

**THE IMPACT OF COMMODITY PRICE CHANGES ON RURAL HOUSEHOLD
EXPENDITURE: A case study of Zombo district, Warr sub county**

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**UGANDA CHRISTIAN
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APPROVAL

This research report titled, "**Impact of commodity price changes on rural household expenditure**" has been submitted by OCHAYA TIMOTHY COLE to the School of Business in partial fulfillment of the requirements for the award of a Bachelor of Science in Economics and Statistics of Uganda Christian University with my approval as a supervisor.


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DECLARATION

I OCHAYA TIMOTHY COLE, hereby declare that this dissertation entitled, “**Impact of i-commodity price changes on rural household expenditure**” is a result of my work, is not plagiarized and has not been submitted for any other degree at Uganda Christian University or any other institution for any award. Credit has been given to all other writer’s works that were used n any part of this research.

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ABSTRACT

The global economy's intrinsic volatility has intensified, impacting households and economies alike. This research probes the intricate relationship between commodity price variations, household income, household size, and rural household expenditure. Employing a combination of questionnaires and interviews, this study delves into the financial behaviors of rural households, where socio-economic dynamics often magnify the impact of economic shifts. Examining the background characteristics of respondents unveiled a male-dominant demographic (66.25%), with age-wise majority clustering around 31-35 years. Household expenditure patterns reflected a majority within Ugx 500,000, underlining a range of financial constraints among rural families.

Objective One, investigating the correlation between commodity price changes and expenditure, revealed that while respondents noticed changes, the subsequent impact on mitigation measures was limited. Regression analysis yielded a non-significant association between action-taking and rural household expenditure. The constant term indicated baseline expenditure, irrespective of actions taken, signifying alternative influential factors.

Objective Two explored household income's influence on expenditure. Regression analysis demonstrated a robust positive correlation. An increase in household income correlated with amplified spending. The model's substantial significance ($p < 0.001$) underscored income's role in shaping spending habits, accounting for around 65% of expenditure variability.

Objective Three aimed to dissect the impact of household size. Contrary to expectation, regression analysis negated a significant association between household size and expenditure. A mere 0.4% expenditure variability was attributed to household size, emphasizing the role of other unexplored factors.

In conclusion, the research offers nuanced insights into rural household financial dynamics. While commodity price fluctuations exhibit limited influence, household income emerges as a dominant determinant of spending behavior. In contrast, household size wields minimal impact. These findings refine the understanding of intricate economic interplays governing rural expenditure, vital for policymakers and practitioners seeking effective interventions in vulnerable communities.

DEDICATION

This one goes out to my parents for taking me every step of the way, my friends for their push, my lecturers for their knowledge and most of all God for making all this possible.

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TABLE OF CONTENTS

Contents

<i>ABSTRACT</i>	3
<i>DECLARATION</i>	4
<i>APPROVAL</i>	5
<i>DEDICATION</i>	6
<i>ACKNOWLEDGEMENT</i>	7
<i>TABLE OF CONTENTS</i>	8
<i>CHAPTER 1</i>	11
1.0 INTRODUCTION	11
1.1 BACKGROUND OF STUDY	11
1.2 PROBLEM STATEMENT	13
1.3 PURPOSE	14
1.4 SPECIFIC OBJECTIVE	14
1.5 RESEARCH HYPOTHESES	14
1.6 SCOPE OF STUDY	14
1.6.1 CONTENT SCOPE	14
1.6.2 GEOGRAPHICAL SCOPE	14
1.6.3 TIME SCOPE	14
1.7 CONCEPTUAL FRAME WORK	14
1.8 JUSTIFICATION OF THE STUDY	15
1.9 SIGNIFICANCE OF THE STUDY	15
<i>CHAPTER 2</i>	16
2.0 INTRODUCTION	16
2.1 THEORETICAL LITERATURE REVIEW	16
2.2 EMPIRICAL LITERATURE REVIEW	17
2.2.1 The impact of commodity price changes on rural household expenditure.	17
2.2.2 The impact of household income on rural household expenditure.	19

2.2.3 The impact of household size on rural household expenditure.....	21
2.3 Gaps in Literature	22
CHAPTER 3	24
3.1 INTRODUCTION	24
3.2 RESEARCH DESIGN	24
3.3 STUDY POPULATION.....	24
3.4 SAMPLING TECHNIQUE	24
3.5 SAMPLE SIZE DETERMINATION.....	24
3.6 DATA SOURCES.....	25
3.7 DATA COLLECTION INSTRUMENTS	25
3.7.1 Questionnaires.....	25
3.7.2 Interviews.....	25
3.8 DATA QUALITY CONTROL	25
3.8.1 TEST FOR RELIABILITY	25
3.8.2 TEST OF VALIDITY	26
<i>Table 1.0: Results from STATA showing a reliability test.</i>	26
3.9 DATA ANALYSIS PLAN.....	27
3.10 MODEL SPECIFICATIONS.....	28
3.11 MODEL FIT.....	29
3.12 ETHICAL CONSIDERATION	30
CHAPTER 4	31
4.0 INTRODUCTION	31
4.1 FINDING ON BACKGROUND CHARACTERISTICS OF THE RESPONDENTS	31
<i>Table 2.0: Results showing the gender of the respondents who participated in the research carried out on the field.</i>	31
4.2 FINDING ON OBJECTIVES.....	33
4.2.1 PRESENTATION OF FINDINGS ON OBJECTIVE ONE.	33
<i>Table 1.1: Results from STATA showing a regression analysis to investigate impact of commodity price changes represented by “TA” on rural household expenditure represented by “HE”.</i>	33
<i>Table 2.1: Descriptive Statistics of the impact of commodity price changes on rural household expenditure.</i>	33
4.2.2 DISCUSSION OF FINDINGS ON OBJECTIVE ONE	34
4.2.3 PRESENTATION OF FINDING ON OBJECTIVE TWO.....	35

<i>Table 1.2: Results from STATA showing a regression analysis to examine the impact of household income represented by “IL” on rural household expenditure represented by “HE”.</i>	36
<i>Table 2.2: Descriptive Statistics of the impact of household income on rural household expenditure.</i>	36
4.2.4 DISCUSSIONS OF FINDING ON OBJECTIVE TWO	37
4.2.5 PRESENTATION OF FINDING ON OBJECTIVE THREE	38
<i>Table 1.3: Results from STATA showing a regression analysis to examine the impact of household size represented by “HS” on rural household expenditure represented by “HE”......</i>	38
<i>Table 2.3: Descriptive Statistics of the impact of household income on rural household expenditure.</i>	38
4.2.6 DISCUSSION OF FINDING ON OBJECTIVE THREE	39
CHAPTER 5	41
5.0 INTRODUCTION	41
5.1 SUMMARY OF FINDING ON BACKGROUND CHARACTERISTICS OF THE RESPONDENTS.....	41
5.2 SUMMARY OF FINDING ON OBJECTIVE ONE.....	42
5.3 SUMMARY OF FINDING ON OBJECTIVE TWO.....	43
5.4 SUMMARY OF FINDING ON OBJECTIVE THREE.....	44
5.5 CONCLUSION	45
5.6 KEY RECOMMENDATIONS	45
5.7 AREAS FOR FURTHER RESEARCH	46
REFERENCES	49
APPENDENCES	54
APPENDIX A: QUESTIONNAIRE	54
APPENDIX B: SUMMARY OF CODED DATA	61

CHAPTER ONE: INTRODUCTION

1.0 INTRODUCTION

This chapter introduces the research topic by describing the contextual background, the problem statement which based off the objectives and research questions. It went into the relevance of the study.

1.1 BACKGROUND OF STUDY

A commodity is a good or service whose prices are determined by supply and demand and not by branding or quality. A price is the amount of money paid for a good or service. Expenditure is an amount of money spent. The behaviour of commodity prices never ceases to marvel economists, financial analysts, industry experts and policy makers. Unexpected swings in commodity prices used to occur infrequently but have now become a permanent feature of global commodity markets. Commodity prices have undergone repeated cycles over the past 50 years and these price cycles have been highly synchronized across commodities. A common global factor derived from 39 commodity price series accounted on average for roughly 15-20 percent of the price variability for energy and metals but only 2-10 percent for agricultural commodities and fertilizers. In the past, global recessions have been associated with weak demand and disruptions in supply, which combined to depress commodity prices. Market disruptions in specific commodities have sometimes provided an offset. During global recessions, demand pressures on commodity prices were compounded by supply pressures specific to commodity markets (1975, 1991, 2020); in 1975 and 2020, these were offset by supply pressures resulting from large-scale trade embargoes (in 1975) or widespread supply chain disruptions (in 2020). The recovery of commodity prices after recessions has been driven by an unwinding of supply or commodity market shocks and, since early 2000, also by rebounds in demand. Consistent with this, the surge in commodity prices in 2020-21 can be explained by a strong resurgence of demand, combined with unusually widespread supply bottlenecks.

An Extraordinary increase in commodity prices occurred in 1973-74. Even leaving aside crude oil as a special case, primary commodity prices on one index more than doubled between mid-1972 and mid-1974, while the prices of some individual commodities, such as sugar and urea (nitrogenous fertilizer), rose more than five times. While the timing differed from commodity to commodity, the sharp upward movement was widespread, affecting virtually all commodities.

Most rose dramatically to twenty-year highs, and many went to historical highs. (This is not the innocuous statement it would be for manufactures, whose prices have been subject to a slow upward creep; many commodities had lower prices in 1970 than they did in 1953. The sharp rise in commodity prices startled most observers, for it came on the heels of apparent oversupply in 1970-71, and it fed recently aroused concerns about long-term commodity shortages, seeming to confirm the gloomy forecasts of the "eco-doomsters." The Limits to Growth,' which forecast the ultimate collapse of the world system with unrestrained growth, was published with much fanfare in 1972, and together with the subsequent run-up of commodity prices, seemed to herald the arrival of a Ricardian economy in which growing population and output of manufactured goods would press on a limited resource base.

In Africa, commodity prices have been volatile in recent years. The commodity price changes have impacted the prices of basic commodities in Africa. In particular, the price of food has risen sharply in recent years, due to a combination of factors including; Rising demand on the global market due to population growth, declining supply due to climate change, drought and pests and also government policies that make it more difficult to import food. The rise has had a negative impact on the poor in Africa, who spend a large proportion of their income on basic commodities such as food. The World bank estimates that the number of people living in extreme poverty in Africa has increased by 10 million since 2010 due to rise in food prices alone.

In East Africa, there have been a lot of negative consequences on the commodity price changes on basic commodities and these have been brought about by the high dependence on agriculture, the vulnerability to climate change and high poverty rates, these all brought about changes in prices that later affect the nations in the community bringing about negative consequences such as, increased hunger and malnutrition because the commodities cannot be afforded, reduced access to education and health care because families are faced with decisions between purchasing the commodities or education of their children and also increased social unrest because the people are angry due to the changes in prices and seek government intervention.

The opening of the global economy from the COVID-19 pandemic came with an unprecedented problem: rising commodity prices. Bank of Uganda's state of the economy report of December 2022 shows that international inflationary pressure persisted and became widespread, driven by supply-side shocks in agricultural commodities, energy, and non-energy industrial goods. Global

inflation was further exacerbated by prolonged geopolitical tension, particularly the Russia-Ukraine war, which caused global commodity markets to face unprecedented pressure, lifting global commodity prices to all-time high. According to the Uganda Bureau of Statistics, the price of cooking oil increased by 21 % between December 2021 and February 2022, and the annual rise was 77.6 %. In February, a laundry-soap bar cost 20 % more than in December and almost 50 % more than one year earlier. The petrol price surged by 15.3 % in three months and by 34 % in 12 months.

1.2 PROBLEM STATEMENT

Rural households in developing countries often rely on agriculture as their main source of income, food and even employment and are therefore highly vulnerable to fluctuations in commodity prices. Price changes can have significant impacts on household welfare, affecting consumption patterns, household income, and overall well-being.

In Uganda, the prices of several commodities continue to increase tremendously and according to the Uganda Bureau of statistics, the country's annual inflation rate over the last months rose 10.2 percent in December 2022 from the 6.8 in June 2022 and was assumed to keep rising come 2023. These changes impact the rural sector and their expenditure patterns in various ways inflicting questions on the household or families on where to spend, how to spend, whether to spend or how they should spend. The rural areas will likely suffer a heavy blow from these inflation rates as they keep rising, sure they depend on agriculture and the rise in prices might signify a rise in capital accumulated in case they are able to supply to the market but what of the other costs? The transportation is affected due to the rising fuel prices, the tractors are affected which then lead to use of manual labor that might yield poor or low yields thus who will buy the products. The demand is also affected due to the rising prices as well.

Understanding the intricate dynamics between commodity price fluctuations and rural household expenditure is crucial for policy makers, researchers and development practitioners aiming to enhance the resilience and livelihoods of rural communities. The rural can later gain as they will adapt to the changes better if they are helped and solutions or coping strategies are laid onto them.

1.3 PURPOSE

The aim of this study was to investigate the impact of the commodity price changes, household income and household size on rural household expenditure.

1.4 SPECIFIC OBJECTIVE

- To examine the impact of commodity price changes on rural household expenditure.
- To examine the impact of household income on rural household expenditure.
- To examine the impact of household size on rural household expenditure.

1.5 RESEARCH HYPOTHESES

The null hypotheses of the research state the following:

- An increase in commodity prices has no effect on rural household expenditure.
- Household income has no effect on rural household expenditure.
- Household size has no effect on rural household expenditure.

1.6 SCOPE OF STUDY

1.6.1 CONTENT SCOPE

This study was focused on the impact of commodity price changes on household expenditure, the impact of household income on household expenditure, the impact of household size on household expenditure.

1.6.2 GEOGRAPHICAL SCOPE

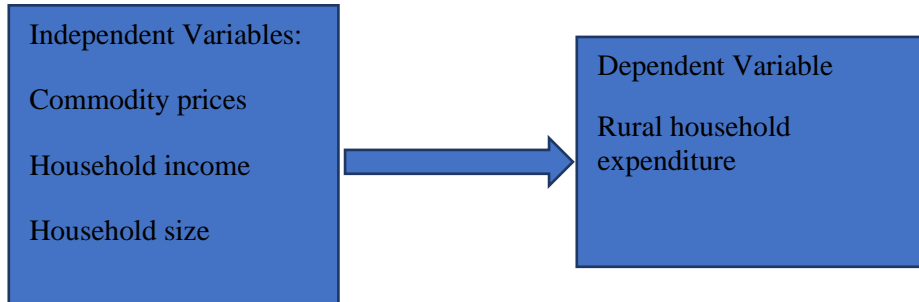
The study was conducted in Zombo District, Warr Sub- County. This is located in East African landlocked country Uganda in the West Nile region.

1.6.3 TIME SCOPE

The study focused on literature of commodity price changes for the last five years. (2017-2022)

1.7 CONCEPTUAL FRAME WORK

In this study, the dependent variable was rural household expenditure and the independent variables were commodity prices, household income and household size.



1.8 JUSTIFICATION OF THE STUDY

Rural households are often more vulnerable to fluctuations in commodity prices. Rural communities are typically heavily reliant on agriculture and natural resource-based livelihoods. As a result, changes in commodity prices can significantly affect their expenditure. Understanding how these price changes influence rural household expenditure is crucial for assessing their economic well-being and the study also covers up gaps in literature and knowledge to devise appropriate policy interventions.

1.9 SIGNIFICANCE OF THE STUDY

There is a lack of empirical evidence on the specific ways in which commodity price changes affect rural household expenditure and the mechanisms through which these effects occur. This study fills this knowledge gap and provided new insights into the relationship between commodity prices and rural household expenditure. The findings in this study can provides more literature to other potential or further studies that someone will partake in case of shortcomings in the research thus creating a broader literature to attack and contribute to the development of more effective policies.

CHAPTER TWO: LITERATURE REVIEW

2.0 INTRODUCTION

This chapter aims to explore the existing body of knowledge on the topic. By synthesizing relevant studies, empirical evidence and theoretical frame works, this review seeks to provide insights into the complex dynamics between the variables and shed light on their implications to rural household expenditure. Commodity prices have been fully recognized as significant determinant of rural household expenditure patterns. Fluctuations in prices of key commodities such as food, fuel, and agriculture inputs can directly affect the purchasing power and consumption choices of rural households.

2.1 THEORETICAL LITERATURE REVIEW.

Commodity price changes significantly influence rural household expenditure patterns, as evidenced by studies examining the impact of price fluctuations on household consumption, conducted in India by Deb (2019) demonstrates that price increases of essential commodities lead to a decline in rural household consumption and expenditure. Similarly, Zhang (2011) finds that rising food prices have a direct impact on rural and urban poverty in China, affecting household expenditure and expenditure. These findings emphasize the importance of considering commodity price changes when analyzing rural household expenditure dynamics.

Household income is also critical because with variations in income levels shaping consumption behaviour and expenditure decisions. Abdulai and Delgado's study (1999) on farm-based households in Ghana reveals information that non-farm earning significantly contribute to household income, thereby impacting expenditure patterns. In addition, the study by Jayne (1996) on agricultural commercialization in Kenya highlights the positive relationship between non-farm employment and household income which in turn influences expenditure choices. On the side of household size, with larger households facing distinct consumption needs and expenditure priorities compared to smaller households, Ahmed (2007) examine farm linkages in rural sub-Saharan Africa and found out that household size is inversely related to per capita expenditure. Reardon (1996) highlights the variation in expenditure patterns across different household sizes in the article, Discuss the effects of rural income inequality in developing countries.

Understanding the interplay between the variables gives a crucial insight into rural household expenditure. Rising commodity prices can exert greater pressure on rural households with lower income levels and larger sizes as they have limited resources to cope with the price shocks (Nkamleu, 2003). The relationship between commodity prices changes and expenditure patterns can be moderated with the help of household size and income for instance, households with higher income levels may be more resilient in maintaining their consumption levels despite price fluctuations (Heltberg, 2004), while smaller households may demonstrate greater flexibility in reallocating resources and adjusting expenditure patterns (Abdulai and Delgado, 1999).

2.2 EMPIRICAL LITERATURE REVIEW

2.2.1 The impact of commodity price changes on rural household expenditure.

Commodity price changes have a significant impact on rural household expenditure. In Uganda, changes in coffee prices, the main source of export revenues, were found to be strongly correlated with poverty reduction. The price boom in the coffee sector benefitted poorer households relatively more, while liberalization created more opportunities for richer farmers (Maurizio, Olivier, Lay and Rainer, 2006). Using data from three household surveys covering the 1990's, the authors confirm a strong correlation between changes in coffee prices and poverty reduction. This was highlighted by comparing the performance of different households grouped according to their dependence on coffee farming. Since agriculture accounts for a large share of income for most rural households, policies and external shocks that affect agriculture can be expected to have a significant impact on poverty. This is particularly true for the Ugandan economy, whose coffee sector in the 1990's faced both large international price fluctuations where world prices rose by more than 100 percent in the first half of the 1990's and then by 2001, fell back to levels below those of the early 1990's and an extensive domestic deregulation. The existing empirical evidence suggests that both the domestic liberalization and a temporary coffee price boom have been the main factors behind Uganda's remarkable growth performance and its related reduction in poverty (Appleton 2001a).

According to Filipski and Covarrubias, 2012, His paper focused on rural sectors of nine developing countries and on six types of staple crops they grew around the areas. The results showed that since most rural households are net buyers of staples, they stand to lose from higher staples prices in the short run. However, simulations of the 2007/2008 food price crisis suggest

that the magnitude and timing of welfare shocks depended heavily on the type of crops produced and consumed by each rural household. Simulations up to 2018 suggest higher future prices threatening welfare, but also creating opportunities for those who can increase staple production drawing the conclusion that even though the increases can heavily affect the rural areas, they can also try and manage to benefit from the situation. Balagtas et al, 2014, assessed the dramatic rise in agricultural commodity prices during 2007-2008 and how the spikes pushed an additional 13 million people into poverty in rural Bangladesh. The unique data was collected in four waves in 1988, 2000, 2004 and 2008. (Nargis, N. Hossain, M., 2006.). Analyzed income dynamics and poverty incidence and severity of poverty, aided in particular by human capital development and off-farm employment opportunities. They updated and extend the analysis to include data collected in 2008, at the height of the spike in agricultural prices. They found that the price of a balanced food basket increased by more than 50% during the 2000-2008, while household income rose only 15%. As a result, the incidence and severity of poverty in Bangladesh sunk pre-2000 levels during 2004-2008. Thus, the spikes in 2007-2008 helped push an additional 13 million people into poverty. Moreover, we find that the determinants of poverty have not been time-invariant. In particular, agricultural production, which had previously been associated with a higher incidence of poverty, served as a hedge against higher food prices during 2004-2008.

And in Latin America and Africa, it was found that households heavily dependent on commodities for income and expenditure are particularly vulnerable to commodity price shocks. These shocks can lead to adjustments in consumption and income, as well as labor market responses and spillovers across sectors. In this paper, it explored the impacts of commodity price changes on household expenditure, including consumption and income adjustments, particularly in rural areas. The households typically allocate a large fraction of their budget to commodities and they often depend on commodities to earn their income. This income and expenditure dependency suggests sizable impacts and adjustments following commodity-price shocks. Households' dependence on commodities on the income side is measured by income shares in agriculture (including forestry, and fishing), mining, food manufacturers (beverages, food, and tobacco), and energy. An important aspect of the analysis is related to poverty and inequality, because dependence on commodities either on the consumption or the income sides can vary across quintiles of the income distribution in a given period of time. Income commodity dependence varies widely across countries. This comparison, however, is unlikely to be very

useful because of differences in coverage. An example of this is Argentina, which in spite of being a country with a relatively important agricultural sector, the household survey suggests that only 3.2 percent of household income is on average, derived from commodities. Clearly this is more a manifestation of the urban focus more on within country comparisons across quintiles. (Daniel and Guido, 2016).

In the case of grain production in China, price fluctuations have been shown to have both positive and negative effects on producer and consumer expenditure, respectively. This paper based on Chinese annual grain production and consumption data from 1978 to 2011 and estimated the supply and demand elasticity of grain as well as yield ratio from perspective of expenditure distribution, and employed the Minot expenditure effect model to analyze rural households under dramatic price volatility. (Miao, 2014). The results after showed that households' total expenditure is determined by the PR and CR value. Grain production price fluctuation has a positive effect on producer expenditure, when grain production prices increase by 10% on average, farmers' short-term consumer expenditure will improve 21.9%. However, the grain consumption price has a negative role when grain retail prices increase by 10%, short-term consumer expenditure will decrease 14.4%, and long-term consumer expenditure will reduce 13.4%. Overall, rural households' production expenditure constitutes the main role in the whole expenditure effect fluctuation. This is caused by the relative value between farmers income and grain expenditure which determines farmers' total expenditure effects.

2.2.2 The impact of household income on rural household expenditure.

Changes in farm incomes can have significant effects on rural communities and businesses, with certain consumption items being more sensitive to income fluctuations. (Gordon, Allen et al, 1993). The authors investigated the sensitivity of farm household expenditures for nine consumption items to changes in total consumption expenditures and changes in the cost of those items and found that during poor income years, rural businesses dealing in recreation, charitable contributions and gifts, education, furniture and household maintenance are most likely to experience decreased revenues from farm households. Changes in farm household expenditures during periods of volatile farm incomes impact rural communities and main street businesses. This study information can help businesses make informed decisions about their marketing strategies and pricing policies.

“Remittances play a crucial role in helping households address immediate needs and to also invest in the future, so bringing down remittance prices will have a significant impact on poverty.” Gaiv Tata, Director of World Bank’s Africa Region and Financial Inclusion and Infrastructure Global Practice said on the report. Remittance income has been found to positively and significantly affect household consumption expenditure, along with other household characteristics and asset-holding variables. (Tesfaye, 2018). The author estimates the impact of remittance income on household’s welfare using the household level cross sectional data using the IV estimation method and find the remittances positively and significantly affect household level consumption expenditure. The study controls for various household characteristics, asset-holding variables, institutional, village level infrastructural variables as well as endogeneity problems using IV estimation. Household characteristics particularly family size, participation on wage employment, distance to the main market and lowland agro ecological zone affect welfare status and access to extension service affects welfare status positively and significantly. On the other hand, oxen, land size, non-livestock asset, participation on own business, access to credit and access to extension service have positive and significant effect on household’s welfare status. Environmental extremes such as drought are decreasing the land’s productive capacity leading to a decrease in subsistence agriculture, income, assets and rapid decline in health and nutritional status of the rural population. Ethiopia has a long history of poor infrastructural development, has few risk-migration, adaptation and coping strategies and arguably has poor political will. These constraints have led to a dramatic increase in rural-to-urban migration as a last resort coping option for poor rural farmers who are responding to the negative environmental extremes. According to World bank data, the number of Ethiopians living abroad reached at 620 thousand in 2010. The total number is equivalent to 0.6% of the population of the country. The main destinations of the migrants are Sudan, the United States, and Israel; the combined number of Ethiopians in these three countries comprises more than 60% of Ethiopians abroad. Ethiopian workers in Saudi Arabia amount about 4.6%. moreover, the Ethiopians in Western Europe amount for 11.2% of migrants.

P. Hazell and A. Röell, 1983, studied the relationship between income and consumption for different commodities and to establish how these change with income and socioeconomic characteristics of the households. Household expenditures were obtained from two regional case studies that used samples of households directly benefiting from agricultural projects funded by

the world bank. The first set of data was obtained from the Muda irrigation project in North Western Malaysia and the other from the Gusau agricultural development project in northern Nigeria. Food, alcohol and tobacco is by far the most important commodity group in the total budget of the average household in each region. Linkages to the local non-farm economy were however much stronger in Muda with the average household spending 18% of its income on locally produced non-food goods and services, and allocates to these items 37% of any increment in the total expenditure. In contrast, these figures are 11% and 8% respectively for Gusau, probably as a result of the relative isolation of farm households. The analysis also suggests that household on the larger farms in both regions have the most desired expenditure patterns for stimulating secondary rounds of growth in the local economy. They are therefore suitable targets for technology or public investments that increase agricultural output.

2.2.3 The impact of household size on rural household expenditure.

Rural household size has been found to have an impact on rural household expenditure. Meenakshi and Ranjan, 2002. The authors examined the impact of household size and composition, caste, gender of household head, and size of land ownership on a household's poverty status and found that female headed households exhibited higher poverty only in the presence of size economies and adult/child relatives. The paper utilized micro data on consumption, family composition and land ownership of nearly 70,000 rural Indian households to analyze poverty in India. Trevor Young and Abdalla A. Hamdok, 1994, studied a survey of rural households in Zimbabwe in 1990 to 1991. It focused on the effects of changing household composition on patterns of expenditure and provides estimates of the 'cost of a child' as well as of family members in other age groups. In addition to age differences in the size and direction of responses to changing family composition, the paper highlighted significant differences across product groups. These effects are more muted in larger households. The results of a household budget of Matabeleland South Province, Zimbabwe in 1990-91. The focus of the study is on the effects of household size and composition on household consumption. This type of analysis has particular advantages for policy analysis, notably in designing income supplement and other welfare programs and in linking future changes in demand to demographic changes. Household budget studies in developing countries have also proved useful in the calculation of consumption linkages in economic growth (Haggblade and Hazell, 1989) and we briefly touch on this aspect

of the analysis. They obtained data from the Central Statistical Office in Zimbabwe, which undertook an Income, Consumption and Expenditure Survey in 1990-91.

Additionally, the study in rural Pakistan found that household size and composition have an effect on consumption patterns, with substantial economies of size in food consumption. The paper focuses on estimating semiparametric Engel curves for rural Pakistan using a large household survey. The aim is to obtain consistent estimates of the effects of household size and composition on consumption patterns even when these demographic variables are correlated with an unknown function of income. The paper also aims to infer patterns of intrahousehold allocation based on the coefficients on the household composition variables. The study finds that adult males consume more than adult females, and workers consume more than dependents. There is no evidence of differential treatment of the elderly or of higher birth-order children. The study also identifies substantial economies of size in food consumption and finds that Engel curves for food, adult goods, and child goods are quadratic logarithmic. (Sonia et al, 1998).

2.3 Gaps in Literature

There are a few notable gaps in the literature on the topic and here are some;

Limited focus on specific commodity price changes. The literature often addresses the general changes in all commodity prices and doesn't go in future to state that certain commodity price changes such as sugar alone or soap alone can affect the rural population. There may be gaps in understanding the differential effects of specific commodity price changes, such as the commodities mentioned earlier and further research could explore the nuanced impacts of different types of commodity price changes on rural households.

Lack of longitudinal studies. Many existing studies provide cross-sectional snapshots of the relationship between commodity price changes, household income, and household size on rural household expenditure. There is a need for more longitudinal studies that track changes in these variables over time to better understand the dynamics and causal relationships between them.

Limited examination of regional or country-specific contexts: The existing literature often draws on studies conducted in specific regions or countries. This may limit the generalizability of the findings to different geographical contexts. More research is needed to explore the impact of

commodity price changes, household income, and household size on rural household expenditure across diverse regions and countries.

Insufficient attention to the mediating mechanisms: While existing studies establish associations between commodity price changes, household income, household size, and rural household expenditure, there is a gap in understanding the underlying mechanisms driving these relationships. Further research could delve into the mediating factors, such as market access, credit availability, or government policies, to provide a more nuanced understanding of how these variables interact.

Limited consideration of socio-cultural factors: The existing literature primarily focuses on economic factors when examining the impact of commodity price changes, household income, and household size on rural household expenditure. There is a gap in understanding the role of socio-cultural factors, such as social norms, gender dynamics, or community networks, in shaping expenditure patterns. Further research could explore the interplay between these socio-cultural factors and economic variables to gain a more comprehensive understanding.

Addressing these gaps in the literature can contribute to a deeper understanding of the complex dynamics between commodity price changes, household income, household size, and rural household expenditure. It can also inform the design of targeted interventions and policies aimed at improving the financial well-being and resilience of rural households.

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

In this chapter, the researcher provides the methods that was utilized in this research. The chapter presents the various sub-sections namely; the design of the research, its data sources, the methods and instruments used to collect and analysis.

3.2 RESEARCH DESIGN

This study adopted a descriptive survey design but cross-sectional in nature. Mixed methods approach combining quantitative analysis and qualitative techniques. Quantitative data was collected through household surveys, focusing on the expenditure patterns, income sources and demographic characteristics. The analysis employed econometric models, including regression analysis to quantify the impact of commodity price changes on rural household expenditure. Additionally, qualitative data was collected through interviews and focus group discussions to gain insights into the adaptation strategies employed by the rural households. These qualitative findings were analyzed thematically to provide a comprehensive understanding of the socio-economic context and the experiences of households dealing with the commodity price fluctuations.

3.3 STUDY POPULATION

The study was conducted in the area of Zombo district, located in the Northern region, West Nile sub region of Uganda with 100 households. This area was selected as the geographical area of interest due to its unique characteristics and relevance to the research objectives.

3.4 SAMPLING TECHNIQUE

Simple Random sampling was used along with Convenience sampling and Purpose sampling to stretch out the relevant data.

3.5 SAMPLE SIZE DETERMINATION

The sample size was determined using Yamane to estimate the 100 households. It states;

$$n = N / (1 + N(e^2))$$

$$n = 100 / (1 + 100(0.05^2))$$

$$n = 100 / (1 + 0.25)$$

$n = 100 / 1.25$

$n = 80$

Based on the Yamane formula, the estimated sample size for the population with a desired precision level of 5% was be 80 households.

3.6 DATA SOURCES

The data obtained was primary data collected for the first time from respondents. Primary data was obtained through interviews from a questionnaire designed for the study.

3.7 DATA COLLECTION INSTRUMENTS

3.7.1 Questionnaires

These are research or survey tools consisting of a series of questions designed to gather information from individuals or groups. This guided me as I ask the respondents questions.

3.7.2 Interviews

These involve direct interaction between the interviewer and the respondent. This was conducted face to face and a structured set of predetermined questions will be asked and at times it will be unstructured to get more information.

3.8 DATA QUALITY CONTROL

This section states the efforts and procedures that was put in place to ensure the quality and accuracy of data being collected using the methodologies chosen for this particular study (James Roe, 2022)

The data was collected by carrying out interviews that was recorded, analyzed and noted down and conclusions drawn from the data. The households interviewed was selected based off Yamane formula to ensure no bias and a representative of the population.

3.8.1 TEST FOR RELIABILITY

To ensure the reliability of the instruments, consultations with the supervisor were made. Personal biases were avoided, meticulous record keeping was maintained, and a clear decision trail was demonstrated. The researcher ensured that interpretations of data were consistent and

transparent during data collection. Clarity in terms of thought processes during data analysis and subsequent interpretations was demonstrated (Simmons, 2016).

3.8.2 TEST OF VALIDITY

To ensure validity, I ensured that the items on the main variables (independent and dependent variables) conformed to the conceptual framework of the study. The research was further validated through the supervisors' opinions on the relevance, wording, and clarity of the items in the instruments used. The validation of the question items was also taken into account.

The validation of the instrument focused on the clarity, completeness, and relevance of the questions in relation to the study constructs.

Table 1.0: Results from STATA showing a reliability test.

```
. . alpha SEX AGE AHE HE NC TA SIC1 SIC2 SIC3 SIC4 SIC5 SIC6 SIC7 AIL IL SHI1 SHI2 SHI3 SHI4 SHI5 AHS HS SHS1 SHS2 SHS3 SHS
> 4 SHS5
NC constant in analysis sample, dropped from analysis

Test scale = mean(unstandardized items)
Reversed items:  AIL AHS

Average interitem covariance:    .0611119
Number of items in the scale:    26
Scale reliability coefficient:    0.7074
```

Source: Primary data calculations from STATA (2023)

Test Scale Mean represents the mean of the unstandardized scores of the items included in the scale.

Average Interitem Covariance. The value of 0.0611119 represents the average covariance between each pair of items within the scale. It indicates the strength of the relationships between the items within the scale.

Number of Items in the Scale. The scale being analyzed consists of 26 items, including variables such as SEX, AGE, AHE, HE, NC, TA, SIC1, SIC2, SIC3, SIC4, SIC5, SIC6, SIC7, AIL, IL, SHI1, SHI2, SHI3, SHI4, SHI5, AHS, HS, SHS1, SHS2, SHS3, and SHS5.

Scale Reliability Coefficient (Cronbach's Alpha). The reliability coefficient of 0.7074 indicates the internal consistency or reliability of the scale. A Cronbach's Alpha value of 0.7074 is generally considered to be good and suggests that the items in the scale measure the same underlying construct with a satisfactory level of consistency.

This analysis suggests that the scale has a relatively strong internal consistency, which is a positive sign for the reliability of the measurement instrument. A Cronbach's Alpha of 0.7074 is indicative of a reliable scale. However, remember that there is always room for improvement. If you aim for an even higher value, you might consider refining the scale by examining the relationships between items, removing any redundant items, and ensuring that the items truly capture the intended construct.

Additionally, certain items were reversed (AIL and AHS). Reversed items should be carefully considered to ensure they are correctly reverse-coded and contribute effectively to the overall construct being measured.

Overall, a Cronbach's Alpha of 0.7074 provides confidence in the reliability of your scale, suggesting that it can be considered a consistent measure of the intended construct.

3.9 DATA ANALYSIS PLAN

Quantitative data derived from the field was recorded, coded and then loaded into Microsoft Excel. The raw data was imported into the STATA which is given commands to analyze and present numerical data in form of graphs, tables and pie charts.

Descriptive analysis: This helps gain a basic understanding of the data. It covers the methods of data analysis as well as how numerical facts or statistics are presented in tables or graphs. In terms of central tendency and variability, the data for this study will be descriptively analyzed. The mean, median, standard deviation and percentiles are calculated for the key variables of interest.

Correlation analysis: Explores the relationship between commodity prices and rural household expenditure. Correlation coefficients are calculated between price changes and different expenditure categories such as food, healthcare, etc. This will help identify significant associations between variables.

Regression analysis: This helps examine the impact of commodity price changes on rural household expenditure while controlling for other relevant factors. Ordinary Least Squares regression and panel data analysis are techniques employed.

3.10 MODEL SPECIFICATIONS

Model Specifications for Factors Influencing Rural Household Expenditure

Dependent Variable: HE (Rural Household Expenditure)

Independent Variables:

1. TA: Actions taken to mitigate commodity price changes
2. IL: Household income
3. HS: Household size

Control Variables (if applicable):

1. AGE: Age of household members
2. SEX: Gender of household members
3. AHE: Average household education level
4. NC: Other relevant control variables

Scale Variables:

1. SIC1, SIC2, SIC3, SIC4, SIC5, SIC6, SIC7: Scale items related to subjective importance of commodity price changes
2. SHI1, SHI2, SHI3, SHI4, SHI5: Scale items related to subjective happiness with income
3. SHS1, SHS2, SHS3, SHS4, SHS5: Scale items related to subjective happiness with household size

Model Specification:

$$HE = \beta_0 + \beta_1 * TA + \beta_2 * IL + \beta_3 * HS + \beta_4 * AGE + \beta_5 * SEX + \beta_6 * AHE + \beta_7 * NC + \beta_8 * SIC1 + \beta_9 * SIC2 + \dots + \beta_{24} * SHS5 + \varepsilon$$

Hypotheses Testing:

- Hypothesis 1: An increase in commodity prices will lead to a decrease in rural household expenditure. Test the significance of β_1 (TA).
- Hypothesis 2: Household income affects rural household expenditure. Test the significance of β_2 (IL).
- Hypothesis 3: Household size affects rural household expenditure. Test the significance of β_3 (HS).

Control Variable Interpretation:

Control variables such as AGE, SEX, AHE, and NC should be included to account for potential confounding factors that may influence household expenditure but are not the primary focus of the study.

Scale Variable Interpretation:

Scale variables (SIC1-SIC7, SHI1-SHI5, SHS1-SHS5) are included to capture the combined impact of multiple related items on the dependent variable. Their coefficients indicate the average effect of each scale on rural household expenditure.

3.11 MODEL FIT

The model fit of the regression analysis was assessed using several key statistics. The coefficient of determination (R-squared) was utilized to measure the proportion of variance in rural household expenditure explained by the independent variables. For Objective One, the R-squared value of 0.004 indicated that only a negligible 0.4% of the variance in rural household expenditure can be attributed to variations in household size (HS). Similarly, for Objective Two, the R-squared value of 0.650 highlighted that approximately 65% of the variance in rural household expenditure can be explained by variations in household income (IL). Notably, the F-statistics and associated p-values for both objectives were highly significant, reinforcing the model's ability to explain the variance in rural household expenditure based on household

income and size. Additionally, the reliability coefficients for the constructed scales were evaluated, with scales featuring a range of values from 0.4541 to 0.7074. The reliability coefficients, coupled with the other model fit indicators, suggest that the chosen regression models provide reasonable representations of the relationships between the independent and dependent variables.

3.12 ETHICAL CONSIDERATION

Ethical considerations in this research are set of principles that guide the research design and practices. When gathering data and information from various sources, researchers are required to constantly abide by a set of principles (Bhandari, 2021).

The dissertation utilized the APA 7 reference style to properly credit all other writers' work that were used in any part of this research and all communication and data collected from persons will be at their full consent.

CHAPTER FOUR: PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION OF RESULTS.

4.0 INTRODUCTION

This chapter presents the findings of the research and the interpretations of the data collected during the study. The purpose of this chapter is to examine the data collected to establish the impact of commodity price changes on rural household expenditure.

The findings and interpretations presented in this chapter are based on a sample study of eighty households (80) of Zombo district, Warr sub-county.

4.1 FINDING ON BACKGROUND CHARACTERISTICS OF THE RESPONDENTS

Table 2.0: Results showing the gender of the respondents who participated in the research carried out on the field.

	Gender	Frequency	Percentage
Valid	Male	53	66.25%
	Female	27	33.75%

Source: Primary data (2023)

From the above table, we can see that there were more male respondents as compared to the female. Using the percentages analyzed the male constituted 66.25% as opposed to the female who constituted 33.75% of the respondent population of the sample taken.

This is notable because the majority of the population of households constitute males as the heads and the few that had women, either the men were away, passed on or were living on their own.

A BAR CHART SHOWING THE AGES OF THE RESPONDENTS

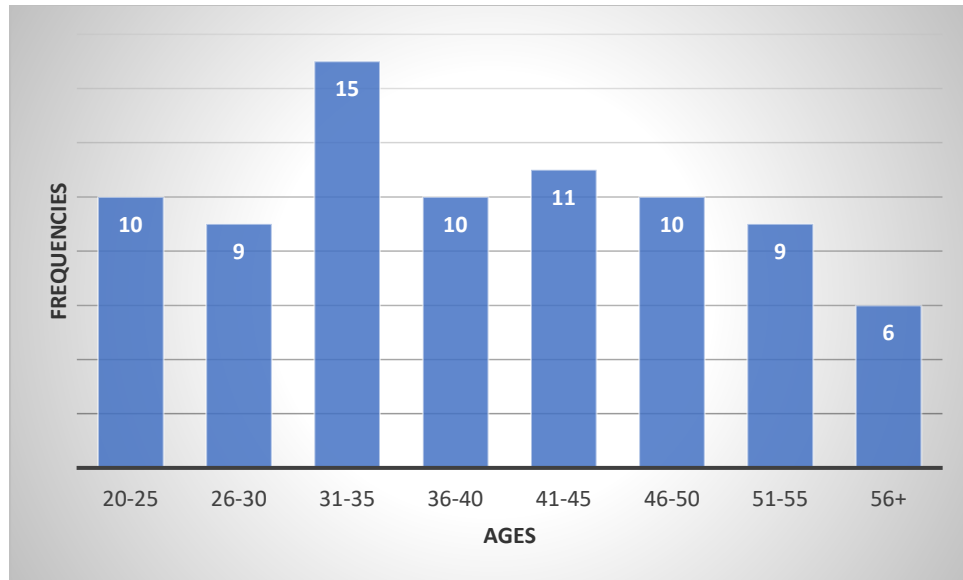


Figure 1: Bar graph indicating ages of respondents

The graph above demonstrates that the greatest proportion of population who responded to the questionnaires are between the ages of 31 and 35, as indicated by the graph above. This was followed by the age group 41-45, then the age groups of 20-25, 36-40, 46-50, then 26-30 and 51-55, with the smallest of the population being over the age of the age of 56.

A SCATTER DIAGRAM SHOWING THE MONTHLY HOUSEHOLD EXPENDITURE.

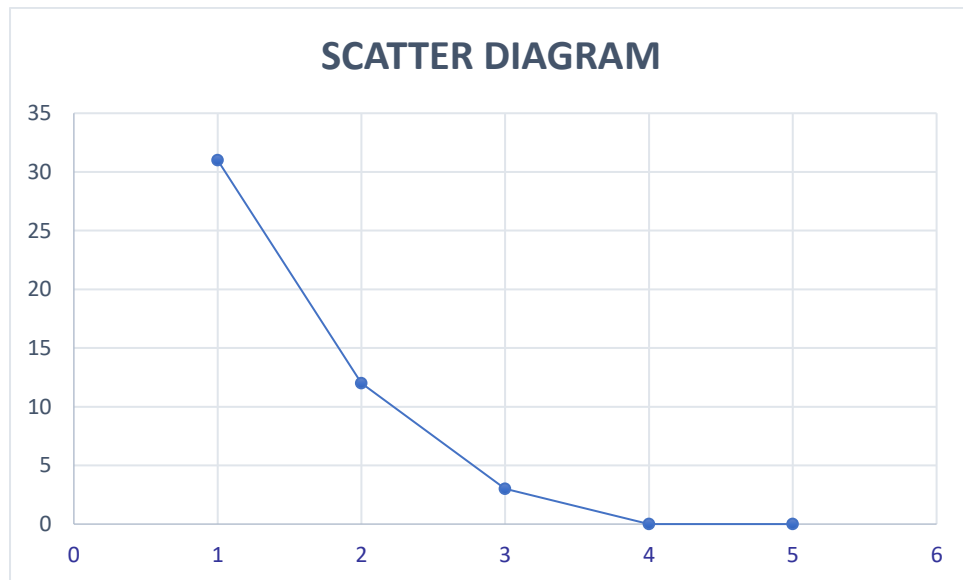


Figure 2: Scatter diagram indicating household expenditure of respondents.

This describes the monthly household expenditure of the study population, however of all the 80 participants, 46 were able to know their household expenditure which is described in the scatter plot above. 34 of the population were not able to identify their monthly household expenditure. Majority of the population spent less than Ugx 500,000 described as 1 in the scatter plot, followed by between Ugx 500,000 to Ugx 999,999 described by 2, then Ugx 1,000,000 to Ugx 1,500,000 which was the last. I was unable to find people that spent between Ugx 1,500,000 to Ugx 1,999,999 i-and also above Ugx 2,000,000.

4.2 FINDING ON OBJECTIVES

4.2.1 PRESENTATION OF FINDINGS ON OBJECTIVE ONE.

Table 1.1: Results from STATA showing a regression analysis to investigate impact of commodity price changes represented by “TA” on rural household expenditure represented by “HE”.

```
. regress HE TA
```

Source	SS	df	MS	Number of obs	=	46
Model	.225461133	1	.225461133	F(1, 44)	=	0.59
Residual	16.7310606	44	.380251377	Prob > F	=	0.4454
Total	16.9565217	45	.376811594	R-squared	=	0.0133
				Adj R-squared	=	-0.0091
				Root MSE	=	.61665

HE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
TA	.1401515	.1820109	0.77	0.445	-.2266673 .5069703
_cons	1.17803	.291514	4.04	0.000	.5905224 1.765538

Source: Primary data calculations from STATA (2023)

Table 2.1: Descriptive Statistics of the impact of commodity price changes on rural household expenditure.

Statements on impact of commodity price changes.	SA	A	ND	D	SD
Changes in commodity prices has significantly affected my household expenditure.	6.25%	53.75%	33.75%	6.25%	0.00%

I have had to make significant changes to my household budget due to changes in commodity prices.	2.50%	43.75%	43.75%	10.00%	0.00%
Changes in commodity prices have affected my ability to pay for essential expenses such as housing, utilities and healthcare.	6.25%	26.25%	37.50%	23.75%	6.25%
I have had to reduce spending on essential items due to changes in commodity prices.	7.50%	30.00%	22.50%	31.25%	8.75%
I have had to reduce spending on non-essential items due to changes in commodity price changes.	10.00%	28.75%	32.50%	25.00%	3.75%
I have had to borrow money or use savings due to changes in commodity prices.	5.00%	22.50%	20.00%	35.00%	17.50%
I have had to increase my income through additional work or selling assets due to changes in commodity prices.	8.75%	16.25%	18.75%	37.50%	18.75%

Source: Primary data (2023)

4.2.2 DISCUSSION OF FINDINGS ON OBJECTIVE ONE

From the Table 2.0, The first objective of this study was to examine the impact of commodity price changes on rural household expenditure (HE). To explore this relationship, a regression analysis was conducted using Stata. The independent variable, represented by TA (actions taken to mitigate the impact of commodity price changes), was examined in relation to the dependent variable, rural household expenditure (HE).

The results of the regression analysis revealed that the coefficient for TA was 0.140, with a standard error of 0.182. The t-statistic for TA was 0.77, resulting in a p-value of 0.445. This p-value suggests that there is no statistically significant relationship between the actions taken to mitigate the impact of commodity price changes and rural household expenditure. Moreover, the 95% confidence interval for the coefficient of TA (-0.227 to 0.507) includes zero, further indicating that changes in TA do not have a substantial influence on rural household expenditure.

The constant term ($_cons$) in the regression was 1.178, with a standard error of 0.292. The t-statistic for the constant term was 4.04, and the p-value was 0.000, indicating that the constant term is statistically significant. This implies that even in the absence of actions taken to mitigate commodity price changes ($TA = 0$), rural household expenditure (HE) remains at a base level of 1.178 units.

The overall model fit was assessed using the F-statistic, which yielded a value of 0.59 with a p-value of 0.4454. The low F-statistic value and associated p-value suggest that the model lacks statistical significance in explaining the variance in rural household expenditure solely based on actions taken to mitigate commodity price changes.

Major finding; the analysis of the regression model indicates that actions taken to mitigate the impact of commodity price changes (TA) do not significantly influence rural household expenditure (HE). The findings suggest that other factors beyond those accounted for in this analysis play a more substantial role in shaping rural household spending patterns. These results contribute to our understanding of the complex dynamics surrounding commodity price changes and their effects on rural household financial behaviors.

4.2.3 PRESENTATION OF FINDING ON OBJECTIVE TWO
A SCATTER DIAGRAM SHOWING THE INCOME LEVEL OF THE RESPONDENTS

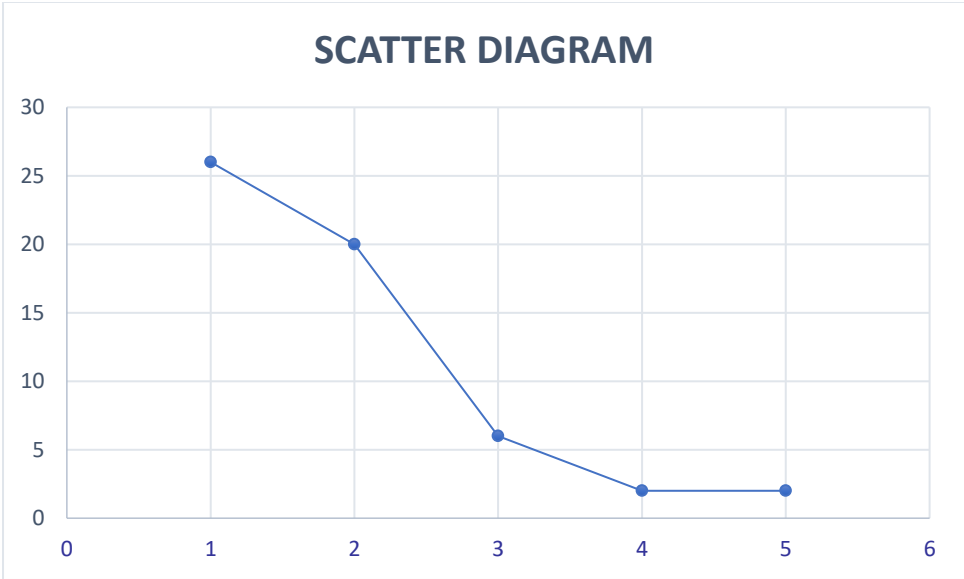


Table 1.2: Results from STATA showing a regression analysis to examine the impact of household income represented by “IL” on rural household expenditure represented by “HE”.

. regress HE IL

Source	SS	df	MS	Number of obs	=	44
				F(1, 42)	=	78.12
Model	10.8194622	1	10.8194622	Prob > F	=	0.0000
Residual	5.81690141	42	.138497653	R-squared	=	0.6504
				Adj R-squared	=	0.6420
Total	16.6363636	43	.386892178	Root MSE	=	.37215

HE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
IL	.4577465	.0517897	8.84	0.000	.3532306	.5622623
_cons	.5352113	.1136802	4.71	0.000	.3057953	.7646273

Source: Primary data calculations from STATA (2023)

Table 2.2: Descriptive Statistics of the impact of household income on rural household expenditure.

Statements on impact of household income.	SA	A	ND	D	SD
My household income significantly affects my household expenditure.	8.75%	47.50%	27.50%	15.00%	1.25%
Changes in my household income have significantly affected my household expenditure.	6.25%	51.25%	30.00%	11.25%	1.25%
My household income affects my ability to pay for essential expenses such as housing, utilities and health care.	1.25%	38.75%	27.50%	28.75%	3.75%
An increase in household income would allow me spend more on non-essential items.	3.75%	30.00%	32.50%	28.75%	5.00%
An increase in household income would allow me spend more on essential items.	12.50%	31.25%	27.50%	23.75%	5.00%

Source: Primary data (2023)

4.2.4 DISCUSSIONS OF FINDING ON OBJECTIVE TWO

The scatter plot describes the income level of the population that took part in the research. Out of the 80, 56 were able to tell their income level and the other 24 were not able. Most of the respondents had an income level less than Ugx 500,000 as described by 1 in the plot, followed by 20 people that were in the range of Ugx 500,000 to Ugx 999,999, then the range of Ugx 1,000,000 to Ugx 1,499,999 had 6 people, and the least were people with an income level between Ugx 1,500,000 to Ugx 1,999,999 and an income level above Ugx 2,000,000 that each registered 2 people.

From Table 2.3, the results of the regression analysis yielded substantial insights. The coefficient for household income (IL) was calculated to be 0.458, accompanied by a standard error of 0.052. The t-statistic for IL was 8.84, with a corresponding p-value of 0.000. This exceptionally low p-value indicates strong statistical significance, highlighting the considerable influence of household income on rural household expenditure. The constant term (_cons) in the regression was determined to be 0.535, with a standard error of 0.114. The t-statistic for the constant term was 4.71, and the p-value was 0.000. This statistically significant constant term underscores the baseline rural household expenditure even when household income is zero.

The model's overall fit was assessed using the F-statistic, resulting in a value of 78.12 with a p-value of 0.000. This notably low p-value indicates that the model as a whole is highly significant in explaining the variance in rural household expenditure based on household income. The coefficient of determination (R-squared) was found to be 0.650, suggesting that approximately 65% of the variance in rural household expenditure can be explained by variations in household income. This robust R-squared value underscores the substantive impact of income levels on rural household spending patterns.

Major finding; the analysis underscores the significant relationship between household income (IL) and rural household expenditure (HE). As household income increases, rural households tend to allocate more funds towards expenditure. This finding substantiates the notion that income plays a pivotal role in shaping spending behaviors, reinforcing the importance of economic factors in rural household financial decisions. These findings have implications for policymakers and practitioners seeking to enhance understanding of rural household expenditure dynamics and develop strategies to support economic well-being at the household level.

4.2.5 PRESENTATION OF FINDING ON OBJECTIVE THREE

A PIE CHART SHOWING HOUSEHOLD SIZES OF THE RESPONDENTS

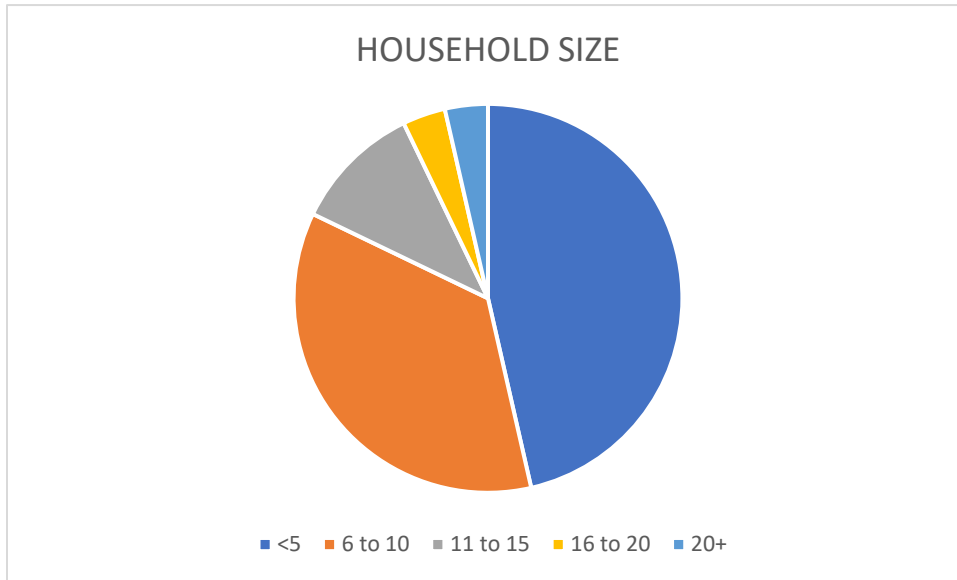


Table 1.3: Results from STATA showing a regression analysis to examine the impact of household size represented by “HS” on rural household expenditure represented by “HE”.

```
. regress HE HS
```

Source	SS	df	MS	Number of obs	=	46
Model	.062012177	1	.062012177	F(1, 44)	=	0.16
Residual	16.8945096	44	.383966126	Prob > F	=	0.6897
Total	16.9565217	45	.376811594	R-squared	=	0.0037
				Adj R-squared	=	-0.0190
				Root MSE	=	.61965

HE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
HS	-.0419494	.104384	-0.40	0.690	-.2523215	.1684227
_cons	1.466996	.2093345	7.01	0.000	1.04511	1.888882

Source: Primary data calculations from STATA (2023)

Table 2.3: Descriptive Statistics of the impact of household income on rural household expenditure.

Statements on impact of size.	SA	A	ND	D	SD

My household size significantly affects my household expenditure.	3.75%	27.50%	35.00%	26.25%	7.50%
An increase in size of my household would significantly increase my household expenditure.	6.25%	36.25%	31.25%	22.50%	3.75%
A decrease in size of my household would significantly decrease my household expenditure.	5.00%	31.25%	28.75%	25.00%	10.00%
The size of my household affects my ability to pay for essential expenses such as housing, utilities and health care.	7.50%	31.25%	25.00%	26.25%	10.00%
An increase in size of my household would require me to spend more on essential items.	5.00%	32.50%	27.50%	23.75%	11.25%

Source: Primary data (2023)

4.2.6 DISCUSSION OF FINDING ON OBJECTIVE THREE

The pie-chart above shows the different household sizes registered from all the participants in the research. The largest number had less than 5 members in the households with 35, then in the range of 6-10 with 29 people affirming this, followed by ranges 11-15 and 16-20 with 10 and 6 households meeting that criterion of size with the last being above 20 without anyone checking this box.

From Table 2.5, the results from this regression analysis yielded insights into the association between household size and rural household expenditure. The coefficient for household size (HS) was estimated to be -0.042, with a standard error of 0.104. The t-statistic for HS was -0.40, resulting in a p-value of 0.690. This p-value suggests that there is no statistically significant relationship between household size and rural household expenditure. The constant term (_cons) in the regression was calculated to be 1.467, with a standard error of 0.209. The t-statistic for the constant term was 7.01, and the p-value was 0.000, indicating that the constant term is statistically significant. This implies that even in the absence of variations in household size (HS = 0), rural household expenditure (HE) remains at a baseline level of 1.467 units.

The overall model fit was evaluated using the F-statistic, resulting in a value of 0.16 with a p-value of 0.6897. The high p-value for the F-statistic indicates that the model lacks statistical

significance in explaining the variance in rural household expenditure based on household size. The coefficient of determination (R-squared) was found to be 0.004, indicating that a mere 0.4% of the variance in rural household expenditure can be attributed to variations in household size. The low R-squared value underscores the limited impact of household size on rural household spending patterns.

Major finding; the analysis of the regression model suggests that household size (HS) does not have a significant impact on rural household expenditure (HE). This finding contradicts the initial hypothesis that household size affects spending behavior. Other factors not accounted for in this analysis are likely more influential in shaping rural household financial decisions. These results provide valuable insights into the complex interplay of variables that contribute to rural household expenditure dynamics, ultimately contributing to a more comprehensive understanding of economic behavior in this context.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.

5.0 INTRODUCTION

This chapter presents a general discussion, conclusion and recommendation of the study. It gives a general overview of the researcher's findings during the study basing on the analysis presented in Chapter four.

The researcher presented the conclusions which were majorly drawn by the level of discussion of data collected from the field. He also come up with recommendations as to what could be done to overcome the problems sighted. The researcher also put in suggestions for further research that most researchers should take interest in as far as impact of commodity price changes on total household expenditure goes.

5.1 SUMMARY OF FINDING ON BACKGROUND CHARACTERISTICS OF THE RESPONDENTS.

Male respondents as compared to the female were more as expected. Using the percentages analyzed the male constituted 66.25% as opposed to the female who constituted 33.75% of the respondent population of the sample taken.

This is notable because the majority of the population of households constitute males as the heads and the few that had women, either the men were away, passed on or were living on their own.

The greatest proportion of population who responded to the questionnaires are between the ages of 31 and 35. This was followed by the age group 41-45, then the age groups of 20-25, 36-40, 46-50, then 26-30 and 51-55, with the smallest of the population being over the age of the age of 56. I interacted more with youths than the elderly, this was mainly because the elderly was often sick and most households around had ages on average of 34 as the head of the family around. It was in rare cases that I found less or more.

For the household expenditure, it was tricky seeing as it was hard to make them sit and calculate then estimate how much they spend per month but I managed to get 46 who were able to know their household expenditure which is described in the scatter plot above. 34 of the population were not able to identify their monthly household expenditure. Majority of the population spent less than Ugx 500,000 described as 1 in the scatter plot, followed by between Ugx 500,000 to

Ugx 999,999 described by 2, then Ugx 1,000,000 to Ugx 1,500,000 which was the last. I was unable to find people that spent between Ugx 1,500,000 to Ugx 1,999,999 and also above Ugx 2,000,000.

5.2 SUMMARY OF FINDING ON OBJECTIVE ONE.

The first objective was to examine the impact of commodity price changes on rural household expenditure. The first step was to see if people noticed the changes and 100% of the respondents were able to but the challenge came with being able to take actions to mitigate the impact. So from the regression analysis to investigate the relationship between rural household expenditure (HE) and actions taken to mitigate the impact of commodity price changes (TA), the regression analysis produced a coefficient of 0.140 for TA, accompanied by a standard error of 0.182. The calculated t-statistic for TA was 0.77, yielding a p-value of 0.445. The p-value indicates that there exists no statistically significant association between actions taken to mitigate the impact of commodity price changes and rural household expenditure. This result is further supported by the 95% confidence interval for the TA coefficient, which spans from -0.227 to 0.507, encompassing zero. This interval reinforces the notion that variations in TA lack a substantial impact on rural household expenditure.

The constant term (`_cons`) within the regression yielded a value of 1.178, with a standard error of 0.292. The t-statistic calculated for the constant term was 4.04, accompanied by a p-value of 0.000, indicating the statistical significance of the constant term. This suggests that even in the absence of actions to mitigate commodity price changes ($TA = 0$), rural household expenditure (HE) maintains a base level of 1.178 units. Evaluation of the overall model fit was conducted through the F-statistic, resulting in a value of 0.59 and a corresponding p-value of 0.4454. The F-statistic's low value and associated p-value imply that the model does not possess statistical significance in explaining the variance in rural household expenditure solely based on actions taken to mitigate commodity price changes.

In conclusion, the regression analysis findings emphasize that actions taken to mitigate the impact of commodity price changes (TA) do not wield a substantial influence on rural household expenditure (HE). These outcomes underscore the presence of other influential factors not accounted for within this analysis, which play a more pivotal role in shaping rural household spending behaviors. This comprehensive understanding contributes to the broader

comprehension of the intricate dynamics surrounding commodity price changes and their intricate effects on the financial behaviors of rural households.

5.3 SUMMARY OF FINDING ON OBJECTIVE TWO.

The second objective was to examine the impact of household income on rural household expenditure. I first set out to find out the household income of the population. Out of the 80, 56 were able to tell their income level and the other 24 were not able. Most of the respondents had an income level less than Ugx 500,000 as described by 1 in the plot, followed by 20 people that were in the range of Ugx 500,000 to Ugx 999,999, then the range of Ugx 1,000,000 to Ugx 1,499,999 had 6 people, and the least were people with an income level between Ugx 1,500,000 to Ugx 1,999,999 and an income level above Ugx 2,000,000 that each registered 2 people.

Objective Two aimed to investigate the impact of household income on rural household expenditure, utilizing regression analysis to explore the relationship between household income (IL) and rural household expenditure (HE). The key findings from the regression analysis are presented below.

From the data in Table 2.3, the regression analysis yielded substantial insights into the relationship between household income and rural household expenditure. The coefficient for household income (IL) was computed as 0.458, and it was associated with a standard error of 0.052. The t-statistic for IL was found to be 8.84, resulting in a p-value of 0.000. The remarkably low p-value signifies strong statistical significance, indicating a substantial influence of household income on rural household expenditure. This implies that changes in household income are closely linked to variations in spending patterns. The constant term (`_cons`) in the regression model was determined to be 0.535, with a standard error of 0.114. The t-statistic for the constant term was calculated as 4.71, accompanied by a p-value of 0.000. This statistically significant constant term highlights that even when household income is zero, a baseline level of rural household expenditure (HE) persists.

The overall model fit was assessed using the F-statistic, yielding a value of 78.12 with a p-value of 0.000. This exceptionally low p-value underscores the high significance of the entire model in explaining the variance in rural household expenditure based on household income. The coefficient of determination (R-squared) was computed as 0.650, indicating that approximately

65% of the variability in rural household expenditure can be accounted for by variations in household income. This robust R-squared value underscores the substantial impact of income levels on shaping rural household spending behaviors.

In conclusion, the analysis underscores a significant and positive relationship between household income (IL) and rural household expenditure (HE). As household income increases, rural households tend to allocate more funds towards their expenditure. This finding reinforces the understanding that income is a pivotal driver in shaping spending behaviors within rural households. These findings have noteworthy implications for policymakers and practitioners seeking to enhance their comprehension of the dynamics of rural household expenditure, offering insights to develop strategies that support economic well-being at the household level.

5.4 SUMMARY OF FINDING ON OBJECTIVE THREE

The objective was to examine the impact of household size on rural household expenditure. I used a pie chart to show the different household sizes registered from all the participants in the research. The largest number had less than 5 members in the households with 35, then in the range of 6-10 with 29 people affirming this, followed by ranges 11-15 and 16-20 with 10 and 6 households meeting that criterion of size with the last being above 20 without anyone checking this box.

Drawing insights from Table 2.5, the regression analysis shed light on the connection between household size (HS) and rural household expenditure (HE). The coefficient for household size was determined to be -0.042, and it came with a standard error of 0.104. The t-statistic for HS was -0.40, yielding a p-value of 0.690. This p-value indicates that household size does not exhibit statistically significant association with rural household expenditure. In other words, the variations in household size do not consistently lead to changes in spending patterns. The constant term ($_cons$) in the regression model was computed as 1.467, accompanied by a standard error of 0.209. The t-statistic for the constant term was 7.01, and the p-value was 0.000. This statistically significant constant term underlines that even when there are no variations in household size (HS = 0), rural household expenditure (HE) maintains a baseline level of 1.467 units.

The model's overall fit was assessed using the F-statistic, resulting in a value of 0.16 with a p-value of 0.6897. The elevated p-value for the F-statistic indicates that the model lacks statistical significance in explaining the variance in rural household expenditure based on household size. The coefficient of determination (R-squared) was found to be 0.004, signifying that merely 0.4% of the variability in rural household expenditure can be attributed to changes in household size. This low R-squared value underscores the limited impact of household size on rural household spending behavior.

In conclusion, the regression analysis suggests that household size (HS) does not significantly influence rural household expenditure (HE). This finding contradicts the initial hypothesis that household size plays a substantial role in shaping spending behavior. It is plausible that other unaccounted factors have a more profound impact on rural household financial choices. These results contribute essential insights to the intricate web of variables affecting rural household expenditure dynamics, enhancing our comprehension of economic behavior within this context.

5.5 CONCLUSION

In summary, the comprehensive analysis of the regression models provides valuable insights into the relationships between commodity prices, household income, household size, and rural household expenditure. The findings both validate and disapprove the initial hypotheses. While an increase in commodity prices does not exhibit a statistically significant impact on rural household expenditure, household income is proven to be a significant factor influencing expenditure, aligning with the hypothesis. Conversely, the analysis disproves the notion that household size significantly affects rural household expenditure. These results contribute a nuanced understanding of the intricate interplay between economic variables and rural household spending patterns, highlighting the multifaceted dynamics shaping financial behaviors in this context.

5.6 KEY RECOMMENDATIONS

Based on the findings, the following are recommended but are not limited:

Enhance Income Generation Opportunities. Given the significant impact of household income on rural household expenditure, policymakers and development agencies should prioritize initiatives that stimulate income generation within rural communities. Strategies such as skill training,

vocational programs, and entrepreneurship support can empower households to diversify their income sources, thereby bolstering their capacity to allocate more funds towards expenditure.

Promote Financial Literacy and Planning. Recognizing that commodity price changes do not significantly influence rural household expenditure, there's a need to focus on financial literacy and planning. Implementing educational programs that enhance rural residents' understanding of budgeting, saving, and prudent financial management can help households better navigate economic fluctuations and optimize their expenditure decisions.

Tailored Interventions for Vulnerable Households. While household size was found to have a limited impact on rural household expenditure, it's crucial to target vulnerable households with specialized interventions. Identifying households facing economic hardships due to factors beyond household size, such as health crises or climatic events, and providing targeted support can mitigate the potential negative effects on expenditure patterns.

Comprehensive Data Collection and Analysis. To gain deeper insights into rural household financial behaviors, it's recommended to expand data collection efforts. Gathering information on other influential factors such as education levels, access to credit, and social support networks can provide a more comprehensive understanding of expenditure dynamics. This data can facilitate the development of more accurate models and strategies to improve rural household financial well-being.

These recommendations collectively aim to strengthen the economic resilience of rural households, empower them with the necessary skills and knowledge, and foster a supportive environment that enables them to make informed expenditure decisions despite the complexities of economic variables.

5.7 AREAS FOR FURTHER RESEARCH

1. **Temporal Analysis.** Conducting a longitudinal study over a more extended period could provide insights into how rural household expenditure patterns evolve over time in response to changing economic conditions, policy interventions, and socio-economic shifts.
2. **Qualitative Exploration.** Supplementing quantitative findings with qualitative research methods, such as in-depth interviews or focus group discussions, can offer a richer understanding

of the socio-cultural factors, perceptions, and behavioral dynamics that influence rural household expenditure decisions.

3. **Geographical Variation.** Investigate whether rural household expenditure patterns vary across different regions or geographic settings, considering factors like urban-rural gradients, agro-ecological conditions, and access to markets and services.

4. **Impact of Social Programs.** Explore the impact of government-led social welfare programs, such as cash transfer schemes or livelihood support initiatives, on rural household expenditure behavior. Assess how these programs interact with economic factors and influence expenditure decisions.

5. **Behavioral Economics Analysis.** Apply insights from behavioral economics to study how cognitive biases and decision-making heuristics shape rural household expenditure choices, potentially shedding light on the interplay between psychological factors and economic variables.

6. **Technology Adoption.** Investigate how the adoption of technology, such as mobile banking, digital payment platforms, or agricultural information services, impacts rural household expenditure behavior and financial management strategies.

7. **Gender Dynamics.** Analyze gender-specific roles and responsibilities within rural households and how they relate to expenditure decisions. This could uncover nuances in spending patterns and the extent to which economic decisions are influenced by gender dynamics.

8. **External Shocks.** Examine the resilience of rural household expenditure to external shocks like natural disasters, health pandemics, or economic crises, and how households adjust their spending behaviors in response to such events.

9. **Intergenerational Dynamics.** Study how intergenerational transfers, such as remittances or support from extended family members, influence rural household expenditure choices and financial strategies.

10. **Comparative Studies.** Conduct comparative studies across countries or regions with varying economic conditions, policy frameworks, and cultural contexts to identify commonalities and differences in rural household expenditure behaviors.

Each of these research avenues holds the potential to contribute valuable insights to the existing body of knowledge on rural household expenditure patterns, enhancing our understanding of the complex interplay of economic, social, and behavioral factors in shaping financial decisions.

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APPENDENCES

APPENDIX A: QUESTIONNAIRE QUESTIONNAIRE.

Greetings, I am Ochaya Timothy Cole, a student pursuing a Bachelor's degree in Science in Economics and Statistics at Uganda Christian University. I am carrying out a study on "Impact of commodity price changes on rural household expenditure." This questionnaire is part of the study and the responses obtained will be purely confidential and for study purposes only.

SECTION A: BACKGROUND INFORMATION OF THE RESPONDENT

Please, for items here, please mark the item that you feel is most applicable to you with either an (X) or (√).

GENDER

Male Female

AGE

20 – 25	<input type="checkbox"/>	41 – 45	<input type="checkbox"/>
26 – 30	<input type="checkbox"/>	46 – 50	<input type="checkbox"/>
31 – 35	<input type="checkbox"/>	51 – 55	<input type="checkbox"/>
36 – 40	<input type="checkbox"/>	56 +	<input type="checkbox"/>

APPENDIX I:

Are you aware of your household expenditure per month?

Yes No

If yes, kindly identify it below.

< UGX500,000	<input type="checkbox"/>	UGX 1,500,000 to UGX 1,999,999	<input type="checkbox"/>
UGX 500,000 to UGX 999,999	<input type="checkbox"/>	UGX 2,000,000 +	<input type="checkbox"/>
UGX 1,000,000 to UGX 1,499,999	<input type="checkbox"/>		

APPENDIX II: Statements on impact of commodity price changes.

Please, for items here, please mark the item that you feel is most applicable to you with either an (X) or (√).

Have you noticed any changes in the prices of commodities that you regularly purchase?

Yes No

If yes, have you taken actions to mitigate the impact of the changes in commodity prices on your household expenditure?

Yes No

APPENDIX III:

For these, circle what is more appropriate for you.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
1	2	3	4	5

Statements on impact of commodity price changes.	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Changes in commodity prices has significantly affected my household expenditure.	1	2	3	4	5
I have had to make significant changes to my household budget due to changes in commodity prices.	1	2	3	4	5
Changes in commodity prices have affected my ability to pay for essential expenses such as	1	2	3	4	5

housing, utilities and healthcare.					
I have had to reduce spending on essential items due to changes in commodity prices.	1	2	3	4	5
I have had to reduce spending on non-essential items due to changes in commodity prices.	1	2	3	4	5
I have had to borrow money or use savings due to changes in commodity prices.	1	2	3	4	5
I have had to increase my income through additional work or selling assets due to changes in commodity prices.	1	2	3	4	5

SECTION B, APPENDIX I: Statements on household income.

Please, for items here, please mark the item that you feel is most applicable to you with either an (X) or (√).

Are you aware of your income level?

Yes No

If yes, kindly identify it below.

< UGX500,000 UGX 1,500,000 to UGX 1,999,999
 UGX 500,000 to UGX 999,999 UGX 2,000,000 +
 UGX 1,000,000 to UGX 1,499,999

APPENDIX II:

Statements on household	Strongly	Agree	Neither	Disagree	Strongly
--------------------------------	-----------------	--------------	----------------	-----------------	-----------------

income.	Agree		agree nor disagree		Disagree
My household income significantly affects my household expenditure.	1	2	3	4	5
Changes in my household income have significantly affected my household expenditure.	1	2	3	4	5
My household income affects my ability to pay for essential expenses such as housing, utilities and healthcare.	1	2	3	4	5
An increase in household income would allow me spend more on non-essential items.	1	2	3	4	5
An increase in household income would allow me spend more on essential items.	1	2	3	4	5

SECTION C, APPENDIX I: Statements on household size.

Are you aware of your household size?

Yes

No

If yes, kindly identify.

< 5 16 – 20

6 – 10 20 +

**APPENDIX II:**

Statements on household size.	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
My household size significantly affects my household expenditure.	1	2	3	4	5
An increase in size of my household would significantly increase my household expenditure.	1	2	3	4	5
A decrease in size of my household would significantly decrease my household expenditure.	1	2	3	4	5
The size of my household affects my ability to pay for essential expenses such as housing, utilities and healthcare.	1	2	3	4	5
An increase in size of my household would require me to spend more on essential items.	1	2	3	4	5

SECTION D:

How have you adapted to the changes in commodity prices in terms of managing your household expenditure?

Can you describe how changes in commodity prices have affected your household expenditure?

How does your household income affect the way you manage your household expenditure?

Have there been any changes in your household size that have significantly affected your household expenditure? Explain.

Can you provide a time where changes in commodity price changes heavily affected your household expenditure?

SEX	AGE	AHE	HE	NC	TA	SIC1	SIC2	SIC3	SIC4	SIC5	SIC6	SIC7	AIL	IL	SHI1	SHI2	SHI3	SHI4	SHI5	AHS	HS	SHS1	SHS2	SHS3	SHS4	SHS5
1	4	2		1	2	2	2	1	1	2	4	2	2		2	2	5	3	2	1	1	2	2	1	1	2
1	3	2		1	2	2	2	1	1	2	4	1	2		2	2	5	3	2	1	4	2	2	1	1	1
1	6	2		1	2	2	2	1	1	2	4	1	2		2	2	1	1	1	1	1	2	1	2	1	2
1	8	1	3	1	2	1	1	1	2	1	4	1	1	5	2	2	5	3	2	1	1	2	2	1	1	1

APPENDIX B: SUMMARY OF CODED DATA

1	3	2		1	2	1	1	2	2	1	4	2	2		1	1	5	3	2	1	1	2	2	2	2	2
2	7	1	2	1	2	3	3	3	2	3	4	2	1	3	3	3	3	3	2	1	3	3	2	2	3	2
1	4	1	2	1	2	2	1	2	2	3	4	2	1	2	2	2	3	3	2	1	2	2	2	2	3	2
2	3	1	1	1	2	1	1	2	1	1	2	2	1	1	1	1	2	4	1	1	1	1	1	2	1	1
1	5	1	1	1	1	2	1	2	2	3	4	2	1	2	2	2	3	3	2	1	3	2	2	2	3	2
1	5	2		1	1	2	1	2	2	3	4	2	1	1	2	2	3	3	2	1	2	2	2	3	2	2
2	6	2		1	2	1	1	2	2	3	4	3	1	2	2	2	3	3	2	1	2	2	2	3	3	2
2	3	1	1	1	2	2	2	2	3	3	4	2	1	1	2	2	3	3	2	1	1	2	2	3	3	2
2	2	2		1	2	2	1	2	2	1	2	2	1	1	2	2	2	3	1	1	1	2	1	2	2	1
1	2	1	3	1	2	3	3	4	4	2	4	3	1	5	3	3	4	3	2	1	3	3	2	2	3	2
1	5	2		1	2	2	3	3	3	2	4	2	1	2	3	3	4	3	2	1	1	3	1	3	4	2
2	1	1	1	1	2	2	1	2	2	1	2	1	2		2	2	4	3	1	1	1	2	2	3	3	2
1	8	1	2	1	2	2	1	3	2	3	4	4	1	2	2	3	4	3	2	1	2	2	2	2	2	2
1	2	1	1	1	2	2	2	2	1	3	2	2	1	1	2	2	2	3	1	1	1	3	2	3	2	1
1	3	1		1	1	2	2	5	4	2	2	2	1	2	2	2	4	2	1	3	1	2	2	4	2	
1	6	2		1	1	1	1	2	5	2	2	2	2		2	2	3	2	2	1	4	2	2	1	2	2
1	4	2		1	1	1	1	2	2	1	4	2	2		2	2	2	1	1	1	3	2	1	2	4	2
1	3	2		1	2	2	2	2	2	1	4	2	2		2	2	2	3	2	1	2	2	2	1	2	2
1	4	1	1	1	1	2	2	3	4	2	4	4	2		2	2	2	2	2	1	3	2	2	2	2	2
1	5	1	1	1	1	2	2	2	4	2	4	4	1	3	2	2	2	4	2	1	2	2	2	2	4	2
1	6	2		1	1	2	1	2	2	1	4	4	1	2	2	2	2	2	2	1	4	2	2	3	2	2
1	3	2		1	1	1	1	2	4	2	4	1	1	2	2	2	4	2	1	1	2	2	2	4	1	1
2	2	2		1	1	1	1	2	2	1	4	2	2		2	1	2	5	1	1	2	2	1	2	2	1
1	3	2		1	1	1	1	2	4	1	2	2	2		2	2	2	1	1	1	2	1	1	1	3	1
2	3	1	1	1	1	1	1	2	4	1	3	4	1	1	2	2	2	2	1	1	2	1	1	2	1	2
2	3	2		1	2	1	1	2	4	1	2	4	2		2	1	1	5	1	1	1	2	2	1	2	2
1	1	2		1	1	1	2	1	2	1	4	2	1	1	1	2	2	1	2	1	1	2	1	2	1	1
1	3	2		1	2	1	1	2	2	3	1	2	1	1	2	1	2	3	1	1	1	1	3	2	3	2
2	4	1	1	1	2	2	2	1	1	2	3	2	1	1	2	1	2	3	2	1	1	3	1	2	3	2
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1st Aug 2023

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Name: OCHAYA TIMOTHY COLE Reg. No. 21B34/244

A bachelor's student who is seeking permission from your office to collect data for his/her dissertation titled

"IMPACT OF COMMODITY PRICE CHANGES ON RURAL HOUSEHOLD EXPENDITURE"

We shall be grateful if you could render assistance to him/her in collecting the necessary data for his/her dissertation

The Uganda Christian University School of Business thanks you in advance

Mukisa Simon Peter
Research coordinator