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Household Consumption Expenditure Determinants Across Poverty Subgroups in Sub-Sahara Africa: Evidence from the Ghanaian Living Standard Survey

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ABSTRACT

This study uses data from the Ghana Living Standards Survey 2016/2017 to examine household consumption variations across different poverty subgroups. Non-poor households display significantly higher expenditures than poor and extremely poor counterparts. Contributing factors include older married male heads, larger family sizes, and rural locations with limited education. Oaxaca-Blinder decomposition highlights characteristic effects in consumption disparities. While endorsing fertility reduction policies, caution is urged against extremist approaches that may worsen poverty since the extremely poor depend on household labor. Recognizing the importance of location and employment sectors is crucial for targeted economic development in both urban and rural areas.

KEYWORDS

Consumption expenditure; Ghana; poverty; well-being

Introduction

Household expenditure on durable products (e.g., cars, washing machines, food, etc.) and fees and payments to the government for licenses and permits have gained prominence over the past decade (Bonsu et al., 2017; Eika et al., 2020). The Organization for Economic Co-operation and Development (OECD) highlighted that household consumption expenditure constitutes about 60% of the gross domestic product (GDP) in most countries around the world (OECD, 2009). Recent studies resonate with the findings of the OECD by arguing that household consumption is an inevitable force behind

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the production of goods and services since the summation of household consumption (aggregate consumption) is a crucial determinant of aggregate output (Ezeji & Ajudua, 2015; Rahayu et al., 2021; Salo et al., 2021).

Flagship from other developments holds that consumption determines aggregate savings,¹ and since aggregate savings flow through the financial system to create the national supply of capital, changes or shocks in consumption directly impact savings, employment and the long-term productive capacity of the entire economy (Crawley & Kuchler, 2023). These arguments connect with the Keynesian school of thought that attributed the 1929–1939 great economic depression to demand deficiency leading to production decline, increased unemployment, and a downward spiral in economic activity (Keynes, 1936). Hence, unbundling the dynamics of household consumption expenditure and their determinant is imperative for tailored well-being improvement, economic growth and development policy framework. While there seems to be convergence in the crucial role of household consumption expenditure and its trickle-down effects on global and national economic activities, parallels exist in examining the factors determining household consumption expenditure.

The scholarly divergence dates back to James Duesenberry, who proposed in his relative income hypothesis theory that individuals' consumption is influenced not only by their absolute income level but also by their income relative to others in society (Bisset & Tenaw, 2022; McCormick, 2018). The theory implies that households will always “keep up with the Joneses” in their consumption decisions irrespective of income, poverty status or characteristics. Although Ando and Modigliani, at the beginning of the 1950s, agreed that household consumption expenditure is not solely based on current income, they argued that the consumption expenditure of households rather based on individuals expectations of income over their whole life cycle (Ando & Modigliani, 1963; Beblo & Schreiber, 2022). Later, Milton Friedman, in his Permanent Income Hypothesis, indicated that individuals base their consumption decisions on their long-term average income rather than their current income (Friedman, 1977; Oyarzo & Paredes, 2023). The argument suggests that people aim to smooth their consumption over their lifetime by adjusting their saving and spending patterns. These, among many other arguments, have hatched several recent scientific debates on the determinants of household consumption expenditure.

A study conducted in Asia using data from 1991–2015 asserts that the population growth and the growing middle class of the sub-region are significant drivers for consumption expenditure, thus propelling economic growth in the region (Arapova, 2018). Using the Bangladesh Household Income Expenditure Survey, Hossain and Al-Amin (2019) noted that high per capita income, education, family size, gender and lower dependency ratio significantly derive consumption expenditure of

households in Bangladesh. A similar study comprising Vietnam, Philippines, Indonesia, Thailand and Cambodia from 2006–2014 also found that changes in household income, education and household size influence household consumption expenditure (Nguyen, 2020). With household consumption doubling as a proxy for welfare and poverty indicators, the study argued that poverty alleviation policies should focus on educational attainment and fertility reduction in these countries.

Related studies in Africa using the multiple linear regression model also pointed to disposable income and family size as direct determinants of consumption, with savings negatively related to consumption in Ethiopia (Hone & Marisennayya, 2019). Using the World Bank data spanning 1999–2018, Ekong & Effiong (2020) found that while gross national income and inflation rate exerted a positive and significant effect on household consumption expenditure, interest rate and savings exerted a negative and significant effect on household consumption expenditure in Nigeria and Ghana. Similarly, a cross-sectional data study of 1400 randomly selected households in Nigeria and Ghana found that household demographics such as age, gender, family structure and education significantly determine household expenditure (Mignouna et al., 2015).

This indicates that determining the factors contributing to household consumption expenditure represents an unsettling and ongoing debate niche. However, a joint scientific gap exists in this field as literature over the years has focused on examining the determinants of consumption expenditure for the entire population without considering the poverty subgroups of the population. That is, while the consumption expenditure of households within the same poverty subgroup (e.g. extremely poor) may be identical due to similar income, lifetime expectation, economic activity or influences from social relations, it may completely differ when compared with households in other poverty subgroups (non-poor or extremely poor). It, therefore, means that different factors or characteristics may account for differences in household consumption expenditure across different poverty subgroups of the same population. Hence, substantiating this glaring scientific lacuna and further decomposing the expenditure gap into aspects explained by the characteristic effects and factors that are structurally explained is imperative for boosting economic activities leading to economic growth, development and welfare improvement. Against this backdrop, our study investigates (a) the determinants of household consumption expenditure across the different poverty subgroups and (b) decomposes the consumption expenditure gap between the poverty subgroups and examines the factors that account for the gap using the Ghana Standard Living Survey data 7. Unbundling this is also crucial in contributing to the literature on poverty, welfare improvement, economic growth, and development.

Literature review

Theoretical review

The dynamics of consumption expenditure, a pivotal dimension within macroeconomics, have long been the focal point of most economists and have witnessed a symphony of intellectual exploration. This dates back to the groundbreaking insights of Keynes in 1936 to the nuanced propositions of Duesenberry (1949), the consummate theories of Friedman (1957), and the comprehensive framework of Ando and Modigliani (1963). For instance, Keynes (1936) unveiled a connection between household income, consumption, unemployment and a deep economic recession. The theoretical underpinnings of this relationship marked a paradigm shift in the intellectual discourse of macroeconomics. For Keynes, the bedrock principle was that current real income is the primary consumption driver. Intriguingly, the interest rate was outside the circle of influence, for income and the substitution effect of interest rates seamlessly neutralize each other. This insight gave rise to three core tenets: consumption predominantly hinges on absolute current income, it positively correlates with absolute income, and more substantial income begets greater consumption expenditure. While Keynes' insight provided the foundation for subsequent theories on consumption expenditure, it also hatched several parallel theories and findings.

For instance, Duesenberry 1949 proposed a different facet to the consumption narrative, positing that current consumption is not tethered solely to the prevailing absolute and relative income levels but to previous consumption levels. Duesenberry introduced the notion of consumer behavior, with a distinct emphasis on relative income rather than the absolute. In 1957, Friedman charted an independent course with the formulation of the permanent income hypothesis, where the crux lay in the notion that an individual's consumption hinges not on current income but on the concept of permanent income. Friedman's hypothesis thus reframed the discussion, emphasizing a more enduring perspective on income. Ando and Modigliani (1963), commencing their journey in the early 1950s, set forth the life-cycle hypothesis.

The hypothesis posits that individuals design a consumption profile that maintains an even keel across their lifetime, not based on current income but rather the expectations of income over the entirety of one's life. While these theories have actively focused on the relationship between consumption expenditure and macroeconomic variables such as income, wealth, and interest rate, theorizing the relationship between household characteristics and consumption expenditure remains a gap. For instance, the Drift Hypothesis by Arthur Smithies argues that basic relation is non-proportional, but in the long run, it becomes proportional due to an upward shift in the basic non-proportional caused by factors other than income. The hypothesis argued that several factors, such as rural-urban migration, income redistribution, product

improvement, credit expansion, and social insurance, could contribute to the upward shift in the consumption function. This means that continuous empirical investigations are essential for timely policies and interventions.

Empirical review

The work of Engel in the 19th century set the stage for quantitative analysis of household consumption expenditure patterns (Kaus, 2013). To this end, Hone and Marisennayya (2019) investigated the determinants of household consumption expenditure in the Debre markos Town, Amhara Region of Ethiopia, with 100 randomly sampled households using the multiple linear regression analysis as its empirical strategy. The study found that family size and disposable income are direct determinants of household consumption expenditure, while household savings exhibit a negative relationship. In Nigeria, Ezeji and Ajudua (2015) found a positive relationship between consumption expenditure and income, substantiating the 1936 Keynesian consumption model. The study further elaborated that interest rate, price level and exchange rate were significant explanatory variables of household consumption expenditure. While this study comprehensively used economic variables in examining the determinants of consumption expenditure, household characteristics that could provide a tangible perspective on household consumption expenditure were relegated.

Similarly, the study by Bonsu et al. (2017) employed the vector autoregressive model and Johansen cointegration econometric approach to analyze time series data spanning 1961 to 2013 in examining macroeconomic determinants of consumption expenditure in Ghana. The study argued that consumption expenditure is affected by price levels, real exchange rate and real economic growth in the long-run. While this provides valuable insights into the consumption expenditure of the Ghanaian population, a fundamental oversight in the study is its silence in exploring how such impacts unfold across the different subgroups of the population and their economic implication. Analyzing data spanning 2006 to 2014 across five Southeast Asian countries, Nguyen (2020) revealed that the per capita consumption of households is primarily explained by household income, household size and educational attainment.

Based on these findings, the study advanced the promotion of educational attainment and reducing fertility as a path toward poverty alleviation and well-being improvement. Nevertheless, these policies may have different returns and implications across the population's poverty dynamics, which the study did not account for. Arapova (2018) also investigated the determinant of household final private consumption across 3 East Asian countries using data dating from 1991–2015. The study found that stimulating households' income will positively affect economic growth since income directly

determines household consumption across these countries. Similarly, Hossain and Al-Amin (2019) examine the impact of non-farm income on household consumption expenditures using the multilevel mixed-effects linear regression model.

The study showed that non-farm income recipients spend about 29% more than their counterparts. This indicates that non-farm income is a significant determinant of consumption expenditure in the country. The forthcoming empirical studies across Asia, Africa and many parts of the world (Ballesteros et al., 2022; de Abreu et al., 2021; Travassos et al., 2021; Vargas-Lopez et al., 2022) have extensively established economic variables such as income, price levels, exchange rate and inflation, among others, as the significant determinants of household consumption. On the contrary, examining the determinants of household consumption as a function of household socio-demographic characteristics is unevenly represented in the literature. Additionally, studying the dynamics of the determinants of household consumption expenditure across the different poverty profiles or subgroups, the expenditure gap between these subgroups and decomposing the expenditure gap is unevenly studied. These empirical gaps highlight the scientific nuance and rigor of the present study.

Methodology

Data

The study draws its empirical insights from the seventh round of the Ghana Living Standard Survey (GLSS) conducted by the Ghana Statistical Service to understand and monitor the living conditions in Ghana. The GLSS is a key source of information on various socio-economic indicators such as poverty, employment, consumption expenditure and other key factors that affect the well-being of households (e.g. income, education, health, housing, and other related topics) in Ghana and has been extensively used in the literature. Information on household characteristics such as family size, location, sex, and marital status was also gathered. The survey consisted of 10 257 individual household heads between the ages of 25 and 65 and was conducted across the country from October 22, 2016, to October 17, 2017. This age restriction permits gathering in-depth information on household consumption expenditure dynamics among the working-age population. The data was grouped based on the poverty levels of the households according to the GLS poverty headcount classification (GSS, 2017). Using the 2011 purchasing power parity, the Ghana Statistical Service classified households who spend from 2.2 dollars above as non-poor, from 1.25 dollars above but less than 2.2 dollars as poor and extremely poor households who spend below 1.25 dollars daily. About 7,783 (75.9%) households are classified as non-poor, 1,496 (14.6%) households

Table 1. Description of variables.

Variable	Description
Dependent Variable	
Household Expenditure	Total real household expenditure per day (aes adjusted)
Independent Variables	
Gender	Female, Male*
Age of household head	Numerical age of household head
Household size	Number of household members
Marital Status	Married*, Never Married, Consensual Union, Separated, Divorced
House ownership	Owner*, Renting, Rent-free, Others (Perching and Squatting)
Education of household head	No education*, Primary, Secondary, Voc/Tech/Teacher (VTT), Tertiary
Location	Rural, Urban*
Sector of Employment	Formal*, Informal, Unemployed
*Denotes the reference group	

are poor, and 978 (9.5%) are classified as extremely poor, which forms the anchorage of our study into the dynamics of household expenditure among these subgroups.

The dependent variable for this study is total household consumption expenditure per day (per adult equivalent). This variable measures the average daily spending of households, accounting for household composition and regional price differences, making it a valuable indicator for studying consumption expenditure and economic disparities among different groups within the country. Additionally, the variable accounted for the market value of goods subsistence consumption by asking how much households could have sold food produced and consumed (GSS, 2017). This is justified because subsistence forms a large portion of households' consumption, especially in rural localities (GSS, 2017). See Table 1 for details on the variables used in the study.

Empirical Strategy

We employ two main techniques to examine daily household expenditure between Ghana's non-poor, poor and extremely poor households. First, since our dependent variable is continuous, a multiple linear regression (MLR) model is used to estimate the effects of the explanatory variables on total daily household consumption expenditure. First, we estimated for the entire sample and then the poverty subgroups. Secondly, we use the Oaxaca-Blinder Decomposition to investigate the factors that account for the total daily household expenditure disparity among the poverty groups.

Multiple Linear Regression (MLR)

The multiple linear regression model estimates the determinants of total daily household expenditure for the full sample and each poverty subgroup in Ghana. The model is specified as shown below:

$$\ln(Y_{i,t}) = \beta X_{i,t} + u_{i,t} \quad (1)$$

Where i index individual household heads and t time. $Y_{i,t}$ denotes log of total daily household expenditure. $X_{i,t}$ is a vector of explanatory variables representing the characteristics of household heads, and β is the vector of coefficients representing the returns to those characteristics. β includes the age of the household head, education, household size, marital status, house ownership type, location, and employment sector, while $u_{i,t}$ is the random error term. We estimate four regressions: one for the full sample and one for each poverty subgroup (Non-poor, Poor, and Extremely poor). This aided us in understanding the determinants of household consumption expenditure for the entire sample and their dynamics across the subgroups.

Oaxaca-Blinder Decomposition

The Oaxaca-Blinder decomposition technique, developed by (Blinder, 1973; Oxaca, 1973) and Oxaca (1973) has been employed extensively in studying gender-wage gap as well as the disparities in many economic outcomes between population subgroups (Guets et al., 2022; Schirle, 2015; Twerefou et al., 2014). While it was designed for wage gap analysis, the Oaxaca-Blinder decomposition technique has been increasingly employed in poverty gap studies (Addai et al., 2022; Bourguignon et al., 2008; Gradín, 2009; Laborda et al., 2019; Twerefou et al., 2014). Similarly, we carefully and rigorously adopted the model in this study to understand how significant household characteristics contribute to consumption expenditure disparity between the poverty subgroups of the sample used. The model allowed us to decompose the household expenditure gap into composition and structure effects. The composition effects are the portion of the gap that is explained by the differences in characteristics between households in different poverty groups, i.e., age, education, and employment status, among others. Structure effects capture the portion explained by different returns to these characteristics and the effects of unobserved factors which are not accounted for in the model.

The decomposition is done by first estimating the expenditure equations for the two groups as presented below:

$$Y_{i,G1} = \beta_{G1} X_{i,G1} + u_{i,G1} \quad (2)$$

$$Y_{i,G2} = \beta_{G2} X_{i,G2} + u_{i,G2} \quad (3)$$

Where equations (2.1) and (2.2) represent the expenditure equations for two household groups, group 1 (G1) and group 2 (G2), respectively. By estimating the two equations, we obtain the differences between the average daily consumption expenditure for G1 and G2 households. This is done as shown below:

$$\bar{Y}_{G1} - \bar{Y}_{G2} = \hat{\beta}_{G1}\bar{X}_{G1} - \hat{\beta}_{G2}\bar{X}_{G2} \quad (4)$$

Where \bar{Y}_{G1} and \bar{Y}_{G2} represents the log of average total daily expenditure for G1 and G2 households, respectively; \bar{X}_{G1} and \bar{X}_{G2} represents the average characteristics of G1 and G2 household heads; and $\hat{\beta}_{G1}$ and $\hat{\beta}_{G2}$ are the estimated returns to those characteristics. To form the decomposition, we use a counterfactual with group 2 structure (coefficients), i.e., $\hat{\beta}_{G2}\bar{X}_{G1}$. The decomposition is as follows:

$$\bar{Y}_{G1} - \bar{Y}_{G2} = \hat{\beta}_{G1}\bar{X}_{G1} - \hat{\beta}_{G2}\bar{X}_{G2} + \hat{\beta}_{G2}\bar{X}_{G1} - \hat{\beta}_{G2}\bar{X}_{G1} \quad (5)$$

$$\bar{Y}_{G1} - \bar{Y}_{G2} = (\hat{\beta}_{G1} - \hat{\beta}_{G2})\bar{X}_{G1} + \hat{\beta}_{G2}(\bar{X}_{G1} - \bar{X}_{G2}) \quad (6)$$

In (2.5), the difference between the average log total daily consumption expenditure between group 1 and group 2 households is decomposed into composition effects [$\hat{\beta}_{G2}(\bar{X}_{G1} - \bar{X}_{G2})$] and structure effects [$(\hat{\beta}_{G1} - \hat{\beta}_{G2})\bar{X}_{G1}$]. Using a counterfactual based on the group 2 structure, we determined the consumption expenditure gap if group 2 household heads possessed the same attributes as their counterparts in group 1. We conducted two Oaxaca-Blinder decompositions. Firstly, we compared the non-poor group to the combined poor and extremely poor groups (group 1 representing the non-poor and group 2 comprising the poor and extremely poor). This is analytically justified since the poor subcategory usually exhibits close characteristics with extremely poor households (Maruejols et al., 2023). Secondly, we separately compared the poor (group 1) and very poor (group 2) groups. This approach enables us to examine the factors contributing to the differences in household consumption expenditure between the poor and non-poor, as well as between the poor and extremely poor households. Multicollinearity test was performed for all the models used in the study. See [Table A1](#) for multicollinearity test for the entire sample model, [Table A2](#) for the non-poor subgroup model, [Table A3](#) for the poor subgroup model and [Table A4](#) for the extremely poor subgroup model in [Appendix A](#).

Results and Discussion

Descriptive Statistics

[Table 2](#) reveals that the average daily expenditure across the entire sample is estimated at Ghana Cedis (GH¢) 12.73 (equivalent to USD 5.89 based on 2011 Purchasing Power Parity Exchange Rate), giving the impression that the daily consumption expenditure of most Ghanaian households is above the poverty line. This means that either most households are stepping up from poverty, on the national poverty line

Table 2. Descriptive statistics of households in Ghana in means or in proportions.

Variable	Full sample	Non-poor	Poor	Extremely poor
Total household expenditure per day	12.73 (14.1)	15.82 (14.9)	3.78 (.606)	1.80 (.605)
Age of household head	42.7 (.103)	42.3 (.120)	43.9 (.263)	43.8 (.308)
Household Size	4.4 (.028)	3.8 (.028)	6 (.074)	3.8 (.028)
Gender (%):				
Female	28.6	30.6	25	18.6
Male	71.4	69.4	75	81.4
Marital Status (%):				
Married	59.4	54.9	70.4	78.8
Never Married	10.8	13.4	2.8	2.2
Consensual Union	9.8	10.8	8.6	3.8
Divorced	6.4	7.2	4.2	2.8
Separated	4.9	5.6	3.4	2
Widowed	8.7	8.1	10.6	10.4
House ownership (%):				
Owning	49.3	39.8	73.6	86.9
Renting	23.4	29.1	7.5	2.6
Rent-Free	26.8	30.5	18.6	10.2
Others	0.5	0.5	0.3	0.3
Education of household head (%):				
No education	49.7	39.9	76	87.9
Primary	15	17.3	9	5.4
Secondary	22.9	27	13.1	5.4
Voc/Tech/Teacher	7.8	9.9	1.5	1.23
Tertiary	4.6	5.9	0.4	0.1
Location (%):				
Rural	55.6	44.9	85.2	95.2
Urban	44.4	55.1	14.8	4.8
Sector of Employment (%):				
Formal	28.6	34.2	12.8	7.6
Informal	62.7	58.7	76	74.7
Unemployed	8.7	7.1	11.2	17.7
Observations	10,257	7,783	1,496	978

or slightly above the poverty line. However, a detailed investigation across the poverty subgroups suggests that the average daily expenditure for non-poor households is about GH¢15.82 (USD 7.32). In contrast, the average daily consumption expenditure for the poor emerging middle class and extremely poor households is estimated at GH¢ 3.78 (USD 1.75) and GH¢ 1.80 (USD 0.83), respectively. Comparatively, the results show that the daily average consumption expenditure for non-poor households in Ghana is about 4 times higher than the consumption expenditure of the poor and about 8.8 times higher than extremely poor households. Intuitively, the results demonstrate a state whereby the minority few have more to spend and, consequently, better welfare than the emerging middle class and the extremely poor households.

The results highlight that poor and extremely poor households have similar characteristics as they tend to have older married male household heads with large household sizes. They are more likely to be headed by homeowners and reside in rural areas. Furthermore, the household heads in poor and extremely

Table 3. Determinants of household daily expenditure across different poverty subgroups in Ghana.

Log of Household Expenditure	(1) Full Sample	(2) Non-poor	(3) Poor	(4) Extremely poor
Female	.124*** (.016)	.099*** (.015)	.03** (.013)	-.129*** (.047)
Rural	-.383*** (.013)	-.229*** (.013)	-.05*** (.010)	-.175*** (.052)
Age	.016*** (.005)	.016*** (.005)	-.0004 (.000)	.005*** (.001)
Household size	-.227*** (.006)	-.212*** (.006)	-.008*** (.002)	-.014*** (.004)
Marital Status:				
Consensual Union	-.069*** (.02)	-.114*** (.019)	-.016 (.014)	.212*** (.061)
Separated	-.073*** (.028)	-.101*** (.026)	-.049** (.023)	.085 (.107)
Divorced	-.153*** (.026)	-.155*** (.024)	-.013 (.019)	.048 (.076)
Widowed	-.104*** (.026)	-.096*** (.025)	-.031 (.019)	.091 (.061)
Never Married	-.079*** (.022)	-.076*** (.020)	-.006 (.026)	.014 (.102)
House Ownership Type:				
Renting	.117*** (.016)	.037** (.015)	.008 (.014)	.167** (.075)
Rent-Free	.044*** (.015)	-.031** (.015)	-.012 (.011)	.120*** (.040)
Others	.121 (.085)	.065 (.079)	-.085 (.102)	-.135 (.242)
Education of household head:				
Primary	.292*** (.017)	.163*** (.017)	.008 (.014)	.191*** (.055)
Secondary	.336*** (.015)	.219*** (.015)	.012 (.012)	.142*** (.049)
Voc/Tech/Teacher	.463*** (.023)	.334*** (.021)	.067* (.036)	.226* (.121)
Tertiary	.776*** (.028)	.638*** (.026)	-.102 (.067)	.042 (.644)
Sector of Employment:				
Informal Sector	-.036** (.014)	-.015 (.014)	-.014 (.012)	.077 (.049)
Unemployed	-.206*** (.025)	-.118*** (.024)	-.07*** (.018)	-.034 (.059)
Constant	2.63*** (.113)	2.79*** (.109)	1.45*** (.026)	.492*** (.095)
Adjusted R_Squared	0.466	0.360	0.050	0.099

Standard errors are in parentheses..

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

households are predominantly engaged in the informal sector and often lack formal education.

Determinants of Household Consumption Expenditure across Poverty Subgroups in Ghana

Our findings (Table 3) indicate that gender determines household consumption expenditure, and its effects vary across poverty subgroups. Holding all other factors constant, household consumption expenditure in non-poor and

poor female-headed households is estimated to be 9.9 and 3% points higher than in male-headed households. A possible explanation for this is that poverty is likely to be higher for male-headed households than their female-headed counterparts within these groups in Ghana. While our results contradict the feminization of poverty hypothesis (Ichwara et al., 2023), it corroborate the findings of Twerefou et al. (2014) and Oginni & Adesanya, (2013), which also showed that poverty incidence is higher among male-headed households than among their female-headed counterparts.

However, in the case of extremely poor households, male-headed households have their expenditure estimated to be 12.9% points greater than that of female-headed households, holding all else constant. This conforms to the traditional African settings as most poor and extremely poor households reside in rural areas where males predominantly function as the economic machinery of the household, with females engaging in activities that most reinforce subsistence (Hossain & Al-Amin, 2019). Hence, while our results contradict the feminization of poverty among the non-poor subgroup (Twerefou et al., 2014), the dynamics change when considering the consumption expenditure of females in the poor and extremely poor subgroup, which indicates conformity with the feminization of poverty literature (Ichwara et al., 2023; Pieters & Klasen, 2020). This suggests that programs toward female empowerment should precisely focus on females in the rural areas where the extremely poor subgroup is predominant.

The age of the household head also emerged as a significant determinant only among non-poor and extremely poor households, exhibiting a positive effect. Our findings indicate that a one-year increase in the age of the household head is associated with a 1.6 and 0.5% points increase in consumption expenditure for non-poor and extremely poor households, respectively. One possible explanation for this relationship is that non-poor households mostly working in the formal sector accumulate enough experience, leading to stable and better-paying jobs as they grow, conforming with the experience curve hypothesis (Hernandez-Negron et al., 2023). Also, they tend to accumulate more wealth, which gives them the power to consume more with time. Among the poor households who dominate the informal sector, mostly in rural areas, household labor is crucial for expanding their economic activities. Therefore, older households may have large labor sizes at their disposal for their agricultural, pastoral and other rural extractive activities, leading to increased consumption. These results align with the findings of (Anyanwu, 2014) and (Twerefou et al., 2014), who also observed a positive and non-linear relationship between the age of the household head and household consumption expenditure. On the contrary, age is not a significant determinant of household consumption expenditure among the poor subgroup (Kpoor, 2019).

Regarding marital status, the full sample model results reveal that household consumption expenditure is higher among married household heads

than in all other marital groups. This finding holds true for the non-poor and poor subgroups. Our results agree with Kpoor's (2019) and (Kuuwill et al., 2022), who found in their studies that marriage broadens the social network of households, and as such, married household heads may benefit from economic and labor support from their social networks, resulting in relatively higher consumption expenditure levels. However, among the extremely poor subgroup, the results indicate that consumption expenditure for household heads in consensual unions is significantly higher, at 21.2% points, compared to households with married heads. One possible explanation is rooted in the Ghanaian family structure, where married households are likelier to have larger household sizes than consensual unions. As these households are already impoverished, the large household size, with most of its constituents being children, may further constrain their consumption expenditure. This seems to agree with the proposition that birth control measures could improve the welfare of the extremely poor (Jiang et al., 2021). However, we argue that the long-term implication for this is mixed, given our findings that the extremely poor depend on household labor for rural economic activities, which shows a positive relationship with consumption expenditure. Parallel studies, however, found a significant effect of marital status on household consumption expenditure (Ajuruchukwu & Sanelise, 2016; Muleta & Deressa, 2014; Twerefou et al., 2014)

Among the non-poor households, the educational level of the household head significantly increases household consumption expenditure in increasing order of magnitude, holding all other factors constant. This agrees with the human capital theory, which posits that individuals with more education and skills tend to earn higher incomes and, by implication, consume more (Al Shbail et al., 2022; Munawar et al., 2022). That is, tertiary education has a strong relationship with consumption expenditure for the non-poor compared with the poor and extremely poor. Moreover, primary and secondary education exhibit higher consumption returns among the extremely poor households than the non-poor and poor. The results subsequently indicate that while improving basic and secondary education supports poverty alleviation and welfare improvement, it has higher returns for the extremely poor subgroup of the population. This means that adopting a general policy to improve access to primary and secondary education for the entire population, irrespective of household income and expenditure abilities, may not yield the maximum expected future returns compared with such policies targeting the extremely poor. Our argument is consistent with (Dey & Bandyopadhyay, 2019), who found that improving primary and secondary education for underprivileged children is imperative for economic growth. Attanasio et al. (2022) and Adekoya (2018) also advanced similar arguments. However, our results contradict (Ahmed & Khan, 2020), who found that improving access to primary education for all yields higher economic returns in Pakistan.

The employment status of the household head is also a determinant of household consumption expenditure for non-poor and poor households. Consumption expenditure for non-poor and poor households engaged in formal sector employment is 11.8 and 7% points higher than households with unemployed heads. In South Africa, unemployment is strongly associated with higher poverty levels and a significant reduction in consumption expenditure (Ajuruchukwu & Sanelise, 2016). Hence, creating an environment that fosters the creation of employment and the sound performance of the private sector, which is the engine of job creation in most advanced economies, is inevitable for growth and welfare improvement. Similarly, Twerefou et al. (2014) also found that transitioning a household head from being unemployed to formal employment significantly reduces the probability of household poverty. Our results further reveal that the sector of employment is not a determinant of consumption expenditure among the extremely poor households.

Rural households have lower consumption expenditure compared to urban households, and the result is consistent across all the subgroups (Beegle & Christiaensen, 2019; Brockington & Noe, 2021; Osabohien et al., 2019). This finding is not surprising given that the rural areas in Ghana, and in general, are characterized by a lack of economic opportunities and access to social development services and infrastructure, which are crucial for residents to build and maintain stable earning capacities and to reduce poverty (Ampaw et al., 2020; Muleta & Deressa, 2014; Twerefou et al., 2014). Our results further show that the effect of location on household consumption expenditure is more pronounced among the non-poor and very-poor compared to the poor group.

Household size is negatively associated with household consumption expenditure across all poverty subgroups, but the effect is most pronounced among non-poor households. For instance, an increase in household size by one member is estimated to reduce household consumption expenditure by 21.2% points among non-poor households. This negative association can be attributed to the fact that large household sizes constrain household resources, thereby reducing the availability of resources for each member (Muleta & Deressa, 2014; Anyanwu, 2014; Twerefou et al., 2014). In contrast, other studies have found either a positive or mixed effect of household size on household consumption expenditure and poverty (e.g., Ajuruchukwu & Sanelise, 2016; Kpoor, 2019). These studies argue that in less developed areas where subsistence farming is the primary source of livelihood, large household sizes serve as a source of labor for income-generating activities. As a result, larger households are less likely to experience poverty, as they can mobilize more labor for agricultural and economic activities in the long run (Kpoor, 2019).

Type of house ownership is a determinant of household consumption expenditure for only the non-poor and extremely poor households. In both

subgroups, those who are renting have higher consumption expenditure compared to those who own houses. Specifically, household consumption expenditure for those living in rented houses is 3.7 and 16.7% points higher than those who own houses among the non-poor and very-poor subgroups, respectively. Exploring the GLSS round 7 data, it is observed that the majority (about 75%) of renters dwell in urban areas, whereas the majority (about 75%) of homeowners reside in rural areas. Furthermore, these renters are predominantly formal sector workers with smaller household sizes. As a result, the demographic profile of households who are renting implies that they have access to better jobs with fewer financial obligations toward family members, making them able to afford higher household consumption expenditure. Contrary to our findings, South Asian evidence shows that renters are more likely to experience poverty than homeowners (Wang et al., 2021). However, there is little evidence from Sub-Saharan Africa on the effect of homeownership type on household consumption expenditure and poverty, which calls for intensive investigation.

The adjusted R-squared value of 0.466 for the full sample model indicates that the independent variables strongly predict household consumption expenditure. However, a comparison of the goodness of fit for the poverty subgroup models reveals that the model performs better in explaining household expenditure for non-poor households (adjusted R-squared of 0.360) compared to poor (adjusted R-squared of 0.05) and extremely poor (adjusted R-squared of 0.099) households. This discrepancy highlights the heterogeneity in the determinants of household expenditure among different poverty subgroups, with the model being more effective in describing non-poor households than their impoverished counterparts.

Oaxaca-Blinder Decomposition of the Household Consumption Expenditure Gap

Table 4 presents the decomposition of the consumption expenditure gap between non-poor and poor (both the poor and extremely poor) households into characteristic effects (explained) and structural effects (unexplained). In Panel B, the characteristic effects account for 32.2% of the gap, while the structural effects account for 67.8%. This indicates that 32.2% of the differences in household consumption expenditure between non-poor and poor households result from the differences in their socio-economic characteristics. However, the larger share of the gap is attributed to the differences in the returns to those characteristics and other variables not controlled for in this model. These significant characteristics contributing to the consumption gap between non-poor and poor households include the gender of the household head, location, age, education, household size, marital Status, and employment sector. Among the characteristic effects, the household size represents the largest share,

Table 4. Blinder decomposition of expenditure gap between non-poor versus poor and extremely poor households.

	Coefficient	Std. error	Number of obs	
Panel A: expenditure differential				
Non-poor Households	2.624***	.007	7,783	
Poor Households	1.097***	.009	2,474	
Difference	1.526***	.011		
Panel B: aggregate decomposition				
Explained component	.491***	.011		
Share of explained component (%)	32.2			
Unexplained component	1.035***	.014		
Share of unexplained component (%)	67.8			
	Explained	Share (%)	Unexplained	Share (%)
Panel C: detailed decomposition				
Gender of household head	.007*** (.001)	1.4	.012 (.008)	1.2
Location	.106*** (.006)	21.5	-.033 (.022)	-3.2
Age of household head	-.004*** (.001)	-8	.034 (.052)	3.3
Education	.117*** (.006)	23.8	.019*** (.006)	1.8
Household size	.271*** (.009)	55.1	-.762*** (.039)	-73.6
Marital status	-.017*** (.003)	-3.4	-.044*** (.009)	-4.3
Sector of employment	.007** (.003)	1.4	-.011 (.026)	-1.1
House ownership	.006 (.005)	1.2	-.026*** (.007)	-2.5
Constant			1.85*** (.074)	178.5

Standard errors are in parentheses.

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

explaining 55.1% of the consumption expenditure gap between non-poor and poor households. This indicates that the disparity in household size between non-poor and poor households accounts for 55.1% of the gap. This observation aligns with the results in Table 2, which show that, on average, poor households have larger household sizes than non-poor households.

Following household size is the household head's education level, which accounts for 23.8% of the characteristic effects. This implies that the distribution of education among non-poor and poor households further widens the consumption expenditure gap. The data in Table 2 supports this observation, revealing that more than 75% of poor household heads lack formal education, compared to only about 40% of their non-poor counterparts. Consequently, the average non-poor household head tends to have higher education levels than the average poor household head, explaining the widening of the gap. This reinforces our argument of making primary and secondary education quality and accessible to the extremely poor and the poor.

Location accounts for 21.5% of the characteristic effects. This implies that if non-poor and poor households had an equal distribution across

rural and urban areas, the average consumption expenditure gap would be 21.5% smaller. However, according to the data in [Table 2](#), extremely poor and poor households are primarily located in rural areas, where expenditure levels are significantly lower compared to urban areas. These differences in location widen the consumption expenditure gap, as rural households generally face greater economic challenges and limited access to resources and opportunities. The decomposition of the expenditure substantiated our argument that development and employment policies should target rural areas in Ghana. One way is to create a conducive environment for rural small-scale businesses to thrive.

The distribution of households across marital status explains a negative 3.4% of the characteristic effects. This implies that marital status plays a role in narrowing the gap between non-poor and poor households. It is possible that certain marital statuses, such as being married or in a consensual union, may provide some economic advantages or shared resources, contributing to relatively higher consumption expenditure in those households compared to households with other marital statuses.

Both the gender and employment status of the household head contribute equally, each accounting for 1.4% of the characteristic effect, thereby widening the consumption expenditure gap between non-poor and poor households. Regarding gender, it is essential to note that although males dominate all subgroups, the proportion of females is higher among the non-poor subgroup. This observation may explain why the distribution of gender widens the gap. The higher representation of females in the non-poor subgroup could be linked to educational opportunities, access to formal employment, and economic empowerment, which may positively influence female-headed household consumption expenditure.

Regarding employment, the non-poor subgroup constitutes a higher proportion of formal sector workers compared to the combined poor and extremely poor households. Additionally, the share of informal workers and unemployed individuals is greater in poor and extremely poor households than in non-poor households. Therefore, it is unsurprising that employment status accounts for 1.4% of the expenditure gap. The presence of more formal sector workers in the non-poor subgroup may indicate greater job stability, higher income, and better access to resources, all of which can contribute to higher household consumption levels.

Furthermore, the age of the household head accounts for the smallest share, explaining -0.8% of the expenditure gap. While this indicates a minor narrowing effect, it suggests that the age of the household head alone has a limited impact on the consumption expenditure gap between non-poor and poor households. Other factors, such as those previously mentioned (e.g., household size, education, location, and employment), play more significant roles in explaining the disparity in expenditure between these two groups.

Table 5. Blinder decomposition of expenditure gap between poor and extremely poor households.

	Coefficient	Std. error	Number of obs	
Panel A: expenditure differential				
Poor Households	1.333***	.004	1,496	
Extremely poor Households	.550***	.014	978	
Difference	.783***	.015		
Panel B: aggregate decomposition				
Explained component	.020***	.003		
Share of explained component (%)	2.5			
Unexplained component	.764***	.015		
Share of unexplained component (%)	97.5			
	Explained	Share (%)	Unexplained	Share (%)
Panel C: detailed decomposition				
Gender of household head	.003** (.001)	15.3	.028*** (.009)	3.7
Location	.007*** (.002)	35.7	.114** (.049)	14.9
Age of household head	.0003 (.0004)	1.5	-.231*** (.069)	-30.2
Education	.001 (.001)	5.1	-.025*** (.007)	-3.3
Household size	.007*** (.002)	35.7	.0006 (.055)	0.1
Marital Status	-.002 (.001)	-10.2	-.030*** (.009)	-3.9
Sector of employment	.003** (.001)	17.4	-.077* (.046)	-10.1
House ownership	-.0002 (.002)	-1.0	-.025*** (.007)	-3.3
Constant			1.01*** (.111)	132.2

Standard errors are in parentheses.

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

Table 5 focuses on decomposing the expenditure gap within the poor subgroup, specifically the poor and extremely poor subgroups. An intriguing finding from the results in Panel B is that the characteristic effects account for only 2.5% of the expenditure gap between poor and extremely poor households. This suggests that structure effects (returns to characteristics) play a more significant role in explaining the expenditure gap among these households. In other words, the differences in the returns to the observed characteristics and other unexplained factors substantially impact the consumption expenditure disparity between the poor and extremely poor households.

Furthermore, among the characteristic effects, only household size, location, gender, and employment sector are significant factors in explaining the expenditure gap between poor and extremely poor households. Household size and location contribute equally, accounting for 35.7% each, the highest contributor to the consumption expenditure gap between the poor and the extremely poor. The employment sector accounts for 17.4%, and gender accounts for 15.3% of the expenditure gap. Like the decomposition in Table 4, these variables widen the consumption expenditure gap between the poor and extremely poor households. This suggests that the differences in household size, location, employment sector, and gender significantly

contribute to the disparities in consumption expenditure within the poor subgroup. This indicates that controlling for the extremely poor population combined with creating employment opportunities in rural areas with programs targeted at building the capacities of female-headed households will present the opportunity to help such households step up or step out of poverty.

However, unlike Table 4, education, age of the household head, and marital Status are not significant factors in explaining the consumption expenditure gap between the poor and very poor households. This indicates that while these characteristics may explain the expenditure gap between non-poor and poor households (as shown in Table 4)

Conclusion and Policy Implications

We investigated the dynamics of household consumption expenditure across poverty subgroups and their implications for economic policy in Sub-Saharan Africa. The study used round 7 of the Ghana Standard Living Survey, consisting of 10 257 nationwide household surveys conducted between October 22, 2016, and October 17, 2017. We employed the multiple linear regression model to examine the determinants of household consumption expenditure for the entire sample and across the three poverty subgroups (non-poor, poor and extremely poor) in Ghana. Additionally, we adopted the Oaxaca-Belinder decomposition model to decompose the expenditure gap between the different poverty subgroups. The results revealed significant variations among different poverty subgroups in Ghana. Non-poor households exhibit the highest average expenditure, approximately four times higher than poor households and almost nine times higher than extremely households.

Our analysis identified distinctive characteristics of poor and very-poor households, such as having older married male household heads with large household sizes, residing in rural areas, and being predominantly engaged in the informal sector with limited formal education. These findings provide essential insights for understanding the factors influencing household consumption behavior within each poverty subgroup. Our study suggests that the determinants of consumption expenditure differ according to the poverty profile and, hence, the need for different policies targeted at poverty alleviation and well-being improvement. Thus, interventions based on the identified determinants of household consumption expenditure within each poverty subgroup can yield effective results. For instance, focusing on educational attainment, improving free access to primary and secondary education, and reducing fertility may be particularly relevant for poverty alleviation policies targeted at poor and extremely poor households. Regarding fertility reduction, we also argue against a reductionist approach since its long-run effect could intensify poverty because the extremely poor subgroup depends on household labor, mostly

their abled children and relatives, for their economic and extractive activities. Additionally, recognizing the significance of location and employment sector can inform targeted economic development initiatives in both urban and rural areas.

Further, The Oaxaca-Blinder decomposition revealed that characteristic effects explain a considerable portion of the gap, accounting for 32.2% between non-poor and poor households. Factors such as household size, education level of the household head, and location played significant roles in widening the consumption expenditure gap. Notably, household size emerged as the largest contributor, explaining 55.1% of the gap, followed by education level (23.8%) and location (21.5%). These results underscore the importance of addressing structural factors perpetuating disparities in household consumption expenditure among different poverty subgroups. While our study contributes to the poverty and well-being theory and policy, we acknowledge that the consumption approach to measuring well-being has been criticized for being one-dimensional, as it covers a limited aspect of “households” living standards and ignores the multifaceted nature of their living circumstances. Hence, future research could explore other poverty dimensions in its analysis. For instance, examining patterns and determinants of multidimensional poverty or energy poverty among these subgroups could provide a deeper understanding of poverty dynamics. However, we admit that determinants of consumption variations may be different in other parts of sub-Saharan Africa and worldwide. Hence, findings should be cautiously generalized.

Note

1. Aggregate savings is defined as the summation of the portion of households income not consumed.

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Authors contribution

LA and AK and SA initiated the conceptualization of the research, data curation and performed the initial data analysis. JNK and KND supervised the design, drafting, reviewing, editing and revision of the manuscript. KE, AG, GNA and AKC contributed actively in the literature review and discussion part of the manuscript. All authors read and approved the final version of the manuscript.

Data declaration

Data supporting this work can be extracted from the Ghana Statistical Service. The authors can also make the data available upon reasonable request.

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Appendix A: Tests for Multicollinearity

Table A1. Variance inflation factor (VIF) for full sample model.

Variable	VIF	1/VIF
Household Size	6.89	0.145153
Household Size Squared	5.86	0.170759
Marital Status:		
Never Married	1.68	0.593742
Widowed	1.44	0.692988
Divorced	1.30	0.770458
Separated	1.22	0.816537
Consensual Union	1.17	0.852322
House Ownership:		
Renting	1.62	0.618705
Rent-Free	1.43	0.701680
Others	1.02	0.981884
Age of household head	1.55	0.646026
Female	1.54	0.648535
Sector of Employment:		
Informal	1.50	0.667480
Unemployed	1.20	0.835531
Education of household head:		
Secondary	1.36	0.734163
Primary	1.35	0.738664
Voc/Tech/Teacher	1.26	0.794960
Tertiary	1.25	0.800839
Rural	1.23	0.812253
Mean VIF	1.89	

Table A2. Variance inflation factor (VIF) for poor sample model.

Variable	VIF	1/VIF
Household Size	8.96	0.111631
Household Size Squared	8.34	0.119949
Marital Status:		
Never Married	1.23	0.815437
Widowed	1.66	0.601571
Divorced	1.42	0.703119
Separated	1.23	0.813457
Consensual Union	1.22	0.81816
House Ownership:		
Renting	1.21	0.826239
Rent-Free	1.18	0.845812
Others	1.01	0.992457
Age of household head	1.34	0.744861
Female	2	0.500789
Sector of Employment:		
Informal	1.64	0.608223
Unemployed	1.51	0.662249
Education of household head:		
Secondary	1.16	0.859005
Primary	1.14	0.87664
Voc/Tech/Teacher	1.02	0.976119
Tertiary	1.03	0.970248
Rural	1.15	0.871362
Mean VIF	2.08	

Table A3. Variance inflation factor (VIF) for non-poor sample model.

Variable	VIF	1/VIF
Household Size	6.98	0.143345
Household Size Squared	6.01	0.166285
Marital Status:		
Never Married	1.75	0.572289
Widowed	1.42	0.701977
Divorced	1.3	0.768961
Separated	1.23	0.811363
Consensual Union	1.18	0.844202
House Ownership:		
Renting	1.64	0.609926
Rent-Free	1.47	0.678745
Others	1.02	0.979151
Age of household head	1.61	0.622798
Female	1.51	0.662105
Sector of Employment:		
Informal	1.45	0.691331
Unemployed	1.16	0.861789
Education of household head:		
Secondary	1.42	0.704763
Primary	1.42	0.704153
Voc/Tech/Teacher	1.29	0.774006
Tertiary	1.28	0.782226
Rural	1.16	0.86309
Mean VIF	1.91	

Table A4. Variance inflation factor (VIF) for extremely poor sample model.

Variable	VIF	1/VIF
Household Size	1.22	0.818878
Marital Status:		
Never Married	1.09	0.917223
Widowed	1.73	0.579402
Divorced	1.13	0.883288
Separated	1.14	0.877827
Consensual Union	1.19	0.843383
House Ownership:		
Renting	1.25	0.80209
Rent-Free	1.12	0.891968
Others	1.03	0.9724
Age of household head	1.17	0.85176
Female	1.88	0.532385
Sector of Employment:		
Informal	2.46	0.406709
Unemployed	2.33	0.428505
Education of household head:		
Secondary	1.1	0.910078
Primary	1.08	0.924785
Voc/Tech/Teacher	1.06	0.944477
Tertiary	1.01	0.99479
Rural	1.1	0.905579
Mean VIF	1.34	