Research Article

An Analysis of Household Consumption Expenditure Behavior In case of Areka Town, Wolaita Zone

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ABSTRACT

Household consumption expenditure consists of the expenditure, including imputed expenditure, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant. This study aims to investigate an analysis of household consumption expenditure behavior in case of Areka town, Wolaita zone. The results based on the data collected from 375 households of the town using simple random sampling technique. The findings show that an increase in income, more availability of occupation, more educated household heads, and access to credit have significant positive effect on the consumption of normal goods, while female headed household, access to credit, more educated household, and an increased income, has a significant lower to the consumption for Giffen goods. Monitoring price changes, target income growth initiatives, encourage accessible credit options for households to support consumption, promote education and occupational attainment, tailoring policies and interventions effectively target and support households, and make them better-informed decider about their consumption behavior, which can lead to more efficient use of their resources and improved well-being. Higher levels of credit access positively correlate with the likelihood of households falling into the category of normal goods. This suggests that easier access to credit might stimulate spending on goods within the local economy. An increase in income is associated with a higher likelihood of falling into the normal goods. Therefore, the findings call zonal and woreda's level education office, financial Program, municipalities and local economic sectors so as to provide valuable information to households on factors that influence their consumption behavior, such as changes in prices perceived, income, and availability of credit access

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1. INTRODUCTION

1.1. Background of the Study

The idea of consumption is fundamental to the functioning of the entire economy, as everyone knows. Household consumption expenditure consists of the expenditure, including imputed expenditure, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant. This is known as household final consumption expenditure. In general, household consumption expenditure behavior is seen as the ultimate goal of economic activity, and the amount of consumption per person is frequently seen as a key indicator of the productive success of an economy (Bonsu & Muzindutsi, 2017). Consumption expenditure or consumption pattern at a level of disposable income is the consumption function. This function is an economic formula that represents the functional relationship between total consumption and gross national income. This concept illustrates the relationship between the amounts of consumption at various levels of income. This tendency to consume in a macro economy signifies the desired level of consumption. It is called the marginal propensity to consume (MPC), a metric that quantifies induced consumption the concept that the increase in personal consumer spending (consumption) occurs with an increase in disposable income. The better person's income means more saving and less suffering. The proportion of GDP that comes from household consumption varies across countries, with the figures provided indicating that household consumption makes up a significant portion of GDP in many developed countries.

Household consumption has contributed primarily to Gross Domestic Product (GDP) in virtually every economy across West Africa. In Nigeria household consumption has contributed 59% to GDP on average between 1990 and 2017 based data of World Development Indicators (Iheonu & Nwachukwu, 2020) In Senegal, household consumption contributed 78% to GDP over the same period. In other West African countries like Burkina Faso, Mali and Togo, household consumption has contributed 67.3%, 76.4% and 79.3% to GDP respectively. This reveals the significant contribution consumption play in these West African economies.

Increasing family consumption is a good method to keep economic growth going, claim Liu *et al.* (2018). According to Keho's (2019) analysis, household consumption expenditures are crucial in determining welfare and the dynamic impact of economic shocks. According to this theory put forth by Keho (2019), knowing what influences household spending can reveal crucial information that can inform policies aimed at reducing poverty and promoting economic expansion. Theoretically the foundation for contemporary theories of consumption was established by Keynes (1936). Both an individual's and society's consumption are influenced by income level, according to Keynes. But (Duesenberry, 1948) questioned the central tenet of the Keynesian theory of consumption, which held that each person's consumption is independent. The Relative Income Hypothesis (Duesenberry, 1948) highlights the interdependence of individual spending habits. According to the hypothesis the relative volume of a person's consumption in relation to society determines how satisfied they are with that

level of consumption. Palley (2008) states that the Life Cycle Hypothesis (LCH) and the Permanent Income Hypothesis (PIH) by Modigliani, F., & Brumberg (1954) superseded the theory. Friedman (1957) also agreed with this assertion. The role of social dependency in consumption was demonstrated by both of these hypotheses. According to the LCH, taking on debt or selling assets early and late in life when income levels are low and saving during one's prime working years when income is high help an individual sustain a particular consumption level throughout their lifespan.

2. LITERATURE REVIEW

According to Donahue (2021) on the factors affecting consumption behavior using the literature review method explain the goal of consumption behavior is to obtain the highest possible satisfaction and to achieve the level of prosperity in the sense that various kinds of needs are met. Purchase decisions for consumption are quite diverse so the types of consumption also have many variations (Gajjar, 2013). Many factors influence a person's consumption behavior, both from within himself and from outside himself or his environment (Donahue *et al.*, 2021) As per Bui *et al.*, (2022) in the study of building a hierarchical sustainable consumption behavior model in qualitative information: consumer behavior influences social impacts and environmental responses by using the sustainable consumption behavior (SCB) model shows that social impact and consumer behavior have a significant role in driving sustainable consumption behavior, representing an individual's motivation in planning or decision making when performing a specific sustainable behavior.

As per the study conducted by Aziz *et al.*, (2018) tried to prove that consumption patterns are associated with the number of family members, the fewer members of the family, the fewer needs that must be met and the role of education can determine consumption. This research studies the relationship between the role of education in consumption patterns and household members with the impact to make a saving.

Minangsari (2020) tried to prove in the study inflation's influence on household consumption in south Sumatra, that household consumption is influenced by several factors one of which is the price level. The price level considers the real consumption as a function of real income. Therefore, when nominal incomes rise and the same proportion increases the price level then it will not change the real consumption society. The study's assertion that real consumption was a function of real income is also consistent with previous research on the relationship between income and consumption behavior.

As the study of Ekon (2020) on the economic determinants of household consumption expenditures in west Africa: a case study of Nigeria and Ghana using the fixed effects least squares dummy variable panel regression analysis model observed that gross national income and inflation rate exerted a positive and significant effect on household consumption expenditure, while interest rate and savings exerted a negative and significant effect on household consumption expenditure. The positive and significant effect of income on consumption expenditure supports the Keynesian position while the negative effect of interest rate on consumption upheld the inter-temporal

substitution effect.

A panel study of income dynamics-based analysis conducted by Patrick *et al.*, (2010) of a dynamic model of housing demand: estimation and policy implications by using the dynamic structural model revealed that consumer behavior responds to house price and income declines as well as tightening credit. In this regard, they find households respond to reducing non-housing consumption and reducing wealth because they wish to avoid losing their home and the associated adjustment costs According to Zehiwot *et al.*, (2019) the determinants of household consumption expenditure in Debremarkos town Amhara region, Ethiopia, using the multiple linear regression model explore that household consumption expenditure is the desired amount incurred to meet their basic needs such as food clothing, housing, transport to fulfill their day to day life. A household's decision on how much to consume or save is a microeconomic question as it deals with the individual units of the economy.

A paper by Tadesse (2009) investigates the phenomenon of changes in consumption expenditure in urban Ethiopia using two rounds (1994 and 2004) of household survey data from the Ethiopian urban household survey of ten food categories. The study employed the Working-Lesser expenditure share model to estimate the income elasticity of demand and determinants of urban household consumption for Addis Ababa city and six major towns.

3. METHODOLOGY

3.1. Description of the Study Area

Areka is one of the towns located in the Wolaita Zone of the Southern Ethiopia. The town was established in 1963. In 1978 the town obtained legal status from Sidama province. The town had its master plan since 1984 which contributed significantly to the planned growth of the town. Due to the absence of enlightened municipal leadership and financialconstraints, insignificant development was experienced until 1991.
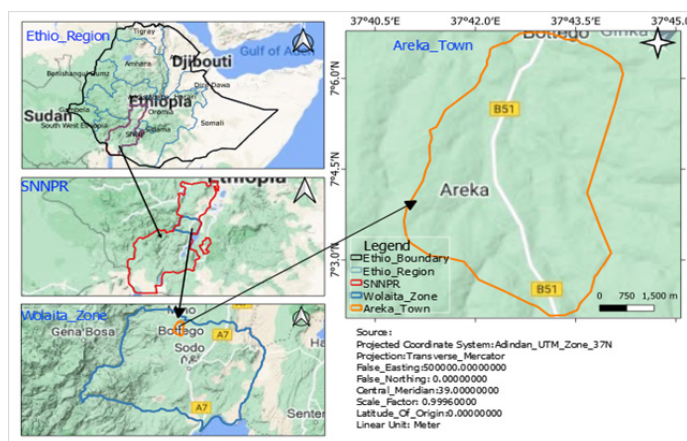

Figure 1. Map of the study area
Source: Extracted from Ethio - GIS by the Author, 2022

3.2. Modeling using the multinomial logistic regression model

The Multinomial logit model is a choice model that is devised from utility maximization theories. The assumption made is that consumption choses of goods as a result of their preferences which range from production for consumption. The model is a very useful method in analyzing data which has more than two responses and uses the logit link (Greene, 2000; Reddington *et al.*, 2000). Similar to the binary logistic regression model, it uses maximum likelihood estimation to evaluate the probability of the response variable (Madhu *et al.*, 2014). In addition, the model is easily interpretable since the effect of the predictor variable is usually explained in terms of the odds ratio. In this study, the multinomial logit model was used to determine the likelihood of household consumption expenditure behavior in three categories of goods.

$$p(Y = j|X) = \frac{e^{zj}}{1 + e^{\Sigma z(x)}} \qquad (3.1)$$

Where Y is a nominal dependent variable used in this study with 3 categories of behavior of goods? The response variable (Y_i) is categorical. The response variable (Y_i) takes the value 1 for normal goods, 2 for inferior goods and 3 for Giffen goods.

$$Y_i = \begin{cases} 1 & \text{Normal goods} \\ 2 & \text{Inferior goods} \\ 3 & \text{Giffen goods} \end{cases} \qquad (3.2)$$

In which, dependent variable, Y_i is a nominal character with 3 categories of goods to with $Y_i=0$ as the reference. The Multinomial regression model estimates two logit equations, two log odds of each category. Multinomial regression estimates two multiple linear regression functions defined as:

$$\text{Logit } (y = k) = \log\left\{\frac{p(Y = k|X)}{p(Y = 0|X)}\right\} \qquad (3.3)$$

In which, Y_j is dependent variable and the options js are (j=1,2); X is the vector of variables measuring household consumption expenditure behavior across goods. β_k (k=0,m) are the regression coefficients, β_{k0} is the intercept from the linear regression equation; β_{ki} (k=0,m) is the regression coefficient associated with the mth explanatory variable and the kth outcome. The antilog of an estimated regression coefficient exp (β_i), produces an odds ratio.

According to equation 3.2, the researcher calculates predicted probabilities for each of outcome levels using the fitted functions.

$$p(Y = 0|X) \frac{1}{e^{z1(x)+z2(x)+z3(x)}} \text{ -----------------------} (3.4)$$

$$p(Y = 1|X) \frac{1}{e^{z1(x)+z2(x)+z3(x)}} \text{ -----------------------} (3.5)$$

$$p(Y = 2|X) \frac{1}{e^{z1(x)+z2(x)+z3(x)}} \text{ -----------------------} (3.6)$$

$$Zk^{(x)} = \beta_0 + \beta_{1Fs} + \beta_{2Educ} + \beta_{3Age} + \beta_{4Ssh} + \beta_{5Occup} + \beta_{6Dep} + \beta_{7Sex} + \beta_{8P} + \beta_{9Inc} +$$
$$\beta_{10Inv} + \beta_{11Credit} + \varepsilon \text{ --} 3.7$$

4. RESULTS AND DISCUSSION

4.1. Descriptive Analysis

4.1.1. Sex of the Household Head and HHCEB

Among households in Table 1, 37 households with female heads exhibit characteristics consistent with normal goods, while 109 households with male heads fall into this category. This suggests that a larger proportion (nearly 75%) of households with male heads tend to purchase goods classified as normal compared to those with female heads as possibilities. For households categorized under inferior goods, there's a somewhat more balanced distribution, with 46.59% of households with female heads and 53.41% of households with male heads displaying consumption behavior aligned with inferior goods. This implies a relatively similar inclination towards inferior goods, irrespective of the sex of the household head. Interestingly, a higher percentage (around 74%) of households with female heads exhibit behavior classified as Giffen goods, compared to around 26% of households with male heads. This suggests a stronger association between Giffen goods consumption and households headed by females. The Pearson chi-square test indicates a significant relationship between HHCEB classification and the sex of the household head, with a p-value of 0.000. This implies strong evidence to reject the null hypothesis that there is no association between these variables.

Table 1: Household consumption expenditure and sex of household head

Household consumption expenditure behavior to goods	Sex of household head						Pearson Chi square (X^2) and p value
	Male		Female		Total		X^2= 39.8205 P= 0.000
	Freq.	%	Freq.	%	Freq.	%	
Normal goods	109	50.2	37	23.4	146	38.9	
Inferior goods	94	43.3	82	51.9	176	46.9	
Giffen goods	14	6.5	39	24.7	53	14.1	
Total	217	100	158	100.0	375	100.0	

Source: own survey. 2023

4.1.2. Perceived Price of goods and Household consumption expenditure

Figure 2, shows the distribution of household consumption expenditure behavior toward goods and services by the perceived changes in the price of goods and services in a sample of 375 households. Among households exhibiting behavior consistent with normal goods, the majority (approximately 75%) reported increased prices of goods. This aligns with the typical behavior of normal goods, where demand decreases as prices increase, suggesting an inverse relationship between price and consumption for this category. While a majority (around 57%) experienced increased prices, a notable proportion (around 40%) reported prices remaining the same. This mixed response suggests that price changes might not have a uniform impact on consumption behaviors classified as Giffen goods. The Pearson chi-square test indicates a significant relationship between HHCEB classification and the change in the price of goods and services, with a p-value of 0.003. This implies evidence to reject the null hypothesis that there is no association between these variables.
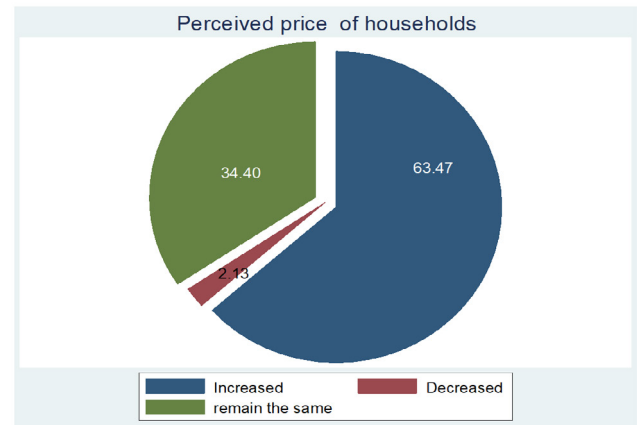

Figure 2. Perceived price

4.2. Econometric Results Analysis

The reference category for the dependent variable is inferior goods because it has a large sample size. The coefficients of the independent variables represent the change in the log-odds of the outcome variable associated with a one-unit change in the independent variable, holding all other variables constant relative to the inferior variable. The output shows the results of a multinomial logistic regression analysis. The model aims to predict the category of HHCEB (household consumption expenditure behavior) based on independent variables such as sex, age, education, saving, income, occupation, price, family size, investment, credit, dependency, and marital status. The log-likelihood of the model is -101.88, which indicates that the model is a good fit for the data. The pseudo-R-squared value of 0.7280 suggests that the model explains a high amount of the variation in household consumption expenditure.

The Stata result from above table 2 of a multinomial logistic regression analysis investigates the relationship between household consumption expenditure behavior to goods (HHCEB) and a set of independent variables that include credit, savings, investment, education, occupation, perceived price, sex, age, marital status, family size, presence of dependents, and income.

4.2.1. Credit access:
Credit has a positive coefficient, indicating that an increase in credit usage is associated with a higher likelihood of normal goods consumption behavior. The coefficient of credit is positive and significant ($p<0.05$), indicating that households with increased access to credit tend to have higher consumption levels, particularly for normal goods. This supports the positive coefficient observed in the analysis, indicating that higher credit usage correlates with greater spending on normal goods. For normal goods, a one-unit increase in credit is associated with an increase of 3.58 in the log-odds of choosing normal goods over inferior goods, holding all other variables constant. Higher levels of credit access positively correlate with the likelihood of households falling into the category of Normal goods. This suggests that easier access to credit might stimulate spending on goods and services within the local economy. The marginal effect of credit is positive and statistically significant, indicating that a one-unit increase in credit is associated with an increase of 0.6275 in the predicted probability of choosing normal goods over inferior goods, holding all other variables constant.

Table 2. Multinomial logistic regression of the HHCEB

Variables	Coeff	SE	P>|z|	RF	Coeff	SE	P>|z|
	Normal good			Inferior	Giffen good		
Credit	3.583348	1.174879	0.002		-3.40075	.8697216	0.000
Save	-4.57959	1.63702	0.005		.316479	.5051891	0.531
Invest	2.173857	1.333521	0.103		.017670	.4889321	0.971
_Ieducation_2	-.764871	2.110727	0.717		-2.25145	.8512692	0.008
_Ieducation_3	3.343809	2.161268	0.122		-4.73293	1.484815	0.001
_Ieducation_4	2.598701	2.082429	0.212		-2.30137	1.123495	0.041
_Ioccup_2	-.639314	1.790257	0.721		-13.5905	1183.966	0.991
_Ioccup_3	2.44453	1.213751	0.044		-1.39862	1.036738	0.177
_IPrice_2	-2.6049	15.79843	0.869		2.040409	1.384026	0.140
_IPrice_3	-2.53489	1.122718	0.024		.3536214	.4507188	0.433
Sex	.4814822	.870336	0.580		-.934670	.4440855	0.035
Age	-.084107	.0511621	0.100		.0178917	.0209748	0.394
FamSize	-.371982	.3083381	0.228		-.012056	.1587005	0.939
Mst	.367621	.3678399	0.318		.1515892	.2062911	0.462
DepR	-2.9858	1.096734	0.006		.9334628	.4652677	0.045
Income	.001645	.0003889	0.000		-.000674	.0001602	0.000

Dependent variable	HHCEB
Base category	Inferior goods
Number of observations	375
Log likelihood	-101.88152
Prob> Chi2	0.0000
Pseudo R2	0.7280

Source: own survey, 2023   Note: RF Reference Category

4.2.2. Saving status of household head: Save has a negative coefficient, suggesting that households with a higher inclination towards saving are less likely to exhibit normal goods consumption behavior. It is similar with the study conducted (Enbelye *et al.*, 2020) saving amount is negatively related with consumption. A negative savings rate indicates that a household spends more than it earns as regular income and finances some of its expenditure through credit or through gains from the sale of assets or by running down cash reserves. Generally, the life cycle model suggests that individuals save during their working years or before retirement, and deplete it after they retire, using their savings to spend for consumption, especially on health care, over the remainder of their lives, Modigliani (1986). The saving status of the households had negative impact on the Household Consumption Expenditures in Amhara region of Ethiopia, (Zehiwot *et al.*, 2019). The consumer does not inherit any assets and his net assets are the result of his own savings. His current savings result in future consumption that depends on the total resources available to him during his lifetime, and given the life span of an individual, his consumption is proportional to these resources.

4.2.3. Perceived price of goods: Regarding price, remain unchanged price possibilities have a negative coefficient, suggesting that higher prices are associated with a lower likelihood of normal goods consumption as it compared with base category of increasing price. The result is in consonant

with the study of (Seifert *et al.*, 2021). A change in the price of a good from that prevailing in a prior household equilibrium upset this order. There is no reason in the theory the researcher assume to a change in price is noted quickly; it may take some time, before households notice the price change, and the lag may be particularly long for households that are not already employing that good in their regular activities. As the price of goods and services increases, households in Areka town tend to be less likely to be categorized as normal goods consumers. This suggests that higher prices may influence households to potentially reduce their consumption of these normal goods and services.

4.2.4. The level of income that household head obtains from different source: The coefficient of income is positive and significant (p<0.001), indicating that higher income is associated with a higher probability of household consumption expenditure on normal goods, this income is from different source like remittance and remittances significantly reduce household consumption instability. The positive and significant effect of income on consumption expenditure supports the Keynesian position (Ekong *et al.*, 2020) acknowledges purchasing more of goods when income grows, when they conduct survey in Nigeria and Ghana.

4.2.5. Age of the household heads: The negative coefficient of age in the normal goods categories indicates that older households are less likely to consume normal goods, holding all other variables constant. In other words, the probability of a household belonging to the normal goods category decreases with increasing age.

4.2.6. Education level of the household head: Among the education categories, secondary level and college have negative coefficients, suggesting that higher education levels are associated with a lower likelihood of Giffen goods consumption relative to no formal education status. Exploring the relationship between education levels and consumption behaviors found that higher education levels often correlate with more informed decision-making, including more rational spending choices. Higher-educated households may exhibit reduced tendencies towards Giffen goods consumption, aligning with the negative coefficients observed for secondary and college education levels in the analysis.

5. CONCLUSIONS

Since findings have covered both descriptive and econometric analysis using Stata software, according to the results, the descriptive analysis of primary activity describes that of the 375 households included in the analysis, 176 (46.93%) spent their consumption expenditure on inferior goods, while 146 (38.93%) households spent their consumption expenditure on normal goods, and 53 (14.3%) spent their consumption expenditure on Giffen goods. The descriptive analysis shows that most of the town's households spend their consumption expenditure on inferior goods. The multinomial logistic regression model shows that credit, education, occupation, price, and income are associated with the probability of choosing normal goods relative to inferior goods, while credit, occupation, and income are associated with the probability of choosing Giffen goods

relative to inferior goods. The results suggest that education and occupational attainment are positively associated with the probability of choosing normal goods over inferior goods.

An increase in the price of goods can affect household consumption behavior by changing the relative prices of different goods and altering the purchasing power of households. The results indicate that price is negatively associated with the probability of choosing normal goods over inferior goods. As the price of goods and services increases, households in Areka town tend to be less likely to be categorized as normal goods consumers. This suggests that higher prices may influence households to potentially reduce their consumption of these normal goods and services. Higher levels of credit access positively correlate with the likelihood of households falling into the category of Normal goods. This suggests that easier access to credit might stimulate spending on goods and services within the local economy.

 An increase in income is associated with a higher likelihood of falling into the normal goods. This might suggest that households with higher incomes tend to spend more on goods and services, potentially contributing to better standards of living or increased consumption within the town. As expected, income is one of the core determinants of consumption especially under the Keynesian framework. A rise in income is expected to culminate to a rise in aggregate consumption. In line with this finding, Ezeji and Ajudua (2015) found a positive relationship between consumption expenditure and income.

6. RECOMMENDATIONS

Based on the results, the researcher recommends promoting household consumption behavior for normal and Giffen goods in the following ways:

• Encourage accessible credit options for households to support consumption. Therefore, Woreda's institution could design strategies to increase credit accessibility and income for households. This could be accomplished through initiatives such as providing microfinance loans and improving financial literacy programs.

• Target income-growth initiatives to boost consumption of normal goods. Policies aimed at income redistribution and financial empowerment could positively impact consumption patterns.

• Promote education and occupational attainment: Zonal and woreda's level education office could design policies aimed at promoting education and occupational attainment, especially among marginalized households.

• Financial Programs should develop initiatives to promote prudent saving habits among households to ensure financial stability and resilience. Develop strategies to encourage savings without compromising consumer spending. This could be achieved through initiatives such as tax incentives for saving, financial education programs, and the provision of safe and affordable savings instruments.

• Municipalities and local economic sectors should conduct local market assessments, collect data on price changes, and monitor inflation within their jurisdictions and Crowdsourcing platforms or apps can gather data from local consumers, providing real-time information on prices.

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