for the treated households.

Table 4:6. Factor loadings for asset pillar

Variable	Control	Treated
Land ownership	0.1043	0.1872
Livestock ownership	0.1043	0.1872

4.3.3 Social safety net

The social safety net pillar was estimated by variables such as whether the household received food aid, credit purchase, other cash transfers from family and other NGOs, and cash for work programs. Table 4:7 indicate that credit purchase and food aid influenced the social safety net positively in both treatment and control households. Credit purchase is more relevant in influencing the social safety nets for the control households while food aid is more relevant in the treated households. Cash for work contributes negatively to the social safety net pillar in the control and treatment households. Other cash transfers contribute negatively to the social safety net for the treatment household and positive impact on the control households.

Table 4:7. Factor loadings for social safety net pillar

Variable	Control	Treated
Other cash transfers	0.2693	-0.0007
Cash for work	-0.1773	-0.2734
Food Aid	0.0261	0.3167
Credit	0.3052	0.2207

4.3.4 Adaptive capacity

Adaptive capacity is measured by food ratio, dependency ratio educational level and average consumption. The results in Table 4:8 show that the food ratio which is measured as the total food expenditure divided by total household expenditure has a negative contribution to adaptive capacity while education level and average consumption influence adaptive capacity positively at a relatively similar degree. Average consumption is more important in determining adaptive capacity. The dependency ratio is less important for the control households in determining adaptive capacity.

Table 4:8. Factor loadings for adaptive capacity pillar

Variable	Control	Treated
Food ratio	-0.4163	-0.4632
Dependency ratio	-0.0603	0.0050
Education level of household head	0.1883	0.3508
Average consumption	0.4288	0.5446

4.4 Factor loadings of the resilience components

Table 4:9 shows that the social safety nets pillar followed by the access to basic services pillar was the most important in determining household resilience. The first factor loading for access to basic needs and social safety net show a positive contribution to household resilience but the second factor showed a negative contribution. As household becomes poor and vulnerable the need for cash transfers and food assistance increases. Most poor households tend to rely on social assistance to respond to a given shock. The first factor loading for asset pillar and adaptive capacity show a negative contribution to resilience however for the second loading factor the assets have a positive contribution.

Table 4:9. Factor loadings for the resilience pillars

Variable	Factor1	Factor2	Uniqueness
Access to basic services	0.0667	-0.0332	0.9944
Assets	-0.0344	0.2105	0.9545
Social safety nets	0.3015	-0.0928	0.9005
Adaptive Capacity	-0.2830	-0.0686	0.9152

The results in Table 4:10 shows the means of the resilience pillars in the households and their t-test p-values. The pillars of resilience show significant differences between the treated and the control households except for the access to basic services. The means for asset pillar are lower and significant for the treatment households. Adaptive capacity and social safety net means are lower for control households, this is expected since they are not beneficiaries of cash transfers.

Table 4:10. Means of the resilience pillars in the control and treated households

Variable	<u>Control</u>	<u>Treated</u>	<u>p values</u>
Adaptive Capacity	-0.0834	0.0860	0.0000
Social safety nets	-0.0374	0.0385	0.0000
Assets	0.0079	-0.0082	0.0046
Access to basic services	0.0081	-0.0084	0.3849

4.5 Effect of cash transfers on household resilience

Results from Table 4:11 indicate that the households that received cash transfers were more resilient than those that did not. Cash transfer acts as a tool to help households from falling into further destitution. Households living in Wajir county were more resilient than those living in other counties, households in Turkana were the least resilient. Male-headed households were more resilient than female-headed households this study agrees with Opiyo *et al.* (2014) that female-headed households are biased in resource allocation and decision-making that leans towards males in most pastoral communities hence affecting their resilience.

Table 4:11. Summary statistics of resilience index in the four counties

Variable	mean	std	min	max
Mandera	0.2444	0.0648	0.0722	0.7061
Turkana	0.1509	0.0594	0.0000	0.6262
Wajir	0.2732	0.1023	0.1014	1.0000
Marsabit	0.1929	0.0824	0.0454	0.6470
Control	0.2057	0.0803	.03740	0.6507
Treatment	0.2267	0.1022	0.0000	1.0000
Male	0.2271	0.0929	0.0220	1.0000
Female	0.1887	0.0850	0.0000	0.8183

The fixed effects model results for effects of cash transfers on household resilience are reported in Table 4:12. The choice of the appropriate model was based on the Hausman test. After conducting the Hausman test the p-value was very significant at 5% and this was a conclusion that the fixed effects model was more appropriate. The results indicate that cash transfers have a positive effect on household resilience at a 5% level of significance. The households which received cash transfers their resilience was positively affected. An increase in cash transfers by one unit will increase household resilience by 1%, the results are consistent with D’Errico *et al.* (2020) results. The results indicate that male-headed households were more resilient than female-headed households. The results contradict Muricho *et al.* (2019) who found that female-headed households were more resilient than male-headed households. However, the results are consistent with Opiyo *et al.* (2014) and Tesso *et al.* (2012) results who found that female-headed households were less resilient as a result of bias in resource allocation and decision-making. These discrepancies are a result of different methodologies used by authors.

The average household size was 6, higher than the national household size as indicated in Table 4:1 The results in Table 4:12 show that there was a positive significant relationship between household size and household resilience. The results are consistent with Banda *et al.* (2016) and Keil *et al.* (2008) but contradict Kasie *et al.* (2017) study on household resilience to food insecurity which found a negative relationship between household size and resilience. Large households are likely to be more resilient than small households. This study agrees with Banda *et al.* (2016) that large households are more likely to have diversified sources of income as compared to smaller

households and hence more resilient to shocks such as droughts. The level of education had a positive effect on household resilience and was significant at 5%, this is an implication that households with at least a member with higher level of education are more resilient. Household heads with higher education levels are expected to have improved decision-making capabilities and increased access to investment opportunities (Asiimwe *et al.*, 2020). The results are consistent with Banda *et al.* (2016), Keil *et al.* (2008), and Tesso *et al.* (2012) but they contradict Asiimwe *et al.* (2020) results which found a negative relationship between education level and household resilience.

Table 4:12. Panel fixed effects model results for effects of cash transfers on household resilience

Resilience	Coef.	Std. Err.	p-value
Cash transfer	0.012***	0.001	0.00
Year	0	0.001	0.593
Household size	0.003***	0.0	0.00
Gender of the household	0.004****	0.002	0.01
Education level	0.101***	0.002	0.00
Log total expenditure	0.092***	0.002	0.00
Location (turkana)	-0.06***	0.002	0.00
Location (marsabit)	-.0035***	0.002	0.00
Location (Wajir)	0.007***	0.002	0.00
Location (Mandera)	0	.	
Constant	0.036	1.412	0.98
Overall R-squared	0.690	Observations	7163
R-squared within	0.309	R-squared between	0.816

* p<0.05, ** p<0.01, *** p<0.001

Results in Table 4:12 indicate that the log of total expenditure positively influences household resilience. The log of total expenditure had positive significant effects on household resilience, these results are consistent with Asiimwe *et al.* (2020), Muricho *et al.* (2019), and Opiyo Wasonga, and Nyangito (2014). Log total expenditure is a proxy for total income since households

tend to find it hard to disclose their income. Households with high spending are likely to have high levels of income. The coefficient of log total exp shows that as household income increases by one unit household resilience will increase by 9.2% on average. The location of a household plays an important role in influencing household resilience. The county dummies indicate that households living in wajir were more resilient. The coefficient for Turkana and Marsabit was negative and significant indicating that households living in these counties were less resilient.

4.6 Beneficiary preference

The results in Table 4:13 indicate that 88.7% preferred cash only while 10.6% preferred food plus cash and 0.7% preferred food transfers in Turkana County. In Marsabit county 85% of the beneficiaries preferred cash only, 3% preferred food and 12% preferred food plus cash. In Mandera county 82% preferred cash only, 0.1% preferred food transfers and 17% preferred food plus cash. The results differed in Wajir county since the majority preferred food plus cash about 67% and 30.8% preferred cash only and 1% preferred food transfers. In general majority of the households preferred cash transfers to other modalities, 71.7% preferred cash transfers, 1.5% preferred food transfers and 26.8% preferred food plus cash. The results indicate that cash transfers are preferred by poor and vulnerable households since cash transfers have a lot of benefits. Cash transfers are preferred because of the autonomy they come with. One of the major advantages which makes cash transfers preferable to in-kind transfers (food) is their freedom of choice.

Table 4:13. Summary statistics of beneficiary preferences in the four counties

	Freq.	Per cent	Cum.
County = Turkana			
Cash only	730	88.700	88.700
Food only	6	0.730	89.430
Food plus cash	87	10.570	100.000
County = Marsabit			
Cash only	633	84.510	84.510
Food only	25	3.340	87.850
Food plus cash	91	12.150	100.000
County = Mandera			
Cash only	570	82.490	82.490
Food only	1	0.140	82.630
Food plus cash	120	17.370	100.000
County = Wajir			
Cash only	234	30.830	30.830
Food only	13	1.710	32.540
Food plus cash	512	67.460	100.000
Overall			
Cash only	2167	71.710	71.710
Food only	45	1.490	73.200
Food plus cash	810	26.800	100.000

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The general objective of this study was to contribute towards understanding the role of cash transfers in household resilience and building sustainable livelihoods in arid and semi-arid counties. Specifically, the study objectives were; to determine the effect of cash transfers on household food expenditure patterns, to determine the effect of cash transfers on household resilience to climate shocks and to examine household preference between cash transfers and in-kind transfers. This study used a panel fixed effects estimator to determine the effects of cash transfers on household resilience and food expenditure. From the study a resilience index was constructed which was determined by four pillars as done by Alinovi *et al.* (2010), FAO (2016), Gambo Boukary *et al.* (2016), and Mekuyie *et al.* (2018). The resilience index was then rescaled to range between zero and one for easy interpretation in regression analysis. This study used the Working Lesser model to determine the effects of cash transfers on household food expenditure patterns. The following three conclusions emerge from the analysis of the objectives:

- i. Cash transfers are important in helping households whose livelihoods are threatened. The results indicated that cash transfers had a significant positive effect on household resilience. The beneficiaries were more resilient than the non-beneficiaries and this can be attributed to the cash transfers received. From the results, we can conclude that regular and predictable cash transfers can help poor and vulnerable households from resulting in negative coping strategies and falling further into destitution. Male-headed households were seen to be more resilient than female-headed households and those with large household sizes were more resilient than those with small household sizes. Large households are more likely to have diversified sources of income as compared to smaller households and hence more resilient to shocks such as droughts.
- ii. This study calculated expenditure elasticities of different food groups to understand the food spending patterns of the beneficiary households in the arid and semi-arid counties of northern Kenya. The four counties of northern Kenya received cash transfers between 2009 and 2012 during this period the region experienced drought which affected the livelihoods of the communities. Determining how cash transfers influence food expenditure patterns is

important to food and nutrition security policy, cash transfer programming and arid and semi-arid counties development. This study gives insights into how elasticities shift in presence of cash transfers. The expenditure elasticities for the food groups were positive an implication that an increase in income will increase expenditure. From the results cereals, pulses, milk and sugar/salt/ oils and fats were found to be necessities while meat and vegetables/fruits were found to be luxuries. The findings indicate that households diversified their diet to some high-value foods, the diet was not only based on starch but also some proteins. Findings from the study indicate that provisions of cash transfer have positive effects on general food expenditure. The provision of cash transfers to poor and vulnerable households enables households to access food and other basic needs.

- iii. The majority preferred cash transfers to other modalities about 72% of the beneficiaries. Results for beneficiary preferences in the four counties differed in Wajir were the beneficiaries preferred cash transfers combined with food transfers

5.2 Recommendations

From the findings of the study, the following are some of the recommendations that can be derived;

- i. For cash transfers to be effective donors and policymakers should put into consideration food prices, general inflation as well as local economies. This study recommends that the amount of cash transfers should be given depending on the size of the households and poverty levels to achieve better results.
- ii. Cash transfers provided to improve household resilience to climate shocks should have some requirements that are geared towards improving some of the pillars of resilience such as asset accumulation, and investing in productive activities this enables the household to graduate from cash transfer dependency and become more resilient. Female-headed households should be targeted since in most studies they are less resilient as compared to male-headed ones.
- iii. This study, therefore, recommends that the choice of transfer modality should be informed by beneficiary preferences, program implementers' objectives need assessment and the effectiveness of the transfer modality. The combination of food

and cash transfers is an area of interest to Program implementers to address food and nutrition security they should consider combining food and cash.

5.3 Areas of further research

For future studies, researchers need to examine intra-household decisions making on budget allocation and how this can influence household resilience in the context of cash transfer beneficiaries.

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APPENDICES

Appendix A: Working- Lesser Model results for cash transfers effects on food expenditure patterns

a) Working -Lesser Model results for cash transfers effects on cereals

Cereal share	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment	-.02	.003	-5.94	0	-.027	-.014	***
Time	0	.002	-0.03	.975	-.004	.004	
Household head age	0	0	1.36	.173	0	0	
Household size	.006	.001	6.39	0	.004	.008	***
Household gender	.015	.004	3.72	0	.007	.022	***
Education level	-.017	.007	-2.51	.012	-.03	-.004	**
Food aid	.011	.005	2.46	.014	.002	.02	**
Credit purchase	.001	.004	0.23	.815	-.007	.009	
Log expenditure	-.012	.004	-2.85	.004	-.02	-.004	***
Turkana	.089	.005	16.59	0	.079	.1	***
Wajir	-.002	.005	-0.49	.624	-.012	.007	
Marsabit	.037	.005	6.93	0	.026	.047	***
Mandera	0	.	.	.	.	.	
Constant	.499	3.982	0.13	.9	-7.305	8.303	
Mean dependent var		0.348	SD dependent var			0.136	
Overall r-squared		0.109	Number of obs			6030.000	
Chi-square		697.648	Prob > chi2			0.000	
R-squared within		0.000	R-squared between			0.258	

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

b) Working- Lesser Model results for cash transfers effects on pulses

Pulse share	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment	.002	.002	0.89	.376	-.002	.006	
Time	.001	.001	1.00	.319	-.001	.004	
Household head age	0	0	-1.93	.053	0	0	*
Household size	.001	.001	1.33	.185	0	.002	
Household gender	.004	.002	1.77	.077	0	.009	*
Education level	-.004	.004	-1.01	.315	-.012	.004	
Food aid	0	.003	-0.14	.889	-.006	.005	
Credit purchase	-.003	.002	-1.22	.222	-.008	.002	
Log expenditure	-.008	.003	-3.06	.002	-.013	-.003	***
Turkana	.074	.003	22.46	0	.067	.08	***
Wajir	-.029	.003	-9.84	0	-.035	-.023	***
Marsabit	.036	.003	11.31	0	.03	.043	***
Mandera	0	.	.	.	.	.	
Constant	-2.352	2.514	-0.94	.349	-7.28	2.576	

Mean dependent var	0.099	SD dependent var	0.090
Overall r-squared	0.206	Number of obs	6030.000
Chi-square	1556.837	Prob > chi2	0.000
R-squared within	0.000	R-squared between	0.428

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

c) Working -Lesser Model results for cash transfers effects on milk

Milk share	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment	0	.003	-0.11	.912	-.006	.005	
Time	0	.002	0.01	.991	-.003	.003	
Household head age	0	0	0.20	.842	0	0	
Household size	-.002	.001	-3.39	.001	-.004	-.001	***
Household gender	-.013	.003	-4.05	0	-.019	-.007	***
Education level	-.007	.006	-1.18	.239	-.017	.004	
Food aid	-.002	.004	-0.62	.538	-.01	.005	
Credit purchase	.003	.003	0.95	.343	-.003	.009	
Log expenditure	-.01	.003	-2.96	.003	-.017	-.003	***
Turkana	-.142	.004	-32.49	0	-.151	-.134	***
Wajir	.024	.004	6.10	0	.016	.032	***
Marsabit	-.036	.004	-8.42	0	-.045	-.028	***
Mandera	0	.	.	.	.	.	
Constant	.293	3.357	0.09	.931	-6.287	6.872	
Mean dependent var	0.164	SD dependent var	0.124				
Overall r-squared	0.262	Number of obs	6030.000				
Chi-square	2130.598	Prob > chi2	0.000				
R-squared within	0.000	R-squared between	0.508				

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

d) Working- Lesser Model results for cash transfers effects on meat

Meat share	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment	.015	.003	4.38	0	.008	.021	***
Time	0	.002	0.20	.843	-.003	.004	
Household head age	0	0	-0.32	.751	0	0	
Household size	0	.001	-0.39	.698	-.002	.001	
Household gender	-.006	.004	-1.47	.141	-.013	.002	
Education level	.021	.007	3.13	.002	.008	.034	***
Food aid	-.014	.004	-3.16	.002	-.023	-.005	***
Credit purchase	.007	.004	1.94	.053	0	.015	*
Log expenditure	.035	.004	8.97	0	.027	.043	***
Turkana	.147	.005	27.79	0	.136	.157	***
Wajir	-.011	.005	-2.34	.019	-.021	-.002	**
Marsabit	.024	.005	4.65	0	.014	.035	***
Mandera	0	.	.	.	.	.	
Constant	-1.043	3.746	-0.28	.781	-8.386	6.299	

Mean dependent var	0.065	SD dependent var	0.137
Overall r-squared	0.193	Number of obs	6030.000
Chi-square	1274.153	Prob > chi2	0.000
R-squared within	0.000	R-squared between	0.388

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

e) Working -Lesser Model results for cash transfers effects on sugar

Sugar share	Coef.	St.Err.	t- value	p-value	[95% Conf	Interval]	Sig
Treatment	-.007	.002	-3.00	.003	-.012	-.003	***
Time	-.002	.001	-1.13	.257	-.005	.001	
Household head age	0	0	1.38	.166	0	0	
Household size	-.002	.001	-3.05	.002	-.003	-.001	***
Household gender	-.006	.003	-2.05	.04	-.011	0	**
Education level	-.008	.005	-1.65	.098	-.018	.001	*
Food aid	-.009	.003	-2.84	.004	-.016	-.003	***
Credit purchase	-.009	.003	-3.21	.001	-.015	-.004	***
Log expenditure	-.022	.003	-7.58	0	-.028	-.017	***
Turkana	-.162	.004	-42.23	0	-.169	-.154	***
Wajir	.027	.003	7.84	0	.02	.034	***
Marsabit	-.066	.004	-17.50	0	-.073	-.059	***
Mandera	0	.	.	.	.	.	
Constant	3.912	2.937	1.33	.183	-1.845	9.669	
Mean dependent var		0.284	SD dependent var			0.118	
Overall r-squared		0.376	Number of obs			6030.000	
Chi-square		3625.414	Prob > chi2			0.000	
R-squared within		0.000	R-squared between			0.637	

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

f) Working -Lesser Model results for cash transfers effects on vegetables

Vegetable share	Coef.	St.Err.	t- value	p-value	[95% Conf Interval]	Sig	
Treatment	.011	.001	11.04	0	.009	.013	***
Time	.001	0	1.23	.22	0	.001	
Household head age	0	0	-4.02	0	0	0	***
Household size	0	0	-0.77	.439	-.001	0	
Household gender	.006	.001	5.02	0	.003	.008	***
Education level	.015	.002	8.07	0	.012	.019	***
Food aid	.011	.001	9.27	0	.009	.013	***
Credit purchase	0	.001	0.18	.857	-.002	.002	
Log expenditure	.01	.001	10.25	0	.008	.012	***
Turkana	.005	.002	3.33	.001	.002	.008	***
Wajir	.003	.001	2.08	.038	0	.006	**
Marsabit	.018	.002	11.00	0	.014	.021	***
Mandera	0	.	.	.	.	.	
Constant	-1.214	.892	-1.36	.174	-2.963	.535	

Mean dependent var	0.014	SD dependent var	0.036
Overall r-squared	0.151	Number of obs	6030.000
Chi-square	620.488	Prob > chi2	0.000
R-squared within	0.000	R-squared between	0.285

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

g) Working-Lesser Model results for cash transfers effects on drinks

Drink share	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment	0	.001	0.50	.617	-.001	.001	
Time	0	0	-1.13	.259	-.001	0	
Household head age	0	0	0.48	.635	0	0	
Household size	-.001	0	-4.55	0	-.001	0	***
Household gender	-.001	.001	-1.75	.08	-.002	0	*
Education level	-.001	.001	-0.93	.351	-.003	.001	
Food aid	0	.001	-0.29	.773	-.002	.001	
Credit purchase	0	.001	-0.68	.498	-.002	.001	
Log expenditure	-.002	.001	-3.19	.001	-.004	-.001	***
Turkana	-.013	.001	-14.75	0	-.015	-.011	***
Wajir	-.01	.001	-13.24	0	-.012	-.009	***
Marsabit	-.015	.001	-17.33	0	-.017	-.013	***
Mandera	0	.	.	.	.	.	
Constant	.828	.678	1.22	.222	-.501	2.157	

Mean dependent var	0.026	SD dependent var	0.022
Overall r-squared	0.072	Number of obs	6030.000
Chi-square	464.035	Prob > chi2	0.000
R-squared within	0.001	R-squared between	0.192

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

Appendix B: Research permit

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This is to Certify that Mr. JOSEPH MATATA of Egerton University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev 2014) in Mandera, Marsabit, Turkana, Wajir on the topic: EFFECTS OF CASH TRANSFERS ON HOUSEHOLD RESILIENCE TO CLIMATE SHOCKS IN ARID AND SEMI ARID LANDS OF NORTHERN KENYA for the period ending: 21/10/2023.

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Appendix C: Abstract of the publication

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*Corresponding author: Michael Joseph Matata, Masters Student
Department Of Agricultural Economics And Agribusiness
Management Egerton University, Kenya
E-mail: matatajoseph90@gmail.com

Reviewing editor:
M. Lourdes Morales, Nutrition and Food Science, Toxicology and Legal Medicine, University of Seville: Universidad de Sevilla, Spain

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FOOD SCIENCE & TECHNOLOGY | RESEARCH ARTICLE

Effects of cash transfers on food expenditure patterns in northern Kenya

Michael Joseph Matata^{1*}, Margaret W. Ngigi², Hillary Kiplangat Bett² and Philliph Musyoka Michael³

Abstract: Most households in the ASALs lack access to sufficient and nutritious food, among factors contributing to this include; conflicts, droughts, invasion of desert locusts, increase in food prices, crop failure, and livestock diseases. Cash transfers have risen rapidly over the years in both emergency and developmental contexts as a means of responding to food security and livelihood threats. To understand whether cash transfers are effective in addressing food insecurity we need to know how cash transfers affect beneficiaries' food expenditure patterns. This paper adopted the Quadratic Almost Ideal Model (QUAIDS) to understand how food expenditure patterns changes in presence of cash transfers. The findings indicate that households diversified their diet to some high-value foods, the diet was not only based on starch but also some proteins. The paper also adopted a difference-in-difference model to determine the effects of cash transfers on household food expenditure. The findings indicate that cash transfers increased the food expenditure of the beneficiaries.